CPS

Quieter Stronger Eco-friendly

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We are CPS, realize the customer impression go over the customer satisfaction!

INDEX

GENERAL CATALOGUE 2013

CEO Message 인사말

고객만족을 넘어
고객감동을 실현하는 씨피시스템 입니다!

씨피시스템(주)는 전선보호용 케이블체인과 후렉시블 튜브 및 관련 커넥터, 로보킷을 제조하는 기술선도 기업으로서, 국내에서는 유일하게 모든제품을 국산화하여 자체 생산 공급하고 있습니다.

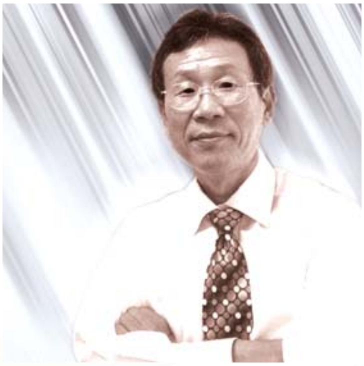
ISO 9001(KOR-483-01)품질관리 시스템과 ISO 14001(K1356.05)환경경영시스템의 원칙아래 제품을 생산, 공급하고 있으며 UL, VDE, IPA, CE, TUV, ASTM 등 다수의 국제 품질인증을 획득하였으며 과학기술부 주관의 신기술인증(NET)을 획득하였습니다. 또한 벤쳐기업,수출유망중소기업으로 각각 지정되었고 기술혁신 중소기업(INNO-BIZ),경영혁신형 중소기업에 지정되었습니다. 또한 산업포장, 국무총리표창, 산업자원부장관표창, 우수벤쳐기업인상, 우수직무발명 산업자원부장관표창을 수상하는 등 끊임없는 노력을 다하고 있습니다.

씨피시스템의 제품은 국내시장은 물론 러시아, 스페인 등을 비롯한 해외 26여개국에 대리점 및 지사망을 통하여 수출되고 있으며 우수한 품질과 합리적인 가격으로 해외 바이어의 호평을 받고있습니다. 우수한 품질과 탄탄한 해외 네트웍망의 구축으로 수출비중은 해마다 높아가고 있습니다.
또한 전사원이 확고한 목표의식을 가지고 일심단결하여 불량률을 최소화 하고 무재해운동의 생활화로 생산성을 높여가고 있습니다.
그리고 연구개발부서와 산학연을 연계한 네트웍을 통해 세계최고의 제품을 개발하기 위해 최선의 노력을 다하고 있으며 모든제품은 개발과정에서 3차원 시뮬레이션을 통한 제품테스트와 신뢰성테스트를 거쳐 철저한 품질관리 시스템에서 제품의 출고가 이루어지고 있습니다.

주인의식고취. 설비의 자동화, 기술혁신으로 새로운 도약, 품질향상으로 매출증대 추구 라는 경영방침과 "중소기업이 기술개발을 멈추면 그 순간 소리소문없이 사라진다" 라는 철학으로 지속적인 기술개발에 총력을 기울여 항상 세계최고의 품질을 고객들에게 제공하여 고객만족을 넘어 고객감동을 실현하는 씨피시스템이 되도록 노력하겠습니다.

감사합니다.

대표이사 김 경 민



CPS. is the leading company to develop the cable protection system and has produced the cable chain, flexible conduit, related connector and robo-kit. We are the only one manufacturer localize these all products and has produced and supplied until today.

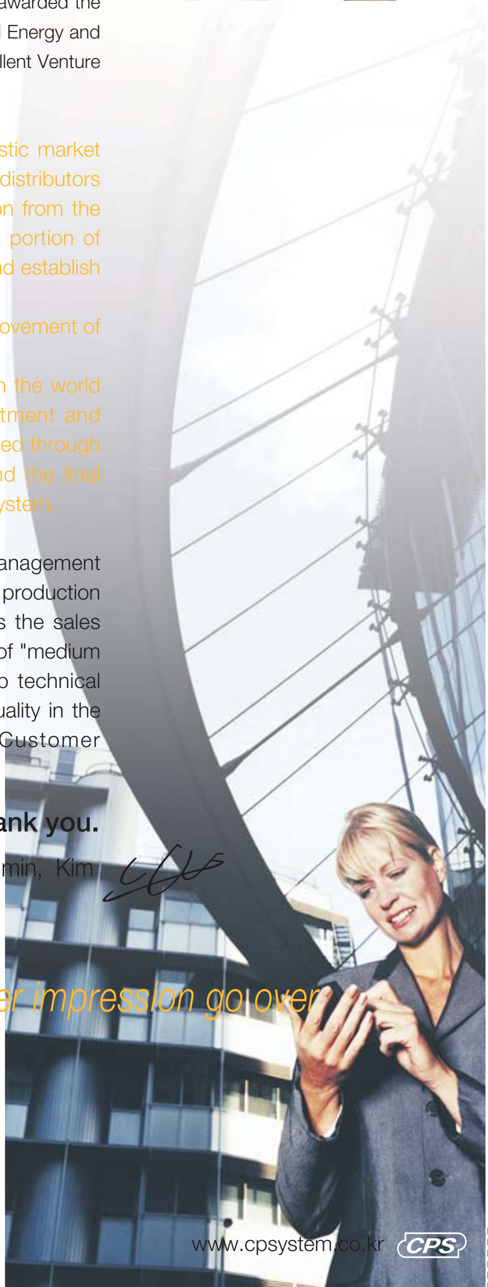
All of our products are manufactured by the base on the quality control system of ISO9001(KOR-483-01) and environment control system of ISO14001(K1356.05) and obtained the International Certificates such as UL, VDE, IPA, CE, TUV, ASTM and acquired NET Certificate(New Excellent Technology) from Ministry of Science & Technology. Furthermore, CPS designated as a Venture Enterprise, Promising Company and Favorable Exporting Company, Technical Innovation Company(INNO-BIZ) and Management Innovation Company. And also our company was awarded the Commendation of Minister of Ministry of Commerce, Industry and Energy and the Commendation of Prime minister and Commendation of Excellent Venture Businessman with our continual effort.

The products of CPS have been supplied not only domestic market but also 26 countries including Russia, Spain through the distributors and branch office and have been received good reputation from the customers by its nice quality and reasonable price. The portion of export is increasing every year with better quality control and establish the firm abroad sales networks.
And all members of CPS increase the productivity by the movement of minimize the defective portion and no accident.
We've been trying our best to develop the best product in the world by the development network between our R&D department and Industry-university cooperation and all products were testified through production test and reliability test with 3D simulation and the final production can be delivered with thorough quality control system.

We will do our best for technical development under management policy with inspiration of ownership sense, automatize the production facilities, new leaping with technical innovation, progress the sales amount by quality improvement and also under the motto of "medium and small enterprise can be disappeared right after stop technical development" and serve to the customer with the best quality in the world and become a CPS can be actualized the Customer impression.

Thank you.

CEO Kyung min, Kim



We are CPS, *realize the customer impression go over the customer satisfaction!*

HISTORY / 연 혁

1993 씨피시스템 창업
1997 국내최초 Non-Metal(PA6), 가요전선관 및 Connector 개발
1998 국내최초 Non-Metal(PA6), 가요전선관 업체최초 Q마크획득
1999 홍콩 대리점 개소, 광조우(중국), 상하이(중국) 대리점 개소

2000
씨피시스템(주) 법인전환, ISO 9001인증 획득(KOR-483-00-02)
UL인증획득(File No.191879) , 인도대리점 개소

2001
태국 대리점, 일본 대리점 개소, 수출유망중소기업 지정(중기청 제2001-084호)
유망중소기업지정(제200182호), VDE(CE)인증획득(Licence No.135369)
인도네시아 대리점 개소

2002
커넥터 실용신안 등록 제0265954호
상하이(중국) CPS법인 설립, 스페인 대리점, 싱가폴 대리점개소

2003
일본 철도차량 기계기술협회- 난연 테스트승인, BSS 7239인증획득
ASTM E662-01, E162-98인증획득, 말레이시아 CPS 법인설립, 터키 대리점 개소

2004
러시아 대리점, 덴마크 대리점 , 호주 대리점 개소
벤쳐기업지정 (중소기업청지정 제041222032-1-00200호)

2005
네델란드 대리점, 벨기에 대리점, 룩셈부르크 대리점, 독일 대리점 개소
기술혁신 중소기업(INNO-BIZ) 지정 (중소기업청 제4021-0515호)
연구개발 전담부서 개설 (한국산업 기술진흥협회)
ISO 14001 환경경영시스템 인증 획득 (K1356호)
산학협력 체결(동의대학교 산업기술개발 연구소)
산업부 장관표창 (제58690호), 우수벤처 기업인상 표창
독일 TUV 인증획득, 독일 IPA인증 획득

2006
클린룸체인(Sabin Chain)특허등록(10-0587499)
우수자본재 개발 유공자 국무총리 표창 수상
이태리 대리점/ 이란 대리점/ 스위스 대리점/ 핀란드 대리점 개소
100만불 수출탑 수상기업 선정 / Sabin Chain 신기술인증(NET)마크획득

2007
로보킷 특허등록
클린룸체인(Sabin Chain) TUV 소음테스트(30dB) 승인
우수직무 발명인 산업자원부 장관상 수상 / 튜브고정장치 특허등록
클린룸체인(Sabin Chain) 미국특허 등록

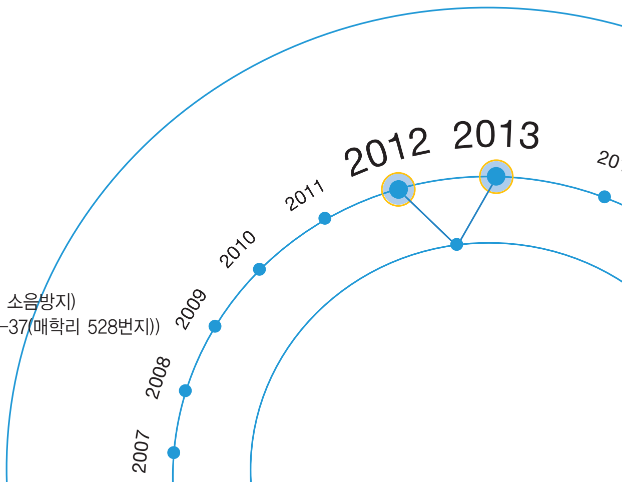
2008
싱글PPM 품질 인증
Sabin Chain 밀폐형 E-Type 국내특허등록 / Sabin Chain 장거리형 S-Type 국내특허등록
Sabin Chain 클린룸형 CR-Type 중국 국제특허등록 / CPS Cable Chain 독일 국제특허등록

2009
부품소재 신뢰성 인증(CPSFLEX)
플렉시블부재 보호장치 국내특허등록 / 로봇아암의 케이블지지유닛 국내특허등록
히릭스체인 국내특허등록 / 리볼빙체인 국내특허 등록
지식경제부 장관 표창장 수상
우수자본재 개발 유공자부분 산업포장 수상(대통령상)

2010
시스템가이드잔넬 국내 특허 등록
New Sabin Chain 특허 등록
Shift Chain 특허등록

2011
Sabin chain 신뢰성 인증획득.
New Sabin Chain 장거리형 S-Type 특허등록
New Sabin Chain 독일 IPA (CLASS 1) 인증획득.
본사 및 정관공장 신축허가.
정관공장 신축건물이전. (압출, 사출)
안양대리점 개소.

2012
New Sabin Chain 장거리형 특허등록. (롤러의 접촉 소음방지)
본사이전. (부산광역시 기장군 정관면 정관상곡1길 27-37(매학리 528번지))



HISTORY / 연 혁

1993 Established "CP System"
1997 Completed development of Non-Metal Nylon(PA6) and connector for the first time in Korea.
1998 Acquired the"Q"mark on Non-Metal Nylon(PA6) for the first time in Korea
1999 Established the Hong Kong / Guangzhou / Shanghai Agency / Acquired Patent for Cable Chains(No.0168307)

2000 Incorporated to "CP System Co.,Ltd" / ISO 9001 Certified (KOR-483-00-02)
Acquired UL Certification (File No.191879) / Established the India Agency

2001 Established the Thailand / Japan Agency / Appointed as a "Superior Exporting Firm" from Small & Medium Business Administration No.2001-084 / Appointed as a "promising small & medium enterprise" No.200182
Acquired VDE(CE) certification (Licence No.135369) / Established the Indonesia Agency

2002 Acquired Patent for Connector (No.0265954)
Established the CPS Shanghai corporation Agency and Spain/Singapore Agency

2003 Approved flame retardant test from Japan Rolling Stock Technical / Association by Ministry of Transportation
Acquired BSS 7239 certification / Acquired ASTM E662-01, E162-98 certification
Established the CPS Malaysia corporation Agency and Turkey Agency
Acquired Patent for cable chain (No.0320548)

2004 Established the Russia / Denmark / Australia Agency
Appointed as the Venture Company (No.041222032-1-00200)

2005 Established the Benelux & Germany Agency
Appointed as INNO-BIZ(Innovation business company) (No. 4021-0515)
Opened the Exclusive responsibility R&D Department / Acquired ISO14001 Certificate
Conclusion Industrial and University Cooperation with Dong Eui University Industrial Technology Development Institute / Awarded the Minister of Industry Commendation / Awarded the Best Venture Businessman ICommendation / Acquired TUV Certificate/ IPA Certificate from Germany

2006 Acquired Patent for Cleanroom type Chain, Sabin Chain(No. 10-0587499)
Conclusion Industrial and University Cooperation with Busan University
Application for Patent of Sabin Chain in Germany, China, USA
Awarded the Prime Minister Commendation as a Excellent Goods Developer
Established Italy / Iran / Switzerland / Finland Agency / Appointed as One Million US Dollar Export Awarded Company / Acquired the NET(New Excellent Technology) Mark for Sabin Chain

2007 Acquired Patent for Robo-Kit
Acquired TUV Certificate for Cleanroom type Sabin Chain with noisy level of 30dB.
Awarded prize of Ministry of Commerce, Industry & Energy in the excellent job investor.
Registered the patent of tube fixing equipment / Registered the patent for Sabin Chain in U.S.A

2008 Single PPM Certification
Sabin Chain Enclosed (E-Type), Sabin Chain Sliding (S-Type) Domestic Patent Registration
Sabin Chain Clean Room (CR-Type) China Patent Registration / CPS Cablechain Germany Patent Registration

2009 Certificate of Reliability(CPSFLEX) / Apparatus for protection flexible member Patent Registration
The cable unite of arm robot Patent Registration / Helix Chain Patent Registration
Awarded prize of Ministry of Knowledge Economy / Revolving chain Patent Registration
Awarded prize for merit part of superb capital goods

2010 Acquired Domestic patent for System Guid Channel
New Sabin Chain Domestic Patent Registration
Shift Chain Domestic Patent Registration

2011 Certificate of Reliability (Sabin Chain)
New Sabin Chain Sliding (S-Type) Domestic Patent Registration
IPA Certificate from Germany (New Sabin Chain / CLASS 1)
Head office & Factory move to new office in Jeonggwan-myeon
Build-up and move to Factory in Jeonggwan (Injection & Extruding part)
Open new domestic agency in Anyang.

2012 Register patent for S-type New Sabin Chain (Noise control on Roller)
Move Head office (#27-37, JeonggwanSanggok-1Gil, Jeonggwan-myeon, Gijang-gun, Busan, Korea 619-963)

ORGANIZATION / 조직도

씨피시스템(주)은 대표이사를 중심으로 각 부서별 조직을 세분화 및 체계화시켜서 해당업무에 대한 전문성을 최우선으로 조직관리에 임하고 있으며 연구개발부와 품질관리부의 기능을 강화시켜 신제품개발과 품질관리에 만전을 기하고 있습니다. 또한 영업부서내 고객관리 전담팀을 구성해 고객의 요구에 발빠르게 대응하도록 고객관리시스템을 유지하고 있습니다.

CPS is doing our best to develop new products and control quality by organizing each department in detail and systematically strengthening the function of the R&D and the Q.C department to achieve top priority specialist in our own assignments. We are also running independent customer management in the sales department to meet the customers' needs quickly.

기획부 PLANNING

기획팀
Planning Team

디자인팀
Design Team

총무부 GENERAL AFFAIRS

구매팀
Purchase Team

경리팀
Accounting Team

인사팀
Personnel Team

노무팀
Labor Team

영업부 SALES

국내영업팀
Domestic Sales Team

해외영업팀
Overseas Sales Team

대표이사
C E O

총괄사업본부
GENERAL AFFAIRS HEAD OFFICE

연구개발부
R&D

개발팀
Development Team

설계팀
Drawing Team

생산부
PRODUCTION

생산관리팀
Production Management

압출팀
Extrusion Team

사출팀
Injection Team

조립팀
Assembling Team

품질관리부
Q . C

품질관리팀
Q . C Team

GLOBAL NETWORK SYSTEMS

국내외 대리점현황

안산 지사
경기도 안산시 단원구 신길동 1228-1번지
정우벤처타운 2차 414호
T: 031-482-1405 F: 031-482-1406

서울대리점 -그린테크(주)
서울특별시 구로구 구로본동 1258 중앙유
통단지 라동 4열 1409~1410호
T: 02-2617-4081 F: 02-2617-4083

인천대리점 - CPS자동화
인천광역시 동구 송현동 129 인천산업용
품 유통센타 2동 117호
T: 032-822-6157 F: 032-589-6257

화성대리점 - (주)지원테크
경기도 화성시 양감면 신왕리 810-12
T: 031-429-4868 F: 031-429-4869

시흥 시화대리점 - 벨테크
경기도 시흥시 정왕동 1367-1번지 시화유
통상가 13동 130호
T: 031-430-5571 F: 031-430-5581

청주대리점 - (주)케이블컴퍼니
충청북도 청주시 흥덕구 복대동 2773
T: 043-236-6670 F: 043-236-6671

대전대리점 - (주)성도산전
대전광역시 대덕구 대화동 289-1 산업용
재상가 14동 103호
T: 042-670-6505 F: 042-670-6509

광주대리점 - (주)대광기전
광주광역시 광산구 월계동 796-9번지
T: 062-973-0881 F: 062-973-0882

안양대리점 - (주)티케이비엔티
경기도 안양시 호계1동 555-9 안양국제
유통상가 가동 123호
T: 031-479-1500(代)F: 031-479-6935

대구대리점 - 용전사
대구광역시 북구 산격동 1666 전기조명관
138호
T: 053-604-2744 F: 053-604-2746

울산대리점 - 씨피하이텍
울산광역시 북구 효문동 843-2 울산화물
터미널 B동 103호
T: 052-294-3357 F: 052-294-3358

부산대리점 - 대동상사
부산광역시 사상구 괘법동 578 산업유통
상가 26동 105호
T: 051-319-4055 F: 051-319-3671

창원대리점 - (주)대원파텍
경상남도 창원시 팔용동 11-26번지
T: 055-276-9424 F: 055-276-9426

Offices
Agency

Domestic Agency

Global Network Systems

Overseas Agency

- Offices
- Agency

CHINA (CPS Shanghai)
ROOM 1218, Sipai Plaza 103 Caobao road Shanghai ,China 200233
T : +86 21 6494 2372 / F : +86 21 6484 6369
cpsystem@163.com

JAPAN (CPS Japan)
8-11-8, Seishin Cyuo-ku Sagamihara city Kanagawa-ken, Japan
T : +81 42 730 5585 / F : +81 42 730 5586
www.cpsystem.co.kr/japanese/main.php
cps@cpsjapan.co.jp

ASIA (아시아)

HONGKONG (Sky Top Enterprise)
Room 7; 17F, Block-C, Wat tat Industrial Center, 8-10 Wah Shiny Street, Kwai Chung, Hongkong
T: +852 2331 8928 / F : +852 2426 9738
skytop@ctimail.com

INDIA (CONTROLWELL India Pvt Ltd)
C-203 Prithvi Park, Plot No. 4,5&6, Sector 30, Sanpada, Navi Mumbai-400 705
T : +91 22 277 56293 / F : +91 22 277 58767
www.controlwell.com
shaila@controlwell.com

INDONESIA (PT.RODA MAS ABADI)
Ruko Mutiara Taman Palem Blok C19/91 Cengkareng - Jakarta Barat 11730, Indonesia
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(Salestrade Corporation (S) Pte Ltd)
No-18, Boon Lay way, #07-132, tradehub21, Singapore 609966
T : +65-6743-7033 / F : +65-6743-2826
www.salestrade.com.sg
sales@salestrade.com.sg

THAILAND (Pneumax Co., Ltd)
107/1 Chaloem Phrakiat R.9 Rd., Pravet, Bangkok 10250, Thailand.
T : +662 2726 8000 / F : +662 2726 8560
import@pneumax.co.th
www.wulthai.com

TAIWAN (Derfung Enterprise Co., Ltd)
1F, No.511, Set2. Chung Hua RD., Wu Chi Chen, Taichung Hsien, Taiwan, R.O.C
TEL: +886-4-2665-1088 / FAX: +886-4-2665-1117
www.der-fung.com.tw sales@der-fung.com.tw

MALAYSIA
(LETROMEC Industrial (K L) SDN BHD)
A-1-10&11, Komplek Industri Puchong, No. 1 Jalan TPP 1/6, Taman Perindustrian Puchong, 47100 Puchong, Selangor, Malaysia
T : +603 8060 0269 / F : +603 8061 0267
www.letromec.com
sales-kl@letromec.com

AMERICAS OCEANIA AFRICA
(아메리카, 오세아니아, 아프리카)

USA (SM America LLC)
2309, Enterprise Drive, Opelika, AL 36803 USA
T : +1 334 826 4016 / F : +1 334 826 4017
www.systemmaterial.com
smamerica@ymail.com

CANADA (Ringball Coporation)
2160 Meadowpine Blvd Mississauga On L5N 6H6, Canada
T : +1 905 826 1100 / F : +1 905 826 9691
www.ringball.com
strathearn@ringball.com

BRAZIL(ISOTRON)
Rua Joao Vicentini, 190 - Distrito Industrial II Almirante Tamandare - Parana - CEP: 83504-447
T: (41) 3657-8585 / F: (41) 3657-8383

AUSTRALIA (EC&M Electrical Pty. Ltd)
8/71-83 Asquith St Silverwater NSW 2128, Australia
T : +61(02) 9748 4577
F : +61(02) 9748 4601
www.ecm.net.au
www.remflex.com.au
jkenyon@ecm.net.au

AUSTRALIA (VGL IMPEX PTY. LTD)
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www.alliedconnectors.com
sales@alliedconnectors.com

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51 Brunton Circle Founders View Modderfontein Gauteng South Africa 16687
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info@lappgroup.co.za

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hamid970@gmail.com

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idekel@ayeruham.com

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tschurer@akapp.com

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F: +420 547 125 310
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adam@bibus.cz

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Trnavska 31, SK-94901 Nitra
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F : +421 37 7777 968
www.bibus.sk
sbr@bibus.sk

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Coronation Road, Cossall Industrial Estate, Ilkeston, Derbyshire, DE7 5UA, UK
T : +44(0)115 932 7010
F : +44(0)115 930 6263
www.metreel.co.uk
sales@metreel.co.uk

FINLAND (OEM Automatic)
Fiskarsinkatu 3, 20750 TURKU, Finland Postal address, PL9, 20101 TURKU, Finland
T : +358 (0)207 499 489
F : +358 (0)207 499 493
www.oem.fi
ari.nurminen@oem.fi

FRANCE (Sorelia)
28 Rue C.E Jeanneret-Zae technoparc BP20032-78306 -Poissy Cedex, France
T : +33 01 39 11 7272
F : +33 01 39 11 0655
info@sorelia-sa.com

GERMANY (WEMA Gmbh & Co. KG)
Konrad-Zuse-Str. 19 D-33758 Schlo©¨ Holte - Stukenbrock Germany
T : +49 (0) 5207 9251881
F: +49 (0) 5207 922051
www.wema-maschinenschutz.de
info@wema-maschinenschutz.de

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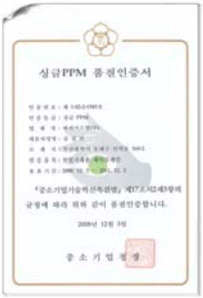
www.imytech.it
info@imytech.it

SPAIN (TECNOMECA, SAU)
Poligono Industrial Itziar Parcela J1 20829 Itziar Guipuzcoa Spain
T : +34 943 199201 / F : +34 943 199273
technomeca@technomeca.com

CERTIFICATE / 인증서

Certificate of System 시스템인증



Single PPM

Exclusive Department for R&D

INNO-BIZ

MAIN-BIZ

Million Doller Export Tower

Promising export Company

ISO 9001

ISO 14001

Venture Company Certificate

CERTIFICATE / 인증서

Certificate of Product 제품인증

UL

CE

VDE

IPA(nsb.CR.series)

ATEX

VDE(FLEX&FIX)

VDE

IPA(CPS028CR)

Reliability

Reliability(TuBu)

TUV(CPS Cable chain)

U.S.A Patent

China Patent

TUV(Sabin chain)

China Patent

TUV(Sabin chain)

CERTIFICATE / 인증서

Industrial Property 산업재산권

Patent (Clean room)

Patent (Robo-kit)

Patent (NFH)

Patent (Cable chain)

Patent (sb-E Type)

Patent (sb-S Type)

Patent (Robo-kit)

Patent (DV & SP)

Patent (Helix chain)

Patent (Revollving chain)

Patent (System G . C)

Patent (Shift chain)

Patent (new sabin chain)

Patent (new sabin chain)

Patent (Germany)

CERTIFICATE / 인증서

Industrial Property 산업재산권


특 허 증

Patent (Cable chain)


특 허 증

Patent (sb-S-Type)


특 허 증

Patent (Shift chain-S-Type)


상표등록증

CPSFLEX

Trademark(CPSFLEX)


상표등록증

CPSFIX

Trademark(CPSFIX)


상표등록증

ROBO KIT

Trademark(ROBO-KIT)


상표등록증

Trademark(sabin chain)


상표등록증

Trademark(Revolving chain)


상표등록증

Trademark(Silding chain)


상표등록증

Shift chain

Trademark(Shift chain)


실용신안등록증

Patent (Connector)


실용신안등록증

Patent (Cable chain)

CPS Product / CPS 제품

Shift chain®

Shift chain, which has unique structure comparing to other chains, is designed that one same sideband per one model is used and bending radius value(R) is decided by inserting Bending Radius units(called as "BR unit") that you want. This Shift Chain is a greatly competitive prouduct as it has creates productivity improvement, an efficient stock mangement and cost down effect.

Shift chain은 기존체인과 달리 동일사양에서 동일한 Side Band를 사용하고 곡률반경(R)별로 제작된 R설정유닛만 원하는 R값으로 교체하는 구조입니다. 이로인해 생산성 향상은 물론 효율적인 자재관리 및 원가절감효과로 경쟁력이 뛰어난 제품입니다.

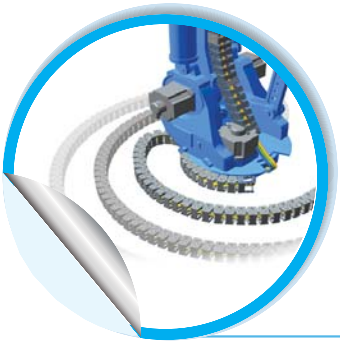
SHIFT CHAIN

Sabin chain®

Sabin Chain is to realize lower Dust and Noise to be able to apply clean room be related to Semi-conduct industry according to the development of IT industry. According to use environment, Sabin Chain Model is divided as CR-Type for Clean Room type, N-Type For Nomal Type, E-Type for Enclosed Type and S-Type For Sliding Type.

IT산업의 발전으로 반도체 관련산업 등 클린룸지역에서 요구되는 저분진, 저소음을 실현한 케이블체인입니다. 사용환경에 따라 클린룸형(CR-Type), 표준형(N-Type), 밀폐형(E-Type), 장거리형(S-Type)으로 구분되어 사용됩니다.

NEW **SABIN** CHAIN

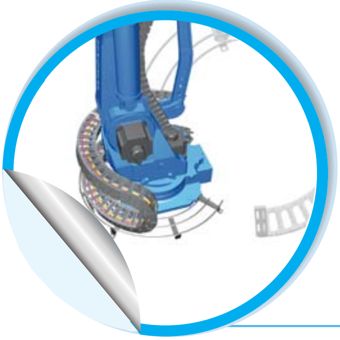


Revolving chain

Revolving chain can be applied to rotating machine, robot and so on, and is new concept cable chain with a method of Free Banding Radius which can control Banding Radius and Reverse Bending Radius automatically, and also protect inside cable from any dangerous facts.

회전하는 기계 및 로봇등에 적용되어있는 케이블을 보호하는 제품으로 케이블의 움직임 및 방향성을 저해하지 않도록 설계되어 외부의 위험으로 부터 케이블을 안전하게 보호하고 체인의 곡률 반경 및 역곡률 반경을 자동조절하는 Free Banding Radius 방식으로 곡률반경의 유동성을 극대화시킨 신개념 케이블체인입니다.

REVOLVING CHAIN



HeliX chain

Helix chain is to keep and lead safety rotative angle and to protect inside cable doing screw motion in limited space from outside dangerous facts.

회전로봇이나 회전기계등 과 같이 제한적인 공간에서 나선형 회전운동을 하는 케이블을 외부위험으로 부터 보호하고 안전한 회전각도를 유도하고 유지시키는 역할을 하는 케이블체인입니다.

HELIX CHAIN

ROBO-KIT

ROBO-KIT developed for the first time in Korea, is an exclusive cable protection system for Robot to prevent inside cable from twisting, damaging or breaking. In addition, this chain lengthen your cable's life cycle and enhance Robot's degree of freedom by reducing the friction and interference of cables simultaneously.

국내최초로 개발된 로보킷은 케이블의 이음새 부위가 꼬이고 케이블의 파손이나 단선을 방지하는 로봇전용 케이블 보호 시스템입니다. 케이블의 움직임을 유도하여 마찰부와 간섭부를 최대한으로 줄여 케이블의 수명을 연장시키고 로봇의 자유도를 향상시킵니다.

ROBO-KIT

CPSFLEX

CPSFLEX is Halogen-free, no toxic gas from vinyl chloride tube, eco-friendly and recyclable.
Raw materials for CPSFLEX are toxic-free and have passed the test from designated test institute and even is certificated the quality and stability of product by UL and VDE.

CPS FLEX는 기존 염화 비닐 튜브에서 발생되는 유독성 가스를 비롯한 유해 물질을 배출하지 않아 인체에 무해(Halogen-Free)하며 리사이클이 가능한 친환경 제품으로 UL 및 VDE의 엄격한 품질 심사를 통과 하여 안전성을 인증 받은 제품입니다.

CPSFLEX

CPSFIX

CPS fix, the connector, is approved under the test from RoHS and have been produced under the Europe regulated procedure.
CPS FIX can be applied in any circumstance, since we are producing diverse forms. We are fully equipped with diverse thread standard products, PF, PG, M, NPT, UNEF etc.It can be applied to various industries.

CPS FIX는 RoHS (유해물질 사용제한 지침)의 지정 시험을 통과하여 무독성으로 유럽에서 규제하는 유해물질 사용 제한 지침에 따라 생산하고 있으며, PF, PG, M, NPT, UNEF등의 다양한 나사규격에 맞는 커넥터를 개발하여 어떠한 환경에도 적용 가능한 제품입니다.

CPSFIX

SUPPORT SYSTEM / 지원 시스템

CPS strengthen the customer supporting system and customer can get the data as they want through on-line and off-line. Reorganize the web site every year for easily finding the various products information at a glance by customer position and establish down loading system of products CAD file on the web site, 3D file also can be down loaded and modified for each application environments by themselves. Furthermore, we installed the automatic selection program for cable chain dimension for the first time in Korea, everyone can select their necessary item with ease and established the program to check the E-catalogue from our web site. Our main catalogue which recording every product is published and distributed every year with free of charge and the separated brochure is also offered to the customer whenever we develop the new item. Produce the main catalogue CD to find out all products through PC and also service the CAD file CD to help the customer use the data efficiently.

씨피시스템(주) 은 고객지원 시스템을 강화하여 ON-Line과 OFF-Line에서 원하는 자료를 받아보실 수 있습니다. 고객의 입장에서 보다 쉽고 다양한 제품정보를 한눈에 파악하고 활용할 수 있도록 홈페이지를 매년 새롭게 개편하고 홈페이지상에서 제품도면(CAD File)을 다운받을 수 있도록 시스템을 구축하였으며 3D파일역시 다운로드 하여 적용환경에 맞게 자체 수정가능 하도록 하였습니다. 또한 국내최초로 제품사양선정 자동프로그램을 구축하여 누구나 쉽게 필요한 제품을 선정할 수 있도록 하였으며 E-Catalogue를 홈페이지에서도 확인할 수 있도록 시스템을 구축하였습니다.
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www.cpsystem.co.kr

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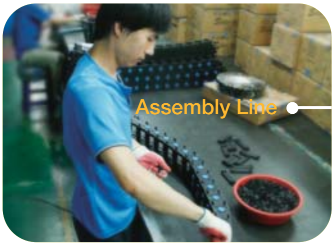
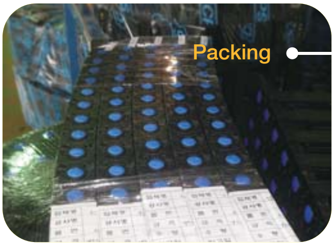
- CAD File Download
- Automatic Select Dimension
- 3D File Download
- Web 3D

OFF-Line Service

- Catalogue
- CD E-Catalogue
- CD CAD File

Production Lines
/ 생산라인





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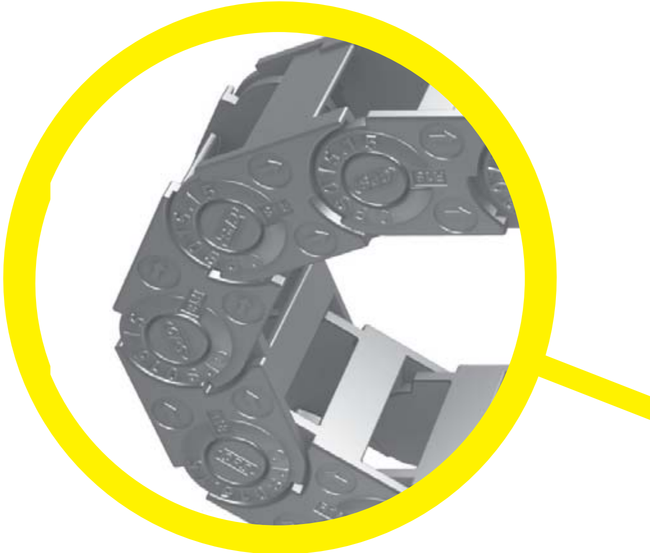


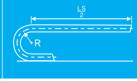
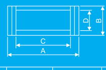
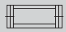
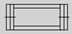
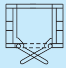
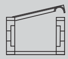
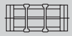
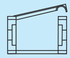
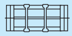
MINI Type

GENERAL CATALOGUE **2012**

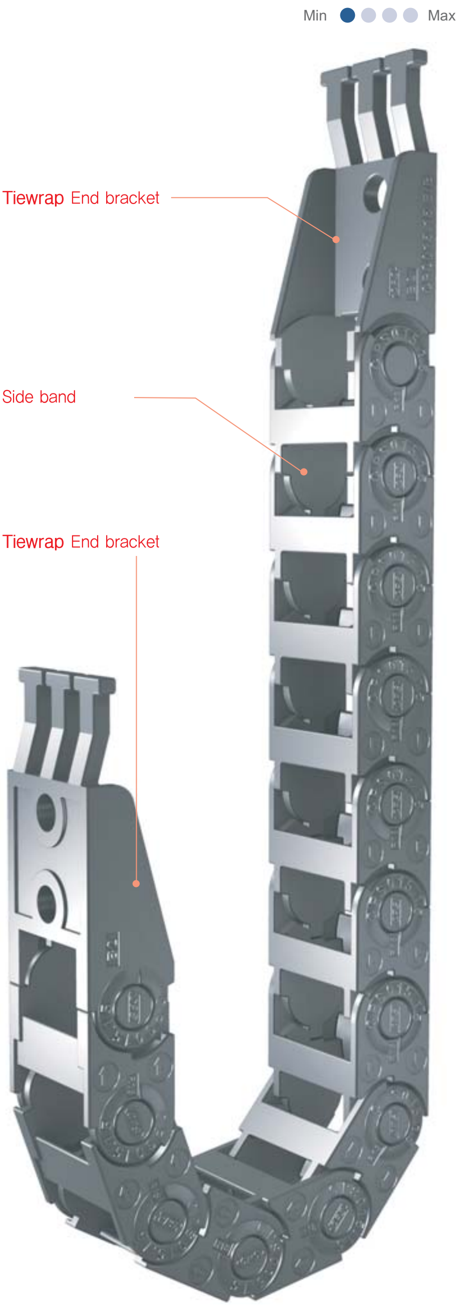
p22 ~ 39

Using Material of High Quality!

▶ CPS CABLECHAIN MINI Type외 다른대체사양안내는 p315 에 게재 되어 있습니다.

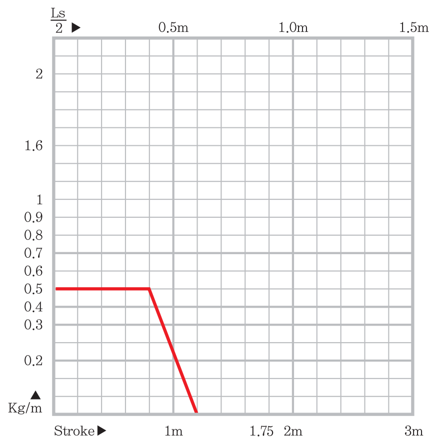
CPS Cable Chain MINI–Type	Pitch	Bending Radius R 	Weight kg/m	Speed m/sec	Temperature °C	Clearance 				Frame style	Divider possible with frame
						A	B	C	D		
CPS015.06 CPS015.10 CPS015.15 CPS015.20	15 15 15 15	18, 28, 38	0.100 0.106 0.111 0.115	10	-30 ~ +130	12.6 16.6 21.6 26.6	13 13 13 13	6 10 15 20	10 10 10 10		
CPS020.15 CPS020.20 CPS020.30 CPS020.40	20 20 20 20	28, 38, 48	0.24 0.26 0.28 0.31	10	-30 ~ +130	24 29 39 49	20 20 20 20	15 20 30 40	14.5 14.5 14.5 14.5		
CPS030.15 CPS030.25 CPS030.35 CPS030.50	30 30 30 30	38, 48, 75, 100	0.38 0.40 0.42 0.44	10	-30 ~ +130	29 39 49 64	26 26 26 26	15 25 35 50	19 19 19 19		
CPS033.27 CPS033.37 CPS033.47 CPS033.67 CPS033.77	33 33 33 33 33	35, 45, 75, 100, 120	0.55 0.59 0.61 0.68 0.70	10	-30 ~ +130	45 55 65 85 95	31 31 31 31 31	27 37 47 67 77	23 23 23 23 23		

CPS 015 MINI Type



MATERIAL

- **Chain material :**
  CPS-polyamide with glass fiber reinforced, UL94-HB
- **Low Noise :** 40 dB (DIN EN 61672-1)
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length**
  Vertical curve above= max 0.8m
  Vertical curve below= max 3.0m
  Side Mounted, Unsupported= max 0.2m
- **Applications :** Printing Machine, Feeder unit
  Count machine.
- **Load diagrams self-supporting length :**

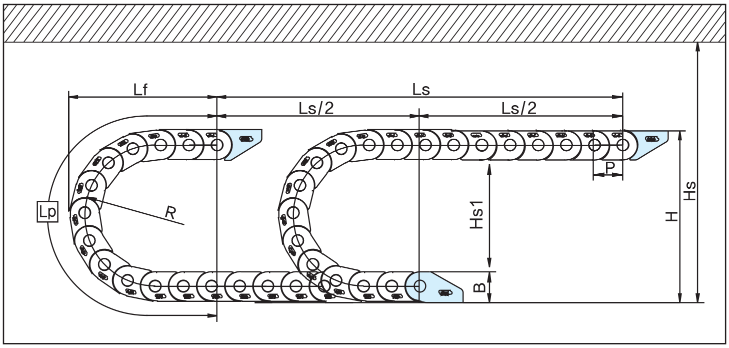


- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

MINI Type CPS 015

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	18	28	38
Lp	117	148	180
L f	55	65	75
H	49	69	89

CPS 015 Type

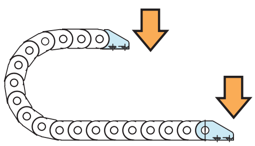
Pitch P: 15mm
Height B: 13mm
Height H: 2R+Bmm
Hs≦H+10mm
Hs1≦－10mm

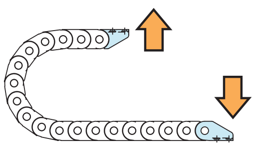
ORDERING (주문방법)

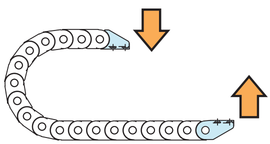
CPS 015. 10. R28 / B_2- 550L : 10ST

10ST	주문수량	Q´ty(set)
550L	체인길이	Length(mm)
B_2	브라켓타입	Bracket Type (B1, B2, B3)
R28	곡률반경	Bending Radius
10.	내폭	Inside Width
CPS 015	CPS CABLE Chain	

BRACKET TYPE (브라켓타입)

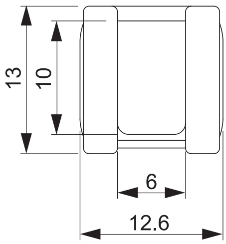

B1


B2

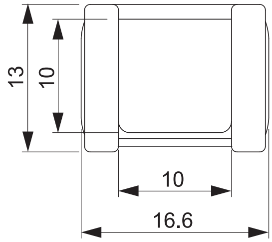

B3

CPS 015 MINI Type

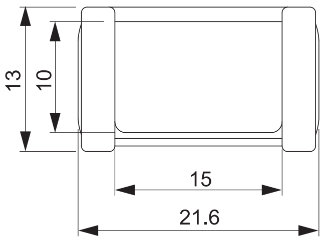
CHAIN CROSS SECTION



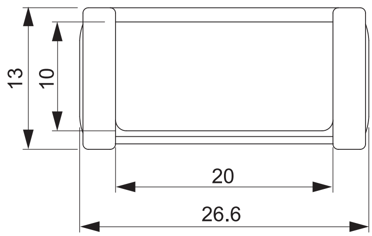
CPS015.06 Type



CPS015.10 Type



CPS015.15 Type



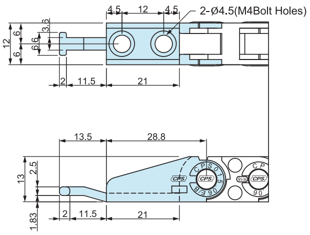
CPS015.20 Type

CHAIN RADIUS, WEIGHT

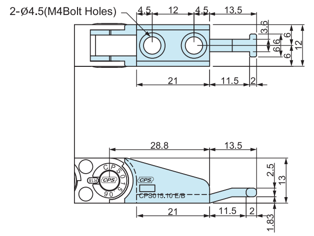
Chain Type	Bending Radius(R)	Weight in kg/m
CPS 015.06	18, 28, 38	0.100
CPS 015.10		0.106
CPS 015.15		0.111
CPS 015.20		0.115

MINI Type **CPS 015**

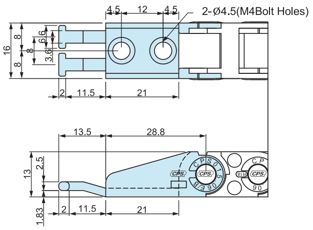
END BRACKET (TieWrap Type)



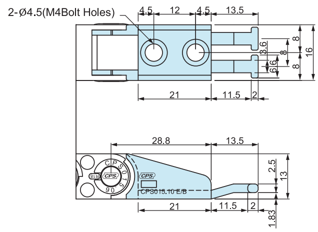
CPS015.06 Fixing point



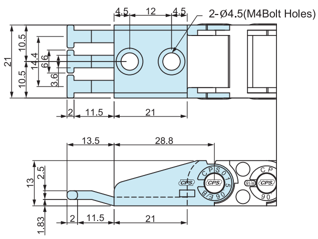
CPS015.06 Moving point



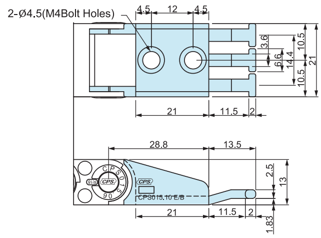
CPS015.10 Fixing point



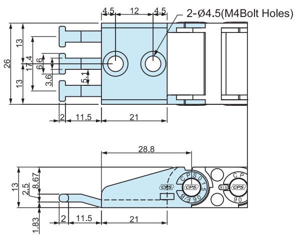
CPS015.10 Moving point



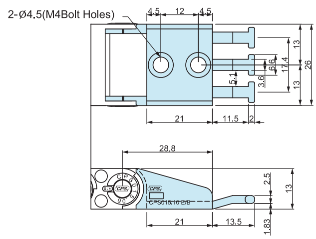
CPS015.15 Fixing point



CPS015.15 Moving point



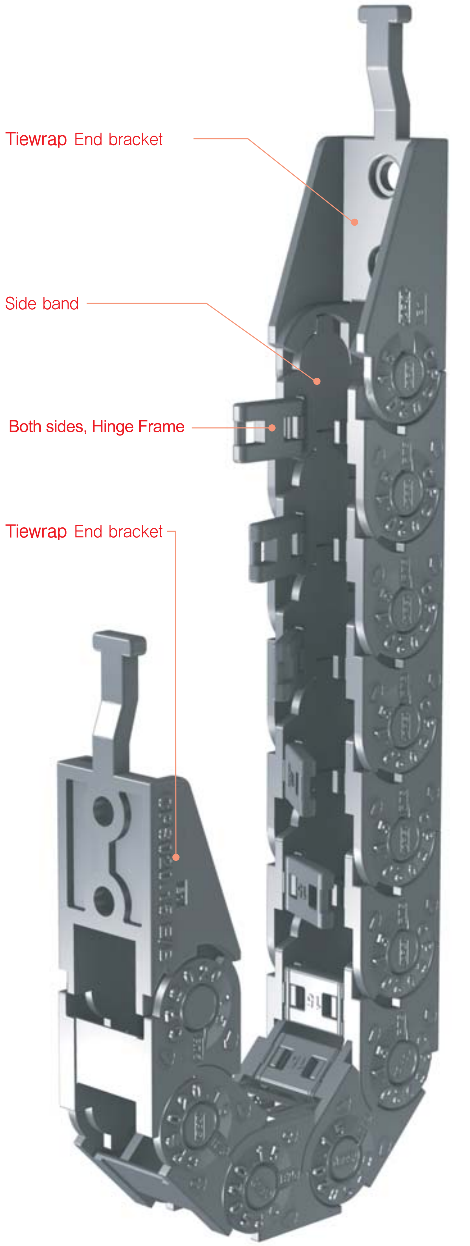
CPS015.20 Fixing point



CPS015.20 Moving point

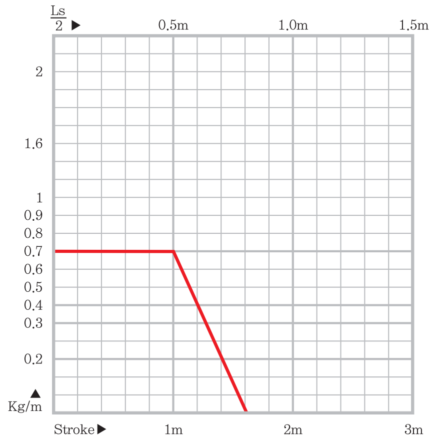
CPS 020 MINI Type

Min ●●●● Max



MATERIAL

- **Chain material :** CPS-polyamide with glass fiber reinforced, UL94-HB
- **Low Noise :** 40 dB (DIN EN 61672-1)
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length**
  Vertical curve above= max 1.0m
  Vertical curve below= max 5.0m
  Side Mounted, Unsupported= max 0.5m
- **Applications :** Printing Machine, Feeder unit
  Count machine
- **Load diagrams**
  self-supporting length :

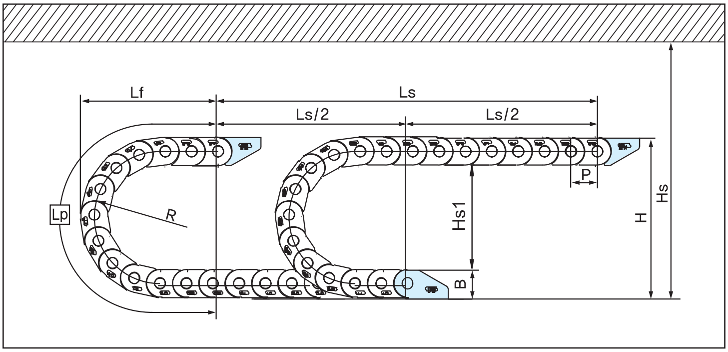


- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

CPS 020 MINI Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	28	38	48
Lp	170	200	230
L f	78	88	98
H	76	96	116

CPS 020 Type

Pitch P: 20mm
Height B: 20mm
Height H: 2R+Bmm
Hs≦ H+15mm
Hs1≦ − 15mm

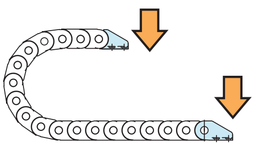
ORDERING (주문방법)

CPS 020 . 30. R28 / B 2 - 1000L : 10ST

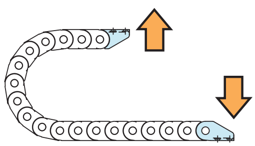
주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓타입	Bracket Type (B1, B2, B3)
곡률반경	Bending Radius (R)
내폭	Inside Width

CPS CABLE Chain

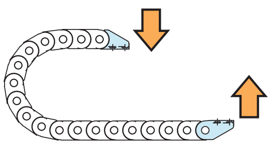
BRACKET TYPE (브라켓타입)



B1



B2

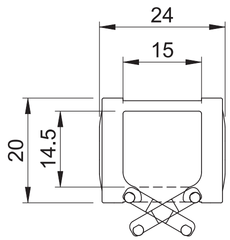


B3

CPS 020 MINI Type

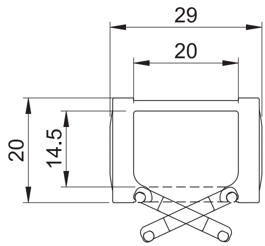
CHAIN CROSS SECTION

Down open hinge frame



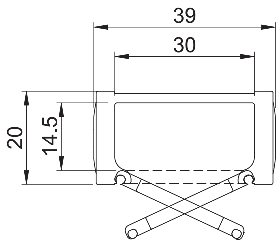
CPS020.15 Type

Down open hinge frame



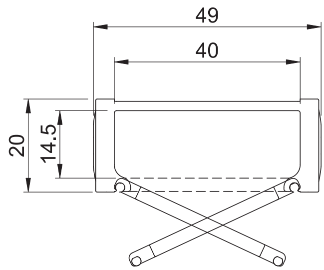
CPS020.20 Type

Down open hinge frame



CPS020.30 Type

Down open hinge frame



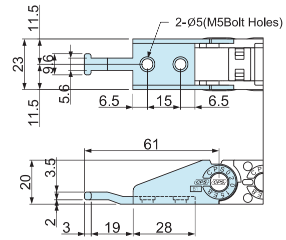
CPS020.40 Type

CHAIN RADIUS, WEIGHT

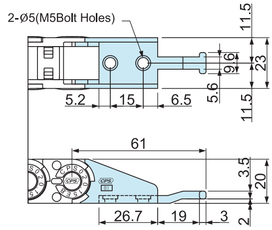
Chain Type	Bending Radius(R)	Weight in kg/m
CPS 020.15	28, 38, 48	0.245
CPS 020.20		0.260
CPS 020.30		0.285
CPS 020.40		0.310

CPS 020 MINI Type

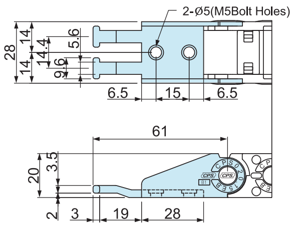
END BRACKET (TieWrap Type)



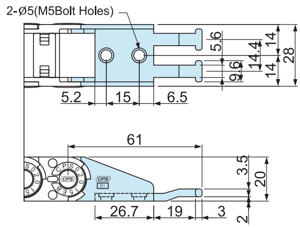
CPS020.15 Fixing point



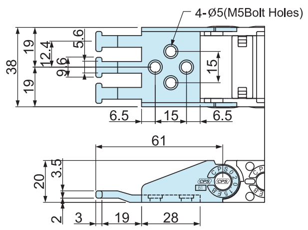
CPS020.15 Moving point



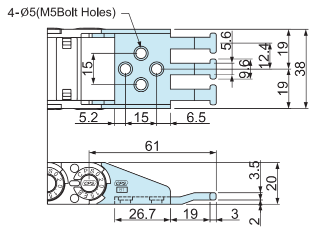
CPS020.20 Fixing point



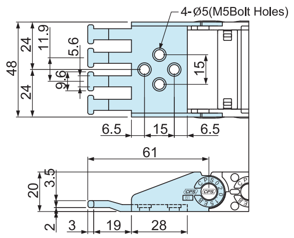
CPS020.20 Moving point



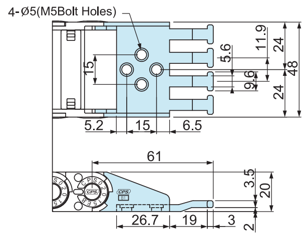
CPS020.30 Fixing point



CPS020.30 Moving point



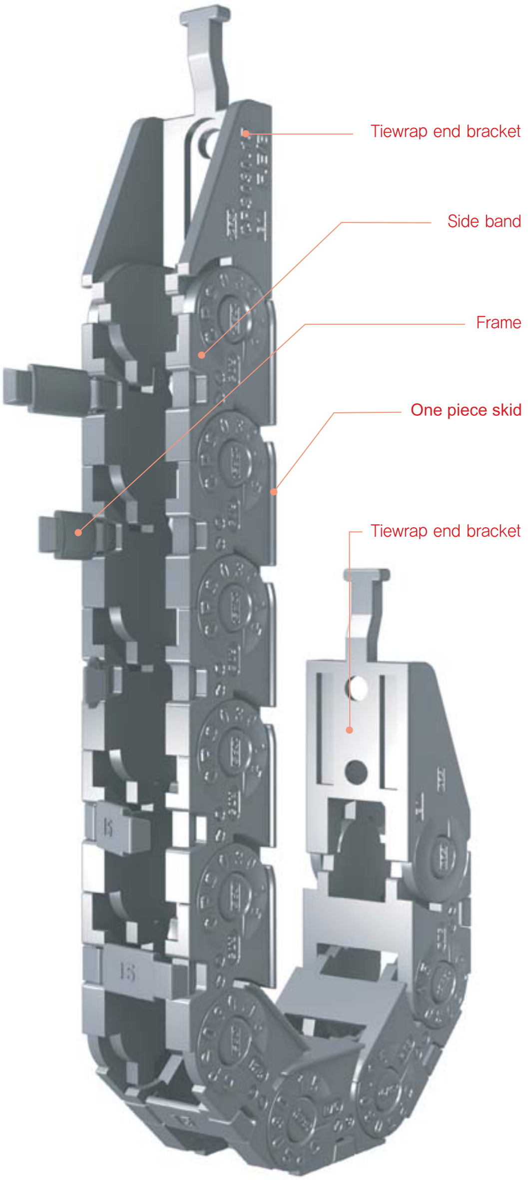
CPS020.40 Fixing point



CPS020.40 Moving point

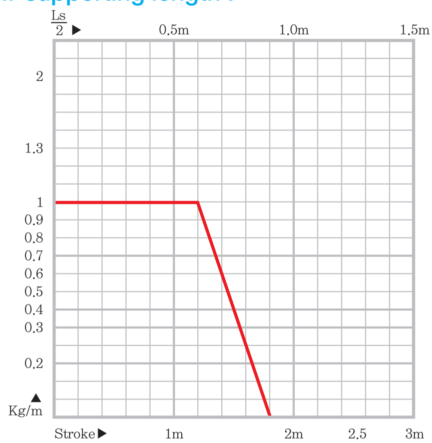
CPS 030 MINI Type

Min ●●●● Max



MATERIAL

- **Chain material :**
  CPS-polyamide with glass fiber reinforced, UL94-HB
- **Low Noise :** 40 dB (DIN EN 61672-1)
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length**
  Vertical curve above= max 1.5m
  Vertical curve below= max 10m
  Side Mounted, Unsupported= max 0.6m
- **Applications :**
  Gantry robot, Machining center,
  Textile machine, Welding machine,
  Feeder unit, Assembly loader,
  Wood work machine, Fabric machine.
- **Load diagrams**
  self-supporting length :

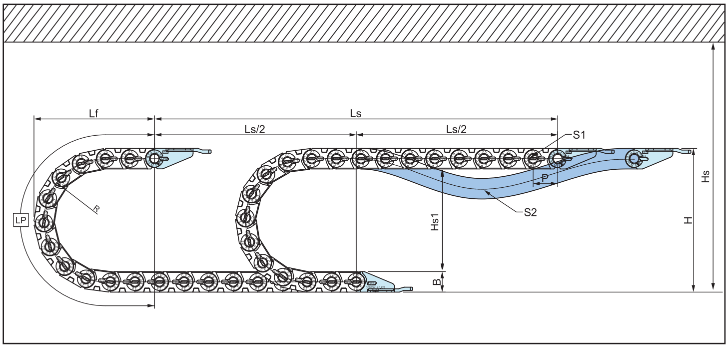


- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

CPS 030 MINI Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

CPS 030 Type

Pitch P: 30mm
Height B: 26mm
Height H: 2R+Bmm
Hs ≦ H+30mm
Hs1 ≦ – 30mm

(Dimensions in mm)

Bending radius R	38	48	75	100
Lp	240	271	356	434
Lf	110	119	148	173
H	101	121	175	225

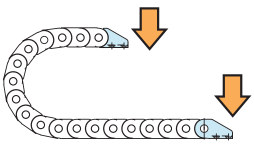
ORDERING (주문방법)

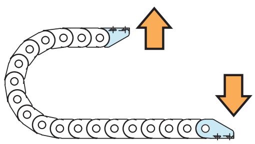
CPS 030 . 35. R75 / B_2 T - 1000L : 10ST

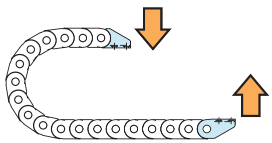
주문수량	Q´ty(set)
체인길이	Length(mm)
타이랩 브라켓	Tiewrap bracket(T)
브라켓타입	Bracket Type (B1, B2, B3)
곡률반경	Bending Radius (R)
내폭	Inside Width

CPS CABLE Chain

BRACKET TYPE (브라켓타입)

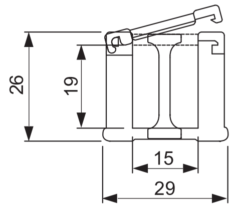

B1


B2

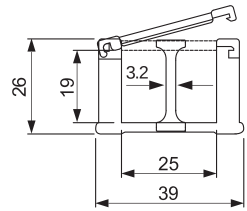

B3

CPS 030 MINI Type

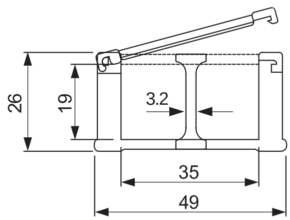
CHAIN CROSS SECTION



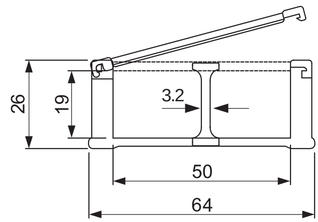
CPS030.15 Type



CPS030.25 Type



CPS030.35 Type

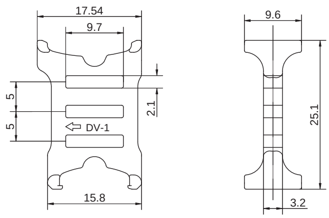


CPS030.50 Type

CHAIN RADIUS, WEIGHT

Chain Type	Bending Radius(R)	Weight in kg/m
CPS 030.15	38, 48, 75, 100	0.38
CPS 030.25		0.40
CPS 030.35		0.42
CPS 030.45		0.44

DIVIDERS & SEPARATORS

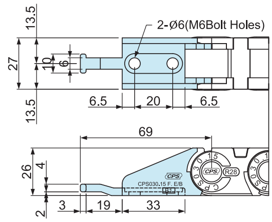


Installing dividers & separtors enables cables to divide from each other and also prevent them tangling together.

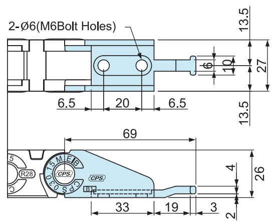
체인내부에 디바이더와 세퍼레이터를 설치하여 입선되는 케이블을 서로 분리시키는 역할을 하며 케이블의 엉킴현상을 방지한다.

CPS 030 MINI Type

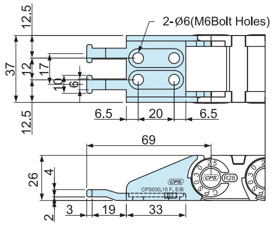
END BRACKET (TieWrap Type)



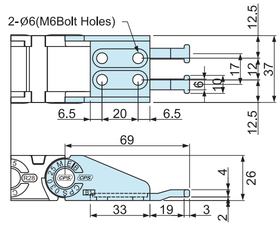
CPS030.15 Fixing point



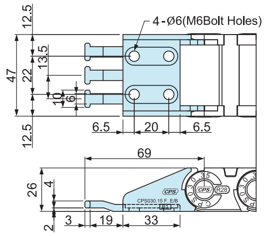
CPS030.15 Moving point



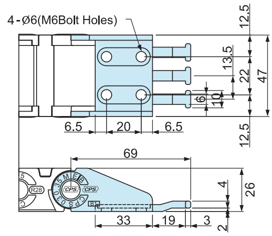
CPS030.25 Fixing point



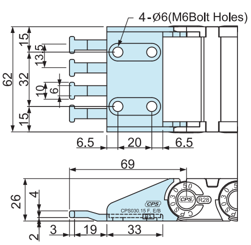
CPS030.25 Moving point



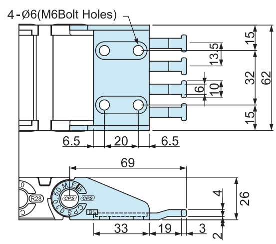
CPS030.35 Fixing point



CPS030.35 Moving point



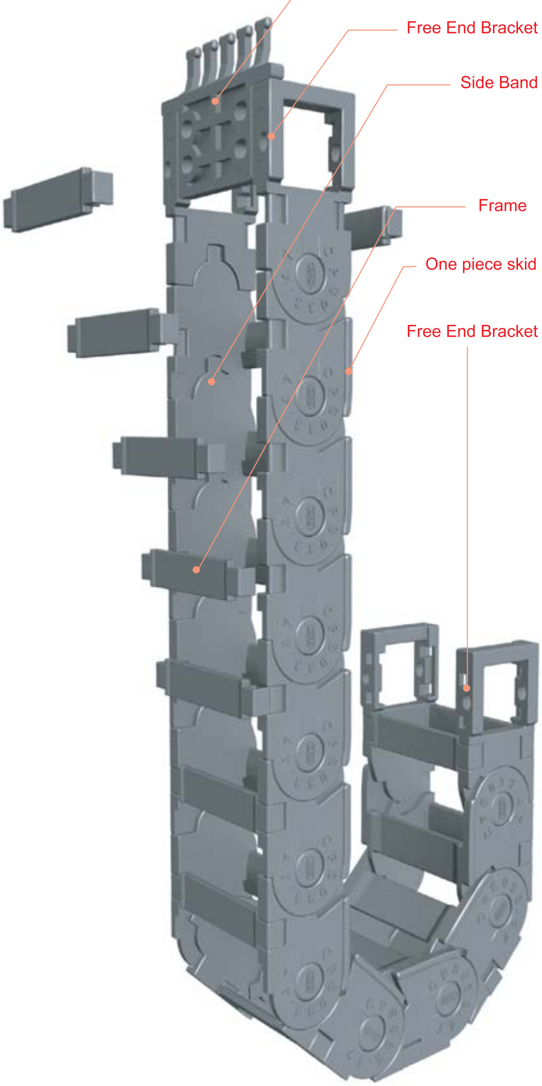
CPS030.50 Fixing point



CPS030.50 Moving point

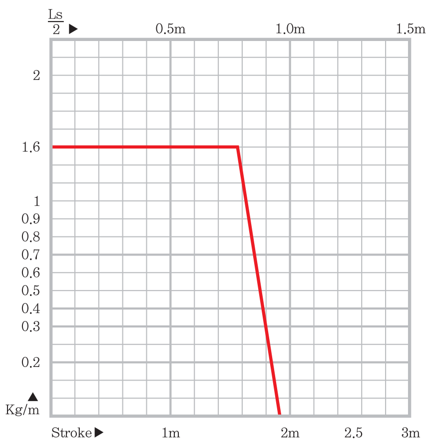
CPS 033 MINI Type

Min ●●●● Max



MATERIAL

- **Chain material :**
  CPS-polyamide with glass fiber reinforced, UL94-HB
- **Low Noise :** 40 dB (DIN EN 61672-1)
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length**
  Vertical curve above= max 1.5m
  Vertical curve below= max 10m
  Side Mounted, Unsupported= max 0.6m
- **Applications :**
  Gantry robot, Machining center,
  Textile machine, Welding machine, Feeder unit,
  Assembly loader, Wood work machine, Fabric machine.
- **Load diagrams**
  self-supporting length :

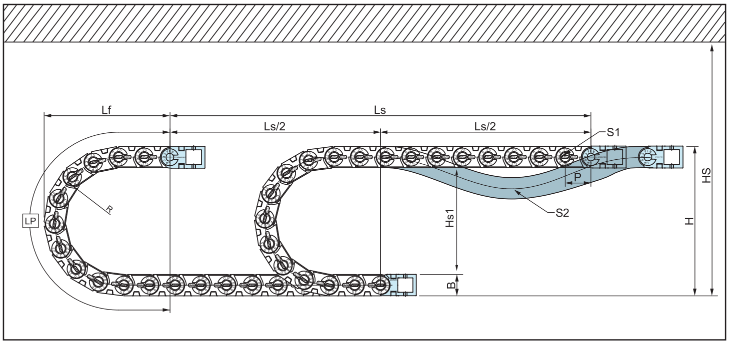


- **Calculation of the chain length**

$$\left[\; L = \frac{Ls}{2} + Lp \;\right]$$

CPS 033 MINI Type

LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	35	45	75	100	120
Lp	242	274	368	446	509
L f	117	127	157	182	202
H	101	121	181	231	271

Ls: Stroke
Lp: Loop Length
L f: Loop Projection
Hs: Safe Space

CPS 033 Type

Pitch P: 33mm
Height B: 31mm
Height H: 2R+Bmm
Hs≦ H+30mm
Hs1≦－30mm

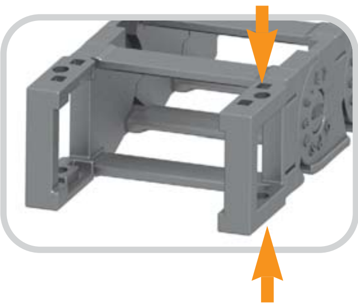
ORDERING (주문방법)

CPS 033. 37. R75 / E - 900L : 10ST

주문수량	Q´ty(set)
체인길이	Length(mm)
브라켓타입	Bracket Type (B1, B2, B3)
곡률반경	Bending Radius (R)
내폭	Inside Width

CPS CABLE Chain

BRAKET TYPE (브라켓타입)



EEB (Easy End Bracket)

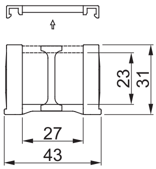
The fixing end part of cable chain which improve the efficiency of mounting condition by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

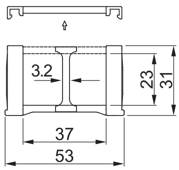
▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

CPS 033 MINI Type

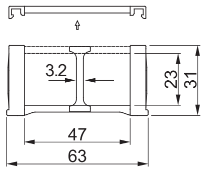
CHAIN CROSS SECTION



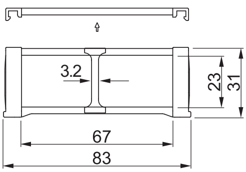
CPS033.27 Type



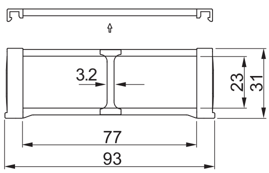
CPS033.37 Type



CPS033.47 Type

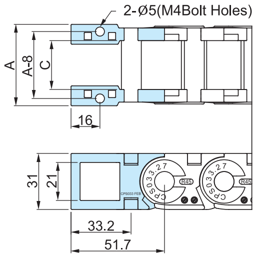


CPS033.67 Type

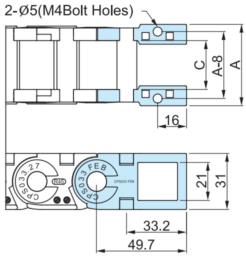


CPS033.77 Type

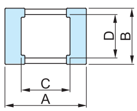
END BRACKET - Easy Type



CPS033 Fixing point



CPS033 Moving point

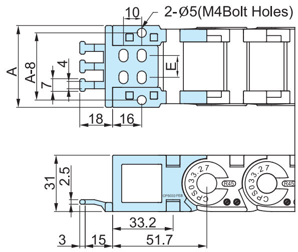


CPS033 Front point

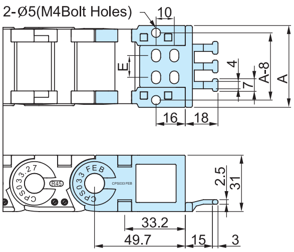
Chain Type	F	B	C	D	Hole Type
CPS 033.27	45		27		
CPS 033.37	55		37		
CPS 033.47	65	31	47	23	M4 Bolt Holes
CPS 033.67	85		67		
CPS 033.77	95		77		

CPS 033 MINI Type

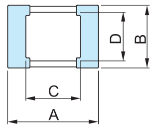
EASY END BRACKET - Tie wrap connction



CPS033 Fixing point



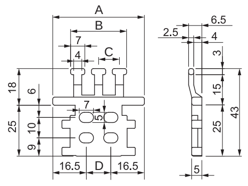
CPS033 Moving point



CPS033 Front point

Chain Type	F	B	C	D	E	Hole Type
CPS 033.27	45	31	27	23	12	M4 Bolt Holes
CPS 033.37	55		37		22	
CPS 033.47	65		47		32	
CPS 033.67	85		67		52	
CPS 033.77	95		77		62	

TIE WRAP

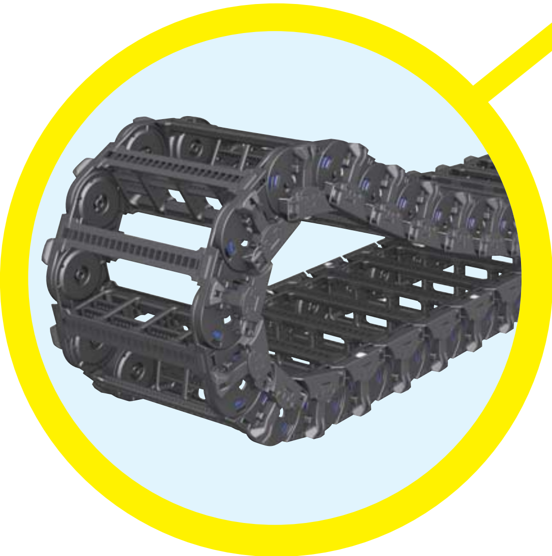


Tie wrap prevents cut off problem of the cable by the twisting and pulling movement.
The tie wrap of this CPS CABLE Chain has two types, separated with bracket type and attached with bracket type.

Tie Wrap은 케이블체인의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다.

CPS CABLE Chain의 Tie Wrap은 브라켓부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.

	27	37	47	67	77
A	45.0	55.0	65.0	85	95
B	27.5	41.0	47.9	67.9	77.9
C	10.2	8.5	10.4	10	8.8
D	12.0	22.0	32.0	52	62

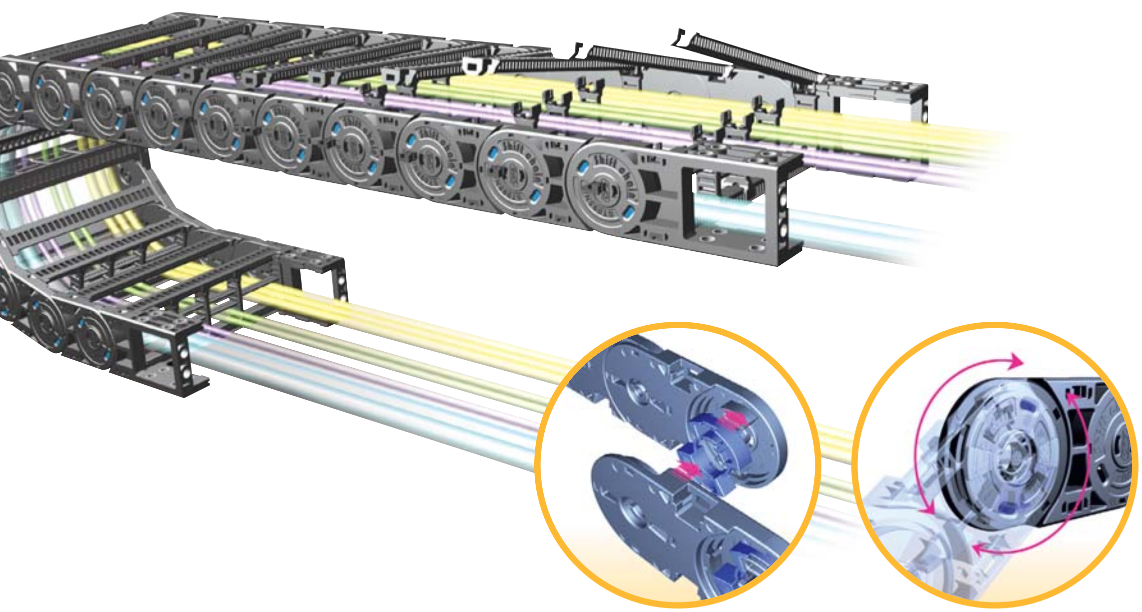


SHIFT CHAIN

GENERAL CATALOGUE 2013

p40 ~ 214

Using Material of High Quality!



SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

Shift Chain can set up the range of Bending Radius **easily & freely!**

Bending Radius를 **자유롭고 손쉽게** 설정할 수 있는 신개념 Cable Chain!

A Shift Chain, with the unique structure, is a new concept that the value of Bending Radius is decided by inserting the BR component.

Shift Chain은 Bending Radius설정유닛을 별도로 삽입하여 원하는 곡률반경(R)값의 체인을 구성하는 독창적인 구조의 신개념 케이블체인입니다.

B Shift Chain, inserting the BR component, has more than 6 points of supporting area, so its durability and self-supporting capacity are 30% more than other Cable chain's.

곡률반경(R)값 설정유닛은 6개소 이상의 지지요소를 구비하여 Shift chain의 내구성과 지지력은 기존 일반체인의 30% 이상 상승하는 성능을 실현하였습니다.

C Shift Chain has an excellent competitiveness and can create the maximum synergy effect in relation to boosting productivity, the efficient stock management and cost reduction because the side-band of each model is the same and the BR component is designed to be replacable.

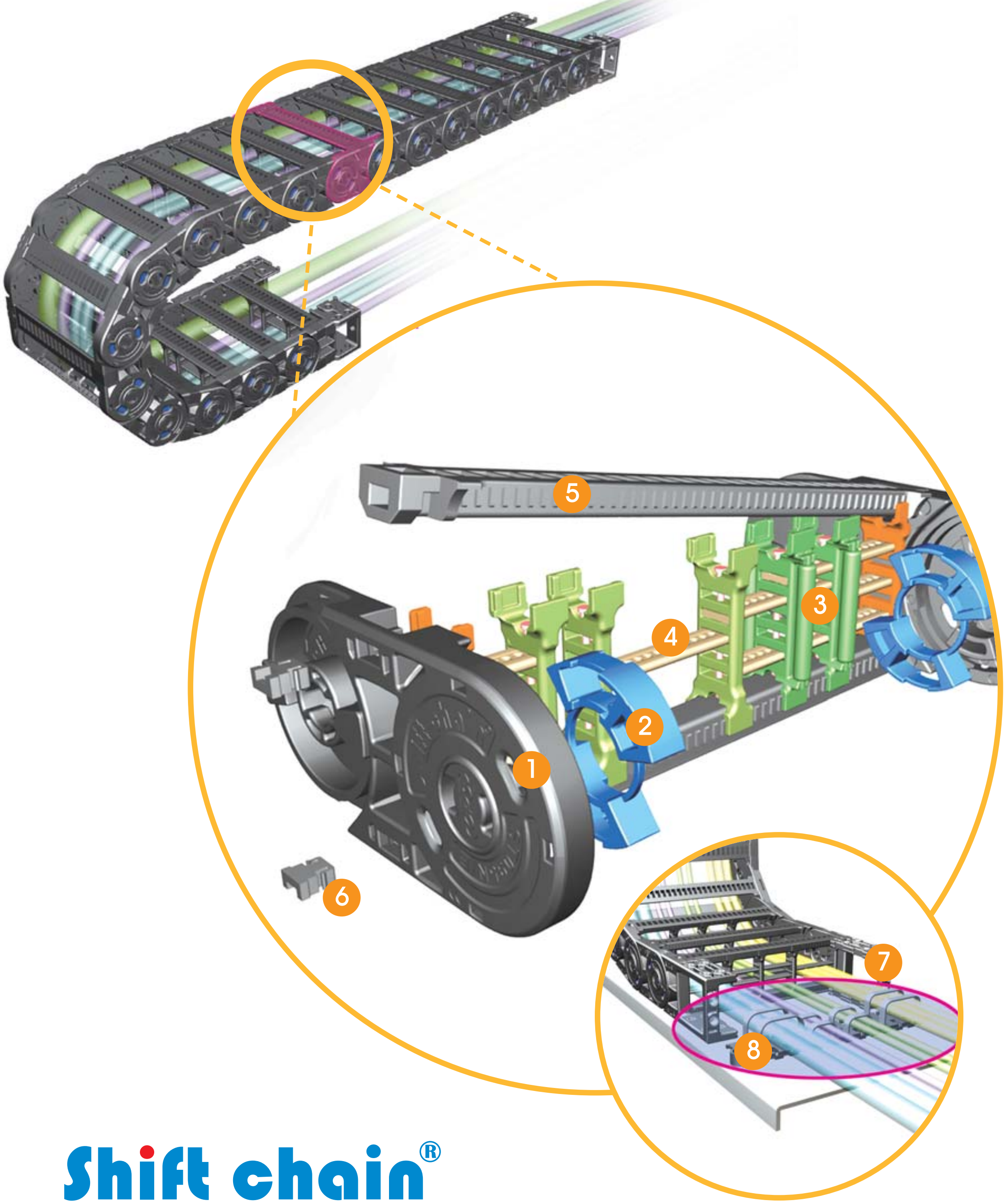
Shift chain은 모델별로 동일한 Side Band를 사용하고, 별도의 R설정유닛을 교체사용하도록 설계되어 생산성향상과 자재관리 효율성 및 원가절감 효과를 극대화시킬수 있어 경쟁력이 탁월합니다.

D Shift Chain is the next generation Cable chain developed to protect the inner cables and hoses applied to equipments and machinery of overall industries widely.

Shift chain은 케이블의 입선량이 많고 케이블하중이 높은 대형기계 및 장비에 적용된 케이블을 비롯하여 소형장비의 케이블보호까지 산업전반의 모든 장비의 케이블을 효과적으로 보호할 수 있도록 개발된 차세대 케이블체인입니다.

ARTICLE NAME & DETAILS OF SHIFT CHAIN

/ Shift Chain의 구성명칭 및 세부설명



Shift chain®

Normal Type

1 Side Band (SB)

Bending Radius unit, different from the former connecting method of link pin bridge prevents damage of the chain caused by breakdown of connecting link pin and reduces dust due to the friction of link pin.

기존의 링크핀결합방식이 아닌 R설정유닛을 포함한 밴드직렬 결합방식으로 링크핀에 의한 분진발생 및 링크핀 이탈로 인한 체인파손을 방지.

2 Bending Radius Unit (BR)

Shift Chain has the unique structure that the value of Bending Radius is decided by Bending Radius unit .

Shift chain은 Bending Radius설정유닛을 Side Band에 삽입하여 원하는 곡률반경(R)값의 체인을 구성하는 독창적인 구조.

3 Divider (DV-S, M, R, T)

Divider sets the inside of chain vertically to prevent cable from twisting and sheath damage caused by friction. There are S, M, R and T type.

체인에 입선되는 케이블들을 세로방향으로 분리시켜 케이블의 꼬임과 마찰로 인한 피복손상을 방지하는 역할을 하며 S, M, R, T Type으로 구분하여 사용.

4 Separator (SP)

Separator divides the inserted cables vertically to prevent twisting of cables and damage of sheath. Can be cut by 5mm for the convenience. When combining with divider, using separator pin have SP fixed hard not to move.

Shift chain 내부에 입선되는 다수의 케이블을 가로로 분리하는 역할로 5mm단위로 절단하여 사용가능하며 디바이더와 결합시 세퍼레이터 고정핀을 사용하여 유동을 방지하여 케이블의 꼬임 및 피복손상을 방지하고 보다 효율적으로 케이블을 보호하는 역할.

5 Frame(Hinged -Type)-(FR)

Hinged-type frame, open one side, supports connection of both side of side band and have tongue and groove system plate to secure the position of the divider on the frame.

좌우 Side Band의 연결지지대 역할을 하며 Frame 고정돌기를 형성하여 디바이더의 유동과 이탈을 방지하도록 설계되었으며 한쪽방향을 오픈하는 힌지방식(경첩)의 구조.

6 Frame Pin (FP)

The connecting pin for preventing the breakaway of Frame connected at Side Band, combining and fixing the Frame and Side Band. For Shift chain(ST)072N, 092N, 120N, 150N type, one side of the frame is fixed by inserting a fixing pin to prevent frame open, which caused by any external impact.
Also, in case of ST044N, ST055N type, an open side of the frame is fixed by Hook-type frame .

Frame과 Side Band를 결합하고 이를 고정하는 역할로 Side Band에 결합된 Frame의 이탈을 방지하는 목적의 결합핀.
ST072N, ST095N, ST120N, ST150N 적용.
ST044N, ST055N의 경우 FP없이 Hook결합방식.

7 Free End Bracket (FEB)

Shift chain is very effective to be able to be fixed at upper, lower and front direction with the use of FEB (Free End Bracket) like the fixing method of New Sabin Chain and to be fixed stronger due to the use the Steel Insert at the Fixing hole. Shift Chain has a strong point that can be fixed with the diverse ways because this Bracket can be moved more than 45 degrees.
For ST150N, Bracket with steel it used.

Shift chain은 New Sabin Chain의 체인고정방식인 FEB(Free End Bracket)를 적용시켜 체인을 고정시킬때 상, 하, 전방에서 고정시킬수 있어 효과적이며 고정홀에 Steel Insert를 적용해 더욱 강하게 고정시킬 수 있습니다. 또한 Bracket 부분이 45° 이상으로 꺾임이 적용되어 다양한 방식으로 체인을 고정.
ST150N의 경우 Steel Insert형식의 Bracket적용.

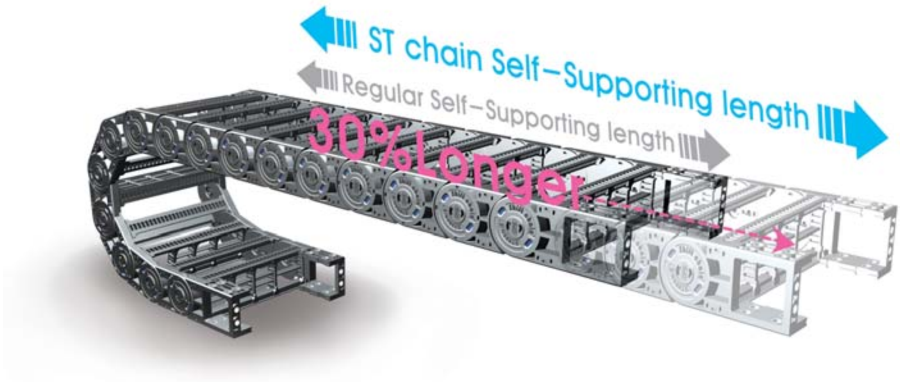
8 Tie Wrap (TW)

Tie Wrap fixes the cables in one straight line to prevent twisting or entangling during operation. There are two types available depending on the application; attached to bracket and separated from bracket.

케이블을 고정하기 위해 사용되며 케이블을 일렬로 정렬시키는 역할로 케이블의 엉킴현상을 방지하고 사양에 따라 Free End Bracket 삽입형과 Free End Bracket 분리형으로 구분.

CHARACTERISTIC AND MERIT OF SHIFT CHAIN

/ Shift Chain의 특, 장점

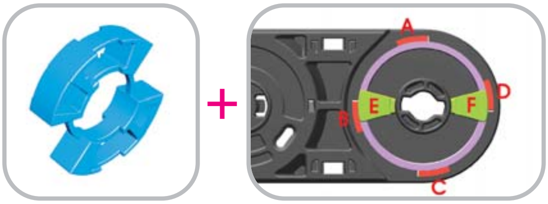


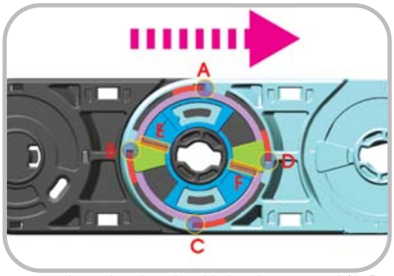
1 Longer Self-Supporting Length!

보다 길어진 셀프서퍼팅 길이!

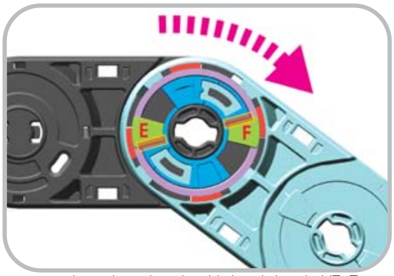
Shift Chain has max 30% longer self-supporting length than other CPS chains under the same condition. It's designed to be durable, even with the massive inserted cables, can effectively protect cables without any sagging.
while other chain has two points of supporting area, Shift Chain has six points of it, A, B, C, D, E, F.
It helps the side bands can have the maximum supporting.

Shift chain은 기존 체인과 동일조건하에서 Self-Supporting 길이가 최대30%이상 향상되었으며 케이블의 과도한 하중에도 체인의 쳐짐현상없이 안전하게 케이블을 보호할 수 있도록 설계되었습니다.
이는 기존 일반체인의 경우 지지요소가 1~2곳에 불과하던 구조에서 Shift chain은 사이드밴드 지지요소를 최대 6곳(A, B, C, D, E, F)으로 설계하여 연결된 사이드밴드가 최대의 지지력을 가질수 있도록 하였으며 이로인해 기존 체인과 동일조건하에서 Self-Supporting길이가 최대 30%이상향상되었습니다. 이로인해 입선된 케이블의 과도한 하중에도 체인의 쳐짐현상없이 안전하게 케이블을 보호할 수 있도록 설계되었습니다.

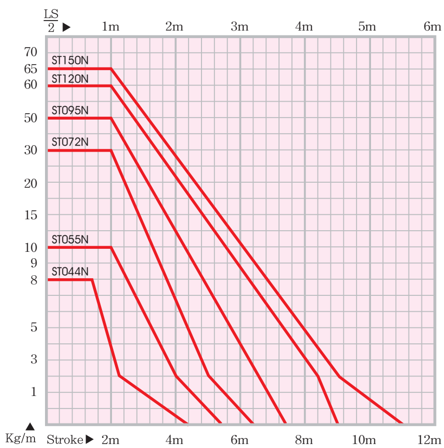




-supporting point when the side bands connected (A, B, C, D, E, F) / 체인결합시 지지구간 A, B, C, D, E, F



-supporting points when the side bands bended (E, F)
체인밴딩시 지지구간 E, F



■ Shift chain Self-Supporting Length ■

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

2 The Feature of Setting-up Unit for Bending Radius!
R설정유닛 결합으로 Bending Radius값 설정!

Unlike the existing chains, the Shift Chain is designed to use only one side band for the same model and to insert respective Bending Radius unit to make bending radius each.
Like the below pictures, the value of bending radius is changeable just by inserting individual bending unit, and unlike the existing chains, it is suggested that you don't need side bands for each bending radius in stock, but need BR unit for each bending radius, so the Shift Chain has an excellent competitiveness to create the maximum synergy effect in relation to easy maintenance, efficient stock management and cost reduction .

Shift Chain은 기존체인과 달리 동일사양에서 동일한 Side Band를 사용하고 곡률반경(R)별로 제작된 R설정유닛(BR)만 원하는 R값으로 교체하는 구조입니다. 아래그림에서와 같이 각각의 R값을 가진 R설정유닛(BR)의결합에따라 체인의 곡률반경이 변경되며 기존체인과 다르게 R값별 Side Band를 재고로 확보하지 않고 각기다른 곡률반경(R)값을 가진 R설정유닛(BR)을 재고로확보하면됩니다. 이로인해 Shift chain은 유지보수와 재고관리 및 원가절감효과가 뛰어나며 가격 경쟁력이 뛰어난 제품입니다.

The Bending Radius combined by the Bending Radius unit(BR). (R설정유닛(BR) 결합시 체인곡률반경)

When combining Side Band with the different Bending Radius unit, the bending radius of cable chain is formed like the below and also the 'R' of cable chain will be decided by the Bending Radius-setting unit.
Bending Radius(R) of each cable chains is written with each value of “ R” in details of each cable chain.

각기 다른 R값을 가진 R설정유닛(BR)의 결합시 체인의곡률반경은 아래의 이미지처럼 형성되며 Shift chain사양별로 R값은 R설정유닛에서 결정되며 체인별 R값은 체인사양별 설명페이지에서 각각의 R값을 확인할 수 있습니다.

In R135 BR connection

In R230 BR connection

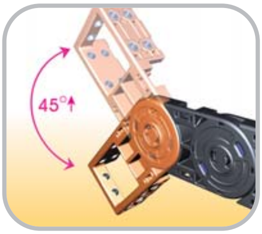
In R400 BR connection

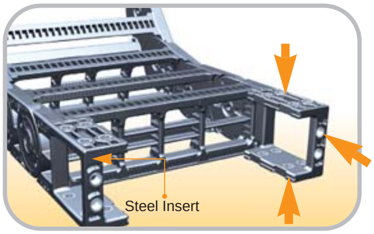
CHARACTERISTIC AND MERIT OF SHIFT CHAIN
/ Shift Chain의 특, 장점

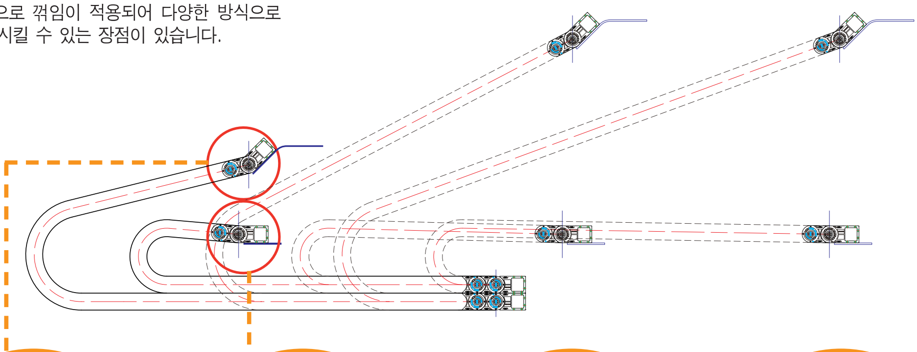
3 Efficient & Easy fixing bracket, FEB!
효율적인 체인 고정방식-FEB 적용!

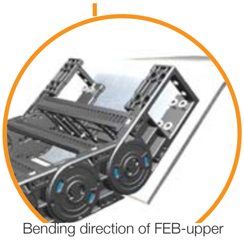
Shift chain's bracket, FEB, is very effective in a way that can be mounted up, down and front side same as the New Sabin chain. For the extra enhance, steel washer is inserted into the fixing hole.

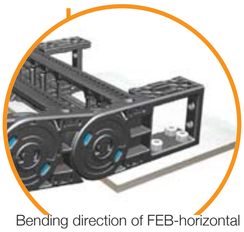
Shift chain은 New Sabin chain의 체인고정방식인 FEB(Free End Bracket)를 적용시켜 체인을 고정시킬때 상, 하, 전방에서 고정시킬수 있어 효율적이며, 고정홀에 Steel Insert를 적용해 더욱 강하게 고정시킬 수 있습니다. 또한 Bracket 부분이 45°이상으로 꺾임이 적용되어 다양한 방식으로 체인을 고정시킬 수 있는 장점이 있습니다.



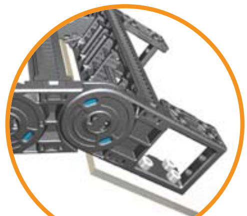





Bending direction of FEB-upper
(FEB 꺽임방향-상단)

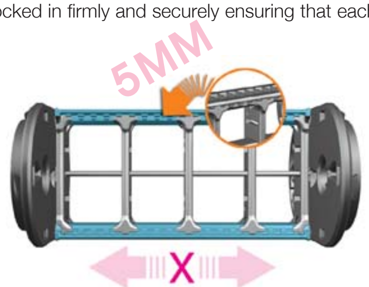

Bending direction of FEB-horizontal
(FEB 꺽임방향-수평)


Bending direction of FEB-horizontal
(FEB 꺽임방향-수평)


Bending direction of FEB-lower
(FEB 꺽임방향-하단)

4 Teeth centered every 5mm eliminate movement during operation!
프레임돌기로 디바이더 좌,우 유동방지!

With teeth positioned every 5mm, Shift Chain's patented grooves grip the dividers locking them in place and eliminating any left or right movement during operation. Furthermore, your cables are protected from the shock of outside force as the dividers are locked in firmly and securely ensuring that each of your cables center is held intact and preventing sheathing caused by current systems' inability to secure the dividers properly. Stoppers can fall out or become damaged, resulting in more maintenance and down time. With the Shift Chain divider, you eliminate the need for small excess parts which can break and possibly gain entry to and damage operating machinery.

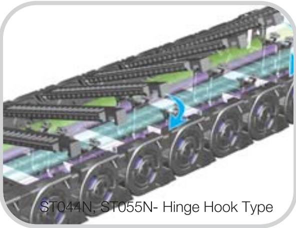


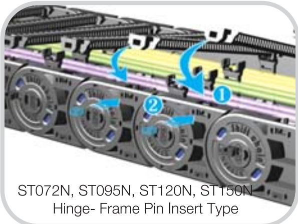
프레임에 5mm간격으로 돌기를 형성하고 프레임돌기홈에 디바이더를 결합시키는 구조로 기존 일반체인에서 디바이더가 좌,우 유동 및 과도한 충격시 디바이더가 넘어져 이탈하는 현상을 완벽하게 차단 합니다. 디바이더의 좌, 우 유동 및 이탈현상을 차단함으로써 입선된 케이블을 보다 안전하게 보호하는 역할을 합니다.

5 More convenient frame structure - Hinged Type Frame !
더욱 편리한 프레임구조-Hinged Type Frame !

The Hinge type frame is created by using the original frame but locking it into place with a ball hinge on one side and making the cables easily accessible by opening the other. The hinge type frame can open to expose the inserted cables on both the topside and underside of the carrier.
In case of models of Shift chain(ST)072N, 095N, 120N, 150N type, one side of the frame is fixed by inserting a fixing pin to prevent frame open, which caused by any external impact. Also, in case of ST044N, 055N type, an open side of the frame is fixed by Hook type frame .

기존의 프레임핀 삽입방식을 개선한 방식으로, Side Band의 한 방향에 프레임을 고정시키고 다른 방향은 열고 닫을수있는 Hinge(경첩)구조로 되어있어 케이블 삽입과 체인조립 및 보수가 편리 합니다. Hinge Frame 은 Side Band 위쪽과 아래쪽모두 적용 되어 Cable 삽입이 어느 방향이든지 프레임을 오픈시켜 케이블 입선이 가능한 구조입니다.
ST072N, 095N, 120N, 150N Type의 경우외부충격에도 프레임이 오픈되지않도록 프레임 한쪽방향으로 프레임 고정핀을 사용하여 프레임을 고정합니다. 또한 ST044N, 055N Type의 경우오픈되는 방향의 프레임결합은 Hook결합방식으로 고정합니다.

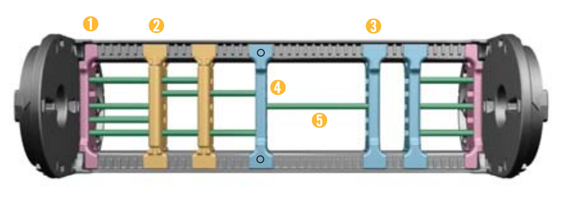

ST044N, ST055N- Hinge Hook Type


ST072N, ST095N, ST120N, ST150N
Hinge- Frame Pin Insert Type

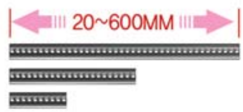
6 Diversity & Functionality Combine in this New Separator and Divider Creation!
디바이더와 세퍼레이터를 활용한 다양한 공간창출!

It can protect inner cable more efficient and safe with the diverse combination of Divider and Separator. Divider consists of the exclusive use of side type (S-Type), the adhesive use of roller type (R-Type) and the pin jointing type (M-Type) and also the twist and damage of inner cable can be protected especially because this part is designed to use of the fixing pin strongly. The length of separator can be installed from 20 mm to 600 mm and be cut and used 5 mm apart.

디바이더와 세퍼레이터의 다양한 조합으로 케이블입선공간의 자유로운 구성이 가능하여 더욱 효율적이고 안전하게 케이블을 보호할 수 있습니다. 디바이더는 측면전용(S-Type), 롤러부착형 (R-Type), 고정핀결합 용(M-Type)으로 구분하여 사용하고 특히 세퍼레이터 고정핀을 사용하여 세퍼레이터를 견고히 고정할 수 있도록 설계되어 케이블의 꼬임 및 피복손상을 방지할 수 있습니다. 세퍼레이터길이는 최소 20mm~최대 600mm까지 설치가능하며 5mm간격으로 절단사용가능합니다.




세퍼레이터 고정핀
(SP-Pin)



5 Separator


1 DV-S Type


2 DV-R Type


3 DV-M Type

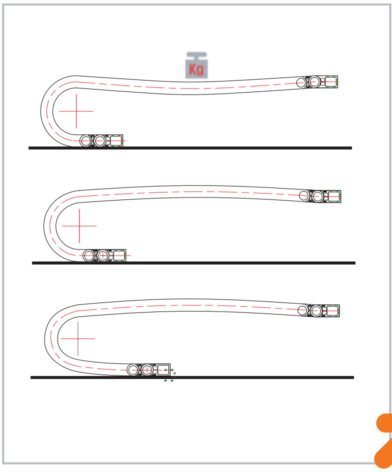

4 DV-T Type

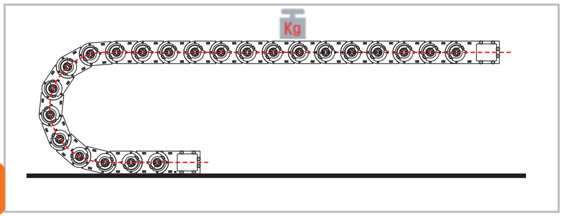
CHARACTERISTIC AND MERIT OF SHIFT CHAIN
/ Shift Chain의 특, 장점

7 Straight supporting area of Shift chain by design with strong bearing capability! 지지력이 강한 Side band구조 설계로 지지구간 직선유지!

Shift chain completely solves the problems of both chain's sagging that happens in chain's self-supporting area and chain's breakage & short lifespan caused by clearance between the bottom of chain's bending part and ground, because the chain is designed not only to have 6 supporting points on the sideband to enhance self-supporting but also to have strong bearing capacity to support the connected side bands straight. In the above reason, it can run straight at all times, no matter how much inserted cables weigh, without sag & arch phenomenon in the self-supporting area of the chain, and protect cables safely since clearance between the bottom of chain's bending part and ground doesn't happen.

Shift chain은 일반적으로 체인의 설치시 체인의 지지구간에서 발생하는 체인의 처짐현상과 배부름 현상, 그리고 체인의 밴딩구간하부가 설치바닥면과의 유격발생 등의 문제로 인해 체인의 파손 및 수명단축현상을 완벽히 해결하였습니다. Side band의 6곳의 지지요소에서 하중을 분산하고 상호 연결된 Side band를 일직선으로 지지하고 유지할 수 있는 지지력이 강한 구조로 설계하여 체인설치시 체인의 처짐현상, 배부름현상 및 밴딩구간하부가 설치바닥면과의 유격 등의 문제를 완벽하게 해결하였습니다.
이로인해 Shift chain을 설치할 경우 케이블의 입선무게와 상관없이 케이블이 입선된 지지구간에서 체인의 처짐 및 배부름현상없이 항상 체인이 직선을 유지하면서 이동하고 밴딩구간하부의 유격이 발생하지 않아 더욱 안전하게 케이블을 보호할 수 있습니다.





8 Without any tools, easy to assemble Side Band .
별도의 툴없이 Side band 결합 및 해체가능!

You don't need any tools to connect and disconnect side bands of Shift chain, but can do that easily by hand, so it saves time and the productivity improves.

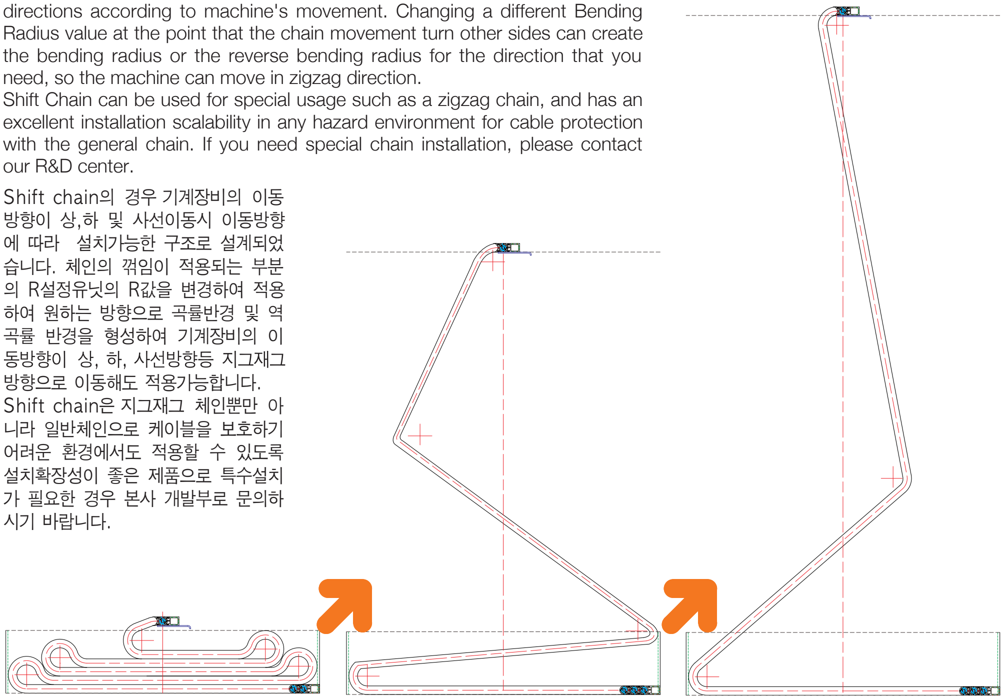
Shift chain은 Side Band결합 및 해체시 별도의 툴을 사용하지않고 손쉽게 결합하고 해체할 수 있어 조립시간을 단축할 수 있습니다. 이로인해 작업공수가 줄어들어 생산성이 향상됩니다.

9 Various applied installation including ST-Z series (Zig-Zag Chain)!

ST-Z Series(Zig-Zag Chain)등 다양한 응용설치 가능!

Shift Chain is designed to be able to move in upper, lower and diagonal directions according to machine's movement. Changing a different Bending Radius value at the point that the chain movement turn other sides can create the bending radius or the reverse bending radius for the direction that you need, so the machine can move in zigzag direction.
Shift Chain can be used for special usage such as a zigzag chain, and has an excellent installation scalability in any hazard environment for cable protection with the general chain. If you need special chain installation, please contact our R&D center.

Shift chain의 경우 기계장비의 이동방향이 상,하 및 사선이동시 이동방향에 따라 설치가능한 구조로 설계되었습니다. 체인의 꺾임이 적용되는 부분의 R설정유닛의 R값을 변경하여 적용하여 원하는 방향으로 곡률반경 및 역곡률 반경을 형성하여 기계장비의 이동방향이 상, 하, 사선방향등 지그재그 방향으로 이동해도 적용가능합니다.
Shift chain은 지그재그 체인뿐만 아니라 일반체인으로 케이블을 보호하기 어려운 환경에서도 적용할 수 있도록 설치확장성이 좋은 제품으로 특수설치가 필요한 경우 본사 개발부로 문의하시기 바랍니다.



10 UV block and Anti-Electrostatic Discharge!

자외선차단(UV) 및 정전기방지(ESD)!

Shift Chain is produced with high-quality engineering plastic material, which have strong durability and great abrasion resistance, so the chain has less breakage possibility by outside damage and performs stable cable protection in any difficult environment.
As the chain is verified through the tests for electrostatic discharge (ESD) and explosion proof (ATEX-Dirctive 94/9/EC), it can be applied in stability to electric equipment and machinery. Also, the chain is UV-coated, and can protect cable in outside installation of the chain. Furthermore, the chain is produced with high-quality engineering plastic, which include none of the 6 harmful substances (restrictives in the Europe market); Lead(Pb), Cdmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr6+), PBB, PB DEs etc and which is recyclable and harmless both to user and enviornment.

Shift chain은 고품질 엔지니어링 플라스틱 소재를 적용하여 내구성이 강하고 내마모성이 뛰어나 외부충격에도 체인의 파손위험이 적으며 어떠한 열악한 환경에서도 안정적으로 입선된 케이블을 보호할 수 있도록 개발된 케이블체인 입니다.
특히 정전기 방지(ESD)와 방폭(ATEX-Directive 94/9/EC)테스트를 통해 폭발위험성이 있는 전기설비 및 기계장비에 안정적으로 적용가능하며 자외선 차단(UV)처리가 되어 옥외설치시 안전하게 케이블을 보호할 수 있도록 하였습니다. 또한Shift chain은 유럽시장에서 규제하는 6대유해물질[납(Pb),카드늄(Cd), 수은(Hg), 6가크롬(Cr+6), PBB, PBDEs]을 포함하지 않아 인체에 무해하고 재활용이 가능한 고품질 엔지니어링 플라스틱의 사용으로 케이블을 최적의 상태에서 안전하게 보호할 수 있습니다.

ESD EX UV RoHS

CHAIN REQUEST FOR SELECTING SORTS / 체인사양 선정방법

Selecting criterion for cable chain / 케이블 선정기준

1. STROKE(total traveling distance of the equipment) : 장비의 총 이동거리

Judge whether chain for selecting droops or not..
선정될 체인이 이동거리에서 처지는지의 여부를 판단한다.

2. Bending Radius : 곡률반경 R

Rotation diameter of chain must be bigger than the biggest one of cables or hoses to be in the cable chain.
케이블체인에 들어갈 전선이나 호스의 제일 큰 회전반경보다 체인의 회전반경이 더 커야한다. 회전반경이 작을 시 굴곡에 대한 반발과 마찰이 생겨 전선이나 케이블에 손상을 준다. 곡률반경 구하는 값은 체인에 입선될 케이블혹은 호스중 직경이 가장큰것의 8~20배로 계산한다.

R min > 8~10 × Cable outer diameter   케이블(전선)사용시 : 직경의 8~10배
R min > 15~20 × Hose outer diametaer   호스 사용시 : 직경의 15~20배

3. Internal size of chain : 체인의 내부사이즈

Select sorts of chain by checking quantity and diameter of each cables.
Slect the internal size of chain after selecting 1,2
체인의 입선되는 전선의 가닥수와 지름을 체크하여 사양을 선정한다.
위의 1번, 2번 항이 선정된 후에 체인의 내부사이즈를 선정한다.

4. The length of chain : 체인길이

Must select the length of chain by checking the starting point of chain when traveling.
체인이 이동되는 시작포인트를 체크하여 길이를 산정해야 한다.

Calculation of the length for chain / 케이블체인 길이 산정 방법

$$L = LS/2 + LP \ (LP = \pi \times R + 4P)$$

L : The length of chain .... 체인의 길이
LS/2 : The half of total stroke .... 총 Stroke의 절반
LS : Total stroke, total traveling distance of the equipment .... 총 Stroke, 총 장비이동거리
LP : Loop length .... 체인의 곡률길이
P : Length of each pitch .... 체인의 1링크길이
π : 3.14   R : Bending radius of chain .... 체인의 곡률반경

Calculation of the height of installation for chain / 케이블체인 설치높이(H) 산정 방법

$$H = 2R + B$$

H: Length of the upper end & lower end for chain when forming round .... Round 형성시 체인 상부끝과 하부끝의 총 길이
R: Bending radius of chain .... 체인 곡률반경
B: The height for outer width for chain .... 체인의 외폭높이

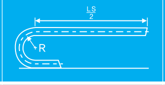
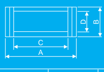
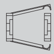
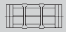
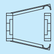
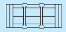
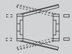
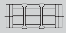
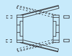
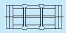
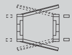
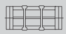
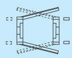
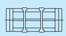
체인설치시 적정 높이: H + @   @: 체인사양에 따라 변동 (ex. CPS068N, CPS077N은 +40mm)
Proper height of installing chain: H + @   @: It depends on the sort of chain(ex. CPS068N,077N =+40mm)

Calculation of the bending radius for cable chain / 설치된 케이블체인 곡률반경 산정 방법

$$R = (H - B) / 2$$

Check the total height of chain first, height of chain, and subtract the height of outer height from it, finally divide it by 2.
체인의 전체높이를 체크한 뒤 체인 외폭높이를 뺀후 2로 나눈 값이 체인의 곡률반경값이다.

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

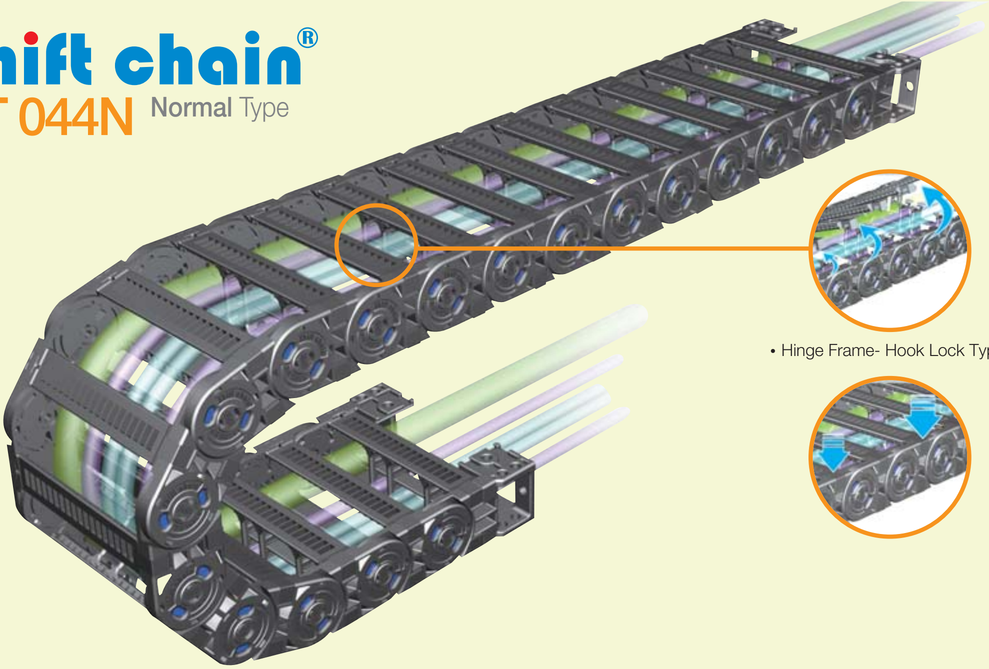
Shift Chain N Type	Pitch	Bending Radius R 	Weight kg/m	Speed m/sec	Temperature °C	Clearance  A	B	C	D	Frame style	Divider possible with frame
ST044N.035	44	50, 70, 90, 120, 150	0.93	10	-30 ~ +130	56	38	35	26		
ST044N.050	44		0.97			71	38	50	26		
ST044N.055	44		1.00			76	38	55	26		
ST044N.075	44		1.06			96	38	75	26		
ST044N.100	44		1.17			121	38	100	26		
ST044N.125	44		1.30			146	38	125	26		
ST044N.150	44		1.43			171	38	150	26		
ST044N.175	44		1.78			196	38	175	26		
ST044N.200	44		1.94			221	38	200	26		
ST055N.035	55	65, 75, 100, 125, 150, 200	1.12	10	-30 ~ +130	56	52	35	40		
ST055N.050	55		1.15			71	52	50	40		
ST055N.055	55		1.18			76	52	55	40		
ST055N.075	55		1.23			96	52	75	40		
ST055N.100	55		1.31			121	52	100	40		
ST055N.125	55		1.41			146	52	125	40		
ST055N.150	55		1.51			171	52	150	40		
ST055N.175	55		1.78			196	52	175	40		
ST055N.200	55		1.92			221	52	200	40		
ST072N.050	72	72, 100, 120, 145, 200, 250, 300	2.10	10	-30 ~ +130	82	66	50	45		
ST072N.075	72		2.20			107	66	75	45		
ST072N.100	72		2.30			132	66	100	45		
ST072N.125	72		2.43			157	66	125	45		
ST072N.150	72		2.56			182	66	150	45		
ST072N.175	72		2.66			207	66	175	45		
ST072N.200	72		3.11			232	66	200	45		
ST072N.250	72		3.24			282	66	250	45		
ST072N.300	72		3.60			332	66	300	45		
ST095N.075	95	135, 150, 200, 230, 280, 400	3.11	10	-30 ~ +130	113	82	75	56		
ST095N.100	95		3.17			138	82	100	56		
ST095N.125	95		3.37			163	82	125	56		
ST095N.150	95		3.49			188	82	150	56		
ST095N.175	95		3.60			213	82	175	56		
ST095N.200	95		3.79			238	82	200	56		
ST095N.250	95		4.05			288	82	250	56		
ST095N.300	95		4.31			338	82	300	56		
ST095N.350	95		4.69			388	82	350	56		
ST095N.400	95		5.05			438	82	400	56		
ST120N.075	120	180, 200, 250, 300, 350, 400, 500	4.41	10	-30 ~ +130	117	108	75	78		
ST120N.100	120		4.53			142	108	100	78		
ST120N.125	120		4.67			167	108	125	78		
ST120N.150	120		4.78			192	108	150	78		
ST120N.175	120		4.93			217	108	175	78		
ST120N.200	120		5.17			242	108	200	78		
ST120N.250	120		5.47			292	108	250	78		
ST120N.300	120		5.88			342	108	300	78		
ST120N.350	120		6.30			392	108	350	78		
ST120N.400	120		6.73			442	108	400	78		
ST120N.450	120		7.07			492	108	450	78		
ST120N.500	120		7.30			542	108	500	78		
ST120N.550	120		8.13			592	108	550	78		
ST120N.600	120		8.30			642	108	600	78		
ST150N.075	150	205, 305, 405, 505, 605	5.85	10	-30 ~ +130	121	140	75	110		
ST150N.100	150		5.96			146	140	100	110		
ST150N.125	150		6.08			171	140	125	110		
ST150N.150	150		6.18			196	140	150	110		
ST150N.175	150		6.30			221	140	175	110		
ST150N.200	150		6.51			246	140	200	110		
ST150N.250	150		6.78			296	140	250	110		
ST150N.300	150		7.14			346	140	300	110		
ST150N.350	150		7.51			396	140	350	110		
ST150N.400	150		7.88			446	140	400	110		
ST150N.450	150		8.18			496	140	450	110		
ST150N.500	150		8.37			546	140	500	110		
ST150N.550	150		9.11			596	140	550	110		
ST150N.600	150		9.26			646	140	600	110		

Shift chain®

N - TYPE : Normal

Shift chain®

ST 044N Normal Type



• Hinge Frame- Hook Lock Type •

MATERIAL

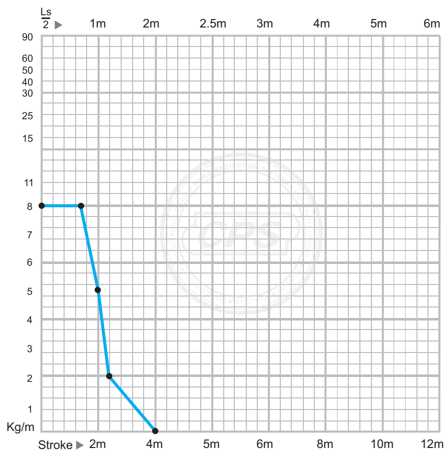
- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise**
- **Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 2.0m
  Vertical curve below= max 40m
  Side Mounted, Unsupported= max 1.0m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.

  겐츄리로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지등 케이블체인의 적용사업장에 사용가능.

- **Calculation of the chain length**

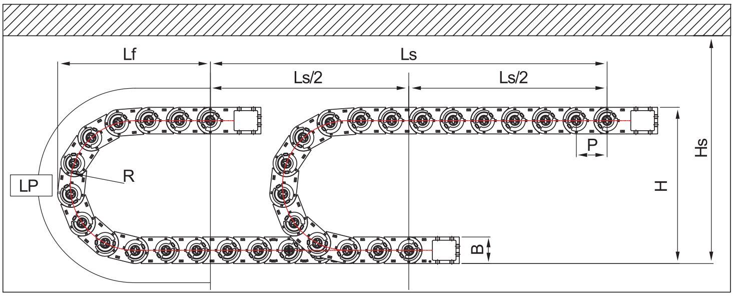
$$\left[\quad L = \frac{Ls}{2} + Lp \quad \right]$$

- **Load diagrams self-supporting length**



ST 044N Normal Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
L f: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	50	70	90	120	150
Lp	333	396	459	553	648
L f	157	177	197	227	257
H	138	178	218	278	338

ST 044N Type

Pitch P: 44mm
Height B: 38mm
Height H: 2R+38mm
Hs≧ H+30mm

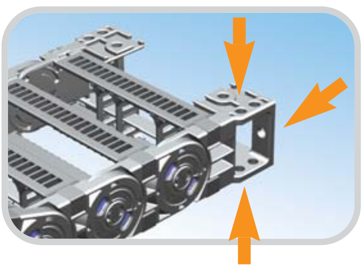
ORDERING (주문방법)

ST 044N. 100. R120 / F - 1500L : 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
표준형타입	Normal Type

Shift Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

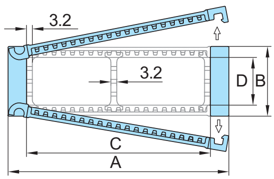
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

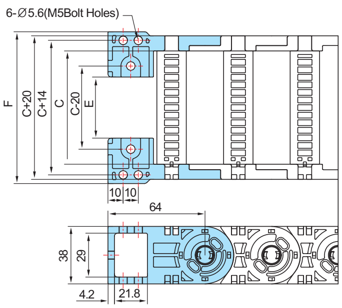
ST 044N Normal Type

CHAIN CROSS SECTION

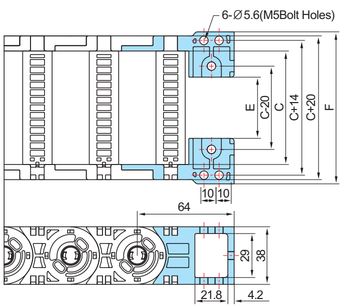


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 044N.035	56		35			0.93
ST 044N.050	71		50			0.97
ST 044N.055	76		55			1.00
ST 044N.075	96		75			1.06
ST 044N.100	121	38	100	26	50, 70, 90, 120, 150	1.17
ST 044N.125	146		125			1.30
ST 044N.150	171		150			1.43
ST 044N.175	195		175			1.78
ST 044N.200	221		200			1.94

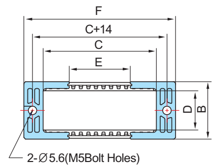
FREE END BRAKET



ST044N Moving point



ST044N Fixing point

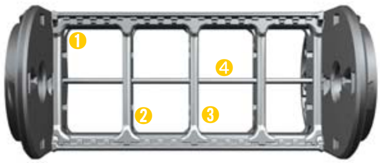


ST044N Front point

Chain Type	F	B	C	D	E	Hole Type
ST 044N.035	60.4		35		0.4	
ST 044N.050	75.4		50		15.4	
ST 044N.055	80.4		55		20.4	
ST 044N.075	100.4		75		40.4	
ST 044N.100	125.4	38	100	26	65.4	M5 Bolt Holes
ST 044N.125	150.4		125		90.4	
ST 044N.150	175.4		150		115.4	
ST 044N.175	200.4		175		140.4	
ST 044N.200	225.4		200		165.4	

ST 044N Normal Type

DIVIDERS & SEPARATORS

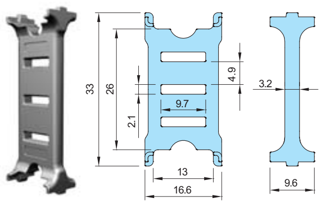


1. DV-S (측면전용디바이더)
2. DV-M
3. DV-T
4. Separator(SP)

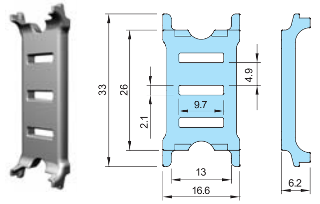
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

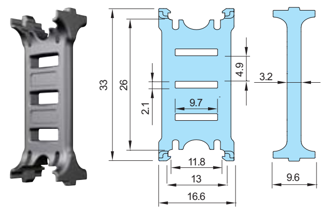
ST 044N DV-M



ST 044N DV-S



ST 044N DV-T



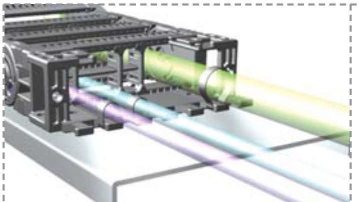
▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 125~200적용(상하 프레임을 연결)

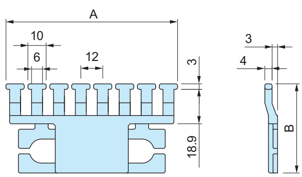
ST044N Separators (SP) (No. : S-SP/M)

Chain Type \ Separators	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
ST 044N	○	○	○	○	○	○	○	○	○
ST 055N	○	○	○	○	○	○	○	○	○

TIE WRAP



Attach to Bracket (브라켓 결합용)



(Dimensions in mm)

Tie Wrap	035	055	075	100	125
A	46	70	94	118	142
B	35.4	48.9	48.9	48.9	48.9

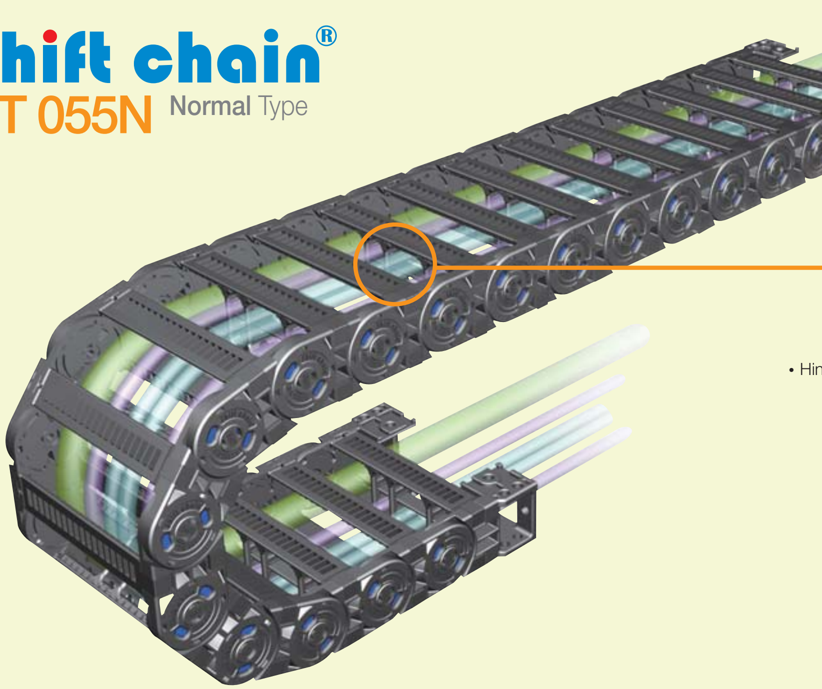
The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap;Attached & Unattached to the bracket.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Shift Chain의 Tie Wrap은 브라켓부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양 으로 구분되어 사용할 수 있다.

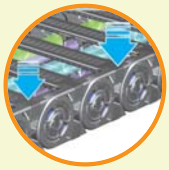
Min ●●○○○○ Max

Shift chain®

ST 055N Normal Type



• Hinge Frame- Hook Lock Type •



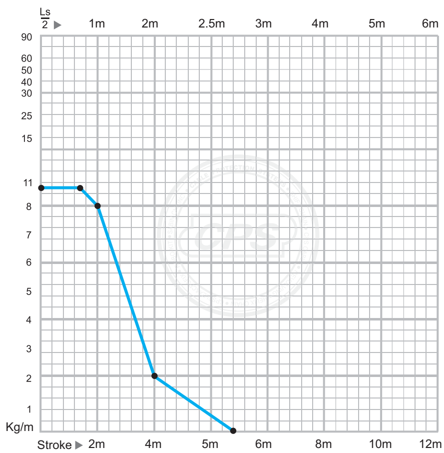
MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise:**
- **Low Mote:**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 3.0m
  Vertical curve below= max 50m
  Side Mounted, Unsupported= max 1.0m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.

  겐츄리로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지등 케이블 체인의 적용사업장에 사용가능.
- **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

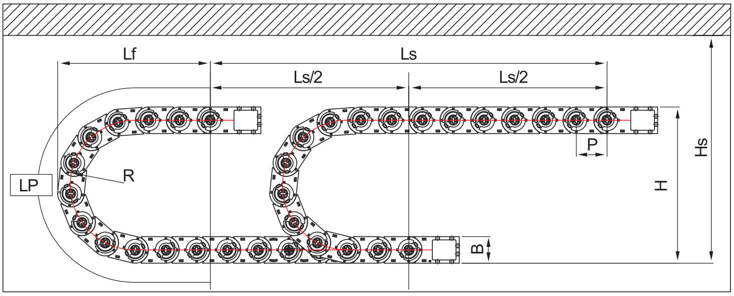
- **Load diagrams self-supporting length**



SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

ST 055N Normal Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	65	75	100	125	150	200
Lp	424	456	535	613	692	849
L f	201	211	236	261	286	336
H	182	202	252	302	352	452

ST 055N Type

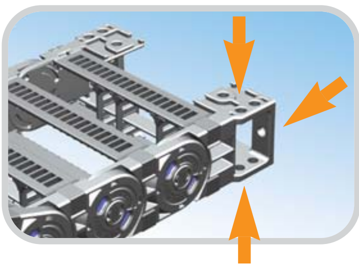
Pitch P: 55mm
Height B: 52mm
Height H: 2R+52mm
Hs≧ H+35mm

ORDERING (주문방법)

ST 055N. 150. R150 / F - 1800L : 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
표준형타입	Normal Type
Shift Chain	

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

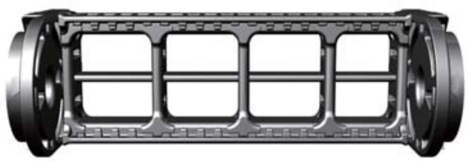
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

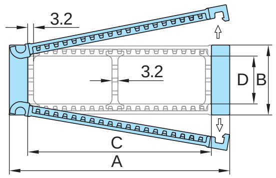
체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 055N Normal Type

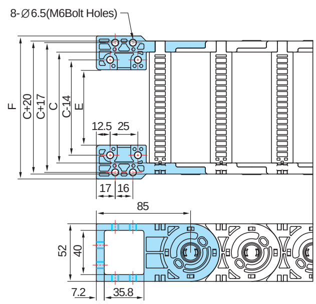
CHAIN CROSS SECTION



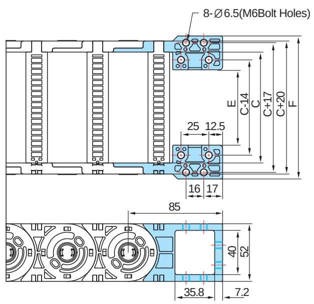


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 055N.035	56		35			1.12
ST 055N.050	71		50			1.15
ST 055N.055	76		55			1.18
ST 055N.075	96		75			1.23
ST 055N.100	121	52	100	40	65, 75, 100, 125, 150, 200	1.31
ST 055N.125	146		125			1.41
ST 055N.150	171		150			1.51
ST 055N.175	195		175			1.78
ST 055N.200	221		200			1.92

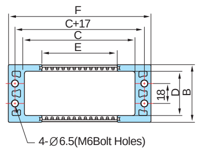
FREE END BRAKET



ST055N Moving point



ST055N Fixing point

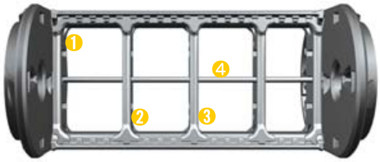


ST055N Front point

Chain Type	F	B	C	D	E	Hole Type
ST 055N.035	64		35		3	
ST 055N.050	79		50		18	
ST 055N.055	84		55		23	
ST 055N.075	104		75		43	
ST 055N.100	129	52	100	40	68	M6 Bolt Holes
ST 055N.125	154		125		93	
ST 055N.150	179		150		118	
ST 055N.175	204		175		143	
ST 055N.200	229		200		168	

ST 055N Normal Type

DIVIDERS & SEPARATORS

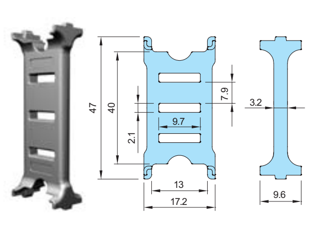


❶ DV-S (측면전용디바이더)
❷ DV-M
❸ DV-T
❹ Separator(SP)

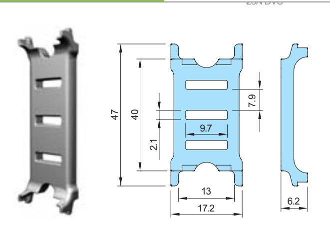
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

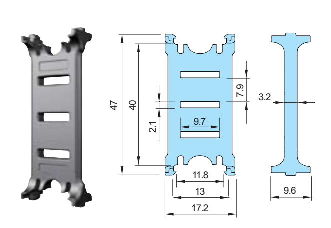
ST 055N DV-M



ST 055N DV-S



ST 055N DV-T



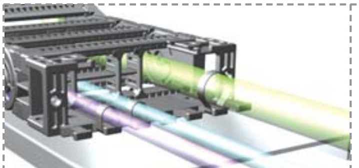
▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 125~200적용(상하 프레임을 연결)

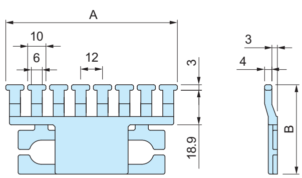
ST044N Separators (SP) (No. : S-SP/M)

Separators / Chain Type	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
ST 044N	○	○	○	○	○	○	○	○	○
ST 055N	○	○	○	○	○	○	○	○	○

TIE WRAP



Attach to Bracket (브라켓 결합용)



(Dimensions in mm)

Tie Wrap	035	055	075	100	125
A	46	70	94	118	142
B	35.4	48.9	48.9	48.9	48.9

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap;Attached & Unattached to the bracket.

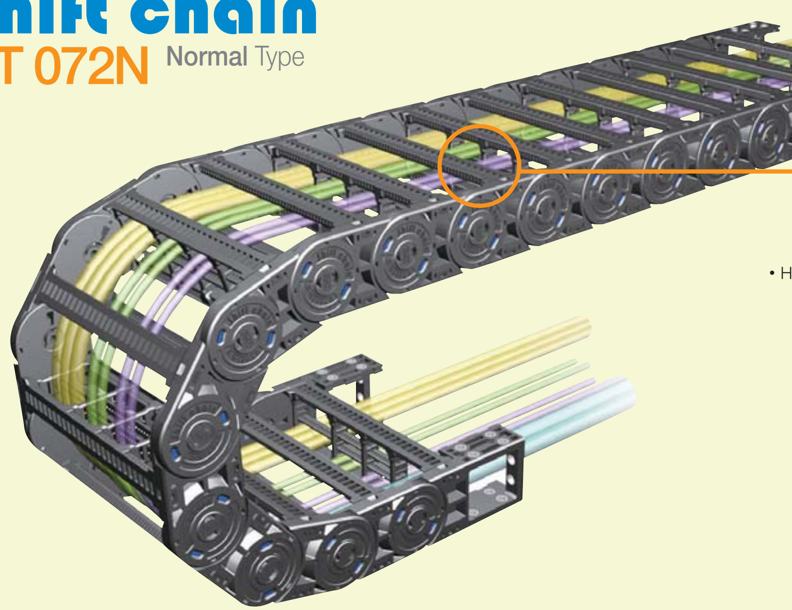
Tie Wrap은 Shift Chain의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Shift Chain의 Tie Wrap은 브라켓부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양 으로 구분되어 사용할 수 있다.

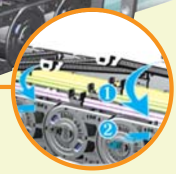
When using the tie wrap option for the Shift Chain ST 055 series, the corresponding frame sizes will be 50, 75, 100, 125, 150, 175 and 200mm respectively. ST 055N, 제품은 삽입형 Tie Wrap을 사용하며 적용되는 Frame은 50, 75, 100, 125, 150, 175, 200 입니다.

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

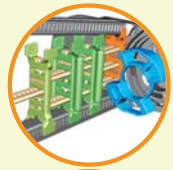
Shift chain®

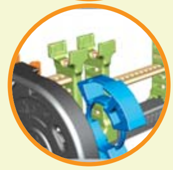
ST 072N Normal Type





• Hinge Frame - Pin Lock Type •



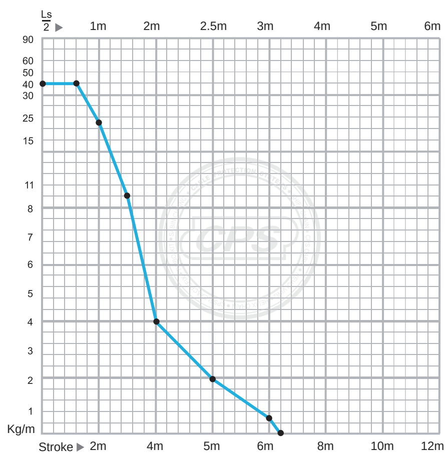


• Shift chain - 내부구조 •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise**
- **Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 6.0m
  Vertical curve below= max 100m
  Side Mounted, Unsupported= max   2.5m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.
  겐츄리로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지등 케이블 체인의 적용사업장에 사용가능.

- **Load diagrams self-supporting length**

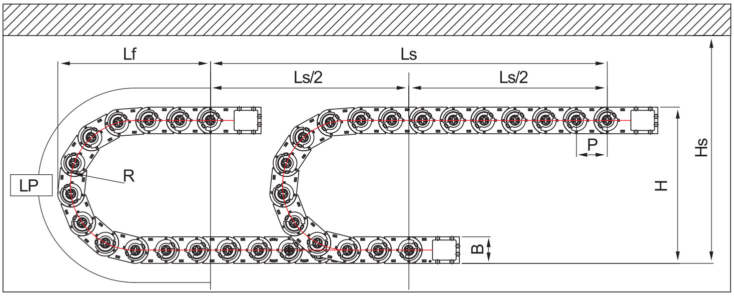


- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

ST 072N Normal Type

LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	72	100	120	145	200	250	300
Lp	514	603	665	743	916	1,074	1,230
L f	249	277	297	322	377	427	477
H	210	266	306	356	466	566	666

Ls: Stroke
Lp: Loop Length
L f: Loop Projection
Hs: Safe Space

ST 072N Type

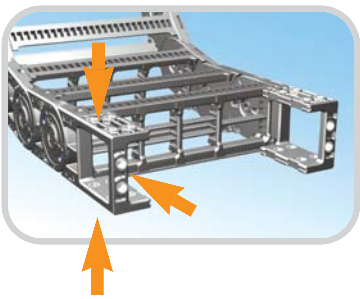
Pitch P: 72mm
Height B: 66mm
Height H: 2R+66mm
Hs≧ H+40mm

ORDERING (주문방법)

ST 072N. 175. R200 / F - 2000L : 10ST

- 주문수량 Q´ ty(set)
- 체인길이 Length(mm)
- 브라켓 Free End Bracket
- 곡률반경 Bending Radius
- 내폭 Inside Width
- 표준형타입 Normal Type
- Shift Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

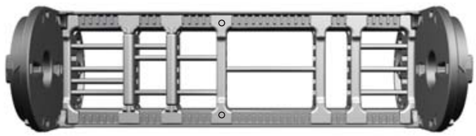
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel spacers are inserted into the fixing holes of each Free End Bracket.

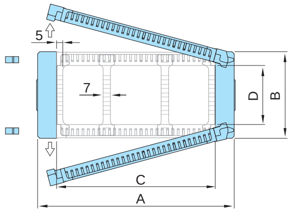
체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임. 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 072N Normal Type

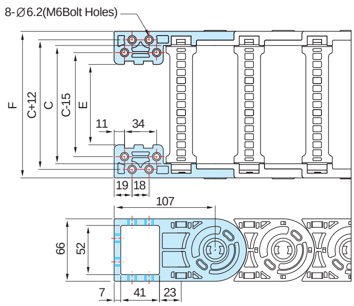
CHAIN CROSS SECTION



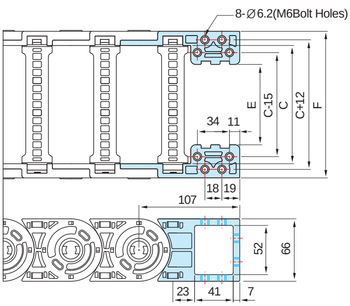


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 072N.050	82	66	50	45	72, 100, 120, 145, 200, 250, 300	2.10
ST 072N.075	107		75			2.20
ST 072N.100	132		100			2.30
ST 072N.125	157		125			2.43
ST 072N.150	182		150			2.56
ST 072N.175	207		175			2.66
ST 072N.200	232		200			3.11
ST 072N.250	282		250			3.24
ST 072N.300	332		300			3.60

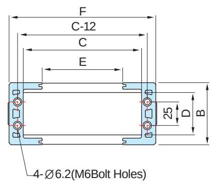
FREE END BRAKET



ST072N Moving point



ST072N Fixing point

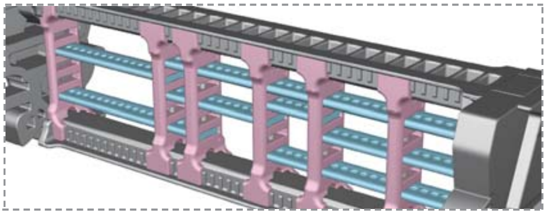


ST072N Front point

Chain Type	F	B	C	D	E	Hole Type
ST 072N.050	82	66	50	45	10	M6 Bolt Holes
ST 072N.075	107		75		35	
ST 072N.100	132		100		60	
ST 072N.125	157		125		85	
ST 072N.150	182		150		110	
ST 072N.175	207		175		135	
ST 072N.200	232		200		160	
ST 072N.250	282		250		210	
ST 072N.300	332		300		260	

ST 072N Normal Type

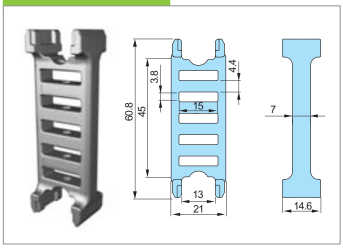
DIVIDERS



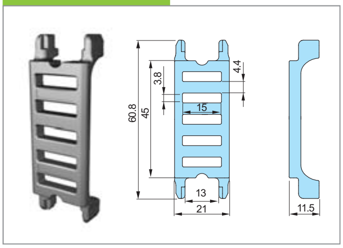
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다. 또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

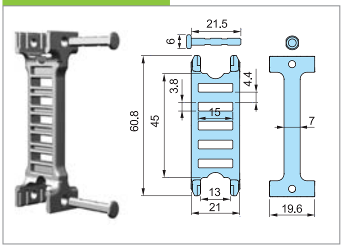
ST072N DV-M



ST072N DV-S



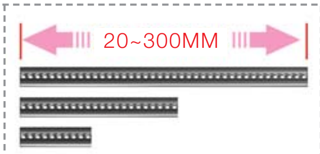
ST072N DV-T



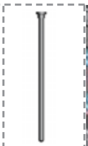
▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 200~300적용(상하 프레임을 연결)

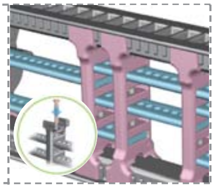
SEPARATORS (SP)



Separator (SP)



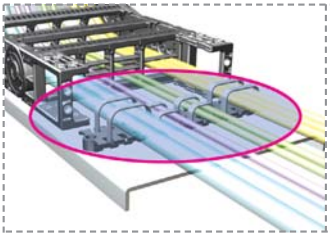
Separator Pin (SP-Pin)

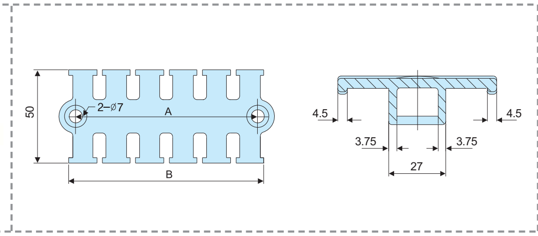


Separator is available in length from 20mm to 300mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대300mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

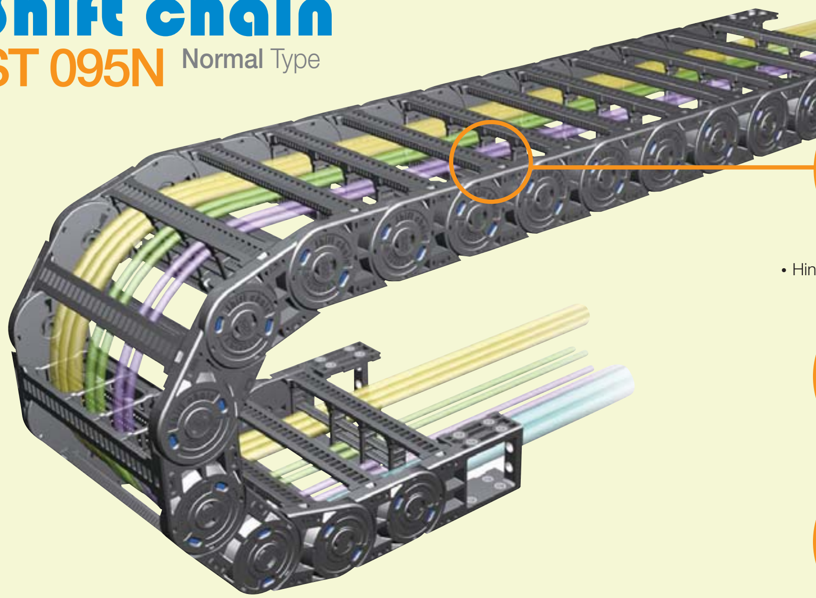
Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥쪽으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다..

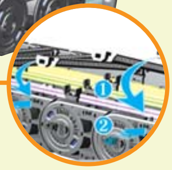
(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

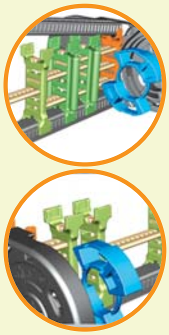
Min ●●●●○○ Max

Shift chain®
ST 095N Normal Type





• Hinge Frame - Pin Lock Type •



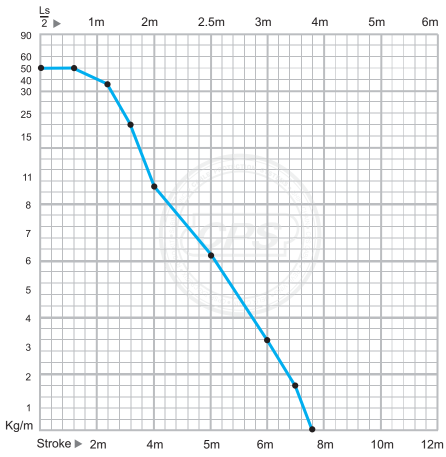
• Shift chain - 내부구조 •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise**
- **Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 6.0m
  Vertical curve below= max 100m
  Side Mounted, Unsupported= max 3.0m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.

  겐츄리로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지등 케이블 체인의 적용사업장에 사용가능.

- **Load diagrams self-supporting length**

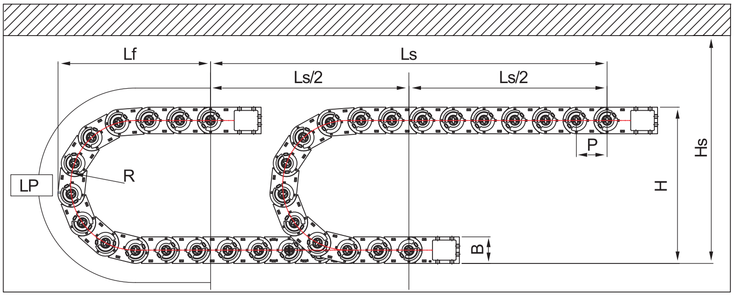


- **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

ST 095N Normal Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
L f: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	135	150	200	230	280	400
Lp	805	855	1,010	1,110	1,260	1,640
L f	364	374	428	459	505	629
H	352	382	482	542	642	882

ST 095N Type

Pitch P: 95mm
Height B: 82mm
Height H: 2R+82mm
Hs≧ H+50mm

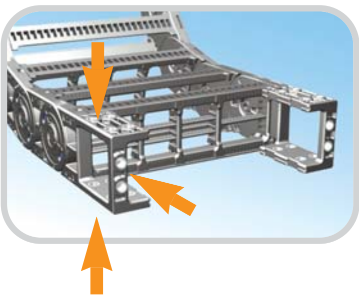
ORDERING (주문방법)

ST 095N. 200. R230 / F - 2500L : 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
표준형타입	Normal Type

Shift Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

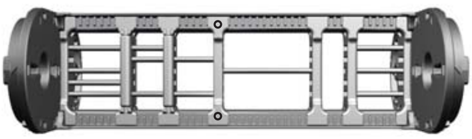
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel spacers are inserted into the fixing holes of each Free End Bracket.

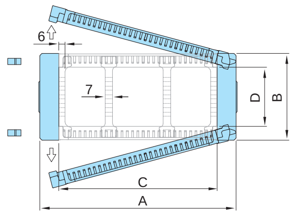
체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임. 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

*Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 095N Normal Type

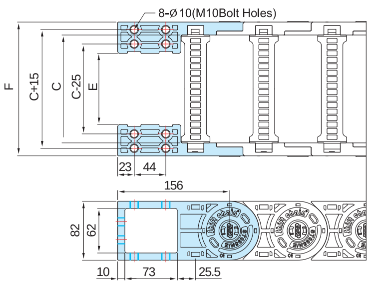
CHAIN CROSS SECTION



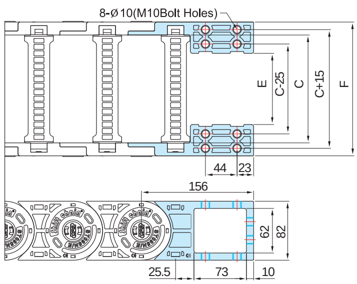


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 095N.075	113	82	75	56	135, 150, 200, 230, 280, 400	3.11
ST 095N.100	138		100			3.17
ST 095N.125	163		125			3.37
ST 095N.150	188		150			3.49
ST 095N.175	213		175			3.60
ST 095N.200	238		200			3.79
ST 095N.250	288		250			4.05
ST 095N.300	338		300			4.31
ST 095N.350	388		350			4.69
ST 095N.400	438		400			5.05

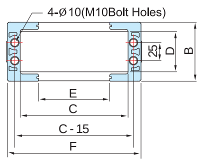
FREE END BRAKET



ST095N Moving point



ST095N Fixing point



ST095N Front point

Chain Type	F	B	C	D	E	Hole Type
ST 095N.075	113	82	75	56	24	M10 Bolt Holes
ST 095N.100	138		100		49	
ST 095N.125	163		125		74	
ST 095N.150	188		150		99	
ST 095N.175	213		175		124	
ST 095N.200	238		200		149	
ST 095N.250	288		250		199	
ST 095N.300	338		300		249	
ST 095N.350	388		350		299	
ST 095N.400	438		400		349	

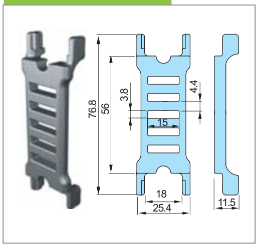
ST 095N Normal Type

DIVIDERS

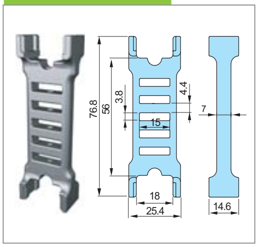
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다. 또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

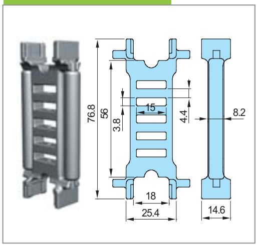
ST095N DV-S



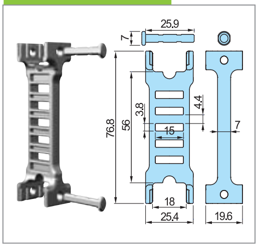
ST095N DV-M



ST095N DV-R



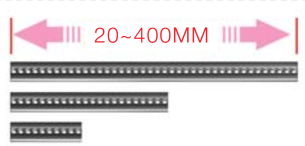
ST095N DV-T



▶ Assemble divider every Two links. / 2링크마다 결합

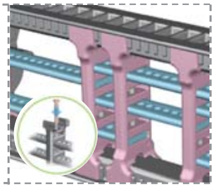
▶ DV/T : Frame 250~400적용(상하 프레임을 연결)

SEPARATORS (SP)



Separator (SP)

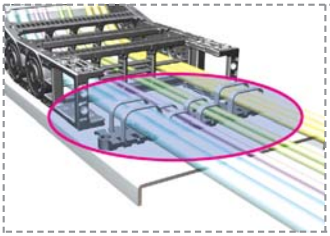
Separator Pin (SP-Pin)

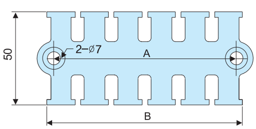


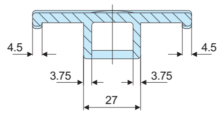
Separator is available in length from 20mm to 400mm and can be cut every 5mm for use.
The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대400mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP







The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥쪽으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다..

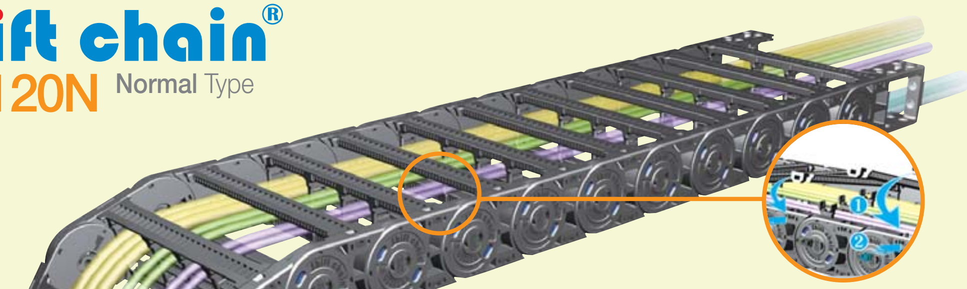
(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

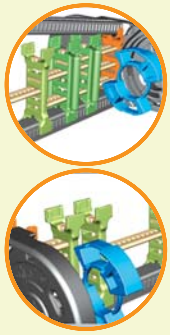
Min ●●●●●○ Max

Shift chain®

ST 120N Normal Type



• Hinge Frame - Pin Lock Type •



• Shift chain - 내부구조 •

MATERIAL

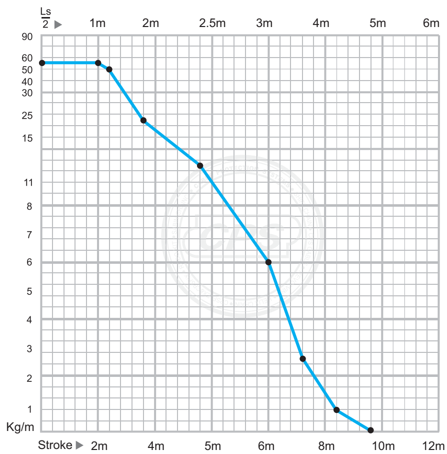
- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise**
- **Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 6.0m
  Vertical curve below= max 120m
  Side Mounted, Unsupported= max 3.0m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.

  겐츄리로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지등 케이블 체인의 적용사업장에 사용가능.

- **Calculation of the chain length**

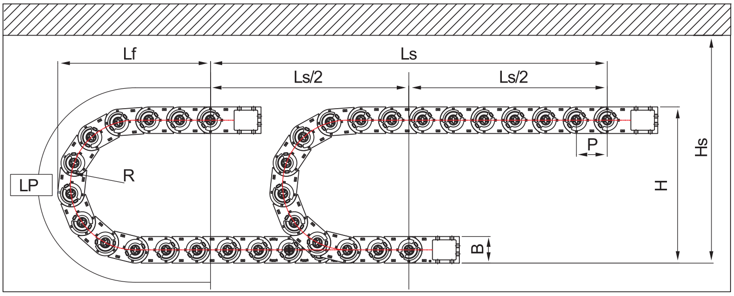
$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

- **Load diagrams self-supporting length**



ST 120N Normal Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	180	200	250	300	350	400	500
Lp	1,046	1,109	1,266	1,423	1,580	1,737	2,051
L f	474	494	544	594	644	694	794
H	468	508	608	808	808	908	1,108

ST 120N Type

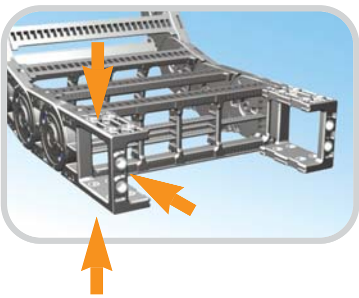
Pitch P: 120mm
Height B: 108mm
Height H: 2R+108mm
Hs≧ H+60mm

ORDERING (주문방법)

ST 120N. 400. R300 / F - 3000L : 10ST

- 주문수량 Q´ ty(set)
- 체인길이 Length(mm)
- 브라켓 Free End Bracket
- 곡률반경 Bending Radius
- 내폭 Inside Width
- 표준형타입 Normal Type
- Shift Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel spacers are inserted into the fixing holes of each Free End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임. 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

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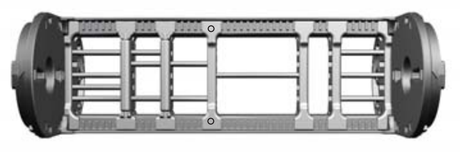
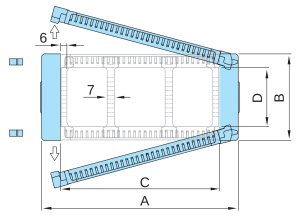
ST 120N Normal Type

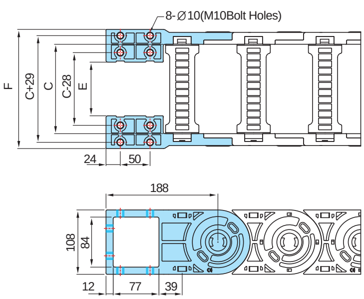
CHAIN CROSS SECTION



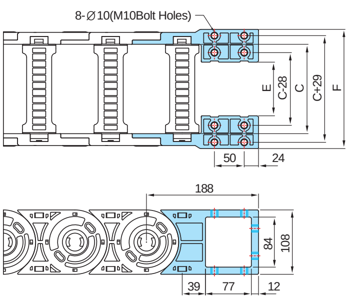


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 120N.075	117		75			4.41
ST 120N.100	142		100			4.53
ST 120N.125	167		125			4.67
ST 120N.150	192		150			4.78
ST 120N.175	217		175			4.93
ST 120N.200	242		200			5.17
ST 120N.250	292	108	250	78	180, 200, 250, 300, 350, 400, 500	5.47
ST 120N.300	342		300			5.88
ST 120N.350	392		350			6.30
ST 120N.400	442		400			6.73
ST 120N.450	492		450			7.07
ST 120N.500	542		500			7.30
ST 120N.550	592		550			8.13
ST 120N.600	642		600			8.30

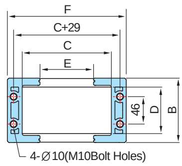
FREE END BRACKET



ST120N Moving point



ST120N Fixing point



ST120N Front point

Chain Type	F	B	C	D	E	Hole Type
ST 120N.075	125		75		15	
ST 120N.100	150		100		40	
ST 120N.125	175		125		65	
ST 120N.150	200		150		90	
ST 120N.175	225		175		115	
ST 120N.200	250		200		140	
ST 120N.250	300	108	250	78	190	M10 Bolt Holes
ST 120N.300	350		300		240	
ST 120N.350	400		350		290	
ST 120N.400	450		400		340	
ST 120N.450	500		450		390	
ST 120N.500	550		500		440	
ST 120N.550	600		550		490	
ST 120N.600	650		600		540	

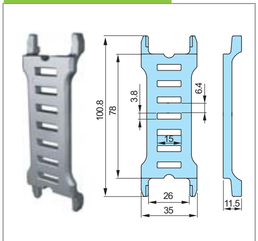
ST 120N Normal Type

DIVIDERS

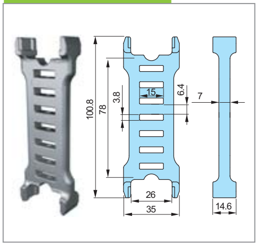
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다. 또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

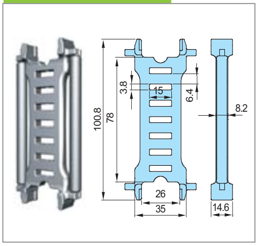
ST120N DV-S



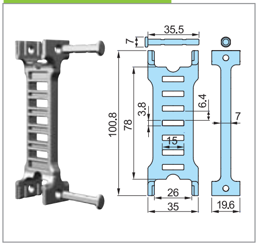
ST120N DV-M



ST120N DV-R



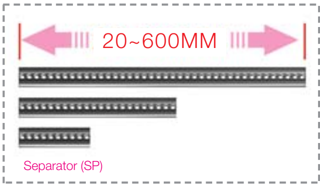
ST120N DV-T

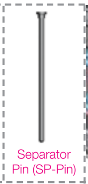


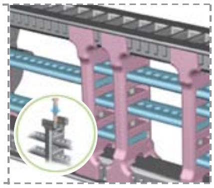
▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 300~600적용(상하 프레임을 연결)

SEPARATORS (SP)



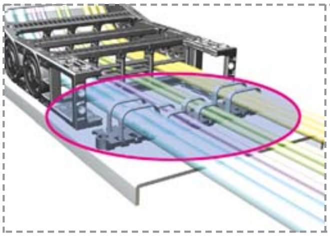


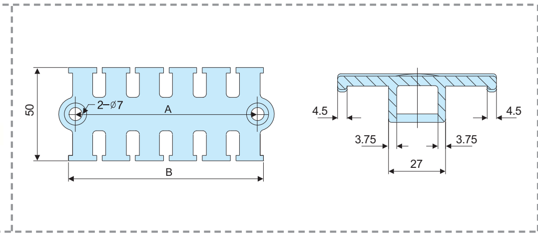


Separator is available in length from 20mm to 600mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대600mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

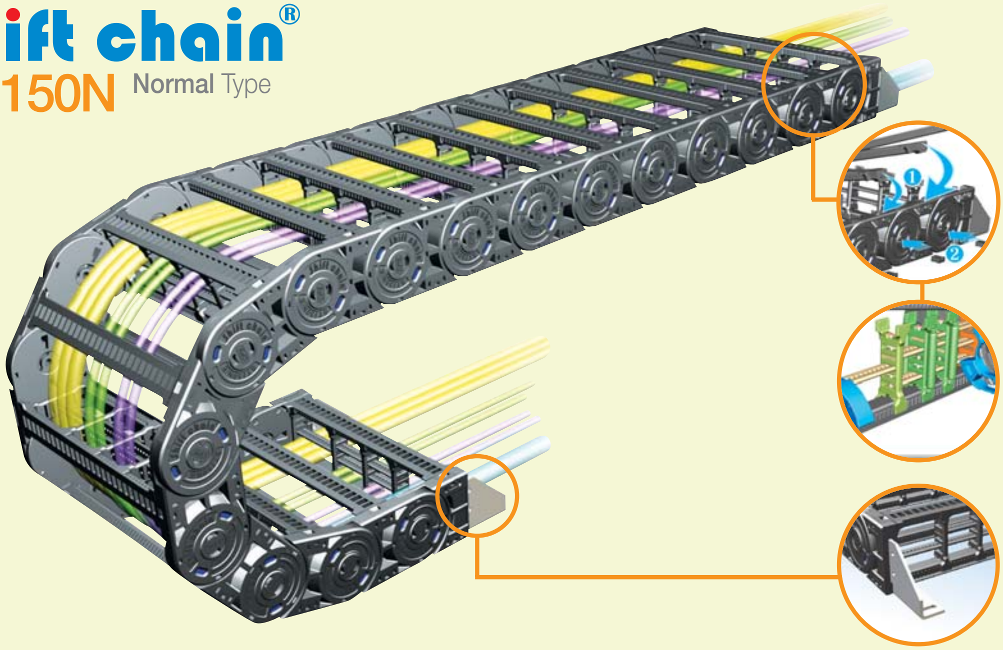
Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥쪽으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

Min ●●●●●● Max

Shift chain®
ST 150N Normal Type



• Steel Bracket •

MATERIAL

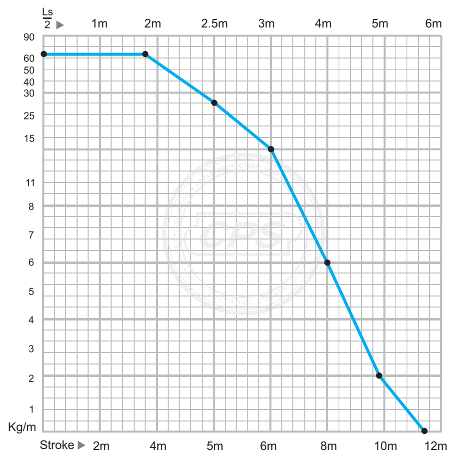
- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise**
- **Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 7.0m
  Vertical curve below= max 150m
  Side Mounted, Unsupported= max 4.0m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.

  겐츄리로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지등 케이블 체인의 적용사업장에 사용가능.

- **Calculation of the chain length**

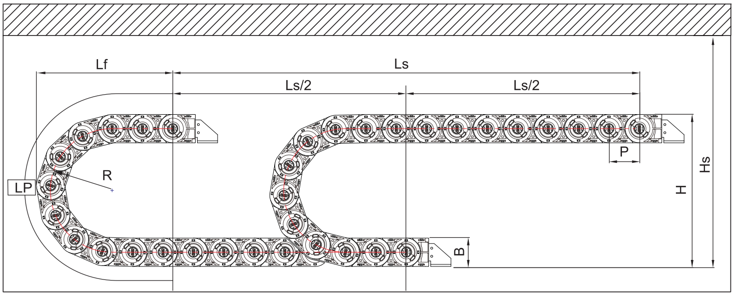
$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

- **Load diagrams self-supporting length**



ST 150N Normal Type

LAY OUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	205	305	405	505	605
Lp	1,215	1,510	1,807	2,106	2,405
L f	561	651	743	835	928
H	550	750	950	1,150	1,350

ST 150N Type

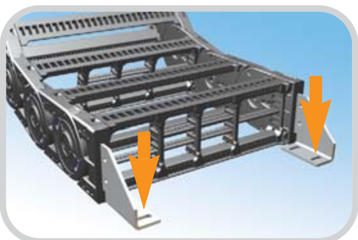
Pitch P: 150mm
Height B: 140mm
Height H: 2R+140mm
Hs≧ H+80mm

ORDERING (주문방법)

ST 150N. 400. R405 / B_1- 3000L :10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	End Bracket (B1, B2, B3)
곡률반경	Bending Radius
내폭	Inside Width
표준형타입	Normal Type
Shift Chain	

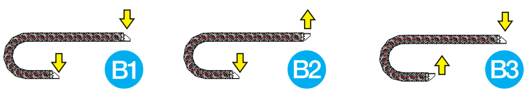
BRACKET TYPE (브라켓타입)



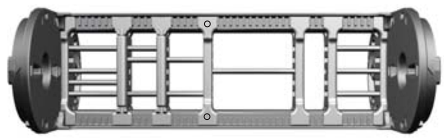
SEB (Steel End Bracket)

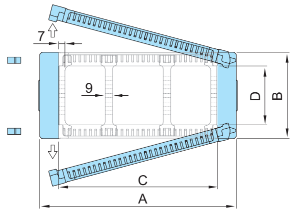
For ST150N, its end parts of cable chain being fixed are used with steel bracket, and it is possible to be installed B1, B2, B3 types of brackets.

체인을 고정하는 끝부분으로 ST150N사양은 ST체인의 다른사양과는 달리 스틸브라켓을 사용하며 브라켓의 설치형태에 따라 B1, B2, B3 등으로 구분설치가능하다.



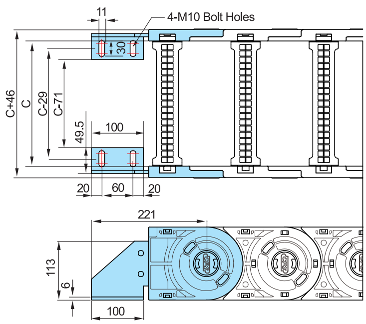
CHAIN CROSS SECTION



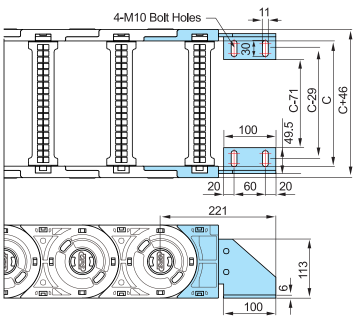


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 150N.075	121		75			5.85
ST 150N.100	146		100			5.96
ST 150N.125	171		125			6.08
ST 150N.150	196		150			6.18
ST 150N.175	221		175			6.30
ST 150N.200	246		200			6.51
ST 150N.250	296	140	250	110	205, 305, 405, 505, 605	6.78
ST 150N.300	346		300			7.14
ST 150N.350	396		350			7.51
ST 150N.400	446		400			7.88
ST 150N.450	496		450			8.18
ST 150N.500	546		500			8.37
ST 150N.550	596		550			9.11
ST 150N.600	646		600			9.26

END BRACKET (STEEL TYPE)



ST150N Moving point

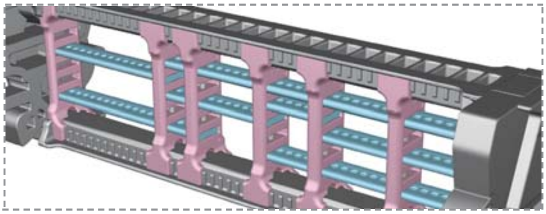


ST150N Fixing point

Chain Type	B	C	D	E	Hole Type
ST 150N.075		75			
ST 150N.100		100			
ST 150N.125		125			
ST 150N.150		150			
ST 150N.175		175			
ST 150N.200		200			
ST 150N.250	140	250	110		M10 Bolt Holes
ST 150N.300		300			
ST 150N.350		350			
ST 150N.400		400			
ST 150N.450		450			
ST 150N.500		500			
ST 150N.550		550			
ST 150N.600		600			

ST 150N Normal Type

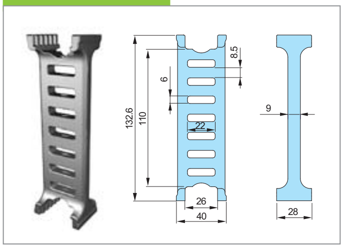
DIVIDERS



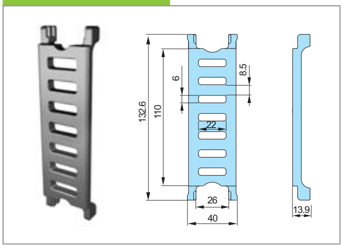
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다. 또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

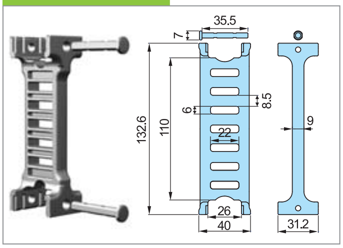
ST150N DV-M



ST150N DV-S



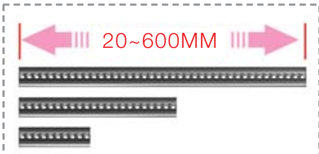
ST150N DV-T



▶ Assemble divider every Two links. / 2링크마다 결합

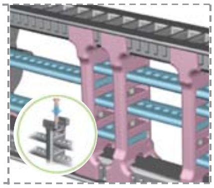
▶ DV/T : Frame 300~600적용(상하 프레임을 연결)

SEPARATORS (SP)



Separator (SP)

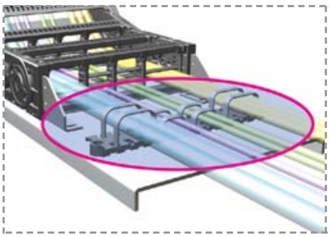
Separator Pin (SP-Pin)

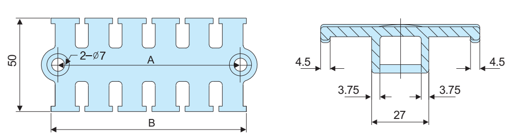


Separator is available in length from 20mm to 600mm and can be cut every 5mm for use.The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대600mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥쪽으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다..

(Dimensions in mm)

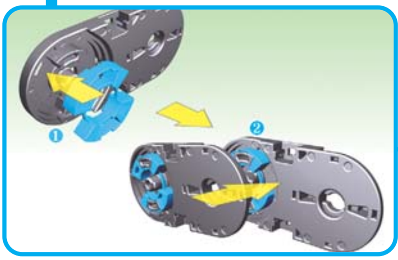
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

ASSEMBLY PROCEDURE / NORMAL Type

The assembling process of Shift Chain N-Type is like below and you must use rubber hammer with careful combination of Divider and Separator. Be careful of different assembling process depending on product specification such as ST044N, 055N Type, ST072N, 095N, 120N Type, ST150N Type, etc.

Shift Chain N-Type의 조립순서는 아래와 같이 진행하며 케이블의 입선수량에 따라 디바이더와 세퍼레이터의 조합을 유의하면서 반드시 고무망치를 사용하여 조립합니다. 또한 044N, 055NType과 072N, 095N, 120N Type 그리고 150N Type 등 제품사양에 따라 조립구성이 달라지는점을 유의하며 조립하시기 바랍니다.

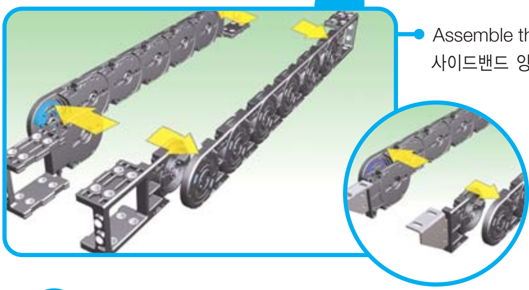
1



Insert BR unit to each side band, connect the side bands as many as you need, then do the same process to the other side of side band.

사이드밴드에 BR링을 삽입(❶)하고 BR링이 삽입된 사이드밴드를 원하는 길이만큼 연결(❷). 좌,우 사이드밴드 동일하게 연결.

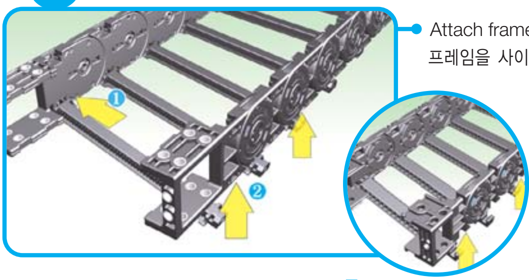
2



Assemble the end brackets on both ends using the same method.
사이드밴드 양쪽 끝부분에 FEB를 결합.

For ST150N, assemble steel brackets on both ends.
ST 150N은 스틸 브라켓을 사용하여 결합.

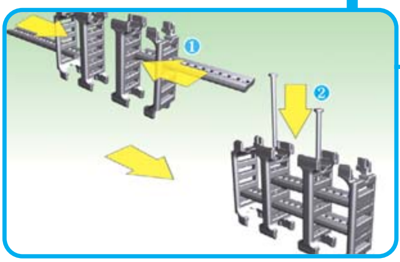
3



Attach frames to one side groove on the side band,and then the other side.
프레임을 사이드밴드 측면 홈에 끼우고(❶), 다른측면의 사이드밴드홈에 결합(❷).

ST 044N, 055N are Hinge Type or Hook Type without frame pin.
044, 055 Type의 경우 동일한 Hinge Type이나 프레임 고정핀없이 Hook 고정방식.

4

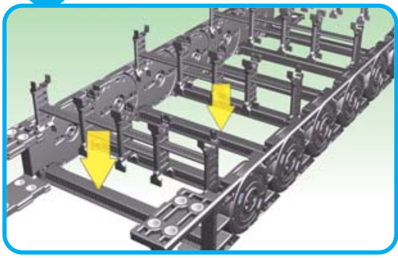


For ST072N, 095N,120N, and 150N, connect the pin of separator in hole of divider after inserting separator in hole of divider. For ST044N and ST055N, separator fixing pins are not used.

디바이더를 종류별로 구분하여 미리 절단된 세퍼레이터를 디바이더 홈에 결합시킨 후 세퍼레이터 고정핀을 디바이더 홈에 결합(ST072N, 095N, 120N, 150N). 044N,055N Type은 세퍼레이터 고정핀 사용안함.

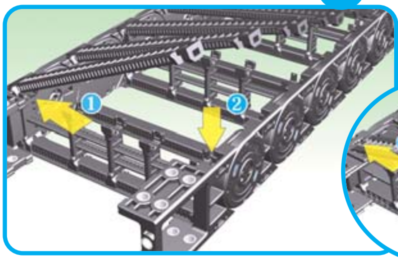
ASSEMBLY PROCEDURE / NORMAL Type

5

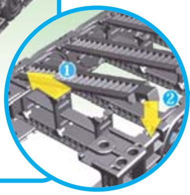


- Fix the separator and divider patterns to the bottom-side frames as needed.
  세퍼레이터가 결합된 디바이더를 하측프레임에 결합.

6

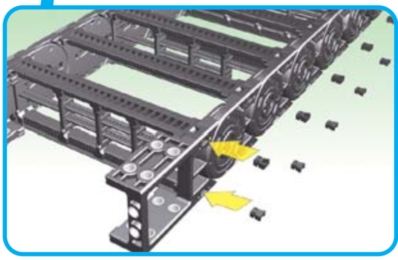


- Attach frames to one side groove on the side band, and then the other side.
  프레임을 사이드밴드 측면 홈에 끼우고(1) 다른측면의 사이드밴드홈에 결합(2).



- ST044N, 055N Frame Type

7



- Insert frame pins to secure the frames and complete carrier. (ST072N, 095N, 120N, 150N are applied with frame pin, and ST044N, 055N are Hinge Type or Hook Type without frame pin.)

  결합된 프레임과 사이드밴드의 측면의 홈에 프레임 고정핀으로 결합.
  (프레임 고정핀은 ST072N, 095N, 120N, 150N Type에 적용되며 044N, 055N Type의 경우 Hinge Type이나 프레임 고정핀 없이 Hook 고정방식.)

8

- Assembled Shift Chain N-Type is assembled.
  Shift Chain N-Type조립완료.

Shift chain®

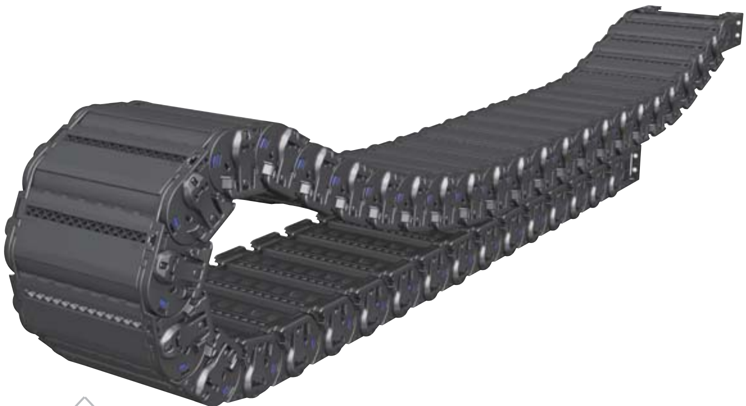
SLIDING - S TYPE : Skid

SHIFT CHAIN S , ES, RS, ERS - TYPE

ST - S Type (Skid)

1. To minimize noise and make stable driving of chain, applies a SKID to the friction surface and those are touched each other smoothly.
2. Improved structure of Side Band could make stronger durability and develop most suitable parts to protect cable damage.

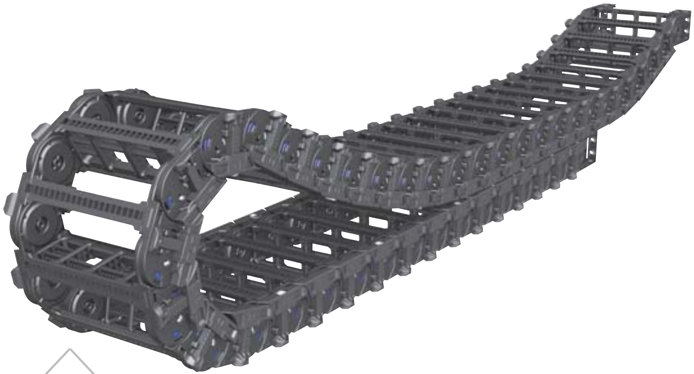
1. 체인의 마찰부에 SKID를 부착하여 상하부 SKID의 면마찰 구동방식을 적용함으로써 소음 최소화 및 안정적인 구동가능.
2. Side Band의 구조를 개선하여 내구성을 강화하였으며, 각부품의 설계를 최적화하여 Cable 손상을 방지할 수 있도록 개발됨.



ST - ES Type (Enclosed Skid)

1. To protect cables perfectly from outside substance, enclosed frame is applied to the ST-S Type for long distance application.
2. This chain can be used in workplace with poor surroundings such as dusts , paints and machining chip etc. (Application: cutting, welding, panting line etc.)

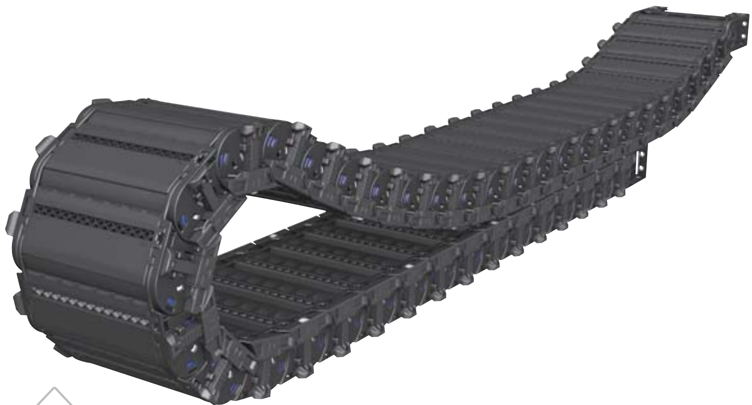
1. ST-S Type에 밀폐형 프레임을 접목하여 설비의 장거리 구동 시에도 외부 이물질로부터 Cable을 완벽하게 보호할 수 있도록 설계.
2. 도료, 분진, 가공 칩 등 열악한 환경의 작업장에 효과적으로 적용가능(절단, 용접, 도장 등의 작업환경에 적합).



ST - RS Type (Roller Skid)

1. To minimize frictional force resulted in disturbing from a SKID, applies a Roller to the friction surface and those are touched each other smoothly. * The coefficient of friction : 0.02~0.07u(Normal Cable chain:0.3~0.04u)
2. It is suitable for the long distance equipment with heavy weight of cable. (more then 50m)

1. ST-S Type에 롤러를 적용하여 상하부 롤러 상호간의 구름 구동방식을 적용함으로써 SKID 간섭에 의한 마찰력을 최소화함.
   마찰 계수 : 0.02~0.07u (일반 케이블 체인 : 0.3~0.4u)
2. Roller의 적용으로 케이블 입선하중이 많고 주행하는 장거리 설비에 적합. (50m이상)



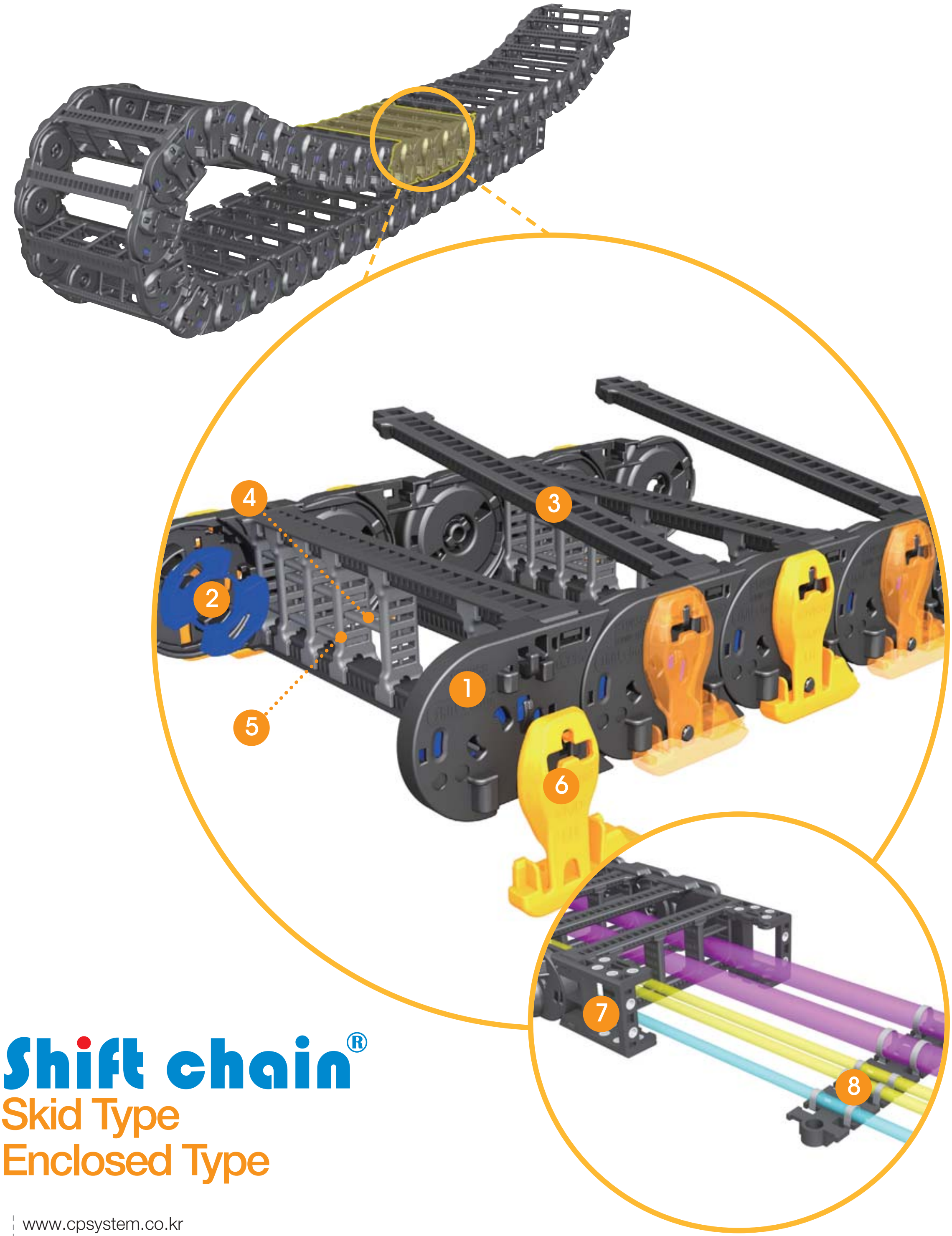
ST - ERS Type (Enclosed Roller Skid)

1. As applying the enclosed frame to ST-RS Type, the cable can be also protected from the any substance perfectly same as ST-RS Type, furthermore, it can be used in more wider place.
2. It is suitable for the long distance equipment with heavy weight of cable. (more then 50m)
3. This chain can be used in workplace with poor surroundings such as dusts , paints and machining chip etc. (cutting, welding, panting etc.)

1. ST-RS Type에 밀폐형 프레임을 접목하여 장거리 구동 시에도 외부 이물질로부터 케이블을 완벽하게 보호 가능하며, 보다 폭넓은 환경에서 사용가능.
2. Roller의 적용으로 케이블 입선하중이 많고 주행하는 장거리 설비에 적합. (50m이상)
3. 도료, 분진, 가공 칩 등 열악한 환경의 작업장에 효과적으로 적용가능(절단, 용접, 도장 등의 작업환경에 적합)

ARTICLE NAME & DETAILS OF SHIFT CHAIN S , ES - TYPE

/ Shift Chain S, ES-Type의 구성명칭 및 세부설명



Shift chain®

Skid Type

Enclosed Type

1 Side Band(SB)

R-Setting inserted band serial coupling type' that strengthen binding since the supporting point of side band is designed as 6 separated points.

R설정 유닛을 삽입한 밴드 직접결합방식으로 Side Band지지 요소를 6지점으로 설계하여 결속력 강화.

2 Bending Radius Unit(BR)

Shift Chain has the unique structure that the value of Bending Radius is decided by Bending Radius unit .

Shift Chain 은 Bending Radius 설정유닛을 Side Band에 삽입하여 원하는 곡률반경(R)값을 구현하는 독창적인 구조.

3 Frame (FR)

[FRU (D) 밀폐형적용가능]

Frame is performed as a supporter of right and left side bands and it is designed with teeth to prevent divider from detaching.

좌우 Side-Band의 연결지지대 역할을 하며 디바이더 고정돌기를 형성하여 디바이더 유동과 이탈을 방지하도록 설계 되었으며 한쪽방향을 오픈 하는 힌지 방식(경첩)의 구조.

4 Separator(SP)

Dividing the inserted cables vertically to prevent twisting of cables and damage of sheath. Can be cut by 5mm for the convenience. When combining with divider, using separator pin it can be fixed hard not to move.

Shift chain 내부에 입선되는 다수의 케이블을 가로로 분리하는 역할로 5mm단위로 절단하여 사용가능하며 디바이더와 결합시 세퍼레이터 고정핀을 사용하여 유동을 방지하여 케이블의 꼬임 및 피복손상을 방지하고 보다 효율적으로 케이블을 보호하는 역할.

5 Divider (DV-S, M, R, T)

Divided the inside of chain vertically to prevent cable from twisting and sheath damage caused by friction. There are S, M, R and T type.

체인에 입선되는 케이블들을 세로방향으로 분리시켜 케이블의 꼬임과 마찰로 인한 피복손상을 방지하는 역할을 하며 S, M, R, T - Type으로 구분하여 사용.

※ SE Type 에는 DV/T적용 안함
Not apply the DV-T to SE - Type.

6 Skid

To minimized inference above and under chain during moving, fnicfion side of skid was chamfered and developed to protect against damage from inteference.

상 • 하부 체인이 이동함에 있어 간섭을 최소화 하기 위해 마찰부위에 라운딩 처리를 하였으며, 견고하고 내구성 강하게 개발되어 간섭에 의한 파손방지.

7 Free End Bracket (FEB)

Free End Bracket is very effective in a way that it can be mounted up, down and front. It can be fixed stronger by steel washer.
Shift Chain can be fixed with the diverse ways because FEB can be moved more than 45 degrees.

Shift Chain은 New Sabin Chain의 체인고정 방식인 FEB(Free End Bracket)을 적용시켜 체인을 고정 시킬때 상, 하, 전방에서 고정시킬 수 있어 효과적이며 고정홀에 Steel Insert를 적용해 더욱 강하게 고정시킬 수 있습니다. 또한 Bracket 부분이 45도 이상 꺾이게 적용되어 다양한 방식의 체인고정 가능.

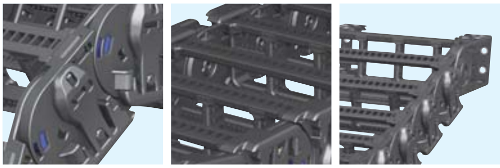
※ S-Type 적용시에는 FEB와 결합되는 Side Band에 BR은 삽입하지 않음

8 Tie Wrap(TW)

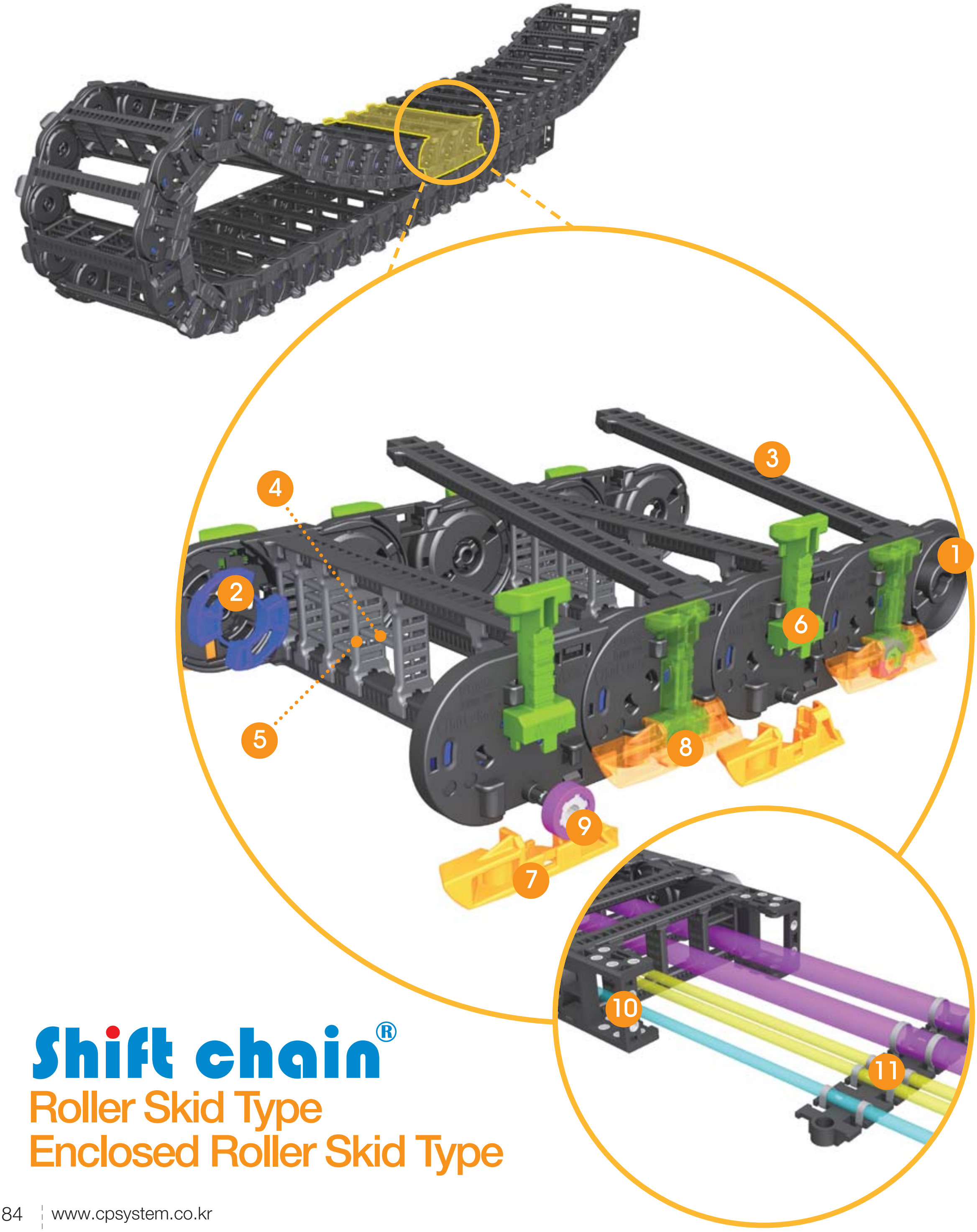
Tie Wrap fixes the cable in one straight line and prevent the cable from twisting and entangling during operation. There are two types available depending on the application : attached to bracket and separated from bracket.

케이블을 고정하기 위해 사용되며 케이블을 일렬로 정렬시키는 역할로 케이블의 엉킴현상을 방지하고 사양에 따라 Free End Bracket 삽입형과 Free End Bracket 분리형으로 구분.

ST072S



ARTICLE NAME & DETAILS OF SHIFT CHAIN RS, ERS - TYPE
/ Shift Chain RS, ERS-Type의 구성명칭 및 세부설명



Shift chain®
Roller Skid Type
Enclosed Roller Skid Type

1 Side Band(SB)

R-Setting inserted band serial coupling type' that strengthen binding since the supporting point of side band is designed as 6 separated points.

R설정 유닛을 삽입한 밴드 직접결합방식으로 Side Band지지 요소를 6지점으로 설계하여 결속력 강화.

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좌우 Side-Band의 연결지지대 역할을 하며 디바이더 고정 돌기를 형성하여 디바이더 유동과 이탈을 방지하도록 설계 되었으며 한쪽방향을 오픈 하는 힌지 방식(경첩)의 구조.

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체인에 입선되는 케이블들을 세로방향으로 분리시켜 케이블의 꼬임과 마찰로 인한 피복손상을 방지하는 역할을 하며 S, M, R, T - Type으로 구분하여 사용.

※ ERS Type 에는 DV/T적용 안함.

6 Support

It is performed as a supporter of Skid and Roller Skid.
It makes Skid and Roller Skid move up and down.

Skid와 Roller Skid에 지지대의 역할을하며 하중에 영향을 받아 Skid, Roller Skid를 상하 이동시킴.

7 8 Roller Skid, Skid

It is divided into Roller mounted Skid and Roller unmounted Skid. Roller can be protruded or hidden according to position of chain.

Roller장착 유무에 따라 Roller Skid(롤러장착)와 Skid (롤러미장착)로 나뉘며 상하부 체인위치에 따라 롤러를 은폐 또는 돌출시킴

9 Roller

Roller which is assembled with specific bearing minimize friction for long-distance travel.

특수형 베어링을 삽입한 Roller는 장거리 이동시 발생하는 마찰을 최소한으로 줄여줌.

10 Free End Bracket (FEB)

Free End Bracket is very effective in a way that it can be mounted up, down and front. It can be fixed stronger by steel washer.
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※ S-Type 적용시에는 FEB와 결합되는
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11 Tie Wrap(TW)

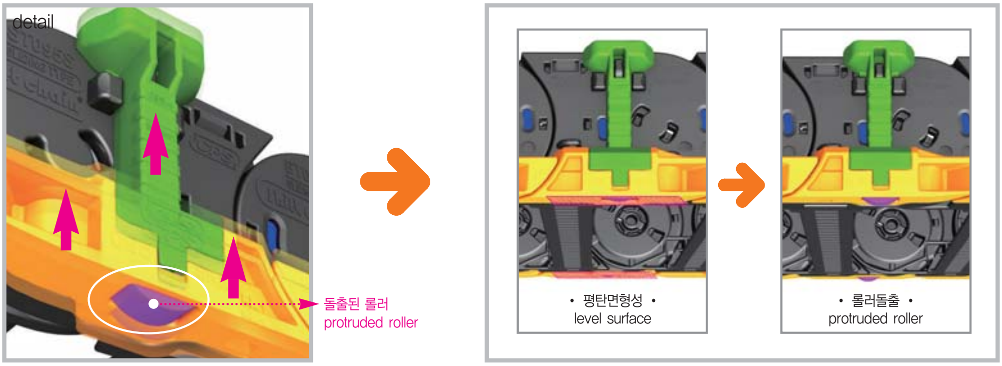
Tie Wrap fixes the cable in one straight line and prevent the cable from twisting and entangling during operation. There are two types available depending on the application : attached to bracket and separated from bracket.

케이블을 고정하기 위해 사용되며 케이블을 일렬로 정렬시키는 역할로 케이블의 엉킴현상을 방지하고 사양에 따라 Free End Bracket 삽입형과 Free End Bracket 분리형으로 구분.

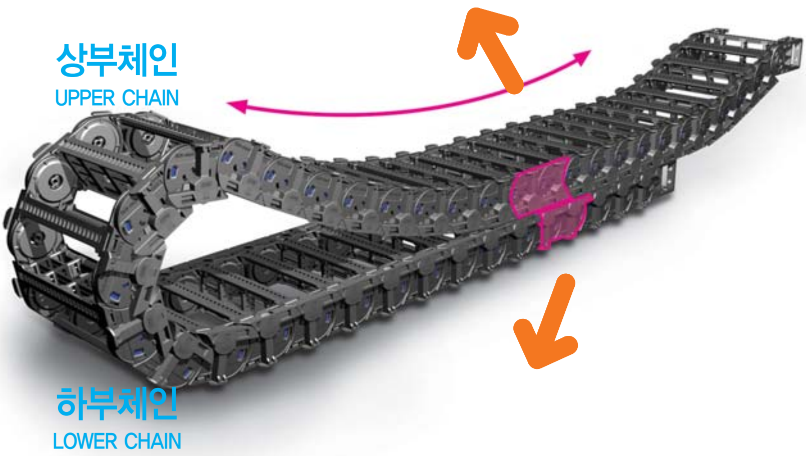
ST072RS

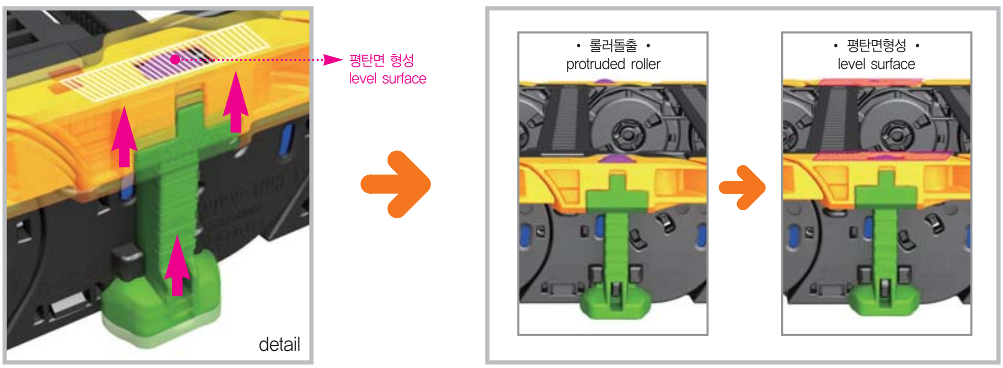
SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

1 Roller Skid Performance Property
Roller Skid 작동원리



Principle of skid motion : The protruded Roller is performed as a wheel when Roller mounted skid is touched on lower chain. This principle makes it possible to move fast in long-distance travel without friction.
하부체인과 맞닿은 Roller–Sikd의 상승작용으로 Roller가 하향 돌출되어 바퀴역할을 하며, 장거리에 적용하여 빠른 이동이 가능. (마찰계수가 0에 가까워 이동 Smooth)



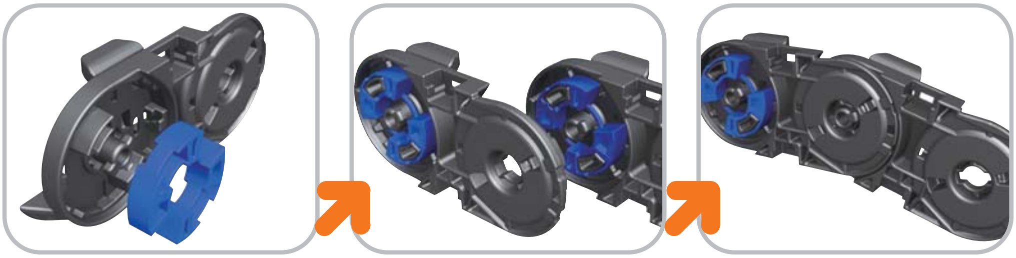


The support lifts Skid(Roller-Skid, Skid) and makes the surface level, when the cable Chain which includes cables is contacted on the surface of bottom of guide channel. 케이블이 입선된 체인이 가이드잔넬의 바닥에 접지되면서 Support가 Skid(Roller–Skid, Skid)를 상향이동시켜 롤러의 끝면과 평탄하게 형성.

2 The Feature of Setting-up Unit for Bending Radius!
R설정유닛 결합으로 Bending Radius값 설정!

Unlike the existing chains, the Shift Chain is designed to use only one side band for the same model and to insert respective Bending Radius unit to make bending radius each. Like the below pictures, the value of bending radius is changeable just by inserting individual bending unit, and unlike the existing chains, it is suggested that you don't need side bands for each bending radius in stock, but need BR unit for each bending radius, so the Shift Chain has an excellent competitiv-eness to create the maximum synergy effect in relation to easy maintenance, efficient stock management and cost reduction.

Shift Chain은 기존체인과 달리 동일사양에서 동일한 Side Band를 사용하고 곡률반경(R)별로 제작된 R설정유닛(BR)을 사용하여 원하는 R값으로 교체가능한 구조입니다.
아래그림에서와 같이 각각의 R값을 가진 R설정유닛(BR)의 결합에따라 체인의 곡률반경이 변경되며 기존체인과 다르게 R값별 Side Band를 재고로 확보하지 않고 각기 다른 곡률반경(R)값을 가진 R설정유닛(BR)을 재고로 확보하면됩니다.
이로인해 Shift Chain은 유지보수와 재고관리 및 원가 절감효과가 뛰어나며 가격경쟁력이 뛰어난 제품입니다.



The Bending Radius combined by the Bending Radius unit(BR). (R설정유닛(BR) 결합시 체인곡률반경)

3 The Bending Radius combined by the Bending Radius unit(BR)
(R설정유닛(BR) 결합시 체인곡률반경)

When combining Side Band with the different Bending Radius unit,the bending radius of cable chain is formed like the below and also the 'R' of cable chain will be decided by the Bending Radius-setting unit.
Bending Radius(R) of each cable chains is written with each value of "R" in details of each cable chain .

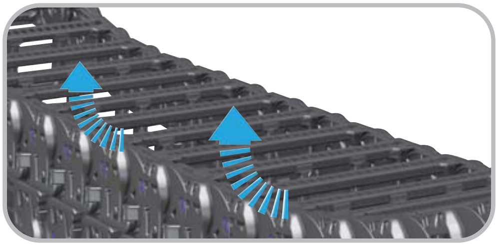
각기 다른 R값을 가진 R설정유닛(BR)의 결합시 체인의 곡률반경은 아래의 이미지처럼 형성되며 Shift chain사양별로 R값은 R설정유닛에서 결정되며 체인별 R값은 체인사양별 상세페이지에서 각각의 R값을 확인할 수 있습니다.

In R135 BR connection

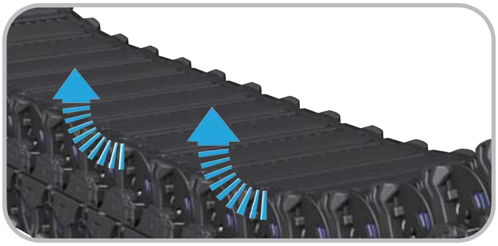
In R230 BR connection

In R400 BR connection

4 More convenient frame structure - Hinge Frame Type!
더욱 편리한 프레임구조-Hinge Frame Type!



ST072RS, ST095RS, ST120RS, ST150RS, ST S-Type

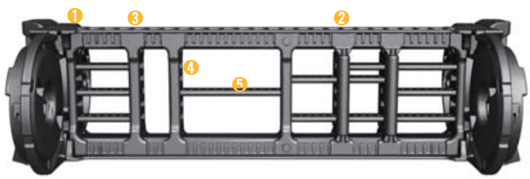


ST072, 095, 120, ST150ES / ST 072, 095, 120, 150ERS

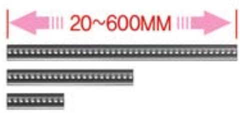
The Hinge type frame is created by using the original frame but locking it into place with a ball hinge on one side and making the cables easily accessible by opening the other. The hinge frame can open to expose the inserted cables on both the topside and underside of the carrier.
For Shift Chain(ST) 072S, 095S, 120S, 150S, 072SE, 095SE, 120SE, 150SE Type one side of the frame is fixed by inserting a fixing pin to prevent frame open, which caused by any external impact.

기존의 프레임핀 삽입방식을 개선한 방식으로, Side Band의 한 방향에 프레임을 고정시키고 다른 방향은 열고 닫을수있는 Hinge(경첩)구조로 되어있어 케이블 삽입과 체인조립 및 보수가 편리 합니다.
Hinge Frame은 Side Band 위쪽과 아래쪽 모두 적용되어 Cable 삽입이 어느 방향이든지 프레임을 오픈시켜 케이블 입선이 가능한 구조입니다. ST072S, 095S, 120S, 150S, 072SE, 095SE, 120SE, 150SE Type의 경우 강한충격에도 프레임이 오픈되지 않도록 프레임 한쪽방향으로 프레임 고정핀을 사용하여 프레임을 고정합니다.

5 Diversity & Functionality Combine in this New Separator and Divider Creation!
디바이더와 세퍼레이터를 활용한 다양한 공간창출!



세퍼레이터 고정핀
(SP-Pin)



❺ Separator

It can protect inner cable more efficiently and safely with the diverse combination of Divider and Separator. Divider consists of S-Type for exclusive use of side, R-Type for roller mounted, M-Type for pin jointed and T-type for reinforcement.

❶ DV-S Type

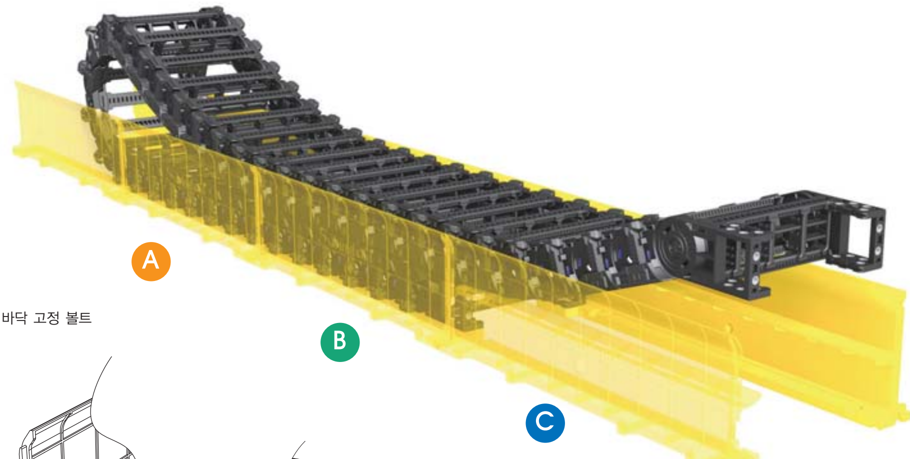
❷ DV-R Type

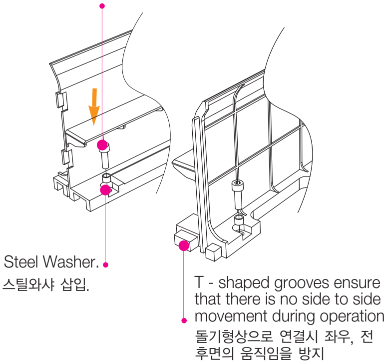
❸ DV-M Type

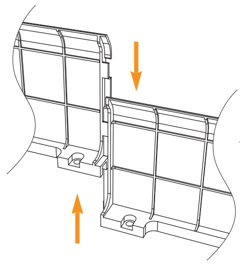
❹ DV-T Type

M-Type is designed to fix separator strongly by using separator pin and prevents cable from twisting and sheath damage. T-Type is connected to upper and lower frame and prevent frame from drooping when the inserted cables are heavy.
The length of separator can be installed from 20mm to 600mm and be cut by 5mm.

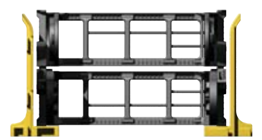
디바이더와 세퍼레이터의 다양한 조합으로 케이블입선공간의 자유로운 구성이 가능하여 더욱 효율적이고 안전하게 케이블을 보호할 수 있습니다. 디바이더는 측면전용(S-Type), 롤러부착형(R-Type), 고정핀결합용(M-Type), 보강형(T-Type)으로 구분하여 사용하고 특히 M-Type은 세퍼레이터 고정핀을 사용하여 세퍼레이터를 견고히 고정할 수 있도록 설계되어 케이블의 꼬임 및 피복손상을 방지할 수 있습니다. T-Type은 상하의 프레임을 연결하여 입선양이 많을시 Frame이 쳐지는 현상을 방지할 수 있습니다. 세퍼레이터길이는 최소 20mm~최대 600mm까지 설치가능하며 5mm간격으로 절단 사용가능합니다.





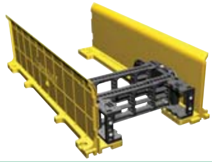


◀ Panel locking method.
Panel 상, 하 끼움 구조



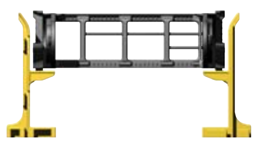
Panel A - Type

- This panel is installed down the front end of the stroke where the Shift Chain is riding on itself.
- 케이블 체인이 상하부에 모두닿는 구간



Panel B - Type

- This panel is for securing the Shift Chain bracket to the channel in the mounting positions.
- 고정브라켓(FEB)를 설치하는 구간



Panel C - Type

- This panel is for installation on the back end of the stroke, past the center of the travel length to provide support to the topside links.
- 케이블 체인이 상부에만 위치하는 구간. (레일판이 형성)

System Guide Channel

- The new System Guide Channel keeps your Shift Chain on course for long stroke applications where balance is the key.
- The System Guide Channel compared to the current steel guide channel is lighter, easier to assemble, disassemble and it is easier and safer to install as well.
- In lengths of 500mm, the System Guide Channel comes in three different types and CPS-Amide combined with GF material help to make the guide channel strong and sturdy. For most applications, your steel guide channel can be switched out quite easily to the new System Guide Channel.
- Due to the UV (Ultraviolet) and ESD (Electro-Static Discharge) protection, you can apply the same safety options to your System Guide Channel as the ones you already have on your Sabin Chain Series.

- System Guide Channel은 장거리 이동에 적용되는 Shift Chain의 이탈을 방지하는 가이드 역할을 합니다.
- 기존의 스틸재질로 제작된 가이드 잔넬보다 무게가 가벼우며, 운송 및 조립과 설치 시공이 간단하고 편리합니다.
- System Guide Channel은 500mm길이를 기준으로 3가지 타입의 Panel로 구성되어 있으며 CPS-Polyamide With GF재질로 생산되어, 충격에 강하고 스틸재질에서 발생 할 수 있는 부식을 막아줍니다.
- 자외선을 차단(UV)하고 정전기 방지(ESD)처리된 제품을 제작가능하며, 설치 환경이 열악한 곳에서도 안전하게 사용 가능합니다.

KINDS AND DIMENSIONS / 제품종류와 치수안내 (주문표)

ST - S : Skid Type

Shift Chain S -Type	Pitch	Bending Radius R	Weight kg/m	Speed m/sec	Temperature °C	Clearance A	Clearance B	Clearance C	Clearance D	Frame style	Divider possible with frame
ST072S.050	72	100, 120, 145, 200, 250, 300	2.48	10	-30 ~ +130	98	71	50	45		
ST072S.075	72		2.57			123	71	75	45		
ST072S.100	72		2.67			148	71	100	45		
ST072S.125	72		2.81			173	71	125	45		
ST072S.150	72		2.95			198	71	150	45		
ST072S.175	72		3.07			223	71	175	45		
ST072S.200	72		3.49			248	71	200	45		
ST072S.250	72		3.89			298	71	250	45		
ST072S.300	72		4.23			348	71	300	45		
ST095S.075	95	135, 150, 200, 230, 280, 400	3.44	10	-30 ~ +130	137	89	75	56		
ST095S.100	95		3.50			162	89	100	56		
ST095S.125	95		3.68			187	89	125	56		
ST095S.150	95		3.79			212	89	150	56		
ST095S.175	95		3.92			237	89	175	56		
ST095S.200	95		4.10			262	89	200	56		
ST095S.250	95		4.36			312	89	250	56		
ST095S.300	95		4.63			362	89	300	56		
ST095S.350	95		4.98			412	89	350	56		
ST095S.400	95		5.38			462	89	400	56		
ST120S.075	120	180, 200, 250, 300, 350, 400, 500	4.71	10	-30 ~ +130	137	115	75	78		
ST120S.100	120		4.82			162	115	100	78		
ST120S.125	120		4.98			187	115	125	78		
ST120S.150	120		5.06			212	115	150	78		
ST120S.175	120		5.24			237	115	175	78		
ST120S.200	120		5.48			262	115	200	78		
ST120S.250	120		5.78			312	115	250	78		
ST120S.300	120		6.21			362	115	300	78		
ST120S.350	120		6.63			412	115	350	78		
ST120S.400	120		7.00			462	115	400	78		
ST120S.450	120		7.38			512	115	450	78		
ST120S.500	120		7.61			562	115	500	78		
ST120S.550	120		8.45			612	115	550	78		
ST120S.600	120		8.61			662	115	600	78		

ST - ES : Enclosed Skid Type

Shift Chain ES -Type	Pitch	Bending Radius R	Weight kg/m	Speed m/sec	Temperature °C	Clearance A	Clearance B	Clearance C	Clearance D	Frame style	Divider possible with frame
ST072ES.050	72	120, 145, 200, 250, 300	2.77	10	-30 ~ +130	98	71	50	44		
ST072ES.075	72		3.01			123	71	75	44		
ST072ES.100	72		3.25			148	71	100	44		
ST072ES.125	72		3.49			173	71	125	44		
ST072ES.150	72		3.73			198	71	150	44		
ST095ES.100	95	150, 200, 230, 280, 400	4.16	10	-30 ~ +130	162	89	100	55		
ST095ES.125	95		4.41			187	89	125	55		
ST095ES.150	95		4.65			212	89	150	55		
ST095ES.175	95		4.90			237	89	175	55		
ST095ES.200	95		5.15			262	89	200	55		
ST120ES.150	120	200, 250, 300, 350, 400, 500	6.28	10	-30 ~ +130	212	115	150	76		
ST120ES.200	120		6.92			262	115	200	76		
ST120ES.250	120		7.56			312	115	250	76		
ST120ES.300	120		8.20			362	115	300	76		

ST - RS : Roller Skid Type

Shift Chain RS -Type	Pitch	Bending Radius R	Weight kg/m	Speed m/sec	Temperature °C	Clearance A	Clearance B	Clearance C	Clearance D	Frame style	Divider possible with frame
ST044RS.035	44		1.09			73	40.5	35	26		
ST044RS.050	44		1.15			88	40.5	50	26		
ST044RS.055	44		1.17			93	40.5	55	26		
ST044RS.075	44		1.24			113	40.5	75	26		
ST044RS.100	44	70, 90, 120, 150	1.33	10	-30 ~ +130	138	40.5	100	26		
ST044RS.125	44		1.47			163	40.5	125	26		
ST044RS.150	44		1.59			188	40.5	150	26		
ST044RS.175	44		1.88			213	40.5	175	26		
ST044RS.200	44		2.05			238	40.5	200	26		
ST072RS.050	72		2.59			104	69	50	45		
ST072RS.075	72		2.67			129	69	75	45		
ST072RS.100	72		2.77			154	69	100	45		
ST072RS.125	72		2.91			179	69	125	45		
ST072RS.150	72	100, 120, 145, 200, 250, 300	3.05	10	-30 ~ +130	204	69	150	45		
ST072RS.175	72		3.17			229	69	175	45		
ST072RS.200	72		3.59			254	69	200	45		
ST072RS.250	72		3.99			304	69	250	45		
ST072RS.300	72		4.34			354	69	300	45		
ST095RS.075	95		3.48			143	85	75	56		
ST095RS.100	95		3.55			168	85	100	56		
ST095RS.125	95		3.73			193	85	125	56		
ST095RS.150	95		3.84			218	85	150	56		
ST095RS.175	95	135, 150, 200, 230, 280, 400	3.96	10	-30 ~ +130	243	85	175	56		
ST095RS.200	95		4.14			268	85	200	56		
ST095RS.250	95		4.41			318	85	250	56		
ST095RS.300	95		4.67			368	85	300	56		
ST095RS.350	95		5.03			418	85	350	56		
ST095RS.400	95		5.43			468	85	400	56		
ST120RS.075	120		4.75			143	112	75	78		
ST120RS.100	120		4.87			168	112	100	78		
ST120RS.125	120		5.02			193	112	125	78		
ST120RS.150	120		5.10			218	112	150	78		
ST120RS.175	120		5.28			243	112	175	78		
ST120RS.200	120		5.52			268	112	200	78		
ST120RS.250	120	180, 200, 250, 300, 350, 400, 500	5.82	10	-30 ~ +130	318	112	250	78		
ST120RS.300	120		6.25			368	112	300	78		
ST120RS.350	120		6.67			418	112	350	78		
ST120RS.400	120		6.96			468	112	400	78		
ST120RS.450	120		7.42			518	112	450	78		
ST120RS.500	120		7.65			568	112	500	78		
ST120RS.550	120		8.49			618	112	550	78		
ST120RS.600	120		8.66			668	112	600	78		
ST150RS.075	150		7.86			162	145	75	110		
ST150RS.100	150		7.97			187	145	100	110		
ST150RS.125	150		8.10			212	145	125	110		
ST150RS.150	150		8.17			237	145	150	110		
ST150RS.175	150		8.33			262	145	175	110		
ST150RS.200	150		8.54			287	145	200	110		
ST150RS.250	150	305, 405, 505, 605	8.80	10	-30 ~ +130	337	145	250	110		
ST150RS.300	150		9.18			387	145	300	110		
ST150RS.350	150		9.55			437	145	350	110		
ST150RS.400	150		9.90			487	145	400	110		
ST150RS.450	150		10.20			537	145	450	110		
ST150RS.500	150		10.40			587	145	500	110		
ST150RS.550	150		11.14			637	145	550	110		
ST150RS.600	150		11.28			687	145	600	110		

ST - ERS : Enclosed Roller Skid Type

Shift Chain ERS -Type	Pitch	Bending Radius R	Weight kg/m	Speed m/sec	Temperature °C	Clearance A	Clearance B	Clearance C	Clearance D	Frame style	Divider possible with frame
ST044ERS.035 ST044ERS.055 ST044ERS.075 ST044ERS.100	44 44 44 44	70, 90, 120, 150	1.25 1.44 1.60 1.81	10	-30 ~ +130	73 93 113 138	40.5 40.5 40.5 40.5	35 55 75 100	24.5 24.5 24.5 24.5		
ST072ERS.050 ST072ERS.075 ST072ERS.100 ST072ERS.125 ST072ERS.150	72 72 72 72 72	120, 145, 200, 250, 300	2.87 3.11 3.35 3.59 3.83	10	-30 ~ +130	104 129 154 179 204	69 69 69 69 69	50 75 100 125 150	44 44 44 44 44		
ST095ERS.100 ST095ERS.125 ST095ERS.150 ST095ERS.175 ST095ERS.200	95 95 95 95 95	150, 200, 230, 280, 400	4.20 4.45 4.70 4.95 5.19	10	-30 ~ +130	168 193 218 243 268	85 85 85 85 85	100 125 150 175 200	55 55 55 55 55		
ST120ERS.150 ST120ERS.200 ST120ERS.250 ST120ERS.300	120 120 120 120	200, 250, 300, 350, 400, 500	6.32 6.96 7.60 8.24	10	-30 ~ +130	218 268 318 368	112 112 112 112	150 200 250 300	76 76 76 76		
ST150ERS.200 ST150ERS.250 ST150ERS.300 ST150ERS.350 ST150ERS.400	150 150 150 150 150	305, 405, 505, 605	10.22 10.83 11.44 12.05 12.66	10	-30 ~ +130	287 337 387 437 487	145 145 145 145 145	200 250 300 350 400	110 110 110 110 110		

ORDERING (주문방법)

ST 044E. 100. R120 / F - 1500L : 10ST

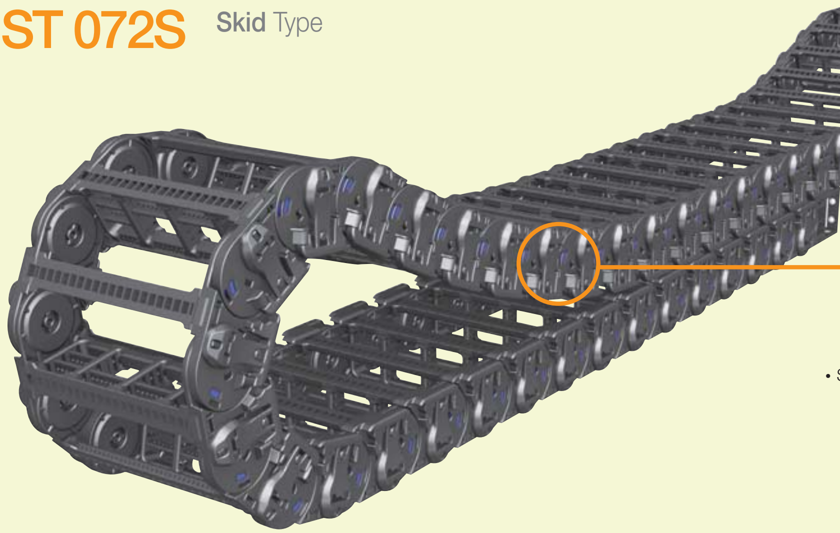
주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
표준타입	N : Normal Type
밀폐형	E : Enclose Type
장거리형	Sliding Type
	S / ES / RS / ERS

S : Skid Type ES: Enclosed Skid Type RS : Roller Skid Type ERS : Enclosed Roller Skid Type

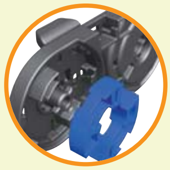
Shift Chain

Shift chain®

ST 072S Skid Type



• Shift chain S-Type 분해도 •



• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Skid 사용으로 소음 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.3~0.4 μ
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loder, etc.

  Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등
  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

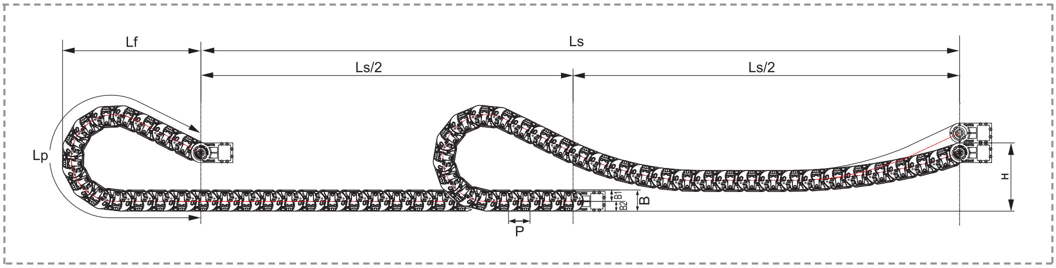
Affer using skid for a long time, it can be replaced without extra components.

스키드 장착으로 장시간 사용후 Skid를 교체할 수 있고 Skid는 별도의 부품없이 조립이 가능함.

ST 072S Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	100	120	145	200	250	300
Lp	806	917	1,063	1,400	1,840	2,280
L f	380	420	470	580	752	924
H	230	230	230	230	230	230

ST 072S Type

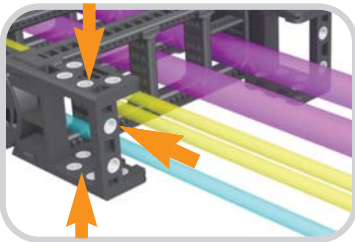
Pitch P: 72mm
Height B: 71mm
B1: 38mm
B2: 33mm

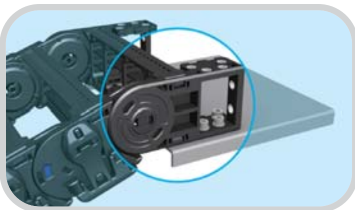
ORDERING (주문방법)

ST 072S . 175. R200 / F - 10000L : 10ST

- 주문수량 Q′ ty(set)
- 체인길이 Length(mm)
- 브라켓 Free End Bracket
- 곡률반경 Bending Radius
- 내폭 Inside Width
- 장거리타입(S) Skid Type
- Shift Chain

BRACKET TYPE (브라켓타입)





FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

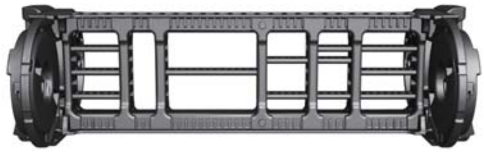
체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST S-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

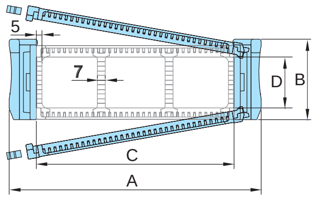
▶ BR should not be inserted in the joint of side band and Free End Bracket
FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 072S Skid Type

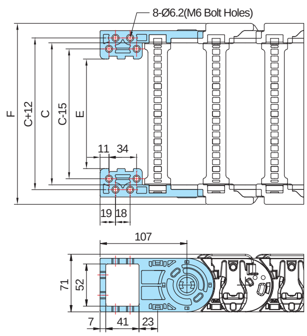
CHAIN CROSS SECTION



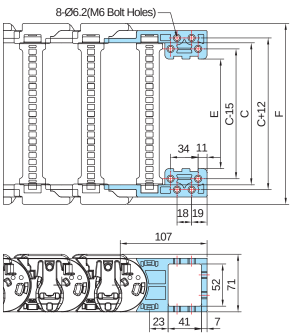


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 072S.050	98		50			2.48
ST 072S.075	123		75			2.57
ST 072S.100	148		100			2.67
ST 072S.125	173		125			2.81
ST 072S.150	198	71	150	45	100, 120, 145, 200, 250, 300	2.95
ST 072S.175	223		175			3.07
ST 072S.200	248		200			3.49
ST 072S.250	298		250			3.89
ST 072S.300	348		300			4.23

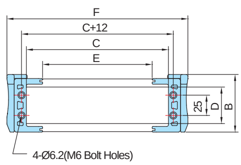
FREE END BRACKET



ST072S Moving point



ST072S Fixing point



ST072S Front point

Chain Type	F	B	C	D	E	Hole Type
ST 072S.050	98		50		10	
ST 072S.075	123		75		35	
ST 072S.100	148		100		60	
ST 072S.125	173		125		85	
ST 072S.150	198	71	150	45	110	M6 Bolt Holes
ST 072S.175	223		175		135	
ST 072S.200	248		200		160	
ST 072S.250	298		250		210	
ST 072S.300	348		300		260	

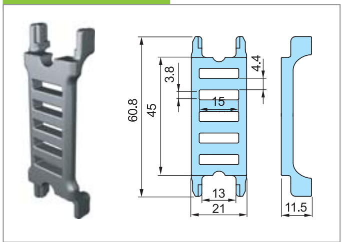
ST 072S Skid Type

DIVIDERS

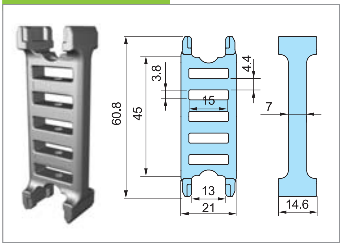
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

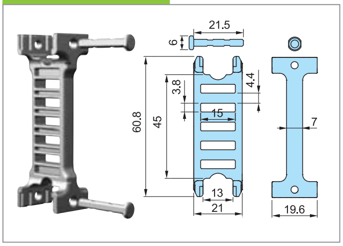
ST 072S DV-S



ST 072S DV-M



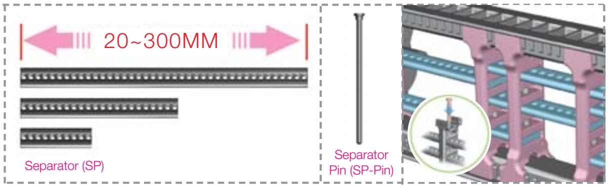
ST 072S DV-T



▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV-T : Frame 200~300적용(상하 프레임을 연결)

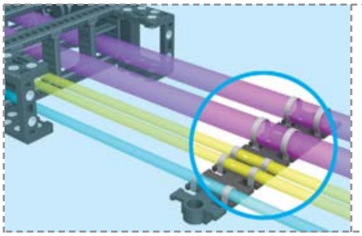
SEPARATORS (SP)

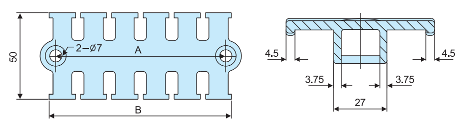


Separator is available in length from 20mm to 300mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대300mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

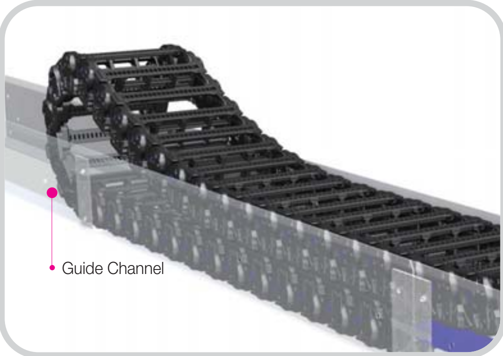
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The Tie Wrap separated from the Shift Chain FEB, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Shift Chain의 FEB을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인한 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다

ST 072S Skid Type

GUIDE CHANNEL

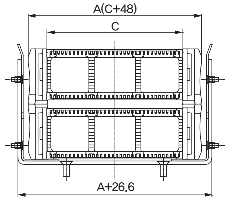


For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

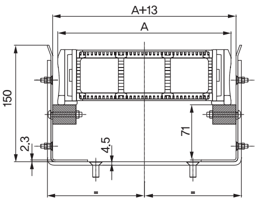
Steel Guide Channel은 장거리 이동형 ST 072S Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주문제작 가능합니다.

▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

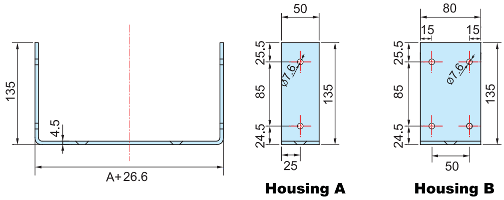
ST 072S Type



▲ A - zone

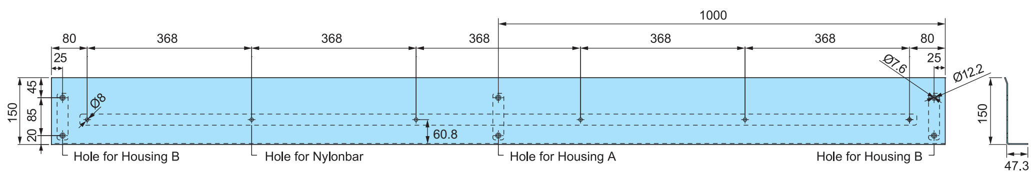


▲ C - zone



▲ Housing (U-shape) - ST 072S

ST 072S Side Panel



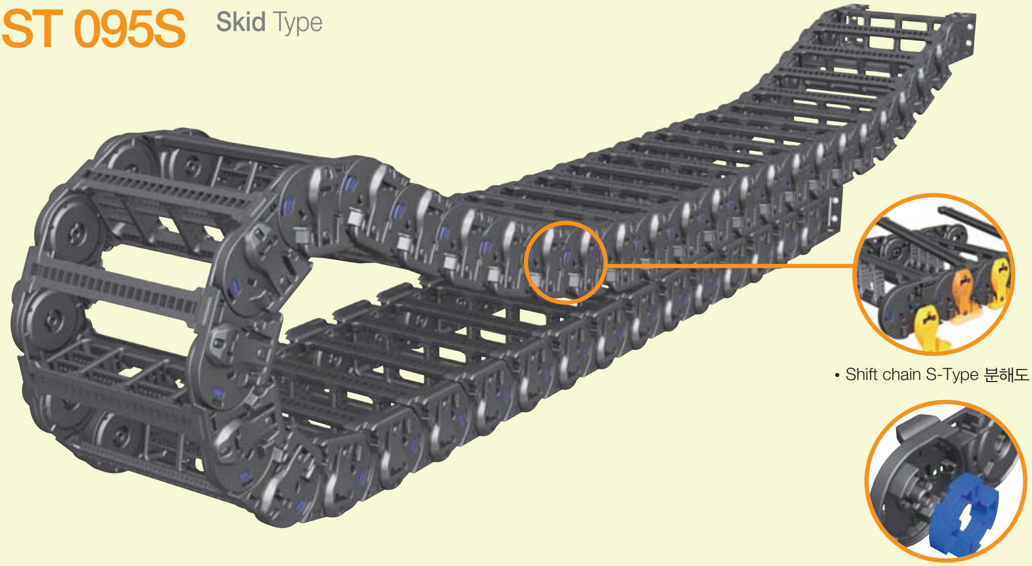
ORDERING (주문방법)

ST-GCS 072S . 175 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

Min ●●●●○○ Max

Shift chain®
ST 095S Skid Type



• Shift chain S-Type 분해도 •

• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Skid 사용으로 소음 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.3~0.4 μ
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loder, etc.

  Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등
  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

- **Calculation of the chain length**

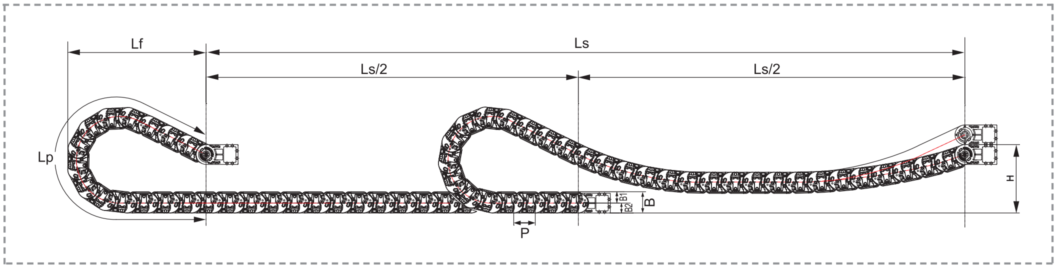
$$\left[\; L = \frac{Ls}{2} + Lp \;\right]$$

Affer using skid for a long time, it can be replaced without extra components.

스키드 장착으로 장시간 사용후 Skid를 교체할 수 있고 Skid는 별도의 부품없이 조립이 가능함.

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	135	150	200	230	280	400
Lp	1,091	1,178	1,479	1,666	2,146	3,232
L f	504	534	634	694	889	1319
H	250	250	250	250	250	250

ST 095S Type

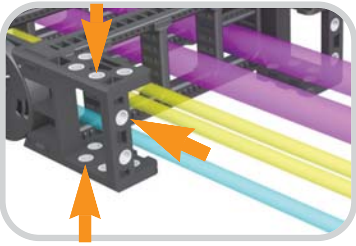
Pitch P: 95mm
Height B: 89mm
B1: 48mm
B2: 41mm

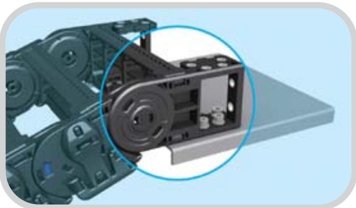
ORDERING (주문방법)

ST 095S . 200. R200 / F - 10000L : 10ST

주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
장거리타입(S)	Skid Type
Shift Chain	

BRACKET TYPE (브라켓타입)





FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

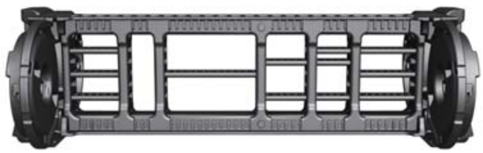
체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST S-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

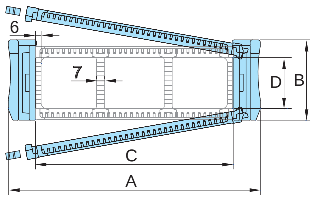
▶ BR should not be inserted in the joint of side band and Free End Bracket
FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 095S Skid Type

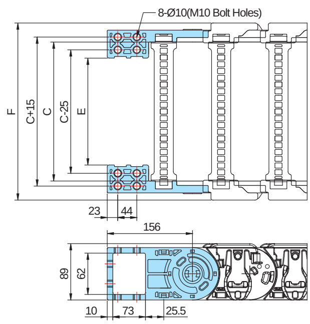
CHAIN CROSS SECTION



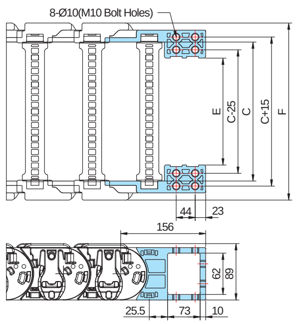


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 095S.075	137	89	75	56	135,150, 200, 230, 280, 400	3.44
ST 095S.100	162		100			3.50
ST 095S.125	187		125			3.68
ST 095S.150	212		150			3.79
ST 095S.175	237		175			3.92
ST 095S.200	262		200			4.10
ST 095S.250	312		250			4.36
ST 095S.300	362		300			4.63
ST 095S.350	412		350			4.98
ST 095S.400	462		400			5.38

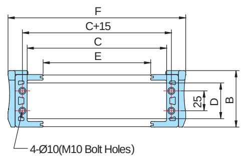
FREE END BRACKET



ST095S Moving point



ST095S Fixing point



ST095S Front point

Chain Type	F	B	C	D	E	Hole Type
ST 095S.075	137	89	75	56	24	M10 Bolt Holes
ST 095S.100	162		100		49	
ST 095S.125	187		125		74	
ST 095S.150	212		150		99	
ST 095S.175	237		175		124	
ST 095S.200	262		200		149	
ST 095S.250	312		250		199	
ST 095S.300	362		300		249	
ST 095S.350	412		350		299	
ST 095S.400	462		400		349	

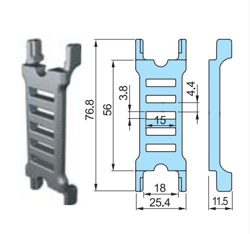
ST 095S Skid Type

DIVIDERS

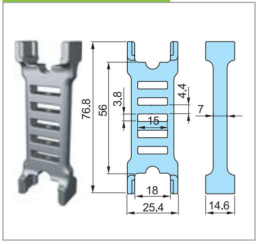
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

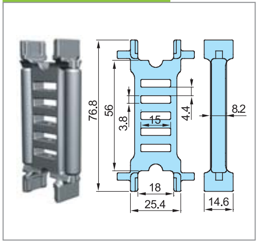
ST 095S DV-S



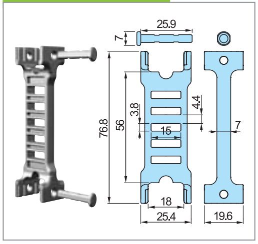
ST 095S DV-M



ST 095S DV-R



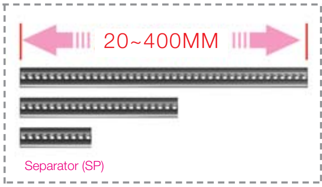
ST 095S DV-T

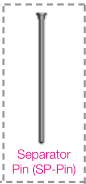


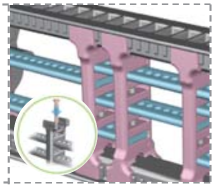
▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV-T : Frame 250~400적용(상하 프레임을 연결)

SEPARATORS (SP)



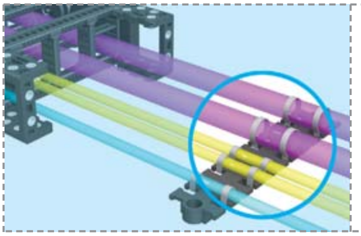


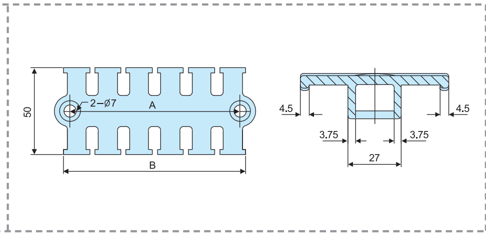


Separator is available in length from 20mm to 400mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대400mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The tie wrap separated from the Shift Chain FEB, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie wrap은 Shift Chain의 FEB를 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인 해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다

ST 095S Skid Type

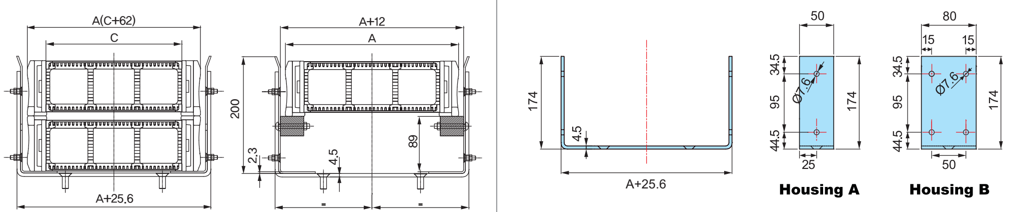
GUIDE CHANNEL

For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

Steel Guide Channel은 장거리 이동형 ST 095S Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주 문제작 가능합니다.

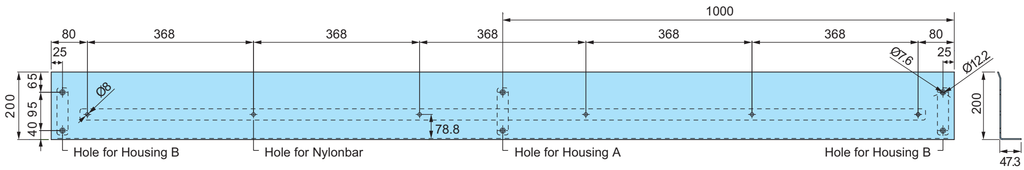
▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

ST 095S Type



▲ A - zone ▲ C - zone ▲ Housing (U-shape) - ST 095S

ST 095S Side Panel



ORDERING (주문방법)

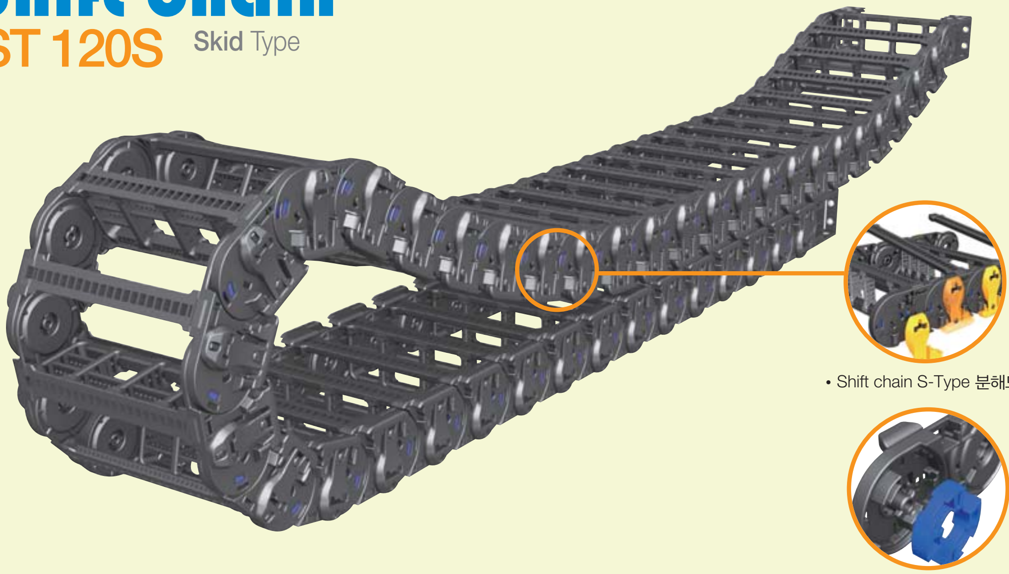
ST-GCS 095S . 175 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

Min ●●●●●○ Max

Shift chain®

ST 120S Skid Type



• Shift chain S-Type 분해도 •

• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Skid 사용으로 소음 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.3~0.4 μ
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loder, etc.

  Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등
  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

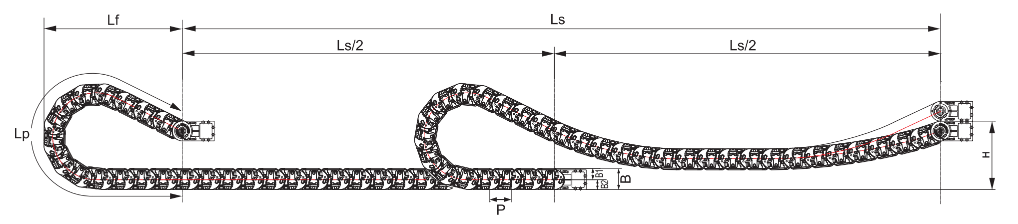
Affer using skid for a long time, it can be replaced without extra components.

스키드 장착으로 장시간 사용후 Skid를 교체할 수 있고 Skid는 별도의 부품없이 조립이 가능함.

ST 120S Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	180	200	250	300	350	400	500
Lp	1,441	1,559	1,864	2,178	2,701	3,225	4,062
L f	654	694	794	894	1.114	1,334	1,654
H	300	300	300	300	300	300	300

ST 120S Type

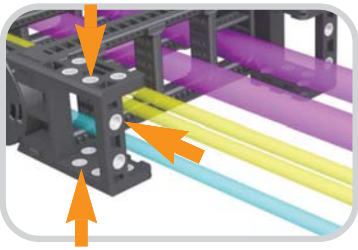
Pitch P: 120mm
Height B: 115mm
B1: 61mm
B2: 54mm

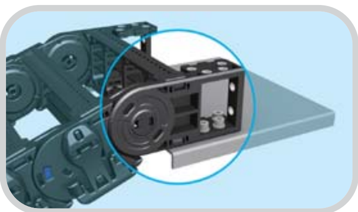
ORDERING (주문방법)

ST 120S . 300. R200 / F - 10000L : 10ST

주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
장거리타입(S)	Skid Type
Shift Chain	

BRACKET TYPE (브라켓타입)





FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST S-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

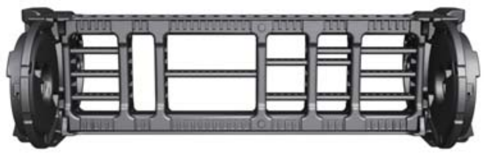
▶ BR should not be inserted in the joint of side band and Free End Bracket
FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

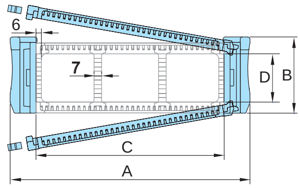
▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

ST 120S Skid Type

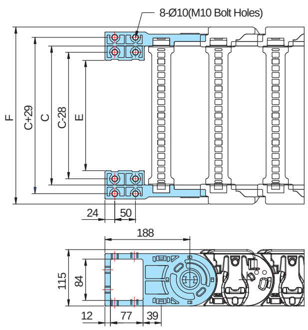
CHAIN CROSS SECTION



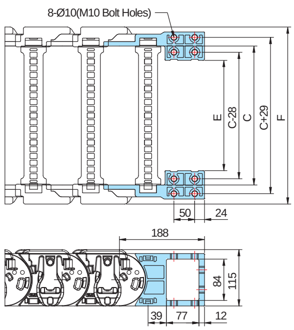


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 120S.075	137	115	75	78	180, 200, 250, 300, 350, 400, 500	4.71
ST 120S.100	162		100			4.82
ST 120S.125	187		125			4.98
ST 120S.150	212		150			5.06
ST 120S.175	237		175			5.24
ST 120S.200	262		200			5.48
ST 120S.250	312		250			5.78
ST 120S.300	362		300			6.21
ST 120S.350	412		350			6.63
ST 120S.400	462		400			7.00
ST 120S.450	512		450			7.38
ST 120S.500	562		500			7.61
ST 120S.550	612		550			8.45
ST 120S.600	662		600			8.61

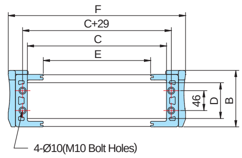
FREE END BRACKET



ST120S Moving point



ST120S Fixing point



ST120S Front point

Chain Type	F	B	C	D	E	Hole Type
ST 120S.075	137	115	75	78	15	M10 Bolt Holes
ST 120S.100	162		100		40	
ST 120S.125	187		125		65	
ST 120S.150	212		150		90	
ST 120S.175	237		175		115	
ST 120S.200	262		200		140	
ST 120S.250	312		250		190	
ST 120S.300	362		300		240	
ST 120S.350	412		350		290	
ST 120S.400	462		400		340	
ST 120S.450	512		450		390	
ST 120S.500	562		500		440	
ST 120S.550	612		550		490	
ST 120S.600	662		600		540	

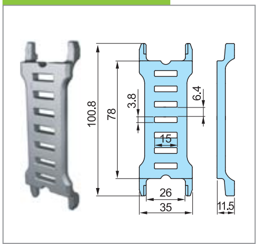
ST 120S Skid Type

DIVIDERS

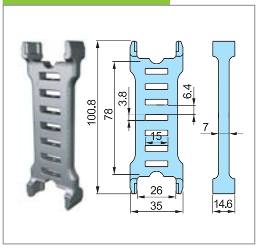
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

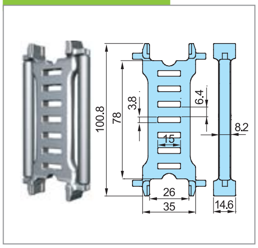
ST 120S DV-S



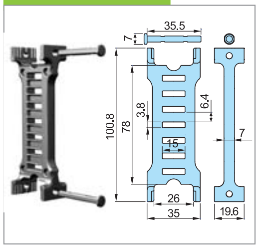
ST 120S DV-M



ST 120S DV-R



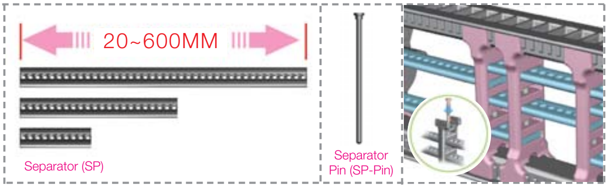
ST 120S DV-T



▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV-T : Frame 300~600적용(상하 프레임을 연결)

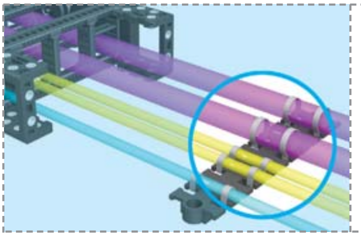
SEPARATORS (SP)

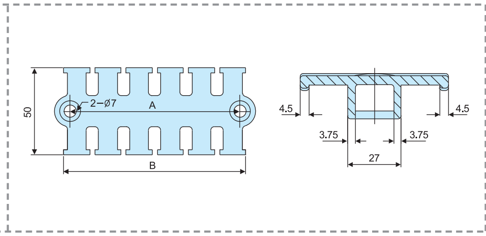


Separator is available in length from 20mm to 600mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대600mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

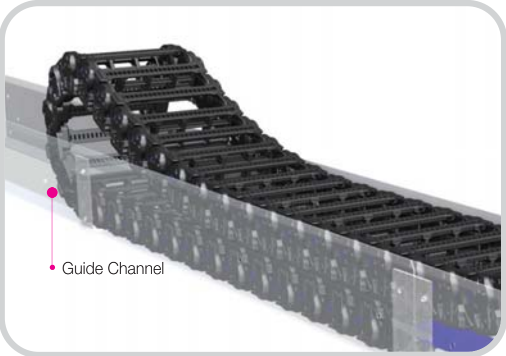
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다

GUIDE CHANNEL

ST 120S Skid Type

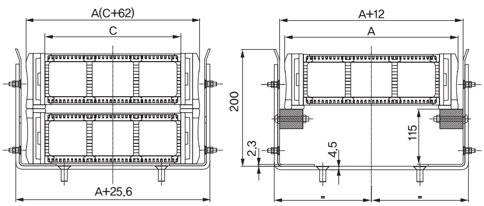


For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

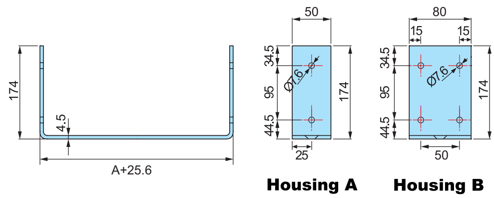
Steel Guide Channel은 장거리 이동형 ST 120S Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주 문제작 가능합니다.

▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

ST 120S Type

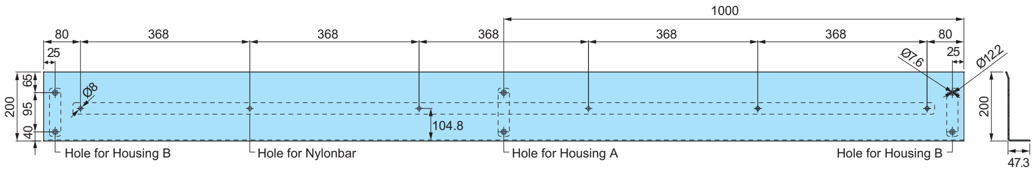


▲ A - zone ▲ C - zone



▲ Housing (U-shape) - ST 120S

ST 120S Side Panel



ORDERING (주문방법)

ST-GCS 120S . 175 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

ASSEMBLY PROCEDURE / SKID Type

Assembly procedure of Shift chain S-type is as follows. The assembling process of shift Chain S-type is like below and you must use rubber hammer with careful combination of Divider and Separator. (Disassembly process for repair and replacement are in reverse order)

Shift chain S-type의 조립순서는 아래와 같이 진행한다. 반드시 규정된 고무망치를 사용하여야 하며 케이블의 입선수량에 따라 디바이더와 세퍼레이터를 조합하여 지정된 위치에 조립한다. (보수 및 교체를 위한 제품 분해 등은 조립의 역순)

1.

Insert BR Unit into each Side Band.
(Side Band is divided into right and left side according to the direction.)

사이드밴드에 사양에 맞는 BR을 홈에 맞게 조립한다. (사이드 밴드는 방향에 따라 LH, RH로 구분됨)

2.

Continue to insert BR Unit into Side Band as you want to make it. Assemble Side Band which is inserted BR Unit as above.

조립하고자 하는 사이드밴드에 모두 BR을 조립한다.
BR이 삽입되어 있는 사이드밴드를 사진과 같이 조립한다.

3.

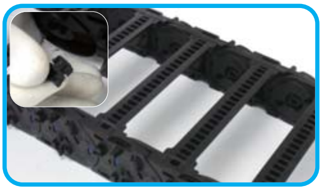
Continue to connect each Side Band as long as you want to make it.
Connect the Side Band as many as you need.

일정 단위의 길이만큼 사이드밴드를 연결한다.
조립하고자 하는 길이만큼 사이드밴드를 연결한다.

4.

Connect right and left link with specified frame. (Put Hinge Type frame in the hole of Side Band)

좌우의 사이드 밴드를 지정된 프레임으로 조립한다.(흰지가 사이드 밴드 RH방향에 삽입되도록 조립)



5.

Insert frame pin onto connected each Frame and side of Side Band to be made tightly.
(to devide inner room, insert divider which is connected with separator.

결합된 프레임과 사이드밴드의 측면에 프레임 핀을 삽입한다.
(내부 공간분리를 위하여 세퍼레이트가 결합된 디바이더를 삽입한다.)

6.

Assemble opposite frame as same procedure.

반대 방향의 프레임도 동일한 방법으로 조립한다.

7.

Insert Skid to the protruding side of Side Band.

사이드밴드 측면의 돌출된 형상에 스키드를 삽입하여 조립한다.

ASSEMBLY PROCEDURE / SKID Type


8.

When inserting a Skid, push tightly to the home of Side Band until you hear "click"(Skid is divided each direction like right and left.)

사이드 밴드 측면의 돌출된 형상에 스키드를 삽입하여 조립한다.스키드를 삽입시 사진처럼 사이드밴드의 홈에 밀어 넣은 후에 스키드 상부를 "딸깍"소리가 나도록 눌러 고정한다. (스키드는 좌우 구분이 있음)

9.

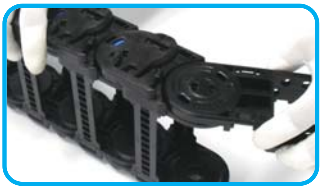
Assembly the Skid on the entire connected Side Band as same way.

연결된 모든 사이드 밴드에 스키드를 동일한 방법으로 조립한다.


10.

Assembly the Skid on the entire connected opposit side as well. Do not insert a BR Unit to M.FEB.(M.FEB will be making a turn to up and down)

반대 방향의 사이드 밴드에 스키드를 동일한 방법으로 조립한다.
M.FEB에는 BR을삽입하지 않는다.(M.FEB가 상하방향으로 꺾임.)



11.

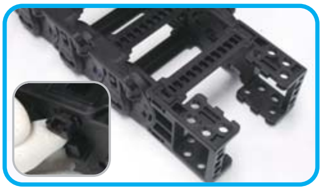
Assembly M.FEB to be corrective each direction such as right and left.

M.FEB를 좌우 방향에 맞도록조립한다.

12.

Assembly F.FEB to be suitable each direction such as right and left.
(Do not insert a BR Unit for the Side Band which is connected with F.FEB)

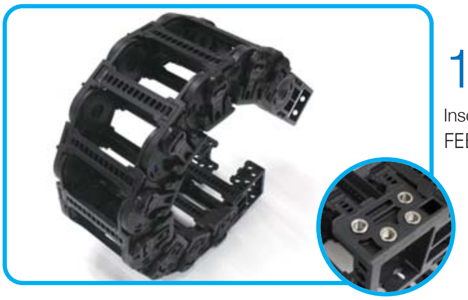
F.FEB를 좌우 방향에 맞도록 조립한다.(F.FEB와연결되는 사이드 밴드에는 BR을 삽입하지 않는다.)

13.

Assembly a specified frame in M.FEB and F.FEB.(Hinge is inserted into RH direction of FEB)
Insert Frame pin into connected frame and side of FEB.

M.FEB와 F.FEB에 지정된프레임으로 조립한다.(힌지가 FEB의 RH 방향에 삽입되도록 조립) 결합된 프레임과 FEB의 측면에 프레임 핀을 삽입한다.



14.

Insert steel washers into FEB according to fixing direction.

FEB의 고정 방향에 맞도록 보강와샤를 삽입한다.

Shift chain®

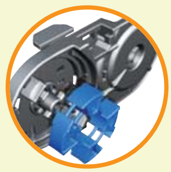
SLIDING : ES TYPE - Enclosed Skid

Min ●●●○○○ Max

Shift chain®

ST 072ES Enclosed Skid Type

• ST 072ES - Bracket •



• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Skid 사용으로 소음 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.3 ~ 0.4 μ
- **Applications**

Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loader, etc.

Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등
설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

Shift Chain ES-Type can be found on car manufacturer's welding line, where excess material can damage your inserted cables.
산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용,
외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

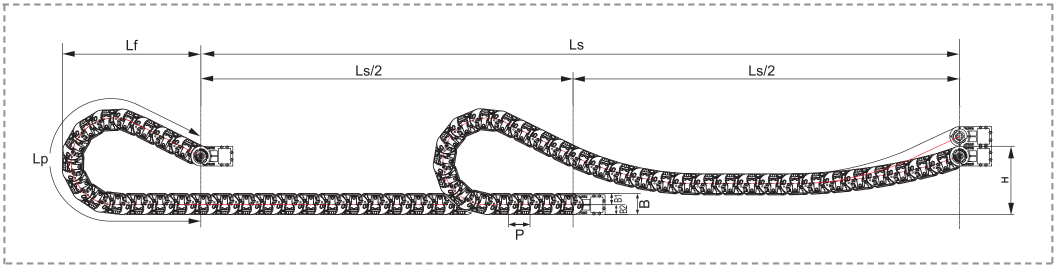
Affer enclosed frame of sliding type, it can protect cable perfectly from outside, substance for iong distance application.

Sliding 방식의 밀폐형 프레임을 적용하여 설비의 장거리구동 시에도 외부 이물질로부터 Cable을 완벽하게 보호하도록 설계됨.

ST 072ES Enclosed Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	120	145	200	250	300
Lp	917	1,063	1,400	1,840	2,280
L f	420	470	580	752	924
H	230	230	230	230	230

ST 072ES Type

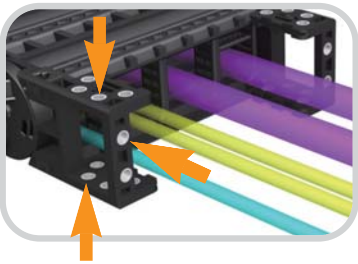
Pitch P: 72mm
Height B: 71mm
B1: 38mm
B2: 33mm

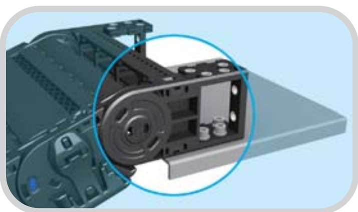
ORDERING (주문방법)

ST 072ES. 150. R200 / F-10000L : 10ST

10ST	주문수량	Q′ ty(set)
10000L	체인길이	Length(mm)
F	브라켓	Free End Bracket
R200	곡률반경	Bending Radius
150	내폭	Inside Width
072ES	장거리타입 (ES)	Enclosed Skid Type
ST	Shift Chain	

BRACKET TYPE (브라켓타입)





FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

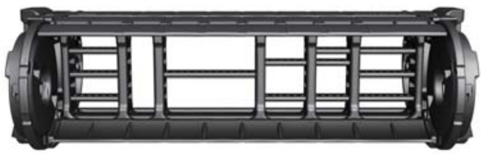
체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST ES-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

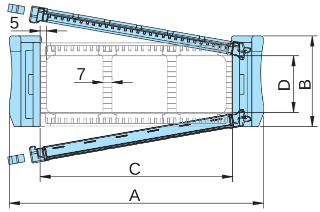
- BR should not be inserted in the joint of side band and Free End Bracket
  FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.
- Normal Frame, not FRU/FRD, is inserted into M.FEB.
  M.FEB에는 밀폐형 Frame(FRU/FRD)이 아닌 일반형 Frame이 삽입됨.
- Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 072ES Enclosed Skid Type

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

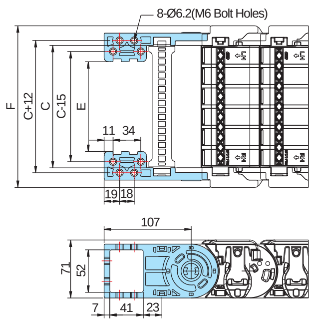
CHAIN CROSS SECTION



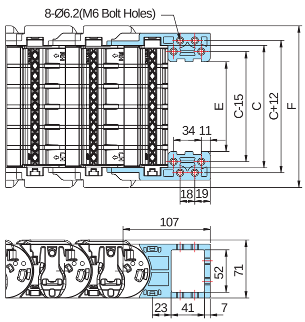


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 072ES.050	98		50			2.77
ST 072ES.075	123		75			3.01
ST 072ES.100	148	71	100	44	120,145, 200, 250, 300	3.25
ST 072ES.125	173		125			3.49
ST 072ES.150	198		150			3.73

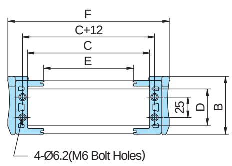
FREE END BRACKET



ST072ES Moving point



ST072ES Fixing point



ST072ES Front point

Chain Type	F	B	C	D	E	Hole Type
ST 072ES.050	98		50		10	
ST 072ES.075	123		75		35	
ST 072ES.100	148	71	100	44	60	M6 Bolt Holes
ST 072ES.125	173		125		85	
ST 072ES.150	198		150		110	

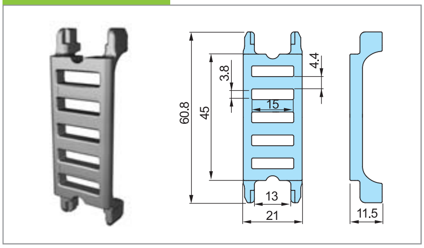
ST 072ES Enclosed Skid Type

DIVIDERS

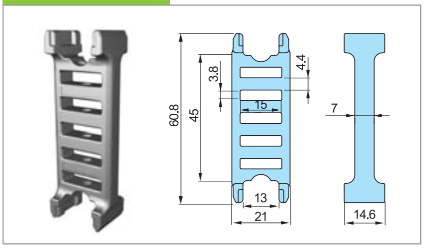
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 072ES DV-S

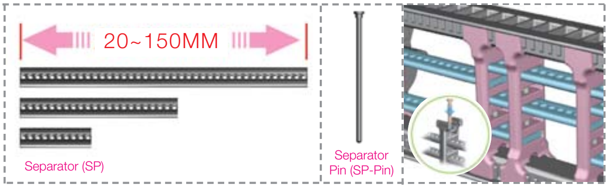


ST 072ES DV-M



*Assemble divider every Two links. / 2링크마다 결합

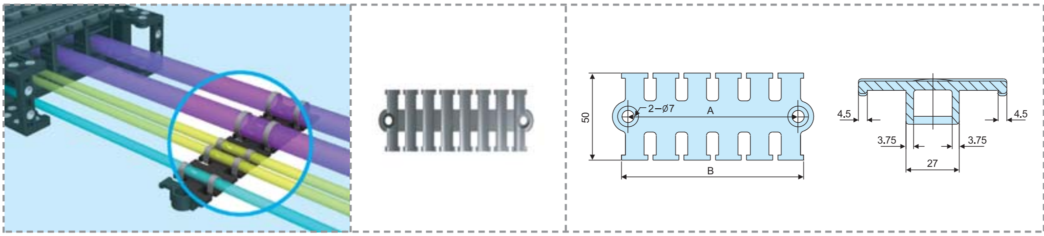
SEPARATORS (SP)



Separator is available in length from 20mm to 150mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대150mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 케이블을 보호할 수 있습니다.

TIE WRAP



(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인한 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다

ST 072ES Enclosed Skid Type

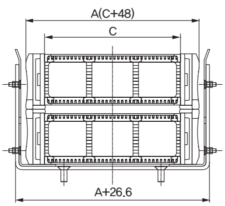
GUIDE CHANNEL

For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

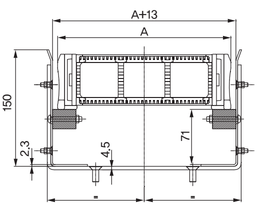
Steel Guide Channel은 장거리 이동형 ST 072ES Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주문제작 가능합니다.

▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

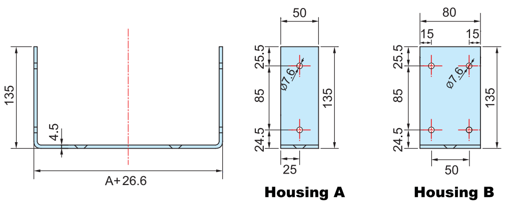
ST 072ES Type



▲ A-zone

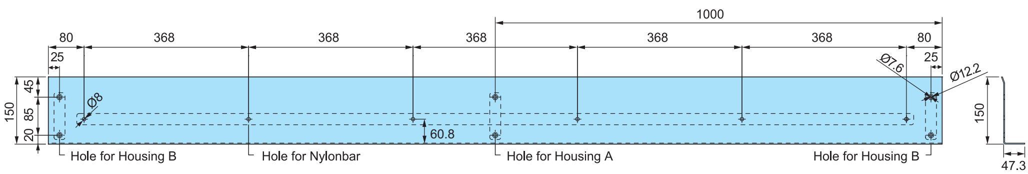


▲ C-zone



▲ Housing (U-shape) - ST 072ES

ST 072ES Side Panel



ORDERING (주문방법)

ST-GCS 072ES.150 / A, B, C : 200M

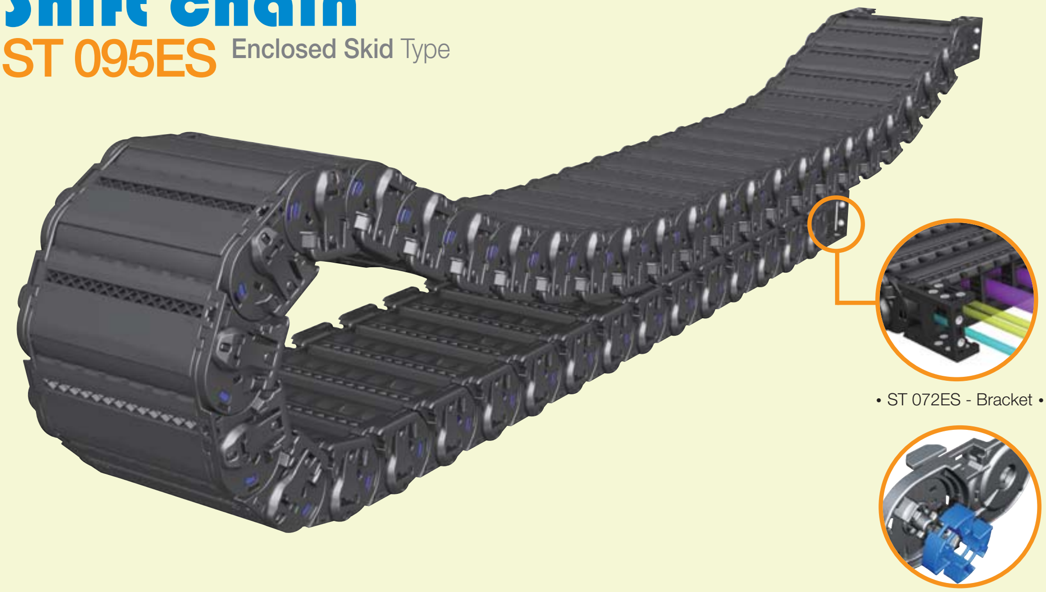
길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type

Steel Guide Channel

Shift Chain

Min ●●●●○○ Max

Shift chain®
ST 095ES Enclosed Skid Type



• ST 072ES - Bracket •

• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Skid 사용으로 소음 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.3 ~ 0.4 μ
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loader, etc.

  Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등
  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

  Shift Chain ES-Type can be found on car manufacturer's welding line, where excess material can damage your inserted cables.
  산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용,
  외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

$$\left[\; L = \frac{Ls}{2} + Lp \;\right]$$

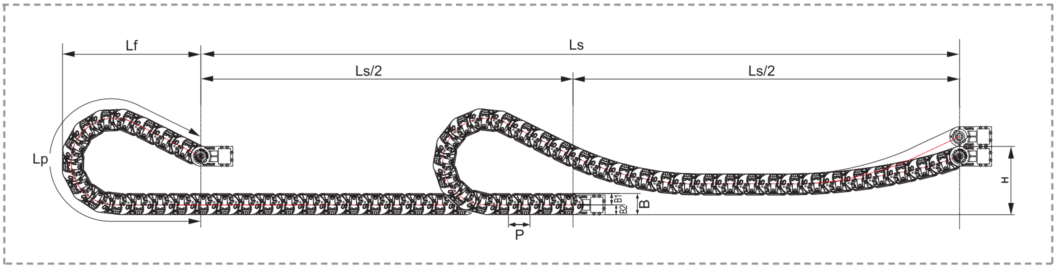
Affer enclosed frame of sliding type, it can protect cable perfectly from outside, substance for iong distance application.

Sliding 방식의 밀폐형 프레임을 적용하여 설비의 장거리구동 시에도 외부 이물질로부터 Cable을 완벽하게 보호하도록 설계됨.

ST 072ES Enclosed Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	150	200	230	280	400
Lp	1,178	1,479	1,666	2,146	3,232
L f	534	634	694	889	1319
H	250	250	250	250	250

ST 095ES Type

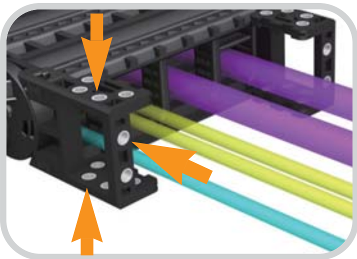
Pitch P: 95mm
Height B: 89mm
B1: 48mm
B2: 41mm

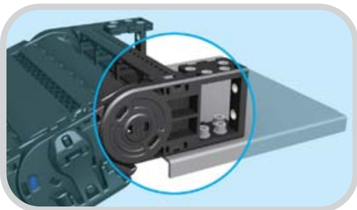
ORDERING (주문방법)

ST 095ES. 200. R200 / F-10000L : 10ST

주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
장거리타입 (ES)	Enclosed Skid Type
Shift Chain	

BRACKET TYPE (브라켓타입)





FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST ES-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

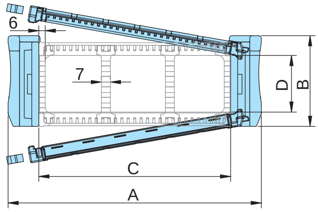
▶ BR should not be inserted in the joint of side band and Free End Bracket
FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

▶ Normal Frame, not FRU/FRD, is inserted into M.FEB.
M.FEB에는 밀폐형 Frame(FRU/FRD)이 아닌 일반형 Frame이 삽입됨.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

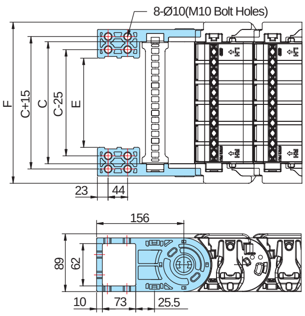
ST 095ES Enclosed Skid Type

CHAIN CROSS SECTION

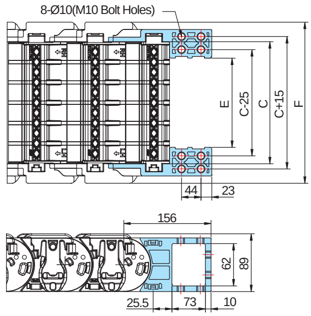


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 095ES.100	162	89	100	55	150, 200, 230, 280, 400	4.16
ST 095ES.125	187		125			4.41
ST 095ES.150	212		150			4.65
ST 095ES.175	237		175			4.90
ST 095ES.200	262		200			5.15

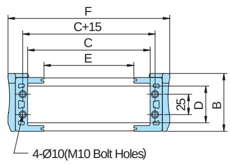
FREE END BRACKET



ST095ES Moving point



ST095ES Fixing point



ST095ES Front point

Chain Type	F	B	C	D	E	Hole Type
ST 095ES.100	162	89	100	55	49	M10 Bolt Holes
ST 095ES.125	187		125		74	
ST 095ES.150	212		150		99	
ST 095ES.175	237		175		124	
ST 095ES.200	262		200		149	

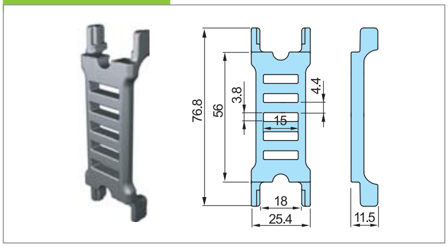
ST 095ES Enclosed Skid Type

DIVIDERS

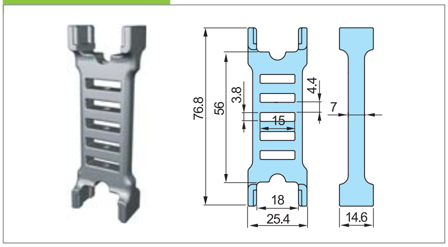
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 095ES DV-S

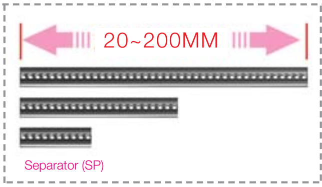


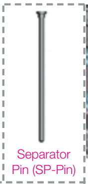
ST 095ES DV-M

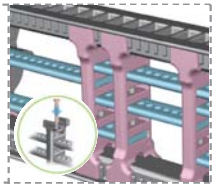


*Assemble divider every Two links. / 2링크마다 결합

SEPARATORS (SP)



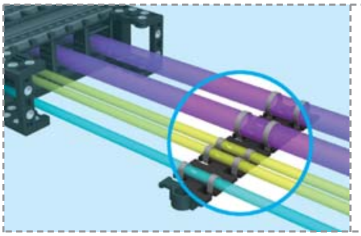


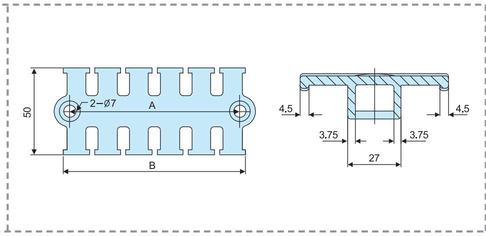


Separator is available in length from 20mm to 200mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대200mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	149

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

ST 095ES Enclosed Skid Type

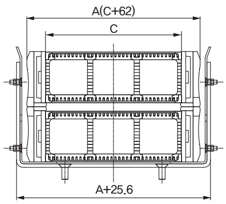
GUIDE CHANNEL

For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

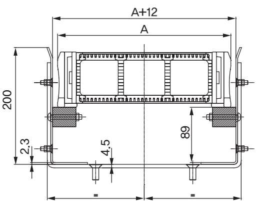
Steel Guide Channel은 장거리 이동형 ST 095ES Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주 문제작 가능합니다.

▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

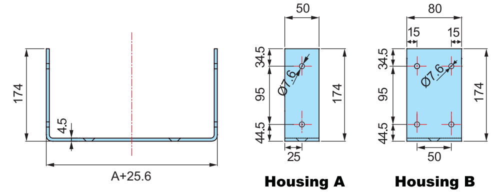
ST 095ES Type



▲ A - zone

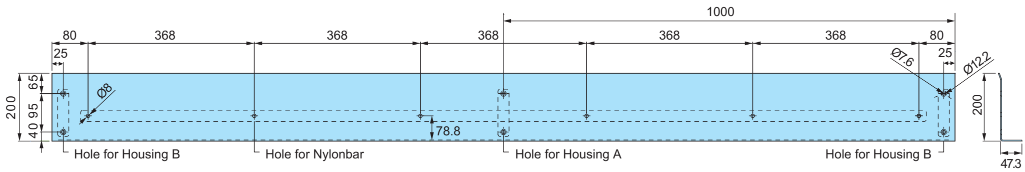


▲ C - zone



▲ Housing (U-shape) - ST 095ES

ST 095ES Side Panel



ORDERING (주문방법)

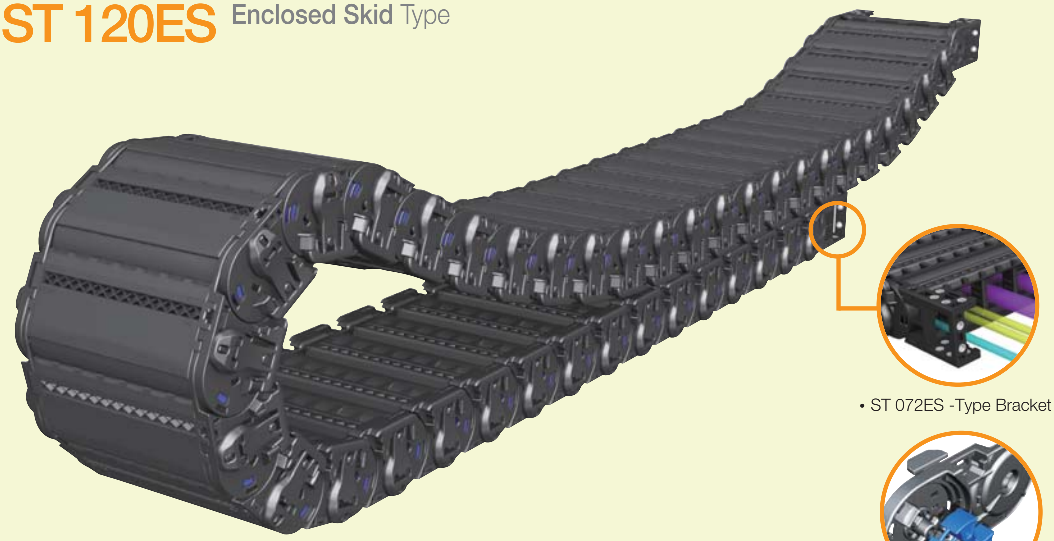
ST-GCS 095ES.175 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

Min ●●●●●○ Max

Shift chain®

ST 120ES Enclosed Skid Type



• ST 072ES -Type Bracket •

• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Skid 사용으로 소음 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.3 ~ 0.4 μ
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loader, etc.

  Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등
  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

  Shift Chain ES-Type can be found on car manufacturer's welding line, where excess material can damage your inserted cables.
  산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용, 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

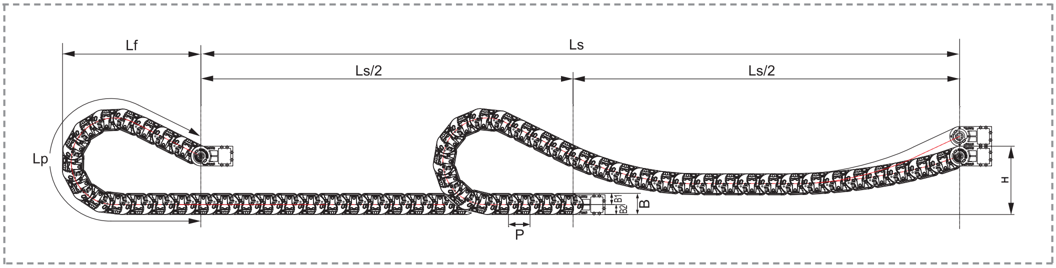
Affer enclosed frame of sliding type, it can protect cable perfectly from outside, substance for iong distance application.

Sliding 방식의 밀폐형 프레임을 적용하여 설비의 장거리구동 시에도 외부 이물질로부터 Cable을 완벽하게 보호하도록 설계됨.

ST 120ES Enclosed Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	200	250	300	350	400	500
Lp	1,559	1,864	2,178	2,701	3,225	4,062
L f	694	794	894	1,114	1,334	1,654
H	300	300	300	300	300	300

ST 120ES Type

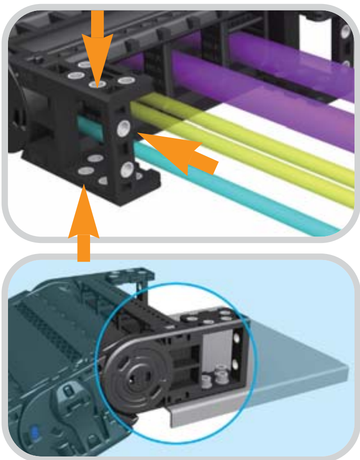
Pitch P: 120mm
Height B: 115mm
B1: 61mm
B2: 54mm

ORDERING (주문방법)

ST 120ES. 300. R200 / F-10000L : 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
장거리타입 (ES)	Enclosed Skid Type
Shift Chain	

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

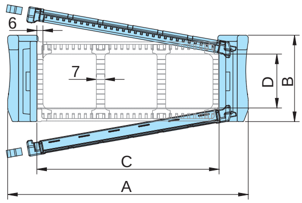
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST ES-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

- ▶ BR should not be inserted in the joint of side band and Free End Bracket
  FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.
- ▶ Normal Frame, not FRU/FRD, is inserted into M.FEB.
  M.FEB에는 밀폐형 Frame(FRU/FRD)이 아닌 일반형 Frame이 삽입됨.
- ▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

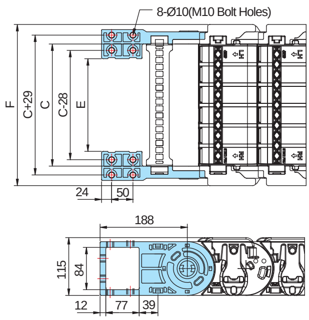
ST 120ES Enclosed Skid Type

CHAIN CROSS SECTION

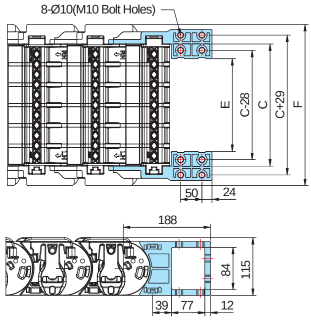


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 120ES.150	212	115	150	76	200, 250, 300, 350, 400, 500	6.28
ST 120ES.200	262		200			6.92
ST 120ES.250	312		250			7.56
ST 120ES.300	362		300			8.20

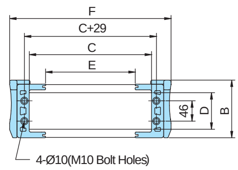
FREE END BRACKET



ST120ES Moving point



ST120ES Fixing point



ST120ES Front point

Chain Type	F	B	C	D	E	Hole Type
ST 120ES.150	212	115	150	76	90	M10 Bolt Holes
ST 120ES.200	262		200		140	
ST 120ES.250	312		250		190	
ST 120ES.300	362		300		240	

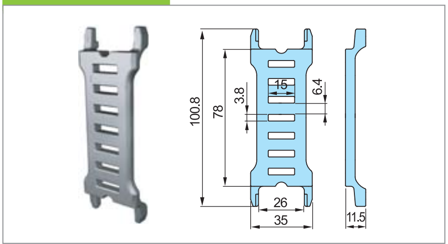
ST 120ES Enclosed Skid Type

DIVIDERS

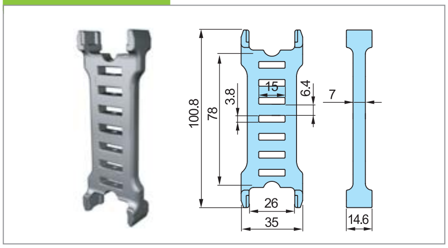
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 120ES DV-S

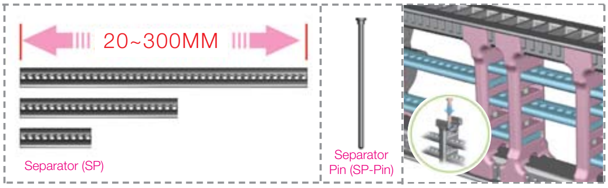


ST 120ES DV-M



*Assemble divider every Two links. / 2링크마다 1개씩 결합

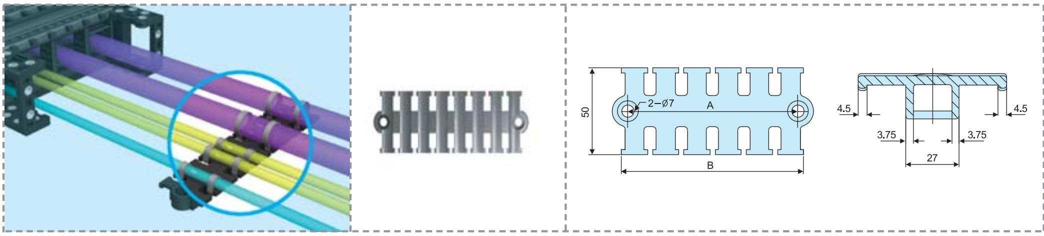
SEPARATORS (SP)



Separator is available in length from 20mm to 300mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대300mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP



(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	149

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

GUIDE CHANNEL

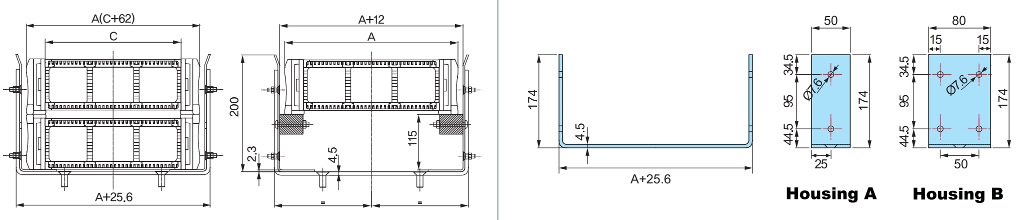
ST 120ES Enclosed Skid Type

For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

Steel Guide Channel은 장거리 이동형 ST 120ES Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주문제작 가능합니다.

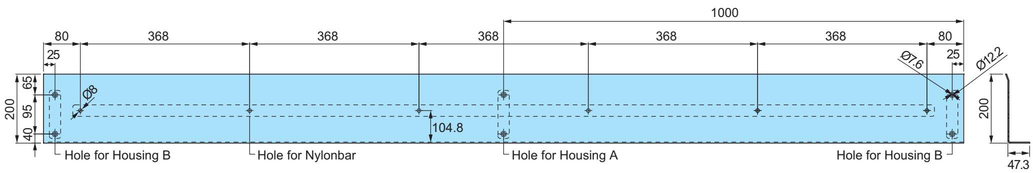
▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

ST 120ES Type



▲ A - zone ▲ C - zone ▲ Housing (U-shape) - ST 120ES

ST 120ES Side Panel



ORDERING (주문방법)

ST-GCS 120ES.200 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

ASSEMBLY PROCEDURE / ENCLOSED SKID Type

Assembly procedure of Shift chain ES-type is as follows. The assembling process of shift Chain ES-type is like below and you must use rubber hammer with careful combination of Divider and Separator. (Disassembly process for repair and replacement are in reverse order)

Shift chain ES-type의 조립순서는 아래와 같이 진행한다. 반드시 규정된 고무망치를 사용하여야 하며 케이블의 입선수량에 따라 디바이더와 세퍼레이터를 조합하여 지정된 위치에 조립한다. (보수 및 교체를 위한 제품 분해 등은 조립의 역순)

1.

Insert BR Unit into each Side Band.
(Side Band is divided into right and left side according to the direction.)

사이드밴드에 사양에 맞는 BR을 홈에 맞게 조립한다. (사이드 밴드는 방향에 따라 LH, RH로 구분됨)

2.

Continue to insert BR Unit into Side Band as you want to make it. Assemble Side Band which is inserted BR Unit as above.

조립하고자 하는 사이드밴드에 모두 BR을 조립한다.
BR이 삽입되어 있는 사이드밴드를 사진과 같이 조립한다.

3.

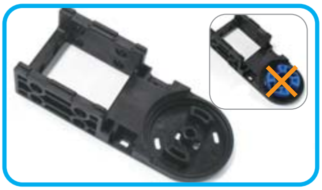
Continue to connect each Side Band as long as you want to make it.
Connect the Side Band as many as you need.

일정단위의 길이만큼 사이드밴드를 연결한다.
조립하고자 하는 길이만큼 사이드밴드를 연결한다.

4.

.Assemble the F.FEB according to the direction of right and left side.
-Do not insert the BR Unit to Side Band connected to F.FEB (Side of F.FEB is not enclosed.)

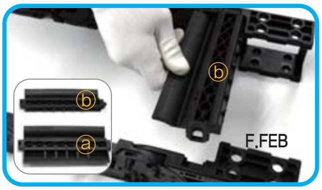
F.FEB를 좌우 방향에 맞도록 조립한다.
(F.FEB와 연결되는 사이드 밴드에는 BR을 삽입하지 않으며, F.FEB는 측면이 밀폐되어 있지 않음)



5.

Do not insert a BR to M.FEB.(M.FEB will be making a turn to up and down)
Assemble the M.FEB according to the direction of right and left side. (Side of M.FEB is not enclosed)

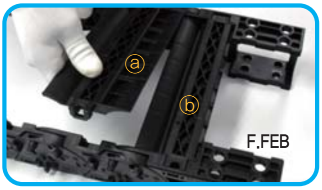
M.FEB에는 BR을 삽입하지 않는다.(M.FEB가 상하 방향으로 꺾임.) / M.FEB를 좌우 방향에 맞도록 조립한다.(M.FEB는 측면이 밀폐되어 있지 않음)



6.

Insert one ⓑ Shaped-FRD into F.FEB.
[ⓐ:Normal FRD ⓑ : Built-up only for F.FEB]
-Find one ⓑ shaped-FRD and insert it with the hinge facing RH direction, as above.

F.FEB에 삽입되는 FRD(ⓑ)를 힌지가 RH방향에 삽입되도록 조립한다.(ⓐ – FRD 일반형, ⓑ – F.FEB에만 조립)

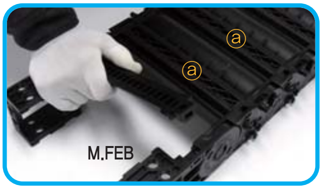


7.

Continue to insert the FRD(ⓐ -Normal FRD)with the hinge facing RH direction,
-Assemble the from F.FEB to M.FEB in order.

FRD(ⓐ –일반형)을 힌지가 RH방향에 삽입되도록 연속하여 조립한다. (FRD는 F.FEB에서 시작하여 순차적으로 M.FEB 방향으로 조립하여야 함)

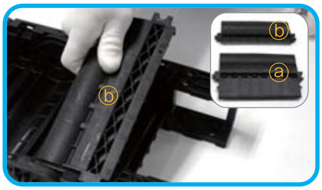
ASSEMBLY PROCEDURE / ENCLOSED SKID Type



8.

Insert the frame as many as you need and insert them one by one with the hinge facing RH direction, as above.(M.FEB is not turned to up and down when FRD assembling))

M.FEB에 Frame을 흰지가 RH방향에 삽입되도록 조립한다. (FRD를 조립시 M.FEB가 상하방향으로 꺾이지 않음)



9.

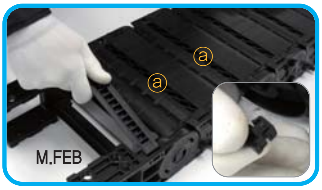
Insert the ⓑ shaped-FRD inserted to F.FEB and insert it with the hinge facing RH direction, as above.[ⓐ:Normal FRD ⓑ: Built-up only for F.FEB]-Insert the divider with separator to divide the inside of chain

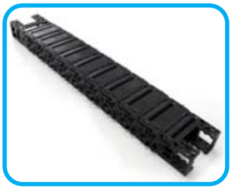
F.FEB에 삽입되는 FRU(ⓑ)를 흰지가 RH방향에 삽입되도록 조립한다.(ⓐ–FRU 일반형, ⓑ–F.FEB에만 조립)내부 공간 분리를 위하여 세퍼레이터가 결합된 디바이더를 삽입한다.

10.

Continue to insert the FRU(ⓐ -Normal FRU)with the hinge facing RH direction,
-Assemble the from F.FEB to M.FEB in order.

FRU(ⓐ –일반형)을 흰지가 RH방향에 삽입되도록 연속하여 조립한다.(FRU는 F.FEB에서 시작하여 순차적으로 M.FEB 방향으로 조립하여야 함)

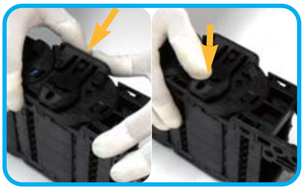




11.

Insert ⓐNormal FRU as many as you need and insert them one by one with the hinge facing RH direction, as above.
-Insert Frame-pin into the hole which is seen where the end of FRU and Side Band meet. (M.FEB is not turning to up and down) when FRU assembling) -Check that FRU and FRD are assembled correctly.

M.FEB에 Frame을 흰지가 RH방향에 삽입되도록 조립 후 사이드밴드의 측면에 프레임 핀을 삽입하여 프레임을 고정한다. (FRU를 조립시 M.FEB가 상하방향으로 꺾이지 않음) – FRU와 FRD가 모두 조립되었는지 확인한다.



12.

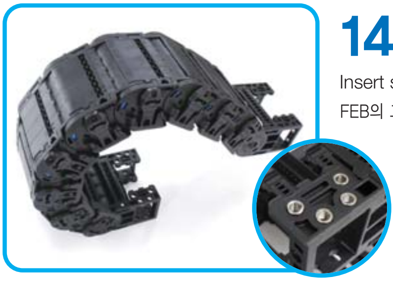
-Insert Skid into mounted Side Band.
-Insert Skid into groove of Side Band until you hear the "click".
(Skid is also divided into LH and RH)

–사이드 밴드 측면의 돌출된 형상에 스키드를 삽입하여 조립한다.
–스키드를 삽입시 사진처럼 사이드밴드의 홈에 밀어 넣은 후에 스키드 상부를 "딸깍"소리가 나도록 눌러 고정한다. (스키드는 좌우 구분이 있음)

13.

-Insert the Skid to all Side band in same way
-Insert the Skid to opposite side of each Side Band in the same way.

–연결된 모든 사이드 밴드에 스키드를 동일한 방법으로 조립한다.
–반대 방향의 사이드 밴드에 스키드를 동일한 방법으로 조립한다.



14.

Insert steel washers into M.FEB and F.FEB.

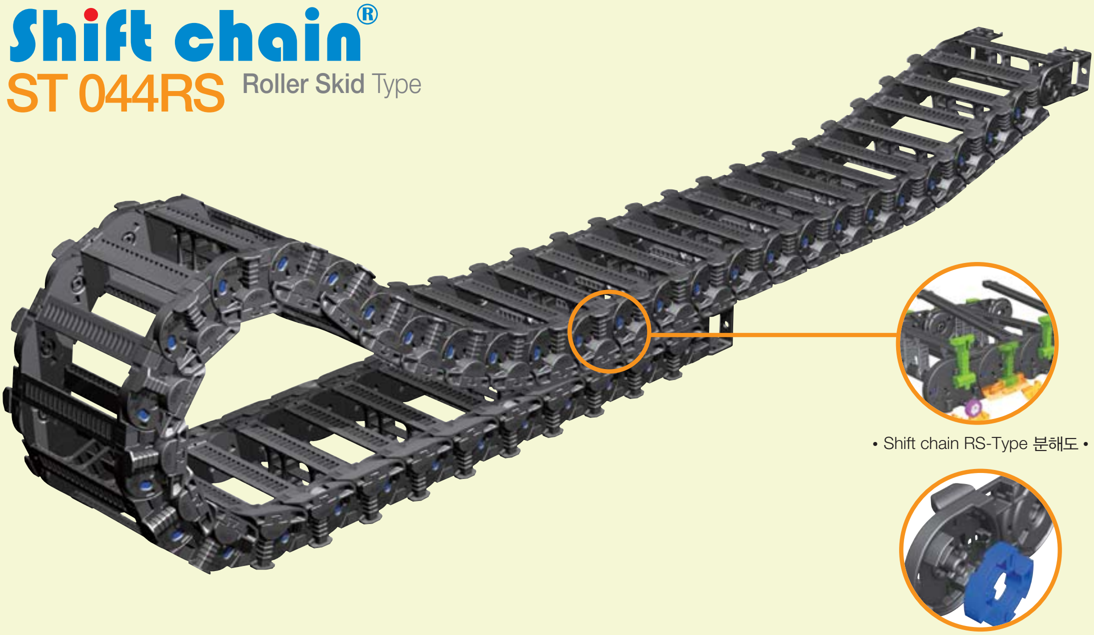
FEB의 고정 방향에 맞도록 보강와샤를 삽입한다.

Shift chain®

SLIDING : RS TYPE - Roller Skid

Min ●●●●●● Max

Shift chain®
ST 044RS Roller Skid Type



• Shift chain RS-Type 분해도 •

• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Roller Skid사용으로 소음 및 분진 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.02~0.07μ
  Regular Cable Chain : 0.3 ~ 0.4μ
  (일반케이블체인 마찰계수)
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loder, etc.

  Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등
  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

- **Calculation of the chain length**

$$\left[\; L = \frac{Ls}{2} + Lp \;\right]$$

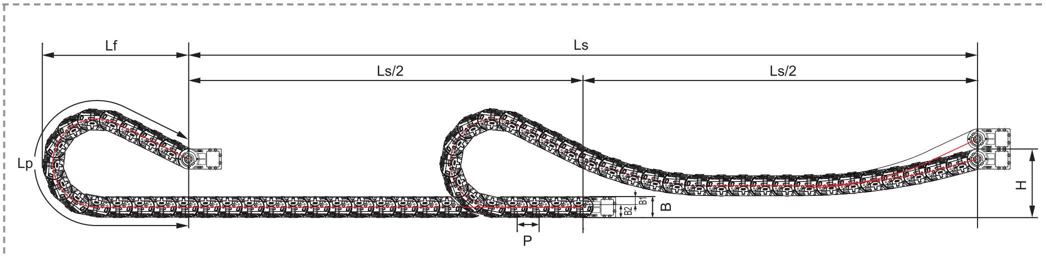
With a friction co-efficiency of 0.02 ~0.07μ due to the patented roller skid design, the Shift Chain is quieter and faster than ever. Non friction also means no dust for those applications where a clean work environment is a priority.

롤러스키드 장착으로 마찰계수가 0.02 ~ 0.07μ 이며 빠른속도로 장거리 이동이 가능하고 체인마찰면을 최소화시켜 분진 및 소음발생을 줄여줍니다.

ST 044RS Roller Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	70	90	120	150
Lp	544	662	926	1,190
L f	249	289	393	497
H	130	130	130	130

ST 044RS Type

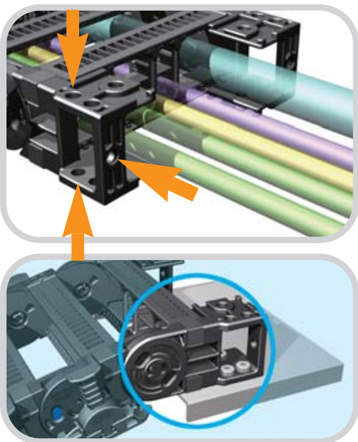
Pitch P: 44mm
Height B: 40.5mm
B1: 20.5mm
B2: 20mm

ORDERING (주문방법)

ST 044RS. 100. R120 / F - 1500L : 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
장거리타입(RS)	Roller Skid Type
Shift Chain	

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

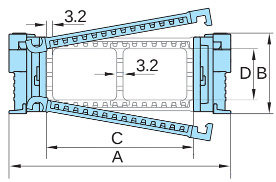
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires.
체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST RS-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지.

▶ BR should not be inserted in the joint of side band and Free End Bracket.
FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

▶ Above products are patent registered item which can be protected by industrial property right.
(상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

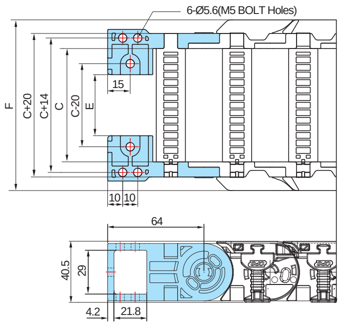
ST 044RS Roller Skid Type

CHAIN CROSS SECTION

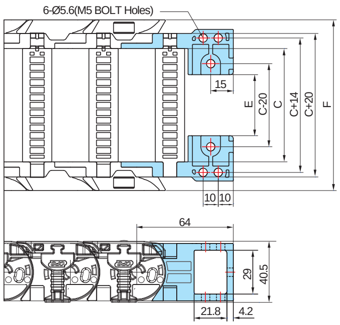


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 044RS.035	73		35			1.09
ST 044RS.050	88		50			1.15
ST 044RS.055	93		55			1.17
ST 044RS.075	113		75			1.24
ST 044RS.100	138	40.5	100	26	70, 90, 120, 150	1.33
ST 044RS.125	163		125			1.47
ST 044RS.150	188		150			1.59
ST 044RS.175	213		175			1.88
ST 044RS.200	238		200			2.05

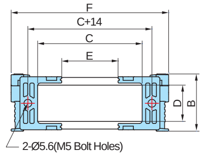
FREE END BRACKET



ST044RS Moving point



ST044RS Fixing point



ST044RS Front point

Chain Type	F	B	C	D	E	Hole Type
ST 044RS.035	73		35		0.4	
ST 044RS.050	88		50		15.4	
ST 044RS.055	93		55		20.4	
ST 044RS.075	113		75		40.4	
ST 044RS.100	138	40.5	100	26	65.4	M5 Bolt Holes
ST 044RS.125	163		125		90.4	
ST 044RS.150	188		150		115.4	
ST 044RS.175	213		175		140.4	
ST 044RS.200	238		200		165.4	

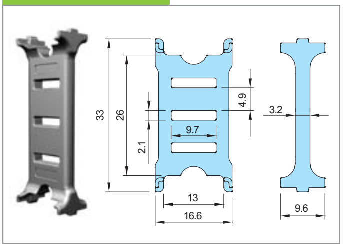
ST 044RS Roller Skid Type

DIVIDERS & SEPARATORS

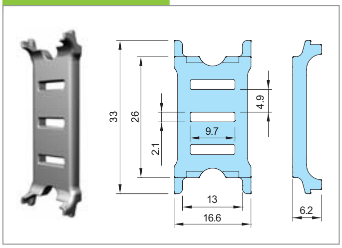
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블을 서로 분리하여 케이블상호간 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

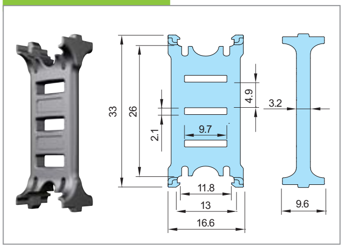
ST 044RS DV-M



ST 044RS DV-S



ST 044RS DV-T



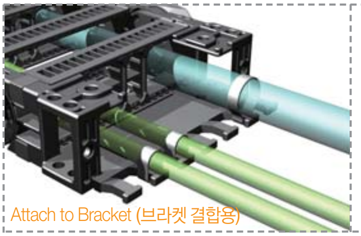
▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 125~200적용(상하 프레임을 연결)

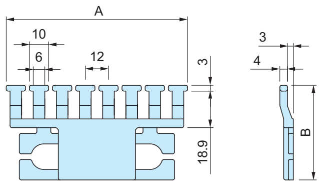
ST044RS Separators (SP) (No. : S-SP/M)

Separators / Chain Type	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
ST 044RS	○	○	○	○	○	○	○	○	○

TIE WRAP



Attach to Bracket (브라켓 결합용)



(Dimensions in mm)

Tie Wrap	035	055	075	100	125
A	46	70	94	118	142
B	35.4	48.9	48.9	48.9	48.9

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap;Attached & Unattached to the bracket.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Shift Chain의 Tie Wrap은 브라켓부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양 으로 구분되어 사용할 수 있다.

ST 044RS Roller Skid Type

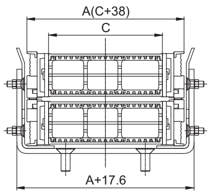
GUIDE CHANNEL

For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

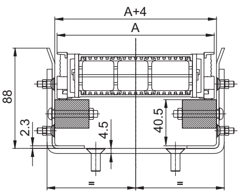
Steel Guide Channel은 장거리 이동형 ST044RS Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주문제작 가능합니다.

▶Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

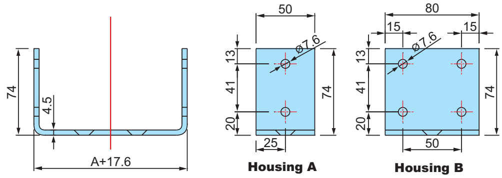
ST 044RS Type



▲ A - zone

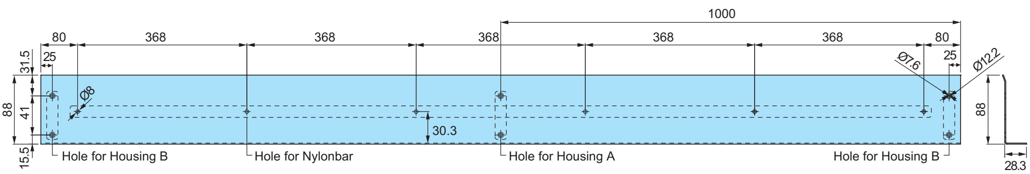


▲ C - zone



▲ Housing (U-shape)-ST 044RS

ST 044RS Side Panel



ORDERING (주문방법)

ST-GCS 044RS. 100 / A, B, C : 200M

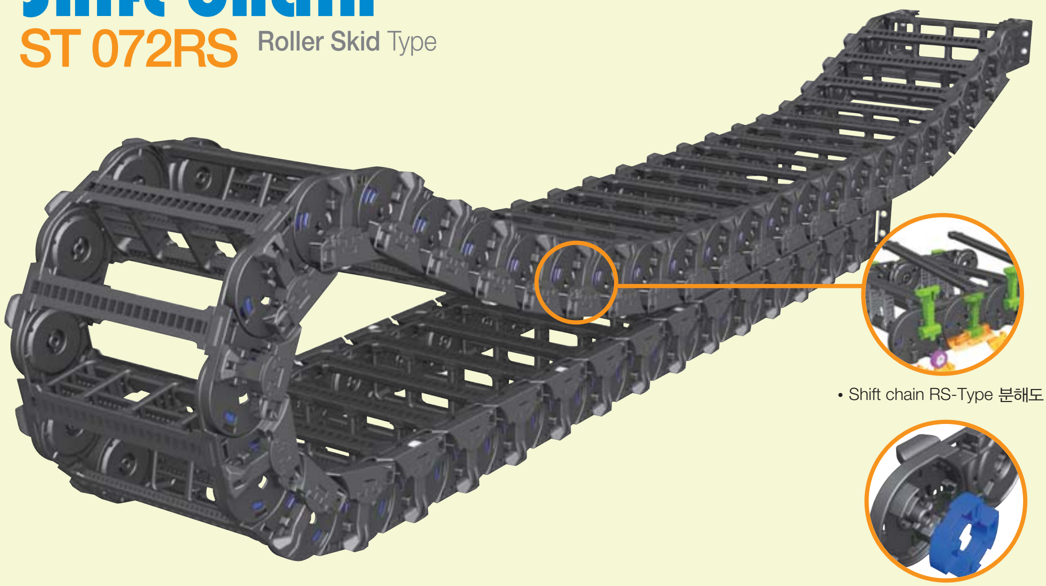
길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type

Steel Guide Channel

Shift Chain

Min ●●●○○○ Max

Shift chain®
ST 072RS Roller Skid Type



• Shift chain RS-Type 분해도 •

• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Roller Skid 사용으로 소음 및 분진 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.02~0.07 μ
  Regular Cable Chain : 0.3 ~ 0.4 μ
  (일반케이블체인 마찰계수)
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loder, etc.

  Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등
  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

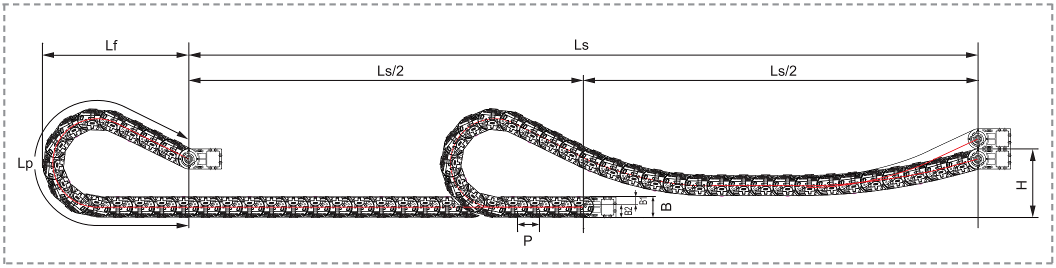
With a friction co-efficiency of 0.02 ~0.07 μ due to the patented roller skid design, the Shift Chain is quieter and faster than ever. Non friction also means no dust for those applications where a clean work environment is a priority.

롤러스키드 장착으로 마찰계수가 0.02 ~ 0.07μ 이며 빠른속도로 장거리 이동이 가능하고 체인마찰면을 최소화시켜 분진 및 소음발생을 줄여줍니다.

ST 072RS Roller Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	100	120	145	200	250	300
Lp	806	917	1,063	1,400	1,840	2,280
L f	380	420	470	580	752	924
H	230	230	230	230	230	230

ST 072RS Type

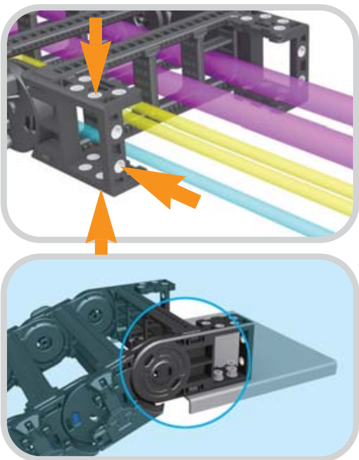
Pitch P: 72mm
Height B: 69mm
B1: 34.5mm
B2: 34.5mm

ORDERING (주문방법)

ST 072RS. 175. R200 / F - 10000L : 10ST

10ST	주문수량	Q´ty(set)
10000L	체인길이	Length(mm)
F	브라켓	Free End Bracket
R200	곡률반경	Bending Radius
175	내폭	Inside Width
072RS	장거리타입(RS)	Roller Skid Type
ST	Shift Chain	

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

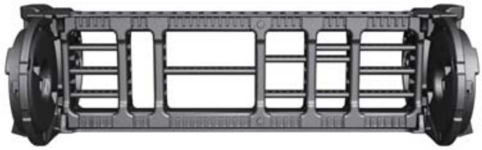
체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST RS-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

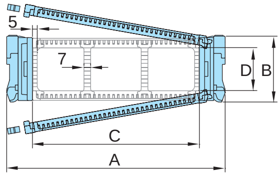
▶ BR should not be inserted in the joint of side band and Free End Bracket
FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 072RS Roller Skid Type

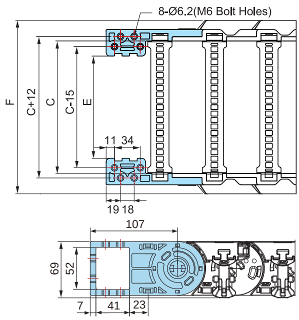
CHAIN CROSS SECTION



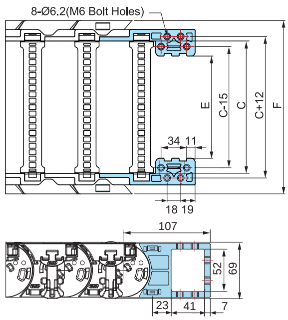


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 072RS.050	104	69	50	45	100, 120, 145, 200, 250, 300	2.59
ST 072RS.075	129		75			2.67
ST 072RS.100	154		100			2.77
ST 072RS.125	179		125			2.91
ST 072RS.150	204		150			3.05
ST 072RS.175	229		175			3.17
ST 072RS.200	254		200			3.59
ST 072RS.250	304		250			3.99
ST 072RS.300	354		300			4.34

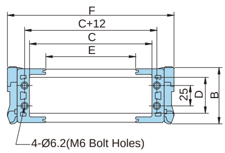
FREE END BRACKET



ST072RS Moving point



ST072RS Fixing point



ST072RS Front point

Chain Type	F	B	C	D	E	Hole Type
ST 072RS.050	104	69	50	45	10	M6 Bolt Holes
ST 072RS.075	129		75		35	
ST 072RS.100	154		100		60	
ST 072RS.125	179		125		85	
ST 072RS.150	204		150		110	
ST 072RS.175	229		175		135	
ST 072RS.200	254		200		160	
ST 072RS.250	304		250		210	
ST 072RS.300	354		300		260	

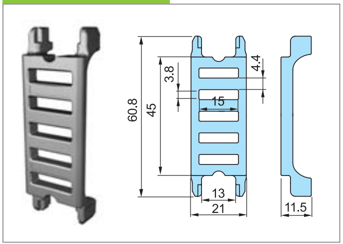
ST 072RS Roller Skid Type

DIVIDERS

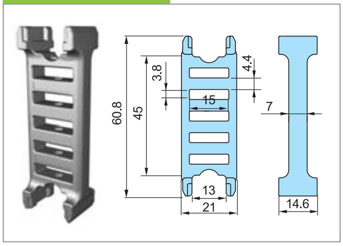
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

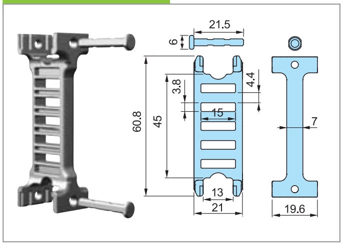
ST 072RS DV-S



ST 072RS DV-M



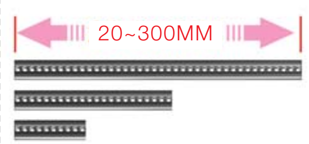
ST 072RS DV-T



▶ Assemble divider every Two links. / 2링크마다 결합

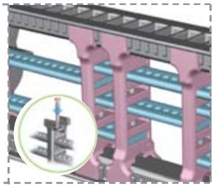
▶ DV/T : Frame 200~300적용(상하 프레임을 연결)

SEPARATORS (SP)



Separator (SP)

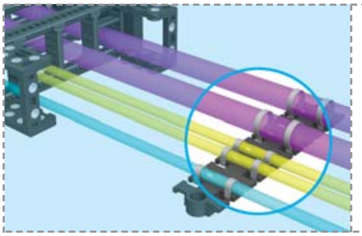
Separator Pin (SP-Pin)

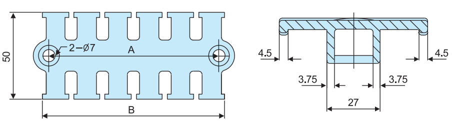


Separator is available in length from 20mm to 300mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대300mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

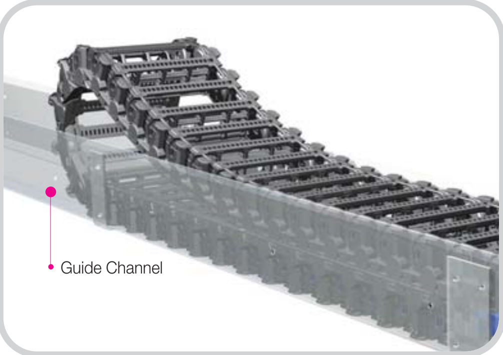
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인한 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다

ST 072RS Roller Skid Type

GUIDE CHANNEL

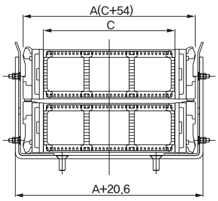


For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

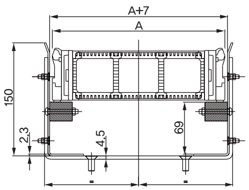
Steel Guide Channel은 장거리 이동형 ST072RS Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주 문제작 가능합니다.

* Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

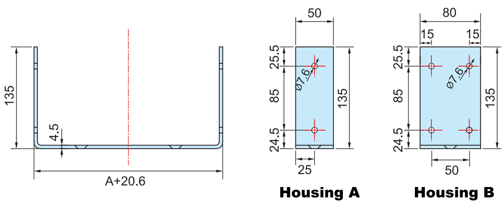
ST 072RS Type



▲ A-zone

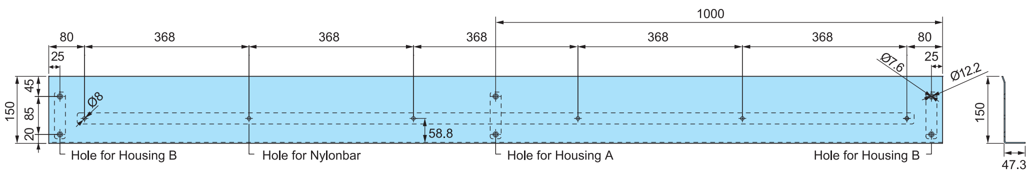


▲ C-zone



▲ Housing (U-shape)-ST 072RS

ST 072RS Side Panel



ORDERING (주문방법)

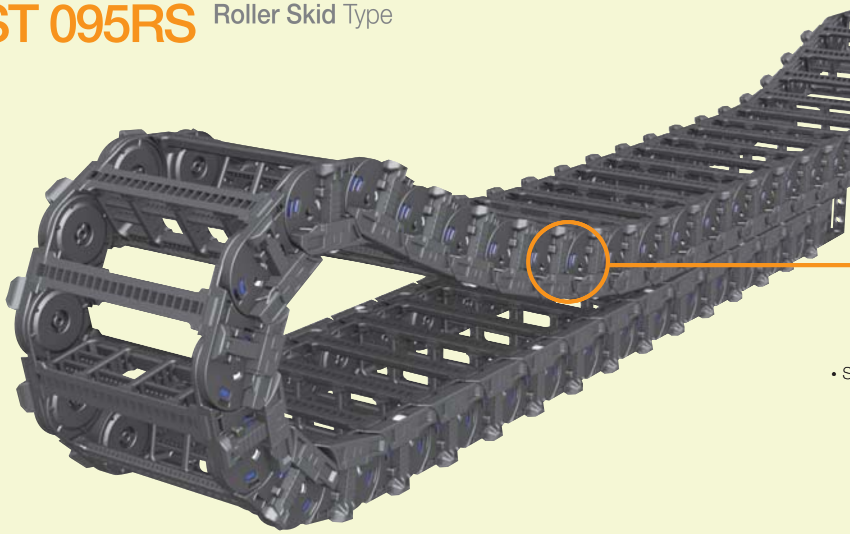
ST-GCS 072RS. 150 / A, B, C : 200M

200M	길이	Length(mm)
A, B, C	사이드판넬 종류	Panel A, B, C-Zone
150	내폭	Inside Width
072RS	체인종류	Chain Type
GCS	Steel Guide Channel	
ST	Shift Chain	

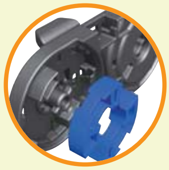
Min ●●●●○○ Max

Shift chain®

ST 095RS Roller Skid Type



• Shift chain RS-Type 분해도 •



• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Roller Skid 사용으로 소음 및 분진 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.02~0.07 μ
  Regular Cable Chain : 0.3 ~ 0.4 μ
  (일반케이블체인 마찰계수)
- **Applications**

Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loder, etc.

Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등

설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

- **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

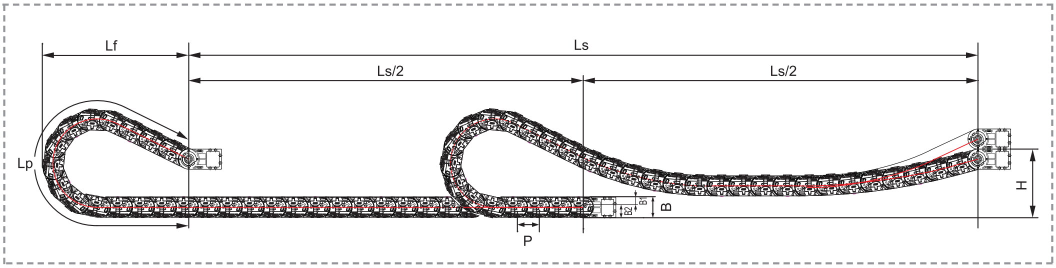
With a friction co-efficiency of 0.02 ~0.07 μ due to the patented roller skid design, the Shift Chain is quieter and faster than ever. Non friction also means no dust for those applications where a clean work environment is a priority.

롤러스키드 장착으로 마찰계수가 0.02 ~ 0.07μ 이며 빠른속도로 장거리 이동이 가능하고 체인마찰면을 최소화시켜 분진 및 소음발생을 줄여줍니다.

ST 095RS Roller Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **L f:** Loop Projection



(Dimensions in mm)

Bending radius R	135	150	200	230	280	400
Lp	1,091	1,178	1,479	1,666	2,146	3,232
L f	504	534	634	694	889	1319
H	250	250	250	250	250	250

ST 095RS Type

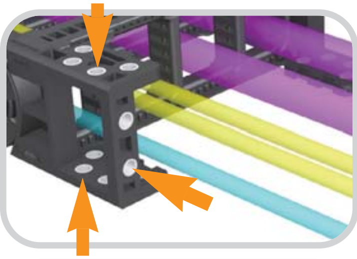
Pitch P: 95mm
Height B: 85mm
B1: 42.7mm
B2: 42.3mm

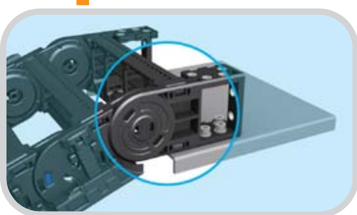
ORDERING (주문방법)

ST 095RS. 200. R200 / F - 10000L : 10ST

10ST	주문수량	Q´ ty(set)
10000L	체인길이	Length(mm)
F	브라켓	Free End Bracket
R200	곡률반경	Bending Radius
200	내폭	Inside Width
095RS	장거리타입(RS)	Roller Skid Type
ST	Shift Chain	

BRACKET TYPE (브라켓타입)





FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

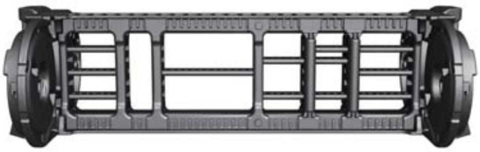
체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST RS-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

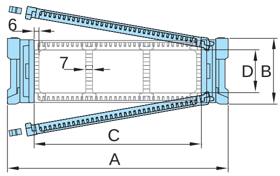
▶ BR should not be inserted in the joint of side band and Free End Bracket
FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 095RS Roller Skid Type

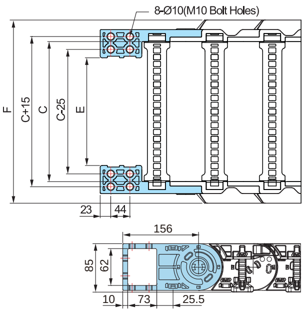
CHAIN CROSS SECTION



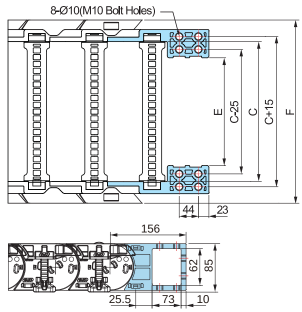


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 095RS.075	143	85	75	56	135,150, 200, 230, 280, 400	3.48
ST 095RS.100	168		100			3.55
ST 095RS.125	193		125			3.73
ST 095RS.150	218		150			3.84
ST 095RS.175	243		175			3.96
ST 095RS.200	268		200			4.14
ST 095RS.250	318		250			4.41
ST 095RS.300	368		300			4.67
ST 095RS.350	418		350			5.03
ST 095RS.400	468		400			5.43

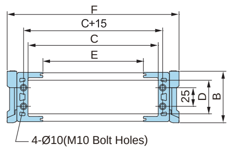
FREE END BRACKET



ST095RS Moving point



ST095RS Fixing point



ST095RS Front point

Chain Type	F	B	C	D	E	Hole Type
ST 095RS.075	143	85	75	56	24	M10 Bolt Holes
ST 095RS.100	168		100		49	
ST 095RS.125	193		125		74	
ST 095RS.150	218		150		99	
ST 095RS.175	243		175		124	
ST 095RS.200	268		200		149	
ST 095RS.250	318		250		199	
ST 095RS.300	368		300		249	
ST 095RS.350	418		350		299	
ST 095RS.400	468		400		349	

ST 095RS Roller Skid Type

DIVIDERS

Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

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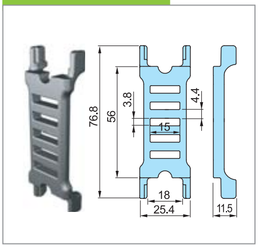
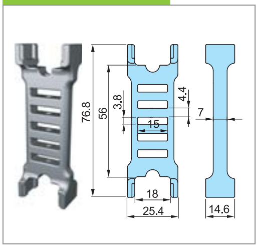
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

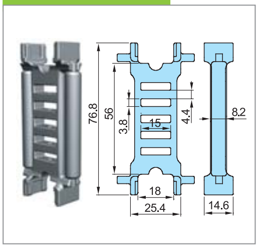
ST 095RS DV-S



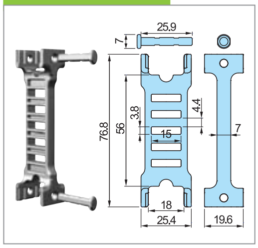
ST 095RS DV-M



ST 095RS DV-R



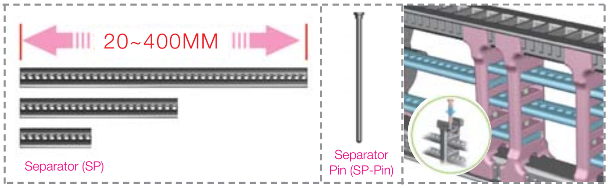
ST 095RS DV-T



▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV-T :Frame 250~400적용(상하 프레임을 연결)

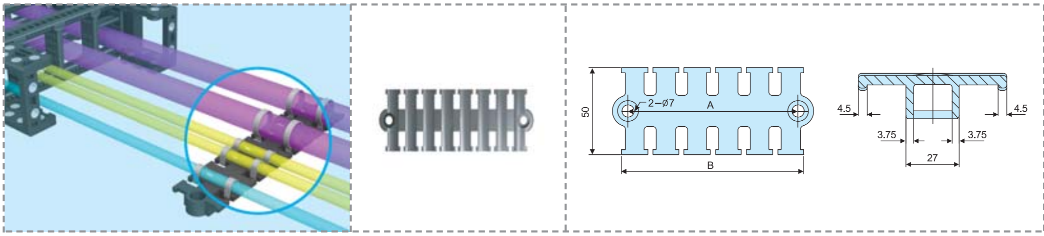
SEPARATORS (SP)



Separator is available in length from 20mm to 400mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대400mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP



(Dimensions in mm)

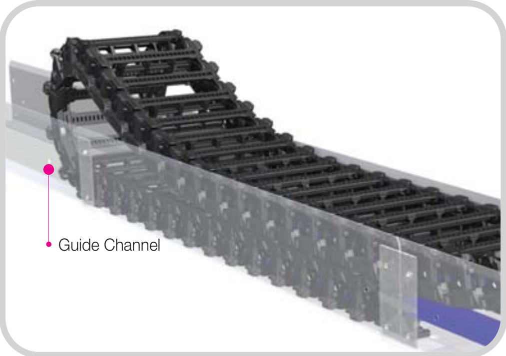
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The tie wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인 해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다

ST 095RS Roller Skid Type

GUIDE CHANNEL

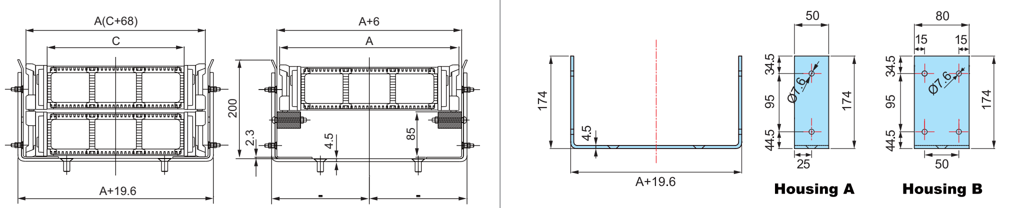


For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

Steel Guide Channel은 장거리 이동형 ST 095RS Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주 문제작 가능합니다.

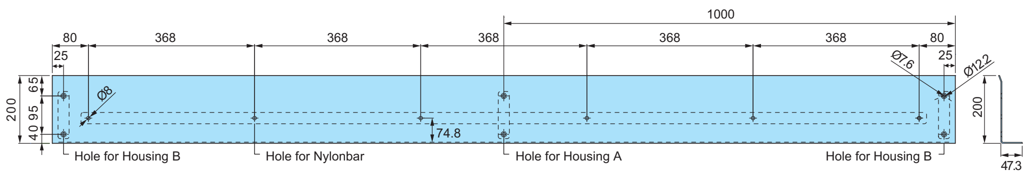
▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

ST 095RS Type



▲ A-zone ▲ C-zone ▲ Housing (U-shape)-ST 095RS

ST 095RS Side Panel



ORDERING (주문방법)

ST-GCS 095RS. 175 / A, B, C : 200M

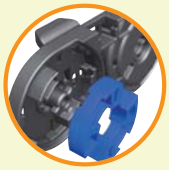
길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

Min ●●●●●○ Max

Shift chain®

ST 120RS Roller Skid Type

• Shift chain RS-Type 분해도 •



• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Roller Skid 사용으로 소음 및 분진 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.02~0.07μ
  Regular Cable Chain : 0.3 ~ 0.4μ
  (일반케이블체인 마찰계수)
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loder, etc.

  Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등
  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

- **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

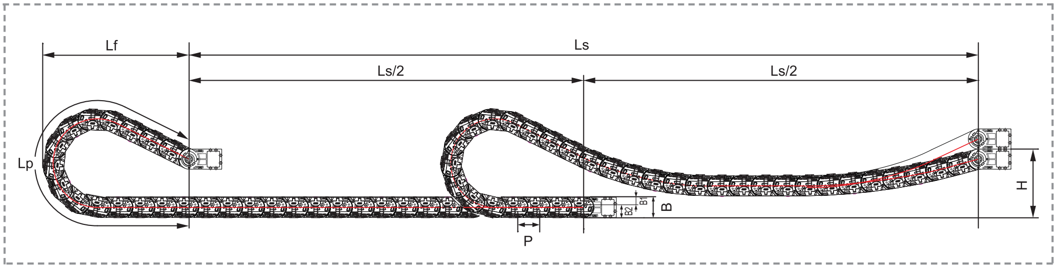
With a friction co-efficiency of 0.02 ~0.07 μ due to the patented roller skid design, the Shift Chain is quieter and faster than ever. Non friction also means no dust for those applications where a clean work environment is a priority.

롤러스키드 장착으로 마찰계수가 0.02 ~ 0.07μ 이며 빠른속도로 장거리 이동이 가능하고 체인마찰면을 최소화시켜 분진 및 소음발생을 줄여줍니다.

ST 120RS Roller Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **L f:** Loop Projection



(Dimensions in mm)

Bending radius R	180	200	250	300	350	400	500
Lp	1,441	1,559	1,864	2,178	2,701	3,225	4,062
L f	654	694	794	894	1.114	1,334	1,654
H	300	300	300	300	300	300	300

ST 120RS Type

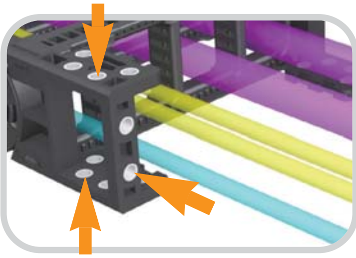
Pitch P: 120mm
Height B: 112mm
B1: 57mm
B2: 55mm

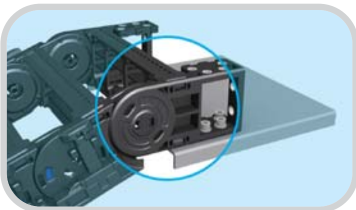
ORDERING (주문방법)

ST 120RS. 300. R200 / F - 10000L : 10ST

주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
장거리타입(RS)	Roller Skid Type
Shift Chain	

BRACKET TYPE (브라켓타입)





FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

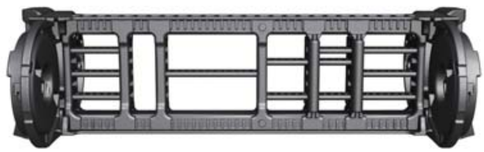
체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST RS-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

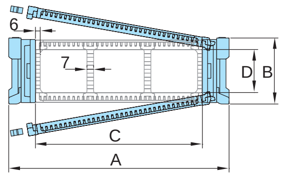
▶ BR should not be inserted in the joint of side band and Free End Bracket
FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 120RS Roller Skid Type

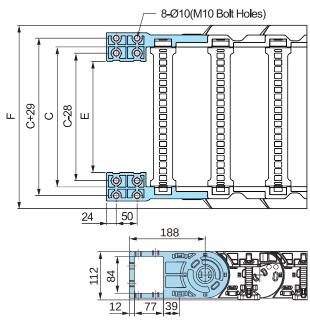
CHAIN CROSS SECTION



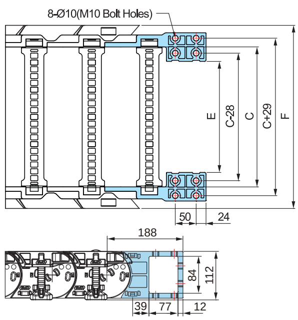


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 120RS.075	143		75			4.75
ST 120RS.100	168		100			4.87
ST 120RS.125	193		125			5.02
ST 120RS.150	218		150			5.10
ST 120RS.175	243		175			5.28
ST 120RS.200	268		200			5.52
ST 120RS.250	318	112	250	78	180, 200, 250, 300, 350, 400, 500	5.82
ST 120RS.300	368		300			6.25
ST 120RS.350	418		350			6.67
ST 120RS.400	468		400			6.96
ST 120RS.450	518		450			7.42
ST 120RS.500	568		500			7.65
ST 120RS.550	618		550			8.49
ST 120RS.600	668		600			8.66

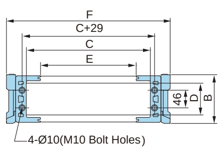
FREE END BRACKET



ST120RS Moving point



ST120RS Fixing point



ST120RS Front point

Chain Type	F	B	C	D	E	Hole Type
ST 120RS.075	143		75		15	
ST 120RS.100	168		100		40	
ST 120RS.125	193		125		65	
ST 120RS.150	218		150		90	
ST 120RS.175	243		175		115	
ST 120RS.200	268		200		140	
ST 120RS.250	318	112	250	78	190	M10 Bolt Holes
ST 120RS.300	368		300		240	
ST 120RS.350	418		350		290	
ST 120RS.400	468		400		340	
ST 120RS.450	518		450		390	
ST 120RS.500	568		500		440	
ST 120RS.550	618		550		490	
ST 120RS.600	668		600		540	

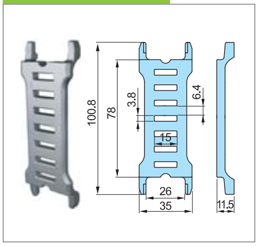
ST 120RS Roller Skid Type

DIVIDERS

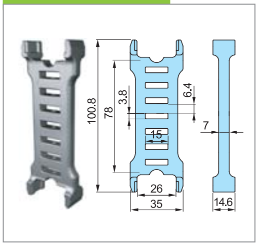
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

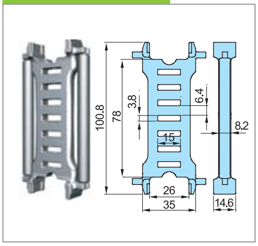
ST 120RS DV-S



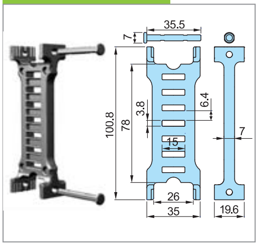
ST 120RS DV-M



ST 120RS DV-R



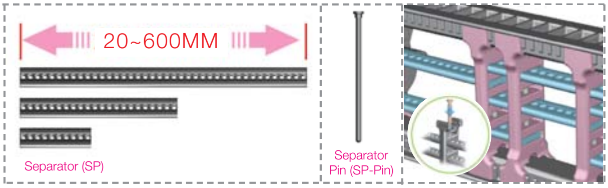
ST 120RS DV-T



▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV-T : Frame 300~600적용(상하 프레임을 연결)

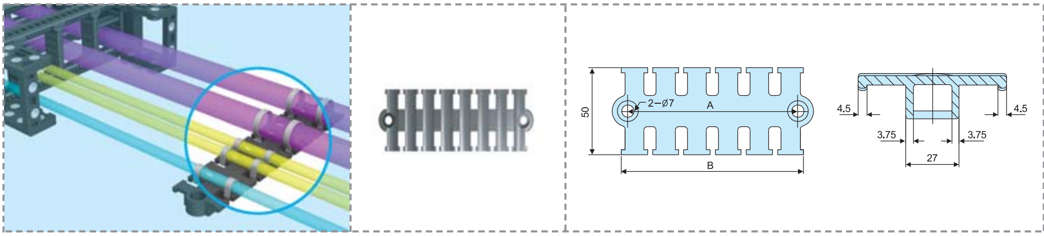
SEPARATORS (SP)



Separator is available in length from 20mm to 600mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대600mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 케이블을 보호할 수 있습니다.

TIE WRAP



(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다

ST 120RS Roller Skid Type

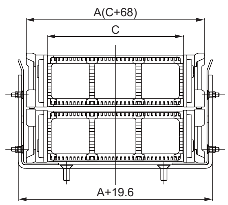
GUIDE CHANNEL

For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

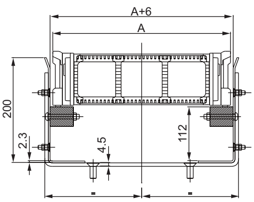
Steel Guide Channel은 장거리 이동형 ST 120RS Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주 문제작 가능합니다.

▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

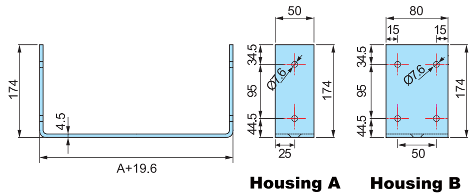
ST 120RS Type



▲ A - zone

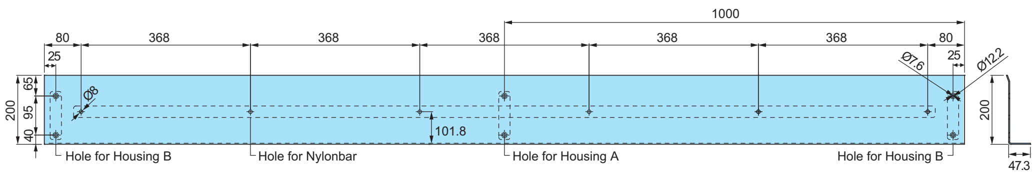


▲ C - zone



▲ Housing (U-shape) - ST 120RS

ST 120RS Side Panel



ORDERING (주문방법)

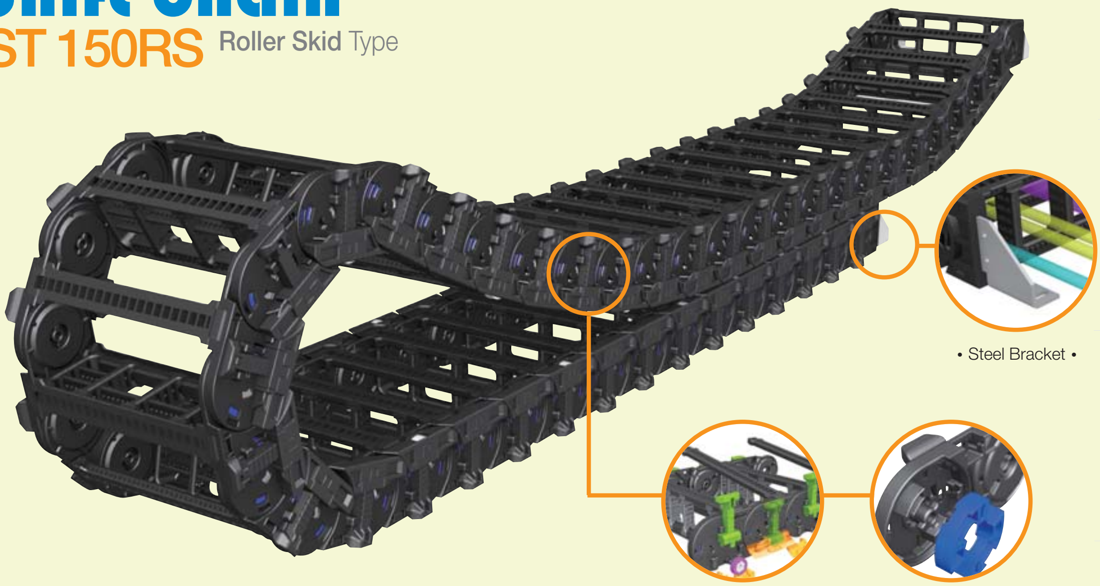
ST-GCS 120RS. 150 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

Min ●●●●●● Max

Shift chain®

ST 150RS Roller Skid Type



• Steel Bracket •

• Shift chain RS-Type 분해도 •

• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Roller Skid 사용으로 소음 및 분진 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.02~0.07 μ
  Regular Cable Chain : 0.3 ~ 0.4 μ
  (일반케이블체인 마찰계수)
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loder, etc.

  Gantry robots, Robot carriages, Automatic welding Gantry crane, Gantry loader..등
  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

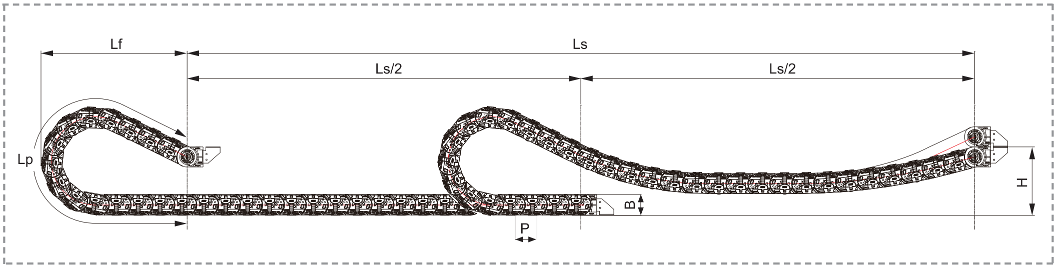
With a friction co-efficiency of 0.02 ~0.07 μ due to the patented roller skid design, the Shift Chain is quieter and faster than ever. Non friction also means no dust for those applications where a clean work environment is a priority.

롤러스키드 장착으로 마찰계수가 0.02 ~ 0.07μ 이며 빠른속도로 장거리 이동이 가능하고 체인마찰면을 최소화시켜 분진 및 소음발생을 줄여줍니다.

ST 150RS Roller Skid Type

LAY OUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	305	405	505	605
Lp	2,272	3,161	4,050	4,940
L f	985	1,335	1,685	2,035
H	400	400	400	400

ST 150RS Type

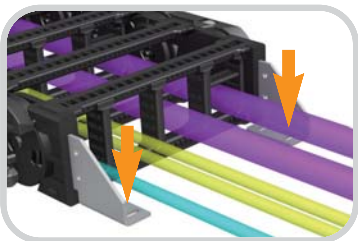
Pitch P: 150mm
Height B: 145mm
B1: 72.6mm
B2: 72.4mm

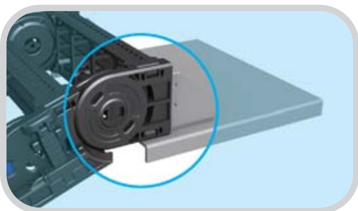
ORDERING (주문방법)

ST 150RS. 400. R405 / F - 10000L : 10ST

- 10ST — 주문수량 Q´ ty(set)
- 10000L — 체인길이 Length(mm)
- F — 브라켓 Free End Bracket
- R405 — 곡률반경 Bending Radius
- 400 — 내폭 Inside Width
- RS — 장거리타입(RS) Roller Skid Type
- ST — Shift Chain

BRACKET TYPE (브라켓타입)

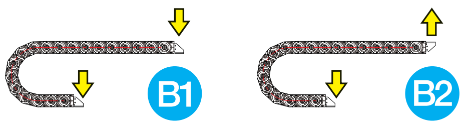




SEB (Steel End Bracket)

For ST150RS, its end parts of cable chain being fixed are used with steel bracket, and it is possible to be installed B1, B2 types of brackets.

체인을 고정하는 끝부분으로 ST150RS사양은 ST체인의 다른사양과는 달리 스틸브라켓을 사용하며 브라켓의 설치형태에 따라 B1, B2 등으로 구분설치가능하다.

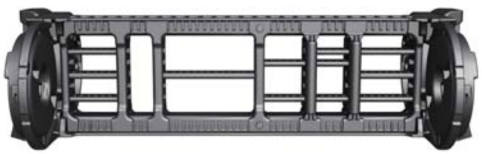


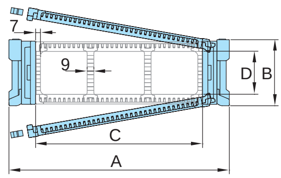
▶ In case of applying 'RS-Type', BR should not be inserted into the side band which is in combination with SEB.
RS-Type 적용시 SEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 150RS Roller Skid Type

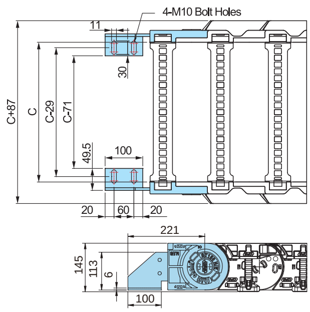
CHAIN CROSS SECTION



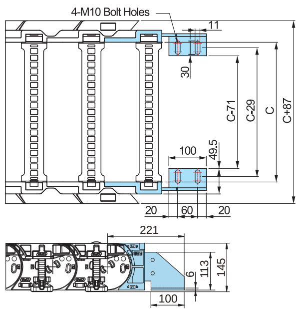


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 150RS.075	162	145	75	110	305, 405, 505, 605	7.86
ST 150RS.100	187		100			7.97
ST 150RS.125	212		125			8.10
ST 150RS.150	237		150			8.17
ST 150RS.175	262		175			8.33
ST 150RS.200	287		200			8.54
ST 150RS.250	337		250			8.80
ST 150RS.300	387		300			9.18
ST 150RS.350	437		350			9.55
ST 150RS.400	487		400			9.90
ST 150RS.450	537		450			10.20
ST 150RS.500	587		500			10.40
ST 150RS.550	637		550			11.14
ST 150RS.600	687		600			11.28

FREE END BRACKET



ST150RS Moving point



ST150RS Fixing point

Chain Type	B	C	D	Hole Type
ST 150RS.075	145	75	110	M10 Bolt Holes
ST 150RS.100		100		
ST 150RS.125		125		
ST 150RS.150		150		
ST 150RS.175		175		
ST 150RS.200		200		
ST 150RS.250		250		
ST 150RS.300		300		
ST 150RS.350		350		
ST 150RS.400		400		
ST 150RS.450		450		
ST 150RS.500		500		
ST 150RS.550		550		
ST 150RS.600		600		

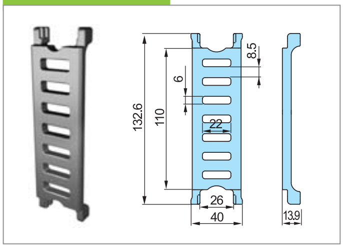
ST 150RS Roller Skid Type

DIVIDERS

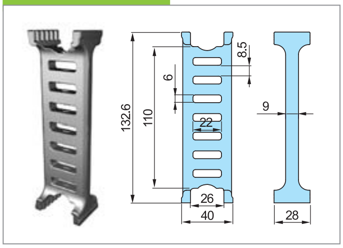
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

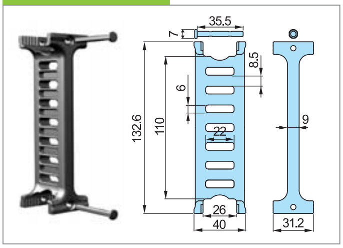
ST 150RS DV-S



ST 150RS DV-M



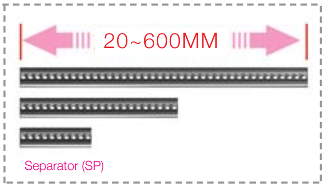
ST 150RS DV-T

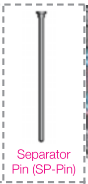


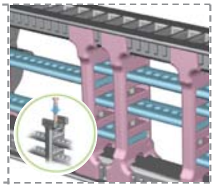
▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 300~ 600적용(상하 프레임을 연결)

SEPARATORS (SP)



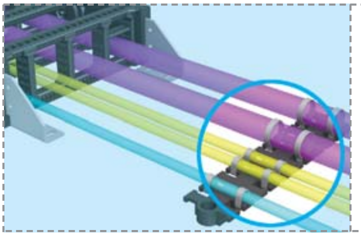


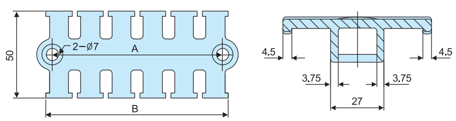


Separator is available in length from 20mm to 600mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대600mm까지사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

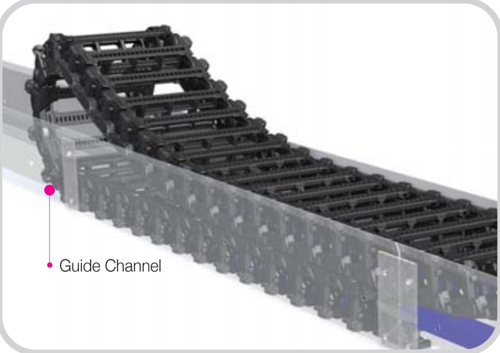
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다

ST 150RS Roller Skid Type

GUIDE CHANNEL

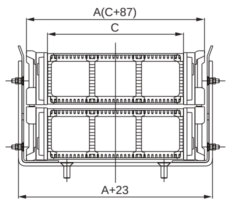


For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

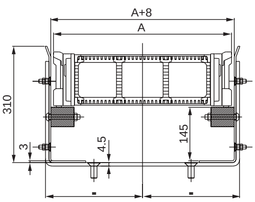
Steel Guide Channel은 장거리 이동형 ST150RS Type 전용으로Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주 문제작 가능합니다.

▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

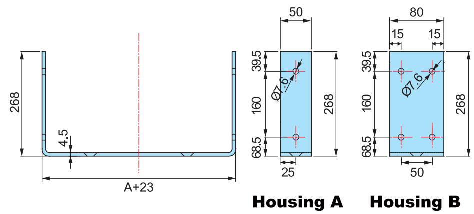
ST 150RS Type



▲ A - zone

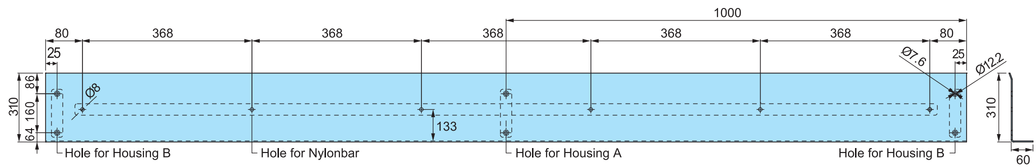


▲ C - zone



▲ Housing (U-shape) - ST 150RS

ST 150RS Side Panel



ORDERING (주문방법)

ST-GCS 150RS. 200 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

ASSEMBLY PROCEDURE / ROLLER SKID Type

Assembly procedure of Shift chain RS-type is as follows. The assembling process of shift Chain RS-type is like below and you must use rubber hammer with careful combination of Divider and Separator. (Disassembly process for repair and replacement are in reverse order)

Shift chain RS-type의 조립순서는 아래와 같이 진행한다. 반드시 규정된 고무망치를 사용하여야 하며 케이블의 입선수량에 따라 디바이더와 세퍼레이터를 조합하여 지정된 위치에 조립한다. (보수 및 교체를 위한 제품 분해 등은 조립의 역순)

1.

Insert BR Unit into each Side Band
(Side Band is divided into right and left side according to the direction.)

사이드밴드에 사양에 맞는 BR을 홈에 맞게 조립한다. (사이드 밴드는 방향에 따라 LH, RH로 구분됨)

2.

Continue to insert BR Unit into Side Band as you want to make it.
Assemble Side Band which is inserted BR Unit as above.

조립하고자 하는 사이드밴드에 모두 BR을 조립한다.
BR이 삽입되어 있는 사이드밴드를 사진과 같이 조립한다.

3.

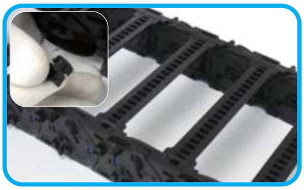
Continue to connect each Side Band as long as you want to make it. Connect the Side Band as many as you need.

일정 단위의 길이만큼 사이드밴드를 연결한다.
조립하고자 하는 길이만큼 사이드밴드를 연결한다.

4.

Connect right and left link with specified frame. (Put Hinge Type frame in the hole of Side Band)

좌우의 사이드 밴드를 지정된 프레임으로 조립한다. (흰지가 사이드 밴드 RH방향에 삽입 되도록 조립)



5.

Insert Frame Pin onto connected each Frame and side of Side Band to be made tightly.(to devide inner room, insert divider which is connected with separator. Assemble opposite frame as same procedure.

결합된 프레임과 사이드밴드의 측면에 프레임 핀을 삽입한다.
(내부 공간분리를 위하여 세퍼레이터가 결합된 디바이더를 삽입한다.)
반대 방향의 프레임도 동일한 방법으로 조립한다.

6.

Install a Roller in the protruding side of Side Band to be placed one roller per 4 link.

사이드 밴드 측면의 돌출된 형상에 롤러를 4링크마다 위치하도록 삽입하여 조립한다.

7.

Put the roller type Skid in the Side Band which is inserted a roller.
(Skid is divided normal type and roller type with right, left side)

롤러가 삽입된 사이드 밴드의 측면에는 롤러형 스키드를 삽입하여 조립한다.
(스키드는 롤러형, 일반형이 좌우로 구분된다.)

ASSEMBLY PROCEDURE / ROLLER SKID Type

8.

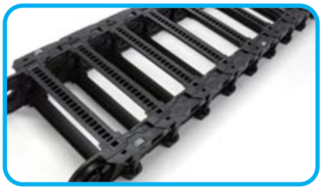
When inserting a support, push tightly into groove of Side Band until you hear "click".
(Support is only one direction without right and left side.)

사이드 밴드의 측면에 돌출된 홈에 그림과 같이 서포터 부품을 "딸깍" 소리가 나도록 삽입한다.
(서포트는 좌우 구분 없이 한 종류만 있음)

9.

Insert normal type Skid into the side of Side Band which is not assembled a roller. Assemble roller type Skid and normal type Skid for the each side of Side Band.

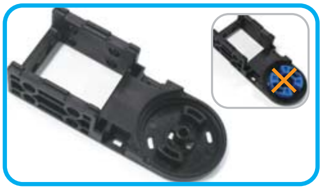
롤러가 삽입되지 않은 사이드 밴드의 측면에는 일반형 스키드를 삽입하여 조립한다. 모든 사이드 밴드의 측면에는 롤러형 스키드와 일반형 스키드를 구분하여 조립한다.



10.

Assemble skid and support into opposite side of Side Band as same way.
(Check whether assembled skid is working well by pushing your hand)

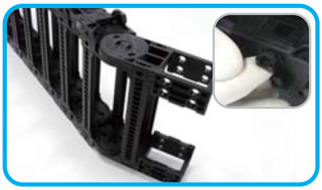
반대편의 사이드 밴드에도 동일한 방법으로 스키드와 서포터를 조립한다.
(조립된 스키드가 손으로 눌러 상하로 잘 동작되는지 확인한다.)



11.

Do not insert a BR Unit for M.FEB
(M.FEB will be making a turn to up and down)
Assembly M.FEB for being correct direction like right and left.

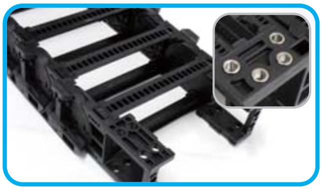
M.FEB에는 BR을 삽입하지 않는다.(M.FEB가 상하 방향으로 꺾임.)
M.FEB를 좌우 방향에 맞도록 조립한다.



12.

Assembly specified frame in M.FEB.
(Hinge is inserted into RH direction of FEB)
Insert Frame pin into connected Frame and side of FEB.

M.FEB에 지정된 프레임으로 조립한다.
(흰지가 M.FEB의 RH방향에 삽입되도록 조립)
결합된 프레임과 사이드밴드의 측면에 프레임 핀을 삽입한다.



13.

Assembly F.FEB for being correct direction like right and left.(Do not insert a BR for the side band which is connected with F.FEB). Insert reinforcement washers into FEB according to fixing direction.

F.FEB를 좌우 방향에 맞도록 조립한다.
(F.FEB와 연결되는 사이드밴드에는 BR을 삽입하지 않는다.)
FEB의 고정 방향에 맞도록 보강와샤를 삽입한다.

14.

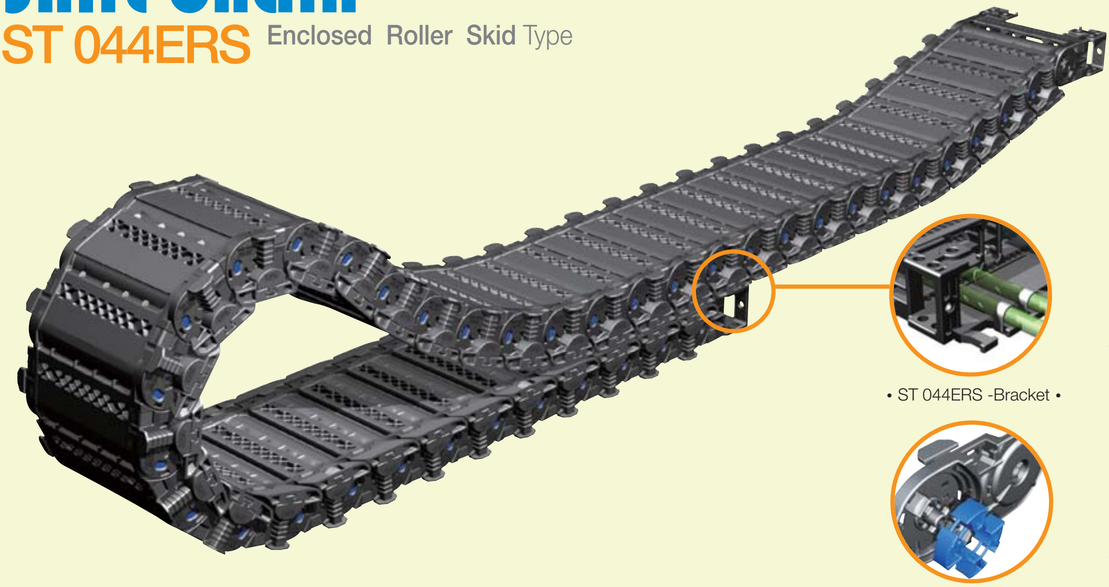
Completion. 완성.

Shift chain®

SLIDING : ERS TYPE - Enclosed Roller Skid

Min ● ● ● ● ● ● Max

Shift chain®
ST 044ERS Enclosed Roller Skid Type



• ST 044ERS -Bracket •

• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Roller Skid 사용으로 소음 및 분진 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.02~0.07μ
  Regular Cable Chain : 0.3 ~ 0.4μ
  (일반케이블체인 마찰계수)
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loader, etc.

  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

  Shift Chain ERS-Type can be found on car manufacturer's welding line, where excess material can damage your inserted cables.
  용접, 절단, 도장라인 적합. 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

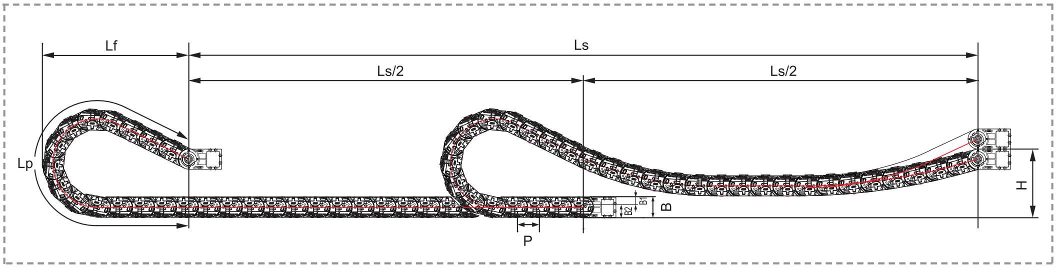
$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

With a friction co-efficiency of 0.02 ~0.07μ due to the patented roller skid design, the Shift Chain is quieter and faster than ever. Non friction also means no dust for those applications where a clean work environment is a priority.
롤러스키드 장착으로 마찰계수가 0.02 ~ 0.07μ 이며 빠른속도로 장거리 이동이 가능하고 체인마찰면을 최소화시켜 분진 및 소음발생을 줄여줍니다.

ST 044ERS Enclosed Roller Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	70	90	120	150
Lp	544	662	926	1,190
L f	249	289	393	497
H	130	130	130	130

ST 044ERS Type

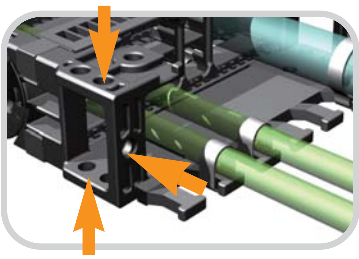
Pitch P: 44mm
Height B: 40.5mm
B1: 20.5mm
B2: 20mm

ORDERING (주문방법)

ST 044ERS. 100. R120 / F-1500L : 10ST

10ST	주문수량	Q′ ty(set)
1500L	체인길이	Length(mm)
F	브라켓	Free End Bracket
R120	곡률반경	Bending Radius
100	내폭	Inside Width
044ERS	장거리 타입 (ERS)	Enclosed Roller Skid Type
ST	Shift Chain	

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

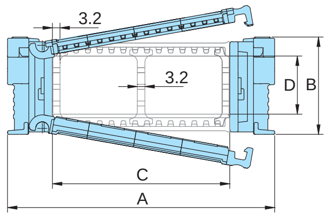
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires.

체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST ERS-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지.

- ▶ BR should not be inserted in the joint of side band and Free End Bracket
  FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.
- ▶ Normal Frame, not FRU/FRD, is inserted into Free End Bracket.
  FEB(M.FEB)에는 밀폐형 Frame(FRU/FRD)이 아닌 일반형 Frame이 삽입됨.
- ▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

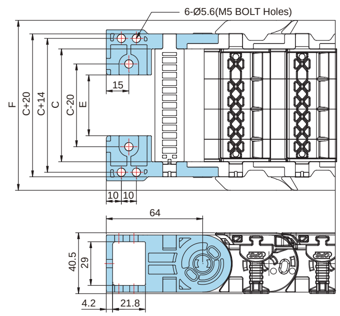
ST 044ERS Enclosed Roller Skid Type

CHAIN CROSS SECTION

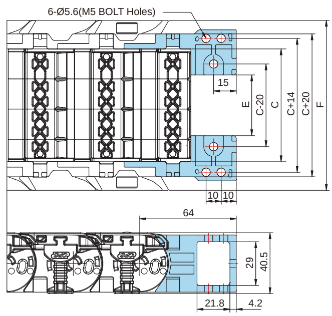


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 044ERS.035	73	40.5	35	24.5	70, 90, 120, 150	1.25
ST 044ERS.055	93		55			1.44
ST 044ERS.075	113		75			1.60
ST 044ERS.100	138		100			1.81

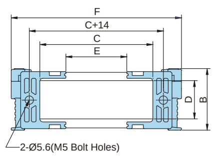
FREE END BRACKET



ST044ERS Moving point



ST044ERS Fixing point



ST044ERS Front point

Chain Type	F	B	C	D	E	Hole Type
ST 044ERS.035	73	40.5	35	24.5	0.4	M5 Bolt Holes
ST 044ERS.055	93		55		20.4	
ST 044ERS.075	113		75		40.4	
ST 044ERS.100	138		100		65.4	

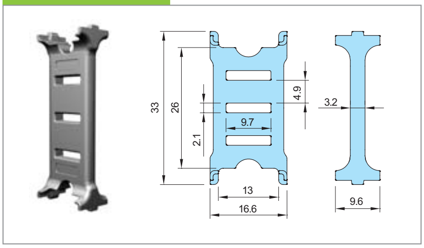
ST 044ERS Enclosed Roller Skid Type

DIVIDERS & SEPARATORS

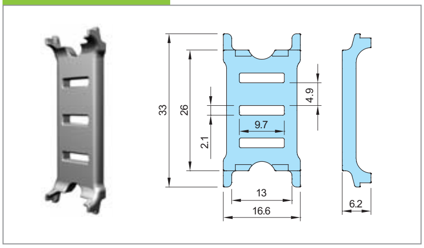
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블을 서로 분리하여 케이블상호간 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 044ERS DV-M



ST 044ERS DV-S

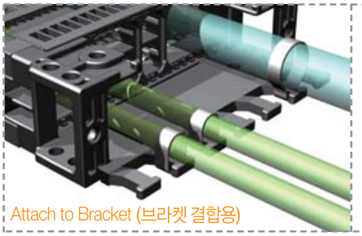


*Assemble divider every Two links. / 2링크마다 결합

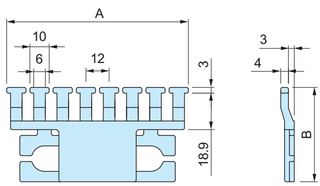
ST044ERS Separators (SP) (No. : S-SP/M)

Separators / Chain Type	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
ST 044ERS	○	○	○	○	○	○	○	○	○

TIE WRAP



Attach to Bracket (브라켓 결합용)



(Dimensions in mm)

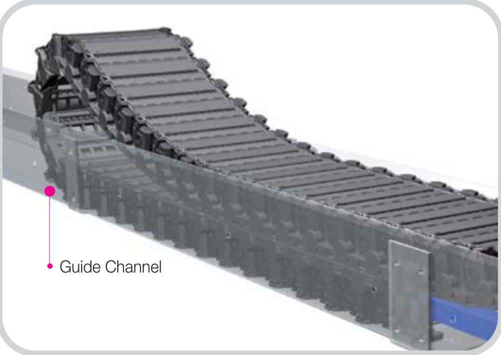
Tie Wrap	035	055	075	100
A	46	70	94	118
B	35.4	48.9	48.9	48.9

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap;Attached & Unattached to the bracket.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Shift Chain의 Tie Wrap은 브라켓부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양 으로 구분되어 사용할 수 있다.

ST 044ERS Enclosed Roller Skid Type

GUIDE CHANNEL

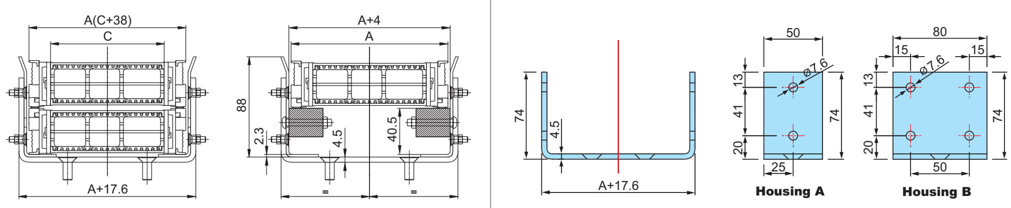


For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

Steel Guide Channel은 장거리 이동형 ST044ERS Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다.
Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주문제작 가능합니다.

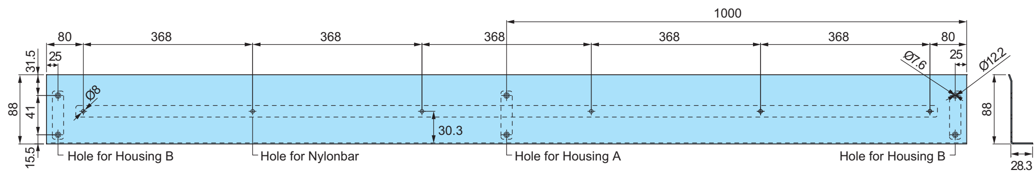
▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

ST 044ERS Type



▲ A - zone ▲ C - zone ▲ Housing (U-shape)-ST 044ERS

ST 044ERS Side Panel



ORDERING (주문방법)

ST-GCS 044ERS. 100 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

Min ●●●○○○ Max

Shift chain®

ST 072ERS Enclosed Roller Skid Type

• ST 072ERS - Bracket •

• Bending Radius Unit •

MATERIAL

Chain material:

CPS-polyamide with glass fiber reinforced UL94-HB

Low Noise & Low Mote:

Roller Skid 사용으로 소음 및 분진 감소

Temperature : -30°C ~ +130°C

Coefficient of Friction :

0.02~0.07μ
Regular Cable Chain : 0.3 ~ 0.4μ
(일반케이블체인 마찰계수)

Applications

Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loader, etc.

설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

Shift Chain ERS-Type can be found on car manufacturer's welding line, where excess material can damage your inserted cables.
용접, 절단, 도장라인 적합. 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

Calculation of the chain length

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

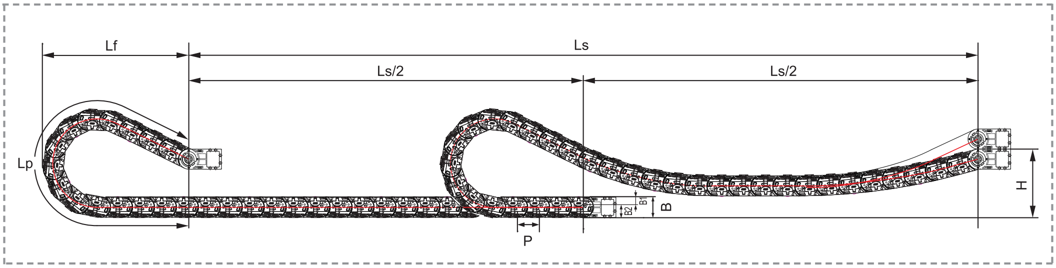
With a friction co-efficiency of 0.02 ~0.07μ due to the patented roller skid design, the Shift Chain is quieter and faster than ever. Non friction also means no dust for those applications where a clean work environment is a priority.

롤러스키드 장착으로 마찰계수가 0.02 ~ 0.07μ 이며 빠른속도로 장거리 이동이 가능하고 체인마찰면을 최소화시켜 분진 및 소음발생을 줄여줍니다.

ST 072ERS Enclosed Roller Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	120	145	200	250	300
Lp	917	1,063	1,400	1,840	2,280
L f	420	470	580	752	924
H	230	230	230	230	230

ST 072ERS Type

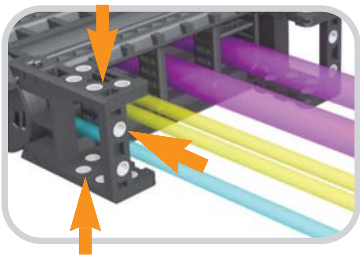
Pitch P: 72mm
Height B: 69mm
B1: 34.5mm
B2: 34.5mm

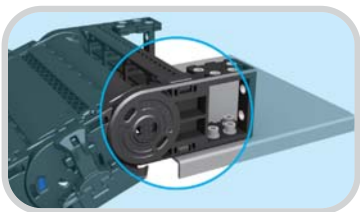
ORDERING (주문방법)

ST 072ERS. 150. R200 / F-10000L : 10ST

주문수량	Q´ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
장거리 타입 (ERS)	Enclosed Roller Skid Type
Shift Chain	

BRACKET TYPE (브라켓타입)





FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST ERS-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

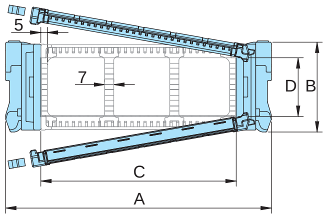
▶ BR should not be inserted in the joint of side band and Free End Bracket
FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

▶ Normal Frame, not FRU/FRD, is inserted into Free End Bracket.
FEB(M.FEB)에는 밀폐형 Frame(FRU/FRD)이 아닌 일반형 Frame이 삽입됨.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

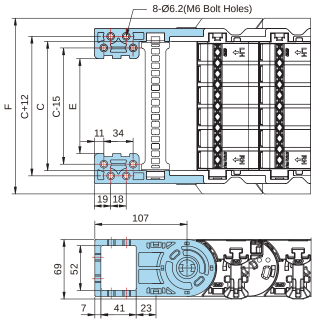
ST 072ERS Enclosed Roller Skid Type

CHAIN CROSS SECTION

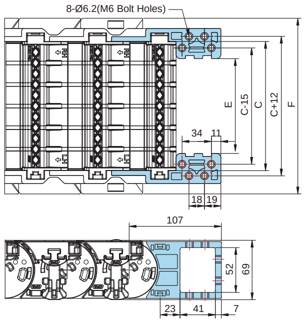


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 072ERS.050	104		50			2.87
ST 072ERS.075	129		75			3.11
ST 072ERS.100	154	69	100	44	120,145, 200, 250, 300	3.35
ST 072ERS.125	179		125			3.59
ST 072ERS.150	204		150			3.83

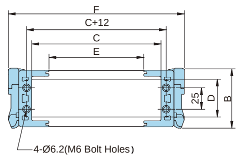
FREE END BRACKET



ST072ERS Moving point



ST072ERS Fixing point



ST072ERS Front point

Chain Type	F	B	C	D	E	Hole Type
ST 072ERS.050	104		50		10	
ST 072ERS.075	129		75		35	
ST 072ERS.100	154	69	100	44	60	M6 Bolt Holes
ST 072ERS.125	179		125		85	
ST 072ERS.150	204		150		110	

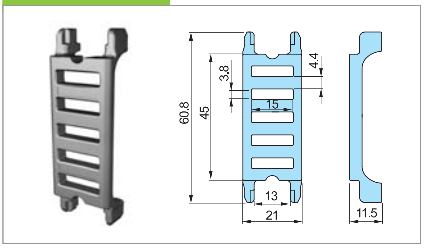
ST 072ERS Enclosed Roller Skid Type

DIVIDERS

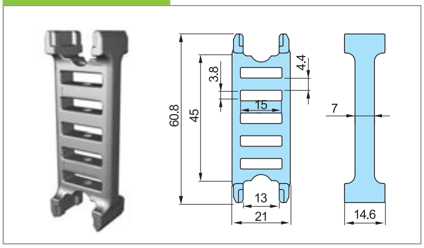
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 072ERS DV-S

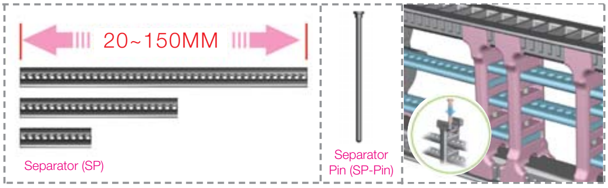


ST 072ERS DV-M



*Assemble divider every Two links. / 2링크마다 결합

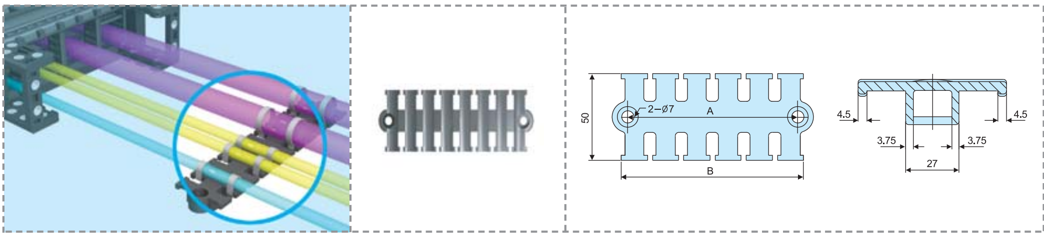
SEPARATORS (SP)



Separator is available in length from 20mm to 150mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대150mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 케이블을 보호할 수 있습니다.

TIE WRAP



(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인한 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다

ST 072ERS Enclosed Roller Skid Type

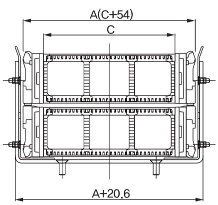
GUIDE CHANNEL

For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

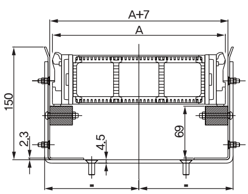
Steel Guide Channel은 장거리 이동형 ST072ERS Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주문제작 가능합니다.

▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

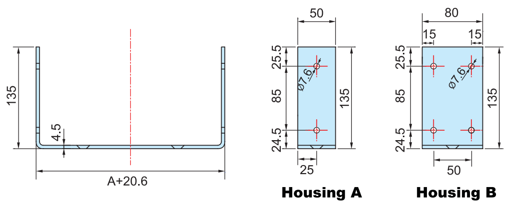
ST 072ERS Type



▲ A - zone

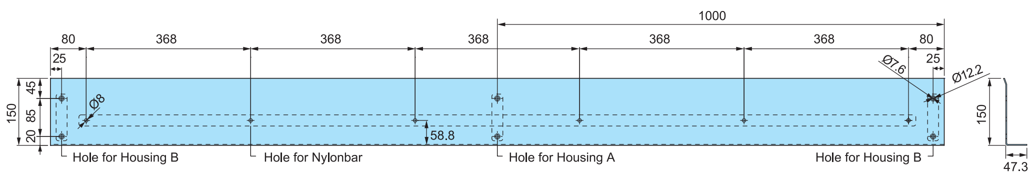


▲ C - zone



▲ Housing (U-shape)-ST 072ERS

ST 072ERS Side Panel



ORDERING (주문방법)

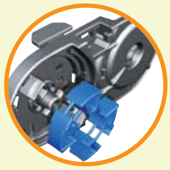
ST-GCS 072ERS. 150 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

Shift chain®

ST 095ERS Enclosed Roller Skid Type

• ST 095ERS - Bracket •



• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Roller Skid 사용으로 소음 및 분진 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.02~0.07μ
  Regular Cable Chain : 0.3 ~ 0.4μ
  (일반케이블체인 마찰계수)
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loader, etc.

  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

  Shift Chain ERS-Type can be found on car manufacturer's welding line, where excess material can damage your inserted cables.
  용접, 절단, 도장라인 적합. 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

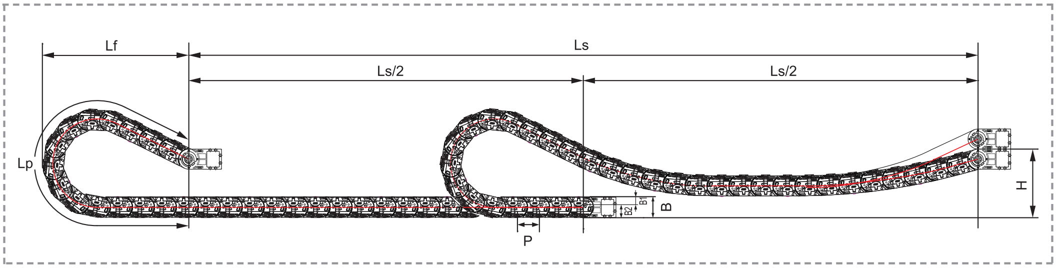
With a friction co-efficiency of 0.02 ~0.07 μ due to the patented roller skid design, the Shift Chain is quieter and faster than ever. Non friction also means no dust for those applications where a clean work environment is a priority.

롤러스키드 장착으로 마찰계수가 0.02 ~ 0.07μ 이며 빠른속도로 장거리 이동이 가능하고 체인마찰면을 최소화시켜 분진 및 소음발생을 줄여줍니다.

ST 095ERS Enclosed Roller Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	150	200	230	280	400
Lp	1,178	1,479	1,666	2,146	3,232
L f	534	634	694	889	1319
H	250	250	250	250	250

ST 095ERS Type

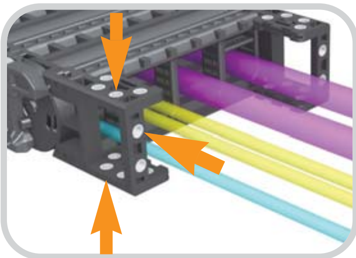
Pitch P: 95mm
Height B: 85mm
B1: 42.7mm
B2: 42.3mm

ORDERING (주문방법)

ST 095ERS. 200. R200 / F-10000L : 10ST

주문수량	Q′ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
장거리 타입 (ERS)	Enclosed Roller Skid Type
Shift Chain	

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

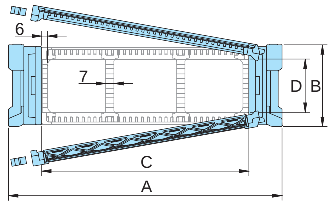
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST ERS-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

- ▶ BR should not be inserted in the joint of side band and Free End Bracket
  FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.
- ▶ Normal Frame, not FRU/FRD, is inserted into Free End Bracket.
  FEB(M.FEB)에는 밀폐형 Frame(FRU/FRD)이 아닌 일반형 Frame이 삽입됨.
- ▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

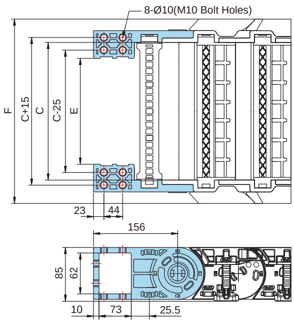
ST 095ERS Enclosed Roller Skid Type

CHAIN CROSS SECTION

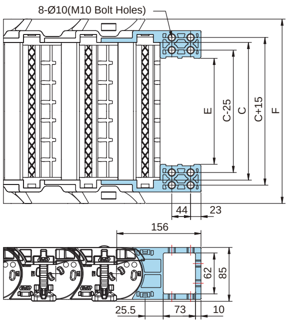


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 095ERS.100	168	85	100	55	150, 200, 230, 280, 400	4.20
ST 095ERS.125	193		125			4.45
ST 095ERS.150	218		150			4.70
ST 095ERS.175	243		175			4.95
ST 095ERS.200	268		200			5.19

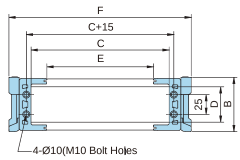
FREE END BRACKET



ST095ERS Moving point



ST095ERS Fixing point



ST095ERS Front point

Chain Type	F	B	C	D	E	Hole Type
ST 095ERS.100	168	85	100	55	49	M10 Bolt Holes
ST 095ERS.125	193		125		74	
ST 095ERS.150	218		150		99	
ST 095ERS.175	243		175		124	
ST 095ERS.200	268		200		149	

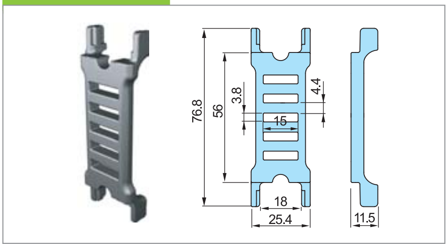
ST 095ERS Enclosed Roller Skid Type

DIVIDERS

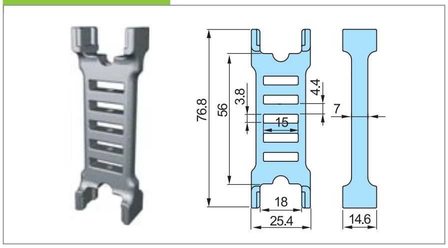
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 095ERS DV-S

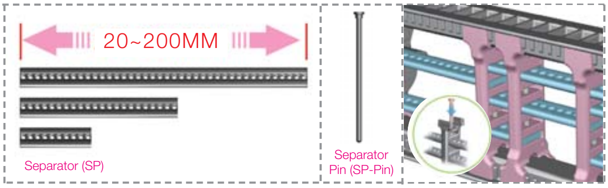


ST 095ERS DV-M



*Assemble divider every Two links. / 2링크마다 결합

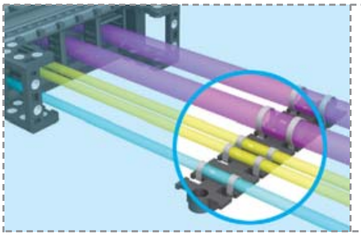
SEPARATORS (SP)

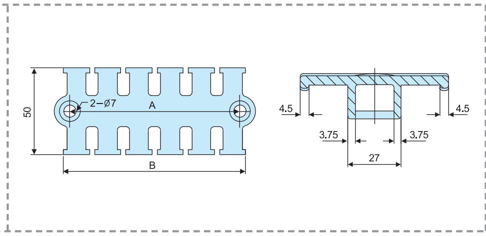


Separator is available in length from 20mm to 200mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대200mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

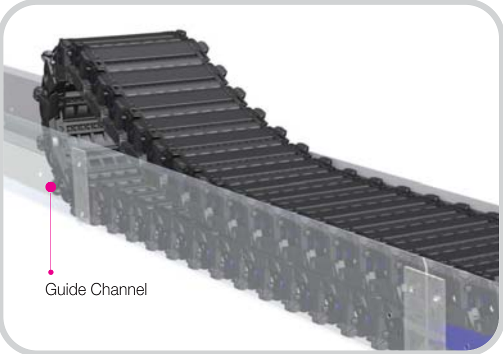
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	149

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

ST 095ERS Enclosed Roller Skid Type

GUIDE CHANNEL

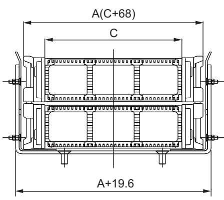


For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

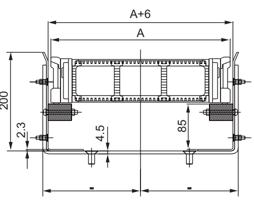
Steel Guide Channel은 장거리 이동형 ST 095ERS Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주 문제작 가능합니다.

▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

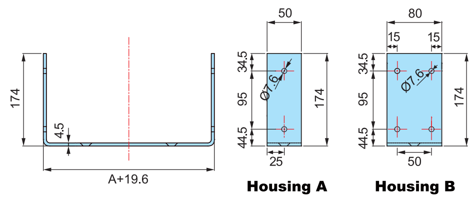
ST 095ERS Type



▲ A-zone

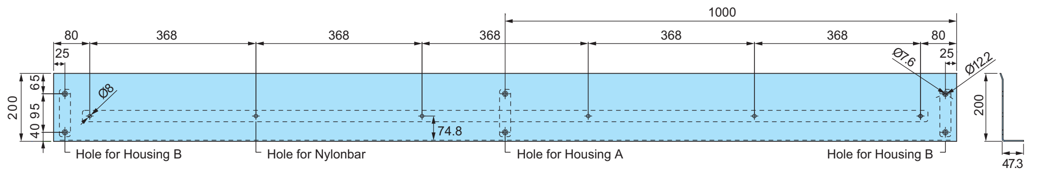


▲ C-zone



▲ Housing (U-shape)-ST 095ERS

ST 095ERS Side Panel



ORDERING (주문방법)

ST-GCS 095ERS.175 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type

Steel Guide Channel

Shift Chain

Min ●●●●●○ Max

Shift chain®

ST 120ERS Enclosed Roller Skid Type

• ST 120ERS -Bracket •

• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB

- **Low Noise & Low Mote:**
  Roller Skid 사용으로 소음 및 분진 감소

- **Temperature :** -30°C ~ +130°C

- **Coefficient of Friction :**
  0.02~0.07 μ
  Regular Cable Chain : 0.3 ~ 0.4 μ
  (일반케이블체인 마찰계수)

- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loader, etc.

  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

  Shift Chain ERS-Type can be found on car manufacturer's welding line, where excess material can damage your inserted cables.
  용접, 절단, 도장라인 적합. 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

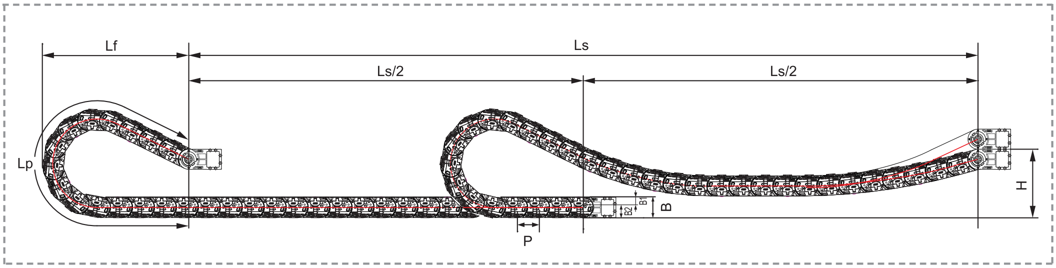
With a friction co-efficiency of 0.02 ~0.07 μ due to the patented roller skid design, the Shift Chain is quieter and faster than ever. Non friction also means no dust for those applications where a clean work environment is a priority.

롤러스키드 장착으로 마찰계수가 0.02 ~ 0.07 μ 이며 빠른속도로 장거리 이동이 가능하고 체인마찰면을 최소화시켜 분진 및 소음발생을 줄여줍니다.

ST 120ERS Enclosed Roller Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	200	250	300	350	400	500
Lp	1,559	1,864	2,178	2,701	3,225	4,062
L f	694	794	894	1,114	1,334	1,654
H	300	300	300	300	300	300

ST 120ERS Type

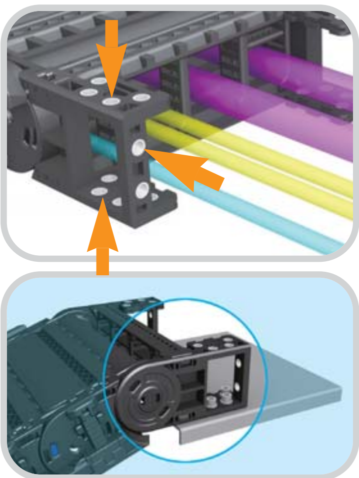
Pitch P: 120mm
Height B: 112mm
B1: 57mm
B2: 55mm

ORDERING (주문방법)

ST 120ERS. 300. R200 / F-10000L : 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
장거리 타입 (ERS)	Enclosed Roller Skid Type
Shift Chain	

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.
The End Bracket is designed to move up and down as the cable chain or application requires. To add strength, steel washers are inserted into the fixing holes of each Free End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
장거리 이동용 ST ERS-Type에 적용되는 Free End Bracket은 곡률반경을 자유롭게 형성하여 브라켓 부위의 파손을 방지하며 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

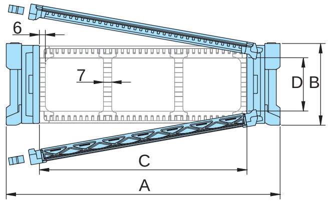
▶ BR should not be inserted in the joint of side band and Free End Bracket
FEB와 결합하는 Side Band에는 BR을 삽입하지 않음.

▶ Normal Frame, not FRU/FRD, is inserted into Free End Bracket.
FEB(M,FEB)에는 밀폐형 Frame(FRU/FRD)이 아닌 일반형 Frame이 삽입됨.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

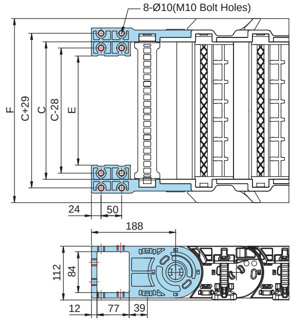
ST 120ERS Enclosed Roller Skid Type

CHAIN CROSS SECTION

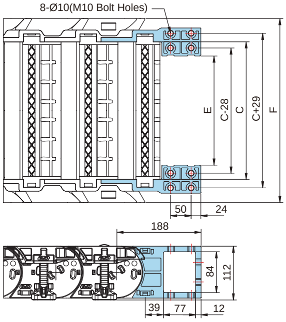


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 120ERS.150	218	112	150	76	200, 250, 300, 350, 400, 500	6.32
ST 120ERS.200	268		200			6.96
ST 120ERS.250	318		250			7.60
ST 120ERS.300	368		300			8.24

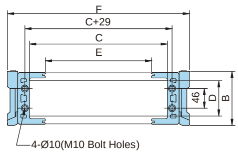
FREE END BRACKET



ST120ERS Moving point



ST120ERS Fixing point



ST120ERS Front point

Chain Type	F	B	C	D	E	Hole Type
ST 120ERS.150	218	112	150	76	90	M10 Bolt Holes
ST 120ERS.200	268		200		140	
ST 120ERS.250	318		250		190	
ST 120ERS.300	368		300		240	

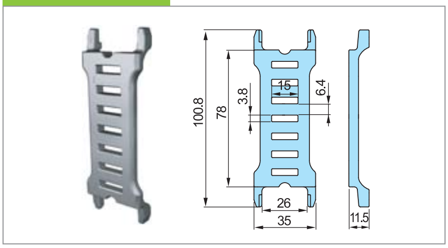
ST 120ERS Enclosed Roller Skid Type

DIVIDERS

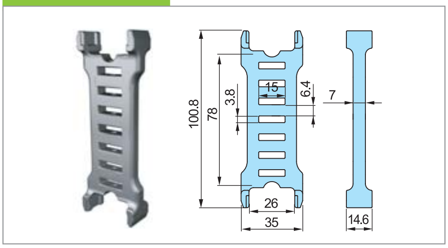
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 120ERS DV-S

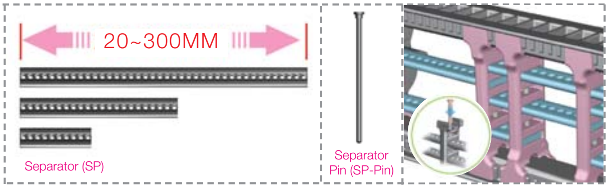


ST 120ERS DV-M



*Assemble divider every Two links. / 2링크마다 1개씩 결합

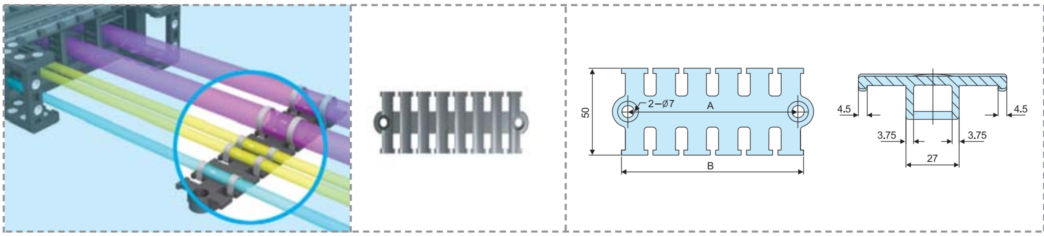
SEPARATORS (SP)



Separator is available in length from 20mm to 300mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대300mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP



(Dimensions in mm)

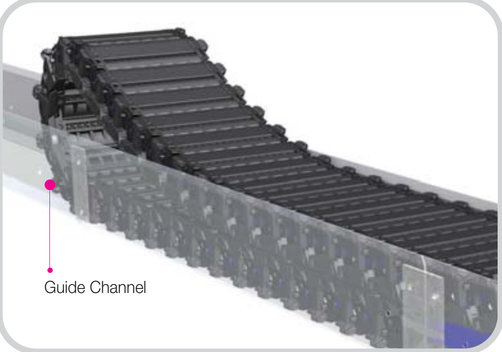
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	149

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

ST 120ERS Enclosed Roller Skid Type

GUIDE CHANNEL

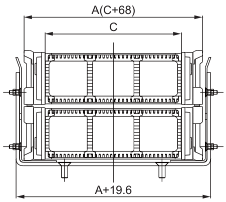


For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

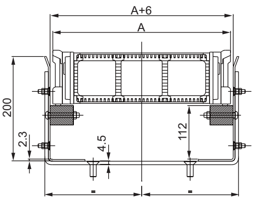
Steel Guide Channel은 장거리 이동형 ST120ERS Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주문제작 가능합니다.

▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

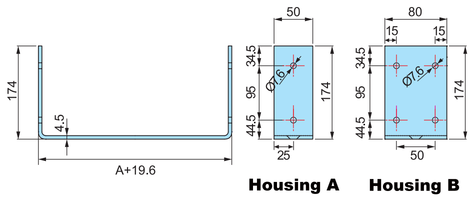
ST 120ERS Type



▲ A - zone

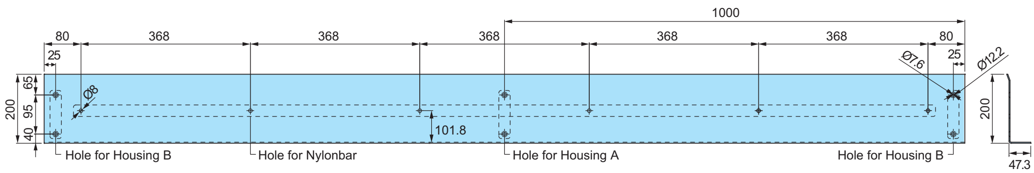


▲ C - zone



▲ Housing (U-shape) - ST 120ERS

ST 120ERS Side Panel



ORDERING (주문방법)

ST-GCS 120ERS. 150 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

Min ●●●●●● Max

Shift chain®

ST 150ERS Enclosed Roller Skid Type

• ST 095ERS - Steel Bracket •

• Bending Radius Unit •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote:**
  Roller Skid 사용으로 소음 및 분진 감소
- **Temperature :** -30°C ~ +130°C
- **Coefficient of Friction :**
  0.02~0.07μ
  Regular Cable Chain : 0.3 ~ 0.4μ
  (일반케이블체인 마찰계수)
- **Applications**

  Facilities and equipments requiring a long travel distance as below; Gantry Robots, Robot Carriages, Automatic Welding Lines, Gantry Cranes, Gantry loader, etc.

  설치 장비의 케이블이 장거리 이동을 요구하는 사업장에 케이블보호가 필요할때 적용.

  Shift Chain ERS-Type can be found on car manufacturer's welding line, where excess material can damage your inserted cables.

  용접, 절단, 도장라인 적합. 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

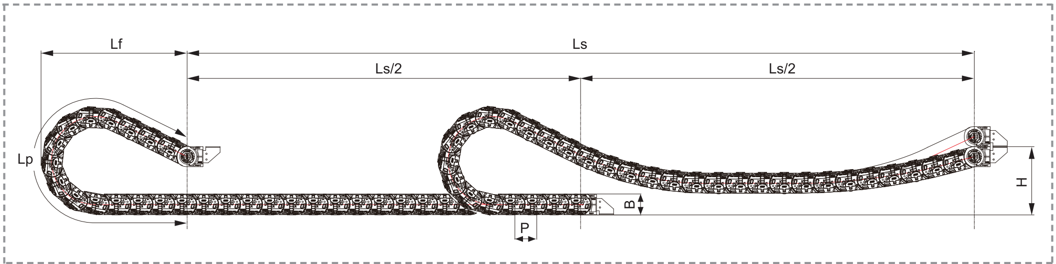
With a friction co-efficiency of 0.02 ~0.07μ due to the patented roller skid design, the Shift Chain is quieter and faster than ever. Non friction also means no dust for those applications where a clean work environment is a priority.

롤러스키드 장착으로 마찰계수가 0.02 ~ 0.07μ 이며 빠른속도로 장거리 이동이 가능하고 체인마찰면을 최소화시켜 분진 및 소음발생을 줄여줍니다.

ST 150ERS Enclosed Roller Skid Type

LAYOUT OF THE CHAIN

Ls: Stroke **Lp:** Loop Length **Lf:** Loop Projection



(Dimensions in mm)

Bending radius R	305	405	505	605
Lp	2,272	3,161	4,050	4,940
L f	985	1335	1685	2035
H	400	400	400	400

ST 150ERS Type

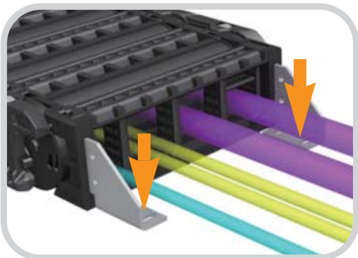
Pitch P: 150mm
Height B: 145mm
B1: 72.6mm
B2: 72.4mm

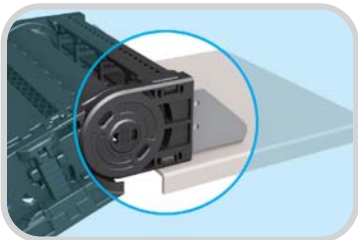
ORDERING (주문방법)

ST 150ERS. 400. R305 / F-10000L : 10ST

- 주문수량 — Q′ ty(set)
- 체인길이 — Length(mm)
- 브라켓 — Free End Bracket
- 곡률반경 — Bending Radius
- 내폭 — Inside Width
- 장거리 타입 (ERS) — Enclosed Roller Skid Type
- Shift Chain

BRACKET TYPE (브라켓타입)

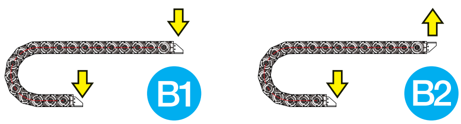




SEB (Steel End Bracket)

For ST150ERS, its end parts of cable chain being fixed are used with steel bracket, and it is possible to be installed B1, B2 types of brackets.

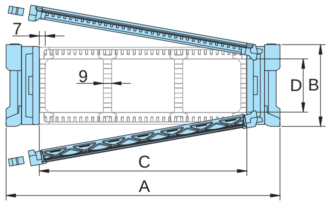
체인을 고정하는 끝부분으로 ST150ERS 사양은 ST체인의 다른사양과는 달리 스틸브라켓을 사용하며 브라켓의 설치형태에 따라 B1, B2등으로 구분 설치가능하다.



- In case of applying 'S-Type', BR should not be inserted into the side band which is in combination with SEB.
  S-Type 적용시 SEB와 결합하는 Side Band에는 BR을 삽입하지 않음.
- Normal Frame, not FRU/FRD, is inserted into Free End Bracket.
  FEB(M.FEB)에는 밀폐형 Frame(FRU/FRD)이 아닌 일반형 Frame이 삽입됨.
- Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

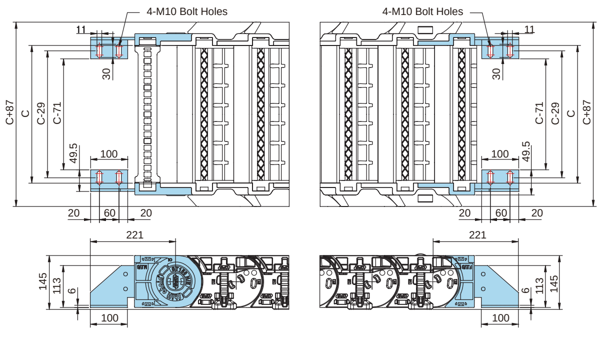
ST 150ERS Enclosed Roller Skid Type

CHAIN CROSS SECTION



Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 150ERS.200	287	145	200	110	305, 405, 505, 605	10.22
ST 150ERS.250	337		250			10.83
ST 150ERS.300	387		300			11.44
ST 150ERS.350	437		350			12.05
ST 150ERS.400	487		400			12.66

FREE END BRACKET



ST150ERS Moving point   ST150ERS Fixing point

Chain Type	B	C	D	Hole Type
ST 150ERS.200	145	200	110	M10 Bolt Holes
ST 150ERS.250		250		
ST 150ERS.300		300		
ST 150ERS.350		350		
ST 150ERS.400		400		

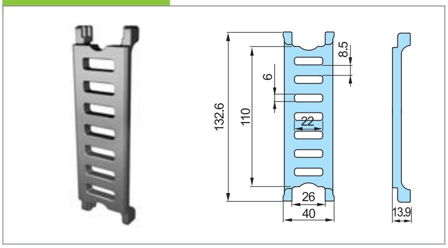
ST 150ERS Enclosed Roller Skid Type

DIVIDERS

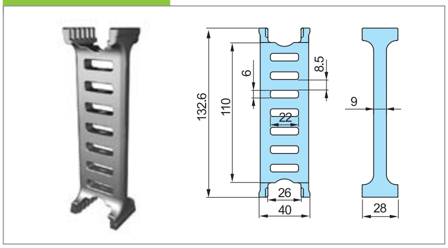
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 150ERS DV-S

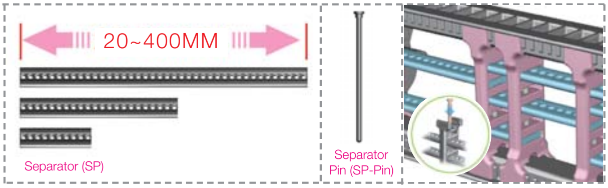


ST 150ERS DV-M



*Assemble divider every Two links. / 2링크마다 결합

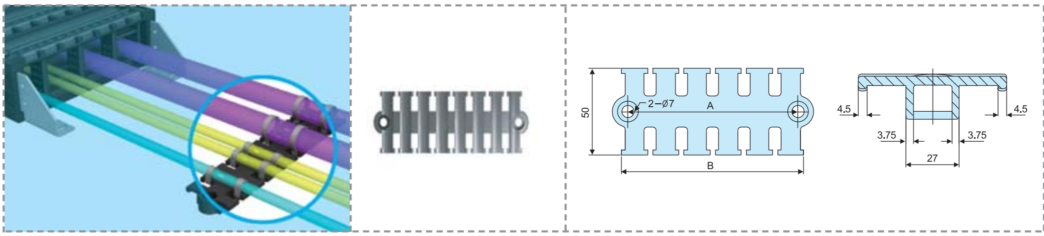
SEPARATORS (SP)



Separator is available in length from 20mm to 400mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대400mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP



(Dimensions in mm)

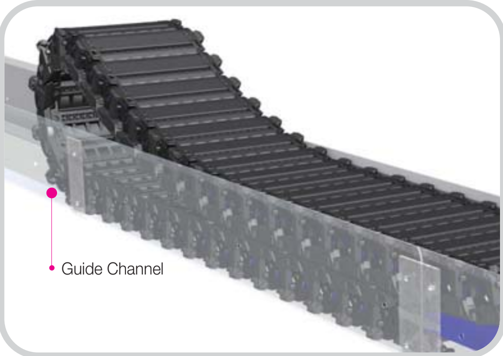
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	149

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

ST 150ERS Enclosed Roller Skid Type

GUIDE CHANNEL

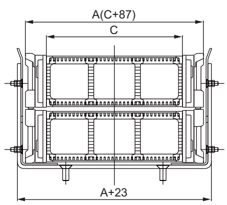


For long stroke applications the guide channel is applied to ensure that the Shift Chain Sliding Chain stays on track and to ensure safety during operation. With the application of a rubber pad on the channel floor, noise is reduced to a minimum. Guide Channels are made of Steel + Zn and can be customized with SUS material .

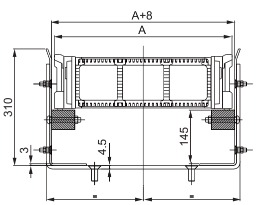
Steel Guide Channel은 장거리 이동형 ST 150ERS Type 전용으로 Chain의 이탈을 방지하는 가이드 역할을 하며 Chain 이동시 소음을 줄이기 위해 Guide Channel 바닥면에 고무패드를 사용함으로써 소음을 일정부분 억제 시키는 역할을 합니다. Guide Channel의 재질은 스틸 + 아연도금으로 제작되며 SUS재질로 주 문제작 가능합니다.

▶ Thickness can be changed by the product standards of material.
(두께는 원재료의 생산규격에 따라 달라질 수 있습니다.)

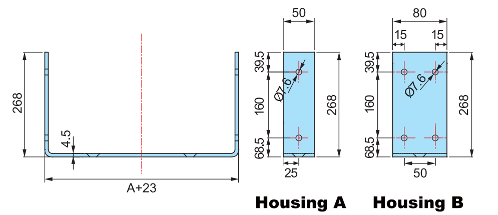
ST 150ERS Type



▲ A - zone

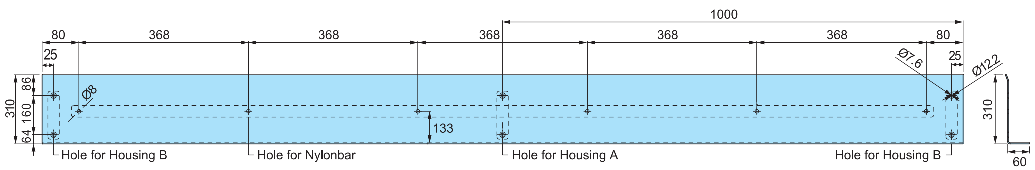


▲ C - zone



▲ Housing (U-shape) - ST 150ERS

ST 150ERS Side Panel



ORDERING (주문방법)

ST-GCS 150ERS. 200 / A, B, C : 200M

길이	Length(mm)
사이드판넬 종류	Panel A, B, C-Zone
내폭	Inside Width
체인종류	Chain Type
Steel Guide Channel	
Shift Chain	

ASSEMBLY PROCEDURE / ENCLOSED ROLLER SKID Type

Assembly procedure of Shift chain ERS-type is as follows.The assembling process of shift Chain N-type is like below and you must use rubber hammer with careful combination of Divider and Separator. (Disassembly process for repair and replacement are in reverse order)

Shift chain ERS-type의 조립순서는 아래와 같이 진행한다. 반드시 규정된 고무망치를 사용하여야 하며 케이블의 입선수량에 따라 디바이더와 세퍼레이터를 조합하여 지정된 위치에 조립한다. (보수 및 교체를 위한 제품 분해 등은 조립의 역순)

1.

Insert BR Unit into each Side Band
(Side Band is divided into right and left side according to the direction.)

사이드밴드에 사양에 맞는 BR을 홈에 맞게 조립한다. (사이드 밴드는 방향에 따라 LH, RH로 구분됨)

2.

Continue to insert BR Unit into Side Band as you want to make it.
Assembly Side Band which is inserted BR Unit as above.

조립하고자 하는 사이드밴드에 모두 BR을 조립한다.
BR이 삽입되어 있는 사이드밴드를 사진과 같이 조립한다.

3.

Continue to connect each Side Band as long as you want to make it.

일정 단위의 길이만큼 사이드밴드를 연결한다.

4.

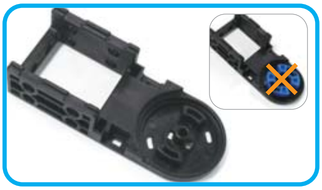
Connect the Side Band as many as you need.

조립하고자 하는 길이만큼 사이드밴드를 연결한다.

5.

Assemble the F.FEB according to the direction of right and left side.
-Do not insert the BR Unit to Side Band connected to F.FEB (Side of F.FEB is not enclosed.)

F.FEB를 좌우 방향에 맞도록 조립한다.
(F.FEB와 연결되는 사이드 밴드에는 BR을 삽입하지 않으며 F.FEB는 측면이 밀폐되어 있지 않음)



6.

Do not insert a BR to M.FEB. (M.FEB will be making a turn to up and down)

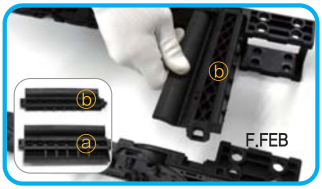
M.FEB에는 BR을 삽입하지 않는다. (M.FEB가 상하 방향으로 꺾임)

7.

Assemble the M.FEB according to the direction of right and left side.
-Side of M.FEB is not enclosed.

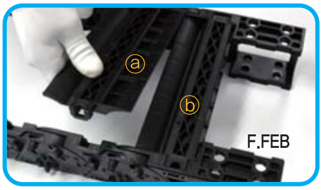
M.FEB를 좌우 방향에 맞도록 조립한다. (M.FEB는 측면이 밀폐되어 있지 않음)

ASSEMBLY PROCEDURE / ENCLOSED ROLLER SKID Type



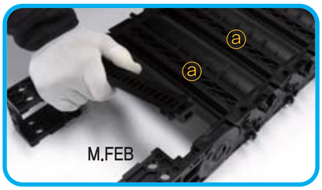
8.

.Insert one ⓑ Shaped-FRD into F.FEB.
[ⓐ :Normal FRD ⓑ : Built-up only for F.FEB]
-Find one ⓑ shaped-FRD and insert it with the hinge facing RH direction, as above.
F.FEB에 삽입되는 FRD(ⓑ)를 흰지가 RH방향에 삽입되도록 조립한다.(ⓐ–FRD 일반형, ⓑ–F.FEB에만 조립용)



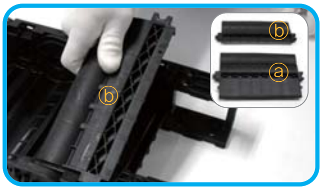
9.

Continue to insert the FRD(ⓐ-Normal FRD)with the hinge facing RH direction,
-Assemble the from F.FEB to M.FEB in order.
FRD(ⓐ–일반형)을 흰지가 RH방향에 삽입되도록 연속하여 조립한다.
(FRD는 F.FEB에서 시작하여 순차적으로 M.FEB 방향으로 조립하여야 함)



10.

Insert the frame as many as you need and insert them one by one with the hinge facing RH direction, as above. (M.FEB is not turned to up and down when FRD assembling)
M.FEB에 Frame을 흰지가 RH방향에 삽입되도록 조립한다.
(FRD를 조립시 M.FEB가 상하방향으로 꺾이지 않음)



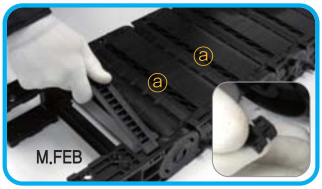
11.

Insert the ⓑ shaped-FRD inserted to F.FEB and insert it with the hinge facing RH direction, as above. [ⓐ :Normal FRD ⓑ : Built-up only for F.FEB]-Insert the divider with separator to divide the inside of chain

F.FEB에 삽입되는 FRU(ⓑ)를 흰지가 RH방향에 삽입되도록 조립한다.(ⓐ–FRU 일반형, ⓑ–F.FEB에만 조립용)내부 공간분리를 위하여 세퍼레이터가 결합된 디바이더를 삽입한다.

12.

Continue to insert the FRU(ⓐ-Normal FRU)with the hinge facing RH direction,
-Assemble the from F.FEB to M.FEB in order.
FRU(ⓐ–일반형)을 흰지가 RH방향에 삽입되도록 연속하여 조립한다.
(FRU는 F.FEB에서 시작하여 순차적으로 M.FEB 방향으로 조립하여야 함)



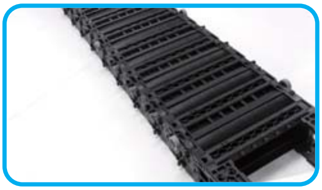
13.

Insert ⓐ Normal FRU as many as you need and insert them one by one with the hinge facing RH direction, as above. -Insert Frame-pin into the hole which is seen where the end of FRU and Side Band meet. (M.FEB is not turning to up and down) when FRU assembling)
M.FEB에 Frame을 흰지가 RH방향에 삽입되도록 조립 후 사이드밴드의 측면에 프레임 핀을 삽입하여 프레임을 고정한다. (FRU를 조립시 M.FEB가 상하방향으로 꺾이지 않음)

14.

Insert Roller into mounted Side Band.
사이드 밴드 측면의 돌출된 형상에 롤러를 삽입하여 조립한다.

ASSEMBLY PROCEDURE / ENCLOSED ROLLER SKID Type



15.

Continue to insert Roller into Side Band.
Basically, you insert one roller per 4 Link

좌우 모두 4링크마다 롤러가 위치하도록 조립한다

16.

Insert Roller Skid into Side Band where roller inserted in.
Skid is divided into Roller Skid (Skid with mount for roller) and normal Skid (Skid without mount)

롤러가 삽입된 사이드 밴드의 측면에는 롤러형 스키드를 삽입하여 조립한다.
(스키드는 롤러형, 일반형이 좌우로 구분된다.)

17.

Insert support into groove of side band until you hear the "click".
(Same support for both LH and RH)

사이드 밴드의 측면의 돌출된 홈에 그림과 같이 서포터 부품을 "딸깍" 소리가 나도록 삽입한다.
(서포트는 좌우 구분 없이 한 종류만 있음)

18.

Insert a normal Skid into Side Band which is not inserted a roller.

롤러가 삽입되지 않은 사이드 밴드의 측면에는 일반형 스키드를 삽입하여 조립한다.

19.

Insert Skid and Support into all Side Band links. (Check that Skid is working up-and-down properly when you push the assembled Skids by hands.)

모든 사이드 밴드 측면에는 롤러형 스키드와 일반형 스키드를 구분하여 조립한다.
(조립된 스키드가 손으로 눌러 상하로 잘 동작되는지 확인한다.)

20.

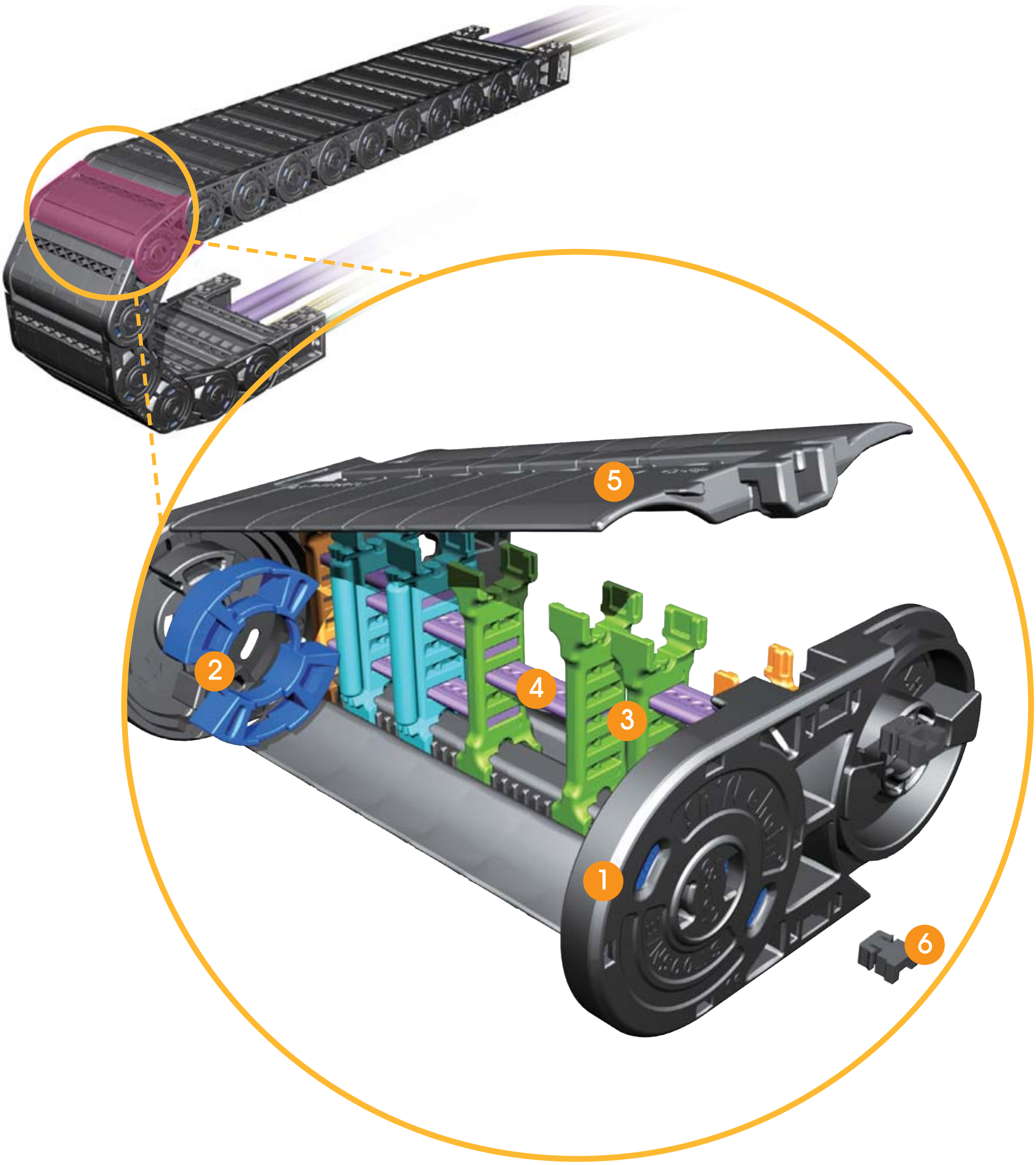
Insert steel washers into M.FEB and F.FEB.

FEB의 고정 방향에 맞도록 보강와샤를 삽입한다.

Shift chain® E - TYPE : Encloed

ARTICLE NAME & DETAILS OF SHIFT CHAIN E - TYPE

/ Shift Chain E-Type의 구성명칭 및 세부설명



Shift chain®
Enclosed Type

1 Side Band (SB)

Connecting Radius Value inserted Side Band strengthen binding since the supporting point of side band is designed as 6 separated points.

R설정 유닛을 삽입한 밴드직렬 결합방식으로 Side Band지지 요소를 6지점으로 설계하여 결속력 강화.

2 Bending Radius Unit (BR)

Shift Chain has the unique structure that the value of Bending Radius is decided by Bending Radius unit.

Shift chain은 Bending Radius설정유닛을 Side Band에 삽입하여 원하는 곡률반경(R)값의 체인을 구성하는 독창적인 구조

3 Divider(DV-S, R, M)

There with the Dividers are three types of the exclusive side divider(S-Type), of a role to separate large mass of inner cables vertically(M-Type), of a role to protect the sheath demage of cables by equipment of rollers to the divider(R-Type).

Shift chain 내부에 입선되는 다수의 케이블을 세로로 분리하는 역할로, 체인측면전용디바이더(S-Type),
롤러를 부착하여 케이블과의 마찰로 인한 피복손상을 방지하는 기능의 디바이더(R-Type)와 세퍼레이터핀을 삽입하여 디바이더와 세퍼레이터를 고정하여 디바이더의 유동을 방지하는 기능의 디바이더(M-Type)로구분하여 보다 효율적으로 케이블을 보호하는 역할

4 Separator (SP)

Separator divides the inserted cables vertically to prevent twisting of cables and damage of sheath. Can be cut by 5mm for the convenience. When combining with divider, using separator pin it can be fixed hard not to move.

다수의 케이블을 가로로 분리하는 역할을 하는 세퍼레이터는 5mm단위로 절단하여 사용가능하며 디바이더와 결합시 세퍼레이터 고정핀을 사용하여 유동을 방지.

5 FRU, FRD

Hinged type frame, open one side, supports connection of both side of side band and have tongue and groove system plate to secure the position of the divider on the frame.

좌우 Side Band의 연결지지대 역할을 하며 Frame 고정돌기를 형성하여 디바이더의 유동과 이탈을 방지하도록 설계되었으며 한 방향을 오픈하는 힌지방식(경첩)의 구조.

6 Frame Pin (FP)

The connecting pin for preventing the breakaway of Frame connected at Side Band,
combining and fixing the Frame and Side Band.
For Shift chain(ST)072E, 092E, 120E, 150E type, one side of the frame is fixed by inserting a fixing pin to prevent frame open, which caused by any external impact.

Frame과 Side Band를 결합하고 이를 고정하는 역할로 Side Band에 결합된 Frame의 이탈을 방지하는 목적의 결합핀.
ST072E, ST095E, ST120E, ST150E 적용

7 Free End Bracket (FEB)

Shift chain is very effective to be able to be fixed atupper, lower and front direction with the use of FEB (Free End Bracket) like the fixing method of Shift chain and to be fixed stronger due to the use the Steel Inset at the Fixing hole. Shift Chain has a strong point that can be fixed with the diverse ways.
This Bracket can be turned moved than 45 degrees. For ST150N, Bracket with steel is used.

Shift chain은 New Sabin chain의 체인고정방식인 FEB(Free End Bracket)를 적용시켜 체인을 고정시킬때 상, 하, 전방에서 고정시킬수 있어 효과적이며 고정홀에 Steel Insert를 적용해 더욱 강하게 고정시킬 수 있습니다.
또한 Bracket부분이 45이상 으로 꺾임이 적용되어 다양한 방식으로 체인을 고정.
ST150N의 경우 Steel Insert형식의 Bracket적용.

※ SE-Type 적용시에는 FEB와 결합되는 Side Band에 BR은 삽입하지 않음.

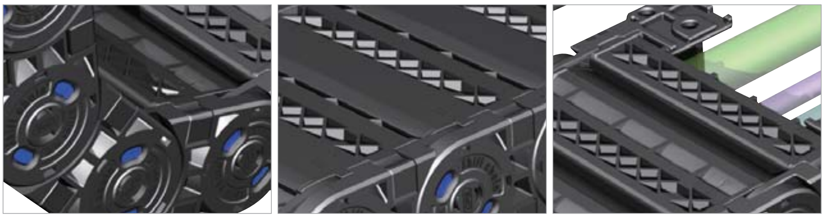
8 Tie Wrap (TW)

Tie Warp fixes to fix the cables in one straight line to prevent twisting or entangling during operation. There are two types available depending on the application; attached to bracket and separated from bracket.

케이블을 고정하기 위해 사용되며 케이블을 일렬로 정렬시키는 역할로 케이블의 엉킴현상을 방지하고 사양에 따라 Free End Bracket 삽입형과 Free End Bracket 분리형으로 구분.

ST095E

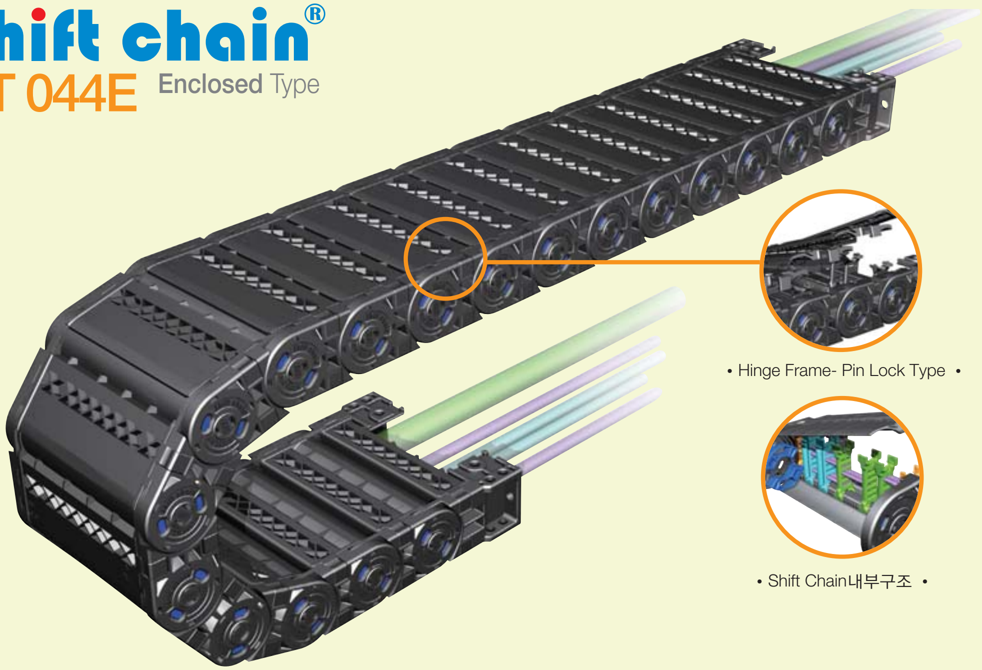
Shift Chain S -Type	Pitch	Bending Radius R	Weight kg/m	Speed m/sec	Temperature °C	Clearance				Frame style	Divider possible with frame
						A	B	C	D		
ST044E .035	44	70, 90, 120, 150	1.03	10	-30 ~ +130	56	38	35	24.5		
ST044E .055	44		1.21			76	38	55	24.5		
ST044E .075	44		1.37			96	38	75	24.5		
ST044E .100	44		1.58			121	38	100	24.5		
ST055E .050	55	100, 125, 150, 200	1.36	10	-30 ~ +130	71	52	50	38.5		
ST055E .075	55		1.56			96	52	75	38.5		
ST055E .100	55		1.76			121	52	100	38.5		
ST055E .125	55		1.97			146	52	125	38.5		
ST055E .150	55		2.21			171	52	150	38.5		
ST072E .050	72	120, 145, 200, 250, 300	2.37	10	-30 ~ +130	82	66	50	44		
ST072E .075	72		2.61			107	66	75	44		
ST072E .100	72		2.85			132	66	100	44		
ST072E .125	72		3.09			157	66	125	44		
ST072E .150	72		3.33			182	66	150	44		
ST095E .100	95	150, 200, 230, 280, 400	3.55	10	-30 ~ +130	138	82	100	55		
ST095E .125	95		3.79			163	82	125	55		
ST095E .150	95		4.04			188	82	150	55		
ST095E .175	95		4.29			213	82	175	55		
ST095E .200	95		4.53			238	82	200	55		
ST120E .150	120	200, 250, 300 350, 400, 500	5.79	10	-30 ~ +130	192	108	150	76		
ST120E .200	120		6.43			242	108	200	76		
ST120E .250	120		7.07			292	108	250	76		
ST120E .300	120		7.71			342	108	300	76		
ST150E .200	150	305, 405, 505, 605	8.15	10	-30 ~ +130	246	141	200	110		
ST150E .250	150		8.76			296	141	250	110		
ST150E .300	150		9.37			346	141	300	110		
ST150E .350	150		9.98			396	141	350	110		
ST150E .400	150		10.59			446	141	400	110		



ST044E-view

Min ● ● ● ● ● ● Max

Shift chain®
ST 044E Enclosed Type



• Hinge Frame- Pin Lock Type •

• Shift Chain내부구조 •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length**
  Vertical curve above= max 2.0m
  Vertical curve below= max 40m
  Side Mounted, Unsupported= max 1.0m
- **Applications**

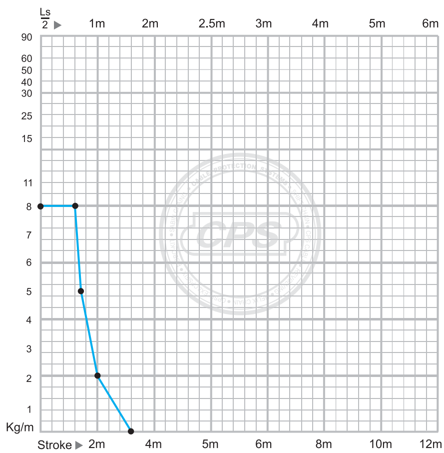
  Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

  산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용. 겐츄리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

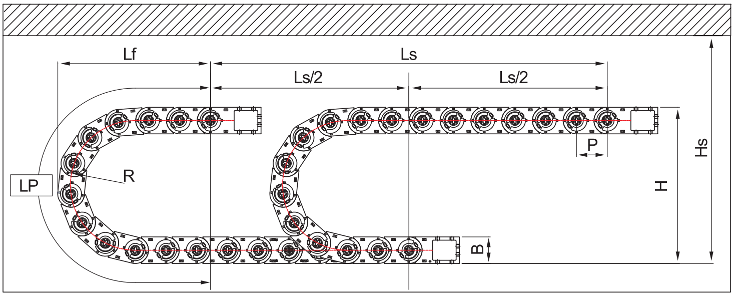
$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

- **Load diagrams self-supporting length**



ST 044E Enclosed Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	70	90	120	150
Lp	396	459	553	648
L f	177	197	227	257
H	178	218	278	338

ST 044E Type

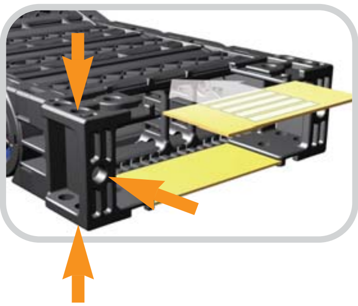
Pitch P: 44mm
Height B: 38mm
Height H: 2R+38mm
Hs≧ H+30mm

ORDERING (주문방법)

ST 044E. 100. R120 / F - 1500L : 10ST

주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
밀폐형타입	Enclosed Type
Shift Chain	

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

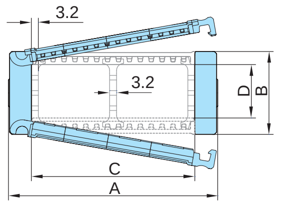
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

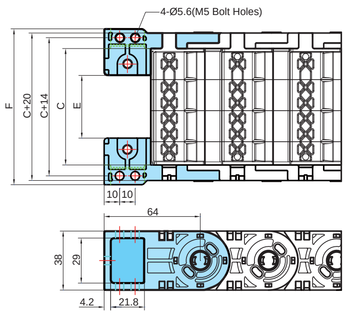
ST 044E Enclosed Type

CHAIN CROSS SECTION

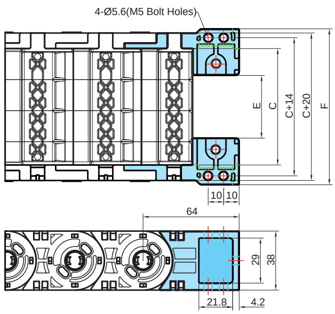


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 044E.035	56	38	35	24.5	70, 90, 120, 150	1.03
ST 044E.055	76		55			1.21
ST 044E.075	96		75			1.37
ST 044E.100	121		100			1.58

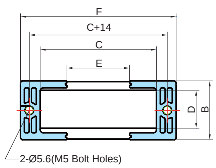
FREE END BRACKET



ST044E Moving point



ST044E Fixing point



ST044E Front point

Chain Type	F	B	C	D	E	Hole Type
ST 044E.035	60.4	38	35	24.5	0.4	M5 Bolt Holes
ST 044E.055	80.4		55		20.4	
ST 044E.075	100.4		75		40.4	
ST 044E.100	125.4		100		65.4	

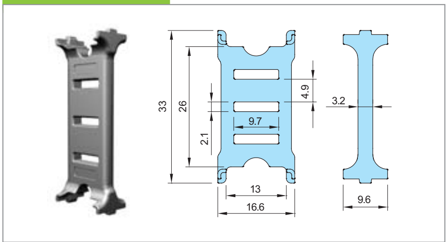
ST 044E Enclosed Type

DIVIDERS & SEPARATORS

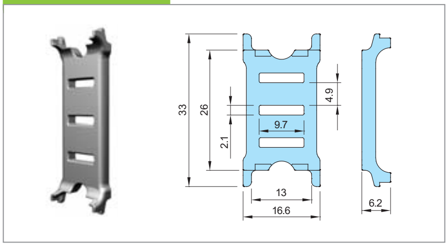
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and it's enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 044E DV-M



ST 044E DV-S

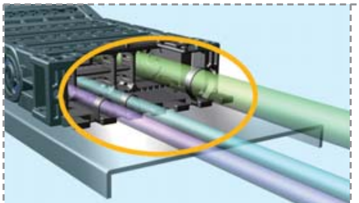


▶ Assemble divider every Two links. / 2링크마다 결합.

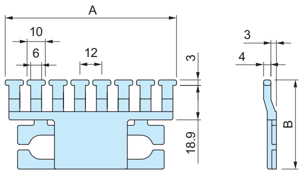
ST 044E Separators (SP) (No. : S-SP/M)

Separators / Chain Type	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
ST 044E	○	○	○	○	○	○	○	○	○
ST 055E	○	○	○	○	○	○	○	○	○

TIE WRAP



Attach to Bracket (브라켓 결합용)



(Dimensions in mm)

Tie Wrap	035	055	075	100	125
A	46	70	94	118	142
B	35.4	48.9	48.9	48.9	48.9

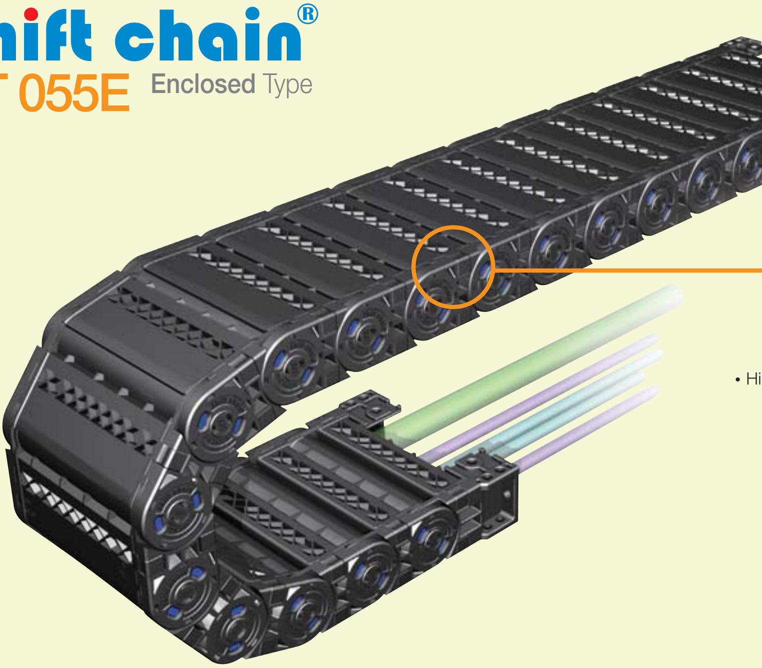
The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap;Attached & Unattached to the bracket.

Tie Wrap은 Shift Chain의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Shift Chain의 Tie wrap은 브라켓부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양 으로 구분되어 사용할 수 있다.

Min ●●●●●● Max

Shift chain®

ST 055E Enclosed Type



• Hinge Frame- Pin Lock Type •

• Shift Chain내부구조 •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length**
  Vertical curve above= max 2.0m
  Vertical curve below= max 40m
  Side Mounted, Unsupported= max 1.0m
- **Applications**

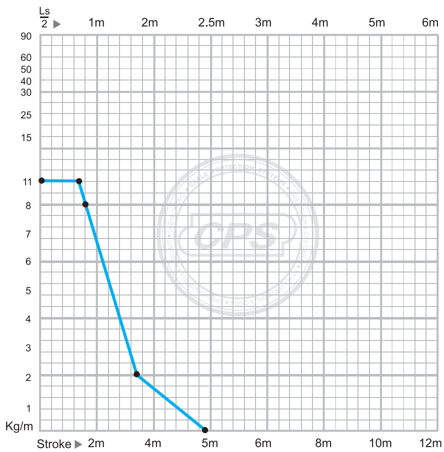
  Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

  산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용. 겐츄리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

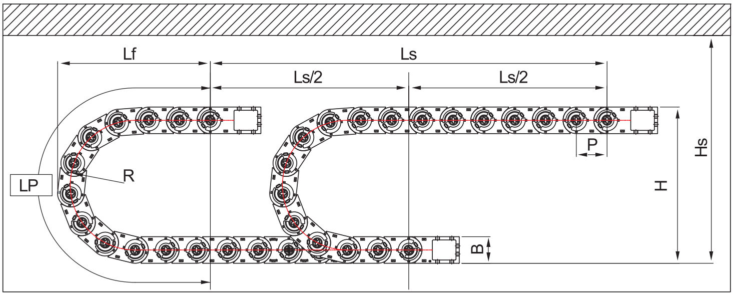
- **Load diagrams self-supporting length**



SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

ST 055E Enclosed Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
L f: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	-	-	100	125	150	200
Lp L f H	-	-	535 236 252	613 261 302	692 286 352	849 336 452

ST 055E Type

Pitch P: 55mm
Height B: 52mm
Height H: 2R+52mm
Hs≧H+35mm

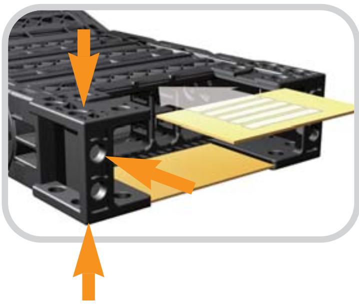
ORDERING (주문방법)

ST 055E. 150. R150 / F - 1800L : 10ST

주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
밀폐형타입	Enclose Type

Shift Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

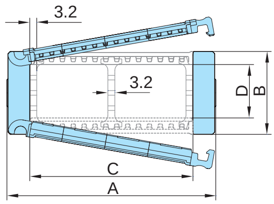
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

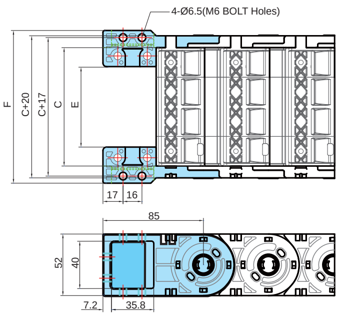
ST 055E Enclosed Type

CHAIN CROSS SECTION

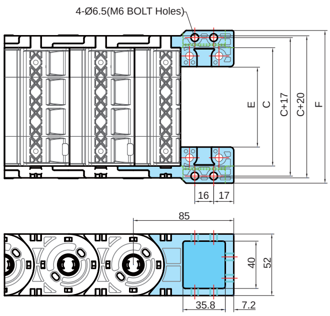


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 055E.050	71	52	50	38.5	100, 125, 150, 200	1.36
ST 055E.075	96		75			1.56
ST 055E.100	121		100			1.76
ST 055E.125	146		125			1.97
ST 055E.150	171		150			2.21

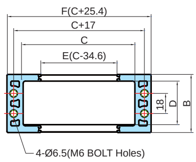
FREE END BRACKET



ST055E Moving point



ST055E Fixing point



ST055E Front point

Chain Type	F	B	C	D	E	Hole Type
ST 055E.050	79	52	50	38.5	18	M6 Bolt Holes
ST 055E.075	104		75		43	
ST 055E.100	129		100		68	
ST 055E.125	154		125		93	
ST 055E.150	179		150		118	

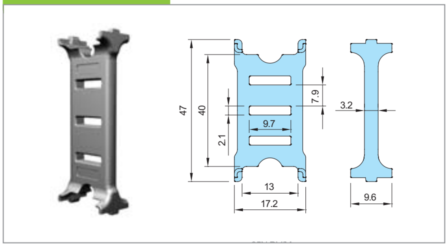
ST 055E Enclosed Type

DIVIDERS & SEPARATORS

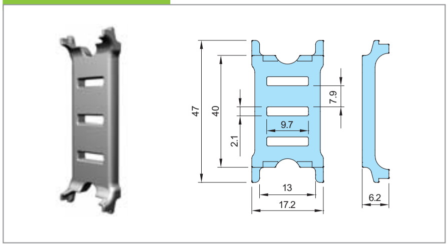
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 055E DV-M



ST 055E DV-S

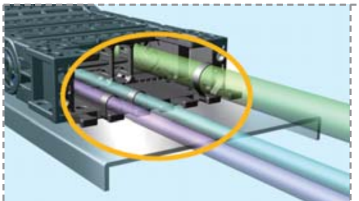


▶ Assemble divider every Two links. / 2링크마다 결합.

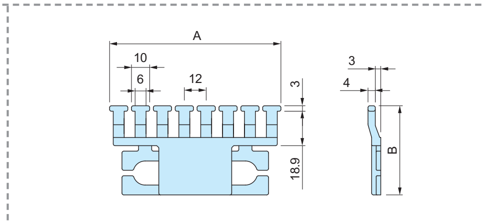
ST 055E Separators (SP) (No. : S-SP/M)

Separators / Chain Type	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
ST 044E	○	○	○	○	○	○	○	○	○
ST 055E	○	○	○	○	○	○	○	○	○

TIE WRAP



Attach to Bracket (브라켓 결합용)



The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap;Attached & Unattached to the bracket.

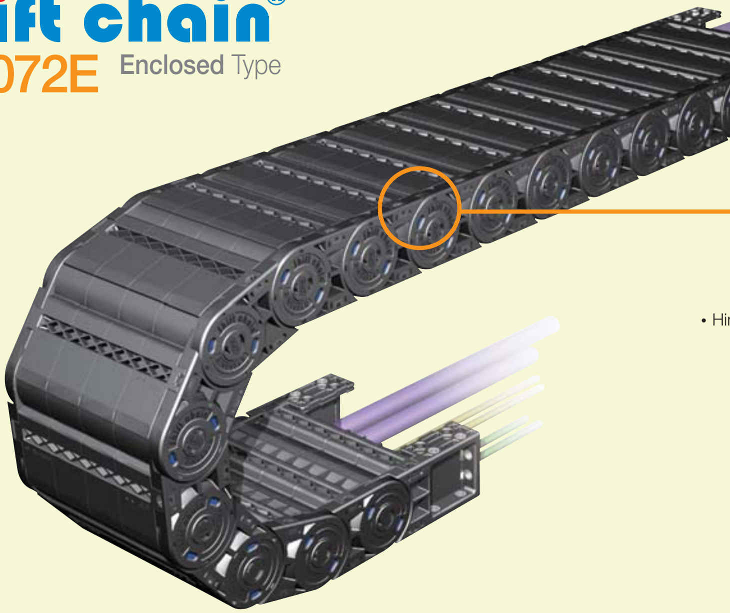
Tie Wrap은 Shift Chain의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Shift Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양 으로 구분되어 사용할 수 있다.

When using the tie wrap option for the Shift Chain ST 055 series, the corresponding frame sizes will be 50, 75, 100, 125, 150, 175 and 200mm respectively.

ST 055 제품은, 삽입형 Tiewrap을 사용하며 적용되는 Frame은 50, 75, 100, 125, 150, 175, 200 입니다.

Min ●●●○○○ Max

Shift chain®
ST 072E Enclosed Type



• Hinge Frame- Pin Lock Type •

• Shift Chain내부구조 •

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length**
  Vertical curve above = max 6.0m
  Vertical curve below = max 100m
  Side Mounted, Unsupported = max 2.5m
- **Applications**

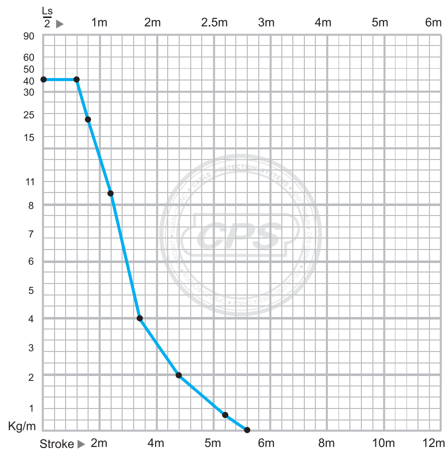
  Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

  산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용. 겐츄리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

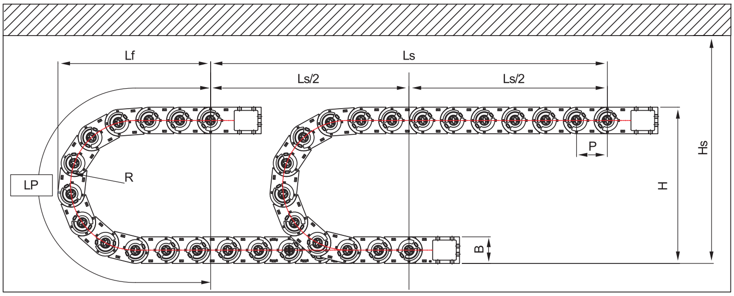
$$\left[\; L = \frac{Ls}{2} + Lp \;\right]$$

- **Load diagrams self-supporting length**



ST 072E Enclosed Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	120	145	200	250	300
Lp	665	743	916	1,074	1,230
L f	297	322	377	427	477
H	306	356	466	566	666

ST 072E Type

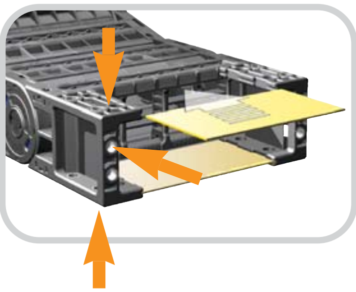
Pitch P: 72 mm
Height B: 66mm
Height H: 2R+66mm
Hs≧ H+40mm

ORDERING (주문방법)

ST 072E. 150. R200 / F - 3000L : 10ST

- 10ST — 주문수량 Q´ ty(set)
- 3000L — 체인길이 Length(mm)
- F — 브라켓 Free End Bracket
- R200 — 곡률반경 Bending Radius
- 150 — 내폭 Inside Width
- 072E — 밀폐형타입 Enclose Type
- ST — Shift Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. Also, inseting plastic sheets creates enclosed structure in the bracket.
(The order for subsidiary materials is extra.)

체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
또한 부자재를 삽입하여 브라켓부분이 완전밀폐가 될 수 있는 구조.
(부자재는 별도 주문)

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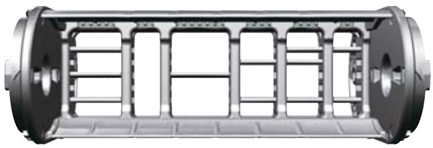
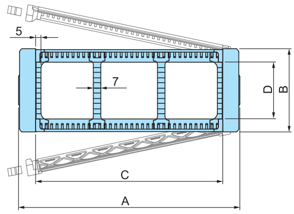
ST 072E Enclosed Type

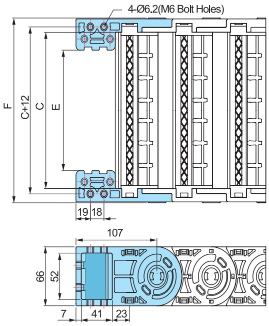
CHAIN CROSS SECTION



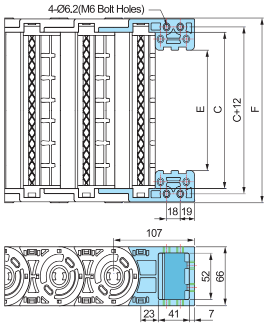


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 072E.050	82	66	50	44	120, 145, 200, 250, 300	2.37
ST 072E.075	107		75			2.61
ST 072E.100	132		100			2.85
ST 072E.125	157		125			3.09
ST 072E.150	182		150			3.33

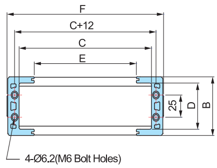
FREE END BRACKET



ST072E Moving point



ST072E Fixing point



ST072E Front point

Chain Type	F	B	C	D	E	Hole Type
ST 072E.050	82	66	50	44	10	M6 Bolt Holes
ST 072E.075	107		75		35	
ST 072E.100	132		100		60	
ST 072E.125	157		125		85	
ST 072E.150	182		150		110	

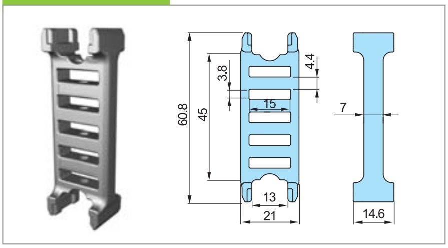
ST 072E Enclosed Type

DIVIDERS

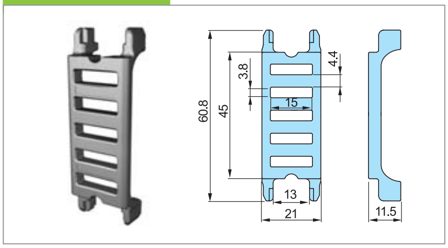
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 072E DV-M

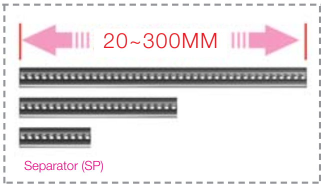


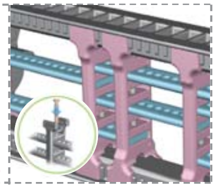
ST 072E DV-S



▶ Assemble divider every Two links. / 2링크마다 결합.

SEPARATORS (SP)

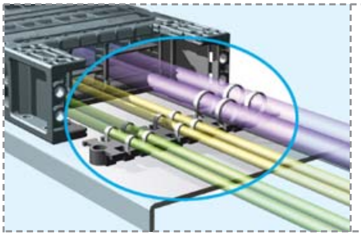


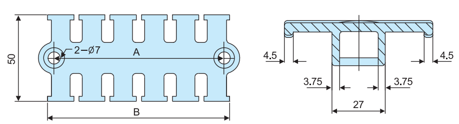


Separator is available in length from 20mm to 300mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대300mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

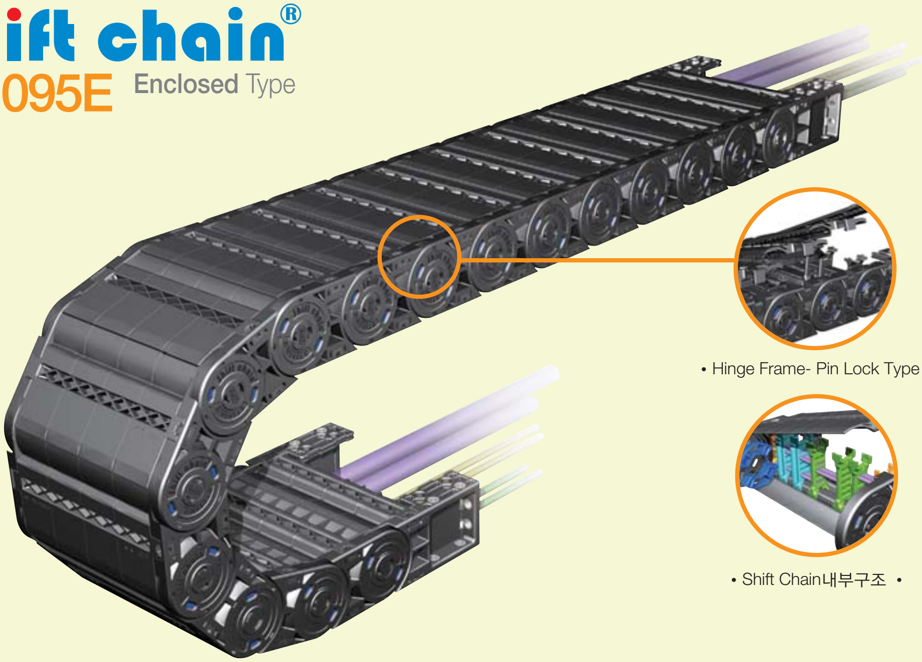
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	149

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

Shift chain®

ST 095E Enclosed Type



• Hinge Frame- Pin Lock Type •

• Shift Chain내부구조 •

MATERIAL

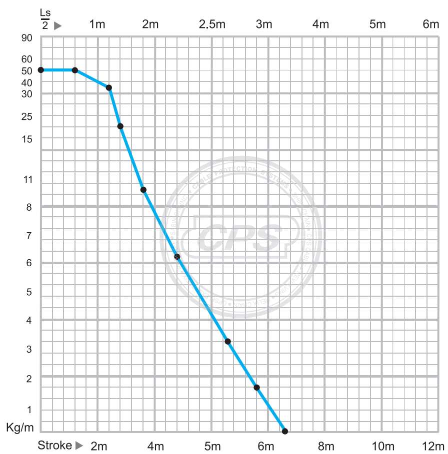
- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length**
  Vertical curve above = max 6.0m
  Vertical curve below = max 100m
  Side Mounted, Unsupported = max 3.0m
- **Applications**

  Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables

  산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용. 겐츄리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.
- **Calculation of the chain length**

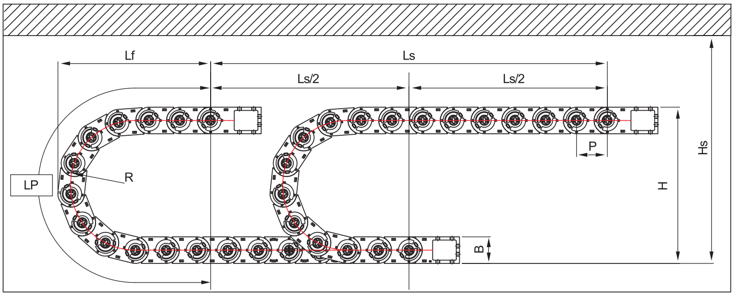
$$\left[\; L = \frac{Ls}{2} + Lp \;\right]$$

- **Load diagrams self-supporting length**



ST 095E Enclosed Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	150	200	230	280	400
Lp	855	1,010	1,110	1,260	1,640
L f	374	428	459	505	629
H	382	482	542	642	882

ST 095E Type

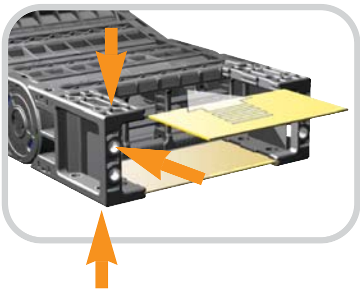
Pitch P: 95 mm
Height B: 82mm
Height H: 2R+82mm
Hs≧ H+50mm

ORDERING (주문방법)

ST 095E. 200. R200 / F - 3000L : 10ST

- 10ST — 주문수량 Q′ ty(set)
- 3000L — 체인길이 Length(mm)
- F — 브라켓 Free End Bracket
- R200 — 곡률반경 Bending Radius
- 200 — 내폭 Inside Width
- 095E — 밀폐형타입 Enclose Type
- ST — Shift Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

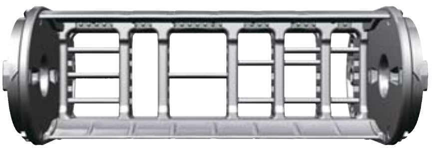
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. Also, inseting plastic sheets creates enclosed structure in the bracket.
(The order for subsidiary materials is extra.)

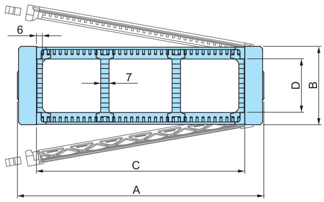
체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
또한 부자재를 삽입하여 브라켓부분이 완전밀폐가 될 수 있는 구조.
(부자재는 별도 주문)

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 095E Enclosed Type

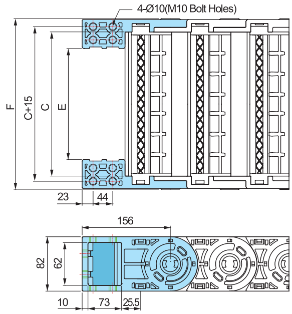
CHAIN CROSS SECTION



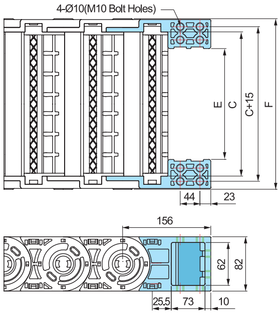


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 095E.100 ST 095E.125 ST 095E.150 ST 095E.175 ST 095E.200	138 163 188 213 238	82	100 125 150 175 200	55	150, 200 230, 280, 400	3.55 3.79 4.04 4.29 4.53

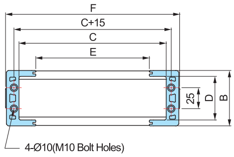
FREE END BRACKET



ST095E Moving point



ST095E Fixing point



ST095E Front point

Chain Type	F	B	C	D	E	Hole Type
ST 095E.100 ST 095E.125 ST 095E.150 ST 095E.175 ST 095E.200	138 163 188 213 238	82	100 125 150 175 200	55	49 74 99 124 149	M10 Bolt Holes

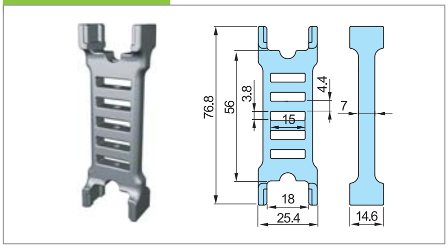
ST 095E Enclosed Type

DIVIDERS

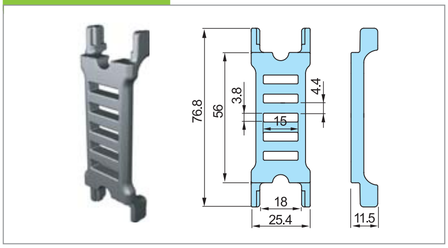
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 095E DV-M

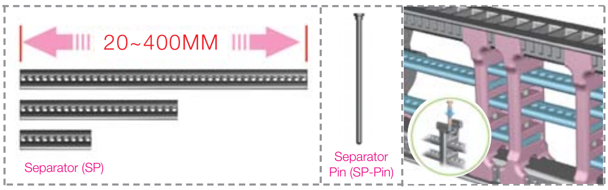


ST 095E DV-S



▶ Assemble divider every Two links. / 2링크마다 결합.

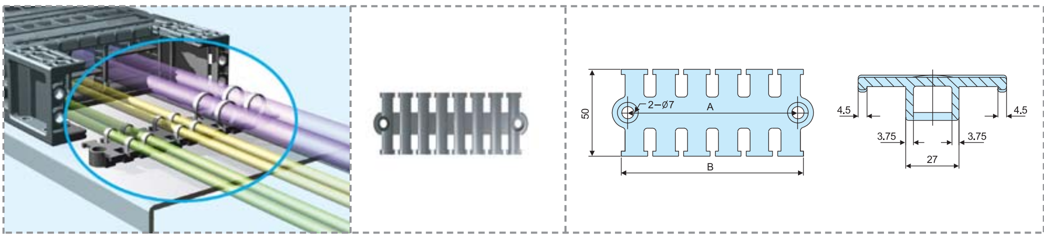
SEPARATORS (SP)



Separator is available in length from 20mm to 400mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대400mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP



(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	149

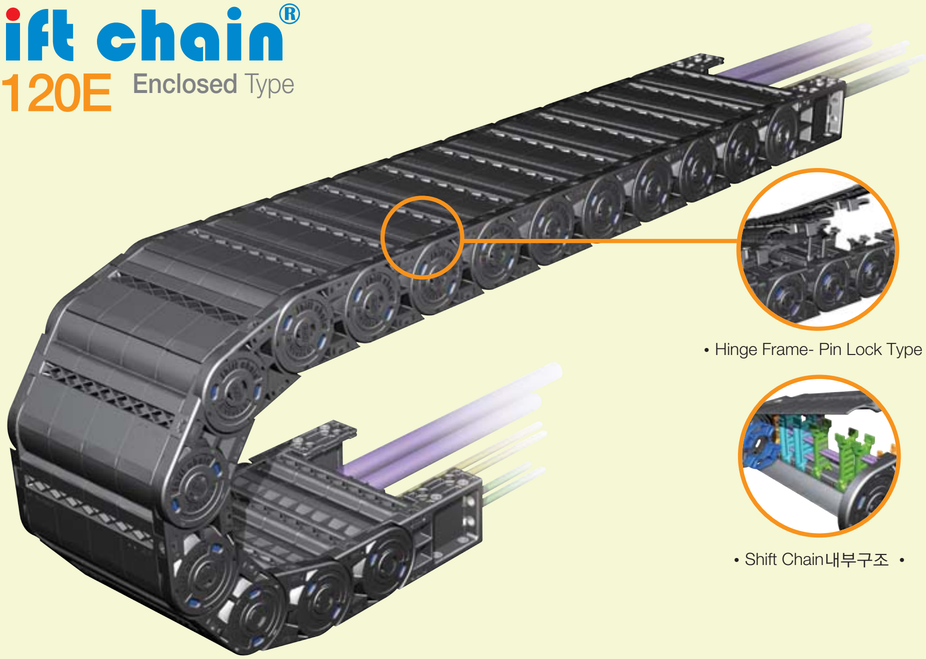
The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

Min ●●●●●○ Max

Shift chain®

ST 120E Enclosed Type



• Hinge Frame- Pin Lock Type •

• Shift Chain내부구조 •

MATERIAL

- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length**
  Vertical curve above = max 6.0m
  Vertical curve below = max 100m
  Side Mounted, Unsupported = max 3.0m
- **Applications**

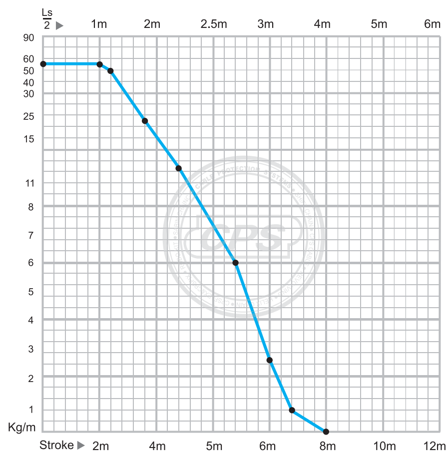
Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용. 겐츄리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

- **Calculation of the chain length**

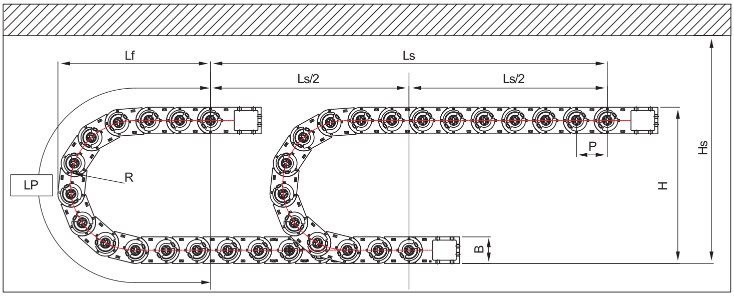
$$\left[\quad L = \frac{Ls}{2} + Lp \quad \right]$$

- **Load diagrams self-supporting length**



ST 120E Enclosed Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
L f: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	200	250	300	350	400	500
Lp	1,109	1,266	1,423	1,580	1,737	2,051
L f	494	544	594	644	694	794
H	508	608	708	808	908	1,108

ST 120E Type

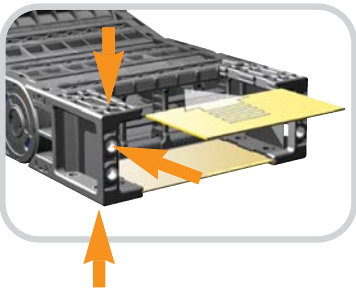
Pitch P: 120 mm
Height B: 108mm
Height H: 2R+108mm
Hs≧ H+60mm

ORDERING (주문방법)

ST 120E. 200. R200 / F - 3000L : 10ST

주문수량	Q´ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
밀폐형타입	Enclose Type
Shift Chain	

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. Also, inseting plastic sheets creates enclosed structure in the bracket.
(The order for subsidiary materials is extra.)

체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.
또한 부자재를 삽입하여 브라켓부분이 완전밀폐가 될 수 있는 구조.
(부자재는 별도 주문)

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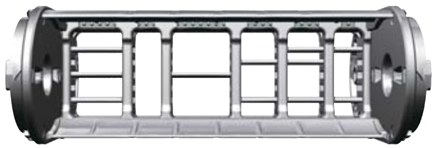
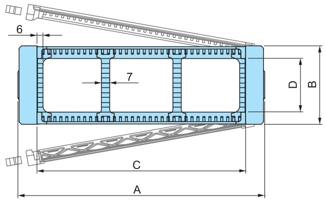
ST 120E Enclosed Type

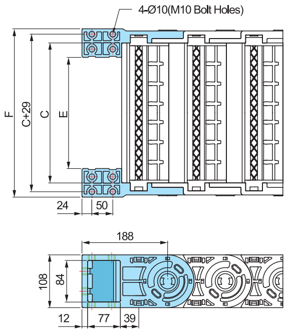
CHAIN CROSS SECTION



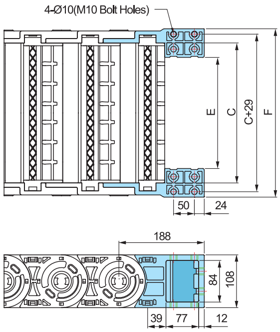


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 120E.150	192	108	150	76	200, 250, 300 350, 400, 500	5.79
ST 120E.200	242		200			6.43
ST 120E.250	292		250			7.07
ST 120E.300	342		300			7.71

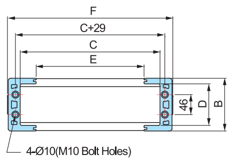
FREE END BRACKET



ST120E Moving point



ST120E Fixing point



ST120E Front point

Chain Type	F	B	C	D	E	Hole Type
ST 120E.150	200	108	150	76	90	M10 Bolt Holes
ST 120E.200	250		200		140	
ST 120E.250	300		250		190	
ST 120E.300	350		300		240	

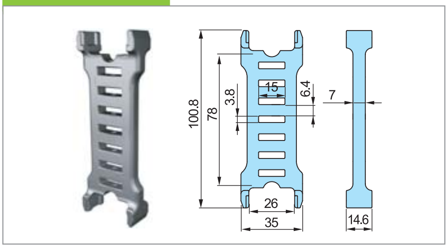
ST 120E Enclosed Type

DIVIDERS

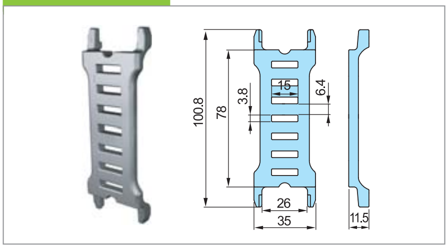
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 120E DV-M

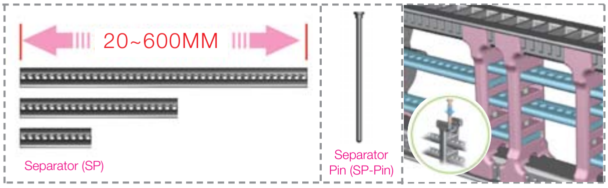


ST 120E DV-S



▶ Assemble divider every Two links. / 2링크마다 결합.

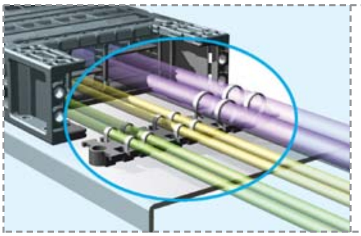
SEPARATORS (SP)

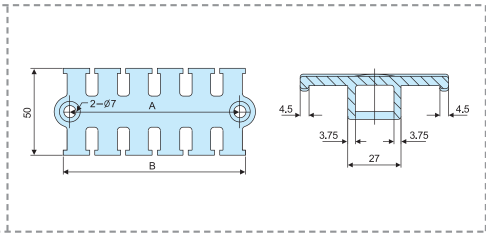


Separator is available in length from 20mm to 600mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대600mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

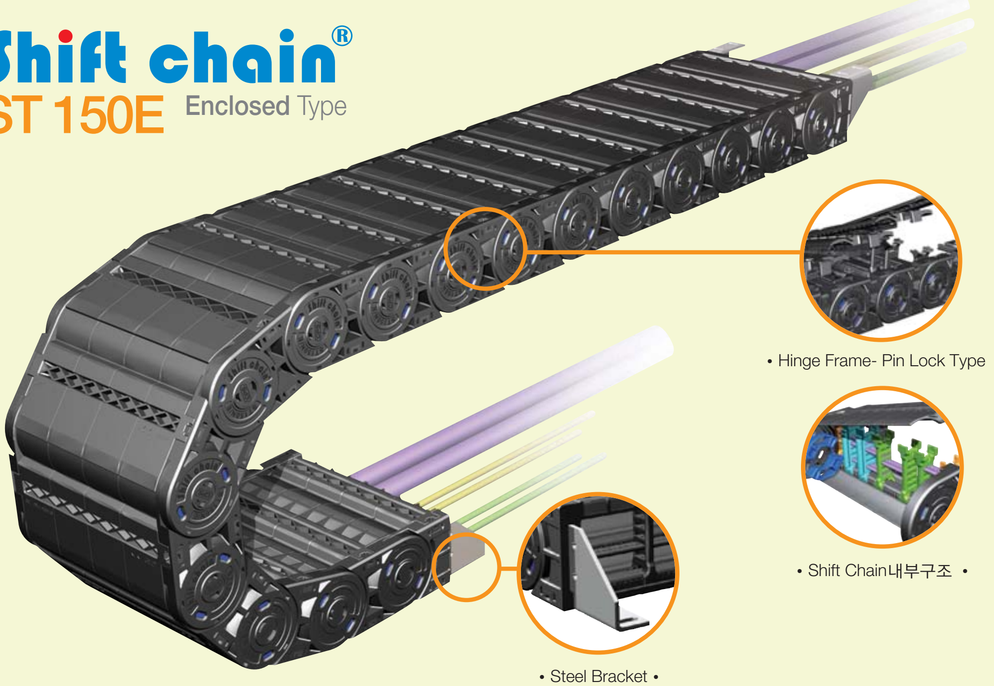
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	149

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

Min ●●●●●● Max

Shift chain®
ST 150E Enclosed Type



MATERIAL

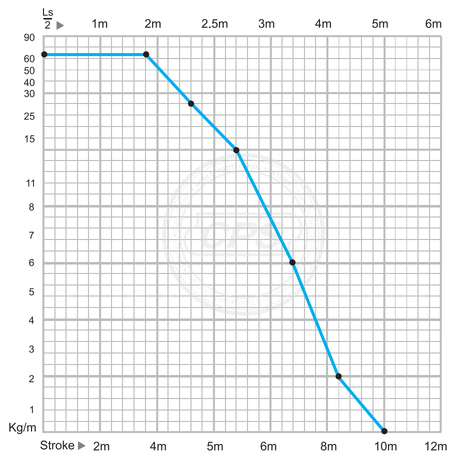
- **Chain material:**
  CPS-polyamide with glass fiber reinforced UL94-HB
- **Low Noise & Low Mote**
- **Speed :** 10m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length**
  Vertical curve above = max 7.0m
  Vertical curve below = max 150m
  Side Mounted, Unsupported = max 4m
- **Applications**

  Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables

  산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용. 겐츄리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.
- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

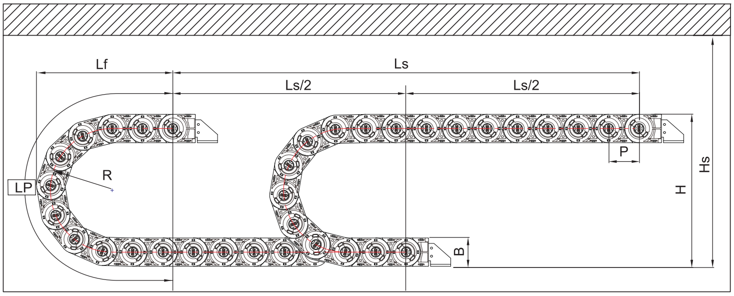
- **Load diagrams self-supporting length**



SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

ST 150E Enclosed Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
L f: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	305	405	505	605
Lp	1,510	1,807	2,106	2,405
L f	651	743	835	928
H	752	952	1,152	1,352

ST 150E Type

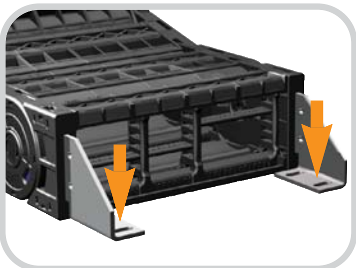
Pitch P: 150 mm
Height B: 141mm
Height H: 2R+142mm
Hs≧ H+80mm

ORDERING (주문방법)

ST 150E. 400. R305 / B_1- 4500L : 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓타입	Bracket Type B1, B2, B3
곡률반경	Bending Radius
내폭	Inside Width
밀폐형타입	Enclose Type
Shift Chain	

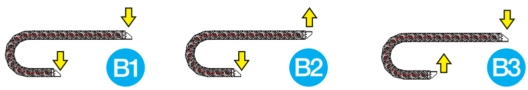
BRACKET TYPE (브라켓타입)



SEB (Steel End Bracket)

For ST150E, its end parts of cable chain being fixed are used with steel bracket, and it is possible to be installed B1, B2, B3 types of brackets.

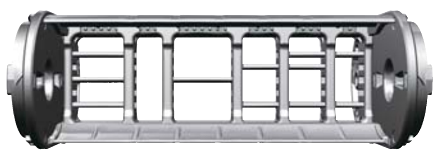
체인을 고정하는 끝부분으로 ST150E사양은 ST체인의 다른사양과는 달리 스틸브라켓을 사용하며 브라켓의 설치형태에 따라 B1, B2, B3 등으로 구분설치가능하다.

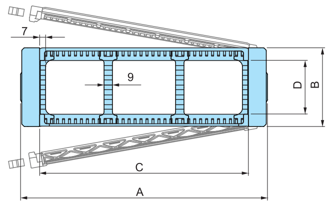


▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

ST 150E Enclosed Type

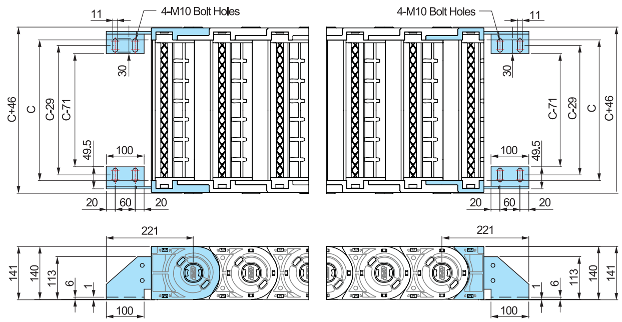
CHAIN CROSS SECTION





Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 150E.200	246	141	200	110	305, 405, 505, 605	8.15
ST 150E.250	296		250			8.76
ST 150E.300	346		300			9.37
ST 150E.350	396		350			9.98
ST 150E.400	446		400			10.59

FREE END BRACKET



ST150E Moving point   ST150E Fixing point

Chain Type	F	C	D	Hole Type
ST 150E.200	141	200	110	M10 Bolt Holes
ST 150E.250		250		
ST 150E.300		300		
ST 150E.350		350		
ST 150E.400		400		

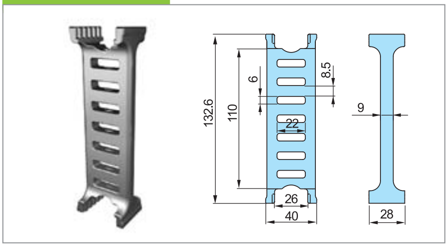
ST 150E Enclosed Type

DIVIDERS

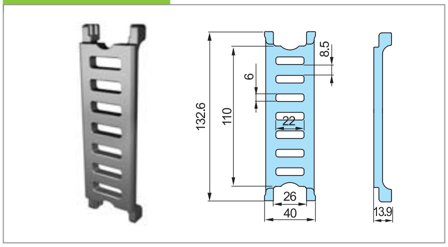
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

ST 150E DV-M

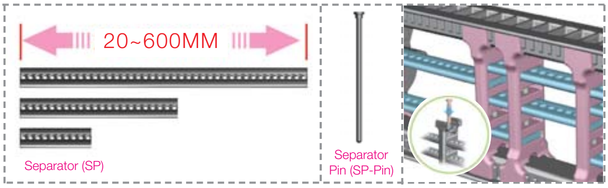


ST 150E DV-S



▶ Assemble divider every Two links. / 2링크마다 결합.

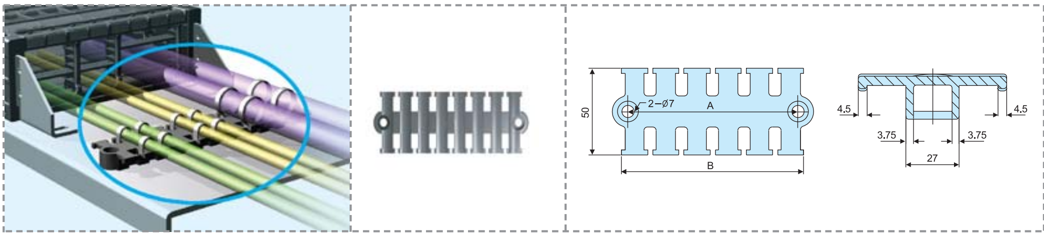
SEPARATORS (SP)



Separator is available in length from 20mm to 600mm and can be cut every 5mm for use. The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대600mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP



(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	149

The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

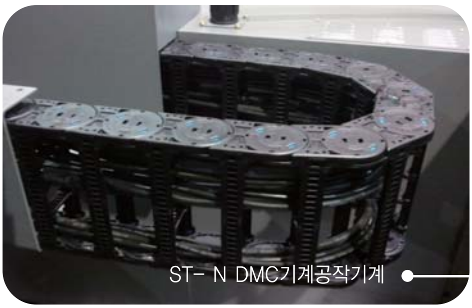
APPLICATION IMAGE / 적용이미지

ST- RS 현대자동차

ST- RS 현대자동차

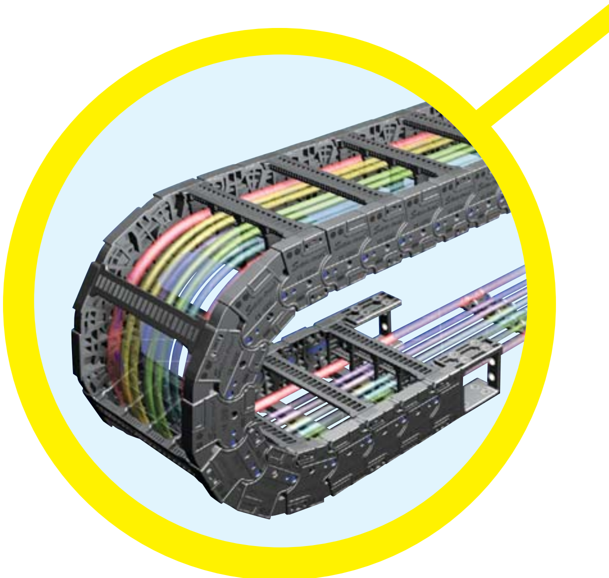
ST- N 기흥기계공작기계

ST- N 두산인프라코어



ST- N DMC기계공작기계

APPLICATION IMAGE / 적용이미지



GENERAL CATALOGUE **2013**

p215 ~ 314

Using Material of High Quality!

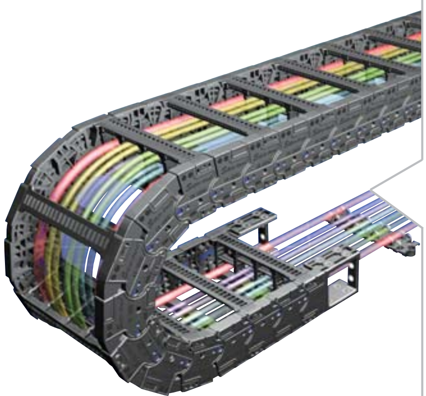
CHARACTERISTIC AND MERIT OF NEW SABIN CHAIN
/ nsb Chain의 특징및 장점

New Sabin Chain is a new generation cable chain with a new structure, which improved the existing Sabin Chain. This creative method is our own invention to connect the sidebands by holding pin. Those two elements could make up the mutual reverse curvature-angle. The holding pin performs not only connecting sidebands ,but also deteriorating the curvature stress of the sidebands consequently.
Armed with a design which launches us into the next generation of cable protection , New Sabin Chain virtually eliminates sound suring operation and takes "clean" to a whole new level with a Class 2 clean room certification.
The New Sabin Chain is an unique technology of CP System Co., Ltd, which is registered in domestic patent, and is now being applied for international patent in Germany, China, Europe, U.S.A, and so forth. Furthermore, to satisfy needs of customers in the strict European market and for the safety of clients worldwide, New Sabin Chain includes none of the 6 harmful substances; Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr6+), PBB, PB, DEs etc...making it completely recyclable and harmless both to the user and to the environment, and this high-quality engineering plastic product is developed as a next generation cable chain for best protection.
Product line-up of the New Sabin Chain is clean room type(CR-Type), normal type(N-Type), and Enclosed type(E-Type), which are developed, and Sliding type(S-Type) is under development now.

Product line-up of the New Sabin Chain is clean room type(CR-Type), normal type(N-Type), and Enclosed type(E-Type), which are developed.

New Sabin Chain 은 기존의 Sabin Chain을 혁신적으로 개선한 새로운 방식의 차세대 케이블체인입니다. New Sabin Chain은 홀딩핀 결합방식의 구조로 개발된 체인으로 사이드밴드와 홀딩핀이 상호 역방향 곡률구조를 이루고 있으며 홀딩핀은 사이드밴드의 결합 및 사이드밴드에 가해지는 비틀림 응력을 상쇄시키는 역할을 합니다.
New Sabin Chain은 IT산업과 기술고도화 산업의 발전으로 클린룸지역에서 요구되는 저분진, 저소음을 완벽하게 실현한 케이블 보호용 제품으로써, 이는 분진이 많이 발생하고 소음이 심한 기존의 케이블체인을 혁신적으로 개선한 차세대 케이블체인입니다.
New Sabin Chain은 씨피시스템만의 독자기술로 개발되어 국내특허에 등록되었으며 현재 독일, 중국, 일본, 미국 등 세계 주요국가에 국제특허 출원중입니다. 그리고 유럽시장에서 규제하는 6대유해물질〔납(Pb), 카드늄(Cd), 수은(Hg), 6가크롬(Cr+6)PBB,PBDES 등〕을 포함하지 않는 고품질 엔지니어링 플라스틱소재로써, 인체에 무해하고 재활용이 가능한 제품으로 케이블을 최적의 상태로 보호할 수 있습니다.

New Sabin Chain은 사용환경에 따라 클린룸형(CR-Type), 표준형(N-Type), 밀폐형(E-Type)으로 개발되었습니다.



nsb N Type

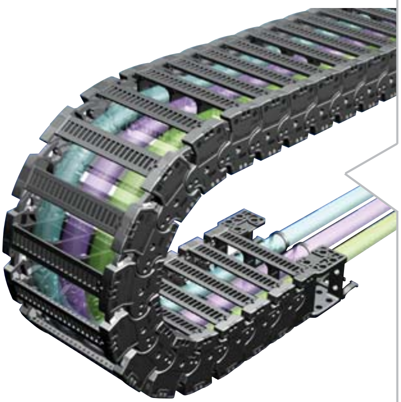
N-TYPE (Normal type /표준형) : Designed to be more durable and more flexible than the existing cable protection systems. It is a virtual wall around the inner chamber allowing for only necessary movement and creating flexiblity options for machines which don't track perfectly every time.

내구성 및 탄성력을 강화시켜 이동속도가 빠르고 저소음, 저분진 체인으로 기존 케이블체인의 대체사양으로 개발된 제품입니다. 프레임을 비롯하여 각 부품의 구조를 개선하여 내구성을 강화시키고 케이블의 쓸림현상에 의한 피복손상을 방지하도록 개발되었습니다.

nsb E Type

E-TYPE (Enclosed type / 밀폐형) : Designed to protect the inserted cables by forming a complete enclosure which runs the entire length of the cable chain, resulting in total protection from outside impact or foreign objects. The New Sabin Chain E can be found on car manufacturer's welding line robot carriages and press lines as well as on any machine where excess material can damage your inserted cables. Compared to current enclosed systems, it is stronger, quieter and more flexible, making it the right choice for harsh, dangerous or otherwise unclean environments.

외부 이물질로부터 케이블을 완벽하게 보호할 수 있도록 개발된 제품으로 자동차 생산 용접라인, 도장라인 등 여러 외부위험 요소로 부터 케이블을 안전하게 보호할 수 있습니다. 이는 기존 밀폐형 체인의 단점인 소음과 분진발생을 억제하고 밀폐구조를 개선하여 내부입선되는 케이블과 체인과의 마찰로 인한 케이블의 피로도를 최소화할 수 있도록 개발되었습니다. New Sabin chain E-Type은 강한 외부충 케이블을 보호할 수 있도록 설계되었으며 환경이 열악한 작업장에서 효과적으로 케이블을 보호할 수 있습니다.



nsb CR Type

CR-TYPE (Clean Room type / 클린룸형) : Designed to meet the low noise and low dust demands of semiconductor production lines, LCD/PDP production lines, and any application where "clean" and "quiet" are a necessity.

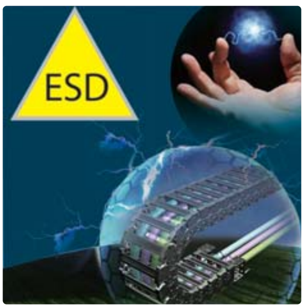
소음과 분진발생이 없는 체인으로 기술고도화사업장인 반도체 생산라인, LCD/PDP생산라인 등 분진 및 소음규제가 철저한 사업장에 사용적합한 제품입니다.

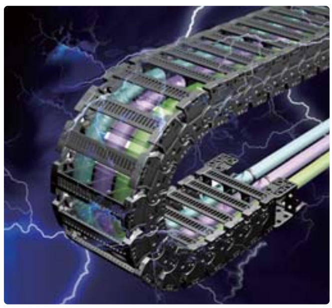
정전기 방지기능 제품 제작 가능!

Possible to produce for Electrostatic Discharge Product!

According to the rapid progress of electricity, electron technical, high-integration, hight intellect,High tech equipment has to be progressed currently, CPSYSTEM has developed to protect in advance by any flame, explosion from any other materials. And electron technical circuit damage in the semiconductor production line and any loss from the error of computers, can be protected by using ESD product.

각종 전기, 전자 기술의 급진적인 발달로 고집적화, 고지능화, 최첨단화 설비가 주를 이루고 있는 가운데 정전기로 인한 반도체 제조라인의 고집적 회로 손상, 컴퓨터 오작동등으로 인한 데이터 손실 인화물질에 의한 점화, 폭발 등의 정전기 피해를 미연에 방지 할 수 있음.



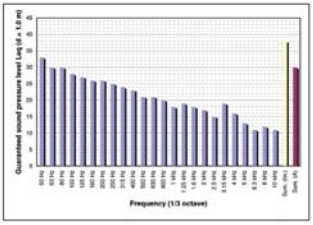


THE QUIETEST CABLE CHAIN IN THE WORLD!

세계에서 가장 조용한 케이블체인!

Unsatisfied with only just our own in-house testing, we sent our cable chain to the experts at the TUV testing facility in Germany and let them decide. The result was a mouse-like 30db noise level. The quietest ever recorded. It is the patented techniques CPS spends so much time perfecting this astounding accomplishment possible.

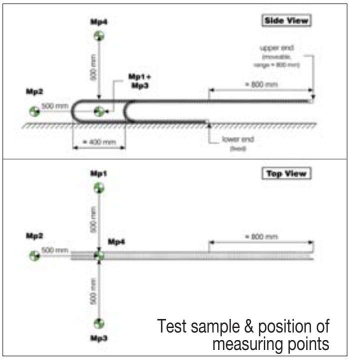
독일 소음테스트 전문기관인 TUV에 Sabin chain의 소음테스트를 의뢰한 결과 30dB로 세계에서 가장 소음이 적은 케이블체인으로 이는 씨피시스템만의 기술력입니다.



3 Measurement Procedure

3.1 Fundamentals

- Date and time of measurements: March 15th 2007
- Environmental conditions:
  - Temperature: 21 °C (indoor, air conditioned)
  - Background noise level: $L_{pA} \le 29$ dB(A) (air condition off during measurements) ⇒ no correction was made for the influence of background noise (see Annex 2, p. 9)
  - Environmental correction K_{2A}: $K_{2A} = 0$ dB



Test sample & position of measuring points

All measurement results in detail are compiled in Annex 2 (p. 9). The summary below describes the evaluation of the measurements according to 2000/14/EC [1] and the guidelines belong to this directive [2].

- Arithmetic mean of the L_{Aeq} (d = 0.5 m (as measured)): 33.1 dB
  (d = 1.0 m (calculated)): 27.1 dB
- Product standard deviation S_P: 0.8 dB
- Estimated comparative standard deviation S_R: 1.0 dB
- Total standard deviation S_t: 1.3 dB
- Confidence level: 95 %
- Quantity of samples: 5
- Coverage factor (see [2], annex A to part 4, table A1): 2.132
- Correction value K (K = S_t x coverage factor): 2.8
- **Guaranteed sound pressure level L_{Aeq} (d = 1.0 m): 30 dB**

Figure 2 shows the guaranteed sound pressure level L_{eq} for frequencies from 50 Hz to 10 kHz (1/3 octave). The values for each frequency band are calculated as given above.

Measurement results

[1] DIRECTIVE 2000/14/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors

[2] Position paper on guidelines for the application of the European Parliament and Council Directive 2000/14/EC on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors, December 2001

[3] DIN EN ISO 3744 (ISO 3744 : 1995), Acoustics – Determination of sound power level of noise sources using sound pressure – Engineering method in an essentially free field over a reflecting plane, November 1995

[4] DIN EN ISO 4871(ISO 4871 : 1996), Acoustics – Declaration an verification of noise emission values of machinery and equipment, March 1997

[5] DIN EN 61672-1 (IEC 61672-1:2002), Electroacoustics – Sound level meters – Part 1: Specification, October 2003

Reference documents

NEW EXCELLEN TECHNOLOGY!

국가기관이 인증한 신기술 인증 제품!

Sabin Chain is a low dust, low noise cable chain. It is certified by the Ministry of Science & Technology after three times strict inspection and awarded NET(New Excellent Technology) Certification from the Korean Government.

Sabin chain은 과학기술부 주관의 신기술(NET)인증심사에서 엄격한 심사를 거쳐 클린룸전용 저분진, 저소음 케이블체인 제작기술의 기술명으로 신기술(NET)인증을 받은 제품으로 Sabin chain은 국가기관이 인정한 제품입니다.

LOW DUST CHAIN WITH MOST SUITABLE FOR CLEANROOM AREA!

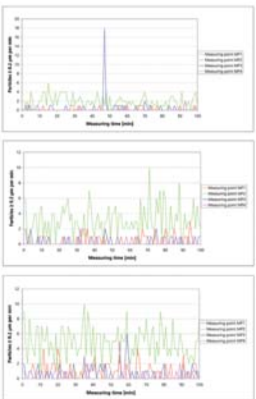
클린룸 환경에 적합한 저분진 케이블체인!

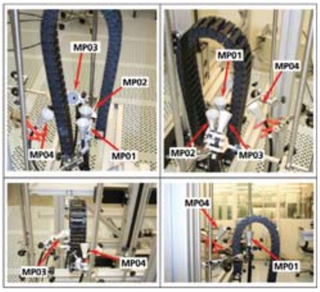
Sabin Chain was given CLASS1 clean room certification according to the Germany IPA Dust Collection Test (VDI 2083 CLASS 1 / DIN EN 14644-1 ISO CLASS 3) thereby surpassing the allowable standard of Class 1 and easily qualifying it for use in semiconductor production lines on automation machine tools and machines requiring quiet but quick applications.

독일의 IPA분진 테스트(VDI2083 CLASS 1 / DIN EN 14644-1 ISO CLASS 3) 결과 CLASS 1등급으로 클린룸지역에서 분진발생 허용기준을 충족하는 제품입니다. Sabin chain은" CLASS1이내의 분진규제가 적용되는 반도체 생산라인, 저소음을 요구하는 사업장, 고속을 요하는 자동화 공작기계 및 산업기계 등에 적용하는 클린룸 전용 차세대 케이블체인 입니다.

This test was done by the IPA TEST CENTER for the semiconductor manfacturer equipment and measurement processed with CLASS1 CLEAN ROOM(US Federal Standard 209E)

Test는 반도체 제조장치를 위한 IPA Test Center에서 수행하였으며 모든 측정들은 CLASS 1CLEAN ROOM(US Federal Standard 209E) 에서 진행.

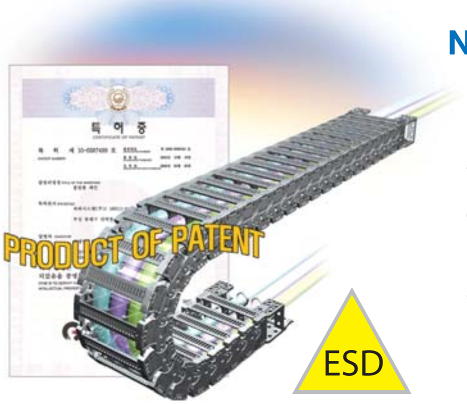




- **Clean room environment**
  Air speed(0.45 m/s)
  Temperature(+5°)
  Humidity (45%)
- **Test equipment**
  Fraunhofer IPA Test machine
- **Measurement Skill**
  To checking the dust dimension of >0.2㎛, >0.3㎛, >0.5㎛, use LPSA210 TYPE machine made by PMS.
- **Test operation and analysis**
  Operated by the guideline of VDI 2083 Part8

NEXT GENERATION CHAIN WITH ORIGINAL TECHNOLOGY!

독자기술로 개발한 차세대 케이블체인!

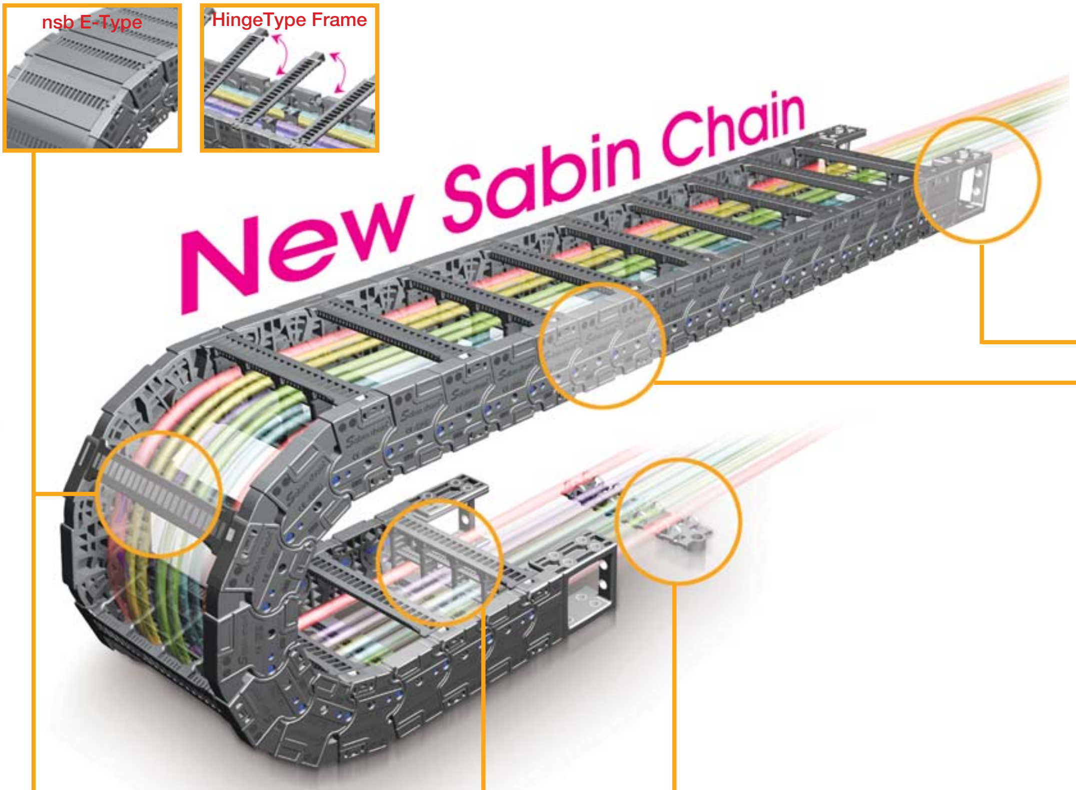


Sabin Chain's patented unique function and design has received a Domestic Patent in Korea as well as International patents from China and the USA, and is under review in Germany and Italy.

Sabin Chain은 독자기술로 개발된 제품으로 미국특허와 중국특허, 국내특허에 등록(CR-Type등록번호 : 10-0587499호, E-Type등록번호 : 10-0838583, S-Type등록번호 : 10-0854053) 되었으며 현재 독일, 이탈리아 국제특허출원을 마쳤습니다.

ARTICLE NAME AND DETAILS OF NEW SABIN CHAIN

/ nsb 구성명칭 및 세부설명



FR (Frames)

Connects the side bands (its structure is Hinge Type), creates protection for cable and application. CR-Type and N-Type use same frame for both of them and E-Type has its own frame. Patented teeth on frame are for the fixing of divider's position.

사이드밴드의 연결지지대 역할을 하며 Hinge Type방식으로 구성되며 CR-Type과 N-Type은 공용으로 사용하며 E-Type은 별도구분하여 사용. 디바이더 고정돌기로 인해 디바이더의 좌, 우 유동 및 이탈을 방지.

SP (Separators)

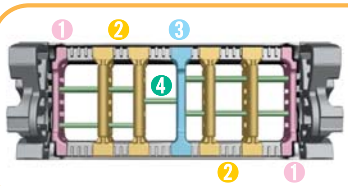
With separators available in lengths from 20mm to 600mm, we are able to custom design the most effective cable pattern for our clients. forthermore, holes every 5mm to match the 5mm grooves in the frame, means creation and application of complicated cable position, which were never a possibility before, can now become a reality giving you the exact cable pattern you need to get the job done safely and effectively.

체인에 입선되는 케이블들을 가로방향으로 분리시켜 케이블의 꼬임과 마찰로 인한 피복손상을 방지하는 역할을 하며 최소20mm~최대600mm까지 설치가능하고 5mm간격으로 절단하여 사용가능.

DV (Dividers)

Dividers (vertical) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separate from each other.
(available on S, R, M type)

체인에 입선되는 케이블들을 세로방향으로 분리시켜 케이블의 꼬임과 마찰로 인한 피복손상을 방지하는 역할을 하며 S, R, M Type으로 구분하여 사용.

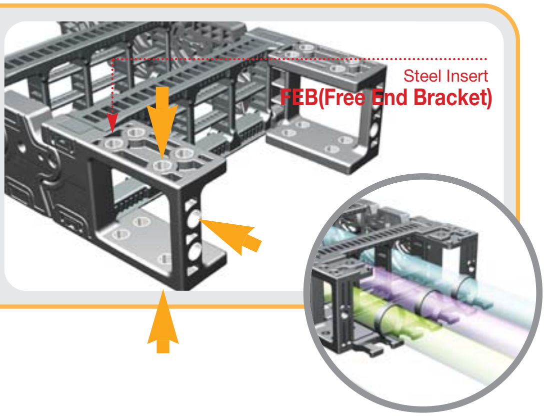


1 DV-S Type
2 DV-R Type
3 DV-M Type
4 Separators(SP)

FEB (Free End Bracket)

Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal Bracket. For added strength, steel spacers are inserted into the fixing holes of each Free End Bracket.

체인을 고정하는 끝단부로 기존 케이블체인의 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높이고 스틸와셔를 결합하여 더욱 견고한 취부가 가능. S-Type의 Moving End Bracke의 경우 S-Type Moving 전용브라켓을 사용.



nsb020, 022, 028, 035 Type (Attach with bracket)

SB (Side Band)

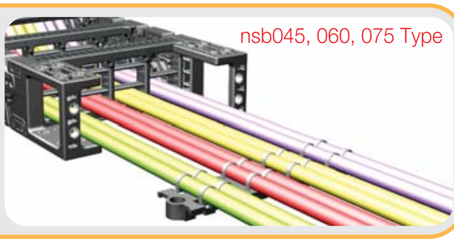
A method connecting sidebands by holding pins holds curvature stress and minimizes surface friction , so as to restrain dust and noise happening as well as to enforce elastic force and durability of the product.

홀딩핀 연결방식으로 비틀림응력을 잡아주고 마찰면을 최소화하여 분진 및 소음발생 억제 및 탄성력과 내구성을 강화시킴.

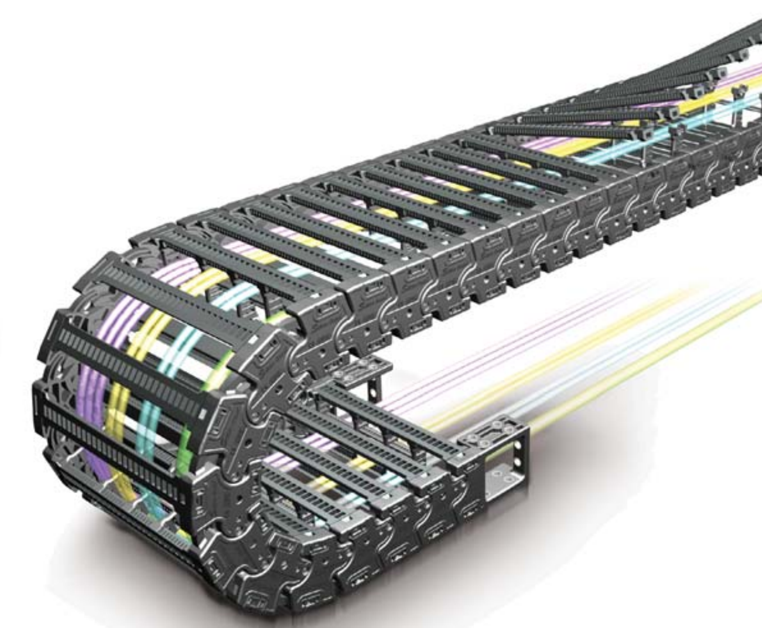
TW (Tiewrap)

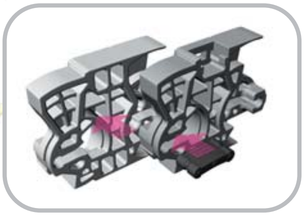
Used to fix the cables in one straight line to prevent twisting during operation. There are two types available depending on the application; attached to bracket and separated from bracket.

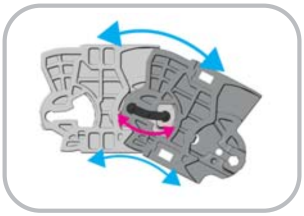
케이블을 고정하기 위해 사용되며 케이블을 일렬로 정렬시키는 역할로 케이블의 엉킴현상을 방지하고 사양에 따라 Free End Bracket 삽입형과 Free End Bracket 분리형으로 구분.



CHARACTERISTIC AND MERIT OF NEW SABIN CHAIN







1 A Creative Holding pin connection method!
독창적인 홀딩핀 결합구조!

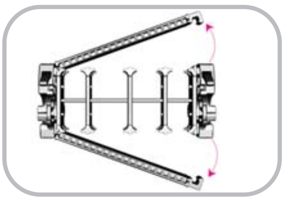
This creative method is our own invention to connect the Side Band by Holding pin.Those two elements could make up the mutual reverse curvature-angle.Holding pin perform not only connection but also does as like deterioration on the curvature stress of the Side Band consequentially.

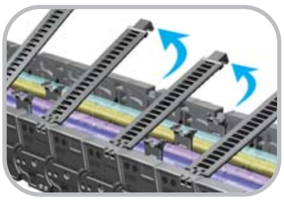
사이드밴드를 홀딩핀으로 결합하는 독창적인 구조는 자체개발한 고유기술로써 사이드밴드와 홀딩핀은 상호 역방향으로 곡률각도를 형성하는 독창적인 구조입니다. 사이드밴드를 연결하는 홀딩핀은 단지 연결수단이 아닌 사이드밴드에 가해지는 비틀림응력을 효과적으로 잡아주는 역할과 함께 사이드밴드를 더욱 견고하게 결합시키는 역할을 합니다.

2 Hinge Frame Type!
더욱 편리한 프레임구조-Hinge Frame Type!

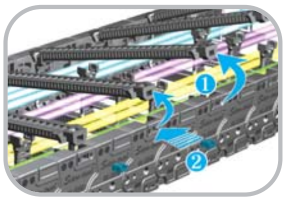
The hinge type frame is created by using the original frame (inserting frame pins) but locking it into place with a ball hinge on one side and making the cables easily accessible by opening the other. Available on New Sabin Chain CR-Type (except nsb020CR and nsb022CR), N-Type, and E-Type (nsb028E and nsb035E). It can open to expose the inserted cables on the topside and underside of the carrier.For nsb045, 060, 075(CR and N Type), frame pins are inserted at both sides to secure the frames in order to prevent from frame open by strong outside impact in any cases.

기존의 프레임핀 삽입방식을 개선한 방식으로 Side Band 의 한 방향에 고정시키고 다른 방향은 열고 닫을수있는 Hinge(경첩)구조로 되어있어 케이블 삽입과 체인조립 및 보수가 편리합니다. Hinge 방식의 Frame은 New Sabin Chain CR-Type (nsb020CR, nsb022CR제외), N-Type , E-Type (nsb028E, nsb035E)에 적용됩니다.(nsb045,060,075E사양은 프레임 고정핀결합방식) Hinge Frame 은 Side Band 위쪽과 아래쪽모두 적용 되어 Cable 삽입이 어느 방향이든지 프레임을 오픈시켜 케이블 입선이 가능한 구조입니다. nsb045, 060, 075(CR,N)사양의 경우 강한충격에도 프레임이 오픈되지 않도록 프레임 한쪽방향으로 프레임 고정핀을 사용하여 프레임을 고정합니다.





nsb028,035 Type

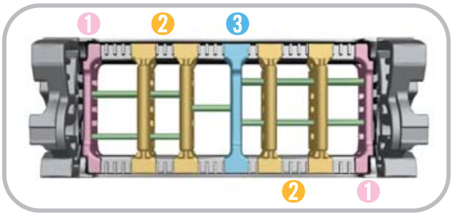


nsb045,060,075 Type

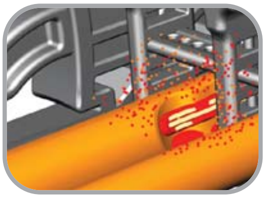
3 Effective Divider Use!
효과적인 디바이더 사용!

Designed to use more effective due to use a three sort of dividers like DV-S Type for Side Divider, DV-R Type for Roller Divider and DV_M Type for Divider using separator pin. DV-S Type for side divider be installed at both side of inner Chain is to be fixed to end part of separator.
The separators are locked into place at each end by the fixing pin traveling through the divider and through the separator respectively, locking it into place. this allows for innumerous possibilities when designing the cable position and opens a door to virtually unlimited combinations. the outer and roller dividers placed against the sidebands offet more strength and more protection from side impact and strengthen the frame for resistance of downward force caused by the weight of the inserted cables, especially in sliding applications. also, dividers with roller which is attached the friction surface of divider and cable prevent damage to the cables and reduce dust.

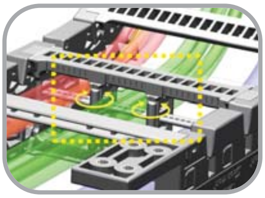
측면전용 디바이더(DV-S Type)와 롤러부착 디바이더(DV-R Type) 그리고 세퍼레이터 핀 사용 디바이더(DV-M Type)로 구분하여 보다 효과적으로 사용할 수 있도록 개발하였습니다.
측면용 디바이더(DV-S Type)는 체인 내부 양측면에 설치하여 세퍼레이터 끝단부를 고정하는 역할을 합니다. 중앙부분에 설치되는 디바이더(DV-R Type, DV-M Type)는 세퍼레이터와 디바이더를 결합하고 세퍼레이터 핀을 관통시켜 디바이더와 세퍼레이터를 고정하는 방식으로 강한 충격에도 이탈되지 않습니다. 또한 롤러부착형 디바이더(DV-R Type)는 케이블과 디바이더의 마찰면에 롤러를 부착하여 마찰면에 의한 케이블의 피복손상을 방지하고 분진발생을 억제하 는 역할을 합니다.



▶DV-R type for Rollor Divider and DV-M Type for Divider using separator pin are applied to nsb045, 060, 075 Type.
롤러디바이더와 세퍼레이터 고정핀방식의 디바이더는 nsb045,060,075 Type에 적용.



▶Damage to the cables and get dust by the friction surface.
마찰면에 의한 케이블 피복손상 및 분진발생 현상.

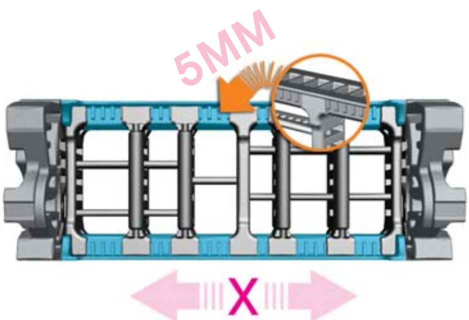


▶Prevent damage to the cables and reduce dust by rotating roller of dividers!
디바이더에 부착된 롤러의 회전으로 케이블과의 마찰로 인한 피복손상과 분진발생 감소 효과!

4 Teeth centered every 5mm eliminate movement during operation!
프레임돌기로 디바이더 좌,우 유동방지!

With teeth positioned every 5mm, Sabin Chain's patented grooves grip the dividers locking them in place and eliminating any left or right movement during operation. Furthermore, your cables are protected from the shock of outside force as the dividers are locked in firmly and securely ensuring that each of your cables center is held intact and preventing sheathing caused by current systems' inability to secure the dividers properly. Stoppers can fall out or become damaged, resulting in more maintenance and down time. With the Sabin Chain divider system, you eliminate the need for small excess parts which can break and possibly gain entry to and damage operating machinery. (applicable to the nsb028, 035, 045, 060, 075 type)

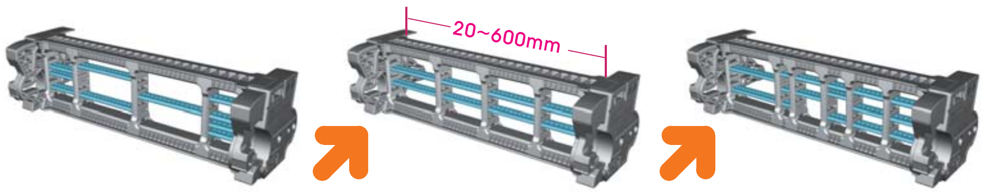
프레임에5mm간격으로 돌기를 형성하고 프레임돌기홈에 디바이더를 결합시키는 구조로 기존 일반체인에서 디바이더가 좌, 우 유동 및 과도한 충격시 디바이더가 넘어져 이탈하는 현상을 완벽하게 차단 합니다. 디바이더의 좌,우 유동 및 이탈현상을 차단함으로써 입선된 케이블을 보다 안전하게 보호하는 역할을 합니다. (nsb 028, 035, 045, 060, 075 Type 에 적용.)



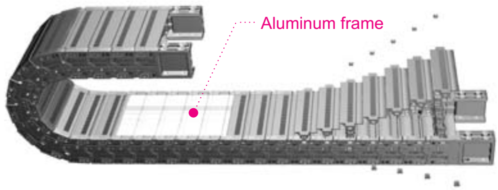
5 Diversity & Functionality Combine in this New Separator and Divider Creation! 디바이더와 세퍼레이터를 활용한 다양한 공간창출!

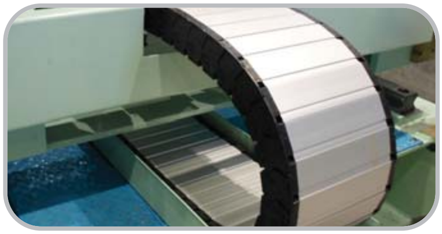
Designed to create more options for customers, the combined use of divider and fixing pin creates innumerous possibilities. With separators available in lengths from 20mm to 600mm we are able to custom design the most effective cable pattern for our clients. Furthermore, holes every 5mm to match the 5mm grooves in the frame, means creation and application of complicated cable positions, which were never a possibility before, can now become a reality giving you the exact cable pattern you need to get the job done safely and effectively.

디바이더와 세퍼레이터의 다양한 조합으로 케이블입선공간의 자유로운 구성이 가능하고, 효율적인 케이블입선이 가능하며 더욱 안전하게 케이블을 보호할 수 있습니다. 특히 세퍼레이터 고정핀을 사용하여 세퍼레이터를 견고히 고정할 수 있도록 설계되었습니다. 세퍼레이터길이는 최소 20mm~ 최대600mm까지 설치가능하며 5mm간격으로 절단사용가능합니다. (nsb 045, 060, 075 Type에 적용.)



6 Applicable to Aluminum frame in Enclosed type! 알루미늄 프레임 적용가능!(nsb E-Type)

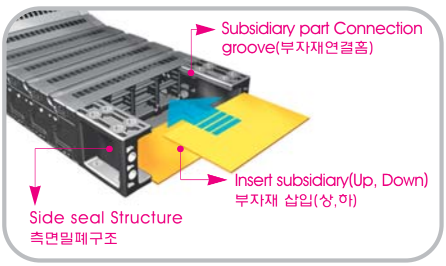




It is specially developed to prevent cables more safely from welding line where excess material can damage your inserted cables by applying aluminium frame to the exist new sabin chain E-type. (applicable to the nsb045E, 060E, 075E type)

New Sabin chain의 밀폐형 Type의 프레임을 기존 재질 이외에 알루미늄 재질을 적용시킨 프레임을 선택할 수 있습니다.
알루미늄재질의 프레임은 용접라인 등에서 발생할 수 있는 위험요소로부터 케이블을 더욱 안전하게 보호할 수 있도록 개발된 특별사양입니다.
(nsb045E, 060E, 075E Type에 적용가능)

7 Made up completely sealed chain with subsidiary parts! 부자재 추가구성으로 완전밀폐실현!



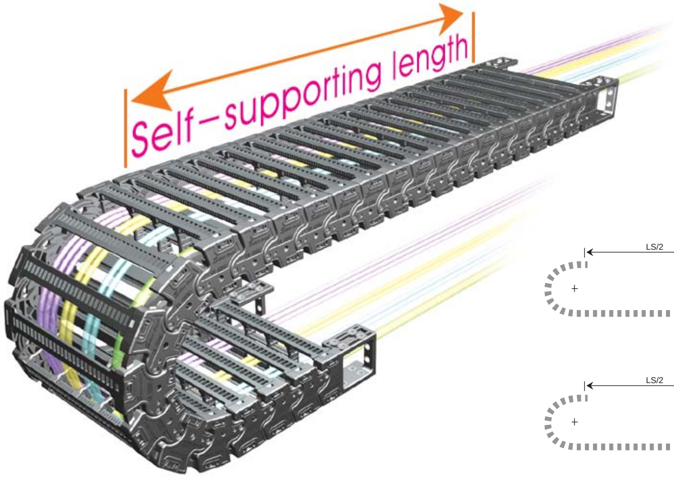
Any contaminants can't get into through the gap of bracket by inserted subsidiary parts in the FEB.

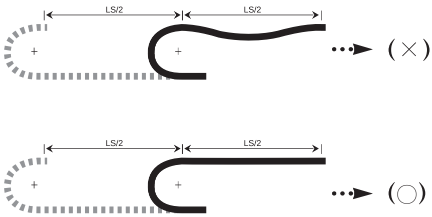
New Sabin chain의 밀폐형 Type의 FEB(브라켓)부분에 부자재를 삽입하여 브라켓부분을 통해 외부 이물질이 체인 안으로 침투하는 현상을 방지하고 완벽한 밀폐로 입선된 케이블을 보호할 수 있습니다.

8 Self-supporting length?

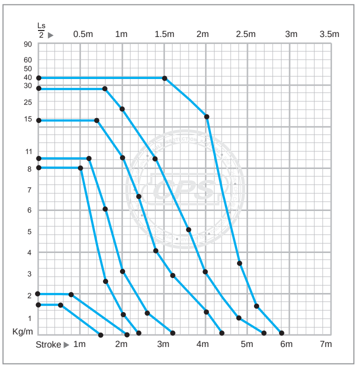
Self-supporting length is chain length(LS/2) which forms straight under set-up condition of the chain and doesn't loose down depending on weight of inserted cables into the cable chain. The Self-supporting length will be different on each models and in general, the bigger size of chain is, the longer self-supporting length it has, so that the self-supporting length must be checked when selecting chains to see if chain installment is available or not.

케이블체인에 입선되는 케이블의 무게에 따라 체인이 쳐지지 않고 설치된 체인이 일직선으로 형성될 수 있는 체인길이(LS/2)를 Self-supporting length라고 하며, 체인사양별로 Self-supporting length는 달라지며 일반적으로 체인사양이 커지면 Self-supporting length도 길어집니다. 따라서 체인선정 시 체인사양별 Self-supporting length를 확인하여 체인설치 가능여부를 체크해야 합니다.

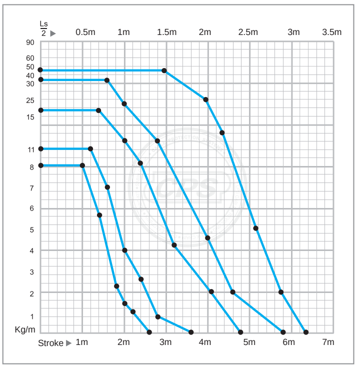




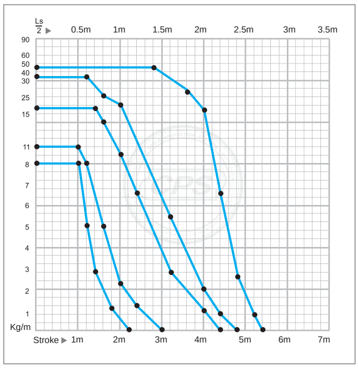
Load diagrams self-supporting length



■ nsb CR–Type ■

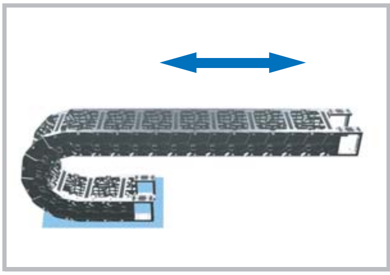


■ nsb N–Type ■



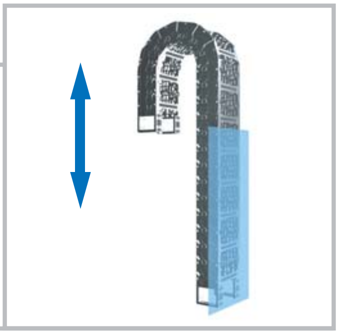
■ nsb E–Type ■

CHAIN APPLICATION STYLES / 체인적용 스타일



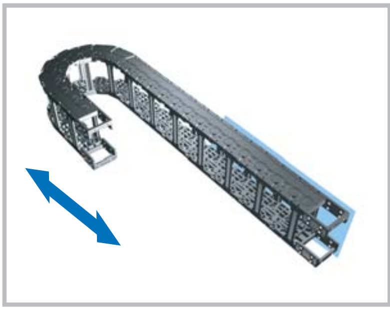
- Horizontal with moving point above.

수평방향 움직임, 운동 방향이 윗쪽인 경우



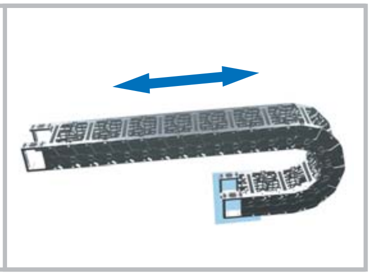
- Vertical with curve above.

수평방향 움직임, 꺾이는 방향이 윗쪽인 경우



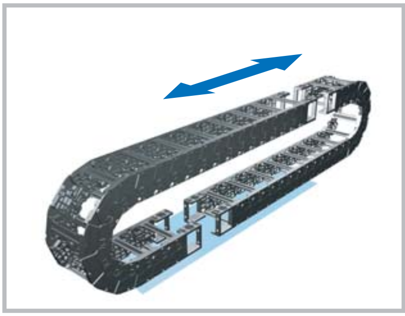
- Horizontal application mounted on its side.

체인의 측면 설치시, 수평방향 움직임



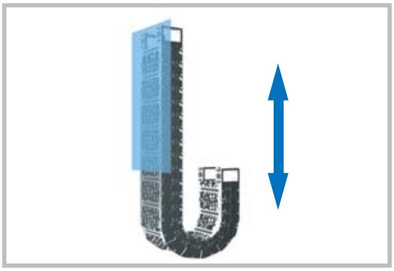
- Horizontal self-supporting/overhanging.

수평방향 움직임, 운동방향 윗쪽 하단부 고정
면이 브라켓 부위에 한정될 경우



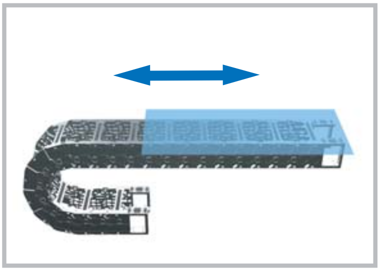
- Opposing movement application.

원형 형태로 체인을 양방향으로 사용하는 경우



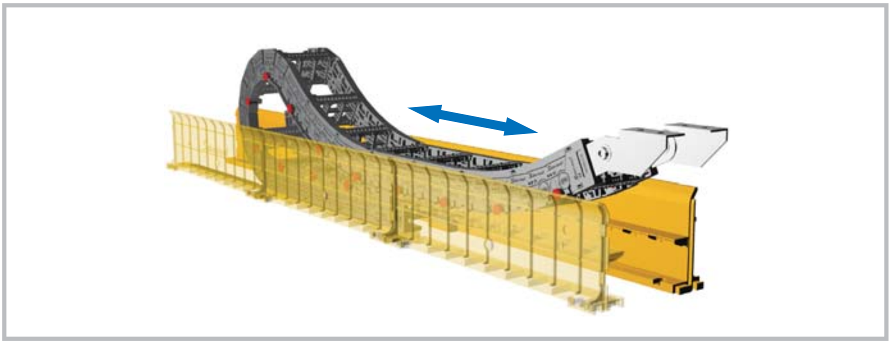
Vertical with curve below.

수평방향 움직임, 꺾이는 방향이 아래쪽인 경우



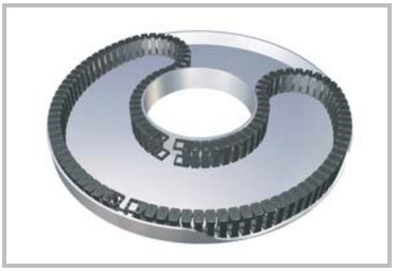
Horizontal with moving point below.

수평방향 움직임, 운동 방향이 윗 아래쪽인 경우



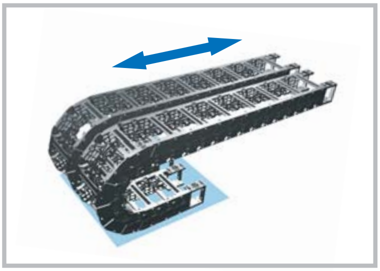
Horizontal sliding application with guide channel.

가이드잔넬에 장착하여 슬라이딩 형태로 수평방향 움직임으로 사용하는 경우



Revolving Chain for special movement.

로테이션 상태로 사용되는 경우



Horizontal application mounted side-by-side.

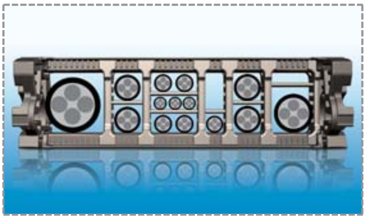
수평방향으로 체인을 평행하게 사용하는 경우

CHAIN INSTALLATION TIPS / Chain 설치방법

New Sabin Chain is perfect for applications including but not limited to production lines, machine tools. robots, press lines, conveyors, loaders, automatic storage systems, printers, train manufacturing, cranes, and more. Developed especially to protect your cables, hoses and or inserted tubes and conduits, New Sabin Chain is used in various applications worldwide.
With the first ever band connection method in Korea, New Sabin Chain is now patented in various countries all over the globe. Low-dust, low-noise, and applicable for speeds of up to15m/sec., New Sabin Chain is the only choice for maximum cable protection. New Sabin Chain's high-quality material make-up combined with continuous discovery and product development has helped to make it the worldwide success that it is today. Virtually any application and virtually any environment are acceptable locations for your next New Sabin Chain installation. For best results, please review the following instructions before installing New Sabin Chain.

New Sabin Chain은 반도체 생산라인, 산업용기계, 로봇, 기계공구, 산업용 용접라인, 컨베이어, 로더, 자동 시스템, 인쇄기계, 철도건설, 크레인, 조선소등에 사용되는 케이블이나 튜브를 보호할 수 있도록 개발되었으며 산업전반에 걸쳐 다양하게 적용되고 있습니다.
국내최초로 밴드결합방식을 채택하여 저분진, 저소음을 실현하고 최대 15m/s의 초고속 이동이가능하고 고품질 엔지니어링 플라스틱 소재로 개발된 Sabin Chain은 어떠한 설치환경에서도 케이블을 완벽하게 보호할 수 있도록 개발된 차세대 케이블체인입니다.
New Sabin Chain을 설치할때는 아래와 같은 방법으로 설치해야 안전하게 케이블을 보호할 수 있습니다.

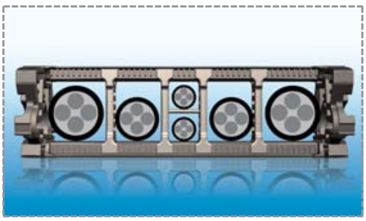
INSTRUCTIONS FOR INSTALLATION OF CABLE



To extend the lifetime of your cables and protect the cables from sheathing or shearing, CPS recommends that as a rule, you keep at least 10% of space between the inserted cables and New Sabin Chain's frames and sidebands. To center and balance each inserted cable, the correct use of New Sabin Chain's new locking divider and separator system is recommended

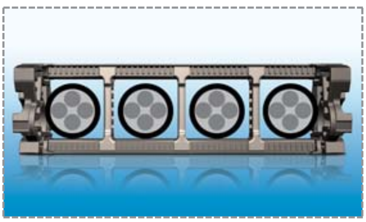
케이블의 직경과 케이블체인 내경 사이에는 10%의 여유공간이 있어야 하며 크기가 다른 여러 케이블이 입선될 시 각 케이블마다 디바이더를 설치하고 케이블간 10%이상의 공간이 있을 시 필히 세퍼레이터를 설치해야 한다.

for round cable:	10% of the cable diameter
for flat cables:	each 10% of the cable width resp. thickness
for hoses:	20% of the hose diameter



Installing more than one size of cable in the same space as a rule is unacceptable. To ensure balance, cables of the same size are to be inserted next to or on top of each other as illustrated, and the inserted cables should be installed with the largest cables or hoses on the outside of the chamber with the smallest on the inside. With the use of New Sabin Chain's new separator pin, virtually any cable pattern is a possibility.

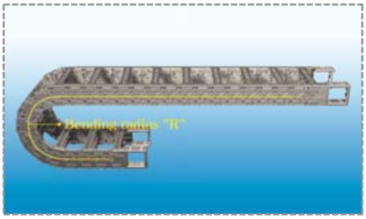
케이블체인 내의 전선배열은 가로1열 배열을 원칙으로 하며 겹쳐서 배열해서는 안된다. 케이블체인내의 전선배열은 체인 바깥쪽에 굵은 크기의 전선을 중앙에 작은 사이즈의 전선을 배열한다.



Cables will retain their exact same shape and position. To ensure effective installation, the cables should be inserted in a straight line and properly centered.

케이블은 케이블체인내에서 일직선으로 배열되어야 하며 그 위치는 체인내부 중앙으로부터 설치하여야 한다.

BENDING RADIUS " R "

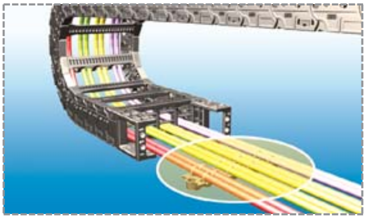


New Sabin Chain's turning radius is larger than that of its inserted cables. To find a suitable bending radius for your application, as a rule you should multiply the outside diameter of your largest inserted cable by 8-10 times.

체인의 회전반경은 케이블 또는 튜브의 곡률반경보다 커야한다. 체인의 R값은 입선될 케이블 중 직경이 가장 큰 케이블의 8~ 10배로 계산한다.

Rmin > 8...10x cable outer diameter
Rmin > 15...20x hose outer diameter

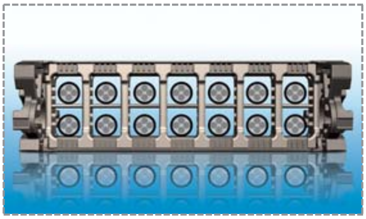
MOUNTING AND FIXING INSERTED CABLES / TUBES



When securing the cables at both the fixing point and the moving point, the tiewrap should be secured at a safe distance. To calculate this distance, multiply the outside diameter of the largest cable by 30 times.

전선을 고정할때 Fixing point 또는 Moving point에서 직경이 가장 큰 적용케이블직경의 약 30배정도 해당하는 위치에 고정시킨다.

DISTRIBUTION OF CABLES AND HOSES



When cables of two different sizes are placed inside the carrier together, if the total outside diameter of the two cables is more than 1.2 times the inner height of the carrier dividers are not necessary. However, when the total outside diameter of the two inserted cables is less than 1.2 times the inner height of the carrier, dividers must be used. When the outside diameter of any cable or hose to be inserted is less than 0.5 times the inner height of the carrier, separators are necessary.

크기가 다른 2개의 케이블의 직경 합이 체인내고의 1.2배 이상일때는 디바이더를 설치하지 않아도 되나 1.2배 이하일때는 반드시 디바이더를 설치하여야 한다. 모든 케이블 또는 호스의 직경이 체인내고 X 0.5 이하인 경우에는 반드시 Separator를 설치하여야 한다.

To ensure that the inserted cables are not twisted at the time of insertion, CPS recommends first unreeling the cables and then making sure that the writing on the cables all line up. In this way, you can ensure that your Sabin Chain will function properly. The straight line is key here.

케이블들은 체인 속에서 서로 꼬이지 않게 일직선으로 배열해야한다.
또한 체인 안에 넣기 전에 통에 말려진 케이블은 손상이 없어야 할 뿐만 아니라 일직선으로 되어야 한다.

APPLICATION IMAGE / 적용이미지

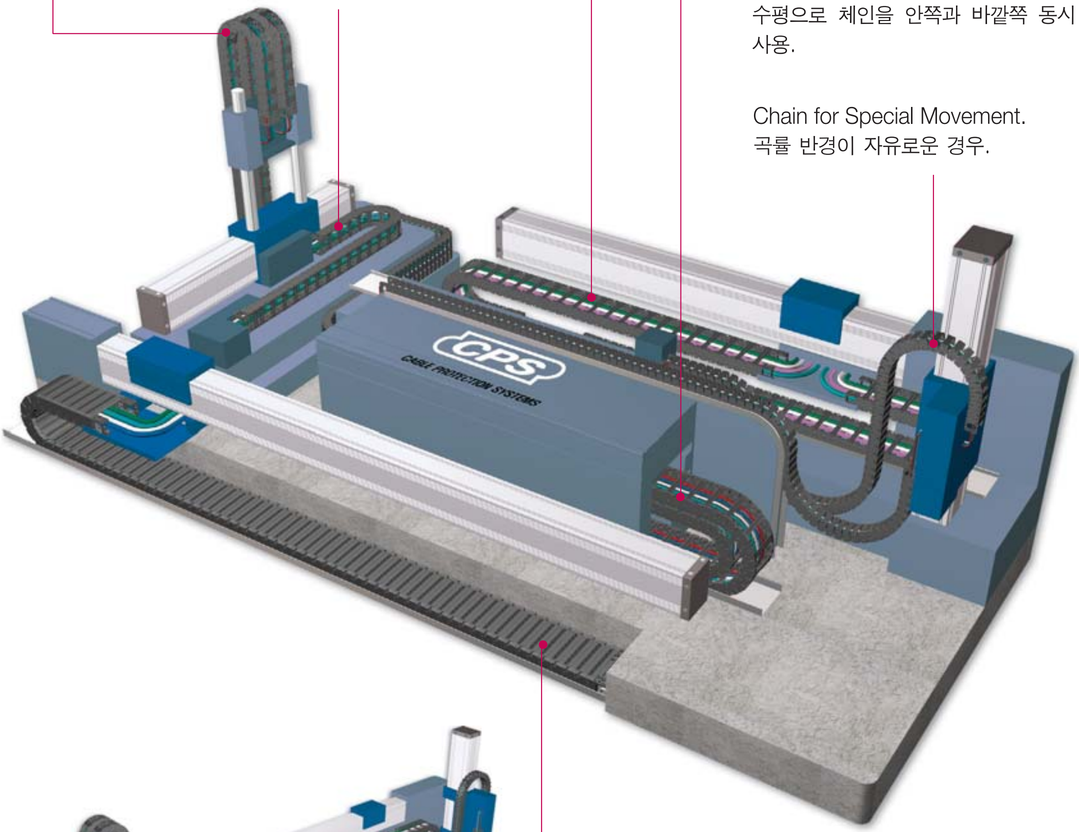
Vertical With Curve Above.
수직방향으로 이동.

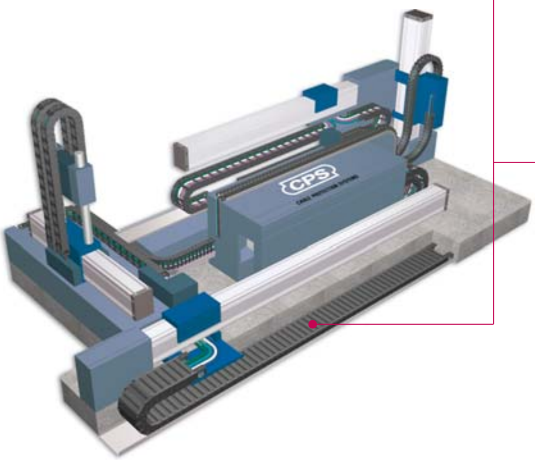
Mounted on Its Side.
체인의 측면설치.

Opposing Movement Application.
원형 형태로 체인을 양방향으로 사용하는 경우.

Horizontal application Mounted In side or Outside.
수평으로 체인을 안쪽과 바깥쪽 동시 사용.

Chain for Special Movement.
곡률 반경이 자유로운 경우.





Horizontal With Moving.
수평방향으로 이동.

CHAIN REQUEST FOR SELECTING SORTS / 체인사양 선정 요청서

DATE. 20 . .

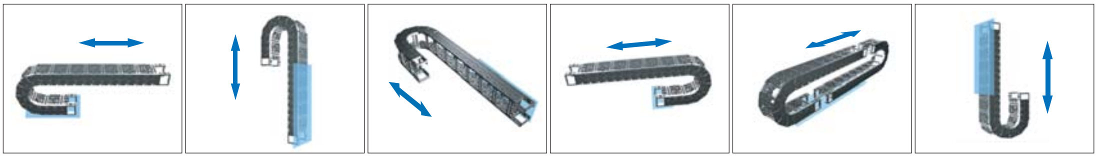
Company (회사명)	Address (주소)
Person in charge (담당자)	TEL / FAX / E-mail

■ Inserted cables inside cable chain (Cable chain에 입선될 케이블사양)

Outer Diameter 외경(Φ)	EA 수량	Bending Radius 허용곡률반경(R)	Kg/m 미터당 중량	Product No. 품 번	Remark 비 고

- Traveling distance of the machine (기계의 이동거리)(S):
- Traveling speed of the machine (기계의 이동속도)(S):
- Traveling speed of the machine (기계의 이동속도)(S):
- Bending radius (허용곡률반경) (R):
- The range of surrounding interference when chain traveling (체인이동시 주위간섭 범위):
- Dividers (세로분리대): YES ☐ NO ☐
- Separators (가로분리대): YES ☐ NO ☐

■ Type of chain installation (chain 설치형태)



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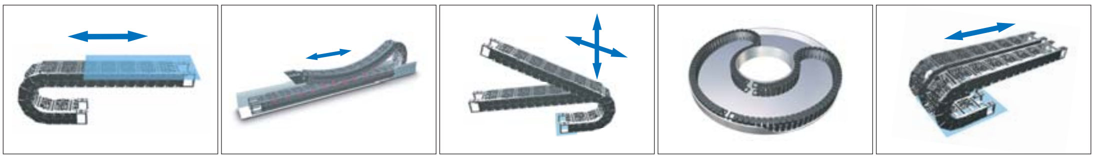

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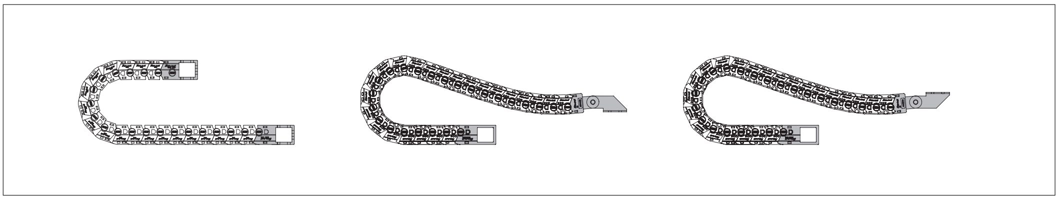
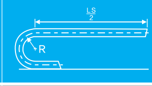
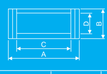
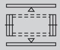
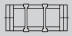
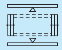
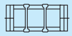
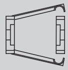
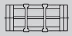
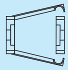
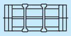
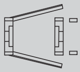
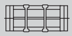
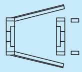
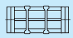
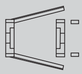
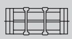
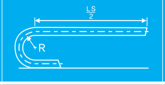
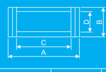
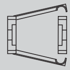
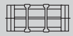
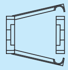
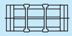
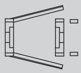
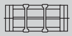
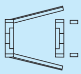
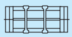
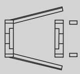
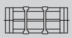


KINDS AND DIMENSIONS / 제품종류와 치수안내 (주문표)

New Sabin Chain CR Type	Pitch	Bending Radius R 	Weight kg / m	Speed m / sec	Temperature °C	Clearance 				Frame style	Divider possible with frame
						A	B	C	D		
nsb 020CR.20	20	28,38,48	0.32	15	−40 ~ +130	34	22	20	15		
nsb 020CR.40	20		0.35			54	22	40	15		
nsb 022CR.16	22	35, 45, 75, 100, 120	0.43	15	−40 ~ +130	30	29	16	22		
nsb 022CR.27	22		0.47			41	29	27	22		
nsb 022CR.37	22		0.51			51	29	37	22		
nsb 022CR.47	22		0.55			61	29	47	22		
nsb 022CR.67	22		0.67			81	29	67	22		
nsb 022CR.77	22		0.69			91	29	77	22		
nsb 028CR.035	28	50, 70, 90, 120, 150	0.90	15	−40 ~ +130	55	38	35	26		
nsb 028CR.050	28		0.98			70	38	50	26		
nsb 028CR.055	28		1.02			75	38	55	55		
nsb 028CR.075	28		1.12			95	38	75	26		
nsb 028CR.100	28		1.27			120	38	100	26		
nsb 028CR.125	28		1.41			145	38	125	26		
nsb 028CR.150	28		1.59			170	38	150	26		
nsb 028CR.175	28		1.74			195	38	175	26		
nsb 028CR.200	28		1.84			220	38	200	26		
nsb 035CR.035	35	75, 100, 125, 150, 200	1.00	15	−40 ~ +130	55	52	35	40		
nsb 035CR.050	35		1.06			70	52	50	40		
nsb 035CR.055	35		1.09			75	52	55	40		
nsb 035CR.075	35		1.17			95	52	75	40		
nsb 035CR.100	35		1.29			120	52	100	40		
nsb 035CR.125	35		1.39			145	52	125	40		
nsb 035CR.150	35		1.53			170	52	150	40		
nsb 035CR.175	35		1.65			195	52	175	40		
nsb 035CR.200	35		1.73			220	52	200	40		
nsb 045CR.050	45	75, 100, 120,140, 200, 250, 300	2.59	15	−40 ~ +130	80	70	50	49		
nsb 045CR.075	45		2.74			105	70	75	49		
nsb 045CR.100	45		2.90			130	70	100	49		
nsb 045CR.125	45		3.11			155	70	125	49		
nsb 045CR.150	45		3.31			180	70	150	49		
nsb 045CR.175	45		3.48			205	70	175	49		
nsb 045CR.200	45		4.18			230	70	200	49		
nsb 045CR.250	45		4.76			280	70	250	49		
nsb 045CR.300	45		5.32			330	70	300	49		
nsb 060CR.075	60	125, 140, 190, 220, 270, 390	3.56	15	−40 ~ +130	115	82	75	56		
nsb 060CR.100	60		3.66			140	82	100	56		
nsb 060CR.125	60		3.97			165	82	125	56		
nsb 060CR.150	60		4.16			190	82	150	56		
nsb 060CR.175	60		4.33			215	82	175	56		
nsb 060CR.200	60		4.64			240	82	200	56		
nsb 060CR.250	60		5.06			290	82	250	56		
nsb 060CR.300	60		5.48			340	82	300	56		
nsb 060CR.350	60		6.09			390	82	350	56		
nsb 060CR.400	60		6.66			440	82	400	56		
nsb 075CR.075	75	180, 200, 250, 300, 350, 400, 500	5.37	15	−40 ~ +130	115	108	75	78		
nsb 075CR.100	75		5.57			140	108	100	78		
nsb 075CR.125	75		5.82			165	108	125	78		
nsb 075CR.150	75		6.01			190	108	150	78		
nsb 075CR.175	75		6.26			215	108	175	78		
nsb 075CR.200	75		6.68			240	108	200	78		
nsb 075CR.250	75		7.22			290	108	250	78		
nsb 075CR.300	75		7.94			340	108	300	78		
nsb 075CR.350	75		8.67			390	108	350	78		
nsb 075CR.400	75		9.43			440	108	400	78		
nsb 075CR.450	75		10.01			490	108	450	78		
nsb 075CR.500	75		10.41			540	108	500	78		
nsb 075CR.550	75		11.88			590	108	550	78		
nsb 075CR.600	75		12.17			640	108	600	78		

KINDS AND DIMENSIONS / 제품종류와 치수안내 (주문표)

New Sabin Chain N Type	Pitch	Bending Radius R 	Weight kg / m	Speed m / sec	Temperature °C	Clearance  A	B	C	D	Frame style	Divider possible with frame
nsb 028N.035	28	46, 66, 86, 116, 146	0.79	15	−40 ~ +130	55	38	35	26		
nsb 028N.050	28		0.82			70	38	50	26		
nsb 028N.055	28		0.85			75	38	55	55		
nsb 028N.075	28		0.90			95	38	75	26		
nsb 028N.100	28		0.98			120	38	100	26		
nsb 028N.125	28		1.08			145	38	125	26		
nsb 028N.150	28		1.18			170	38	150	26		
nsb 028N.175	28		1.45			195	38	175	26		
nsb 028N.200	28		1.59			220	38	200	26		
nsb 035N.035	35	55, 65, 90, 115, 140, 190	1.10	15	−40 ~ +130	55	52	35	40		
nsb 035N.050	35		1.13			70	52	50	40		
nsb 035N.055	35		1.15			75	52	55	40		
nsb 035N.075	35		1.18			95	52	75	40		
nsb 035N.100	35		1.25			120	52	100	40		
nsb 035N.125	35		1.32			145	52	125	40		
nsb 035N.150	35		1.41			170	52	150	40		
nsb 035N.175	35		1.62			195	52	175	40		
nsb 035N.200	35		1.72			220	52	200	40		
nsb 045N.050	45	90, 110, 135, 165, 185, 235, 285	2.06	15	−40 ~ +130	80	66	50	45		
nsb 045N.075	45		2.14			105	66	75	45		
nsb 045N.100	45		2.22			130	66	100	45		
nsb 045N.125	45		2.32			155	66	125	45		
nsb 045N.150	45		2.42			180	66	150	45		
nsb 045N.175	45		2.51			205	66	175	45		
nsb 045N.200	45		2.86			230	66	200	45		
nsb 045N.250	45		3.15			280	66	250	45		
nsb 045N.300	45		3.43			330	66	300	45		
nsb 060N.075	60	125, 135, 150, 180 230, 270, 340	3.30	15	−40 ~ +130	115	82	75	56		
nsb 060N.100	60		3.35			140	82	100	56		
nsb 060N.125	60		3.51			165	82	125	56		
nsb 060N.150	60		3.60			190	82	150	56		
nsb 060N.175	60		3.69			215	82	175	56		
nsb 060N.200	60		3.84			240	82	200	56		
nsb 060N.250	60		4.05			290	82	250	56		
nsb 060N.300	60		4.26			340	82	300	56		
nsb 060N.350	60		4.57			390	82	350	56		
nsb 060N.400	60		4.85			440	82	400	56		
nsb 075N.075	75	160, 180, 230, 280, 330, 380, 480	4.80	15	−40 ~ +130	115	108	75	78		
nsb 075N.100	75		4.90			140	108	100	78		
nsb 075N.125	75		5.02			165	108	125	78		
nsb 075N.150	75		5.12			190	108	150	78		
nsb 075N.175	75		5.25			215	108	175	78		
nsb 075N.200	75		5.46			240	108	200	78		
nsb 075N.250	75		5.72			290	108	250	78		
nsb 075N.300	75		6.09			340	108	300	78		
nsb 075N.350	75		6.45			390	108	350	78		
nsb 075N.400	75		6.83			440	108	400	78		
nsb 075N.450	75		7.12			490	108	450	78		
nsb 075N.500	75		7.32			540	108	500	78		
nsb 075N.550	75		8.06			590	108	550	78		
nsb 075N.600	75		8.20			640	108	600	78		

KINDS AND DIMENSIONS / 제품종류와 치수안내 (주문표)

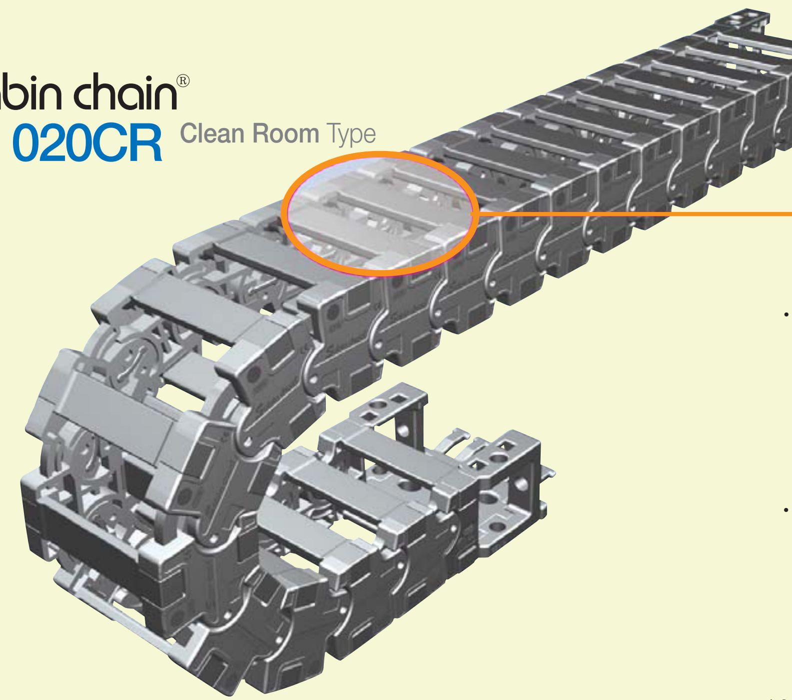
New Sabin Chain E Type	Pitch	Bending Radius R	Weight kg / m	Speed m / sec	Temperature °C	Clearance				Frame style	Divider possible with frame
						A	B	C	D		
nsb 028E.035 nsb 028E.055 nsb 028E.075 nsb 028E.100	28 28 28 28	66, 86, 116, 146	1.00 1.13 1.30 1.50	15	−40 ~ +130	55 75 95 120	38 38 38 38	35 55 75 100	26 26 26 26		
nsb 035E.050 nsb 035E.075 nsb 035E.100 nsb 035E.125 nsb 035E.150	35 35 35 35 35	90, 115, 140, 190	1.45 1.64 1.83 2.06 2.28	15	−40 ~ +130	70 95 120 145 170	52 52 52 52 52	50 75 100 125 150	40 40 40 40 40		
nsb 045E.075 nsb 045E.100 nsb 045E.125 nsb 045E.150	45 45 45 45	90, 110, 135, 165, 185, 235, 285	2.78 3.07 3.35 3.58	15	−40 ~ +130	105 130 155 180	66 66 66 66	75 100 125 150	45 45 45 45		
nsb 060E.100 nsb 060E.150 nsb 060E.200	60 60 60	125, 135, 150, 180 230, 270, 340	4.32 4.86 5.41	15	−40 ~ +130	140 190 240	82 82 82	100 150 200	56 56 56		
nsb 075E.150 nsb 075E.200 nsb 075E.300	75 75 75	160, 180, 230, 280, 330, 380, 480	7.01 7.97 9.48	15	−40 ~ +130	190 240 340	108 108 108	150 200 300	78 78 78		

Sabin chain®

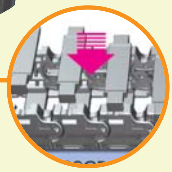
CR TYPE : Clean Room

Min Max

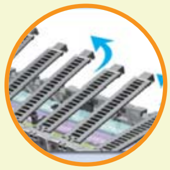
Sabin chain®
nsb 020CR Clean Room Type



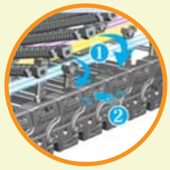
• Frames are assembled at every link. (각 링크마다 프레임 결합방식)



• nsb020CR, nsb022CR •



• nsb028CR, nsb035CR •



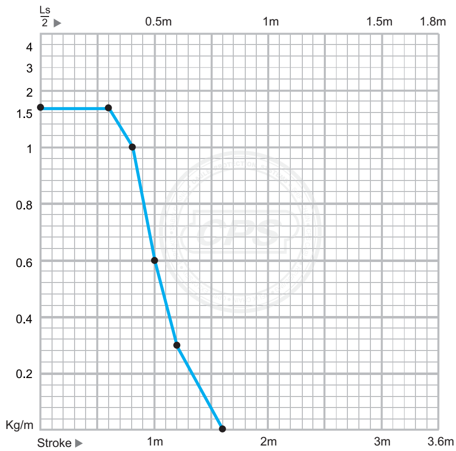
• nsb045CR, nsb060CR, nsb075CR •

MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise:** TUV Test 30 dB (DIN EN61672-1)
- **Low Mote:** IPA Test VDI 2083 CLASS 1
  DIN EN 14644-1 ISO CLASS 3
- **Speed :** 15m/sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 1.0m
  Vertical curve below= max 5m
  Side Mounted, Unsupported= max 0.5m
- **Applications**
  Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Reqlulation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

  CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기계 등 에 적용.

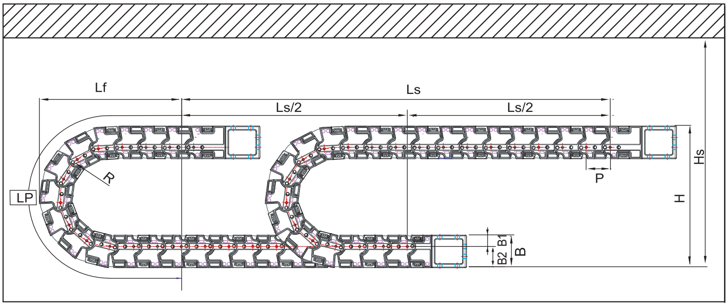
Load diagrams self-supporting length



Calculation of the chain length

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
L f: Loop Projection
Hs: Safe Space

---

nsb 020CR Type

Pitch P: 20mm
Height B: 22mm
Height H: 2R+23mm
Hs≧**H+30mm**
B1: 10.5mm B2:11.5mm

(Dimensions in mm)

Bending radius R	-	-	28	38	48
Lp	-	-	162	202	242
L f	-	-	76	90	105
H	-	-	79	99	119

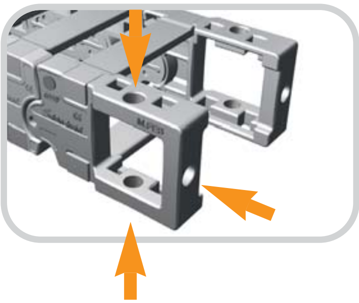
ORDERING (주문방법)

nsb 020CR. 20. R48 / F - 600L: 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
클린룸타입	Clean Room Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

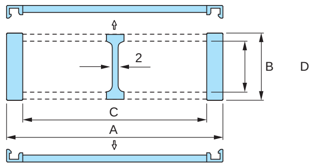
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

*Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

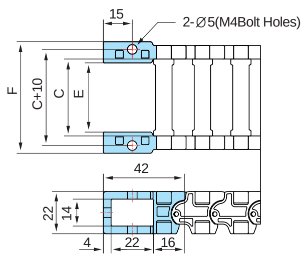
nsb 020CR Clean Room Type

CHAIN CROSS SECTION

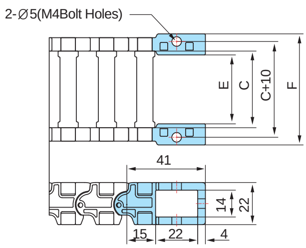


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 020CR.20 nsb 020CR.40	34 54	22	20 40	15	28, 38, 48	0.32 0.35

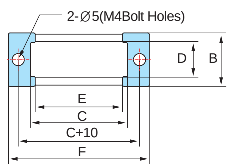
FREE END BRACKET



nsb020CR Fixing point

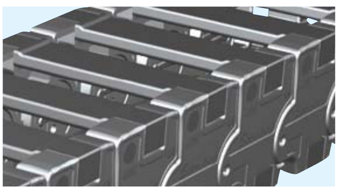


nsb020CR Moving point

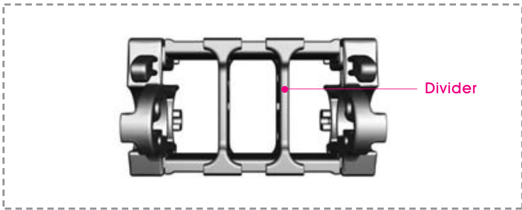


nsb020CR Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 020CR.20 nsb 020CR.40	38 58	22	20 40	15	-	M4 Bolt Holes



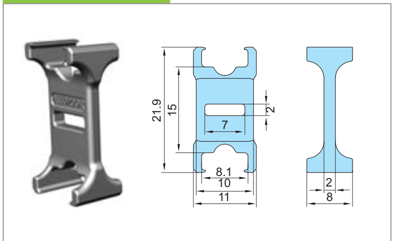
DIVIDERS



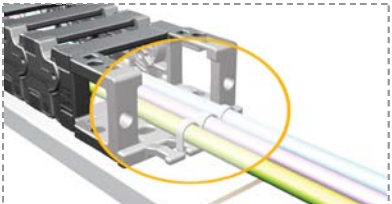
Dividers (Vertical) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separate from each other. The use of the dividers can reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule there needs to be at least 10% space between the inserted cable and its enclosure. Also, for nsb020CR and 022CR, Separators (Horizontal) are not used but dividers (Vertical) are only used to divide space in the inner chamber of the cable chain.

디바이더(세로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다. 또한 nsb020CR, 022CR의 경우 세퍼레이터(가로분리대)는 사용하지 않고 디바이더만 사용하여 체인 내 공간을 분리합니다.

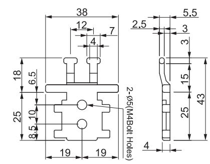
nsb020CR DV-M



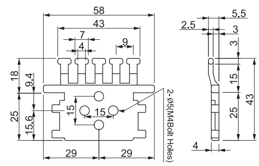
TIE WRAP



Attach to Bracket (브라켓 결합용)



nsb-TW020.20



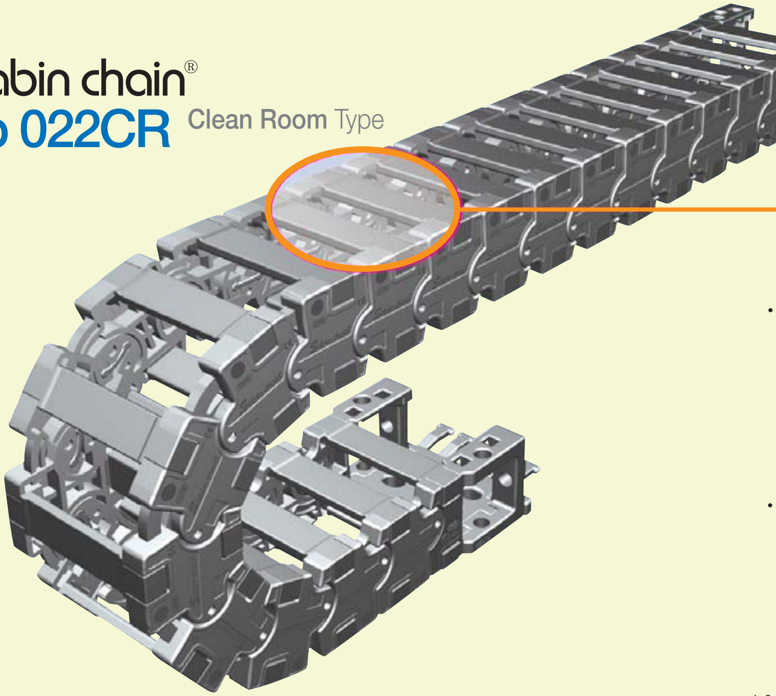
nsb-TW020.40

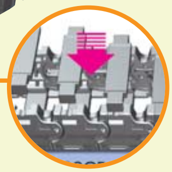
The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Sabin Chain 체인의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인 내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다.

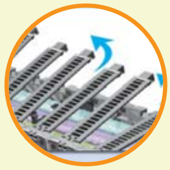
Min ●●●●●●● Max

Sabin chain®
nsb 022CR Clean Room Type

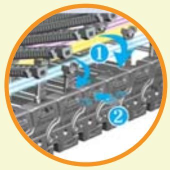




• nsb020CR, nsb022CR •



• nsb028CR, nsb035CR •



• nsb045CR, nsb060CR, nsb075CR •

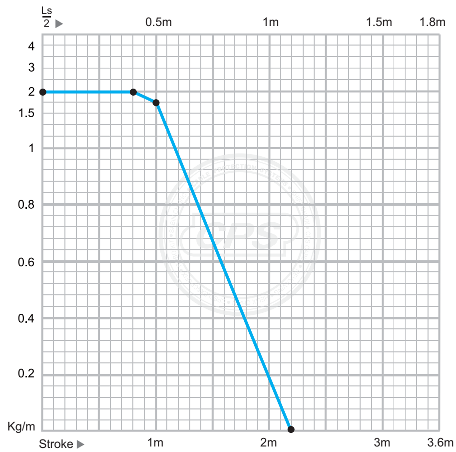
• Frames are assembled at every link. (각 링크마다 프레임 결합방식)

MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise:** TUV Test 30 dB (DIN EN 61672-1)
- **Low Mote:** IPA Test VDI 2083 CLASS 1
  DIN EN 14644-1 ISO CLASS 3
- **Speed :** 15m / sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 1.0m
  Vertical curve below= max 5m
  Side Mounted, Unsupported= max 0.5m
- **Applications**
  Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Requlation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

  CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기계 등 에 적용.

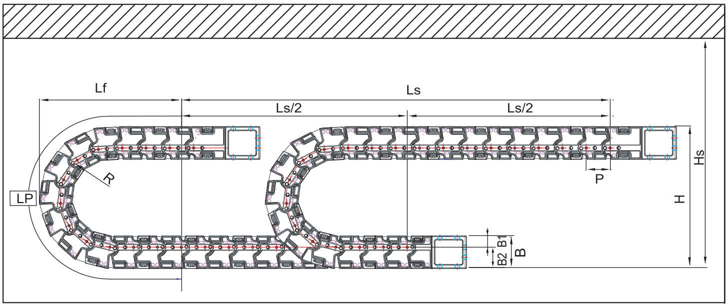
Load diagrams self-supporting length



Calculation of the chain length

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

nsb 022CR Type

Pitch P: 22mm
Height B: 29mm
Height H: 2R+36mm
Hs≧H+30mm
B1: 11mm B2:18mm

(Dimensions in mm)

Bending radius R	35	45	75	100	120
Lp	222	266	353	441	485
L f	108	125	152	182	192
H	106	126	186	236	276

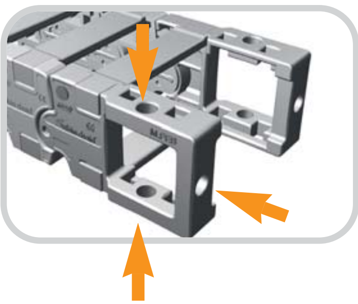
ORDERING (주문방법)

nsb 022CR. 47. R45 / F - 846L: 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
클린룸타입	Clean Room Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

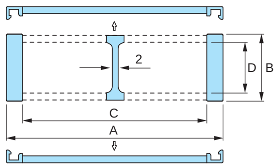
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

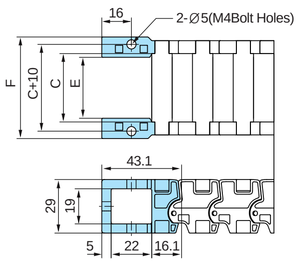
nsb 022CR Clean Room Type

CHAIN CROSS SECTION

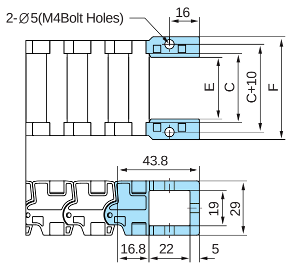


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 022CR.16	30	29	16	22	35, 45, 75, 100, 120	0.43
nsb 022CR.27	41		27			0.47
nsb 022CR.37	51		37			0.51
nsb 022CR.47	61		47			0.55
nsb 022CR.67	81		67			0.67
nsb 022CR.77	91		77			0.69

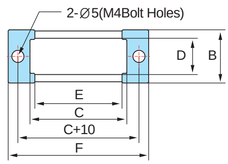
FREE END BRACKET



nsb022CR Fixing point



nsb022CR Moving point

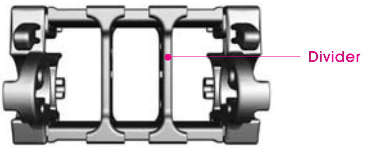


nsb022CR Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 022CR.16	34	29	16	22	12	M4 Bolt Holes
nsb 022CR.27	45		27		23	
nsb 022CR.37	55		37		33	
nsb 022CR.47	65		47		43	
nsb 022CR.67	85		67		63	
nsb 022CR.77	95		77		73	

nsb 022CR Clean Room Type

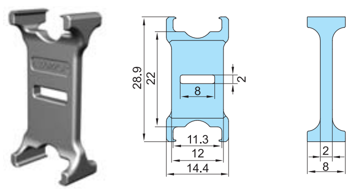
DIVIDERS



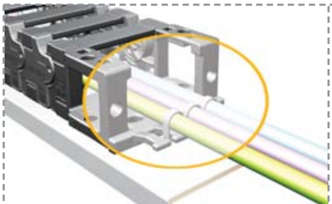
Dividers (Vertical) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separate from each other. The use of the dividers can reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule there needs to be at least 10% space between the inserted cable and its enclosure. Also, for nsb020CR and 022CR, Separators (Horizontal) are not used but dividers (Vertical) are only used to divide space in the inner chamber of the cable chain.

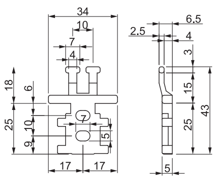
디바이더(세로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다. 또한 nsb020CR, 022CR의 경우 세퍼레이터(가로분리대)는 사용하지 않고 디바이더만 사용하여 체인 내 공간을 분리합니다.

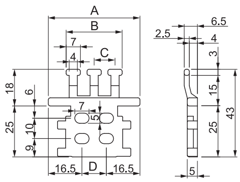
nsb022CR DV-M



TIE WRAP


Attach to Bracket (브라켓 결합용)


nsb-TW022.16


nsb-TW022.27/37/47/67/77

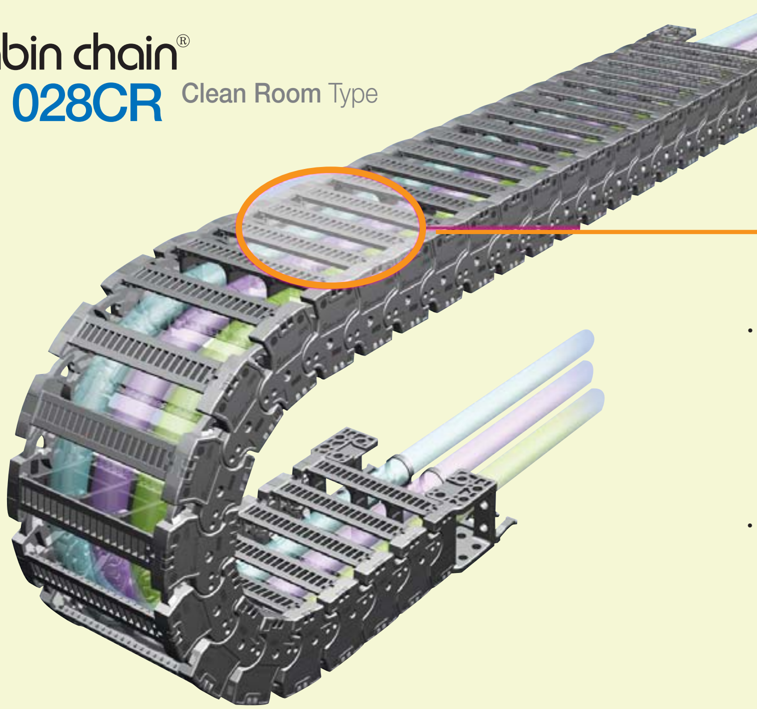
	16	27	37	47	67	77
A	-	45.0	55.0	65.0	85	95
B	-	27.5	41.0	48.0	68	78
C	-	10.2	8.5	10.4	10	8.87
D	-	12.0	22.0	32.0	52	62

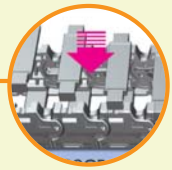
The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap; Attached & Unattached to the brakcet.

Tie Wrap은 Sabin Chain의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지 할 수 있다. Sabin Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.

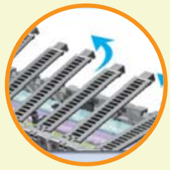
Min ●●●○○○○ Max

Sabin chain®
nsb 028CR Clean Room Type

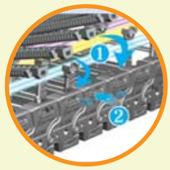




• nsb020CR, nsb022CR •



• nsb028CR, nsb035CR •



• nsb045CR, nsb060CR, nsb075CR •

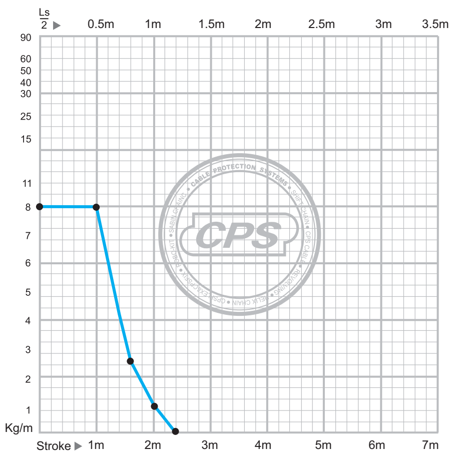
• Frames are assembled at every link. (각 링크마다 프레임 결합방식)

MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise:** TUV Test 30 dB (DIN EN 61672-1)
- **Low Mote:** IPA Test VDI 2083 CLASS 1
  DIN EN 14644-1 ISO CLASS 3
- **Speed :** 15m / sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 2.0m
  Vertical curve below= max 40m
  Side Mounted, Unsupported= max 1.0m
- **Applications**
  Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Reqlation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

  CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기계 등 에 적용.

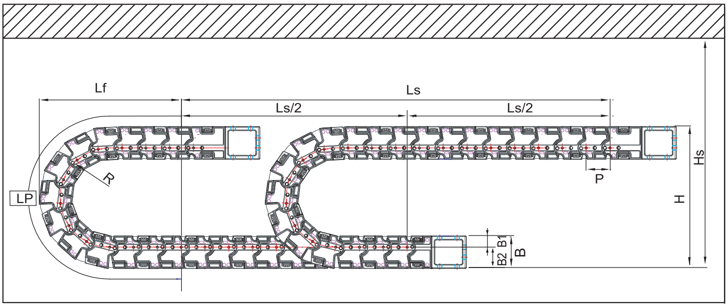
● Load diagrams self-supporting length



● Calculation of the chain length

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

nsb 028CR Type

Pitch P: 28mm
Height B: 38mm
Height H: 2R+46mm
Hs≧ H+30mm
B1: 15mm B2: 23mm

(Dimensions in mm)

Bending radius R	50	70	90	120	150
Lp	311	367	422	533	589
L f	149	135	182	221	232
H	146	186	226	286	346

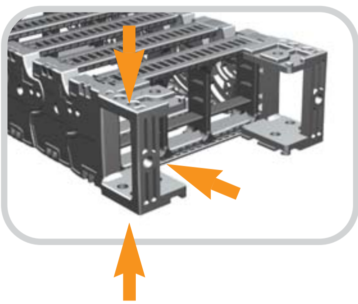
ORDERING (주문방법)

nsb 028CR. 075. R70 / F - 1000L: 10ST

주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
클린룸타입	Clean Room Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

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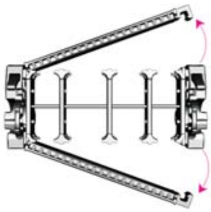
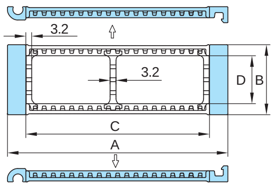
nsb 028CR Clean Room Type

CHAIN CROSS SECTION

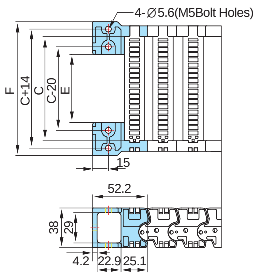


• Hinge Type

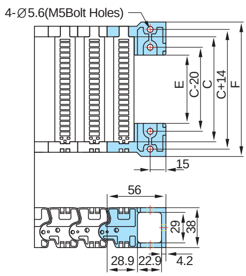


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 028CR.035	55		35			0.90
nsb 028CR.050	70		50			0.98
nsb 028CR.055	75		55			1.02
nsb 028CR.075	95		75			1.12
nsb 028CR.100	120	38	100	26	50, 70, 90, 120, 150	1.27
nsb 028CR.125	145		125			1.41
nsb 028CR.150	170		150			1.59
nsb 028CR.175	195		175			1.74
nsb 028CR.200	220		200			1.84

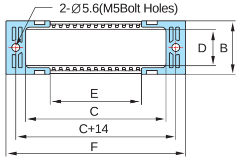
FREE END BRACKET



nsb028CR Fixing point



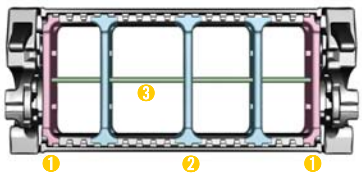
nsb028CR Moving point



nsb028CR Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 028CR.035	63		35		0	
nsb 028CR.050	78		50		15	
nsb 028CR.055	83		55		20	
nsb 028CR.075	103		75		40	
nsb 028CR.100	128	38	100	26	65	M5 Bolt Holes
nsb 028CR.125	153		125		90	
nsb 028CR.150	178		150		115	
nsb 028CR.175	203		175		140	
nsb 028CR.200	228		200		165	

DIVIDERS & SEPARATORS

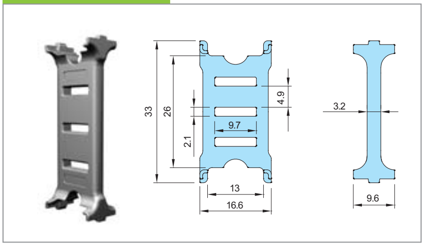


❶ DV-S (측면전용디바이더)
❷ DV-M
❸ Separator(SP)

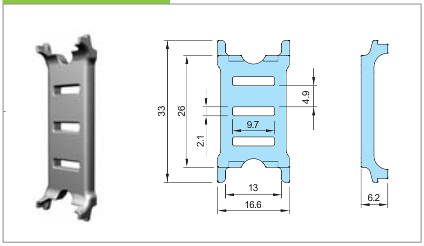
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

nsb028CR DV-M



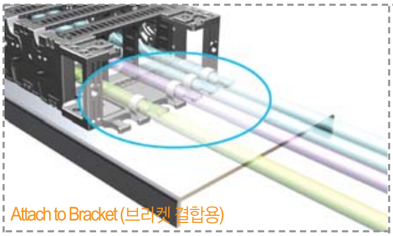
nsb028CR DV-S

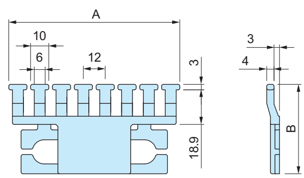


nsb028CR Separators (SP) (No. : S-SP/M)

Chain Type \ Separators	SP 035	SP 050	SP 055	SP 075	SP 100	SP 125	SP 150	SP 175	SP 200
nsb028CR	○	○	○	○	○	○	○	○	○
nsb035CR	○	○	○	○	○	○	○	○	○

TIE WRAP





(Dimensions in mm)

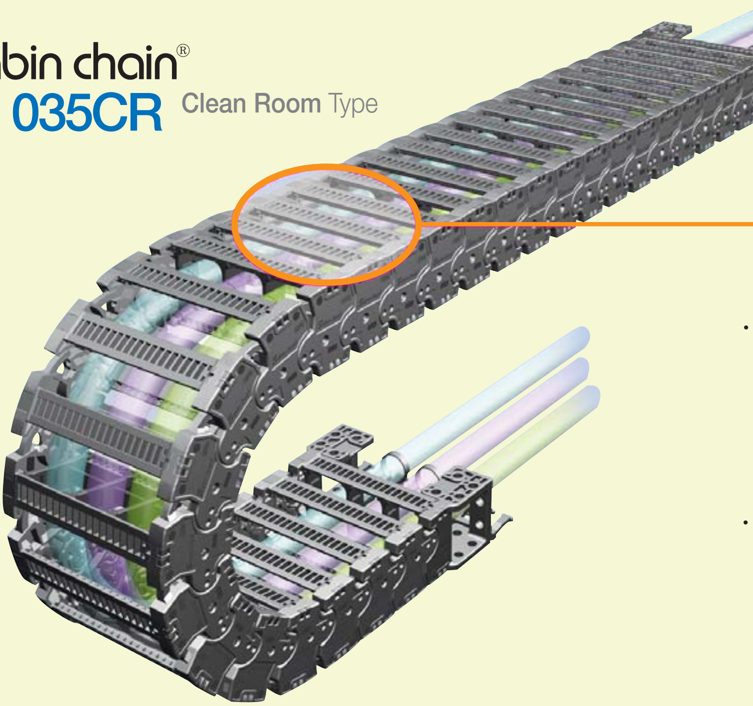
The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap; Attached & Unattached to the brakcet.

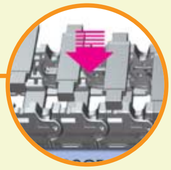
Tie Wrap	035	055	075	100	125
A	46	70	94	118	142
B	35.4	48.9	48.9	48.9	48.9

Tie Wrap은 Sabin Chain 의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Sabin Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양 과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.

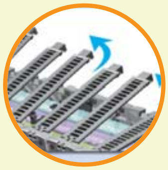
Min ●●●●○○○ Max

Sabin chain®
nsb 035CR Clean Room Type

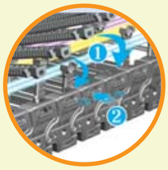




• nsb020CR, nsb022CR •



• nsb028CR, nsb035CR •



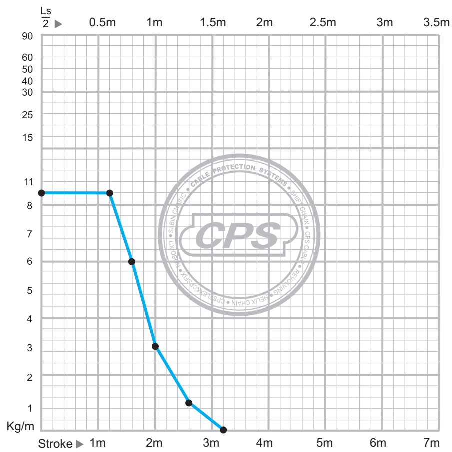
• nsb045CR, nsb060CR, nsb075CR •

MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise:** TUV Test 30 dB (DIN EN 61672-1)
- **Low Mote:** IPA Test VDI 2083 CLASS 1
  DIN EN 14644-1 ISO CLASS 3
- **Speed :** 15m / sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 3.0m
  Vertical curve below= max 50m
  Side Mounted, Unsupported= max 1.0m
- **Applications**
  Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Reqlation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

  CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기계 등 에 적용.

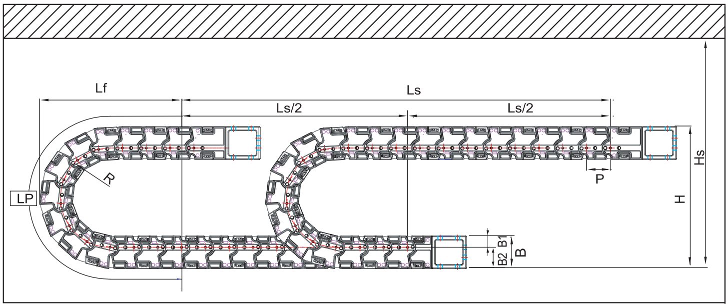
● Load diagrams self-supporting length



● Calculation of the chain length

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	75	100	125	150	200
Lp	471	550	628	706	863
L f	226	251	276	301	351
H	218	268	318	368	468

nsb 035CR Type

Pitch P: 35mm
Height B: 52mm
Height H: 2R+68mm
Hs≧ H+30mm
B1: 18mm B2: 34mm

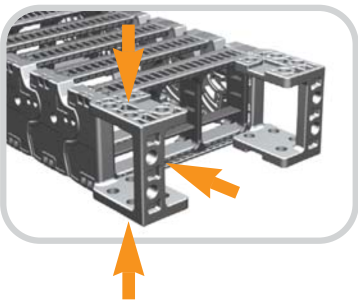
ORDERING (주문방법)

nsb 035CR. 100. R75 / F - 1200L: 10ST

주문수량	Q' ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
클린룸타입	Clean Room Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

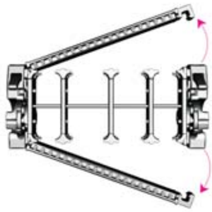
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

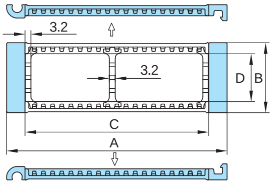
▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

nsb 035CR Clean Room Type

CHAIN CROSS SECTION

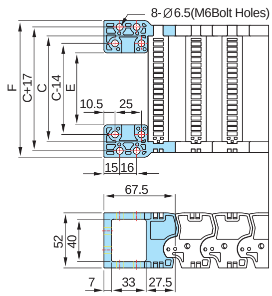


• Hinge Type

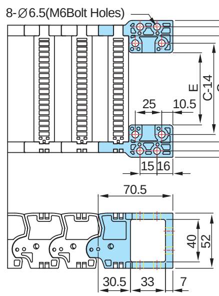


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 035CR.035	55		35			1.00
nsb 035CR.050	70		50			1.06
nsb 035CR.055	75		55			1.09
nsb 035CR.075	95		75			1.17
nsb 035CR.100	120	52	100	40	75, 100, 125, 150, 200	1.29
nsb 035CR.125	145		125			1.39
nsb 035CR.150	170		150			1.53
nsb 035CR.175	195		175			1.65
nsb 035CR.200	220		200			1.73

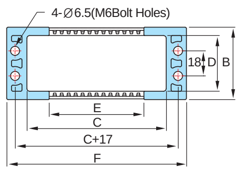
FREE END BRACKET



nsb035CR Fixing point



nsb035CR Moving point

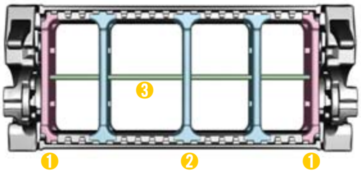


nsb035CR Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 035CR.035	64		35		3	
nsb 035CR.050	79		50		18	
nsb 035CR.055	84		55		23	
nsb 035CR.075	104		75		43	
nsb 035CR.100	129	52	100	40	68	M6 Bolt Holes
nsb 035CR.125	154		125		93	
nsb 035CR.150	179		150		118	
nsb 035CR.175	204		175		143	
nsb 035CR.200	229		200		168	

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

DIVIDERS & SEPARATORS

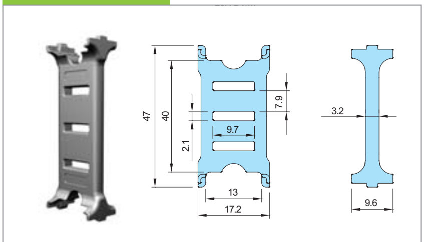


1 DV-S (측면전용디바이더)
2 DV-M
3 Separator(SP)

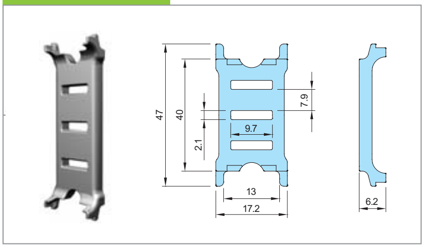
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

nsb035CR DV-M



nsb035CR DV-S



nsb035CR Separators (SP) (No. : S-SP/M)

Chain Type \ Separators	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
nsb028CR	○	○	○	○	○	○	○	○	○
nsb035CR	○	○	○	○	○	○	○	○	○

TIE WRAP

Tie Wrap for the Sabin Chain nsb035 series, the range of the corresponding frame sizes will be 50, 75, 100, 125, 150, 175 and 200mm respectively.

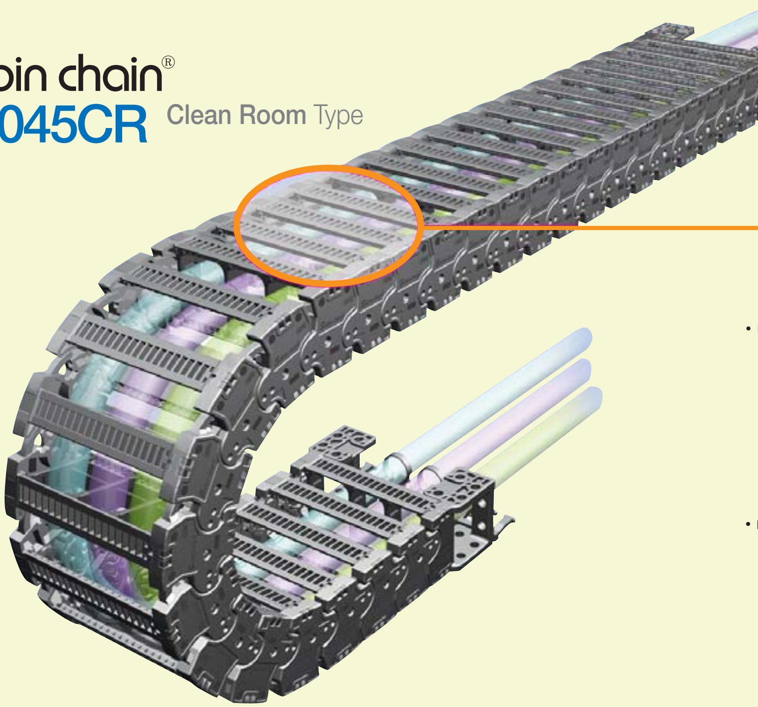
nsb035 제품은 삽입형 Tie Wrap을 사용하며 적용되는 Frame은 50, 75, 100, 125, 150, 175, 200 입니다.

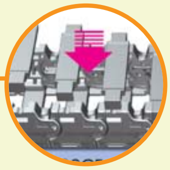
The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation. There are two types in the tie wrap; Attached & Unattached to the brakcet.

Tie Wrap은 Sabin Chain 의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Sabin Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양 과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.

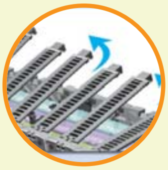
Min ●●●●○○○ Max

Sabin chain® nsb 045CR Clean Room Type

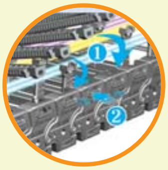




• nsb020CR, nsb022CR •



• nsb028CR, nsb035CR •



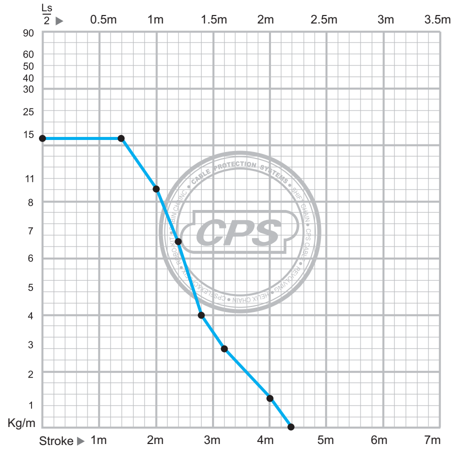
• nsb045CR, nsb060CR, nsb075CR •

MATERIAL

- **Chain material:** CPS-amide UL94-HB
- **Low Noise:** TUV Test 30 dB (DIN EN 61672-1)
- **Low Mote:** IPA Test VDI 2083 CLASS 1
  DIN EN 14644-1 ISO CLASS 3
- **Speed :** 15m/sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above, Unsupported= max 6.0m
  Vertical curve below, Unsupported= max 100m
  Side Mounted, Unsupported= max 2.5m
- **Applications**
  Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Requlation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation..

  CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기계 등 에 적용.

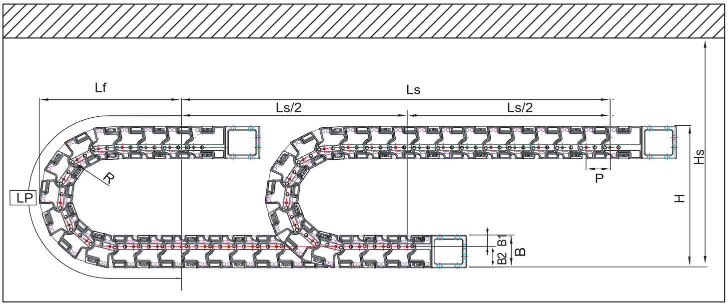
Load diagrams self-supporting length



Calculation of the chain length

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

nsb 045CR Type

Pitch P: 45mm
Height B: 70mm
Height H: 2R+93mm
Hs≧ H+40mm
B1: 23.5mm B2: 46.5mm

(Dimensions in mm)

Bending radius R	75	100	120	140	200	250	300
Lp	587	665	728	791	979	1,136	1,293
L f	279	304	324	344	404	454	504
H	243	293	333	373	493	593	693

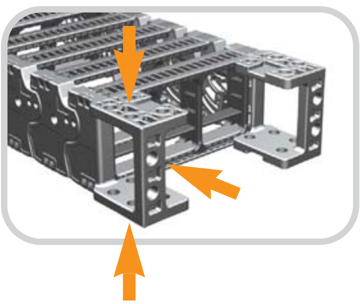
ORDERING (주문방법)

nsb 045CR. 100. R75 / F - 2000L: 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
클린룸타입	Clean Room Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

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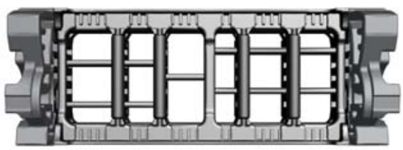
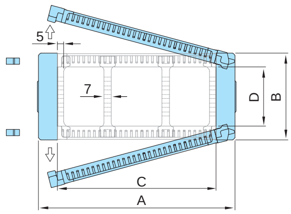
nsb 045CR Clean Room Type

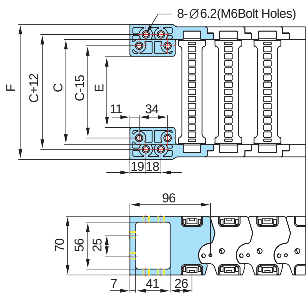
CHAIN CROSS SECTION



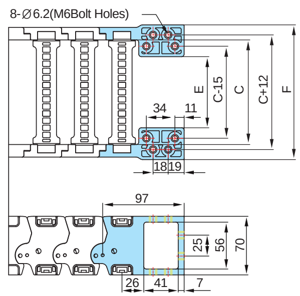


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 045CR.050	80		50			2.59
nsb 045CR.075	105		75			2.74
nsb 045CR.100	130		100			2.90
nsb 045CR.125	155		125			3.11
nsb 045CR.150	180	70	150	49	75, 100, 120, 140 200, 250, 300	3.31
nsb 045CR.175	205		175			3.48
nsb 045CR.200	230		200			4.18
nsb 045CR.250	280		250			4.76
nsb 045CR.300	330		300			5.32

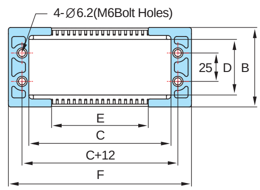
FREE END BRACKET



nsb045CR Fixing point



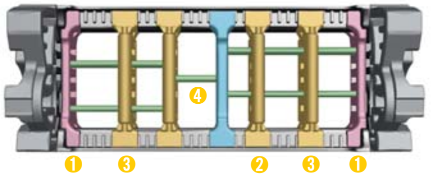
nsb045CR Moving point



nsb045CR Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 045CR.050	86		50		10	
nsb 045CR.075	111		75		35	
nsb 045CR.100	136		100		60	
nsb 045CR.125	161		125		85	
nsb 045CR.150	186	70	150	49	110	M6 Bolt Holes
nsb 045CR.175	211		175		135	
nsb 045CR.200	236		200		160	
nsb 045CR.250	286		250		210	
nsb 045CR.300	336		300		260	

DIVIDERS



❶ DV-S (측면전용디바이더)
❷ DV-M (핀결합용 디바이더)
❸ DV-R (롤러결합용 디바이더)
❹ Separator(SP)

Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

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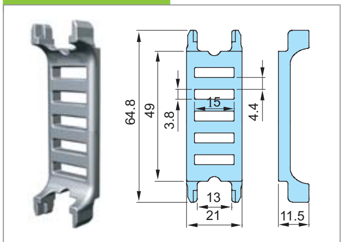
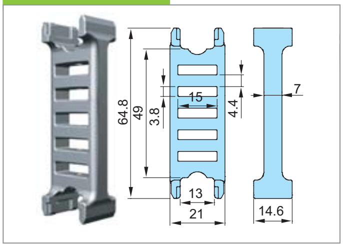
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

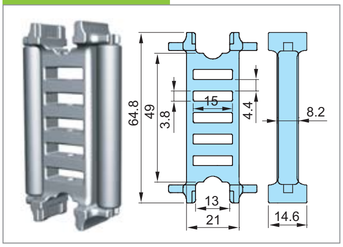
nsb045CR DV-S



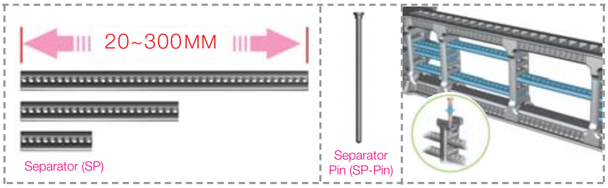
nsb045CR DV-M



nsb045CR DV-R



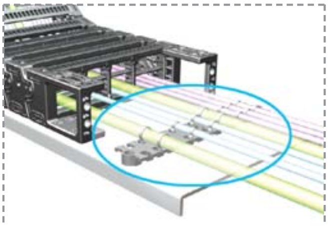
SEPARATORS

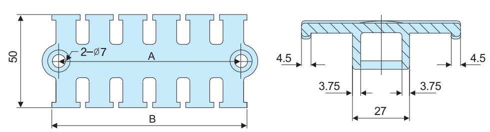


Separator is available in length from 20mm to 300mm and can be cut every 5mm for use.
The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대300mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

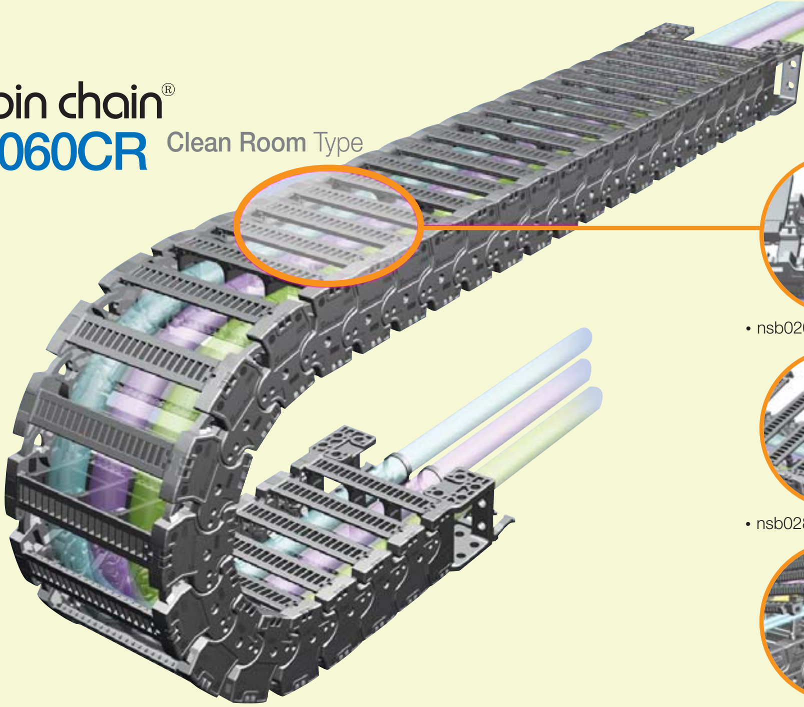
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

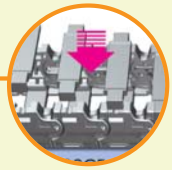
The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap; Attached & Unattached to the bracket.

Tie Wrap은 Sabin Chain 의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Sabin Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양 과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.

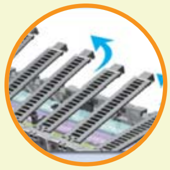
Min ●●●●●●○ Max

Sabin chain®
nsb 060CR Clean Room Type

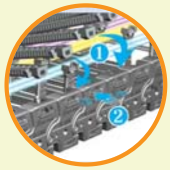




• nsb020CR, nsb022CR •



• nsb028CR, nsb035CR •



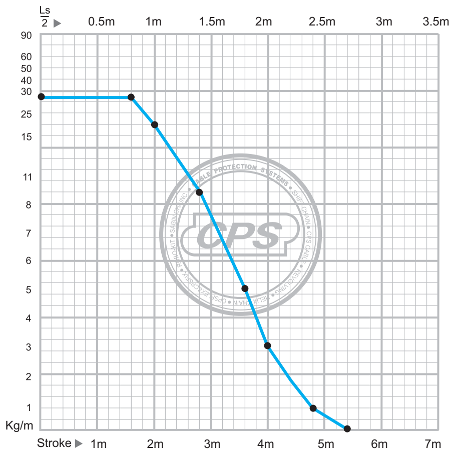
• nsb045CR, nsb060CR, nsb075CR •

MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise:** TUV Test 30 dB (DIN EN61672-1)
- **Low Mote:** IPA Test VDI 2083 CLASS 1
  DIN EN 14644-1 ISO CLASS 3
- **Speed :** 15m / sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above, Unsupported= max 6.0m
  Vertical curve below, Unsupported= max 100m
  Side Mounted, Unsupported= max 3.0m
- **Applications**
  Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Reqlation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

  CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기계 등 에 적용.

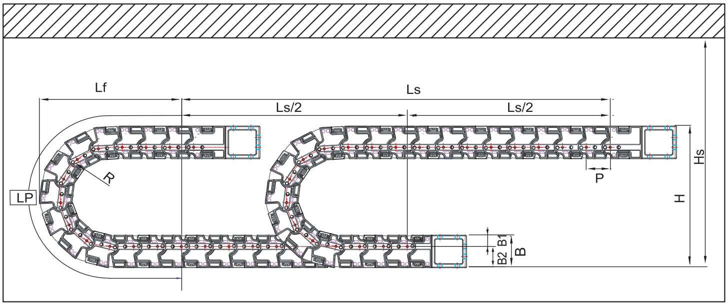
Load diagrams self-supporting length



Calculation of the chain length

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	125	140	190	220	270	390
Lp	854	901	1,058	1,152	1,309	1,686
L f	389	404	454	484	574	654
H	358	388	488	548	648	888

Ls: Stroke
Lp: Loop Length
L f: Loop Projection
Hs: Safe Space

nsb 060CR Type

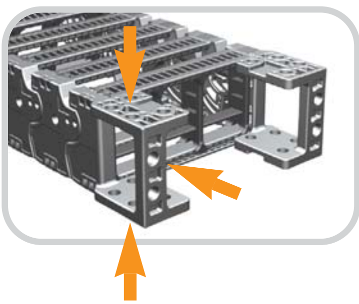
Pitch P: 60mm
Height B: 82mm
Height H: 2R+108mm
Hs≧ H+40mm
B1: 28mm B2: 54mm

ORDERING (주문방법)

nsb 060CR. 150. R140 / F -2500L: 10ST

주문수량 Q′ ty(set)
체인길이 Length(mm)
브라켓 Free End Bracket
곡률반경 Bending Radius
내폭 Inside Width
클린룸타입 Clean Room Type
New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

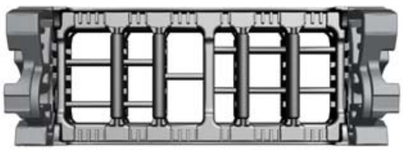
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

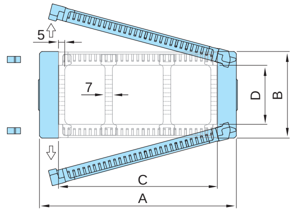
체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

nsb 060CR Clean Room Type

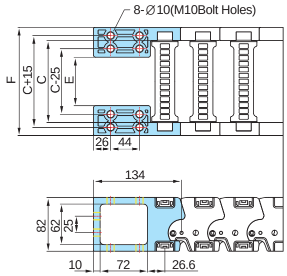
CHAIN CROSS SECTION



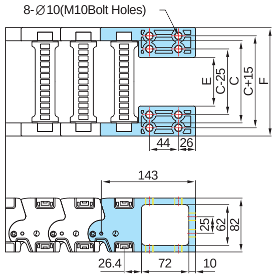


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 060CR.075	115		75			3.56
nsb 060CR.100	140		100			3.66
nsb 060CR.125	165		125			3.97
nsb 060CR.150	190		150			4.16
nsb 060CR.175	215	82	175	56	125, 140, 190, 220 270, 390	4.33
nsb 060CR.200	240		200			4.64
nsb 060CR.250	290		250			5.06
nsb 060CR.300	340		300			5.48
nsb 060CR.350	390		350			6.09
nsb 060CR.400	440		400			6.66

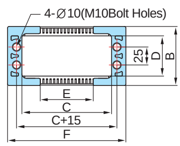
FREE END BRACKET



nsb060CR Fixing point



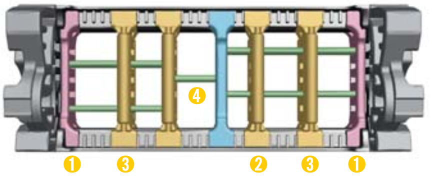
nsb060CR Moving point



nsb060CR Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 060CR.075	115		75		24	
nsb 060CR.100	140		100		49	
nsb 060CR.125	165		125		74	
nsb 060CR.150	190		150		99	
nsb 060CR.175	215	82	175	66	124	M10 Bolt Holes
nsb 060CR.200	240		200		149	
nsb 060CR.250	290		250		199	
nsb 060CR.300	340		300		249	
nsb 060CR.350	390		350		299	
nsb 060CR.400	440		400		349	

DIVIDERS

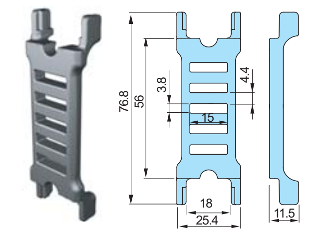


1. DV-S (측면전용디바이더)
2. DV-M (핀결합용 디바이더)
3. DV-R (롤러결합용 디바이더)
4. Separator(SP)

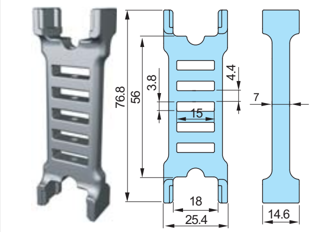
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

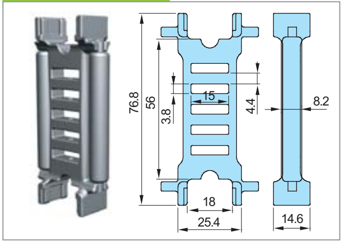
nsb060CR DV-S



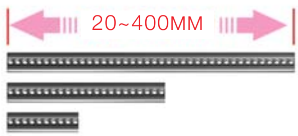
nsb060CR DV-M



nsb060CR DV-R

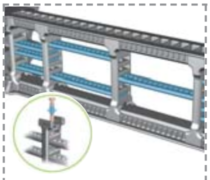


SEPARATORS



Separator (SP)

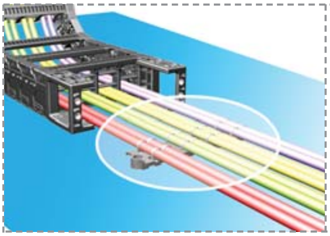
Separator Pin (SP-Pin)

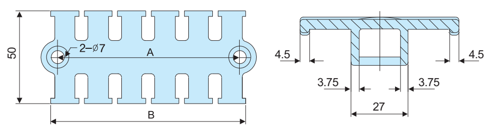


Separator is available in length from 20mm to 400mm and can be cut every 5mm for use.
The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대400mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

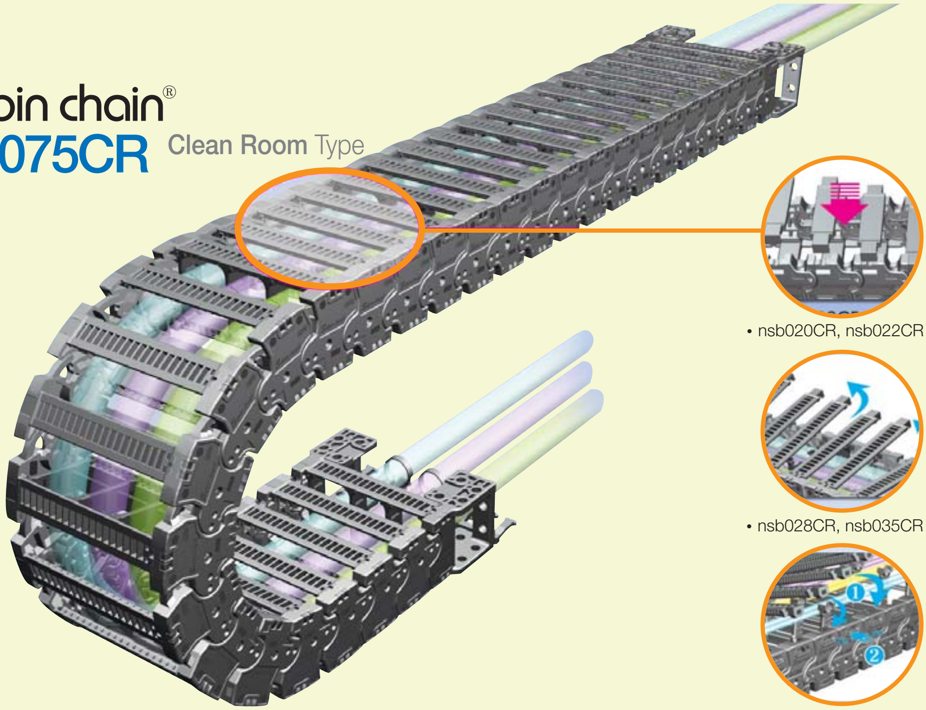
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The Ttie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap; Attached & Unattached to the bracket.

Tie Wrap은 Sabin Chain 의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Sabin Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양 과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.

Min ●●●●●●● Max

Sabin chain®
nsb 075CR Clean Room Type

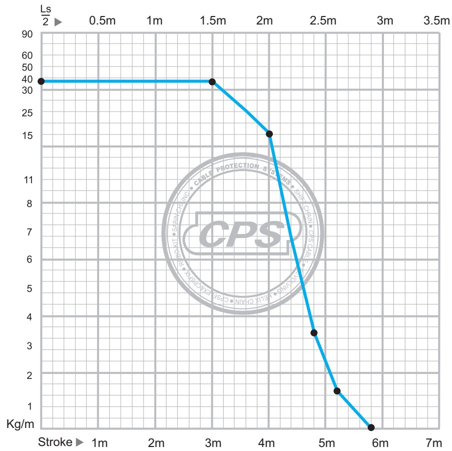


MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise:** TUV Test 30 dB (DIN EN61672-1)
- **Low Mote:** IPA Test VDI 2083 CLASS 1
  DIN EN 14644-1 ISO CLASS 3
- **Speed :** 15m/sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above, Unsupported= max 6.0m
  Vertical curve below, Unsupported= max 100m
  Side Mounted, Unsupported= max 3.0m
- **Applications**
  Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Requlation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

  CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기계 등 에 적용.

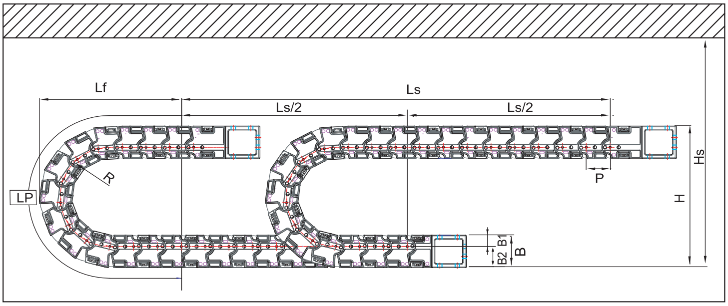
Load diagrams self-supporting length



Calculation of the chain length

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	180	200	250	300	350	400	500
Lp	1,147	1,210	1,367	1,524	1,681	1,838	2,152
L f	515	535	585	635	685	735	835
H	504	544	644	744	844	944	1,144

nsb 075CR Type

Pitch P: 75mm
Height B: 108mm
Height H: 2R+44mm
Hs≧ H+40mm
B1: 36mm B2: 72mm

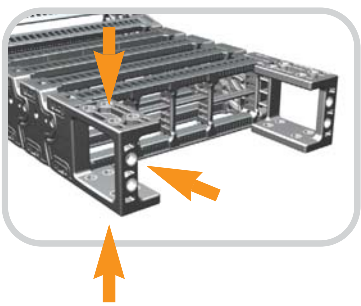
ORDERING (주문방법)

nsb 075CR. 300. R200 / F -3000L: 10ST

주문수량	Q´ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
클린룸타입	Clean Room Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

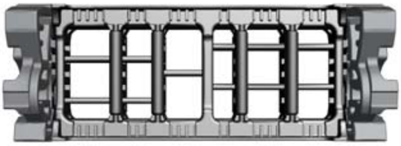
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

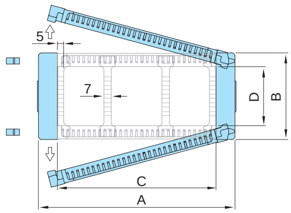
체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

nsb 075CR Clean Room Type

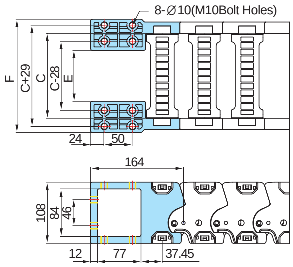
CHAIN CROSS SECTION



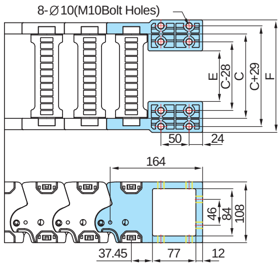


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 075CR.075	115		75			5.37
nsb 075CR.100	140		100			5.57
nsb 075CR.125	165		125			5.82
nsb 075CR.150	190		150			6.01
nsb 075CR.175	215		175			6.26
nsb 075CR.200	240		200			6.68
nsb 075CR.250	290	82	250	56	180, 200, 250, 300 350, 400, 500	7.22
nsb 075CR.300	340		300			7.94
nsb 075CR.350	390		350			8.67
nsb 075CR.400	440		400			9.43
nsb 075CR.450	490		450			10.01
nsb 075CR.500	540		500			10.41
nsb 075CR.550	590		550			11.88
nsb 075CR.600	640		600			12.17

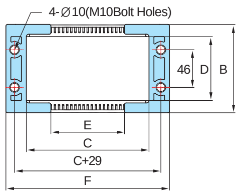
FREE END BRACKET



nsb075CR Fixing point



nsb075CR Moving point

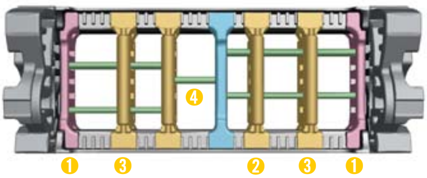


nsb075CR Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 075CR.075	125		75		15	
nsb 075CR.100	150		100		40	
nsb 075CR.125	175		125		65	
nsb 075CR.150	200		150		90	
nsb 075CR.175	225		175		115	
nsb 075CR.200	250		200		140	
nsb 075CR.250	300	108	250	78	190	M10 Bolt Holes
nsb 075CR.300	350		300		240	
nsb 075CR.350	400		350		290	
nsb 075CR.400	450		400		340	
nsb 075CR.450	500		450		390	
nsb 075CR.500	550		500		440	
nsb 075CR.550	600		550		490	
nsb 075CR.600	650		600		540	

nsb 075CR Clean Room Type

DIVIDERS

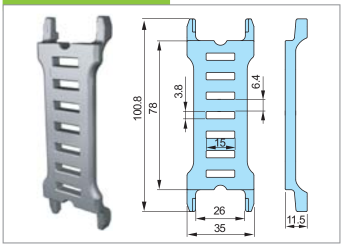


1. DV-S (측면전용디바이더)
2. DV-M (핀결합용 디바이더)
3. DV-R (롤러결합용 디바이더)
4. Separator(SP)

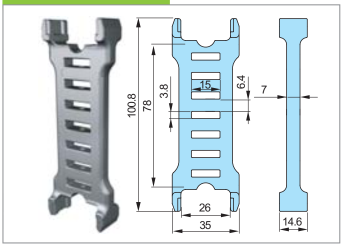
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

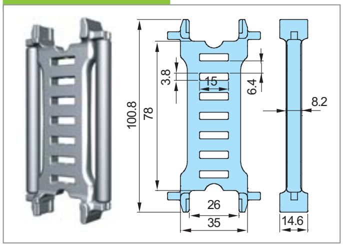
nsb075CR DV-S



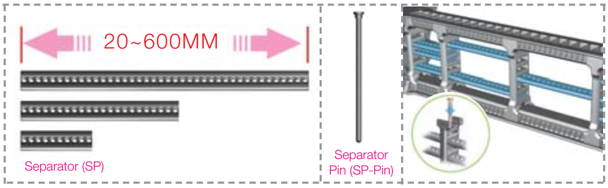
nsb075CR DV-M



nsb075CR DV-R



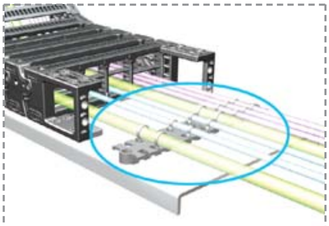
SEPARATORS

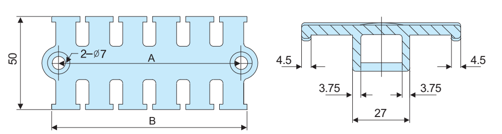


Separator is available in length from 20mm to 600mm and can be cut every 5mm for use.
The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대600mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

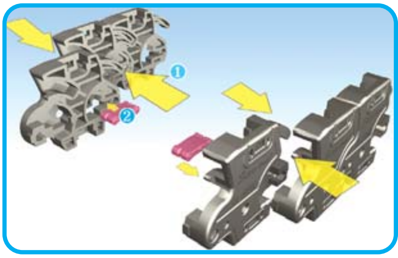
The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap; Attached & Unattached to the bracket.

Tie Wrap은 Sabin Chain 의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Sabin Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양 과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.

ASSEMBLY PROCEDURE / CLEAN ROOM Type

The assembly process of CR-Type of New Sabin Chain is like below and you must use rubber hammer with careful combination of Divider and Separator.
New Sabin Chain의 CR-Type의 조립순서는 아래와 같이 진행하며 케이블의 입선수량에 따라 디바이더와 세퍼레이터의 조합을 유의하면서 반드시 고무망치를 사용하여 조립합니다.

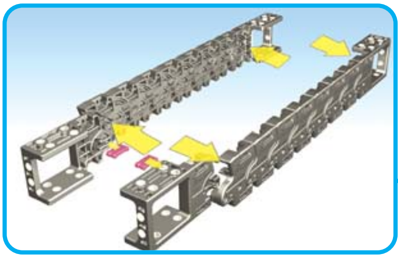
1



Connect each side band as many as you need, then insert holding pin to connecting groove.

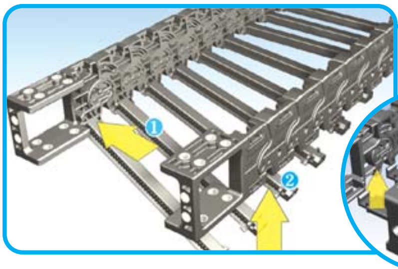
사이드밴드를 원하는 길이만큼 연결(❶)하고 홀딩핀을 사이드밴드 연결홈에 끼워서 고정(❷).

2

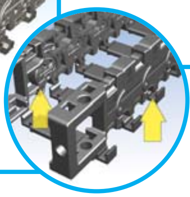


Assemble the end brackets on both ends with holding pin.
사이드밴드 양쪽 끝부분에 브라켓을 연결하고 홀딩핀으로 결합하여 고정.

3



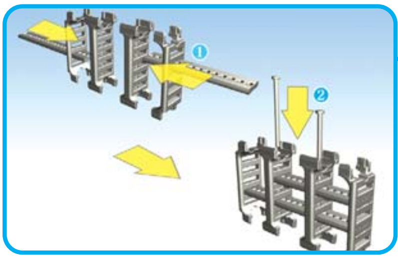
Attach frames to one side groove on the frames, then the other side.
프레임을 사이드밴드 측면 홈에 끼우고(❶) 다른측면의 사이드밴드홈에 결합(❷).



For nsb020CR and nsb022CR, they are not Hinge Type for method to connect frames, but Hook Type on both sides.

nsb020,022CR의 경우 프레임고정방식이 Hinge Type이 아닌 양측 Hook 고정방식.

4

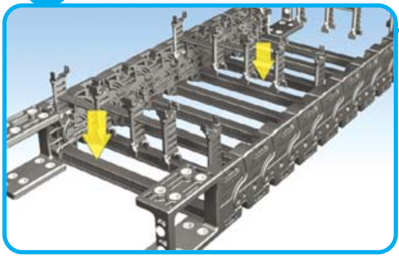


For nsb045,060,and 075, connect the pin of separator in hole of divider after inserting separator in hole of divider.
For nsb028 and nsb035, separator fixing pins are not used.
For nsb020 and nsb022, separators are not used.

디바이더를 종류별로 구분하여 미리 절단된 세퍼레이터를 디바이더 홈에 결합시킨 후 세퍼레이터 고정핀을 디바이더 홈에 결합
(nsb045, 060, 075). 028,035 Type은 세퍼레이터 고정핀 사용안함.
020,022 Type은 세퍼레이터 사용안함.

ASSEMBLY PROCEDURE / CLEAN ROOM Type

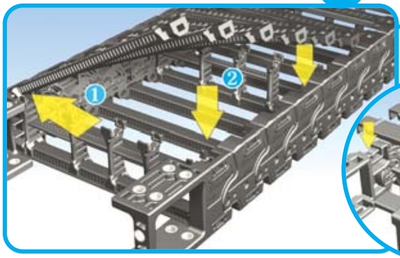
5



Fix the separator and divider patterns to the bottom-side frames as needed.

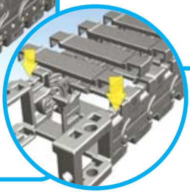
세퍼레이터가 결합된 디바이더를 하측프레임에 결합.

6



Attach frames to one side groove on the frames, then the other side.

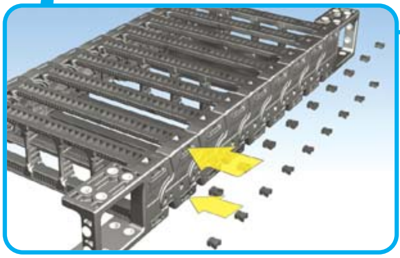
프레임을 사이드밴드 측면 홈에 끼우고(1) 다른측면의 사이드밴드홈에 결합(2).



For nsb020CR and nsb022CR, they are not Hinge Type for method to connect frames, but Hook Type on both sides.

nsb020,022CR의 경우 프레임 결합방식이 Hinge Type이 아닌 양측 Hook 결합 방식.

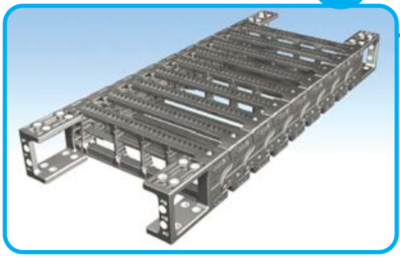
7



Insert frame pins to secure the frames and complete carrier.
(nsb045, 060, 075 are applied with frame pin, and nsb028, 035 are Hinge Type or Hook Type without frame pin.)

결합된 프레임과 사이드밴드의 측면의 홈에 프레임 고정핀으로 결합.
(프레임 고정핀은 nsb045,060,075 Type에 적용되며 028,035 Type의 경우 동일한 Hinge Type이나 프레임 고정핀없이 Hook 고정방식.)

8



Complete to assemble New Sabin CR-Type, Sabin Chain.

New Sabin Chain CR-Type조립완료.

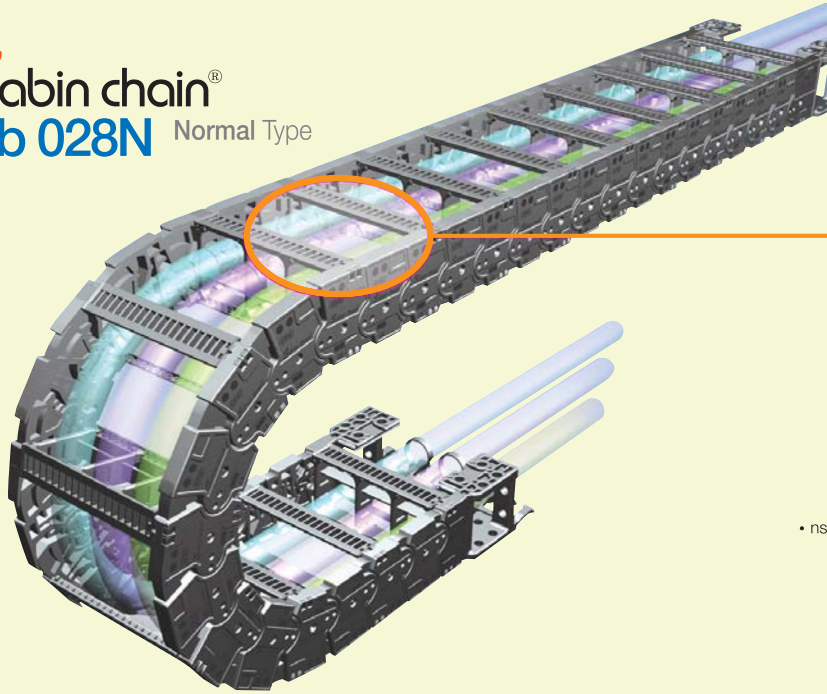
Sabin chain®

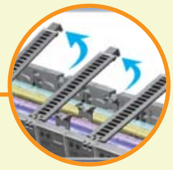
N - TYPE : Normal

Min ●●●○○○○ Max

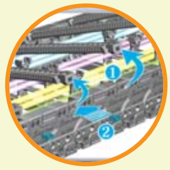
Sabin chain®

nsb 028N Normal Type





• nsb028N, nsb035N •



• nsb045N, nsb060N, nsb075N •

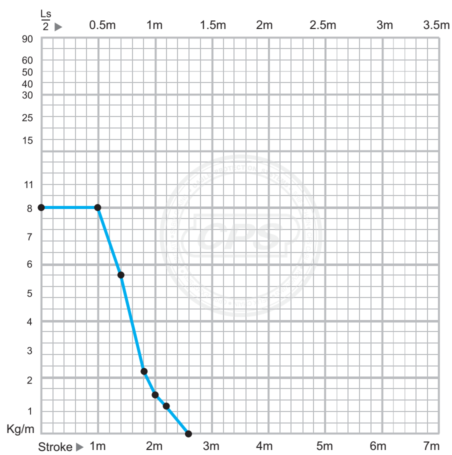
• Frames are assembled at every other link. (2링크마다 프레임 결합방식)

MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise**
- **Low Mote**
- **Speed :** 15m / sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above, Unsupported= max 2.0m
  Vertical curve below, Unsupported= max 40m
  Side Mounted, Unsupported= max 1.0m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.
  저분진, 저소음을 요구하는 사업장 및 겐츄리로더, 로봇캐리지, 공작기계, 절단/용접기계, 인쇄기계등에 적용.
- **Calculation of the chain length**

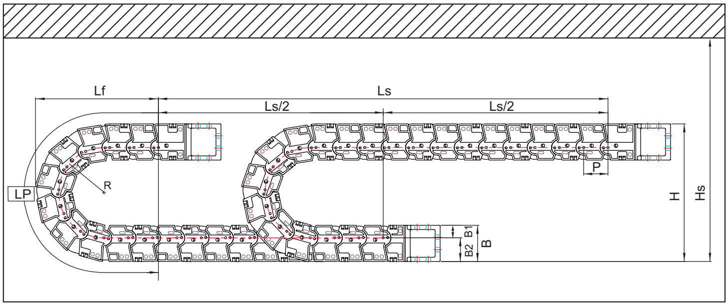
$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

- **Load diagrams self-supporting length**



nsb 028N Normal Type

LAYOUT OF THE CHAIN



- **Ls:** Stroke
- **Lp:** Loop Length
- **Lf:** Loop Projection
- **Hs:** Safe Space

(Dimensions in mm)

Bending radius R	46	66	86	116	146
Lp	313	376	439	533	627
L f	153	173	193	223	253
H	138	178	218	278	338

nsb 028N Type

Pitch P: 28mm
Height B: 38mm
Height H: 2R+46mm
Hs≧ H+30mm
B1: 15mm **B2:** 23mm

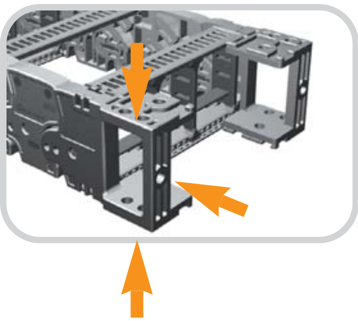
ORDERING (주문방법)

nsb 028N. 050. R66 / F -1000L : 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
표준형타입	Normal Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

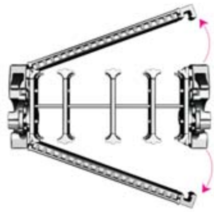
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

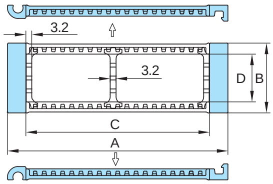
▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

nsb 028N Normal Type

CHAIN CROSS SECTION

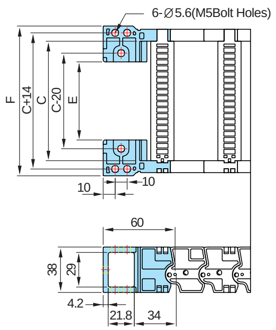


• Hinge Type

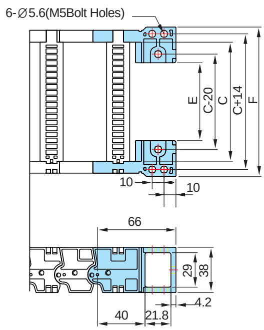


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 028N.035	55		35			0.79
nsb 028N.050	70		50			0.82
nsb 028N.055	75		55			0.85
nsb 028N.075	95		75			0.90
nsb 028N.100	120	38	100	26	46, 66, 86, 116, 146	0.98
nsb 028N.125	145		125			1.08
nsb 028N.150	170		150			1.18
nsb 028N.175	195		175			1.45
nsb 028N.200	220		200			1.59

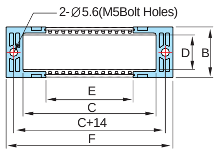
FREE END BRACKET



nsb028N Fixing point



nsb028N Moving point

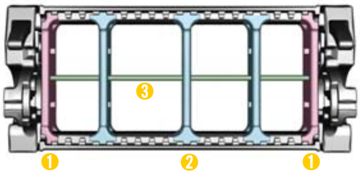


nsb028N Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 028N.035	60.4		35		0.4	
nsb 028N.050	75.4		50		15.4	
nsb 028N.055	80.4		55		20.4	
nsb 028N.075	100.4		75		40.4	
nsb 028N.100	125.4	38	100	26	65.4	M5 Bolt Holes
nsb 028N.125	150.4		125		90.4	
nsb 028N.150	175.4		150		115.4	
nsb 028N.175	200.4		175		140.4	
nsb 028N.200	225.4		200		165.4	

nsb 028N Normal Type

DIVIDERS & SEPARATORS

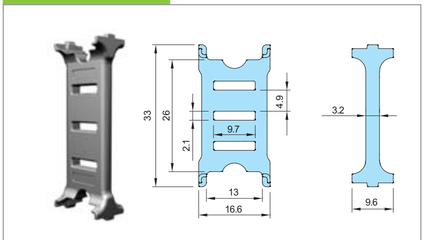


❶ DV-S (측면전용디바이더)
❷ DV-M
❸ Separator(SP)

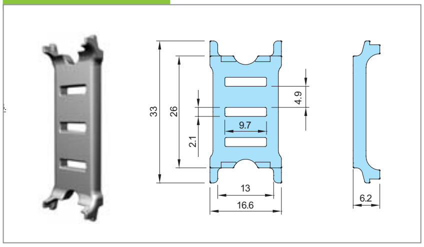
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

nsb028N DV-M



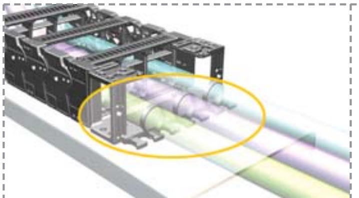
nsb028N DV-S



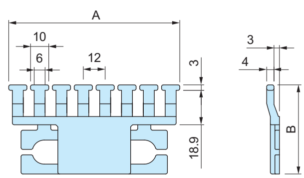
nsb028N Separators (SP) (No. : S-SP/M)

Chain Type \ Separators	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
nsb028N	○	○	○	○	○	○	○	○	○
nsb035N	○	○	○	○	○	○	○	○	○

TIE WRAP



Attach to Bracket (브라켓 결합용)



(Dimensions in mm)

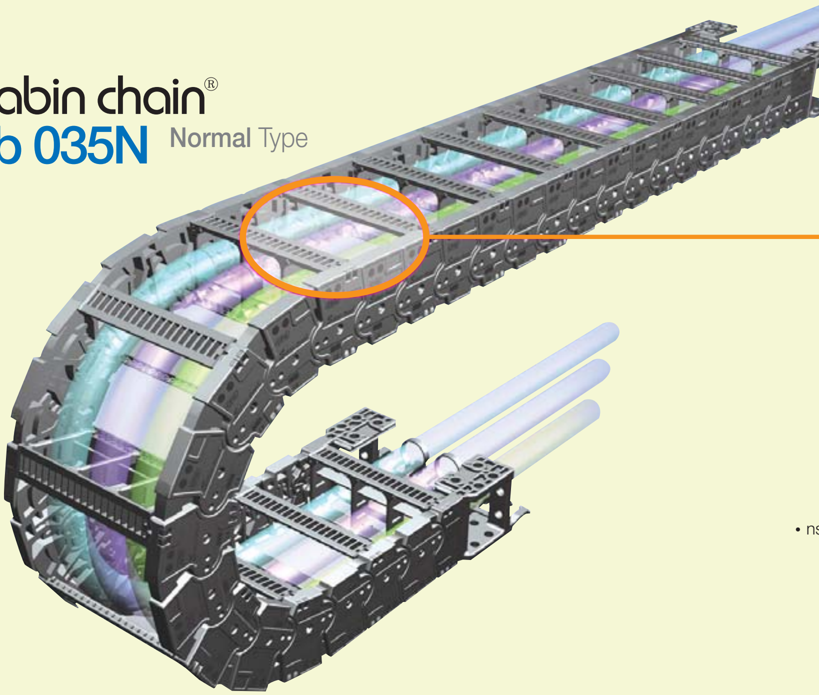
Tie Wrap	035	055	075	100	125
A	46	70	94	118	142
B	35.4	48.9	48.9	48.9	48.9

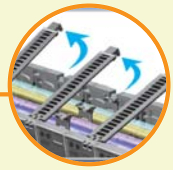
The tie wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap; Attached & Unattached to the bracket.

Tiewrap은 Sabin Chain 의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Sabin Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양 과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.

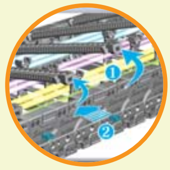
Min ●●●●○○○ Max

Sabin chain®
nsb 035N Normal Type





• nsb028N, nsb035N •



• nsb045N, nsb060N, nsb075N •

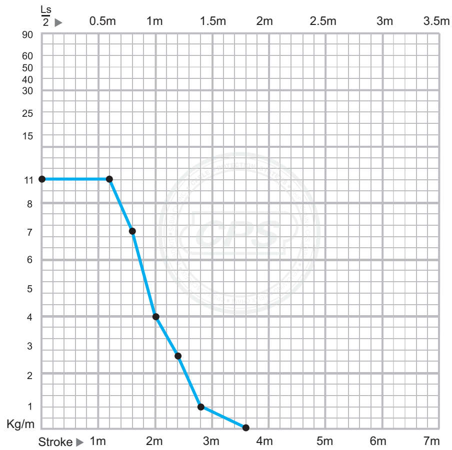
• Frames are assembled at every other link. (2링크마다 프레임 결합방식)

MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise**
- **Low Mote**
- **Speed :** 15m / sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above, Unsupported= max 2.0m
  Vertical curve below, Unsupported= max 40m
  Side Mounted, Unsupported= max 1.0m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.

  저분진, 저소음을 요구하는 사업장 및 겐츄리로더, 로봇캐리지, 공작기계, 절단/용접기계, 인쇄기계등에 적용.

- **Load diagrams self-supporting length**



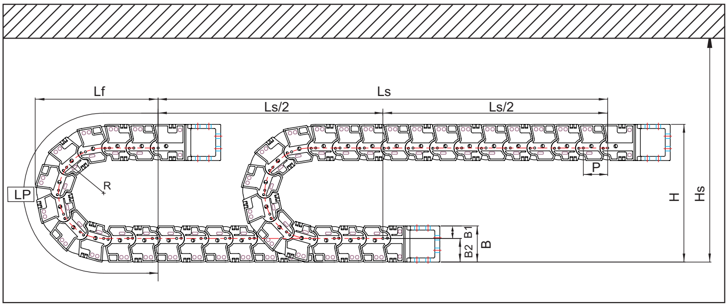
- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

nsb 035N Normal Type

LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	55	65	90	115	140	190
Lp	383	414	493	572	650	807
L f	194	204	229	254	279	329
H	178	198	248	298	348	448

Ls: Stroke
Lp: Loop Length
L f: Loop Projection
Hs: Safe Space

nsb 035N Type

Pitch P: 35mm
Height B: 52mm
Height H: 2R+68mm
Hs ≧ H+30mm
B1: 18mm **B2:** 34mm

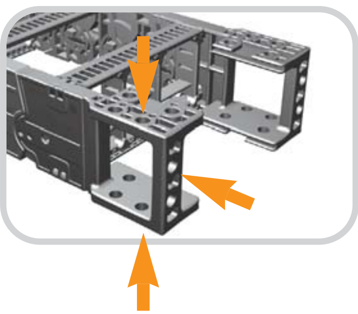
ORDERING (주문방법)

nsb 035N. 075. R90 / F -1000L : 10ST

주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
표준형타입	Normal Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

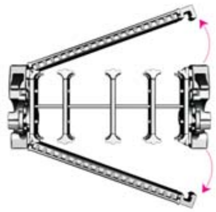
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

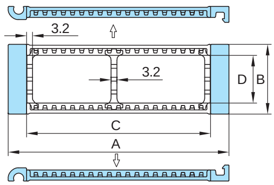
▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

nsb 035N Normal Type

CHAIN CROSS SECTION

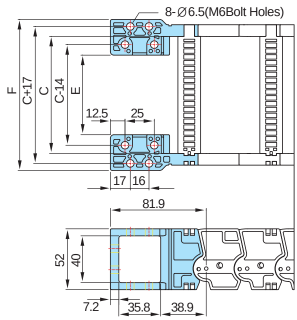


• Hinge Type

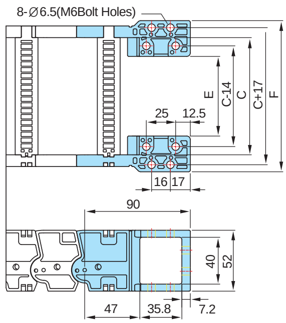


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 035N.035	55		35			1.10
nsb 035N.055	70		50			1.13
nsb 035N.075	75		55			1.15
nsb 035N.100	95		75			1.18
nsb 035N.125	120	52	100	40	55, 65, 90, 115, 140, 190	1.25
nsb 035N.150	145		125			1.32
nsb 035N.175	170		150			1.41
nsb 035N.200	195		175			1.62
	220		200			1.72

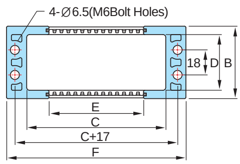
FREE END BRACKET



nsb035N Fixing point



nsb035N Moving point

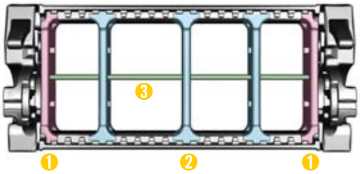


nsb035N Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 035N.035	64		35		3	
nsb 035N.050	79		50		18	
nsb 035N.055	84		55		23	
nsb 035N.075	104		75		43	
nsb 035N.100	129	52	100	40	68	M6 Bolt Holes
nsb 035N.125	154		125		93	
nsb 035N.150	179		150		118	
nsb 035N.175	204		175		143	
nsb 035N.200	229		200		168	

nsb 035N Normal Type

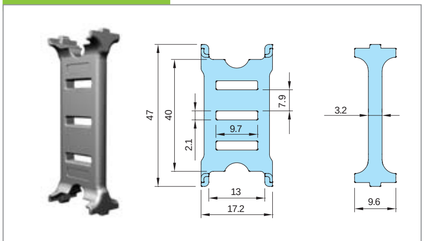
DIVIDERS



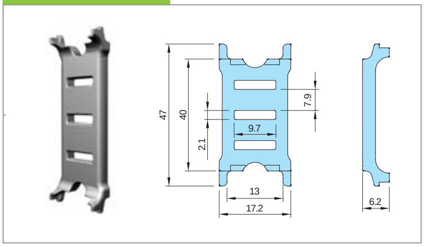
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

nsb035N DV-M



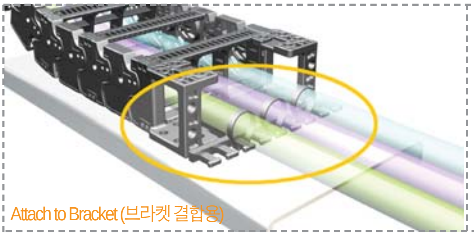
nsb035N DV-S



nsb035N Separators (SP) (No. : S-SP/M)

Chain Type \ Separators	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
nsb028N	○	○	○	○	○	○	○	○	○
nsb035N	○	○	○	○	○	○	○	○	○

TIE WRAP



When using the tie wrap option for the Sabin Chain nsb035 series, the corresponding frame sizes will be 50, 75, 100, 125, 150, 175 and 200mm respectively.

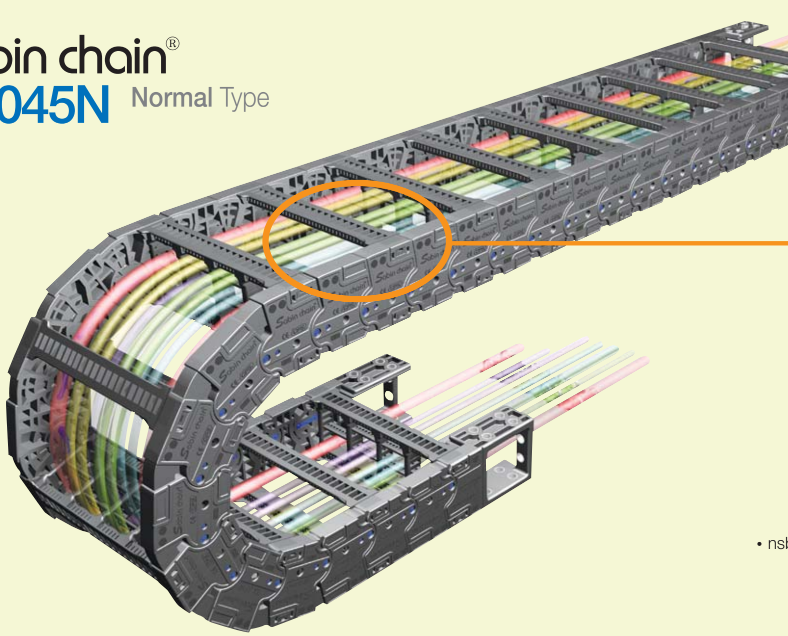
nsb035 제품은 삽입형 Tie Wrap을 사용하며 적용되는 Frame은 50, 75, 100, 125, 150, 175, 200 입니다.

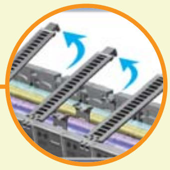
The tie wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.There are two types in the tie wrap; Attached & Unattached to the bracket.

Tiewrap은 Sabin Chain의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Sabin Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양 과 브라켓에 결합해서 사용할 수 있는 사양 으로 구분되어 사용할 수 있다

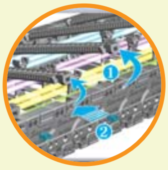
Min ●●●●●○○ Max

Sabin chain®
nsb 045N Normal Type





• nsb028N, nsb035N •



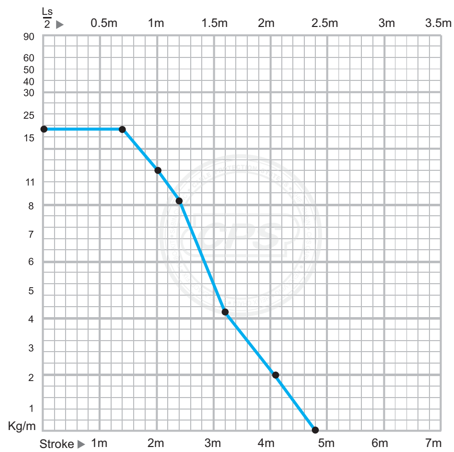
• nsb045N, nsb060N, nsb075N •

• Frames are assembled at every other link. (2링크마다 프레임 결합방식)

MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise**
- **Low Mote**
- **Speed :** 15m / sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above, Unsupported= max 6.0m
  Vertical curve below, Unsupported= max 100m
  Side Mounted, Unsupported= max 2.5m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.
  저분진, 저소음을 요구하는 사업장 및 겐츄리로더, 로봇캐리지, 공작기계, 절단/용접기계, 인쇄기계등에 적용.

- **Load diagrams self-supporting length**



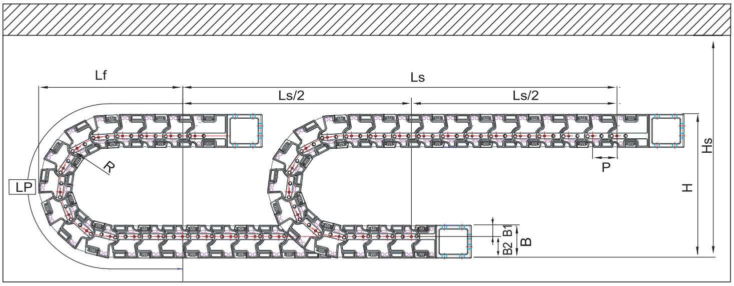
- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

nsb 045N Normal Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

nsb 045N Type

Pitch P: 45mm
Height B: 66mm
Height H: 2R+86mm
Hs≧ H+40mm
B1: 23mm **B2:** 43mm

(Dimensions in mm)

Bending radius R	90	110	135	165	185	235	285
Lp	633	695	774	868	931	1,088	1,245
L f	291	311	336	366	386	436	486
H	266	306	356	416	456	556	656

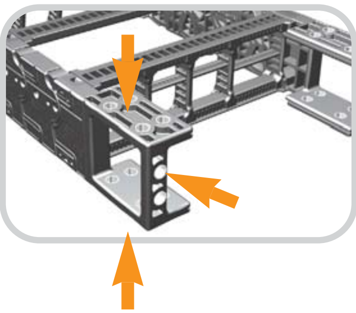
ORDERING (주문방법)

nsb 045N. 125. R165 / F- 2000L : 10ST

주문수량	Q´ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
표준형타입	Normal Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

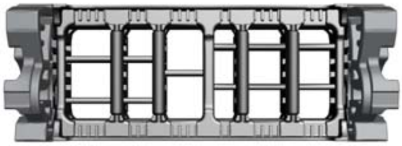
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel washers are inserted into the fixing holes of each Free End Bracket.

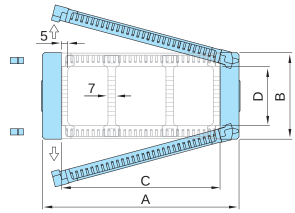
체인을 고정하는 끝부분으로 기존 Easy Eend Bbracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임. 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

nsb 045N Normal Type

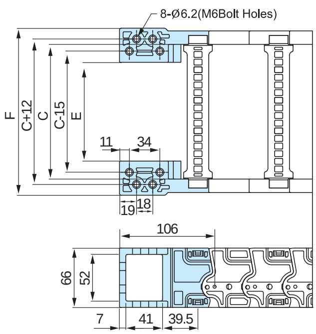
CHAIN CROSS SECTION



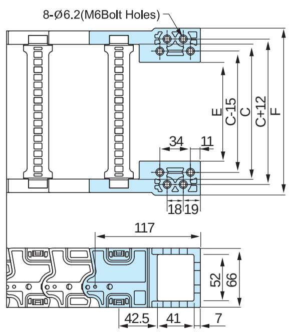


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 045N.050	80		50			2.06
nsb 045N.075	105		75			2.14
nsb 045N.100	130		100			2.22
nsb 045N.125	155		125			2.32
nsb 045N.150	180	66	150	45	90, 110, 135, 165, 185, 235, 285	2.42
nsb 045N.175	205		175			2.51
nsb 045N.200	230		200			2.86
nsb 045N.250	280		250			3.15
nsb 045N.300	330		300			3.43

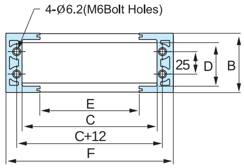
FREE END BRACKET



nsb 045N Fixing point



nsb 045N Moving point

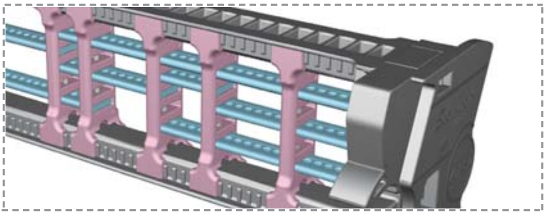


nsb 045N Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 045N.050	86		50		10	
nsb 045N.075	111		75		35	
nsb 045N.100	136		100		60	
nsb 045N.125	161		125		85	
nsb 045N.150	186	66	150	45	110	M6 Bolt Holes
nsb 045N.175	211		175		135	
nsb 045N.200	236		200		160	
nsb 045N.250	286		250		210	
nsb 045N.300	336		300		260	

nsb 045N Normal Type

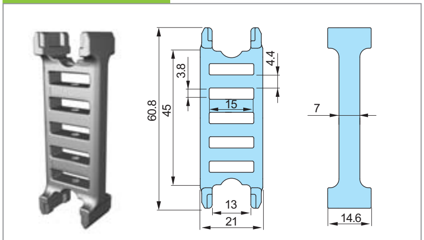
DIVIDERS



Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure

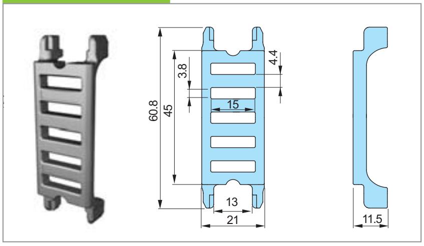
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

nsb045N DV-M

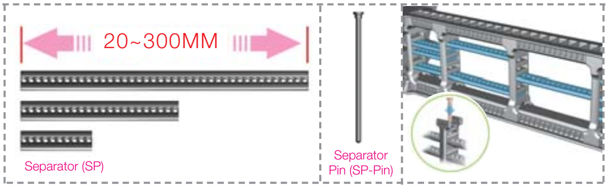


• Assemble divider every four links. / 4링크마다 1개씩 결합.

nsb045N DV-S



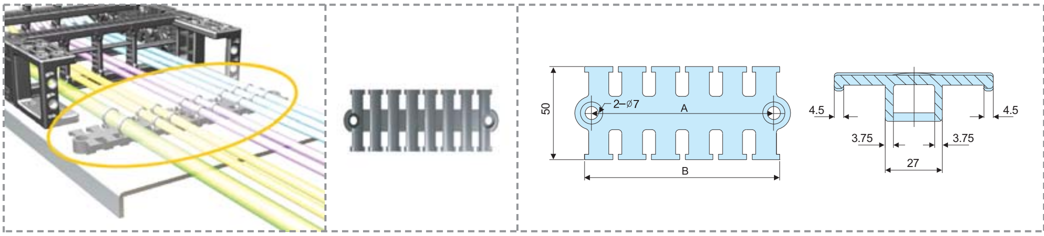
SEPARATORS



Separator is available in length from 20mm to 300mm and can be cut every 5mm for use.
The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables

세퍼레이터의 사용길이는 최소20mm부터 최대300mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP



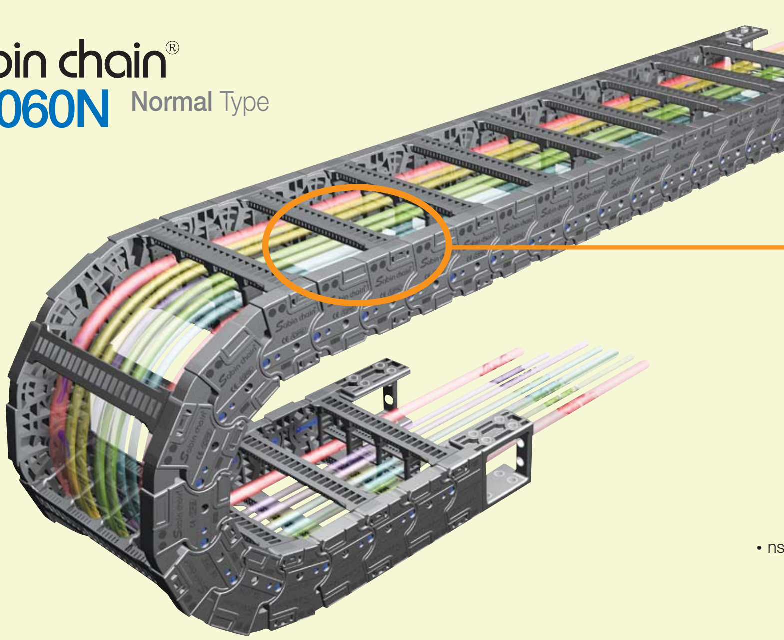
(Dimensions in mm)

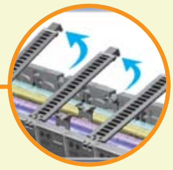
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The tie wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

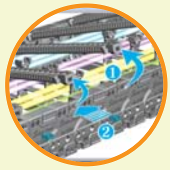
Tie wrap은 Sabin Chain의 브라켓을 기준으로 바깥쪽으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다..

Sabin chain®
nsb 060N Normal Type





• nsb028N, nsb035N •



• nsb045N, nsb060N, nsb075N •

• Frames are assembled at every other link. (2링크마다 프레임 결합방식)

MATERIAL

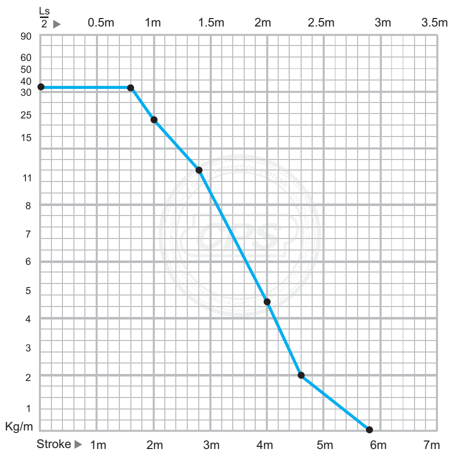
- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise**
- **Low Mote**
- **Speed :** 15m / sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above, Unsupported= max 6.0m
  Vertical curve below, Unsupported= max 100m
  Side Mounted, Unsupported= max 3.0m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.

  저분진, 저소음을 요구하는 사업장 및 겐츄리로더, 로봇캐리지, 공작기계, 절단/용접기계, 인쇄기계등에 적용.

- **Calculation of the chain length**

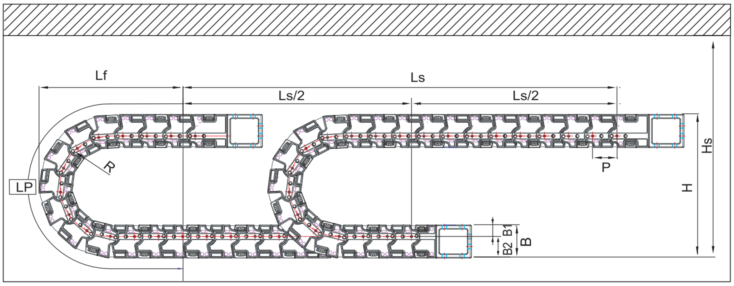
$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

Load diagrams self-supporting length



nsb 060N Normal Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	125	135	150	180	230	270	340
Lp	854	885	932	1,026	1,183	1,309	1,529
L f	389	399	414	444	494	534	604
H	357	377	407	467	567	647	787

nsb 060N Type

Pitch P: 60mm
Height B: 82mm
Height H: 2R+108mm
Hs≧ H+40mm
B1: 28mm **B2:** 54mm

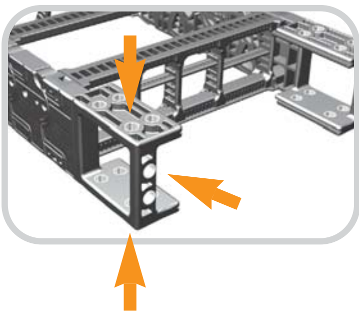
ORDERING (주문방법)

nsb 060N. 150. R180 / F- 2500L : 10ST

주문수량	Q′ ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
표준형타입	Normal Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

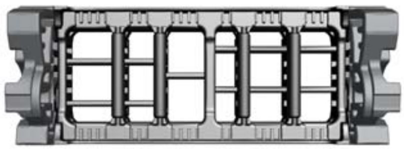
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel washers are inserted into the fixing holes of each Free End Bracket.

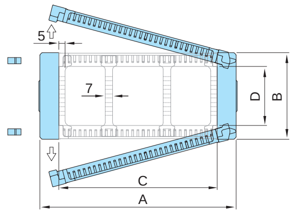
체인을 고정하는 끝부분으로 기존 Easy Eend Bbracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임. 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

nsb 060N Normal Type

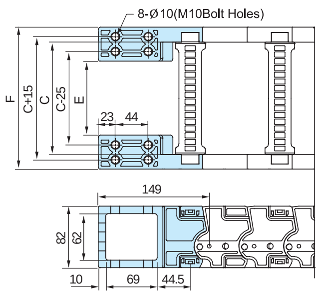
CHAIN CROSS SECTION



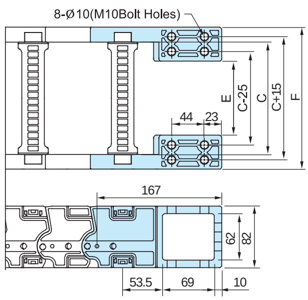


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 060N.075	115		75			3.30
nsb 060N.100	140		100			3.35
nsb 060N.125	165		125			3.51
nsb 060N.150	190		150			3.60
nsb 060N.175	215	82	175	56	125, 135, 150, 180, 230, 270, 340	3.69
nsb 060N.200	240		200			3.84
nsb 060N.250	290		250			4.05
nsb 060N.300	340		300			4.26
nsb 060N.350	390		350			4.57
nsb 060N.400	440		400			4.86

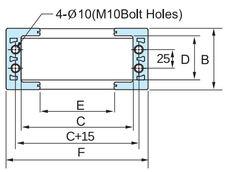
FREE END BRACKET



nsb 060N Fixing point



nsb 060N Moving point

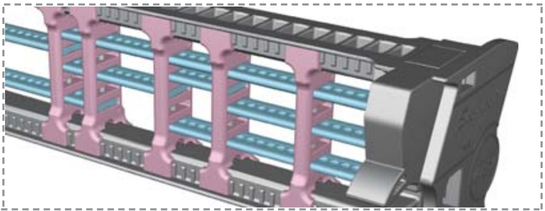


nsb 060N Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 060N.075	115		75		24	
nsb 060N.100	140		100		49	
nsb 060N.125	165		125		74	
nsb 060N.150	190		150		99	
nsb 060N.175	215	82	175	56	124	M10 Bolt Holes
nsb 060N.200	240		200		149	
nsb 060N.250	290		250		199	
nsb 060N.300	340		300		249	
nsb 060N.350	390		350		299	
nsb 060N.400	440		400		349	

nsb 060N Normal Type

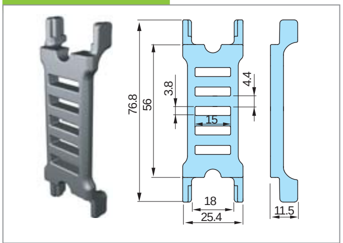
DIVIDERS



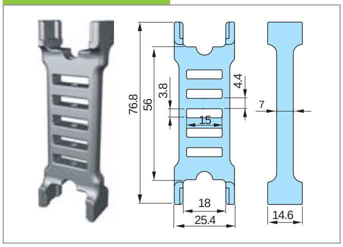
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

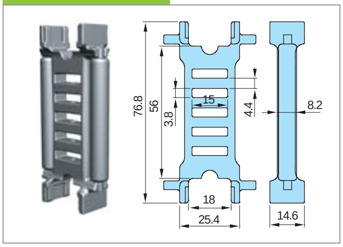
nsb060N DV-S



nsb060N DV-M

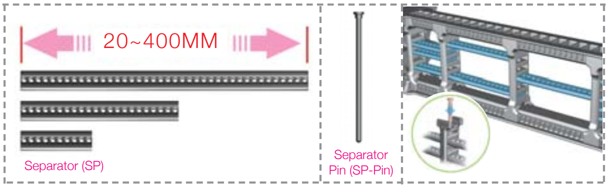


nsb060N DV-R



※ Assemble divider every four links.(4링크마다 1개씩 결합.)

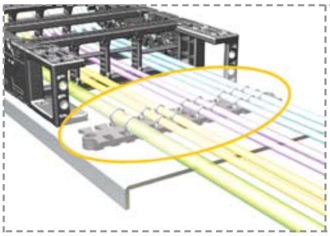
SEPARATORS (SP)

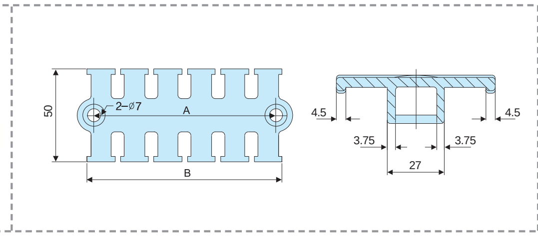


Separator is available in length from 20mm to 400mm and can be cut every 5mm for use.
The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대400mm까지사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





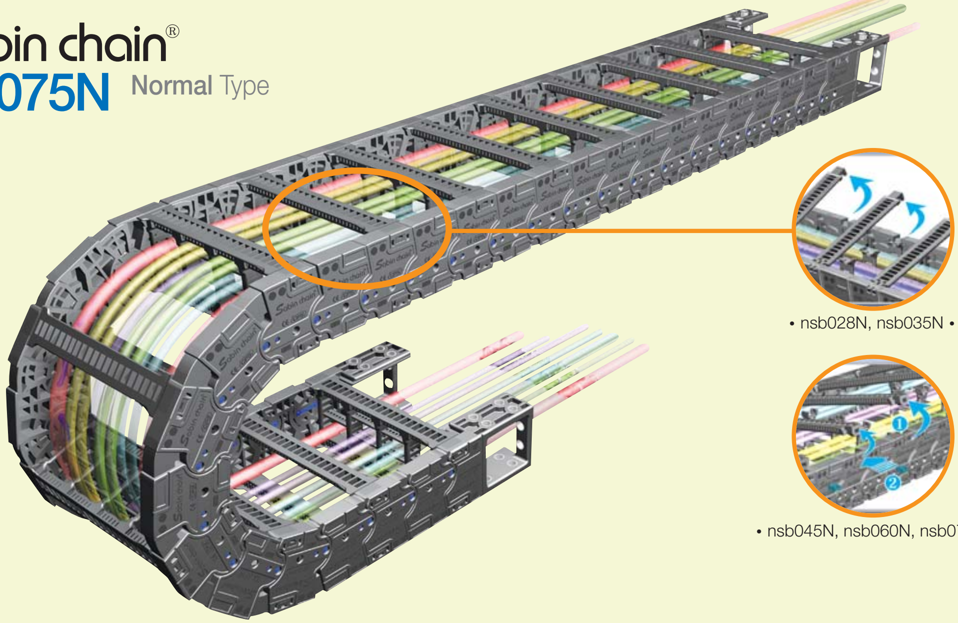
(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Sabin Chain의 브라켓을 기준으로 바깥쪽으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다..

Sabin chain®
nsb 075N Normal Type



• nsb028N, nsb035N •

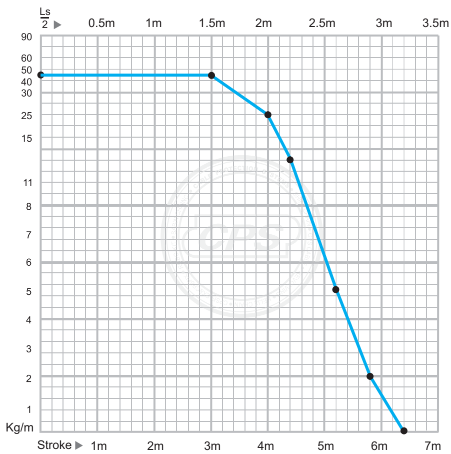
• nsb045N, nsb060N, nsb075N •

• Frames are assembled at every other link. (2링크마다 프레임 결합방식)

MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise**
- **Low Mote**
- **Speed :** 15m / sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above, Unsupported= max 6.0m
  Vertical curve below, Unsupported= max 120m
  Side Mounted, Unsupported= max 3.0m
- **Applications**
  Gantry robot, Machining center, Textile machine, Welding machine, Feeder unit, Assembly Loader, Wood work machine, Fabric machine.
  저분진, 저소음을 요구하는 사업장 및 겐츄리로더, 로봇캐리지, 공작기계, 절단/용접기계, 인쇄기계등에 적용.

- **Load diagrams self-supporting length**

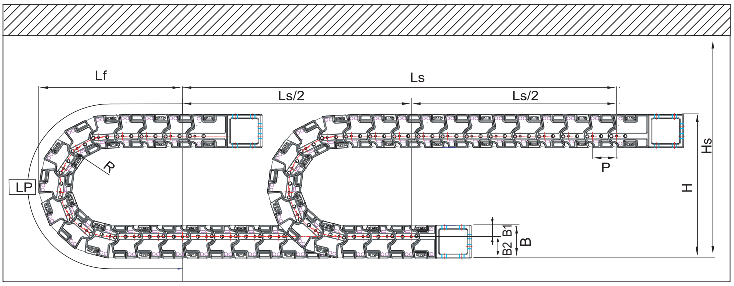


- **Calculation of the chain length**

$$\left[\; L = \frac{Ls}{2} + Lp \;\right]$$

nsb 075N Normal Type

LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	160	180	230	280	330	380	480
Lp	1,084	1,147	1,304	1,461	1,618	1,775	2,089
Lf	495	515	565	615	665	715	815
H	464	504	604	704	804	904	1,104

nsb 075N Type

Pitch P: 75mm
Height B: 108mm
Height H: 2R+144mm
Hs ≧ H+40mm
B1: 36mm **B2:** 72mm

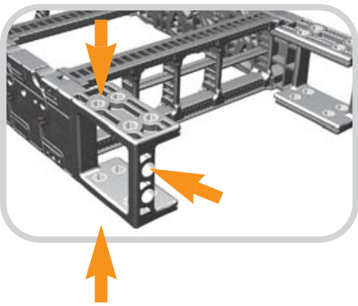
ORDERING (주문방법)

nsb 075N. 200. R380 / F- 3000L : 10ST

주문수량	Q´ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
표준형타입	Normal Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

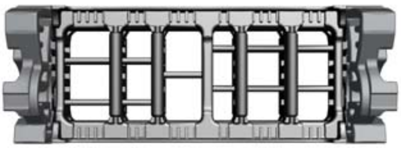
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel washers are inserted into the fixing holes of each Free End Bracket.

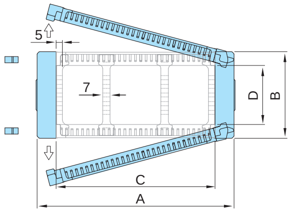
체인을 고정하는 끝부분으로 기존 Easy Eend Bbracket 과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임. 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

nsb 075N Normal Type

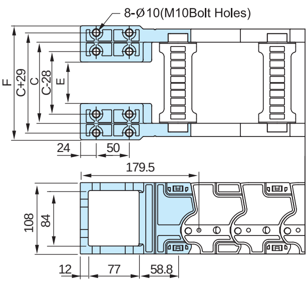
CHAIN CROSS SECTION



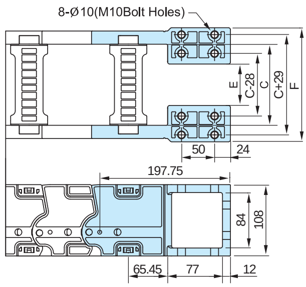


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 075N.075	115		75			4.80
nsb 075N.100	140		100			4.90
nsb 075N.125	165		125			5.02
nsb 075N.150	190		150			5.12
nsb 075N.175	215		175			5.25
nsb 075N.200	240		200			5.46
nsb 075N.250	290	108	250	78	160, 180, 230, 280, 330 380, 480	5.72
nsb 075N.300	340		300			6.09
nsb 075N.350	390		350			6.45
nsb 075N.400	440		400			6.83
nsb 075N.450	490		450			7.12
nsb 075N.500	540		500			7.32
nsb 075N.550	590		550			8.06
nsb 075N.600	640		600			8.20

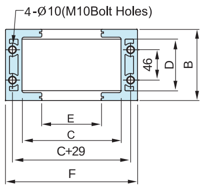
FREE END BRACKET



nsb 075N Fixing point



nsb 075N Moving point



nsb 075N Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 075N.075	125		75		15	
nsb 075N.100	150		100		40	
nsb 075N.125	175		125		65	
nsb 075N.150	200		150		90	
nsb 075N.175	225		175		115	
nsb 075N.200	250		200		140	
nsb 075N.250	300	108	250	78	190	M10 Bolt Holes
nsb 075N.300	350		300		240	
nsb 075N.350	400		350		290	
nsb 075N.400	450		400		340	
nsb 075N.450	500		450		390	
nsb 075N.500	550		500		440	
nsb 075N.550	600		550		490	
nsb 075N.600	650		600		540	

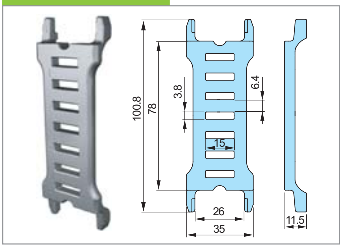
nsb 075N Normal Type

DIVIDERS

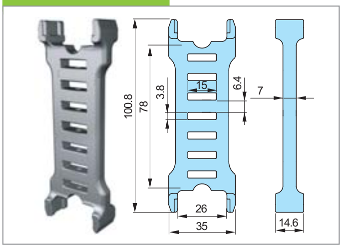
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

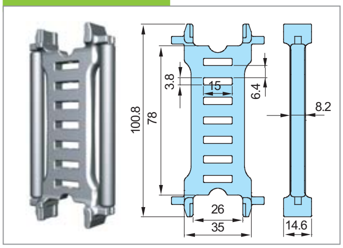
nsb075N DV-S



nsb075N DV-M

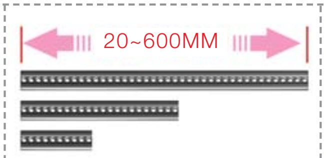


nsb075N DV-R



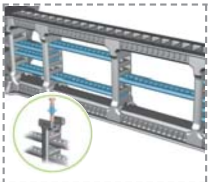
※ Assemble divider every four links.(4링크마다 1개씩 결합.)

SEPARATORS (SP)



Separator (SP)

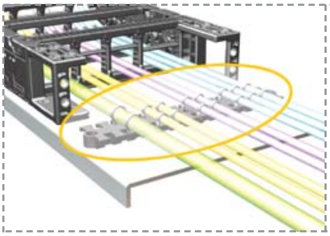
Separator Pin (SP-Pin)

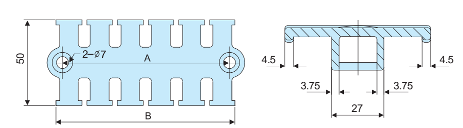


Separator is available in length from 20mm to 600mm and can be cut every 5mm for use.
The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대600mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

The tie wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

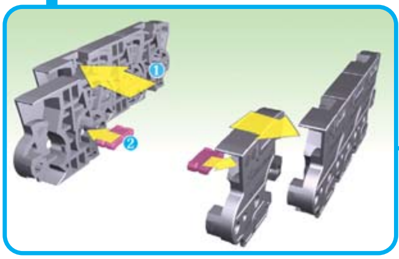
Tie wrap은 Sabin Chain의 브라켓을 기준으로 바깥쪽으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다..

ASSEMBLY PROCEDURE / NORMAL Type

The assembliêrocess of N-Type of New Sabin Chain is like below and you must use rubber hammer with careful combination of Divider and Separator.

New Sabin Chain의 N-Type의 조립순서는 아래와 같이 진행하며 케이블의 입선수량에 따라 디바이더와 세퍼레이터의 조합을 유의하면서 반드시 고무망치를 사용하여 조립합니다.

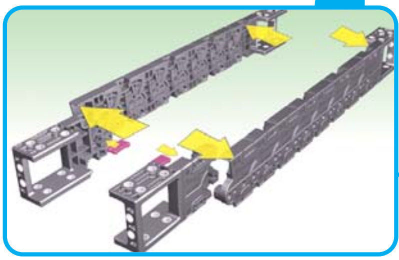
1



Connect each side band as many as you need, then insert holding pin to connecting groove.

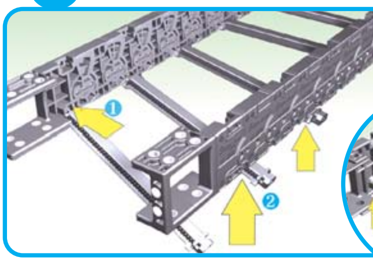
사이드밴드를 원하는 길이만큼 연결(❶)하고 홀딩핀을 사이드밴드 연결홈에 끼워서 고정(❷).

2

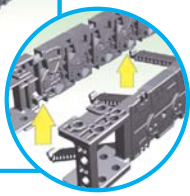


Assemble the end brackets on both ends with holding pin.
사이드밴드 양쪽 끝부분에 브라켓을 연결하고 홀딩핀으로 결합하여 고정.

3

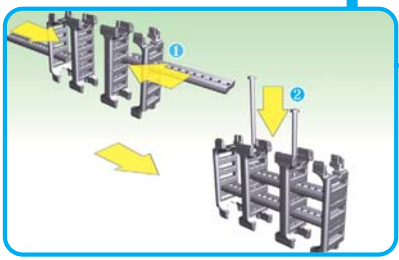


Attach frames to one side groove on the frames, then the other side.
프레임을 사이드밴드 측면 홈에 끼우고(❶) 다른측면의 사이드밴드홈에 결합(❷).



nsb028,035 N Frame Type

4

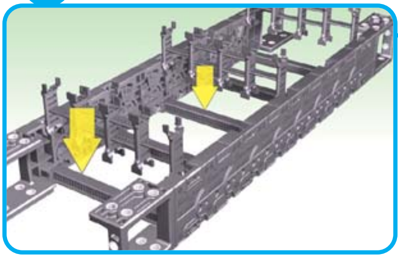


For nsb045, 060 and 075, connect the pin of separator in hole of divider after inserting separator in hole of divider.
For nsb028 and nsb035, separator fixing pins are not used.

디바이더를 종류별로 구분하여 미리 절단된 세퍼레이터를 디바이더 홈에 결합시킨 후 세퍼레이터 고정핀을 디바이더 홈에 결합(nsb045,060,075).
028,035 Type은 세퍼레이터 고정핀 사용안함.

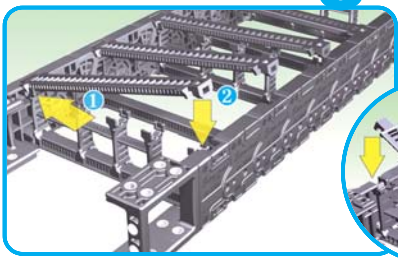
ASSEMBLY PROCEDURE / NORMAL Type

5

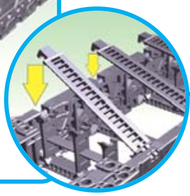


- Fix the separator and divider patterns to the bottom-side frames as needed.
  세퍼레이터가 결합된 디바이더를 하측프레임에 결합.

6

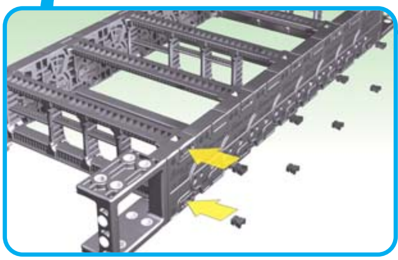


- Attach frames to one side groove on the frames, then the other side.
  프레임을 사이드밴드 측면 홈에 끼우고(1) 다른측면의 사이드밴드홈에 결합(2).



- nsb028,035 N Frame Type

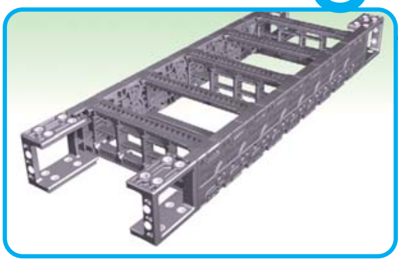
7



- Insert frame pins to secure the frames and complete carrier.
  (nsb045, 060, 075 are applied with frame pin, and nsb028, 035 are Hinge Type or Hook Type without frame pin.)

  결합된 프레임과 사이드밴드의 측면의 홈에 프레임 고정핀으로 결합.
  (프레임 고정핀은 nsb045,060,075 Type에 적용되며 028, 035Type의 경우 Hinge Type이나 프레임 고정핀 없이 Hook 고정방식.)

8



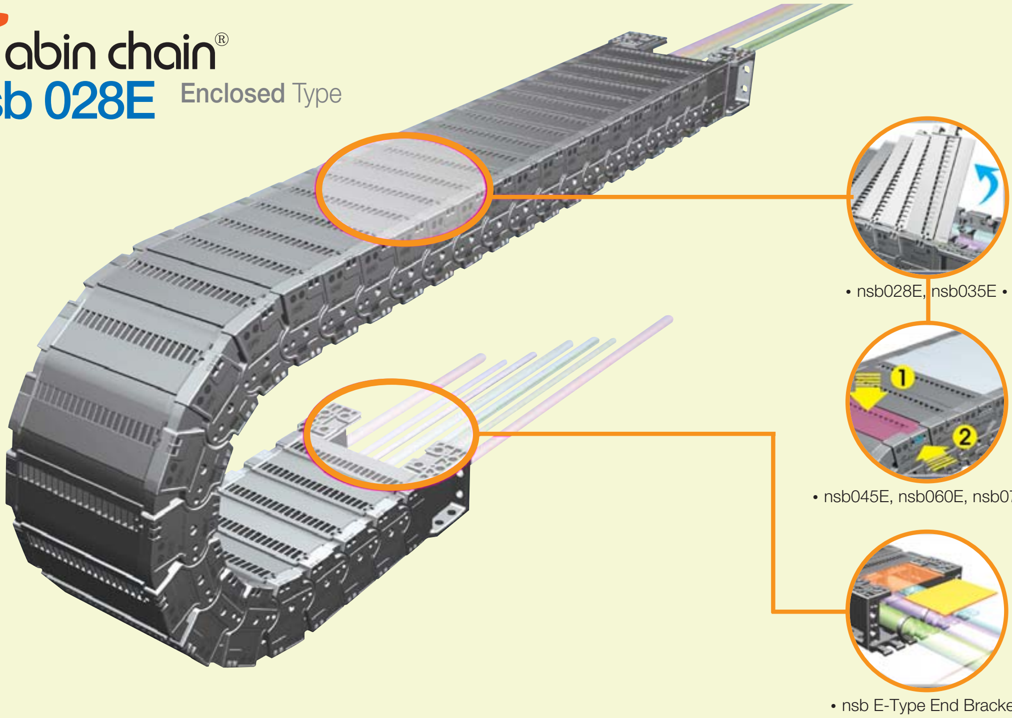
- Complete to assemble New Sabin N-Type, Sabin Chain.
  New Sabin Chain N-Type조립완료.

Sabin chain®

E - TYPE : Enclosed

Min ●●●●●●● Max

Sabin chain®
nsb 028E Enclosed Type

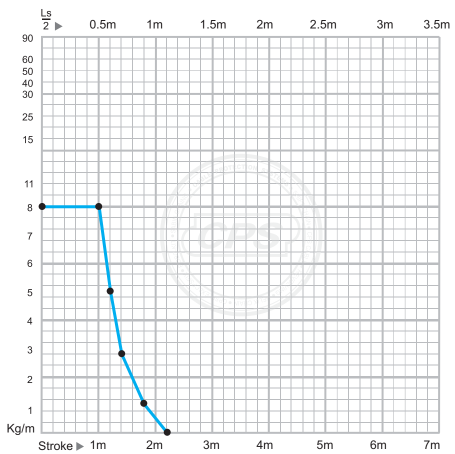


MATERIAL

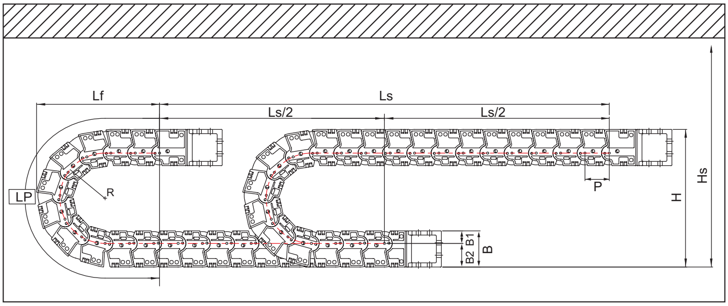
- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise:**
- **Low Mote:**
- **Speed :** 15m / sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above, Unsupported= max 2.0m
  Vertical curve below, Unsupported= max 40m
  Side Mounted, Unsupported= max 1.0m
- **Applications**
  Sabin Chain E can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.
  저분진, 저소음을 요구하는 산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용.
- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

- **Load diagrams self-supporting length**



LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	66	86	116	146
Lp	376	439	533	627
L f	173	193	223	253
H	178	218	278	338

nsb 028E Type

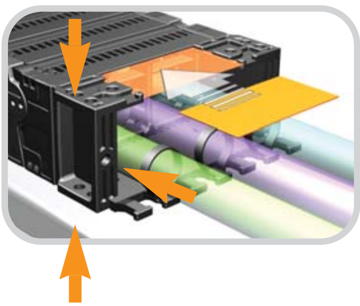
Pitch P: 28mm
Height B: 38mm
Height H: 2R+46mm
Hs ≧ H+30mm
B1: 15mm **B2:** 23mm

ORDERING (주문방법)

nsb 028E. 050. R66 / F- 1000L : 10ST

- 주문수량 Q' ty(set)
- 체인길이 Length(mm)
- 브라켓 Free End Bracket
- 곡률반경 Bending Radius
- 내폭 Inside Width
- 밀폐형타입 Enclose Type
- New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

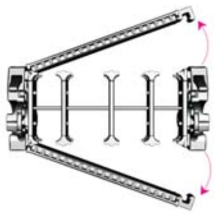
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. Also, inserting plastic sheets creates enclosed structure in the bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.
또한 부자재를 삽입하여 브라켓부분이 완전밀폐가 될수 있는 구조.

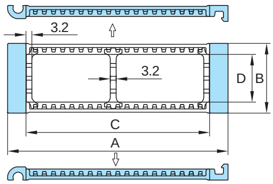
▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

nsb 028E Enclosed Type

CHAIN CROSS SECTION

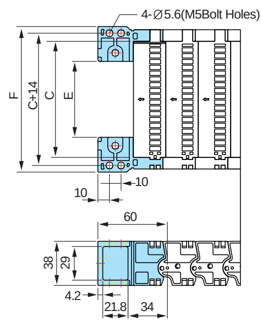


• Hinge Type

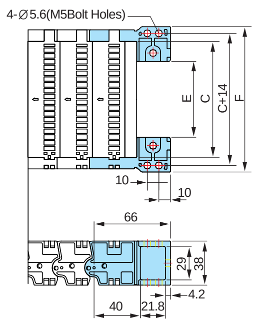


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 028E.035	55	38	35	26	66, 86, 116, 146	1.00
nsb 028E.055	75		55			1.13
nsb 028E.075	95		75			1.30
nsb 028E.100	120		100			1.50

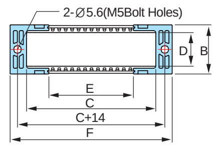
FREE END BRACKET



nsb028E Fixing point



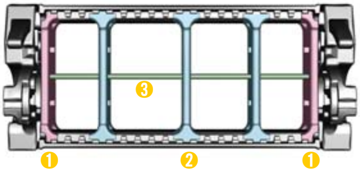
nsb028E Moving point



nsb028E Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 028E.035	60.4	38	35	26	0.4	M5 Bolt Holes
nsb 028E.055	80.4		55		20.4	
nsb 028E.075	100.4		75		40.4	
nsb 028E.100	125.4		100		65.4	

DIVIDERS & SEPARATORS

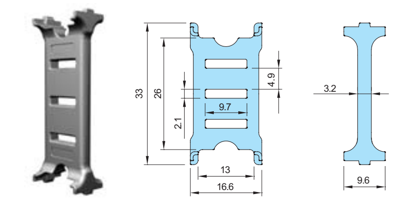


❶ DV-S (측면전용디바이더)
❷ DV-M
❸ Separator(SP)

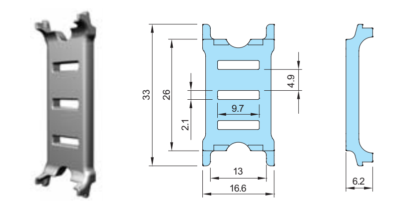
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

nsb028E DV-M



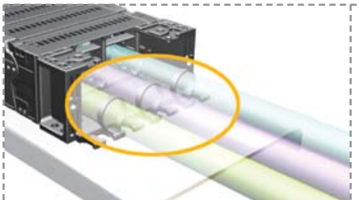
nsb028E DV-S



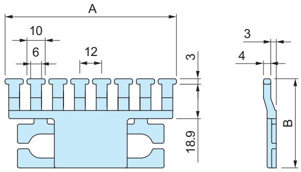
nsb028E Separators (SP) (No. : S-SP/M)

Separators / Chain Type	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
nsb028E	○	○	○	○	○	○	○	○	○
nsb035E	○	○	○	○	○	○	○	○	○

TIE WRAP



Attach to Bracket(브라켓 결합용)



(Dimensions in mm)

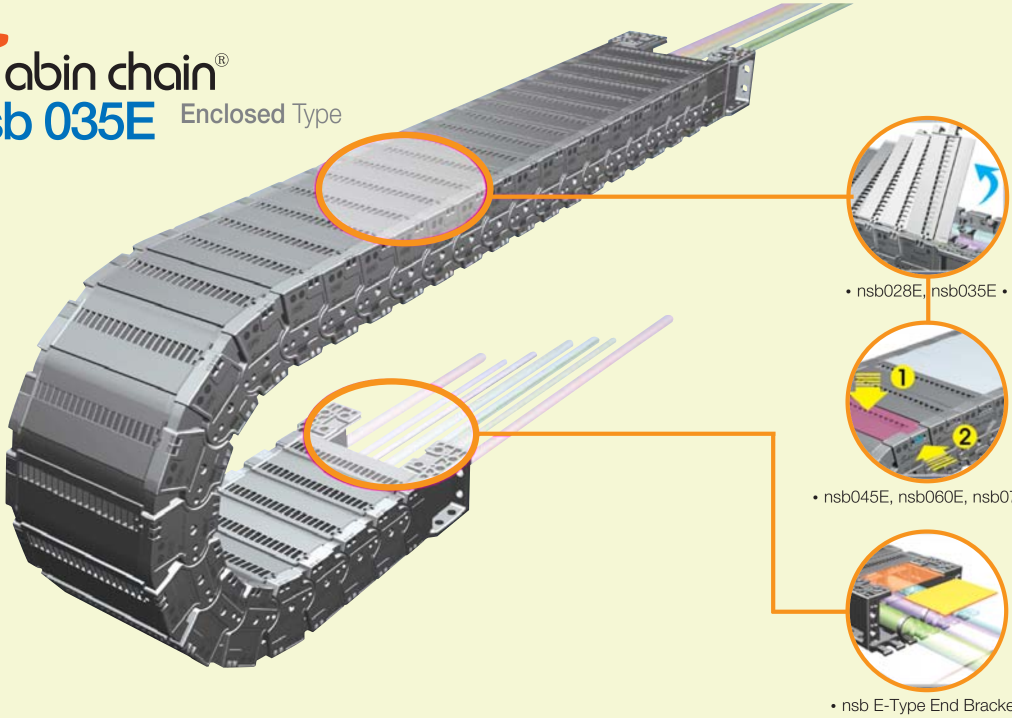
Tie Wrap	035	055	075	100
A	46	70	94	118
B	35.4	48.9	48.9	48.9

The tie wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap; Attached & Unattached to the bracket.

Tiewrap은 Sabin Chain 의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Sabin Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양 과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.

Min ●●●●○○○ Max

Sabin chain®
nsb 035E Enclosed Type



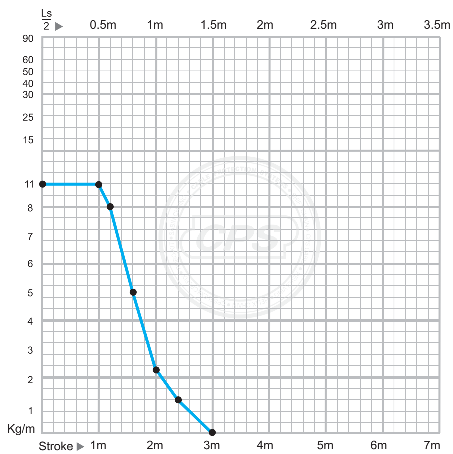
MATERIAL

- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise:**
- **Low Mote:**
- **Speed :** 15m/sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above, Unsupported= max 3.0m
  Vertical curve below, Unsupported= max 50m
  Side Mounted, Unsupported= max 1.0m
- **Applications**
  Sabin Chain E can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

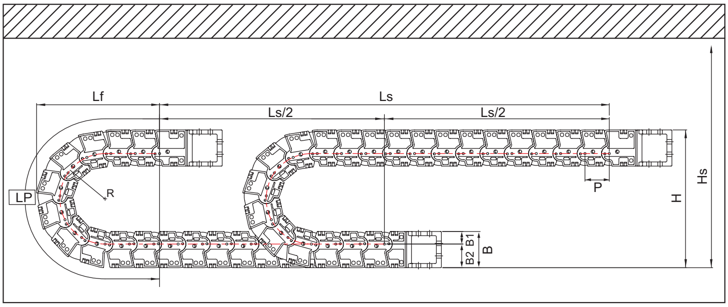
  저분진, 저소음을 요구하는 산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용.
- **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

- **Load diagrams self-supporting length**



LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	90	115	140	190
Lp	493	572	650	807
L f	229	254	279	329
H	248	298	348	448

nsb 035E Type

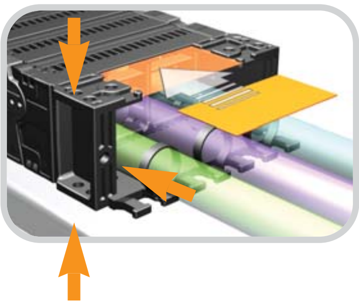
Pitch P: 35mm
Height B: 52mm
Height H: 2R+68mm
Hs≧ H+30mm
B1: 18mm **B2:** 34mm

ORDERING (주문방법)

nsb 035E. 100. R90 / F- 1500L : 10ST

- 10ST — 주문수량 Q´ty(set)
- 1500L — 체인길이 Length(mm)
- F- — 브라켓 Free End Bracket
- R90 — 곡률반경 Bending Radius
- 100. — 내폭 Inside Width
- 035E. — 밀폐형타입 Enclose Type
- nsb — New Sabin Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

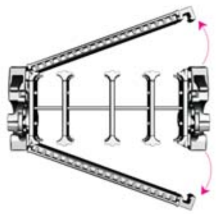
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. Also, inserting plastic sheets creates enclosed structure in the bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.
또한 부자재를 삽입하여 브라켓부분이 완전밀폐가 될수 있는 구조.

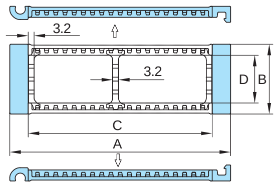
▶ Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

nsb 035E Enclosed Type

CHAIN CROSS SECTION

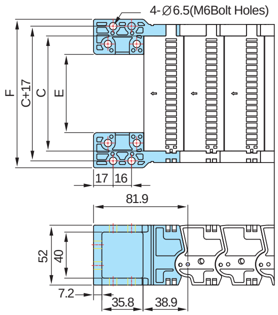


• Hinge Type

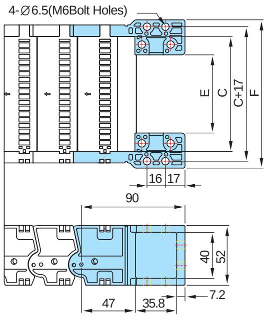


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 035E.050	70	52	50	40	90, 115, 140, 190	1.45
nsb 035E.075	95		75			1.64
nsb 035E.100	120		100			1.83
nsb 035E.125	145		120			2.06
nsb 035E.150	170		150			2.28

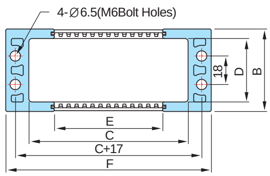
FREE END BRACKET



nsb035E Fixing point



nsb035E Moving point

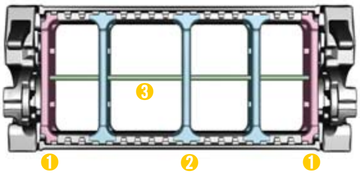


nsb035E Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 035E.050	79	52	50	40	18	M6 Bolt Holes
nsb 035E.075	104		75		43	
nsb 035E.100	129		100		68	
nsb 035E.125	154		120		93	
nsb 035E.150	179		150		118	

nsb 035E Enclosed Type

DIVIDERS & SEPARATORS

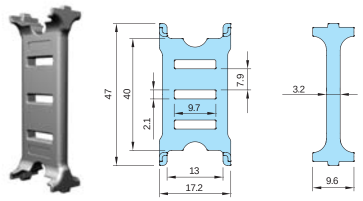


1 DV-S (측면전용디바이더)
2 DV-M
3 Separator(SP)

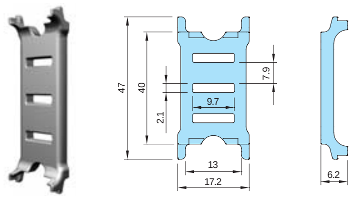
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

nsb035E DV-M



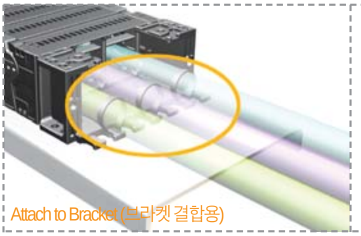
nsb035E DV-S

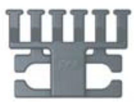


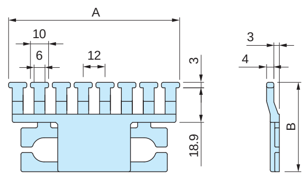
nsb035E Separators (SP) (No. : S-SP/M)

Separators / Chain Type	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
nsb028E	○	○	○	○	○	○	○	○	○
nsb035E	○	○	○	○	○	○	○	○	○

TIE WRAP





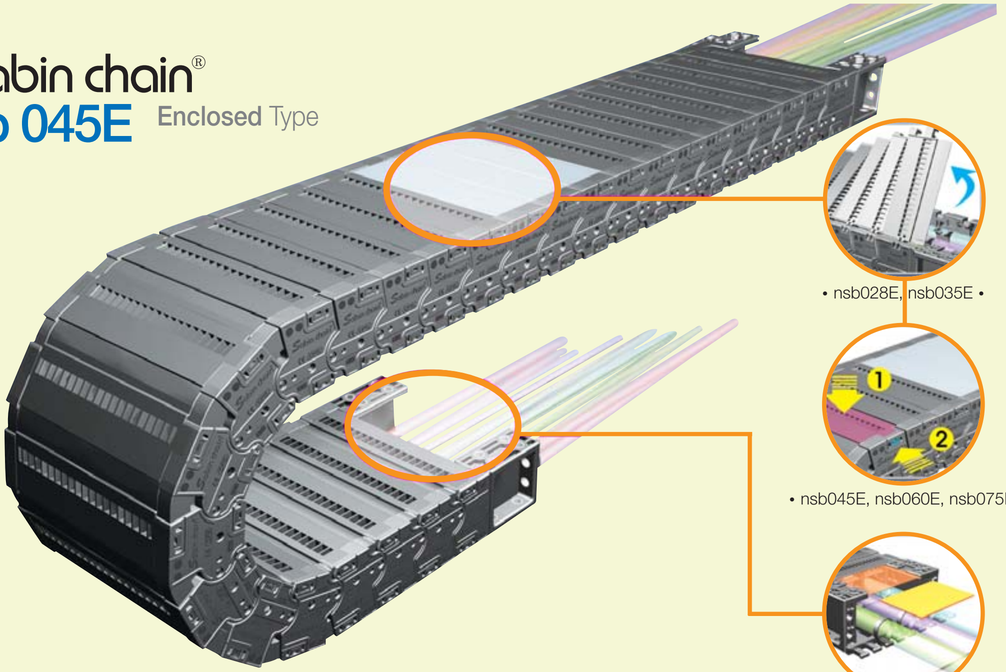


The tie wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.
There are two types in the tie wrap; Attached & Unattached to the bracket.

Tiewrap은 Sabin Chain 의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Sabin Chain의 Tiewrap은 브라켓부분과 근접해서 사용할 수 있는 사양 과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.

Min ●●●●●○○ Max

Sabin chain®
nsb 045E Enclosed Type



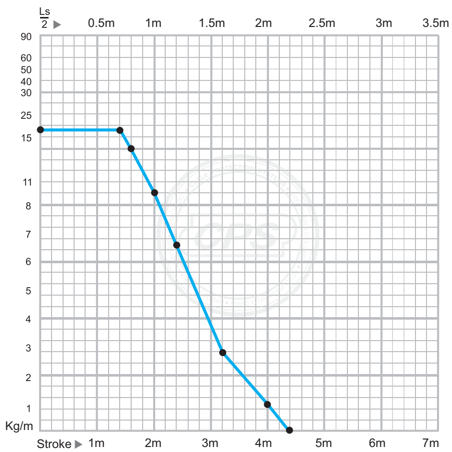
• Alumnum material for nsb E-Type frame is available on customer request.
• nsb–E Type프레임 재질은 고객의 요청시 알루미늄 재질로 제작가능.

MATERIAL

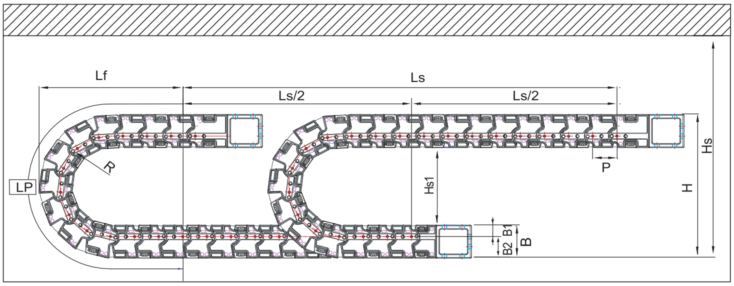
- **Chain material:**
  CPS-amide UL94-HB
- **Low Noise:**
- **Low Mote:**
- **Speed :** 15m/sec
- **Temperature :** -40°C ~ +130°C
- **Other installation Length:**
  Vertical curve above= max 6.0m
  Vertical curve below= max 100m
  Side Mounted, Unsupported= max 2.5m
- **Applications**
  Sabin Chain E can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.
  저분진, 저소음을 요구하는 산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용.
- **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

- **Load diagrams self-supporting length**



LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

nsb 045E Type

Pitch P: 45mm
Height B: 66mm
Height H: 2R+86mm
Hs ≧ H+40mm
B1: 23mm **B2:** 43mm

(Dimensions in mm)

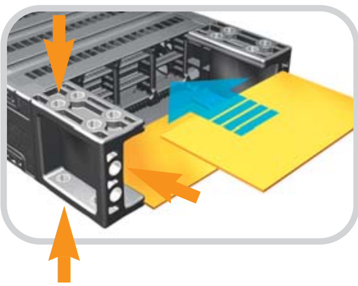
Bending radius R	90	110	135	165	185	235	285
Lp	633	695	774	868	931	1,088	1,245
L f	291	311	336	366	386	436	486
H	266	306	356	416	456	556	656

ORDERING (주문방법)

nsb 045E. 100. R135 /F- 2000L : 10ST

- 10ST — 주문수량 Q′ ty(set)
- 2000L — 체인길이 Length(mm)
- /F- — 브라켓 Free End Bracket
- R135 — 곡률반경 Bending Radius
- 100. — 내폭 Inside Width
- 045E. — 밀폐형타입 Enclose Type
- nsb — New Sabin Chain

BRACKET TYPE (브라켓타입)



▶Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

FEB (Free End Bracket)

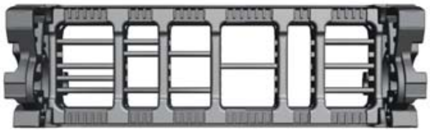
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel spacers are inserted into the fixing holes of each Free End Bracket. Any contaminants can't get into through the gap of bracket by inserted subsidiary parts in the FEB.

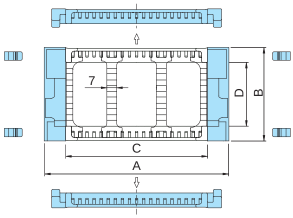
체인을 고정하는 끝부분으로 기존 Easy End bracket 과 Normal End bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임. 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

New Sain chain의 밀폐형 Type의 FEB(브라켓)부분에 부자재를 삽입하여 브라켓 부분을 통해 외부 이물질이 체인안으로 침투하는 현상을 방지하고 완벽한 밀폐로 입선된 케이블을 보호할 수 있습니다.

nsb 045E Enclosed Type

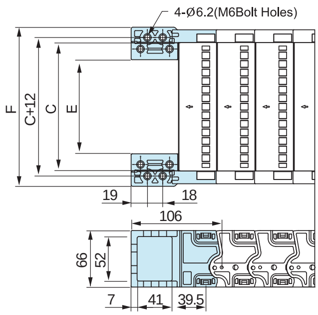
CHAIN CROSS SECTION



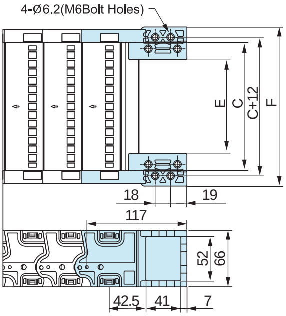


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 045E.075	105	66	75	45	90, 110, 135, 165, 185 235, 285	2.78
nsb 045E.100	130		100			3.07
nsb 045E.125	155		125			3.35
nsb 045E.150	180		150			3.58

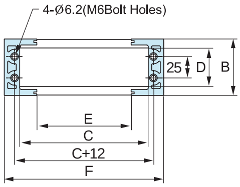
FREE END BRACKET



nsb045E Fixing point



nsb045E Moving point

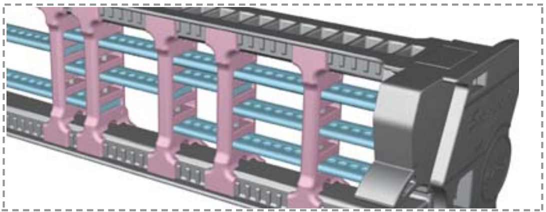


nsb045E Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 045E.075	111	66	75	45	35	M6 Bolt Holes
nsb 045E.100	136		100		60	
nsb 045E.125	161		125		85	
nsb 045E.150	186		150		110	

nsb 045E Enclosed Type

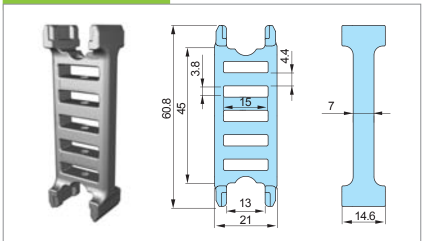
DIVIDERS



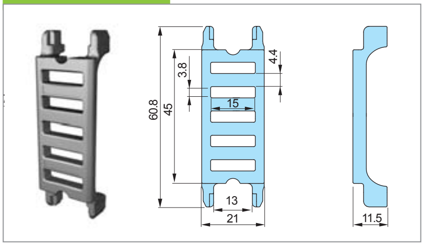
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

nsb045E DV-M

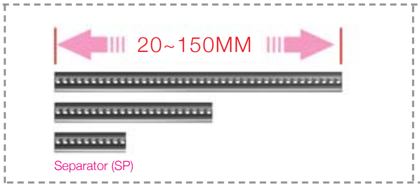


nsb045E DV-S



※ Assemble divider every four links.(4링크마다 1개씩 결합.)

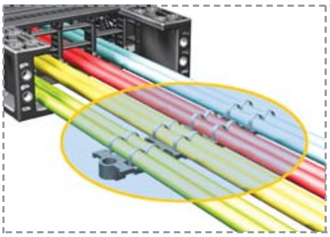
SEPARATORS (SP)

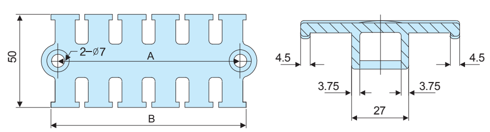


Separator is available in length from 20mm to 150mm and can be cut every 5mm for use.
The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대150mm까지사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

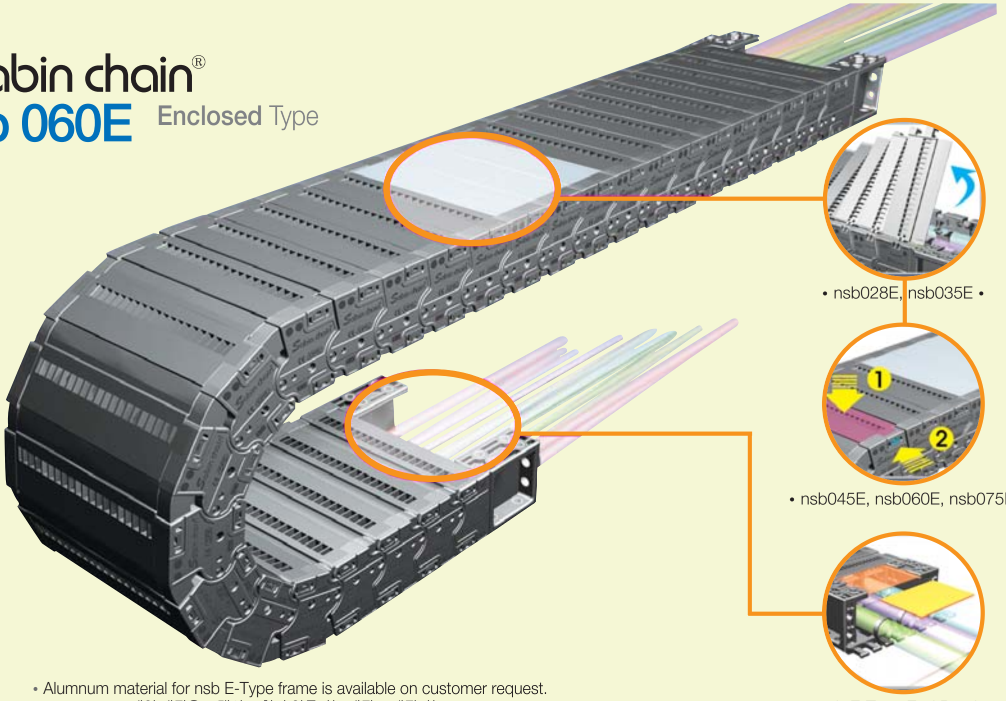
The tie wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie wrap은 Sabin Chain의 브라켓을 기준으로 바깥쪽으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다..

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

Min ●●●●●●● Max

Sabin chain®
nsb 060E Enclosed Type



• Alumnum material for nsb E-Type frame is available on customer request.
• nsb−E Type프레임 재질은 고객의 요청시 알루미늄 재질로 제작가능.

• nsb E-Type End Bracket •

MATERIAL

● **Chain material:**
CPS-amide UL94-HB

● **Low Noise:**

● **Low Mote:**

● **Speed :** 15m/sec

● **Temperature :** -40°C ~ +130°C

● **Other installation Length:**
Vertical curve above= max 6.0m
Vertical curve below= max 100m
Side Mounted, Unsupported= max 3.0m

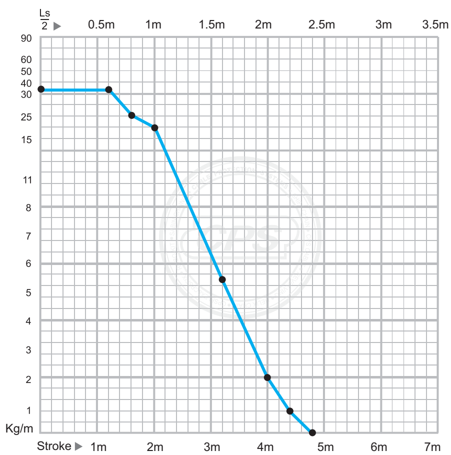
● **Applications**
Sabin Chain E can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

저분진, 저소음을 요구하는 산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용.

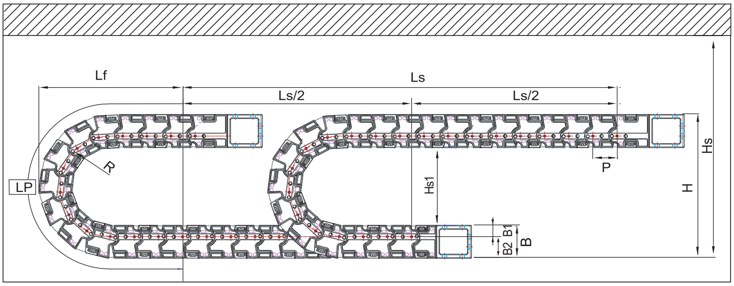
● **Calculation of the chain length**

$$\left[\quad L = \frac{Ls}{2} + Lp \quad\right]$$

● **Load diagrams self-supporting length**



LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

nsb 060E Type

Pitch P: 60mm
Height B: 82mm
Height H: 2R+107mm
Hs ≧ **H+40mm**
B1: 28.5mm **B2:** 53.5mm

(Dimensions in mm)

Bending radius R	125	135	150	180	230	270	340
Lp	854	885	932	1,026	1,183	1,309	1,529
L f	389	399	414	444	494	534	604
H	357	377	407	467	567	647	787

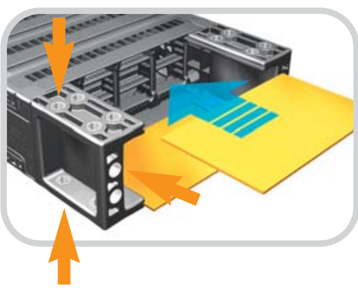
ORDERING (주문방법)

nsb 060E. 200. R230 /F- 2000L : 10ST

주문수량	Q' ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
밀폐형타입	Enclose Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



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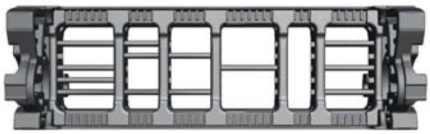
FEB (Free End Bracket)

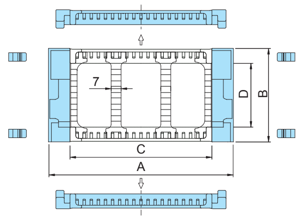
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel spacers are inserted into the fixing holes of each Free End Bracket. Any contaminants can't get into through the gap of bracket by inserted subsidiary parts in the FEB.

체인을 고정하는 끝부분으로 기존 Easy End bracket 과 Normal End bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임. 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.
New Sain chain의 밀폐형 Type의 FEB(브라켓)부분에 부자재를 삽입하여 브라켓 부분을 통해 외부 이물질이 체인안으로 침투하는 현상을 방지하고 완벽한 밀폐로 입선된 케이블을 보호할 수 있습니다.

nsb 060E Enclosed Type

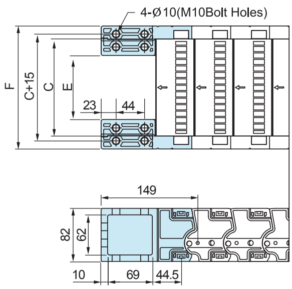
CHAIN CROSS SECTION



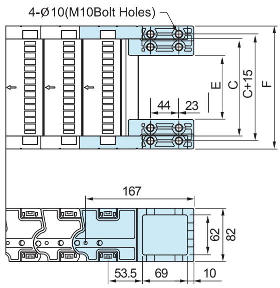


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 060E.100	140		100			4.32
nsb 060E.150	190	82	150	56	125, 135, 150, 180, 230, 270, 340	4.86
nsb 060E.200	240		200			5.41

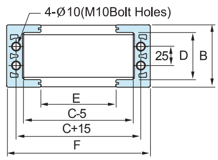
FREE END BRACKET



nsb060E Fixing point



nsb060E Moving point



nsb060E Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 060E.100	140		100		49	
nsb 060E.150	190	82	150	56	99	M10 Bolt Holes
nsb 060E.200	240		200		149	

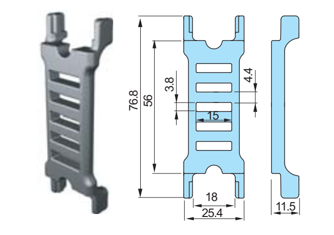
nsb 060E Enclosed Type

DIVIDERS

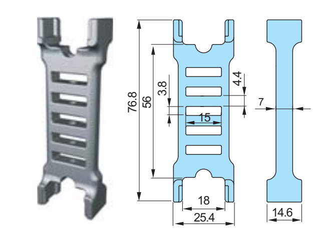
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

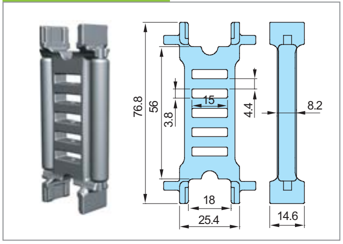
nsb060E DV-S



nsb060E DV-M

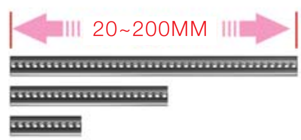


nsb060E DV-R



※ Assemble divider every four links.(4링크마다 1개씩 결합.)

SEPARATORS (SP)



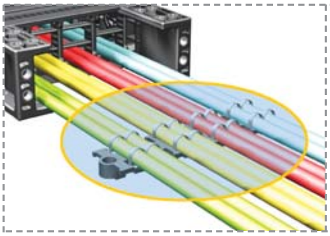
Separator (SP)

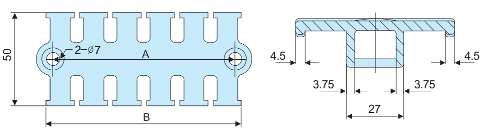
Separator Pin (SP-Pin)

Separator is available in length from 20mm to 200mm and can be cut every 5mm for use.
The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소 20mm부터 최대 200mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





(Dimensions in mm)

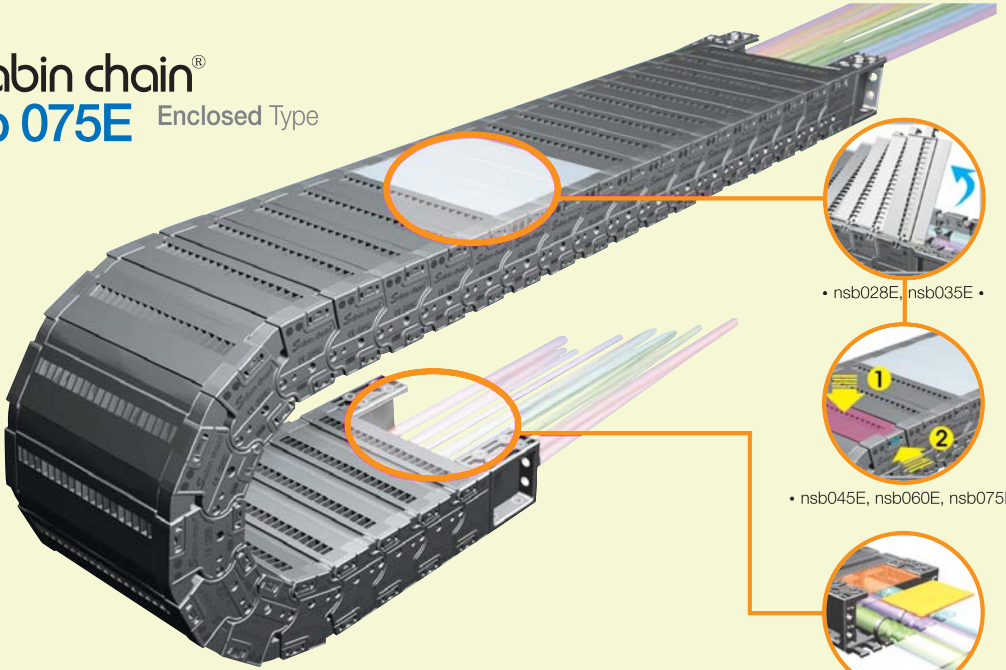
The tie wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie wrap은 Sabin Chain의 브라켓을 기준으로 바깥쪽으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다..

Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

Min ●●●●●●● Max

Sabin chain®
nsb 075E Enclosed Type



• Alumnum material for nsb E-Type frame is available on customer request.
• nsb–E Type프레임 재질은 고객의 요청시 알루미늄 재질로 제작가능.

• nsb E-Type End Bracket •

MATERIAL

● **Chain material:**
CPS-amide UL94-HB

● **Low Noise:**

● **Low Mote:**

● **Speed :** 15m/sec

● **Temperature :** -40°C ~ +130°C

● **Other installation Length:**
Vertical curve above= max 6.0m
Vertical curve below= max 120m
Side Mounted, Unsupported= max 3.0m

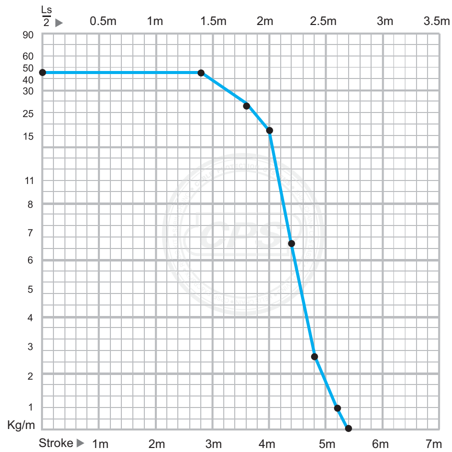
● **Applications**
Sabin Chain E can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

저분진, 저소음을 요구하는 산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용.

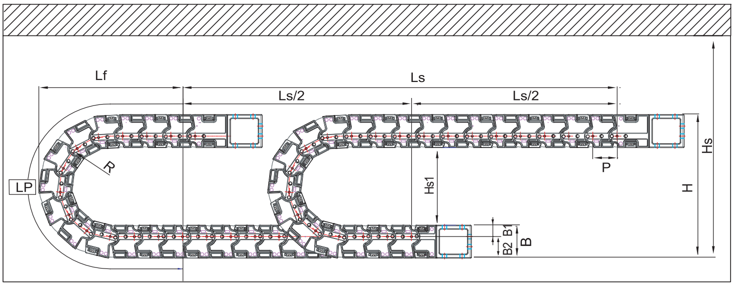
● **Calculation of the chain length**

$$\left[\ L = \frac{Ls}{2} + Lp\ \right]$$

● **Load diagrams self-supporting length**



LAYOUT OF THE CHAIN



Ls: Stroke
Lp: Loop Length
Lf: Loop Projection
Hs: Safe Space

(Dimensions in mm)

Bending radius R	160	180	230	280	330	380	480
Lp	1,084	1,147	1,304	1,461	1,618	1,775	2,089
L f	495	515	565	615	665	715	815
H	464	504	604	704	804	904	1,104

nsb 075E Type

Pitch P: 75mm
Height B: 108mm
Height H: 2R+144mm
Hs≧ H+40mm
B1: 36mm **B2:** 72mm

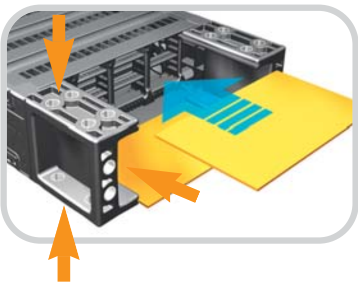
ORDERING (주문방법)

nsb 075E. 300. R330 /F- 2500L : 10ST

주문수량	Q' ty(set)
체인길이	Length(mm)
브라켓	Free End Bracket
곡률반경	Bending Radius
내폭	Inside Width
밀폐형타입	Enclose Type

New Sabin Chain

BRACKET TYPE (브라켓타입)



▶Above products are patent registered item which can be protected by industrial property right. (상기제품은 특허등록 제품으로 산업재산권의 보호를 받는 제품입니다.)

FEB (Free End Bracket)

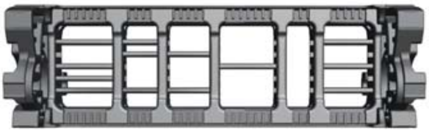
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel spacers are inserted into the fixing holes of each Free End Bracket. Any contaminants can't get into through the gap of bracket by inserted subsidiary parts in the FEB.

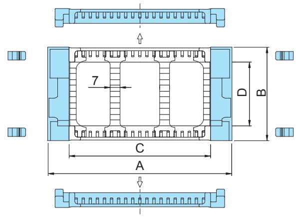
체인을 고정하는 끝부분으로 기존 Easy End bracket 과 Normal End bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임. 또한 스틸와셔를 결합하여 더욱 견고한 취부가 가능.

New Sain chain의 밀폐형 Type의 FEB(브라켓)부분에 부자재를 삽입하여 브라켓 부분을 통해 외부 이물질이 체인안으로 침투하는 현상을 방지하고 완벽한 밀폐로 입선된 케이블을 보호할 수 있습니다.

nsb 075E Enclosed Type

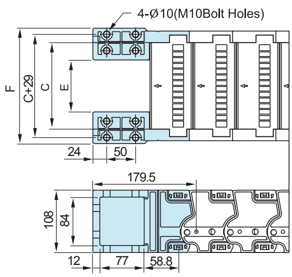
CHAIN CROSS SECTION



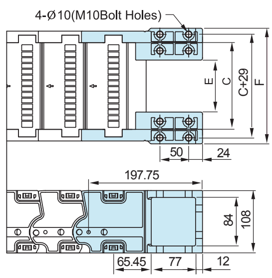


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 075E.150 nsb 075E.200 nsb 075E.300	190 240 340	108	150 200 300	78	160, 180, 230, 280, 330, 380, 480	7.01 7.97 9.48

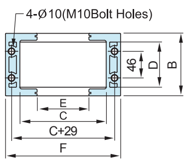
FREE END BRACKET



nsb060E Fixing point



nsb060E Moving point



nsb060E Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 075E.150 nsb 075E.200 nsb 075E.300	200 250 350	108	150 200 300	78	90 140 240	M10 Bolt Holes

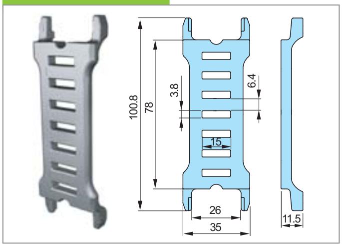
nsb 075E Enclosed Type

DIVIDERS

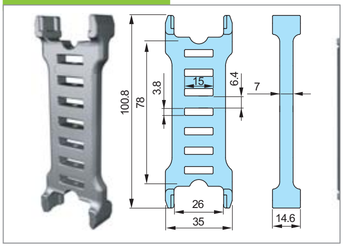
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of a separator in some cases, can also reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule, there needs to be at least 10% space between the inserted cable and its enclosure.

디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.

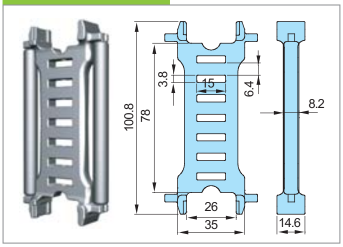
nsb075E DV-S



nsb075E DV-M

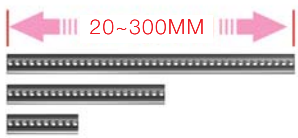


nsb075E DV-R



※ Assemble divider every four links.(4링크마다 1개씩 결합.)

SEPARATORS (SP)



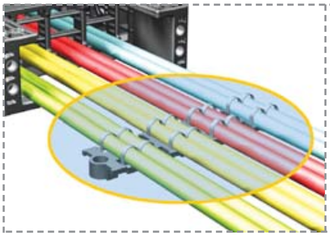
Separator (SP)

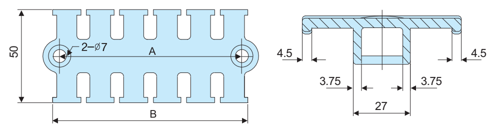
Separator Pin (SP-Pin)

Separator is available in length from 20mm to 300mm and can be cut every 5mm for use.
The combined use of divider and sepatator with the pin creates the most effective cable pattern and keep insertion space for cables safely, so it protects the inserted cables.

세퍼레이터의 사용길이는 최소20mm부터 최대300mm까지 사용가능하며 5mm간격으로 절단하여 원하는 길이로 사용가능합니다. 크기가 각각 다른 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP





The tie wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie wrap은 Sabin Chain의 브라켓을 기준으로 바깥쪽으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다..

(Dimensions in mm)

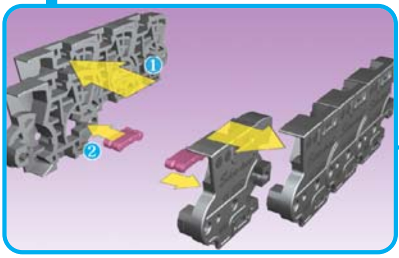
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

ASSEMBLY PROCEDURE / ENCLOSED Type

The assembling process of E-Type of New Sabin Chain is like below and you must use rubber hammer with careful combination of Divider and Separator.

New Sabin Chain의 E-Type의 조립순서는 아래와 같이 진행하며 케이블의 입선수량에 따라 디바이더와 세퍼레이터의 조합을 유의하면서 반드시 고무망치를 사용하여 조립합니다.

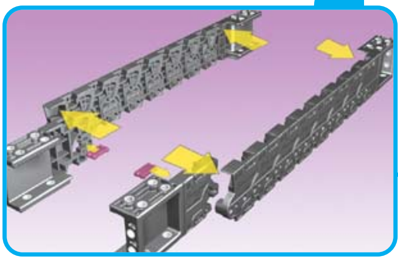
1



Connect each side band as many as you need, then insert holding pin to connecting groove.

사이드밴드를 원하는 길이만큼 연결(❶)하고 홀딩핀을 사이드밴드 연결홈에 끼워서 고정(❷).

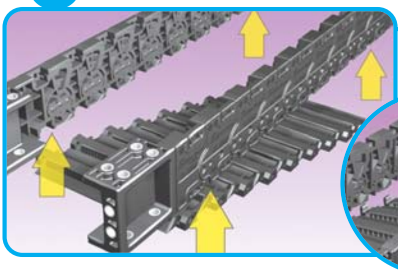
2



Assemble the end brackets on both ends with holding pin.

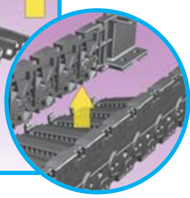
사이드밴드 양쪽 끝부분에 브라켓을 연결하고 홀딩핀으로 결합하여 고정.

3



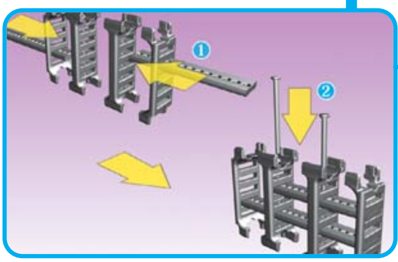
Attach frames starting with the bottom side of the carrier.

하부 프레임을 사이드밴드에 결합.



028E, 035E Type are Hinge Frame Type.

4

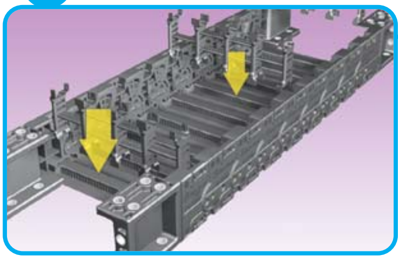


For nsb 045, 060, and 075, connect the pin of separator in hole of divider after inserting separator in hole of divider.
For nsb028 and nsb035, separator fixing pins are not used.

디바이더를 종류별로 구분하여 미리 절단된 세퍼레이터를 디바이더 홈에 결합시킨 후 세퍼레이터 고정핀을 디바이더 홈에 결합(nsb 045, 060, 075).
028, 035 Type은 세퍼레이터 고정핀 사용안함.

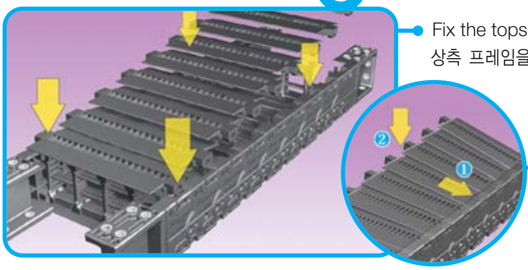
ASSEMBLY PROCEDURE / ENCLOSED Type

5



Fix the separator and divider patterns to the bottom-side frames as needed.
세퍼레이터가 결합된 디바이더를 하측프레임에 결합.

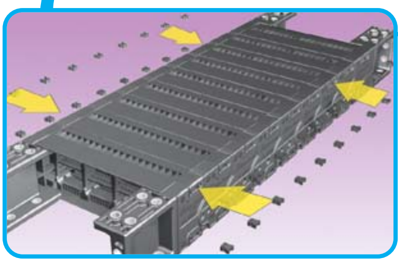
6



Fix the topside frames to the carrier.
상측 프레임을 사이드밴드와 디바이더의 홈에 정확하게 결합.

028E,035E Type are Hinge Frame Type.

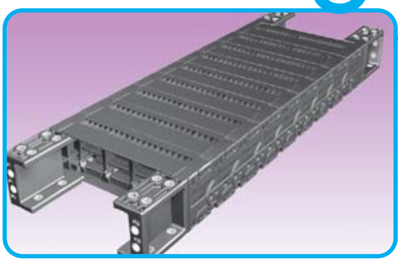
7



Insert frame pins to secure the frames and complete carrier.
(nsb045, 060, 075 are applied with frame pin, and nsb028, 035 are Hinge Type or Hook Type without frame pin.)

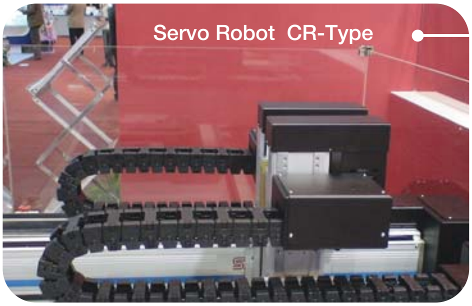
결합된 프레임과 사이드밴드의 측면의 홈에 프레임 고정핀으로 결합.
(프레임 고정핀은 nsb045,060,075 Type에 적용되며 028, 035Type의 경우 Hinge Type이나 프레임 고정핀 없이 Hook 고정방식.)

8

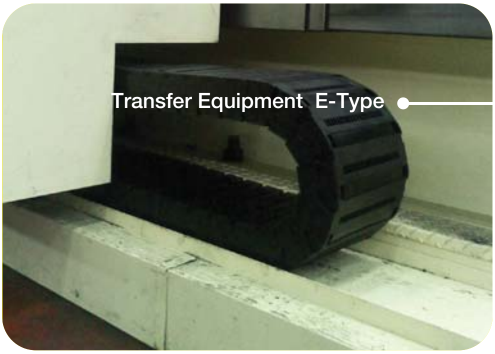


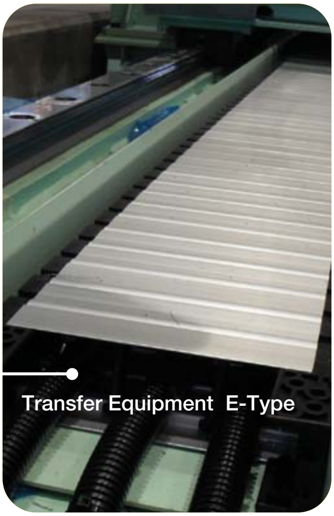
Complete to assemble New Sabin E-Type, Sabin Chain.
New Sabin Chain E-Type조립완료.

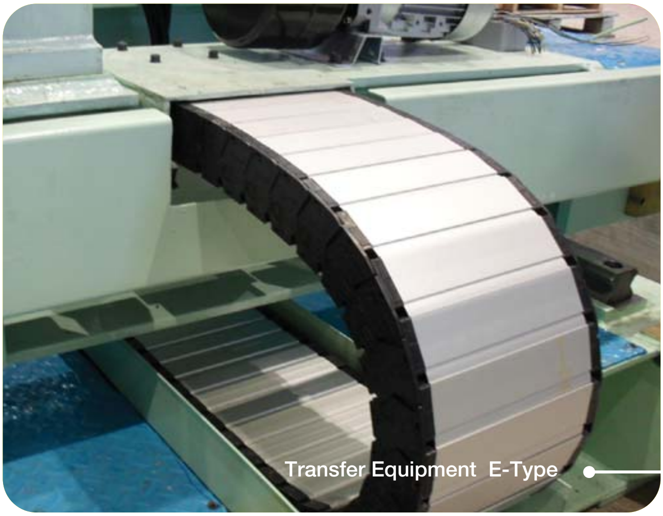
APPLICATION IMAGE / 적용이미지



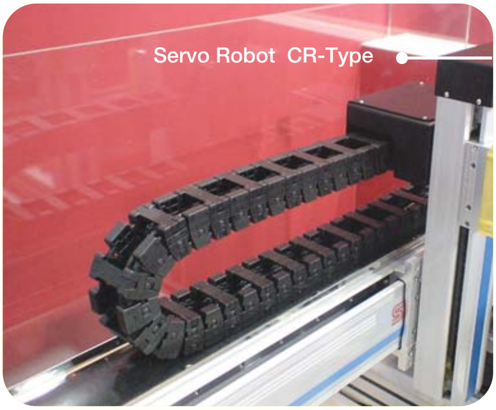
APPLICATION IMAGE / 적용이미지





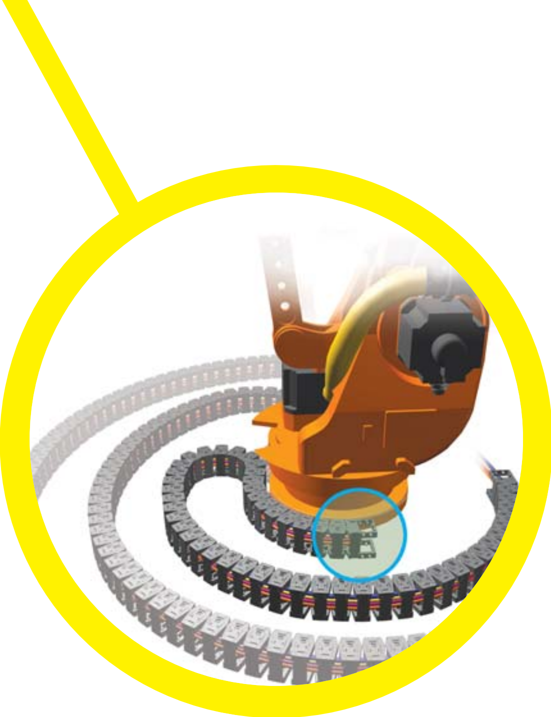


APPLICATION IMAGE / 적용이미지



CPS CABLECHAIN 대체사양안내

CPS Cable Chain Medium-Type	Pitch	Bending Radius R	Weight kg/m	Speed m/sec	Temperature °C	Clearance A	Clearance B	Clearance C	Clearance D	Frame style	Divider possible with frame	Substitute specifications (대체사양) Shift Chain	
CPS036.035	36	70, 90,120,150	1.21	10	-30 ~ +130	59	38	35	27			ST044E	P189
CPS036.055	36		1.29			79	38	55	27				
CPS036.075	36		1.39			99	38	75	27				
CPS036.100	36		1.50			124	38	100	27				
CPS050.050	50	100, 125, 150, 200	1.98	10	-30 ~ +130	78	52	50	38			ST044E	P189
CPS050.075	50		2.22			103	52	75	38				
CPS050.100	50		2.44			128	52	100	38				
CPS050.125	50		2.59			153	52	125	38				
CPS050.150	50		2.93			178	52	150	38				
CPS036N.035	36	50, 70, 90, 120,150	1.18	10	-30 ~ +130	59	38	35	28			ST044N	P53
CPS036N.055	36		1.21			79	38	55	28				
CPS036N.075	36		1.29			99	38	75	28				
CPS036N.100	36		1.40			124	38	100	28				
CPS036N.125	36		1.47			149	38	125	28				
CPS050N.050	50	75,100,125, 150, 200	1.86	10	-30 ~ +130	78	52	50	40			ST055N	P57
CPS050N.075	50		1.98			103	52	75	40				
CPS050N.100	50		2.10			128	52	100	40				
CPS050N.110	50		2.16			138	52	110	40				
CPS050N.125	50		2.28			153	52	125	40				
CPS050N.150	50		2.36			178	52	150	40				
CPS050N.175	50		2.50			203	52	175	40				
CPS050N.200	50		2.58			228	52	200	40				
Normail -Type	**Pitch**	**Bending Radius R**	**Weight**	**Speed**	**Temperature**	**Clearance**				**Frame style**	**Divider possible with frame**		
CPS068N	68	75,100,150,200,250,300	3.57	10	-30 ~ +130	80~430	60	50~400	40			ST072N	P61
CPS077N	77	100,120,140,200,250,300	3.72			80~430	70	50~400	50				
CPS095N	95	135,150,200,230,280,400	5.29			115~440	82	75~400	54			ST095N ST120N	P65 P69
CPS120N	120	180,200,250,300,350,400,500	5.68			115~440	108	75~400	80				
Sliding -Type	**Pitch**	**Bending Radius R**	**Weight**	**Speed**	**Temperature**	**Clearance**				**Frame style**	**Divider possible with frame**		
CPS036S.035	36	70,90,120,150	1.25	10	-30 ~ +130	67	41	35	28			ST044RS	P129
CPS036S.055	36		1.31			87	41	55	28				
CPS036S.075	36		1.36			107	41	75	28				
CPS036S.100	36		1.46			132	41	100	28				
CPS068S	68	100,150,200,250,300	3.89	10	-30 ~ +130	96~446	65	50~400	40			ST072S,RS	P93/134
CPS077S	77	120,140,200,250,300	4.11			96~446	75	50~400	50				
CPS095S	95	135,150,200,230,280,400	5.81			129~454	89	75~400	54			ST095S,RS ST120S,RS	P98/139 P103/144
CPS120S	120	180,200,250,300,350,400,500	6.26			129~454	115	75~400	80				
Enclosed-Type	**Pitch**	**Bending Radius R**	**Weight**	**Speed**	**Temperature**	**Clearance**				**Frame style**	**Divider possible with frame**		
CPS036E.035	36	70,90,120,150	1.23	10	-30 ~ +130	59	38	35	27			ST044E	P189
CPS036E.055	36		1.35			79	38	55	27				
CPS036E.075	36		1.46			99	38	75	27				
CPS036E.100	36		1.63			124	38	100	27				
CPS050E.050	50	100,125,150,200	2.07	10	-30 ~ +130	78	52	50	30.5			ST055E	P193
CPS050E.075	50		2.35			103	52	75	30.5				
CPS050E.100	50		2.61			128	52	100	30.5				
CPS050E.150	50		3.23			178	52	150	30.5				



REVOLVING CHAIN

GENERAL CATALOGUE 2013

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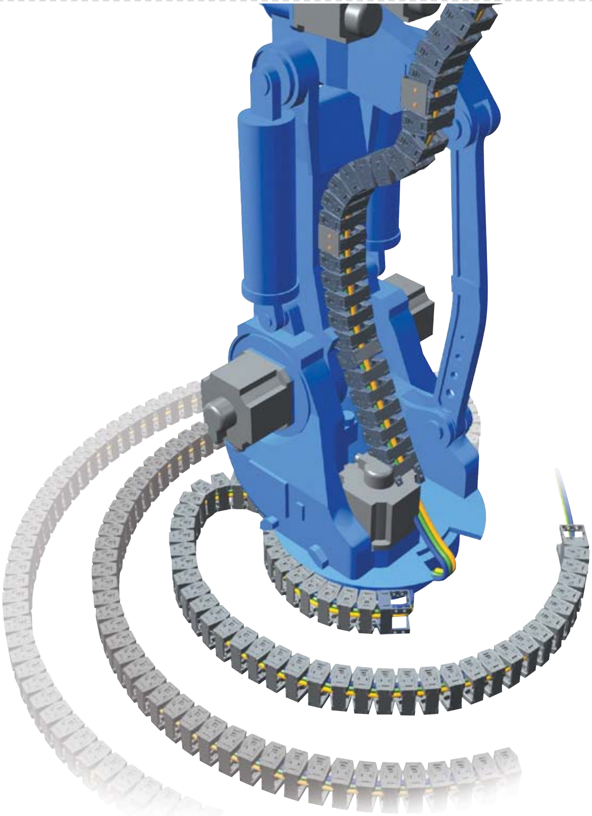
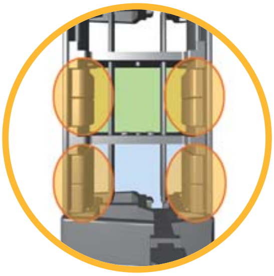
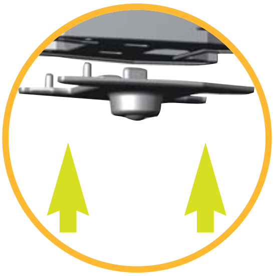
Using Material of High Quality!







Free Banding Radius!

A Automatically control the bending radius and reverse bending radius.
곡률반경 및 역곡률 반경 자동조절

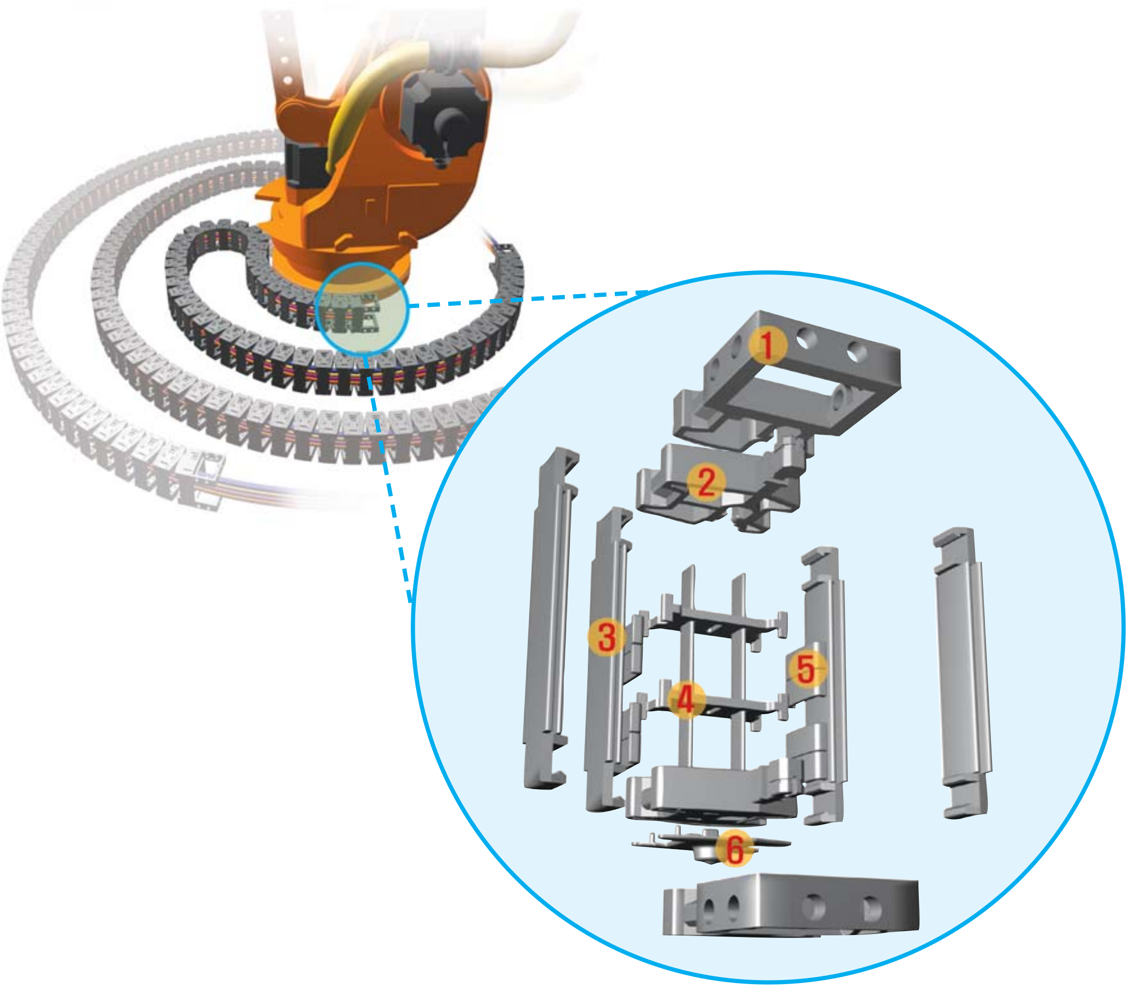
B Maximize the mobility of bending radius.
곡률반경의 유동성 극대화

C Apply to the rotating Machine or Robot.
회전하는 기계 및 로봇에 적용

D Low dust and low noise realization.
저분진, 저소음 실현

E Improve the productivity by more secured cable protection system.
안전한 케이블보호로 생산성 향상

PART NAME AND DESCRITION / 명칭 및 설명



Safer equipment management. Smoother, quieter overall operational movement. Easy installation... All qualities of the patented new **Revolving Chain** from CPS.

Revolving Chain blends the latest technological efforts with customer requests for larger, smoother and quieter ranges of movement. Revolving Chain's abilities stretch even further, made possible by the patented free-bending radius. So whether or not your operating equipment is moving a full range of more than 360 degrees continuously, or if it is moving different ranges in different shorter movements, Revolving Chain protects your cables while quietly allowing the equipment to move freely throughout the full range of motion. Lastly, equipped with the patented free-end bracket, it can be easily, quickly and safely installed limiting your operational downtime.

Revolving chain 은 회전하는 기계 및 로봇등에 적용되어있는 케이블을 보호하는 제품으로 케이블의 움직임 및 방향성을 저해하지 않도록 설계되어 외부의 위험으로 부터 케이블을 안전하게 보호할 수 있습니다. 체인의 곡률 반경 및 역곡률 반경을 자동조절하는 Free Banding Radius 방식은 씨피시스템 만의 독자기술력으로 개발되어 곡률반경의 유동성을 극대화시킨 신개념 케이블체인으로 특허보유기술 입니다. 그리고 독창적인 밴드결합방식을 채택하여 분진과 소음을 최소화 시켜 분진 및 소음규제가 적용되는 사업장에서도 적용가능한 차세대 케이블체인입니다.

1 Easy Bracket

The end of the cable chain, used to mount the application to the operating machinery or moving apparatus. CPS has improved the end bracket by making it possible to mount the cable chain from the front, side, bottom, or top.

체인을 고정하는 끝부분으로 전방과 좌,우 측면에서 고정이 가능한 방식으로 체인을 고정시킬때 편리성과 효율성을 높임.

2 Side Band

Developed and patented by CPS. As a result of the sideband connection method, virtually no noise is produced during operation. This is made possible by eliminating all points of friction.

체인을 원하는 길이만큼 연결할 수 있으며 밴드결합방식으로 분진과 소음의 발생을 억제하는 독자기술력으로 개발한 방식.

3 Frame

Connects the sidebands crosswise and provides stability and strength to the cable chain. CPS frames are smoothed out to ensure maximum protection for your cables.

사이드밴드의 연결지지대 역할을 하며 케이블과 마찰이 일어나는 후레임의 안쪽면을 부드럽게 면 처리함으로써 케이블과의 마찰로 인한 피복손상을 방지.

4 Divider & Separator

Used to separate the cables inside of the cable chain and protect them from twisting, shearing, and breaking. Available for use with CR-Type, N-Type, E-Type and S-Type.

크기가 다른 2개이상의 케이블이 입선될 시 각각의 케이블을 서로 분리시켜주는 역할로 내부공간을 효율적으로 활용가능하며 케이블 서로간의 마찰로 인한 피복손상 및 단선을 방지.

5 Stopper

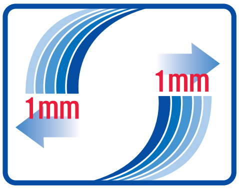
Used only on Sabin Chain Clean Room applications, stoppers control the divider position and lock the inserted cable grid in place during operation. Stoppers can be applied directly to the frame according to their width.

체인내부에 설치되는 디바이더의 위치를 조정하고 고정하는 역할로 케이블의 크기에 따른 디바이더의 위치 조정시 후레임에 필요한 수량만큼 결합하여 사용.

6 Ball Caster

Attached to the bottom of the sidebands, ball casters help to facilitate smooth and quiet movement of the cable chain. CPS ball casters also help to stabilize the cable chain for best results during operation.

사이드밴드의 하단부에 결합되어 체인의 이동시 원활한 이동을 가능하도록 하며 사이드밴드의 직접적인 마찰면을 대신해 볼을 통한 마찰로 마찰계수를 줄여 원하는 방향으로의 안정적인 체인이동이 가능.
브라켓기준 첫링크에는 볼케스트를 반드시 적용하고 이후 8링크단위(최소단위)로 1개씩 볼케스트를 적용.
(자세한 사항은 기술부로 문의)



Adjustable Bending Radius per 1mm!

Revolving Chain adjusts to the machine or application movement by creating various bending radius automatically as the application moves through its full range of motion.

리볼빙체인은 1mm 간격으로 곡률반경 및 역곡률반경을 자유롭게 조절가능.

ORDERING (주문방법)

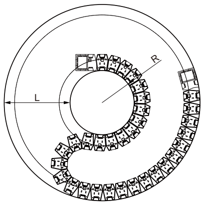
RV 048CR. 200. A / F - 1000L : 10ST

10ST	주문수량	Q´ ty(set)
1000L	체인길이	Length(mm)
F	브라켓	Free End Bracket
A	볼케스터 타입	Application Type of Ball Caster
200	내고	Inner Height of Chain
048CR	체인타입	Chain Type (RV020, 028, 040, 048, 060CR)
RV		Revolving Chain

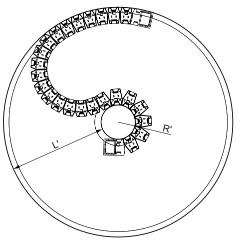
SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

RV 020CR

CHAIN CROSS SECTION



TYPE - A

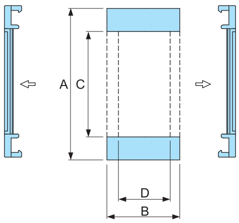


TYPE - B

Type A	Minimum distance (L) 최소 원 간격(L)	130
	Minimum reverse bending (R) 역R 최소값(R)	40
Type B	Minimum distance (L) 최소 원 간격(L')	150
	Minimum reverse bending (R) 역R 최소값(R')	30

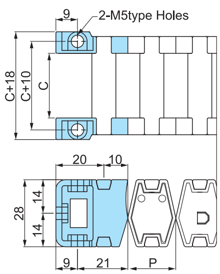
There are two installation choices, A or B corresponding with the bending radius of the side band. Choose A or B installation when there is insufficient distance between R, R (Inner Bending Radius) and L, L (Reverse)

Side band의 곡률반경에 따라 A or B 타입으로 구분.
내부 곡률반경(R, R')의 치수와 역곡률반경의 공간 (L, L')의 거리가 제한적일경우 A Type과 B Type으로 구분하여 설치.

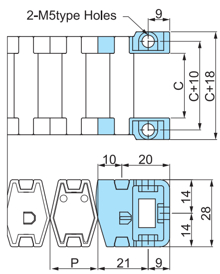


Chain Type	A(A1)	B	C	D(D1)
RV020CR.16	30	28	16	22
RV020CR.27	41		27	
RV020CR.37	51		37	
RV020CR.47	61		47	
RV020CR.67	81		67	
RV020CR.77	91		77	

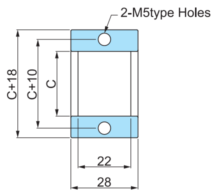
BRACKET DIMENSIONS



RV020CR Fixing point



RV020CR Moving point



RV020CR Front point

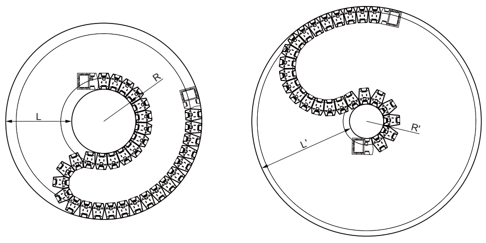
Chain Type	Pitch	C
RV020CR.16	20	16
RV020CR.27	20	27
RV020CR.37	20	37
RV020CR.47	20	47
RV020CR.67	20	67
RV020CR.77	20	77

RV020CR do not apply Ball Caster, Divider and Stoper.

RV020CR은 Ball Caster와 Divider, Stopper를 적용하지 않습니다.

RV 028CR

CHAIN CROSS SECTION

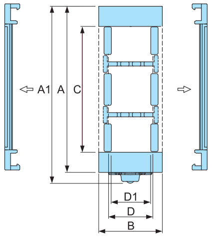


TYPE - A TYPE - B

Type A	Minimum distance (L) 최소 원 간격(L)	170
	Minimum reverse bending (R) 역R 최소값(R)	70
Type B	Minimum distance (L) 최소 원 간격(L')	200
	Minimum reverse bending (R) 역R 최소값(R')	50

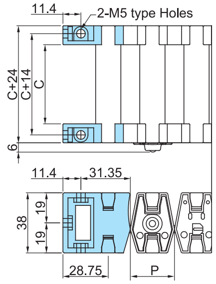
There are two installation choices, A or B corresponding with the bending radius of the side band. Choose A or B installation when there is insufficient distance between R, R (Inner Bending Radius) and L, L (Reverse)

Side band의 곡률반경에 따라 A or B 타입으로 구분.
내부 곡률반경(R, R')의 치수와 역곡률반경의 공간 (L, L')의 거리가 제한적일경우 A Type과 B Type으로 구분하여 설치.

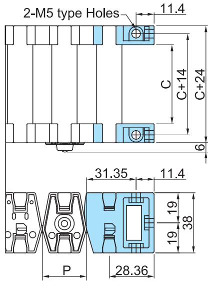


Chain Type	A(A1)	B	C	D(D1)
RV028CR.035	59(65)		35	
RV028CR.055	79(85)		55	
RV028CR.075	99(105)	38	75	28(25)
RV028CR.100	124(130)		100	
RV028CR.125	149(155)		125	

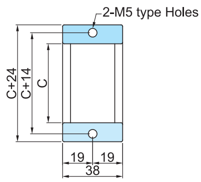
BRACKET DIMENSIONS



RV028CR Fixing point



RV028CR Moving point

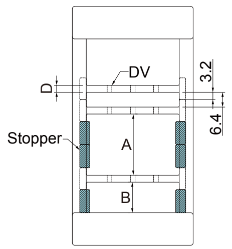


RV028CR Front point

Chain Type	Pitch	C
RV028CR.035	28	35
RV028CR.055	28	55
RV028CR.075	28	75
RV028CR.100	28	100
RV028CR.125	28	125

RV 028CR

APPLICATION METHOD STOPPER



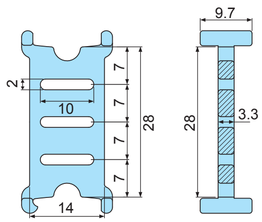
A=6.4+10×Stopper Q' ty
B=3.2+10×Stopper Q' ty

D=RV028CR:3.3mm
RV040CR:3.2mm
RV048CR:3.5mm

Stoppers control divider position and lock the dividers into place during operation. They are fixed directly to the frames between the dividers at recommended width.

Stopper는 체인내부에 설치되는 디바이더의 위치를 조정하고 고정하는 역할로 케이블의 크기에 따른 디바이더의 위치조정이 필요할 시 후레임에 필요한 수량만큼 결합하여 사용.

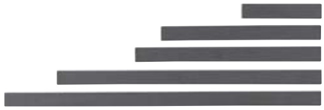
DIVIDERS (DV)

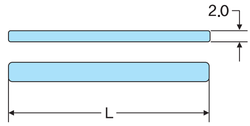


Installed vertically, these dividers separate the carrier's inner chamber and prevent cables from twisting or tangling during operation.

크기가 다른 2개이상의 케이블이 입선될 시 각각의 케이블을 서로 분리시켜주는 역할로 내부공간을 효율적으로 활용가능하며 케이블 서로간의 마찰로 인한 피복손상 및 단선을 방지.

SEPARATORS (SP)





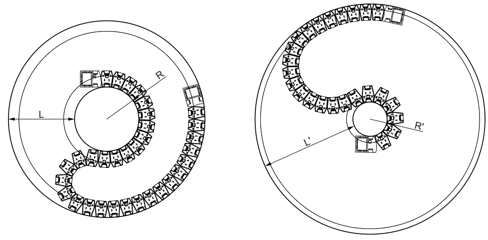
The inserted separators into dividers have the function to separate cables, and lessen the inter ference of cables, so as to prevent them tangle and disconnection, as well as make the efficient use of inner chamber space.

체인내부에 설치되는 디바이더에 삽입시키는 세퍼레이터는 다수의 케이블입선시 서로 분리시키는 역할을 하기에 케이블간의 상호간섭을 줄여 케이블의 엉킴현상 및 단선을 방지하고 체인내부 공간을 효율적으로 활용가능하게 한다.

Type	Length (L) / mm
S-SP/M.035	35
S-SP/M.055	55
S-SP/M.075	75
S-SP/M.100	100
S-SP/M.125	125

RV 040CR

CHAIN CROSS SECTION

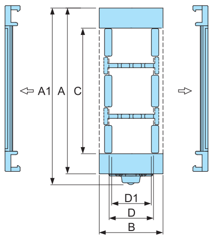


TYPE - A TYPE - B

Type A	Minimum distance (L) 최소 원 간격(L)	230
	Minimum reverse bending (R) 역R 최소값(R)	120
Type B	Minimum distance (L) 최소 원 간격(L')	340
	Minimum reverse bending (R) 역R 최소값(R')	70

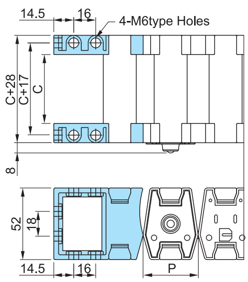
There are two installation choices, A or B corresponding with the bending radius of the side band. Choose A or B installation when there is insufficient distance between R, R (Inner Bending Radius) and L, L (Reverse)

Side band의 곡률반경에 따라 A or B 타입으로 구분. 내부 곡률반경(R, R')의 치수와 역곡률반경의 공간 (L, L')의 거리가 제한적일경우 A Type과 B Type으로 구분하여 설치.

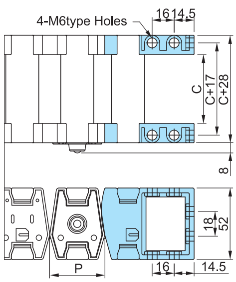


Chain Type	A(A1)	B	C	D(D1)
RV040CR.050	78 (86)		50	
RV040CR.075	103 (111)		75	
RV040CR.100	128 (136)		100	
RV040CR.110	138 (146)	52	110	40(37)
RV040CR.125	153 (161)		125	
RV040CR.150	178 (186)		150	
RV040CR.175	203 (211)		175	
RV040CR.200	228 (236)		200	

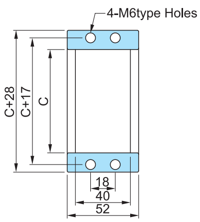
BRACKET DIMENSIONS



RV040CR Fixing point



RV040CR Moving point

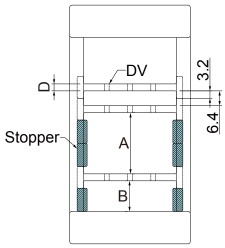


RV040CR Front point

Chain Type	Pitch	C
RV040CR.050	40	50
RV040CR.075	40	75
RV040CR.100	40	100
RV040CR.110	40	110
RV040CR.125	40	125
RV040CR.150	40	150
RV040CR.175	40	175
RV040CR.200	40	200

RV 040CR

APPLICATION METHOD STOPPER



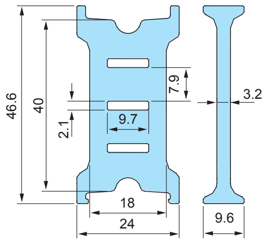
A=6.4+10ⅩStopper Q' ty
B=3.2+10ⅩStopper Q' ty

D=RV028CR:3.3mm
RV040CR:3.2mm
RV048CR:3.5mm

Stoppers control divider position and lock the dividers into place during operation. They are fixed directly to the frames between the dividers at recommended width.

Stopper는 체인내부에 설치되는 디바이더의 위치를 조정하고 고정하는 역할로 케이블의 크기에 따른 디바이더의 위치조정이 필요할 시 후레임에 필요한 수량만큼 결합하여 사용.

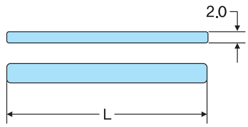
DIVIDERS (DV)



Installed vertically, these dividers separate the carrier's inner chamber and prevent cables from twisting or tangling during operation.

크기가 다른 2개이상의 케이블이 입선될 시 각각의 케이블을 서로 분리시켜주는 역할로 내부공간을 효율적으로 활용가능하며 케이블 서로간의 마찰로 인한 피복손상 및 단선을 방지.

SEPARATORS (SP)



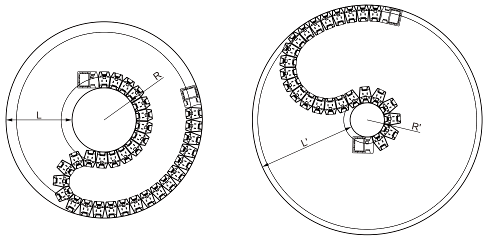
The inserted separators into dividers have the function to separate cables, and lessen the inter ference of cables, so as to prevent them tangle and disconnection, as well as make the efficient use of inner chamber space.

체인내부에 설치되는 디바이더에 삽입시키는 세퍼레이터는 다수의 케이블입선시 서로 분리시키는 역할을 하기에 케이블간의 상호간섭을 줄여 케이블의 엉킴현상 및 단선을 방지하고 체인내부 공간을 효율적으로 활용가능하게 한다.

Type	Length (L) / mm
S-SP/M.050	50
S-SP/M.075	75
S-SP/M.100	100
S-SP/M.110	110
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200

RV 048CR

CHAIN CROSS SECTION

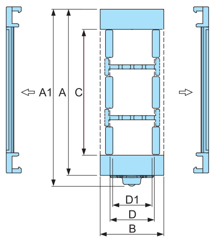


TYPE - A TYPE - B

Type A	Minimum distance (L) 최소 원 간격(L)	300
	Minimum reverse bending (R) 역R 최소값(R)	160
Type B	Minimum distance (L) 최소 원 간격(L')	450
	Minimum reverse bending (R) 역R 최소값(R')	90

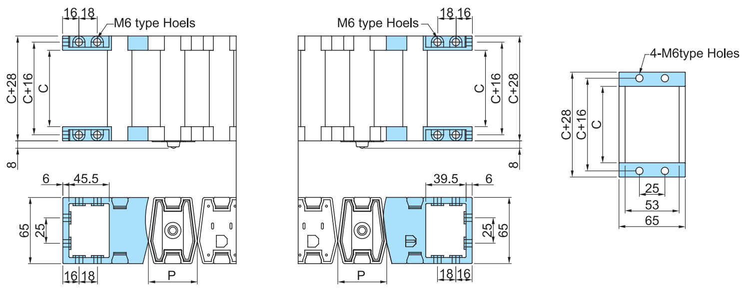
There are two installation choices, A or B corresponding with the bending radius of the side band. Choose A or B installation when there is insufficient distance between R, R (Inner Bending Radius) and L, L (Reverse)

Side band의 곡률반경에 따라 A or B 타입으로 구분. 내부 곡률반경(R, R')의 치수와 역곡률반경의 공간 (L, L')의 거리가 제한적일경우 A Type과 B Type으로 구분하여 설치.



Chain Type	A(A1)	B	C	D(D1)
RV048CR.050	78(86)	65	50	53(50)
RV048CR.075	103(111)		75	
RV048CR.100	128(136)		100	
RV048CR.125	153(161)		125	
RV048CR.150	178(186)		150	
RV048CR.175	203(211)		175	
RV048CR.200	228(236)		200	

BRACKET DIMENSIONS

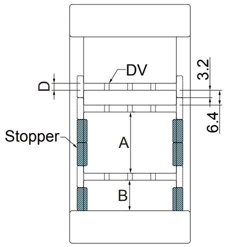


RV048CR Fixing point RV048CR Moving point RV048CR Front point

Chain Type	Pitch	C
RV048CR.050	48	50
RV048CR.075	48	75
RV048CR.100	48	100
RV048CR.125	48	125
RV048CR.150	48	150
RV048CR.175	48	175
RV048CR.200	48	200

RV 048CR

APPLICATION METHOD STOPPER



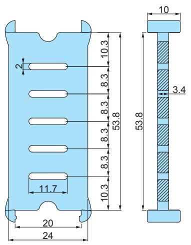
A=6.4+10ＸStopper Q' ty
B=3.2+10ＸStopper Q' ty

D=RV028CR: 3.3mm
RV040CR: 3.2mm
RV048CR: 3.5mm

Stoppers control divider position and lock the dividers into place during operation. They are fixed directly to the frames between the dividers at recommended width.

Stopper는 체인내부에 설치되는 디바이더의 위치를 조정하고 고정하는 역할로 케이블의 크기에 따른 디바이더의 위치조정이 필요할 시 후레임에 필요한 수량만큼 결합하여 사용.

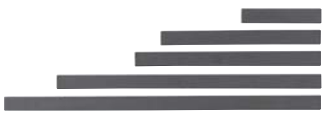
DIVIDERS (DV)

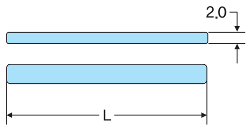


Installed vertically, these dividers separate the carrier's inner chamber and prevent cables from twisting or tangling during operation.

크기가 다른 2개이상의 케이블이 입선될 시 각각의 케이블을 서로 분리시켜주는 역할로 내부공간을 효율적으로 활용가능하며 케이블 서로간의 마찰로 인한 피복손상 및 단선을 방지.

SEPARATORS (SP)





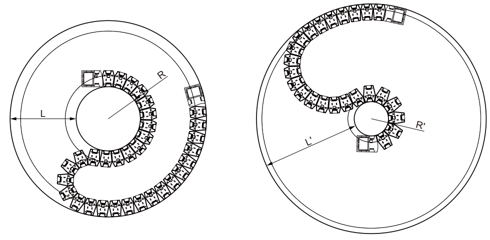
The inserted separators into dividers have the function to separate cables, and lessen the inter ference of cables, so as to prevent them tangle and disconnection, as well as make the efficient use of inner chamber space.

체인내부에 설치되는 디바이더에 삽입시키는 세퍼레이터는 다수의 케이블입선시 서로 분리시키는 역할을 하기에 케이블간의 상호간섭을 줄여 케이블의 엉킴현상 및 단선을 방지하고 체인내부 공간을 효율적으로 활용가능하게 한다.

Type	Length (L) / mm
S-SP/M.050	50
S-SP/M.075	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200

RV 060CR

CHAIN CROSS SECTION

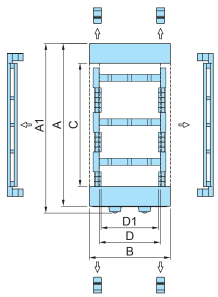


TYPE - A　　TYPE - B

Type A	Minimum distance (L) 최소 원 간격(L)	390
	Minimum reverse bending (R) 역R 최소값(R)	200
Type B	Minimum distance (L) 최소 원 간격(L')	560
	Minimum reverse bending (R) 역R 최소값(R')	120

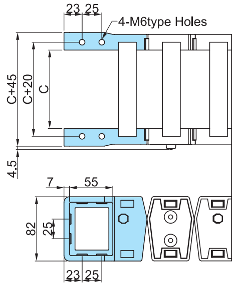
There are two types for an installation as A or B due to Bending radius of side band. You need to choose A or B way of installation when the distance is not enough between R, R' (Inner Bending Radius) and L, L' (Reverse Bending Radius).

Side band의 곡률반경에 따라 A or B 타입으로 구분. 내부 곡률반경(R, R')의 치수와 역곡률반경의 공간 (L, L')의 거리가 제한적일경우 A Type과 B Type으로 구분하여 설치.

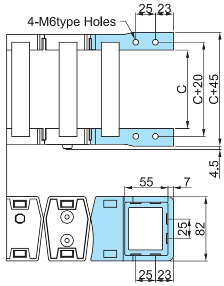


Chain Type	A(A1)	B	C	D(D1)
RV060CR.050	90(97)		50	
RV060CR.075	115(122)		75	
RV060CR.100	140(147)		100	
RV060CR.125	165(172)		125	
RV060CR.150	190(197)	82	150	62(58.4)
RV060CR.175	215(222)		175	
RV060CR.200	240(247)		200	
RV060CR.250	290(297)		250	
RV060CR.300	340(347)		300	

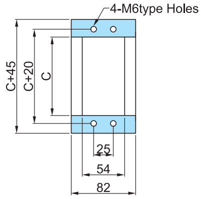
BRACKET DIMENSIONS



RV060CR Fixing point



RV060CR Moving point



RV060CR Front point

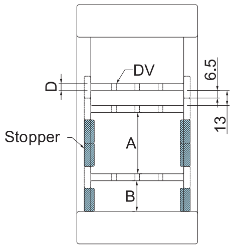
Chain Type	Pitch	C
RV060CR.050	60	50
RV060CR.075	60	75
RV060CR.100	60	100
RV060CR.125	60	125
RV060CR.150	60	150
RV060CR.175	60	175
RV060CR.200	60	200
RV060CR.250	60	250
RV060CR.300	60	300

CPS Plans to develop RV 060CR

RV 060CR 제품은 개발 예정 입니다.

RV 060CR

APPLICATION METHOD STOPPER



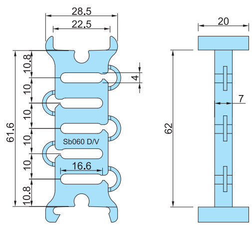
A= 13+5 X Stopper Q' ty
B= 6.5+5 X Stopper Q' ty

D= RV060CR: 7.0mm

Stoppers control divider position and lock the dividers into place during operation. They are fixed directly to the frames between the dividers at recommended width.

Stopper는 체인내부에 설치되는 디바이더의 위치를 조정하고 고정하는 역할로 케이블의 크기에 따른 디바이더의 위치조정이 필요할 시 후레임에 필요한 수량만큼 결합하여 사용.

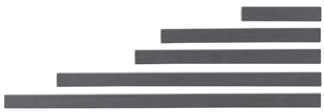
DIVIDERS (DV)

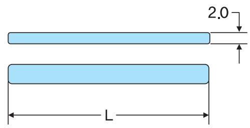


Installed vertically, these dividers separate the carrier's inner chamber and prevent cables from twisting or tangling during operation.

크기가 다른 2개이상의 케이블이 입선될 시 각각의 케이블을 서로 분리시켜주는 역할로 내부공간을 효율적으로 활용가능하며 케이블 서로간의 마찰로 인한 피복손상 및 단선을 방지.

SEPARATORS (SP)



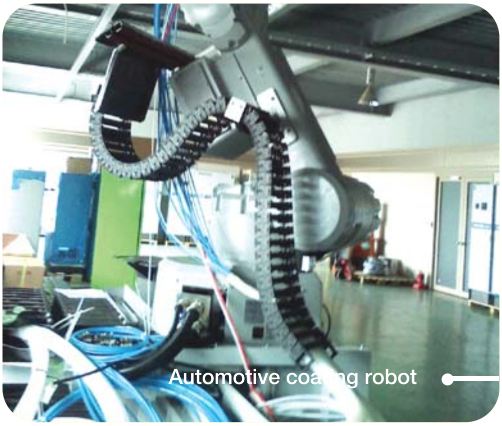


The inserted separators into dividers have the function to separate cables, and lessen the inter ference of cables, so as to prevent them tangle and disconnection, as well as make the efficient use of inner chamber space.

체인내부에 설치되는 디바이더에 삽입시키는 세퍼레이터는 2단 이상으로 케이블입선시 서로 분리시키는 역할을 하기에 케이블 간의 상호간섭을 줄여 케이블의 엉킴현상 및 단선을 방지하고 체인내부공간을 효율적으로 활용가능하게 한다.

Type	Length (L) / mm
S-SP/M.050	50
S-SP/M.075	75
S-SP/M.100	100
S-SP/M.125	125
S-SP/M.150	150
S-SP/M.175	175
S-SP/M.200	200
S-SP/M.250	250
S-SP/M.300	300

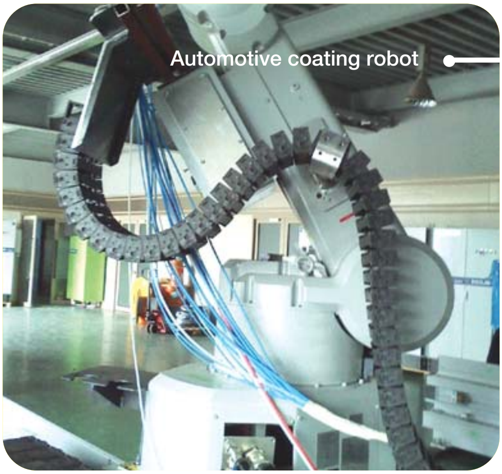
APPLICATION IMAGE / 체인사양 선정방법


Automotive coating robot

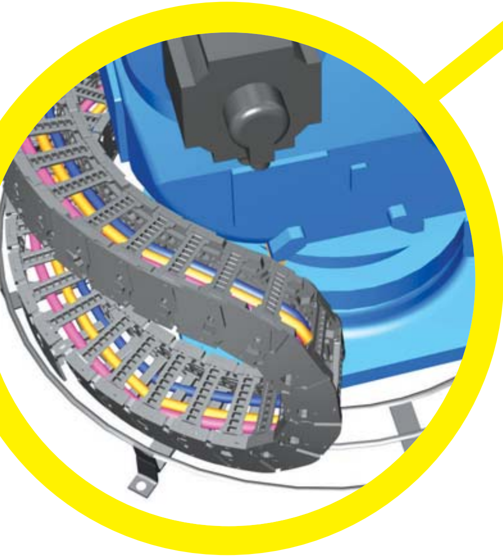

Wind power generation assembly equipment


Cylinder material feed equipment


Wind power generation assembly equipment


Automotive coating robot


Revolving chain Test



GENERAL CATALOGUE 2013

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Using Material of High Quality!

Helix chain

Low Dust & Low Noise Screw Type!

Helix Chain is applied to the application with a spiral rotary motion in limited space such as 360 degrees revolution robots, rotating machines, etc.
It plays roles of protecting cables from outside dangers and keeps the rotation angles safs.

Helix chain은 로봇이나 회전기계등과 같이 제한적인 공간에서 나선형 회전운동을 하는 케이블을 외부위험으로 부터 보호하고 안전한 회전각도를 유도하고 유지시키는 역할을 하는 케이블체인이다.

HOW TO ASSEMBLE HELIX CHAIN
올바른 히릭스체인의 적용

- The angle of rotation can be determined by the additional two angles if the machine can move both to the left and to the right via a circular track.
- At least 20% of the inner height and width should be considered when calculating the cable clearance.
- 원형 축을 따라 좌우 양방향으로 움직이는 기계의 경우, 회전각도는 추가되는 두 각에 의해 결정된다.
- 입선되는 케이블직경의 최소 20% 정도의 체인내부 공간이 필요하다.

A / Supporting Guide. 체인 지지대

- For most effective use, the chain should be installed in a specific position.
- For this reason, the CPS supporting carrier guide is needed and can be produced as a custom sized.
- In case of rotation over 200 degrees, suitable accessories like supporting hook and roller for self-supporting are necessary.
- 회전체인의 올바른 기능을 위해서는 체인이 정확한 위치에 장착되어야 하는것이 필수적이다.
- 이와 관련하여 회전체인의 지지대가 필요로 하며 고객의 요구에 맞게 다양한 사이즈의 제작이 가능하다.
- 200˚를 초과하여 사용할 경우 지지를 위한 Supporting hook, Supporting roller와 같은 악세서리가 필요하다.

B / Bracket - Steel End Bracket. 브라켓

- One set of steel end bracket consists of two steel brackets and are inserted into each end of the chain. 브라켓 1세트는 두개의 스틸브라켓으로 이루어지며 체인의 양쪽 끝부분링크에 각각 부착된다.

C / Need to USE Helix Chain. 히릭스체인 사용 필요

- Intend to use the cables & hoses on both sides. 전선관을 양방향으로 사용하고자 하는 경우
- When the rotation speed up to 4m/sec. 회전스피드가 4m/sec까지 사용하고자 할때

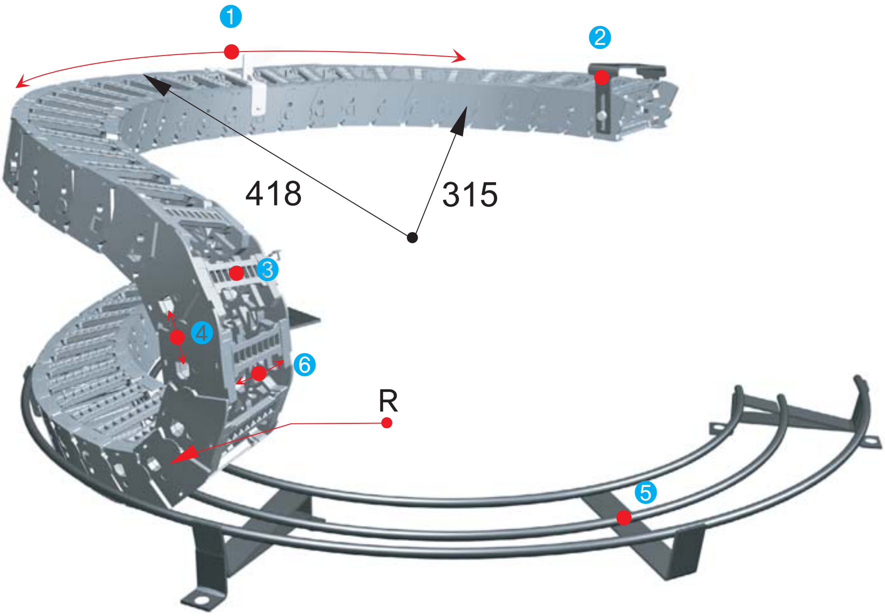
D / Don't need to use Helix chain. 히릭스체인 사용 불가

- With application using rotation angle over 360. 회전각도가 360˚이상 필요할 경우

*For more detailed information, please contact CPS.
(기타 자세한 사항은 본사로 문의요망.)

HX 3553

Low Dust & Low Noise Screw Type Chain.



MATERIAL

1. For spiral motion up to 360°
2. Steel End Bracket
3. Upside & Downside open frame
4. Pitch : 53mm
5. Guide channel
6. Chain inside width : 75mm

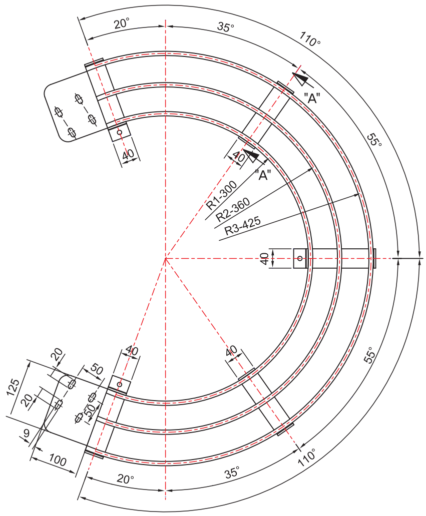
- **Applications :** Robot, Rotation Machine.
- **Bending Radius (R)**

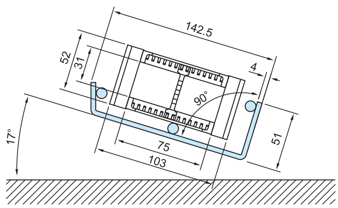
(Dimensions in mm)

Bending Radius (R)	
90	140

GUIDE CHANNEL

HX 3553





SECTION "A- A"

■ **Calculate the required Number of Links**

N: Number of Links
Or: Outer Radius
B : Rotation angle
P: Chain pitch
Lp: πR+6p

$$N = \left(\frac{\pi \times Or \times B}{360^\circ \times P}\right) + \frac{Lp}{P}$$

ORDERING (주문방법)

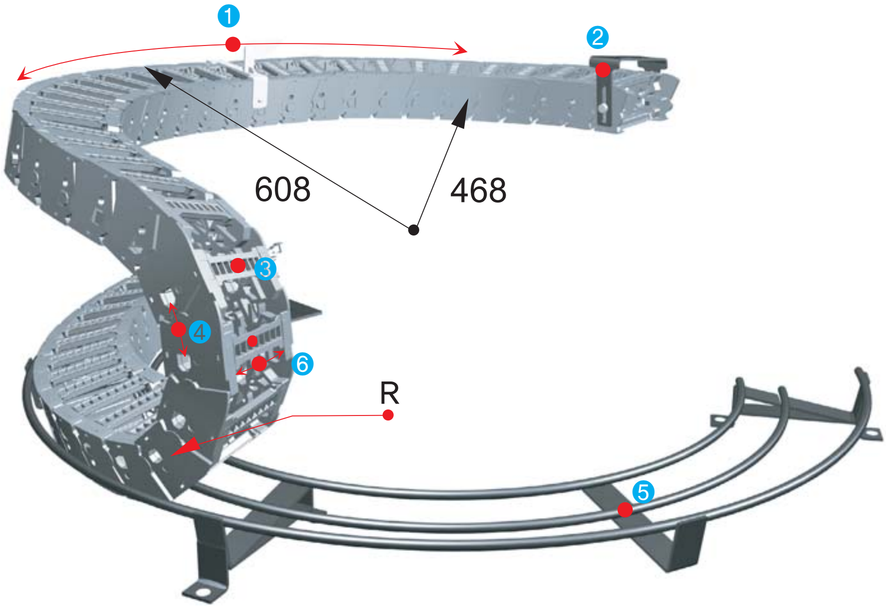
HX3553 . 075 R90 - 1000L : 10ST

주문수량	Q' ty(set)
체인길이	Length(mm)
곡률반경	Bending Radius (R)
내폭	Inside Width

Helix Chain

HX 6075

Low Dust & Low Noise Screw Type Chain



MATERIAL

1. For spiral motion up to 360°
2. Steel End Bracket
3. Upside & Downside open frame
4. Pitch : 75mm
5. Guide channel
6. Chain inside width : 100mm

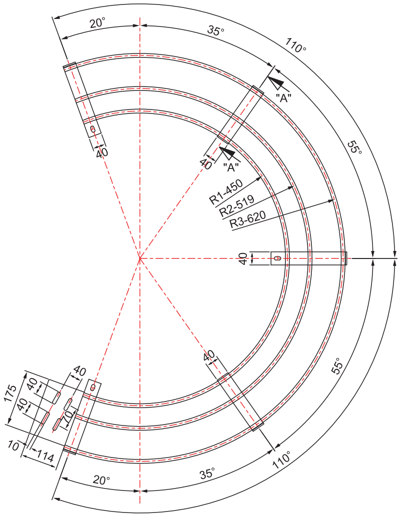
- Applications : Robot, Rotation Machine.
- Bending Radius (R)

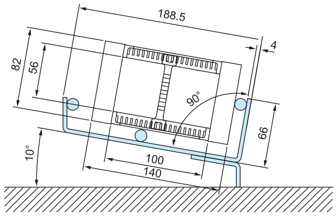
(Dimensions in mm)

Bending Radius (R)			
110	135	185	235

GUIDE CHANNEL

HX 6075





SECTION “A- A”

▪ Calculate the required Number of Links

N: Number of Links
Or: Outer Radius
B : Rotation angle
P: Chain pitch
Lp: πR+6p

$$N = \left(\frac{\pi \times Or \times B}{360^\circ \times P}\right) + \frac{Lp}{P}$$

ORDERING (주문방법)

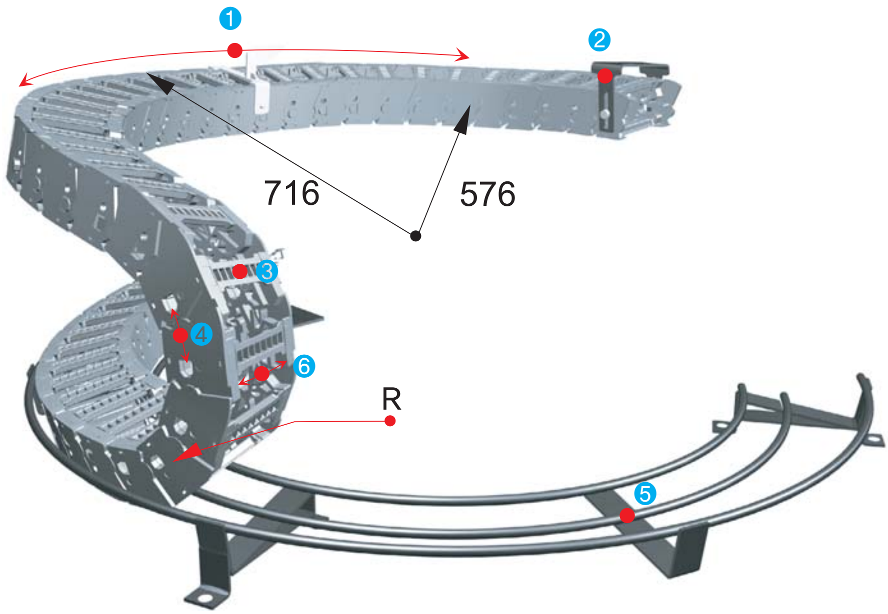
HX6075 . 100 R110 -1000L : 10ST

주문수량	Q' ty(set)
체인길이	Length(mm)
곡률반경	Bending Radius (R)
내폭	Inside Width

Helix Chain

HX 6087

Low Dust & Low Noise Screw Type Chain



MATERIAL

1. For spiral motion up to 360°
2. Steel End Bracket
3. Upside & Downside open frame
4. Pitch : 87mm
5. Guide channel
6. Chain inside width : 100mm

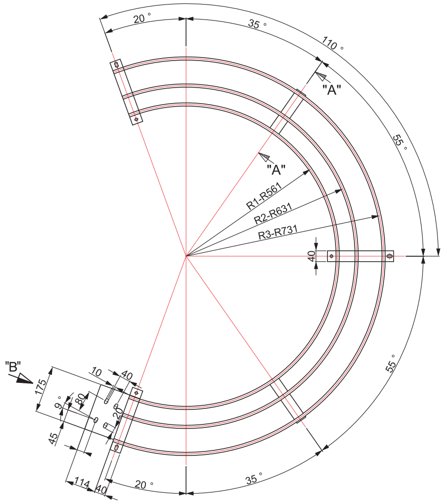
- Applications : Robot, Rotation Machine.
- Bending Radius (R)

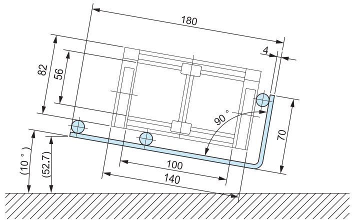
(Dimensions in mm)

Bending Radius (R)			
110	135	185	235

GUIDE CHANNEL

HX 6087





SECTION “A- A”

■Calculate the required Number of Links

N: Number of Links
Or: Outer Radius
B: Rotation angle
P: Chain pitch
Lp: πR+6p

$$N = \left(\frac{\pi \times Or \times B}{360^\circ \times P}\right) + \frac{Lp}{P}$$

CPS plans to develop HX 6087

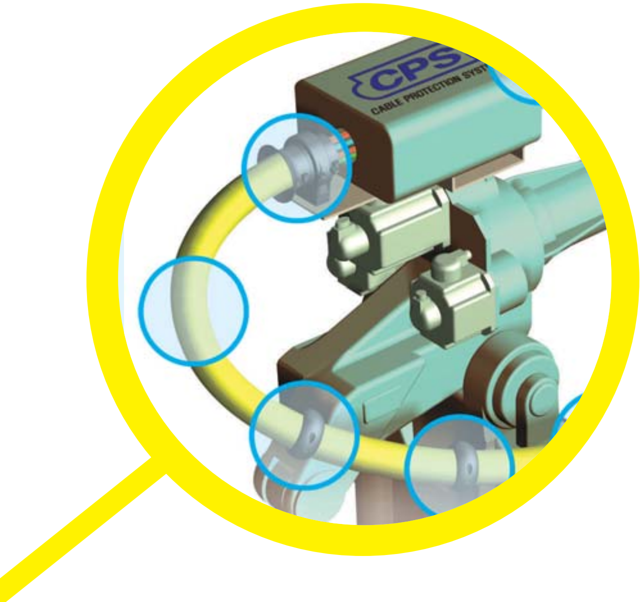
HX 6087 제품은 개발 예정 입니다.

ORDERING (주문방법)

HX6087 . 100 R110 -1000L : 10ST

주문수량	Q′ty(set)
체인길이	Length(mm)
곡률반경	Bending Radius (R)
내폭	Inside Width

Helix Chain



ROBO KIT

GENERAL CATALOGUE 2013

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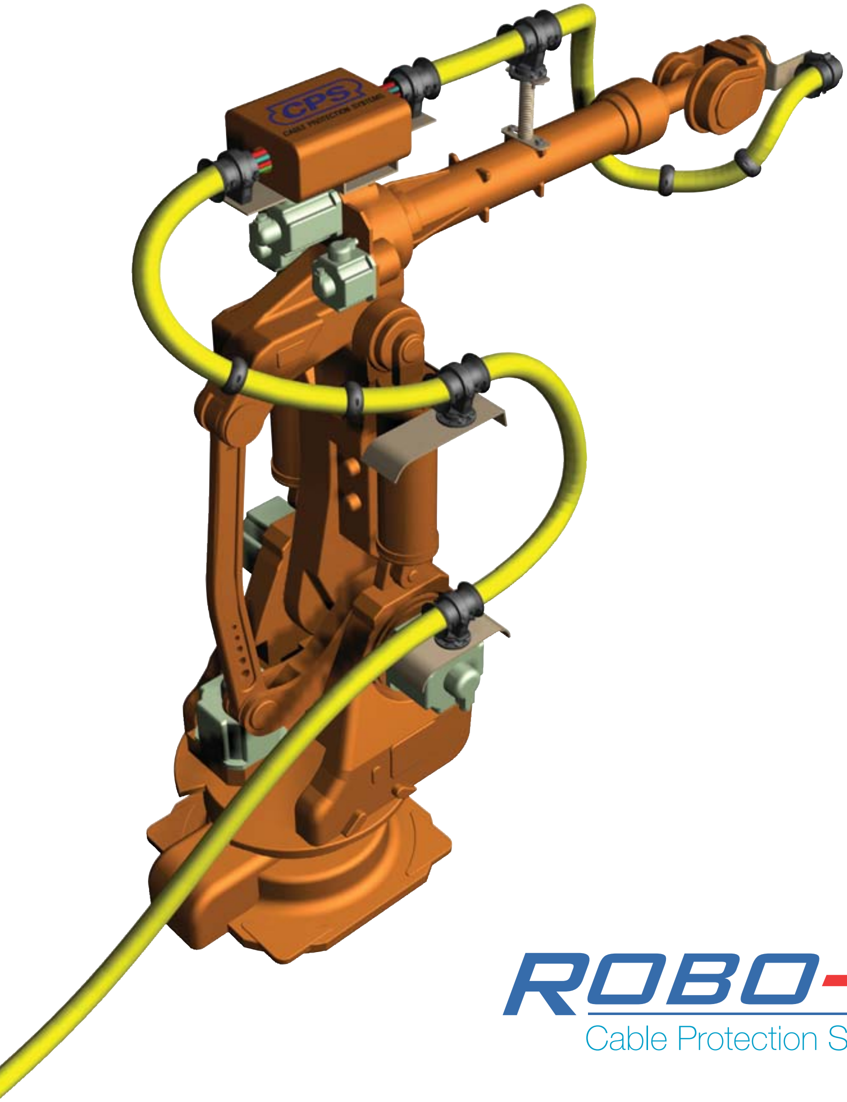
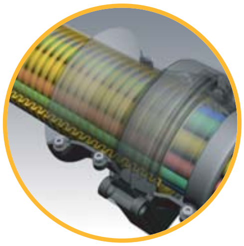
Using Material of High Quality!



RKC+RKS+RKSC+VCG

RKR+RKC+RKD



RKC+RKS+RKSC+VCG

ROBO-KIT

Cable Protection Systems For Robot!

For the first time in Korea, CPS developed new cable protection system, " **ROBO-KIT** " which is used in the robotic application and prevents the cables from twisting, damaging or breaking.
In addition, as Robo-kit leads the movement of cables, it minimizes the friction and interference at the same time. It makes both lifespan of cable prolonged and robot move freely.

국내최초로 개발된 **로보킷**은 케이블의 이음새 부위가 꼬이고 케이블의 파손이나 단선을 방지하는 로봇전용 케이블 보호 시스템입니다.
케이블의 움직임을 유도하여 마찰부와 간섭부를 최대한으로 줄여 케이블의 수명을 연장시키고 로봇의 자유도를 향상시킵니다.

RKTP-56 / RKTP-70
Abrasion Protection
마모방지 커넥터

RKSC-56/ RKSC-70
Strain Relief Insert
피로저감용 삽입커넥터

RKC-56/ RKC-70
CPSFLEX Clamps
CPSFLEX 고정용 커넥터

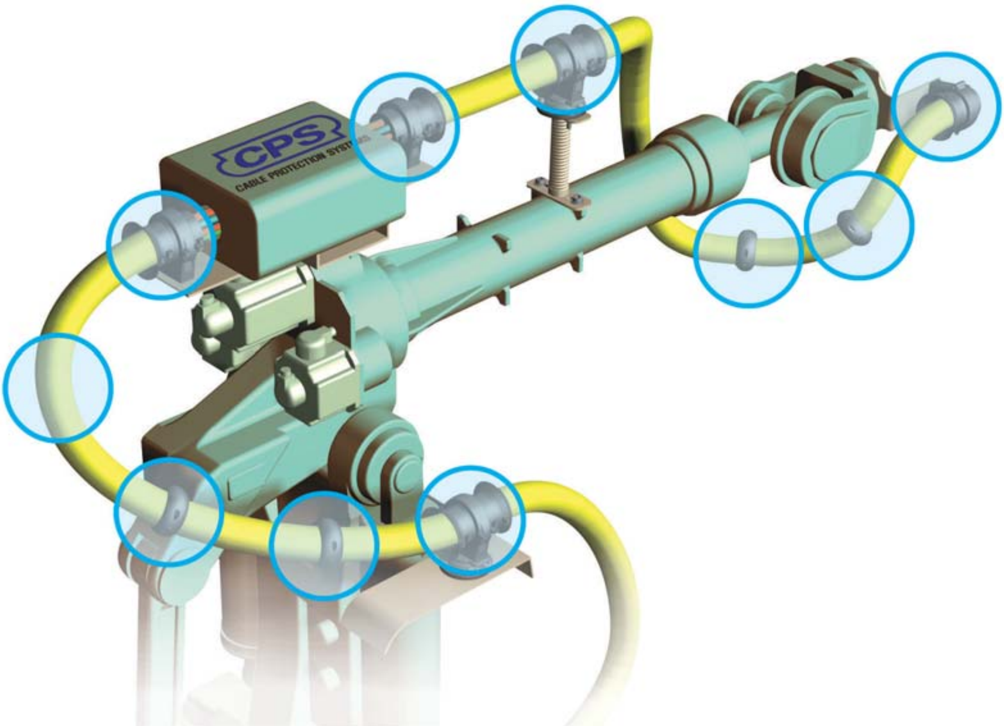
RKR-56/ RKR-70
Rotating Connector
회전용 커넥터

RKS-56/ RKS-70
Tube Ball Joint
튜브볼 조인트

VCG-56/ VCG-70
Cable End Finishing
배선 마감처리용 커넥터

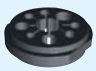
RKD-56/ RKD-70
Tube Ball Joint Sleeve
튜브볼 조인트 슬리브

PAR-56 / PAR-70
CPSFLEX
로봇 전용
케이블보호용 튜브



SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

PRODUCT SIZE

Product	Order No.	Dimensions in mm				Outside Diameter
		Conduit Size	Width	Height	Length	
	RKTP	56	40.0	91.5	-	91.5
		70	45.0	105	-	105
	RKC	56	30.0	115	120.3	100
		70	34.0	138	145	126
	RKS	56	108	105.5	105.5	105.5
		70	132	120	120	120
	RKD	56	130	105.5	105.5	105.5
		70	154	120	120	120
	RKSC	56	20.6	68.3	-	68.3
		70	20.6	82	-	82
	RKR	56	98.0	42.0	-	98.0
		70	98.0	42.0	-	98.0
	VCG	56	20.6	64.1	-	64.1
		70	20.6	77.8	-	77.8
 Yellow Black	CPSFLEX PAR 56 / 70	※**CPSFLEX-PAR** 의 상세안내는 P354~ P365에 게재되어 있습니다. You can find the details of CPSFLEX-PAR on p.354~ p.365				

ORDERING (주문방법)

RKC 70B : 10EA

주문수량 Q'ty(set)
색상 Color Y : Yellow
B : Black
U : U.V - Resistant, Black Only
사이즈 SIZE (56, 70)
RoBo-KIT
RKC / RKD / RKTP / RKSC
RKR / VCG / RKS

Black is the main color. Any color available based upon customers request

Black 색상이 주 색상이지만 고객의 요청에 따라 다른색상으로도 생산가능합니다.

INSTRUCTIONS FOR THE INSTALLATION OF ROBO-KIT
/ 로보킷의 설치에 대한 지침

RKTP-56 / RKTP-70

Abrasion Protection Connector 마모방지커넥터

RKTP is made of reinforced Polyamid6. This unit is the insert of tube to protect from the abrasion, and prolongs the life time of tube. Also, it is detachable handily to make it easy to maintenance.

RKTP는 튜브의 마모를 방지하고자 튜브의 간섭부에 설치되어 튜브의 수명을 연장하며 또한 탈부착이 간편하여 보수작업에 용이하다.

RKS-56 / RKS-70

CPSFLEX Ball Joint CPSFLEX 볼 조인트

RKS in combination with RKC strengthens the flexibility on the head and specific parts of robot.
It decreases the load from the mechanical strength.

RKS는 RKC와 결합하여 로봇의 머리부분과 특정부분에 설치하여 유연성을 강화시킨다. 물리적인 힘에 의한 튜브의 부하를 덜어준다.

RKD-56 / RKD-70

Tube Ball Joint Sleeve 튜브 볼조인트 슬리브

RKD in combination with RKC is used for guiding or fixing tubes on robotic application.
RKD decentralizes the mechanical stress on the tube.

RKD는 RKC와 결합하여 로봇의 공학적용에 있어서 튜브를 유도하거나 고정하기 위해 사용된다. 특히 RKD는 튜브의 움직임에 있어서 양방향의 피로도를 분산시켜주는 역할을 하는 유닛이다.

VCG-56 / VCG-70

Cable End Finishing Connector 배선 끝단부 처리용 커넥터

VCG is the unit for fixing the end part of cables. And it is inserted into RKC in combination with RKRC.
It reduces the movement of cables and is comprised of diverse hole sizes according to the cables sizes.

VCG는 배선의 끝단부에 배선을 고정하는 유닛이며 RKSC와 결합하여 RKS에 삽입시키는 방식으로 구성되어 있다. 배선의 움직임을 잡아주는 역할을 하여 배선의 규격에 따라 다양한 홀 치수가 구성되어 있다.

INSTRUCTIONS FOR THE INSTALLATION OF ROBO-KIT

/ 로보킷의 설치에 대한 지침

RKC-56 / RKC-70

CPSFLEX Clamps 튜브고정대

RKC tube clamps in combination with RKD, RKS and RKRC, is used for guiding or fixing tubes in robotic application.
And its solid design enables RKC to bear high mechanical strength.

RKC는 RKD, RKS, 등과 함께 결합되어 로봇의 적용에 있어 튜브를 유도하거나 고정하는 기능이 있으며 높은 물리적인 힘에도 견딜수 있도록 견고하게 설계되었다.

RKSC-56 / RKSC-70

Strain Relief Insert 피로저감용 삽입커넥터

RKSC fixes VCG in the RKS and make it neat the end of cables.
RKSC is available to be rotated in RKS so that it prevents for twisting cables.

RKSC는 VCG를 고정시켜 RKS와 결합하여 튜브의 끝단부를 처리한다.
VCG를 고정시키고 RKS내부에서 회전이 가능하여 배선의 꼬임현상을 방지한다.

RKR-56 / RKR-70

Rotating Connector 회전용 커넥터

RKR in combination with RKC, reduces the mechanical stress on the robot and tube by rotating unit.
RKR is used with RKD and RKS in combination.

RKR은 RKC와 결합하여 유닛을 회전시켜 로봇의 움직임과 튜브의 피로도를 줄여주는 역할을 한다. RKR은 기본적으로 RKD와 RKS와의 유동성을 가지고 있다.

Yellow Black

CPSFLEX-PAR 56 / 70

CPSFLEX 로봇전용 후렉시블 튜브

CPSFLEX PAR is made of high quality of Polyamid12 and especially applicable in Robot for the flexibility.
It has IP68 protection approved. It can shorten the repairing time, since it is easy to cut off the length as needed.

후렉시블튜브 PAR은 고품질의 재료(Polyamid12)를 사용하며 특히 유연성을 필요로 하는 로봇전용 튜브이다. PAR은 IP68(방수등급)을 만족하며 원하는 길이만큼 쉽게 절단사용 가능하여 작업시간을 단축할 수 있다.

RKTP ASSEMBLY / RKTP 조립방법

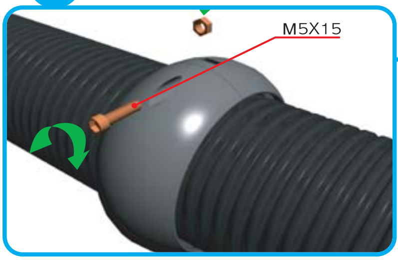
1

RKTP is assembled by connecting the two half-circled guards.
RKTP는 2개의 같은 반원의 제품을 연결하여 결합한다.

2

Be sure to line up holes neatly for bolt insertion.
너트삽입부와 볼트삽입부가 일치되도록 연결한다.

3



Tighten the bolt after inserting nut as shown with allen wrench.
M5×15mm볼트와 M5용 나일론너트를 “L”렌치를 사용하여 볼팅한다.

4

All nuts and bolts are supplied with RKTP.
볼 RKTP제품에는 기본 볼트 및 너트가 제공된다.

RKS ASSEMBLY / RKS 조립방법

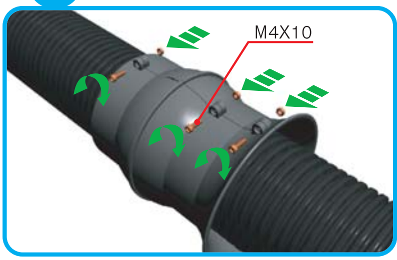
1

When you've decided on a position, connect the grooves in RKS to the ones on the conduit as shown.
사용 위치가 결정되었다면 튜브를 RKS의 홈에 결합하여 조립을 시작한다.

2

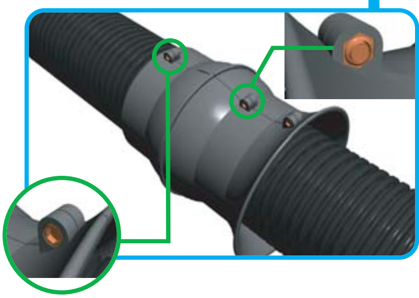
Line up the holes after connecting both halves to ensure smooth bolt entry.
같은 제품의 RKS를 대칭이 되도록 결합한다.

3



Tighten bolt after inserting nut into engineered hole as shown with allen wrench.
M4×10mm볼트와 M4용 나일론너트를 “L”렌치를 사용하여 볼팅한다.

4



Be sure to insert the bolt and nut all the way into the hexagonal slots as this will ensure a tight seal.
너트결합부와 볼트결합부를 잘 맞추어 결합한다.

RKD ASSEMBLY / RKD 조립방법

1

When you've decided on a position, connect the grooves in RKS to the ones on the conduit as shown.
위치를 결정하고 튜브와 RKD의 홈에 결합하여 조립한다.

2

Line up the holes after connecting both halves to ensure smooth bolt entry.
같은제품이 대칭이 되도록 결합하여야 한다.

3

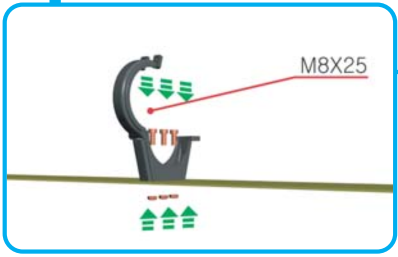
Tighten bolt after inserting nut into engineered hole as shown with allen wrench.
M4×10mm볼트와 M4용 나일론 너트를 사용하여 그림과 같이 볼팅한다.

4

Be sure to insert the bolt and nut all the way into the hexagonal slots as this will ensure a tight seal.
순서대로 조립이 완료된 모습.

RKC+RKD ASSEMBLY / RKC+RKD 조립방법

1

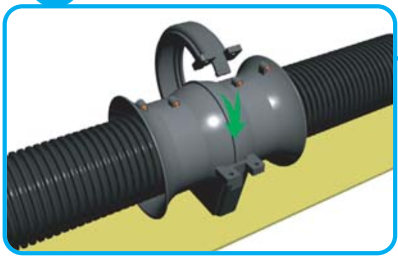


Connect RKC directly to robot body or support, and fasten with bolts.
RKC의 경우 로봇에 직접연결하거나 지지대를 이용하여 결합한다.M8×25mm볼트와 M8용 나이론 너트로 볼팅한다.

2

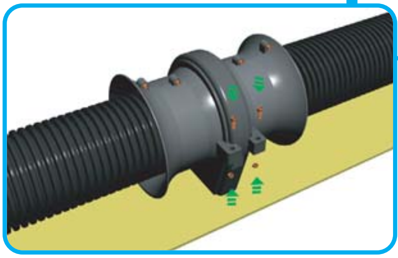
Open the clip.
볼팅후 클립의 윗부분을 열어준다.

3



After connecting RKD and RKS, insert then into the clip as shown.
RKD, RKS를 연결하여 RKC와 결합시킨다.

4

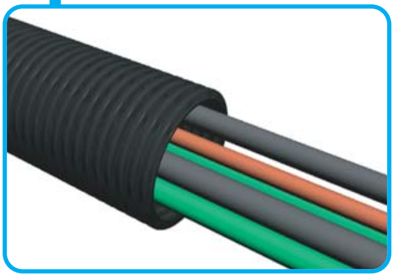


Fasten the clip with bolts to ensure optimum protection.
볼팅처리로 고정시켜 완료.

RKRC+VCG+RKC ASSEMBLY / RKRC+VCG+RKC 조립방법

※ Old Type / 구형제품

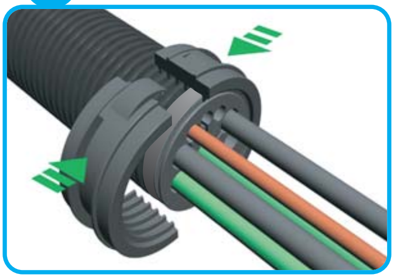
1



2

Orderly arrange cables into VCG.
VCG에 케이블을 적절하게 배열한다.

3

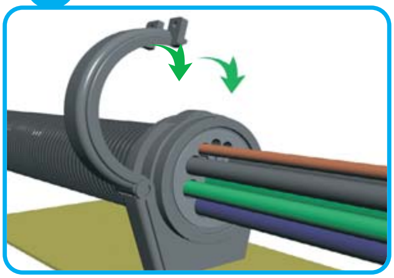


Connect with RKRC as above.
RKRC와 결합시키며 VCG와 튜브를 1/2씩 나누어 홈에 연결한다.

4

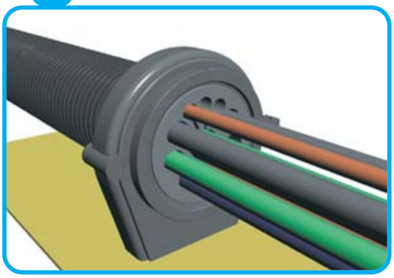
Can be easily connected without the use of any special tools.
이작업은 공구없이 쉽게 결합이 가능하다.

5



Connect RKC with the mounting clip.
결합시킨 유닛을 RKC와 결합하여 완성한다.

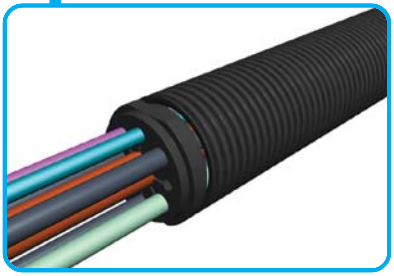
6



Complete.
완료.

VCG+RKSC+RKS+RKC ASSEMBLY
/ VCG+RKSC+RKS+RKC 조립방법

1



Insert cables as shown.
VCG에 케이블을 적절하게 배열한다.

2

Assemble the VCG with RKSC.
VCG에 RKSC를 좌우로 결합한다.

3

Assemble RKS with RKSC.
RKS를 RKSC와 튜브를 감싸도록 좌우로 결합한다.

4

Assemble RKS completely with bolts and nuts.
RKS를 볼트와 너트를 이용하여 고정시킨다.

5

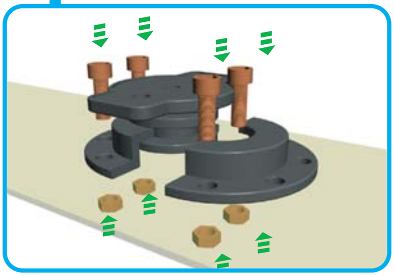
Assemble RKS completely with bolts and nuts.
RKC를 사용하여 RKS를 그림처럼 고정시킨다.

6

Complete.
완료.

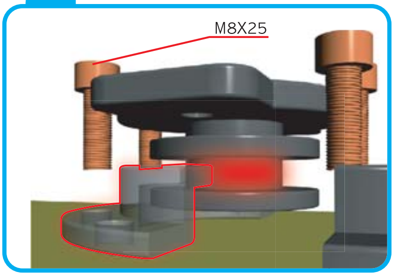
RKR+RKC+RKD ASSEMBLY / RKR+RKC+RKD 조립방법

1



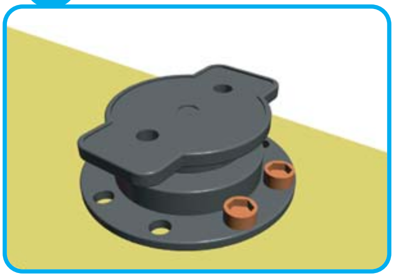
The size of RKR mold changes to correspond with size of robot.
RKR은 로봇의 종류에따라 볼트길이가 달라진다.

2

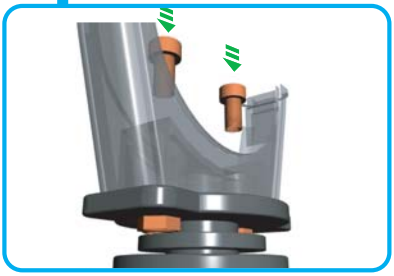


Connect the pieces as shown.
그림과 같이 빨간색위치에 홈을 끼워서 조립한다.

3



4



In case of combination with RKC, connect the existing part of RKC.
RKC와 결합은 기존 RKC치부분에 RKR홀 부분과 결합.

5

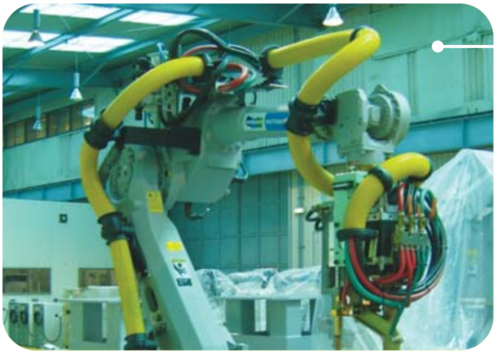
In case of assembling with RKC, just follow previous process description.
RKC와의 결합은 기존의 조립형식으로 진행시킨다.

6

Complete.
완료.

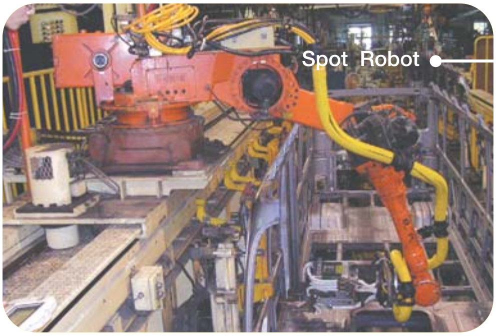
APPLICATIONS / 적용사진

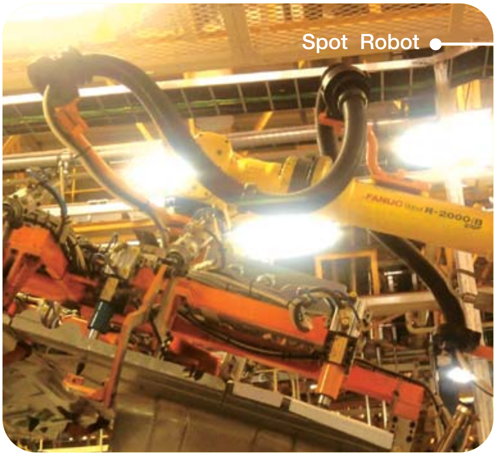
Robo-Kit is designed to prevent the disconnection of cables and minimize interference during operation.
케이블의 단선을 방지하고 간섭을 최소화 시킨 ROBO-KIT

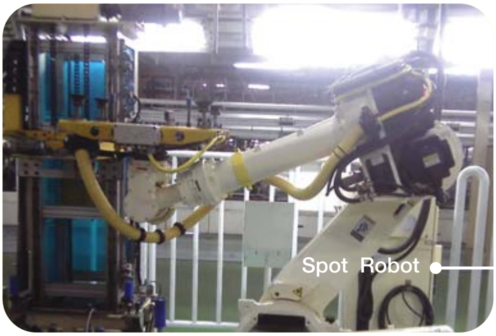


Installation of 180 degree revolution Robo-Kit and circular chain.
180도 회전로봇 및 원형체인에 로보킷 적용.

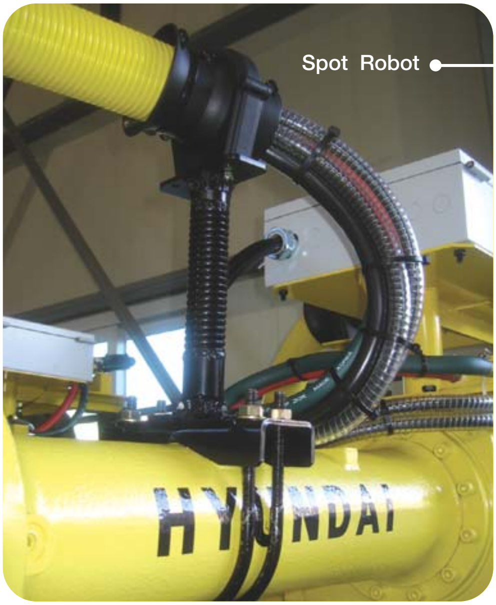
APPLICATIONS / 적용사진







APPLICATIONS / 적용사진



GENERAL CATALOGUE 2013

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Using Material of High Quality!

CORRUGATED TUBE

The tubes, which are made of Vinyl Chloride and have been widely used, emit “Dioxin”(toxic gas). Since CPSFLEX uses Polyamid6, CPS Products are Halogen free, eco-friendly and recyclable. Also, CPS products have several ranges of flame retardant grade from UL94-HB to Vo.

기존의 염화비닐 튜브는 “다이옥신”이라는 유독성가스를 배출하지만 CPSFLEX는 고품질 폴리아미드6를 주재료로 사용하기에 인체에 무해(Halogen-Free)하며 리사이클가능한 환경친화적인 제품입니다. 또한 UL94-HB부터 Vo까지 제품에 따라 다양한 난연등급을 가지고 있습니다.

Anyone is able to cut the flexible tube with a simple knife as you want. It can reduce unnecessary time to Install.

CPSFLEX는 누구나 쉽게 컷트칼 하나만 있으면 원하는 길이만큼 손쉽게 절단이 가능하므로 별도의 작업공구와 기술이 필요없으며 그만큼 작업시간을 단축할 수 있습니다.

RoHS Directive 2002/95/EC 유해물질 사용제한지침

Raw materials for CPSFLEX are toxic-free, and have passed the test by designated test institute. In addition, CPS products have been produced according to the directive that Europe regulates.

CPSFLEX의 사용재료는 지정시험소의 시험을 통과하였으며 무독성으로 유럽에서 규제하는 유해물질 사용제한 지침에 따라 생산하고 있습니다.

PAH Certificate of Reliability PAH 부품소재 신뢰성 인증 테스트 확인

The flexible conduit, PAH, was awarded the confidence certification from Korean Agency for Technology and Standards after pass the test of confidence certification.

CPSFLEX의 PAH 제품은 신뢰성 인증 테스트를 합격하여 지식경제부 기술표준원 신뢰성 인증을 받았습니다.

Flexibility : angular velocity 5,000 times under ∠40±5˚
Tensile Strength : 250Mpa/30±3 second
Temperature : 4hours under -7±2˚4 hours under / 55±2˚
Flammibility : 10 second(UL94)
Durability : 400 million round trip

유 연 성 : 분당 40 ± 5˚로 굽힘시험 5000회
인 장 력 : 30 ± 3초 이내 250N의 인장력 시험
저온•고온 : – 7 ± 2 4시간 저온 / 55 ± 2 4시간 고온
난 연 성 : 시험제품에 불꽃을 10초간 연소 통과
수 명 : 400만 왕복 사용하더라도 제품 이상 없음

ORDERING (주문방법)

PAH - 10B : 100M

▶ Black& Gray are the main colors, but it is available to produce any color with customers request.
Black & Gray 색상이 주 색상이지만 고객의 요청에 따라 다른색상으로도 생산가능합니다.

주문수량	Q´ty(M)	
컬러	Color	B : Black G : Gray U : U.V- resistant, black only
싸이즈	Size	07,10, 12, 16, 22, 28, 36, 48, 56, 70, 95
타입		CPS / PAH / POH / PAR / PES / PPS/ CPSS / PPSS

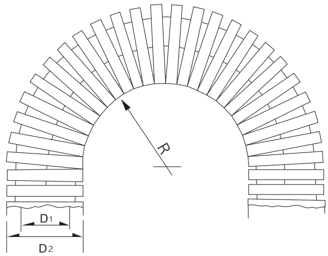
SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

유형 Type	재 질 Material	버 전 Version	굴곡강도 Flexural Strength	굴곡탄성률 Flexural Modulus	인장강도 Tensile Strength	충격강도 Impact Strength (Izod Notched)
CPS 	Polyamide 6	standard version medium-wall, very flexible	850 kg/㎠	20,000 kg/㎠	630 kg/㎠	20 kg • cm/cm
PAH 	Polyamide 6	standard version medium-wall, very flexible	950 kg/㎠	26,000 kg/㎠	700 kg/㎠	25 kg • cm/cm
POH 	Polyamide 6	reinforced version thick-wall, flexible	1,050 kg/㎠	28,500 kg/㎠	900 kg/㎠	30 kg • cm/cm
PAR 	Polyamide 12	medium-wall very flexible to highly flexible	710 kg/㎠	15,000 kg/㎠	550 kg/㎠	15 kg • cm/cm
PES 	Polyethylene	simple version light-weight, flexible	500 kg/㎠	16,000 kg/㎠	520 kg/㎠	15 kg • cm/cm
PPS 	Polypropylene	simple version light-weight, flexible	500 kg/㎠	18,000 kg/㎠	600 kg/㎠	15 kg • cm/cm
CPSS 	Polyamide 6	standard version medium-wall, very flexible	850 kg/㎠	20,000 kg/㎠	630 kg/㎠	20 kg • cm/cm
PPSS 	Polypropylene	simple version light-weight, flexible	500 kg/㎠	18,000 kg/㎠	600 kg/㎠	15 kg • cm/cm

온도범위 Temperature range	자기소화성 Self-extinguishing UL-94	내 성 Resistance	색 상 Color	적 용 Application
-40°C to +105°C +130°C short term	UL94-HB Halogen-Free	alcohol, benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Black / Gray UV-resistant	Machine tool, Industrial & Automatic Machinery etc.
-40°C to +105°C +150°C short term	UL94-Vo Halogen-Free UL File No.E191879 VDE License No.135369	alcohol,benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Black / Gray UV-resistant	Machine tool, industrial & Automatic Machinery, Rolling Stock,etc.
-40°C to +105°C +150°C short term	UL94-Vo Halogen-Free	alcohol,benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Black / Gray UV-resistant	Machine tool, Shipbuilding Industrial Machinery, Heavy Industry etc.
-50°C to +95°C +150°C short term	UL94-V2 Halogen-Free	alcohol,benzol, mineral oil, diesel fuel, etc	Black / Gray UV-resistant	Robots
-15°C to +60°C +80°C short term	-	acid, sea water, ammonia etc	Black / Gray	Chemical Machinery, Acid areas, Industrial Machinery etc.
-15°C to +60° C +80°C short term	-	acid, sea water, ammonia etc	Black / Gray	Chemical Machinery, Acid areas, Industrial Machinery etc.
-40°C to +105°C +130°C short term	UL94-HB Halogen-Free	alcohol,benzol, greases, mineral oil, diesel fuel, sea water, petrol etc.	Black / Gray	Machine tool, Industrial & Automatic Machinery etc.
-15°C to +60°C +80°C short term	-	acid, sea water, ammonia etc	Black / Gray	Chemical Machinery, Acid areas, Industrial Machinery etc.

CPS

CPS conduit is popular for general use as it is flame-resistant up to UL94HB.



Black
Gray

- Material: High Quality Polyamide 6
- Construction: Inside & Outside Corrugated all Plastic Hose
- Protective: IP 68 acc. EN 60529
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +130˚C
- Self-Extinguishing: UL94-HB, Halogen-Free
- Color: Black & Gray
- Connections: CPSFIX
- Application: Machine tool, Shipbuilding, Tramway Industrial / Automatic Machinery Printing Machine etc.
- International Specification: CE

- 재 질: 고품질 폴리아미드 6
- 구 조: 내/외부 굴곡플라스틱 호스
- 방 수 등 급: IP 68 acc. EN 60529
- 적용온도범위: −40˚C + 105˚C
- 순간최대온도: +130˚C
- 자기소화성: UL94-HB, Halogen-Free
- 색 상: 검정색, 회색
- 사용커넥터: CPSFIX
- 적 용: 공작기계, 산업기계, 자동화기계 조선소, 전동차, 인쇄기계등
- 국 제 규 격: CE

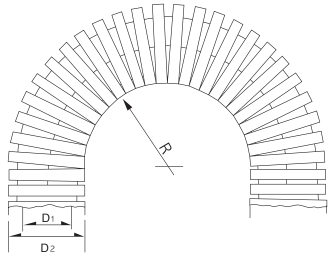
(dimensions in mm)

Order No.

Black	Gray	UV-R	Inner Diameter (d1)	Outer Diameter (d2)	Bending Radius (R)mm ±10%	Packing meter / roll
CPS-07B	CPS-07G	CPS-07U	6.4	10	15	50/100
CPS-10B	CPS-10G	CPS-10U	9.6	13	20	50
CPS-12B	CPS-12G	CPS-12U	11.8	15.8	30	50
CPS-16B	CPS-16G	CPS-16U	15.9	21.2	40	50
CPS-22B	CPS-22G	CPS-22U	21.7	28.5	45	50
CPS-28B	CPS-28G	CPS-28U	27.8	34.5	55	50
CPS-36B	CPS-36G	CPS-36U	36	42.5	60	30
CPS-48B	CPS-48G	CPS-48U	46.5	54.5	70	30
CPS-56B	CPS-56G	CPS-56U	56.3	67.2	110	30
CPS-70B	CPS-70G	CPS-70U	70	82.5	160	10
CPS-95B	CPS-95G	CPS-95U	91.5	106	210	10

PAH

PAH conduit is made of high quality PA6 material and it has excellent flame retardant Vo grade in compliance with UL-94.



Black
Gray

- Material: High Quality Polyamide 6
- Construction: Inside & Outside Corrugated all Plastic Hose
- Protective: IP 68 acc. EN 60529
- Temperature Range: -40˚ C to + 105˚ C
- Short Term: up to +150˚ C
- Self-Extinguishing: UL94-Vo, Halogen-Free
- Color: Black & Gray
- Connections: CPSFIX
- Application: Machine tool, Shipbuilding, Tramway Industrial / Automatic Machinery, Printing Machine, Rolling Stock, Railway, Subway etc.
- International Specification:

- 재 질: 고품질 폴리아미드 6
- 구 조: 내/외부 굴곡플라스틱 호스
- 방 수 등 급: IP 68 acc. EN 60529
- 적용온도범위: −40˚ C + 105˚ C
- 순간최대온도: +150˚ C
- 자기소화성: UL94-Vo,Halogen-Free
- 색 상: 검정색, 회색
- 사용커넥터: CPSFIX
- 적 용: 공작기계, 산업기계, 자동화기계, 인쇄기계, 조선소, 전동차등
- 국 제 규 격:

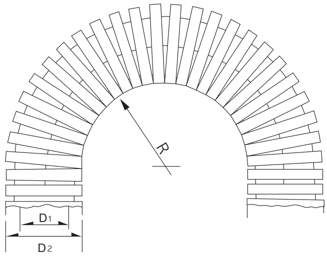
(dimensions in mm)

Order No.

Black	Gray	UV-R	Inner Diameter (d1)	Outer Diameter (d2)	Bending Radius (R)mm ±10%	Packing meter / roll
PAH-07B	PAH-07G	PAH-07U	6.4	10	15	50/100
PAH-10B	PAH-10G	PAH-10U	9.6	13	20	50
PAH-12B	PAH-12G	PAH-12U	11.8	15.8	30	50
PAH-16B	PAH-16G	PAH-16U	15.9	21.2	40	50
PAH-22B	PAH-22G	PAH-22U	21.7	28.5	45	50
PAH-28B	PAH-28G	PAH-28U	27.8	34.5	55	50
PAH-36B	PAH-36G	PAH-36U	36	42.5	60	30
PAH-48B	PAH-48G	PAH-48U	46.5	54.5	70	30
PAH-56B	PAH-56G	PAH-56U	56.3	67.2	110	30
PAH-70B	PAH-70G	PAH-70U	70	82.5	160	10
PAH-95B	PAH-95G	PAH-95U	91.5	106	210	10

POH

POH conduit is impact resistant due to it's wall thickness and is suitable for installation in harmful areas.



Black
Gray

- Material: High Quality Polyamide 6
- Construction: Inside & Outside Corrugated all Plastic Hose
- Protective: IP 68 acc. EN 60529
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB, Halogen-Free
- Color: Black & Gray
- Connections: CPSFIX
- Application: Machine tool, Plant Construction
  Crane and Heavy Machine etc.
- International Specification: CE

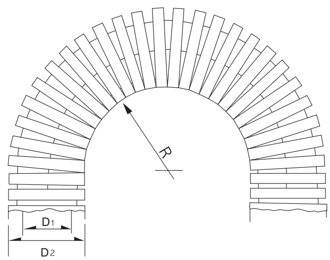
- 재 질: 고품질 폴리아미드 6
- 구 조: 내/외부 굴곡플라스틱 호스
- 방 수 등 급: IP 68 acc. EN 60529
- 적용온도범위: −40˚C + 105˚C
- 순간최대온도: +150˚C
- 자기소화성: UL94-Vo, Halogen-Free
- 색 상: 검정색, 회색
- 사용커넥터: CPSFIX
- 적 용: 공작기계, 플랜트 구조물
  크레인, 대형기계 등
- 국 제 규 격: CE

(dimensions in mm)

Order No.						
Black	Gray	UV-R	Inner Diameter (d1)	Outer Diameter (d2)	Bending Radius (R)mm ±10%	Packing meter / roll
POH-07B	POH-07G	POH-07U	6	10	20	50/100
POH-10B	POH-10G	POH-10U	9	13	25	50
POH-12B	POH-12G	POH-12U	11.5	15.8	35	50
POH-16B	POH-16G	POH-16U	15.5	21.2	45	50
POH-22B	POH-22G	POH-22U	21.3	28.5	50	50
POH-28B	POH-28G	POH-28U	26.8	34.5	60	50
POH-36B	POH-36G	POH-36U	35.2	42.5	70	30
POH-48B	POH-48G	POH-48U	46	54.5	80	30
POH-56B	POH-56G	POH-56U	55.3	67.2	110	30
POH-70B	POH-70G	POH-70U	69	82.5	160	10

PAR

PAR conduit is suitable for the bending and rotating of robots.



Black
Gray

- Material: High Quality Polyamide 12
- Construction: Inside & Outside Corrugated all Plastic Hose
- Protective: IP 68
- Temperature Range: -50˚C to + 95˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-V2, Halogen-Free
- Color: Black & Gray
- Connections: CPSFIX
- Application: Robots

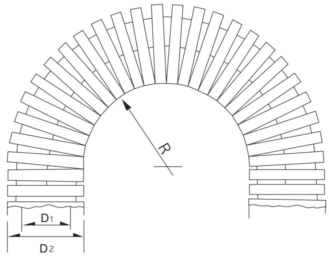
- 재 질: 고품질 폴리아미드 12
- 구 조: 내/외부 굴곡플라스틱 호스
- 방 수 등 급: IP 68
- 적용온도범위: −50˚C + 95˚C
- 순간최대온도: +150˚C
- 자기소화성: UL94−V2, Halogen−Free
- 색 상: 검정색, 회색
- 사용커넥터: CPSFIX
- 적 용: 로봇

(dimensions in mm)

Order No.						
Black	Gray	UV-R	Inner Diameter (d1)	Outer Diameter (d2)	Bending Radius (R)mm ±10%	Packing meter / roll
PAR-07B	PAR-07G	PAR-07U	6.4	10	15	50/100
PAR-10B	PAR-10G	PAR-10U	9.6	13	20	50
PAR-12B	PAR-12G	PAR-12U	11.8	15.8	30	50
PAR-16B	PAR-16G	PAR-16U	15.9	21.2	40	50
PAR-22B	PAR-22G	PAR-22U	21.7	28.5	45	50
PAR-28B	PAR-28G	PAR-28U	27.8	34.5	55	50
PAR-36B	PAR-36G	PAR-36U	36	42.5	60	30
PAR-48B	PAR-48G	PAR-48U	46.5	54.5	70	30
PAR-56B	PAR-56G	PAR-56U	56.3	67.2	110	30
PAR-70B	PAR-70G	PAR-70U	70	82.5	160	10

PES

PES conduit ëpuitable for chemical machines, due to the excellent resistance to acid and alkali.



Black
Gray

- Material: Soft Polyethylene (PE)
- Construction: Inside & Outside Corrugated all Plastic Hose
- Protective: IP 68
- Temperature Range: -15˚ C to + 60˚ C
- Short Term: up to +80˚ C
- Color: Black & Gray
- Connections: CPSFIX
- Resistant to: Acid, Alkali
- Application: Machine tool, Plant Construction Crane and Heavy Machine etc.

- 재 질: 폴리에틸렌 (PE)
- 구 조: 내/외부 굴곡플라스틱 호스
- 방 수 등 급: IP 68
- 적용온도범위: –15˚ C + 60˚ C
- 순간최대온도: +80˚ C
- 색 상: 검정색, 회색
- 사용커넥터: CPSFIX
- 내 구 성: 산성, 알칼리성
- 적 용: 공작기계, 산업기계 화학기계(내산성, 내알카리성) 등.

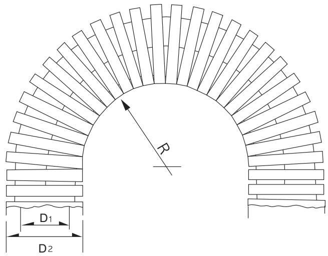
(dimensions in mm)

Order No.

Black	Gray	Inner Diameter (d1)	Outer Diameter (d2)	Bending Radius (R)mm ±10%	Packing meter / roll
PES-07B	PES-07G	6.4	10	15	50/100
PES-10B	PES-10G	9.6	13	20	50
PES-12B	PES-12G	11.8	15.8	30	50
PES-16B	PES-16G	15.9	21.2	40	50
PES-22B	PES-22G	21.7	28.5	45	50
PES-28B	PES-28G	27.8	34.5	55	50
PES-36B	PES-36G	36	42.5	60	30
PES-48B	PES-48G	46.5	54.5	70	30
PES-56B	PES-56G	56.3	67.2	110	30
PES-70B	PES-70G	70	82.5	160	10
PES-95B	PES-95G	91.5	106	210	10

PPS

PPS conduit is suitable for chemical machines, due to the excellent resistance to acid and alkali.



Black
Gray

- Material: Polypropylene (PP)
- Construction: Inside & Outside Corrugated all Plastic Hose
- Protective: IP 68
- Temperature Range: -15˚C to + 60˚C
- Short Term: up to +80˚C
- Color: Black & Gray
- Connections: CPSFIX
- Resistant to: Acid, Alkali
- Application: Machine tool, Industrial Machinery Chemical Machinery etc.

- 재 질: 폴리프로필렌(PP)
- 구 조: 내/외부 굴곡플라스틱 호스
- 방 수 등 급: IP 68
- 적용온도범위: −15˚C + 60˚C
- 순간최대온도: +80˚C
- 색 상: 검정색, 회색
- 사용커넥터: CPSFIX
- 내 구 성: 산성, 알칼리성
- 적 용: 공작기계, 산업기계 화학기계(내산성, 내알카리성) 등.

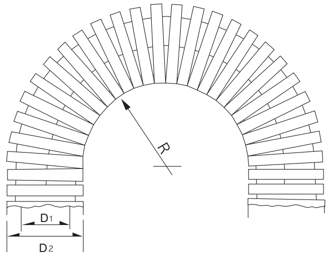
(dimensions in mm)

Order No.

Black	Gray	Inner Diameter (d1)	Outer Diameter (d2)	Bending Radius (R)mm ±10%	Packing meter / roll
PPS-07B	PPS-07G	6.4	10	15	50/100
PPS-10B	PPS-10G	9.6	13	20	50
PPS-12B	PPS-12G	11.8	15.8	30	50
PPS-16B	PPS-16G	15.9	21.2	40	50
PPS-22B	PPS-22G	21.7	28.5	45	50
PPS-28B	PPS-28G	27.8	34.5	55	50
PPS-36B	PPS-36G	36	42.5	60	30
PPS-48B	PPS-48G	46.5	54.5	70	30
PPS-56B	PPS-56G	56.3	67.2	110	30
PPS-70B	PPS-70G	70	82.5	160	10
PPS-95B	PPS-95G	91.5	106	210	10

CPSS

CPS conduit is popular for general use as it is flame-resistant up to UL94HB.



Black
Gray

- Material: High Quality Polyamide 6
- Construction: Inside & Outside Corrugated all Plastic Hose
- Temperature Range: -40°C to + 105°C
- Short Term: up to +130˚C
- Self-Extinguishing: UL94-HB, Halogen-Free
- Color: Black & Gray
- Connections: CPSFIX
- Application: Machine tool, Shipbuilding, Tramway
Industrial/ Automatic Machinery
Printing Machine etc.

- 재 질: 고품질 폴리아미드 6
- 구 조: 내/외부 굴곡플라스틱 호스
- 적용온도범위: −40˚C + 105˚C
- 순간최대온도: +130˚C
- 자기소화성: UL94−HB, Halogen−Free
- 색 상: 검정색, 회색
- 사용커넥터: CPSFIX
- 적 용: 공작기계, 산업기계, 자동화기계
조선소, 전동차, 인쇄기계 등

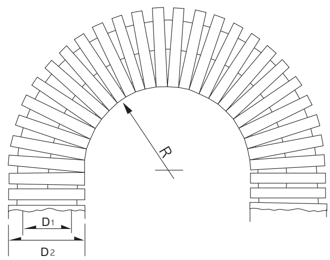
(dimensions in mm)

Order No.					
Black	Gray	Inner Diameter (d1)	Outer Diameter (d2)	Bending Radius (R)mm ±10%	Packing meter / roll
CPSS-07B	CPSS-07G	6.4	10	15	50/100
CPSS-10B	CPSS-10G	9.6	13	20	50
CPSS-12B	CPSS-12G	11.8	15.8	30	50
CPSS-16B	CPSS-16G	15.9	21.2	40	50
CPSS-22B	CPSS-22G	21.7	28.5	45	50
CPSS-28B	CPSS-28G	27.8	34.5	55	50
CPSS-36B	CPSS-36G	36	42.5	60	30
CPSS-48B	CPSS-48G	46.5	54.5	70	30
CPSS-56B	CPSS-56G	56.3	67.2	110	30
CPSS-70B	CPSS-70G	70	82.5	160	10
CPSS-95B	CPSS-95G	91.5	106	210	10

PPSS

PPSS conduit is suitable for chemical machine, due to the excellent resistance to acid and alkali.

Black
Gray



- Material: Polypropylene(PP)
- Construction: Inside & Outside Corrugated all Plastic Hose
- Temperature Range: -15˚C to + 60˚C
- Short Term: up to +80˚C
- Color: Black & Gray
- Connections: CPSFIX
- Resistant to: Acid, Alkali
- Application: Machine tool, Industrial Machinery
  Chemical Machinery etc.

- 재 질: 폴리프로필렌(PP)
- 구 조: 내/외부 굴곡플라스틱 호스
- 적용온도범위: −15˚C + 60˚C
- 순간최대온도: +80˚C
- 색 상: 검정색, 회색
- 사용커넥터: CPSFIX
- 내 구 성: 산성, 알칼리성
- 적 용: 공작기계, 산업기계
  화학기계(내산성, 내알카리성) 등.

(dimensions in mm)

Order No.

Black	Gray	Inner Diameter (d1)	Outer Diameter (d2)	Bending Radius (R)mm ±10%	Packing meter / roll
PPSS-07B	PPSS-07G	6.4	10	15	50/100
PPSS-10B	PPSS-10G	9.6	13	20	50
PPSS-12B	PPSS-12G	11.8	15.8	30	50
PPSS-16B	PPSS-16G	15.9	21.2	40	50
PPSS-22B	PPSS-22G	21.7	28.5	45	50
PPSS-28B	PPSS-28G	27.8	34.5	55	50
PPSS-36B	PPSS-36G	36	42.5	60	30
PPSS-48B	PPSS-48G	46.5	54.5	70	30
PPSS-56B	PPSS-56G	56.3	67.2	110	30
PPSS-70B	PPSS-70G	70	82.5	160	10
PPSS-95B	PPSS-95G	91.5	106	210	10

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Using Material of High Quality!

RoHS Directive 2002/95/EC (유해물질 사용제한지침)

Raw materials for CPSFIX are toxic-free, and have passed the test by designated test institutes. In addition, CPS products have been produced according to the directive that Europe regulates.

CPSFIX의 사용재료는 지정시험소의 시험을 통과하였으며 무독성으로 유럽에서 규제하는 유해물질 사용제한 지침에 따라 생산하고 있습니다.

CPSFIX
Connectors

A CPSFIX can be applied in any area, since we are producing diverse forms.
다양한 형태의 커넥터와 캐넌접속용 커넥터를 생산하므로 CPSFIX는 어떠한 환경에도 적용될수 있습니다.

B We are fully equipped with diverse thread standard products, NPT, UNEF etc.
CP SYSTEM은 PF, PG, M, NPT, UNEF등의 다양한 나사규격에 맞는 커넥터를 구비하고 있습니다.

C CPSFIX and CPSFLEX protect cables in crowded spaces.
CPSFIX와 CPSFLEX는 복잡한 공간에서 케이블을 효율적으로 보호합니다.

D CPSFIX has excellent water proof qualities. It is applied to the overall industry, maintaining IP 67, when it combines with CPSFLEX.
CPSFIX 는 뛰어난 방수성을 가지고 있어 CPSFLEX와 결합했을때 IP67을 유지하면서 산업 전반적으로 적용될 수 있습니다.

ORDERING (주문방법)

TNC - G10B : 100EA

- 주문수량 Q´ ty(EA)
- 컬러 Color B : Black G : Gray
- 싸이즈 Size
- THREAD G(PF)/inch, P/pg, N/NPTM/mm, U/UNEF
- 타입 Type

TNC / TWC / TAC / TIS....

▶ Material: Polyamide6+G • F 33%
▶Pull-out strength: > 68kg from size 16 with heavy - wall tubing
▶재질: 폴리아미드6

STANDARD APPLIED TO EACH CONNECTOR SCREWS

/ 커넥터 나사 규격별 적용관표

Thread	For tube size →	07	10	12	16	21	22	28	36	42	48	56	70	95
TNC	G 1/4"	●												
	G 1/2"		●	●	●									
	G 3/4"						●							
	G 1"							●						
	G 1 1/4"								●					
	G 1 1/2"										●			
	G 2"										●	●		
	G 2 1/2"												●	
	G 4"													●
	M 12×1.5	●	●	●										
	M 16×1.5	●	●	●	●									
	M 20×1.5	●	●	●	●									
	M 25×1.5				●		●							
	M 32×1.5						●	●						
	M 40×1.5							●	●					
	M 50×1.5								●		●			
	M 63×1.5										●			
	Pg 7	●	●											
	Pg 9	●	●	●										
	Pg 11	●	●	●										
	Pg 13.5	●	●	●	●									
	Pg 16		●	●	●		●							
	Pg 21				●		●							
	Pg 29							●						
	Pg 36								●					
	Pg 48										●			
	NPT 1/2"		●	●	●									
	NPT 3/4"						●							
	NPT 1"							●						
TNCC	G 1/2"		●	●	●		●							
	G 3/4"						●	●						
	G 1"							●						
	G 1 1/4"								●					
	G 2"										●			
	M 12×1.5		●	●										
	M 16×1.5		●	●	●									
	M 20×1.5			●	●		●							
	M 25×1.5						●	●						
	M 32×1.5							●						
	M 40×1.5								●					
	M 50×1.5										●			
	Pg 7		●	●										
	Pg 9		●	●	●									
	Pg 11			●	●		●							
	Pg 13.5			●	●		●							
	Pg 16			●	●		●							
	Pg 21						●	●						
	Pg 29							●						
	Pg 36								●					
	Pg 48										●			
TICC	1/2-28 UNEF		●											
	5/8-24 UNEF		●	●										
	3/4-20 UNEF		●	●										
	1-20 UNEF			●	●									
	7/8-20 UNEF				●									
	1 3/16-18 UNEF				●		●							
	1 7/16-18 UNEF				●		●	●						
	1 3/4-18 UNEF							●						
	2-18 UNS							●	●					
TIS	M 8×1		●											
	M 12×1		●											
	M 18×1		●											
	M 30×1.5		●											

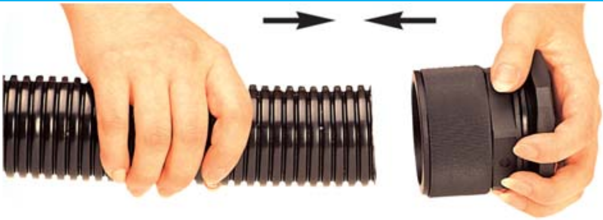
Thread	For tube size →	07	10	12	16	21	22	28	36	42	48	56	70	95
TWC	G 1/2"		●	●	●									
	G 3/4"						●							
	G 1"							●						
	G 1 1/4"							●	●					
	G 1 1/2"										●			
	G 2"										●			
	M 12×1.5	●	●											
	M 16×1.5			●										
	M 20×1.5			●	●									
	M 25×1.5						●							
	M 32×1.5							●						
	M 40×1.5								●					
	M 50×1.5										●			
	Pg 7	●												
	Pg 9	●	●											
	Pg 11		●	●										
	Pg 13.5		●	●	●									
	Pg 16			●	●		●							
	Pg 21						●							
	Pg 29							●						
	Pg 36								●					
	Pg 48										●			
TAC	G 1/2"		●	●	●									
	G 3/4"						●							
	G 1"							●						
	G 1 1/4"								●					
	G 1 1/2"										●			
	G 2"										●			
	M 12×1.5		●											
	M 16×1.5			●										
	M 20×1.5				●									
	M 25×1.5						●							
	M 32×1.5							●						
	M 40×1.5								●					
	M 50×1.5										●			
	Pg 9		●											
	Pg 11		●	●										
	Pg 13.5		●		●									
	Pg 16				●									
	Pg 21						●							
	Pg 29							●						
	Pg 36								●					
	Pg 48										●			
TIC	1/2-28 UNEF		●											
	5/8-24 UNEF		●	●										
	3/4-20 UNEF		●	●										
	1-20 UNEF			●	●									
	7/8-20 UNEF				●									
	1 3/16-18 UNEF				●		●							
	1 3/8-8 UNEF				●									
	1 7/16-18 UNEF				●		●	●						
	2-18 UNS						●	●	●					
	1 3/4-18 UNEF							●						
	M16×1.5			●										
	M25×1.5				●									
	Pg 11			●										
	Pg 13.5			●										
	Pg 16				●									
	Pg 21						●							

Type	Thread / For tube size	07	10	12	16	21	22	28	36	42	48	56	70	95
TNCL	G 1/2"		●	●	●									
	Pg 9		●	●										
	Pg 11			●										
	Pg 13.5				●									
	Pg 16		●		●									
	M 12×1.5		●	●										
	M16×1.5		●	●	●									
	M 20×1.5		●	●	●									
	M 25×1.5				●									
TNCCL	G 1/2"		●	●	●									
	Pg 9		●	●										
	Pg 11			●	●									
	Pg 13.5			●	●									
	Pg 16			●	●									
	M 12×1.5		●	●										
	M16×1.5		●	●	●									
	M 20×1.5			●	●									
	M 25×1.5				●									
TWCL	G 1/2"		●	●	●									
	Pg 9		●											
	Pg 11		●	●										
	Pg 13.5		●	●	●									
	Pg 16			●	●									
	M 12×1.5		●											
	M 16×1.5			●										
	M 20×1.5			●	●									
TACL	G 1/2"		●	●	●									
	Pg 9		●											
	Pg 11		●	●										
	Pg 13.5		●		●									
	Pg 16				●									
	M 12×1.5		●											
	M 16×1.5			●										
	M 20×1.5				●									
TIPC	G 1/2"				●									
	G 3/4"						●							
	G 1"							●						
	G 1 1/4"								●					
	G 1 1/2"										●			
	G 2"										●			
SNIC	Pg 9		●											
	Pg 11			●										
	Pg 13.5			●	●									
	Pg 16				●									
	Pg 21						●							
	Pg 29							●						
	Pg 36								●					
	Pg 48										●			
	M 12×1.5		●											
	M 16×1.5			●										
	M 20×1.5				●									
	M 25×1.5						●							
	M 32×1.5							●						
	M 40×1.5								●					
	M 50×1.5										●			

Type	Thread / For tube size	07	10	12	16	21	22	28	36	42	48	56	70	95
SNC	Pg 9		●											
	Pg 11			●										
	Pg 13.5			●	●									
	Pg 16				●									
	Pg 21						●							
	Pg 29							●						
	Pg 36								●					
	Pg 48										●			
	M 12×1.5		●											
	M 16×1.5			●										
	M 20×1.5				●									
	M 25×1.5						●							
	M 32×1.5							●						
	M 40×1.5								●					
	M 50×1.5										●			
SWC	Pg 7	●												
	Pg 9		●											
	Pg 11			●										
	Pg 13.5				●									
	Pg 16				●									
	Pg 21						●							
	Pg 29							●						
	Pg 36								●					
	Pg 48										●			
	M12×1.5	●	●											
	M16×1.5			●										
	M 20×1.5				●									
	M 25×1.5						●							
	M 32×1.5							●						
	M 40×1.5								●					
	M 50×1.5										●			
SAC	Pg 9		●											
	Pg 11			●										
	Pg 13.5				●									
	Pg 16				●									
	Pg 21						●							
	Pg 29							●						
	Pg 36								●					
	Pg 48										●			
	M 12×1.5		●											
	M 16×1.5			●										
	M 20×1.5				●									
	M 25×1.5						●							
	M 32×1.5							●						
	M 40×1.5								●					
	M 50×1.5										●			
SICC	1/2-28 UNEF		●											
	5/8-24 UNEF		●	●										
	3/4-20 UNEF		●	●										
	1-20 UNEF			●	●									
	7/8-20 UNEF			●	●									
	1 3/16-18 UNEF				●		●							
	1 3/8-18 UNEF				●									
	1 7/16-18 UNEF				●		●	●						
	1 3/4-18 UNEF							●						
	2-18 UNS						●	●	●					

ASSEMBLY PROCEDURE / CONNECTORS

1

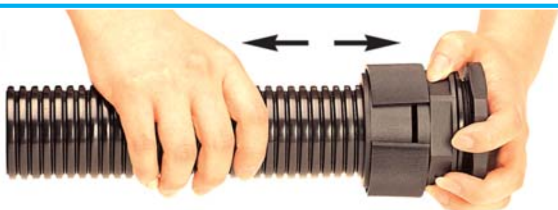


The flexible tube and the connector can be simply assembled or removed without any tool.
튜브와 커넥터결합시 간단하게 원터치방식으로 쉽게 결합이 가능하며 별도의 작업공구가 필요치 않다.

2

When the flexible tube and the connector are connected perfectly, they are approved as IP67 (waterproof upto 1m deep). That means they can perfectly protect cables from foreign articles.
튜브와 커넥터결합 완료시 방수등급 IP67(수심1M까지 방수)로 외부 이물질의 완벽한 차단으로 케이블을 보호할 수 있다.

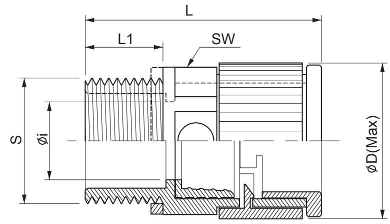
3



When removed, push the flexible tube towards the connector to widen the cover. Twist the cover 90° to the left and pull the flexible tube.
튜브와 커넥터의 분리시 튜브를 커넥터쪽으로 밀면 커버가 벌어지며 커버를 왼쪽으로 90˚정도 돌려 튜브를 당기면 간단하게 분리가 가능하다.

TNC IP66

Black
Gray



G(PF) M Pg NPT

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc.Joint box with connector
- Certification:

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 컨트롤박스에
  결합하기 위한 장소에 사용됨.
- 국 제 인 증 :

PF Thread (JIS B0204)

(dimensions in mm)

Order No.

Black	Gray	Thread PF	For tube size	S	L1	L	Ø i	ØD	SW
TNC-G07B	TNC-G07G	G1/4"	07	13.1	11	32.6	8	25	14.2
TNC-G10B	TNC-G10G	G1/2"	10	20.9	13	40	10	25	19.8
TNC-G12B	TNC-G12G	G1/2"	12	20.9	13	40	13	25	22.7
TNC-G16B	TNC-G16G	G1/2"	16	20.9	13	41	14	30	28
TNC-G22B	TNC-G22G	G3/4"	22	26.4	15	49	19	41	37.5
TNC-G28B	TNC-G28G	G1"	28	33.2	15	53	24	47	43
TNC-G36B	TNC-G36G	G1 1/4"	36	41.9	19	65	33	56	52.2
TNC-G42B	TNC-G42G	G1 1/2"	48	47.8	21	72	39	68	64.1
TNC-G48B	TNC-G48G	G2"	48	59.6	21	72	48	68	64.1

Metric Thread (EN 60423)

(dimensions in mm)

Black	Gray	Thread PF	For tube size	S	L1	L	Øi	ØD	SW
TNC-M107B	TNC-M107G	M12 X 1.5	07	12	11	33	8.5	17	14.2
TNC-M127B	TNC-M127G	M16 X 1.5	07	16	11	33	8.5	25	14.2
TNC-M167B	TNC-M167G	M20 X 1.5	07	20	11	33	8.5	25	14.2
TNC-M10B	TNC-M10G	M12 X 1.5	10	12	13	40	7.5	25	19.8
TNC-M120B	TNC-M120G	M16 X 1.5	10	16	13	40	10	25	19.8
TNC-M20B	TNC-M20G	M20 X 1.5	10	20	13	40	10	25	19.8
TNC-M102B	TNC-M102G	M12 X 1.5	12	12	13	40	7.5	25	22.7
TNC-M12B	TNC-M12G	M16 X 1.5	12	16	13	40	11	25	22.7
TNC-M202B	TNC-M202G	M20 X 1.5	12	20	13	40	13	25	22.7
TNC-M126B	TNC-M126G	M16 X 1.5	16	16	13	41	11.5	30	28
TNC-M16B	TNC-M16G	M20 X 1.5	16	20	13	41	14	30	28
TNC-M226B	TNC-M226G	M25 X 1.5	16	25	13	41	14	30	28
TNC-M22B	TNC-M22G	M25 X 1.5	22	25	15	49	18.5	41	37.5
TNC-M3222B	TNC-M3222G	M32 X 1.5	22	32	15	49	20	41	37.5
TNC-M28B	TNC-M28G	M32 X 1.5	28	32	15	53	25	47	43
TNC-M4028B	TNC-M4028G	M40 X 1.5	28	40	15	53	27	47	43
TNC-M36B	TNC-M36G	M40 X 1.5	36	40	19	65	32	56	52.2
TNC-M5036B	TNC-M5036G	M50 X 1.5	36	50	19	65	34	56	52.2
TNC-M48B	TNC-M48G	M50 X 1.5	48	50	21	72	42	68	64.1
TNC-M6348B	TNC-M6348G	M63 X 1.5	48	63	21	72	48	68	64.1

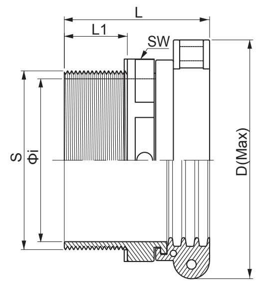
Pg Thread (DIN40430)

TNC-P077B	TNC-P077G	Pg 07	07	12.5	11	33	8	17	14.2
TNC-P097B	TNC-P097G	Pg 09	07	15.2	13	35	8.5	25	14.2
TNC-P117B	TNC-P117G	Pg 11	07	18.6	13	35	8.5	25	14.2
TNC-P137B	TNC-P137G	Pg 13.5	07	20.4	13	35	8.5	25	14.2
TNC-P070B	TNC-P070G	Pg 07	10	12.5	13	40	8	25	19.8
TNC-P09B	TNC-P09G	Pg 09	10	15.2	13	40	10	25	19.8
TNC-P110B	TNC-P110G	Pg 11	10	18.6	13	40	10	25	19.8
TNC-P130B	TNC-P130G	Pg 13.5	10	20.4	13	40	10	25	19.8
TNC-P160B	TNC-P160G	Pg 16	10	22.5	13	40	10	25	19.8
TNC-P0912B	TNC-P0912G	Pg 09	12	15.2	13	40	10	25	22.7
TNC-P11B	TNC-P11G	Pg 11	12	18.6	13	40	12.5	25	22.7
TNC-P132B	TNC-P132G	Pg 13.5	12	20.4	13	40	13	25	22.7
TNC-P162B	TNC-P162G	Pg 16	12	22.5	13	40	13	25	22.7
TNC-P136B	TNC-P136G	Pg13.5	16	20.4	13	41	14	30	28
TNC-P16B	TNC-P16G	Pg 16	16	22.5	13	41	14	30	28
TNC-P216B	TNC-P216G	Pg 21	16	28.3	13	41	14	30	28
TNC-P163B	TNC-P163G	Pg 16	22	22.5	13	49	16	41	37.5
TNC-P21B	TNC-P21G	Pg 21	22	28.3	15	49	19	41	37.5
TNC-P29B	TNC-P29G	Pg 29	28	37	15	53	27	47	43
TNC-P36B	TNC-P36G	Pg 36	36	47	19	65	34	56	52.2
TNC-P48B	TNC-P48G	Pg 48	48	59.3	21	72	49	68	64.1

NPT Thread (ANSI/ASME-B1201)

TNC-N10B	TNC-N10G	NPT 1/2"	10	21.2	13	40	10	25	19.8
TNC-N12B	TNC-N12G	NPT 1/2"	12	21.2	13	40	13	25	22.7
TNC-N16B	TNC-N16G	NPT 1/2"	16	21.2	13	41	14	30	28
TNC-N22B	TNC-N22G	NPT 3/4"	22	26.5	15	49	19	41	37.5
TNC-N28B	TNC-N28G	NPT 1"	28	33.2	15	55	24	47	43

TNC IP67



Black
Gray

G(PF)

- Material: High Quality Polyamide 6
- Protective: IP 66 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc. Joint box with connector

- 재 질 : 고품질 폴리아미드 6
- 방 수 등 급 : IP 66 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 컨트롤박스에
  결합하기 위한 장소에 사용됨.

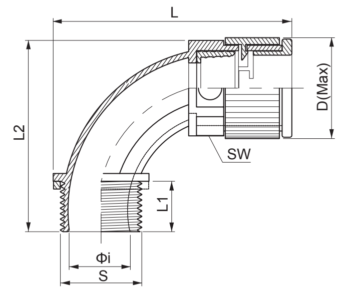
PF Thread (JIS B0204)

(dimensions in mm)

Order No.

Black	Gray	Thread	For tube size	S	L1	L	Ø i	ØD	SW
TNC-G56B	TNC-G56G	G2"	56	59.6	24	64.3	46	93	78
TNC-G70B	TNC-G70G	G2 1/2"	70	75.1	30	75.2	64	121	94.5
TNC-G95B	TNC-G95G	G4"	95	113	40	92.2	96	151	118.5

TWC IP67



Black
Gray

G(PF) M Pg

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc.Joint box with connector
- Certification:

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 컨트롤박스에
  결합하기 위한 장소에 사용됨.
- 국 제 인 증 :

PF Thread (JIS B0204)

(dimensions in mm)

Order No.

Black	Gray	Thread PF	For tube size	S	L1	L2	L	Øi	ØD	SW
TWC-G10B	TWC-G10G	G1/2"	10	20.9	13	51	62	10	25	19.8
TWC-G12B	TWC-G12G	G1/2"	12	20.9	13	51	60	12	25	22.7
TWC-G16B	TWC-G16G	G1/2"	16	20.9	13	59	66	13	30	28
TWC-G22B	TWC-G22G	G3/4"	22	26.4	15	67	81	18	41	37.5
TWC-G28B	TWC-G28G	G1"	28	33.2	15	75	96	25	47	43
TWC-G368B	TWC-G368G	G1 1/4"	28	41.9	15	75	96	26	47	43
TWC-G36B	TWC-G36G	G1 1/4"	36	41.9	19	95	119	32	56	52.2
TWC-G42B	TWC-G42G	G1 1/2"	48	47.8	19	110	141	37	68	64.1
TWC-G48B	TWC-G48G	G2"	48	59.6	19	110	141	43	68	64.1

M Thread (EN 60423)

(dimensions in mm)

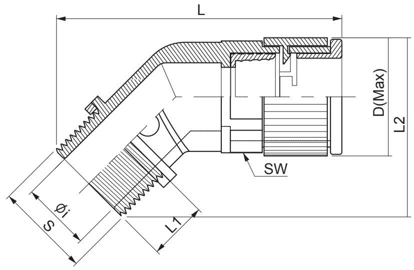
Order No.

Black	Gray	Thread PF	For tube size	S	L1	L2	L	Øi	ØD	SW
TWC-M107B	TWC-M107G	M12 X 1.5	07	12	11	31	41	7	17	14.2
TWC-M10B	TWC-M10G	M12 X 1.5	10	12	13	51	62	7	25	19.8
TWC-M12B	TWC-M12G	M16 X 1.5	12	16	13	51	60	10	25	22.7
TWC-M202B	TWC-M202G	M20 X 1.5	12	20	13	51	60	12	25	22.7
TWC-M16B	TWC-M16G	M20 X 1.5	16	20	13	59	66	13	30	28
TWC-M22B	TWC-M22G	M25 X 1.5	22	25	15	67	81	17	41	37.5
TWC-M28B	TWC-M28G	M32 X 1.5	28	32	15	75	96	24	47	43
TWC-M36B	TWC-M3G	M40 X 1.5	36	40	19	95	119	32	56	52.2
TWC-M48B	TWC-M48G	M50 X 1.5	48	50	19	110	141	42	68	64.1

Pg Thread (DIN40430)

Black	Gray	Thread PF	For tube size	S	L1	L2	L	Øi	ØD	SW
TWC-P077B	TWC-P077G	Pg07	07	12.5	11	31	41	7	17	14.2
TWC-P097B	TWC-P097G	Pg09	07	15.2	11	31	41	7	17	14.2
TWC-P09B	TWC-P09G	Pg09	10	15.2	13	51	62	9	25	19.8
TWC-P110B	TWC-P110G	Pg11	10	18.6	13	51	62	10	25	19.8
TWC-P130B	TWC-P13G	Pg13.5	10	20.4	13	51	62	10	25	19.8
TWC-P11B	TWC-P11G	Pg11	12	18.6	13	51	60	10	25	22.7
TWC-P132B	TWC-P132G	Pg13.5	12	20.4	13	51	60	12	25	22.7
TWC-P162B	TWC-P162G	Pg16	12	22.5	13	51	60	12	25	22.7
TWC-P136B	TWC-P136G	Pg13.5	16	20.4	13	59	66	13	30	28
TWC-P16B	TWC-P16G	Pg16	16	22.5	13	59	66	13	30	28
TWC-P163B	TWC-P163G	Pg16	22	22.5	15	67	81	15	41	37.5
TWC-P21B	TWC-P21G	Pg21	22	28.3	15	67	81	19	41	37.5
TWC-P29B	TWC-P29G	Pg29	28	37	15	75	96	26	47	43
TWC-P36B	TWC-P36G	Pg36	36	47	19	95	119	32	56	52.2
TWC-P48B	TWC-P48G	Pg48	48	59.3	19	110	141	43	68	64.1

TAC IP67



Black
Gray

G(PF) M Pg

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc.Joint box with connector
- Certification: CE

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 컨트롤박스에
  결합하기 위한 장소에 사용됨.
- 국 제 인 증 : CE

PF Thread (JIS B0204)

(dimensions in mm)

Order No.

Black	Gray	Thread PF	For tube size	S	L1	L2	L	Øi	ØD	SW
TAC-G10B	TAC-G10G	G1/2"	10	20.9	13	35.4	59	10	25	19.8
TAC-G12B	TAC-G12G	G1/2"	12	20.9	13	38.4	62	12	25	22.7
TAC-G16B	TAC-G16G	G1/2"	16	20.9	13	43.4	64	13	30	28
TAC-G22B	TAC-G22G	G3/4"	22	26.4	15	55.4	79	16	41	37.5
TAC-G28B	TAC-G28G	G1"	28	33.2	15	60.5	90	23	47	43
TAC-G36B	TAC-G36G	G1 1/4"	36	41.9	20	73.3	102	32	56	52.2
TAC-G42B	TAC-G42G	G1 1/2"	48	47.8	20	82.5	123	38	68	64.1
TAC-G48B	TAC-G48G	G2"	48	59.6	20	90.7	123	49	68	64.1

Metric Thread (EN 60423)

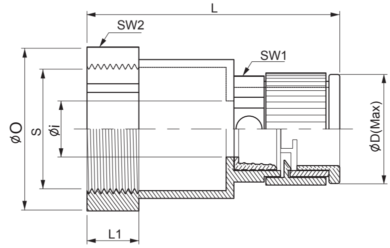
(dimensions in mm)

Black	Gray	Thread PF	For tube size	S	L_1	L_2	L	Øi	ØD	SW
TAC-M10B	TAC-M10G	M12 X 1.5	10	12	13	32.2	56	6	25	19.8
TAC-M12B	TAC-M12G	M16 X 1.5	12	16	13	36.9	60	9	25	22.7
TAC-M202B	TAC-M202G	M20 X 1.5	12	20	13	36.9	60	12	25	22.7
TAC-M16B	TAC-M16G	M20 X 1.5	16	20	13	43	65	13	30	28
TAC-M22B	TAC-M22G	M25 X 1.5	22	25	15	54.9	78	17	41	37.5
TAC-M28B	TAC-M28G	M32 X 1.5	28	32	15	59.8	90	23	47	43
TAC-M36B	TAC-M36G	M40 X 1.5	36	40	20	72.6	102	32	56	52.2
TAC-M48B	TAC-M48G	M50 X 1.5	48	50	20	87	123	42	68	64.1

Pg Thread (DIN40430)

Black	Gray	Thread PF	For tube size	S	L_1	L_2	L	Øi	ØD	SW
TAC-P09B	TAC-P09G	Pg09	10	15.2	13	33.4	60	9	25	19.8
TAC-P110B	TAC-P110G	Pg11	10	18.6	13	34.4	60	9	25	19.8
TAC-P130B	TAC-P130G	Pg13.5	10	20.4	13	35	60	9	25	19.8
TAC-P11B	TAC-P11G	Pg11	12	18.6	13	37.7	66	9	25	19.8
TAC-P136B	TAC-P136G	Pg13.5	16	20.4	13	43.2	66	13	30	28
TAC-P16B	TAC-P16G	Pg16	16	22.5	13	44	66	13	30	28
TAC-P21B	TAC-P21G	Pg21	22	28.3	15	56	80	19	41	37.5
TAC-P29B	TAC-P29G	Pg29	28	37	15	61.5	90	26	47	43
TAC-P36B	TAC-P36G	Pg36	36	47	20	75	102	32	56	52.2
TAC-P48B	TAC-P48G	Pg48	48	59.3	20	90.4	123	48	68	64.1

TIC IP67



Black
Gray

UNEF M Pg

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc.Joint box with connector
- Certification: CE

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 캐논커넥터에
  결합하기 위한 장소에 사용됨 .
- 국 제 인 증 : CE

PF Thread (JIS B0204)

(dimensions in mm)

Order No.

Black	Gray	Thread	For tube size	Sheel Size	L_1	L	Øi	Øo	ØD	SW
TIC-U1010B	TIC-U1010G	1/2-28UNEF	10	8S, 10S	10	41	9	18.4	25	20.3
TIC-U1210B	TIC-U1210G	5/8-24UNEF	10	10SL, 12S	10	41	9	20.6	25	20.3
TIC-U1410B	TIC-U1410G	3/4-20UNEF	10	14, 14S	10	41	9	24	25	20.3
TIC-U1212B	TIC-U1212G	5/8-24UNEF	12	10SL, 12S	10	40.7	11	20.6	25	22.7
TIC-U1412B	TIC-U1412G	3/4-20UNEF	12	14, 14S	10	40.7	11	24	25	22.7
TIC-U1812B	TIC-U1812G	1-20UNEF	12	18	10	40.7	11	31	25	22.7
TIC-U1616B	TIC-U1616G	7/8-20UNEF	16	16, 16S	10	42.5	13	28	30	27.7
TIC-U1816B	TIC-U1816G	1-20UNEF	16	18	10	42.5	13	31	30	27.7
TIC-U2016B	TIC-U2016G	1 3/16-18UNEF	16	20, 22	10	42.5	13	35.5	30	27.7
TIC-U2316B	TIC-U2316G	1 3/8-8UNEF	16	20, 22	10	42.5	13	40	30	27.7
TIC-U2816B	TIC-U2816G	1 7/16-18UNEF	16	24, 28	10	42.5	13	42	30	27.7
TIC-U2222B	TIC-U2222G	1 3/16-18UNEF	22	20, 22	10	48.7	18	35.5	41	36.9
TIC-U2822B	TIC-U2822G	1 7/16-18UNEF	22	24, 28	10	48.7	18	42	41	36.9
TIC-U3622B	TIC-U3622G	2-18UNS	22	36	10	48.7	18	56.5	41	36.9
TIC-U2828B	TIC-U2828G	1 7/16-18UNEF	28	24, 28	10	54	25	42	47	43
TIC-U3228B	TIC-U3228G	1 3/4-18UNS	28	32	10	54	25	50	47	43
TIC-U3628B	TIC-U3628G	2-18UNS	28	36	10	54	25	56.5	47	43
TIC-U3636B	TIC-U3636G	2-18UNS	36	36	10	61	32	56.5	56	52.2

Metric Thread (EN 60423)

(dimensions in mm)

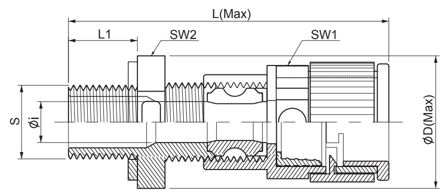
Order No.									
Black	Gray	Thread	For tube size	L_1	L	Øi	Øo	ØD	SW
TIC-M12B	TIC-M12G	M16 X 1.5	12	14	40.7	11	20.6	25	22.7
TIC-M226B	TIC-M226G	M25 X 1.5	16	14	42.5	13	35.5	30	27.7

Pg Thread (DIN40424

TIC-P11B	TIC-P11G	Pg11	12	14	40.7	11	20.6	25	22.7
TIC-P132B	TIC-P132G	Pg13.5	12	14	40.7	11	24	25	22.7
TIC-P16B	TIC-P16G	Pg16	16	14	42.5	13	28	30	27.7
TIC-P21B	TIC-P21G	Pg21	22	15	54	13	35.5	41	36.9

TNCC IP67

Black
Gray



G(PF) M Pg

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc. Connector to avoid the cut-off of the cable in the machine.

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 기계의 진동으로 발생되는
  케이블의 단선을 방지하기 위해
  사용되는 커넥터.

PF Thread (JIS B0204)

(dimensions in mm)

Order No.

Black	Gray	Thread	For tube size	Øi(Min)	Øi(Max)	S	L1	L	ØD	SW1	SW2
TNCC-G10B	TNCC-G10G	G1/2"	10	3.5	6.5	20.9	15	69.5	23	22.6	20.3
TNCC-G12B	TNCC-G12G	G1/2"	12	4	8	20.9	15	70	25	25.5	22.7
TNCC-G16B	TNCC-G16G	G1/2"	16	7	12.3	20.9	15	74	30	25.4	27.7
TNCC-G1622B	TNCC-G1622G	G1/2"	22	12	15.2	20.9	15	85	41	34	36.9
TNCC-G22B	TNCC-G22G	G3/4"	22	12	18	26.4	15	85	41	34	36.9
TNCC-G228B	TNCC-G228G	G3/4"	28	18	20.3	26.4	15	89	47	43.4	43
TNCC-G28B	TNCC-G28G	G1"	28	18	26	33.2	15	89	47	43.4	43
TNCC-G36B	TNCC-G36G	G1 1/4"	36	22	33	41.9	19	112	56	53	52.2
TNCC-G48B	TNCC-G48G	G2"	48	30	38	59.6	19	120	68	66.5	64.1

Metric Thread (EN 60423)

(dimensions in mm)

Order No.

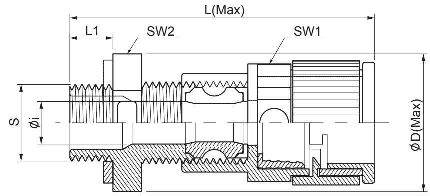
Black	Gray	Thread	For tube size	Øi (Min)	Øi (Max)	S	L1	L	ØD	SW1	SW2
TNCC-M10B	TNCC-M10G	M12 X 1.5	10	3.5	6.5	12	15	69.5	23	22.6	20.3
TNCC-M120B	TNCC-M120G	M16 X 1.5	10	3.5	6.5	16	15	69.5	23	22.6	20.3
TNCC-M102B	TNCC-M102G	M12 X 1.5	12	4	7.1	12	15	70	25	25.5	22.7
TNCC-M12B	TNCC-M12G	M16 X 1.5	12	4	8	16	15	70	25	25.5	22.7
TNCC-M162B	TNCC-M162G	M20 X 1.5	12	4	8	20	15	70	25	25.5	22.7
TNCC-M126B	TNCC-M126G	M16 X 1.5	16	7	10.9	16	15	74	30	25.4	27.7
TNCC-M16B	TNCC-M16G	M20 X 1.5	16	7	12.3	20	15	74	30	25.4	27.7
TNCC-M1622B	TNCC-M1622G	M20 X 1.5	22	12	14.5	20	15	85	41	34	36.9
TNCC-M22B	TNCC-M22G	M25 X 1.5	22	12	18	25	15	85	41	34	36.9
TNCC-M228B	TNCC-M228G	M25 X 1.5	28	18	19.5	25	15	89	47	43.4	43
TNCC-M28B	TNCC-M28G	M32 X 1.5	28	18	26	32	15	89	47	43.4	43
TNCC-M36B	TNCC-M36G	M40 X 1.5	36	22	33	40	19	112	56	53	52.2
TNCC-M48B	TNCC-M48G	M50 X 1.5	48	30	38	50	19	120	68	66.5	64.1

Pg Thread (DIN 40424)

Black	Gray	Thread	For tube size	Øi (Min)	Øi (Max)	S	L1	L	ØD	SW1	SW2
TNCC-P07B	TNCC-P07G	Pg07	10	3.5	6.5	12.5	15	69.5	23	22.6	20.3
TNCC-P09B	TNCC-P09G	Pg09	10	6.5	6.5	15.2	15	69.5	23	22.6	20.3
TNCC-P072B	TNCC-P072G	Pg07	12	4	8	12.5	15	70	25	25.5	22.7
TNCC-P092B	TNCC-P092G	Pg09	12	4	8	15.2	15	70	25	25.5	22.7
TNCC-P11B	TNCC-P11G	Pg11	12	4	8	18.6	15	70	25	25.5	22.7
TNCC-P132B	TNCC-P132G	Pg13.5	12	4	8	20.4	15	70	25	25.5	22.7
TNCC-P162B	TNCC-P162G	Pg16	12	4	8	22.5	15	70	25	25.5	22.7
TNCC-P096B	TNCC-P096G	Pg09	16	7	10.6	15.2	15	74	30	25.4	27.7
TNCC-P116B	TNCC-P116G	Pg11	16	7	12.3	18.6	15	74	30	25.4	27.7
TNCC-P13B	TNCC-P13G	Pg13.5	16	7	12.3	20.4	15	74	30	25.4	27.7
TNCC-P16B	TNCC-P16G	Pg16	16	7	12.3	22.5	15	74	30	25.4	27.7
TNCC-P122B	TNCC-P122G	Pg11	22	12	13.9	18.6	15	85	41	34	36.9
TNCC-P1322B	TNCC-P1322G	Pg13.5	22	12	14.8	20.4	15	85	41	34	36.9
TNCC-P1622B	TNCC-P1622G	Pg16	22	12	17.3	22.5	15	85	41	34	36.9
TNCC-P21B	TNCC-P21G	Pg21	22	12	18	28.3	15	85	41	34	36.9
TNCC-P218B	TNCC-P218G	Pg21	28	18	22.5	28.3	15	89	47	43.4	43
TNCC-P29B	TNCC-P29G	Pg29	28	18	26	37	15	89	47	43.4	43
TNCC-P36B	TNCC-P36G	Pg36	36	22	33	47	19	112	56	53	52.2
TNCC-P48B	TNCC-P48G	Pg48	48	30	38	59.3	19	120	68	66.5	64.1

TNCCL IP67

Black
Gray



G(PF) M Pg

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc. Connector to avoid the cut-off of the cable in the machine.

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 기계의 진동으로 발생되는
  케이블의 단선을 방지하기 위해
  사용되는 커넥터.

PF Thread (JIS B0204)

(dimensions in mm)

Order No.

Black	Gray	Thread	For tube size	Øi (Min)	Øi (Max)	S	L1	L	ØD	SW1	SW2
TNCCL-G10B	TNCCL-G10G	G1/2"	10	3.5	6.5	20.9	9	63.5	23	22.6	20.3
TNCCL-G12B	TNCCL-G12G	G1/2"	12	4	8	20.9	6	64	25	25.5	22.7
TNCCL-G16B	TNCCL-G16G	G1/2"	16	7	12.3	20.9	6	68	30	25.4	27.7

Metric Thread (EN 60423)

(dimensions in mm)

Order No.

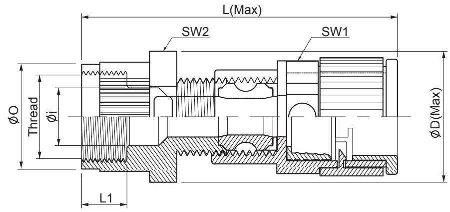
Black	Gray	Thread	For tube size	Øi (Min)	Øi (Max)	S	L1	L	ØD	SW1	SW2
TNCCL-M10B	TNCCL-M10G	M12 X 1.5	10	3.5	6.5	12	9	63.5	23	22.6	20.3
TNCCL-M120B	TNCCL-M120G	M16 X 1.5	10	3.5	6.5	16	9	63.5	23	22.6	20.3
TNCCL-M102B	TNCCL-M102G	M12 X 1.5	12	4	7.1	12	9	64	25	25.5	22.7
TNCCL-M12B	TNCCL-M12G	M16 X 1.5	12	4	8	16	9	64	25	25.5	22.7
TNCCL-M162B	TNCCL-M162G	M20 X 1.5	12	4	8	20	9	64	25	25.5	22.7
TNCCL-M126B	TNCCL-M126G	M16 X 1.5	16	7	10.9	16	6	68	30	25.4	27.7
TNCCL-M16B	TNCCL-M16G	M20 X 1.5	16	7	12.3	20	9	68	30	25.4	27.7
TNCCL-M216B	TNCCL-M216G	M25 X 1.5	16	7	12.3	25	6	68	30	25.4	27.7

Pg Thread (DIN 40424)

TNCCL-P09B	TNCCL-P09G	Pg09	10	6.5	6.5	15.2	9	63.5	23	22.6	20.3
TNCCL-P092B	TNCCL-P092G	Pg09	12	4	8	15.2	9	64	25	25.5	22.7
TNCCL-P11B	TNCCL-P11G	Pg11	12	4	8	18.6	9	64	25	25.5	22.7
TNCCL-P132B	TNCCL-P132G	Pg13.5	12	4	8	20.4	9	64	25	25.5	22.7
TNCCL-P162B	TNCCL-P162G	Pg16	12	4	8	22.5	9	64	25	25.5	22.7
TNCCL-P116B	TNCCL-P116G	Pg11	16	7	12.3	18.6	9	68	30	25.4	27.7
TNCCL-P13B	TNCCL-P13G	Pg13.5	16	7	12.3	20.4	9	68	30	25.4	27.7
TNCCL-P16B	TNCCL-P16G	Pg16	16	7	12.3	22.5	9	68	30	25.4	27.7

TICC IP67

Black
Gray



UNEF

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc. Connector to avoid the cut-off of the cable in the machine.

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 기계의 진동으로 발생되는
  케이블의 단선을 방지하기 위해
  사용되는 커넥터.

UNEF Thread (MIL 5015)

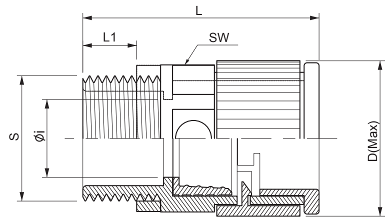
(dimensions in mm)

Order No.

Black	Gray	Thread	For tube size	Sheel Size	Øi(Min)	Øi(Max)	L1	L	ØO	ØD	SW1	SW2
TICC-U1010B	TICC-U1010G	1/2-28UNEF	10	8S, 10S	3.5	6.5	10	69.5	18.4	25	22.6	22.6
TICC-U1210B	TICC-U1210G	5/8-24UNEF	10	10SL, 12S	3.5	6.5	10	69.5	20.6	25	22.6	22.6
TICC-U1410B	TICC-U1410G	3/4-20UNEF	10	14, 14S	3.5	6.5	10	69.5	24	25	22.6	22.6
TICC-U1212B	TICC-U1212G	5/8-24UNEF	12	10SL, 12S	4	8	10	70	20.6	25	25.5	25.5
TICC-U1412B	TICC-U1412G	3/4-20UNEF	12	14, 14S	4	8	10	70	24	25	25.5	25.5
TICC-U1812B	TICC-U1812G	1-20UNEF	12	18	4	8	10	70	31	25	25.5	25.5
TICC-U1616B	TICC-U1616G	7/8-20UNEF	16	16, 16S	7	12.3	10	74	28	30	25.4	25.4
TICC-U1816B	TICC-U1816G	1-20UNEF	16	18	7	12.3	10	74	31	30	25.4	25.4
TICC-U2016B	TICC-U2016G	1 3/16-18UNEF	16	20, 22	7	12.3	10	74	35.5	30	25.4	25.4
TICC-U2816B	TICC-U2816G	1 7/16-18UNEF	16	24, 28	7	12.3	10	74	42	30	25.4	25.4
TICC-U2222B	TICC-U2222G	1 3/16-18UNEF	22	20, 22	12	16	10	85	35.5	41	34	34
TICC-U2822B	TICC-U2822G	1 7/16-18UNEF	22	24, 28	12	16	10	85	42	41	34	34
TICC-U2828B	TICC-U2828G	1 7/16-18UNEF	28	24, 28	18	26	10	89	50	47	43.4	43.4
TICC-U3228B	TICC-U3228G	13/4-18UNS	28	32	18	26	10	89	50	47	43.4	43.4
TICC-U3628B	TICC-U3628G	2-18UNS	28	36	18	26	10	89	56.5	47	43.4	53
TICC-U3636B	TICC-U3636G	2-18UNS	36	36	22	33	10	112	56.5	56	66.5	66.5

TNCL IP67

Black
Gray



G(PF) M Pg

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc. connector for jointing into
  Limit - Switch.

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 기계의 리미트스위치에
  결합하기 위한 전용커넥터.

PF Thread / Straight (JIS B0204)

(dimensions in mm)

Order No.

Black	Gray	Thread	For tube size	S	L1	L	Øi	ØD	SW
TNCL-G10B	TNCL-G10G	G1/2"	10	20.9	8	40	10	25	19.8
TNCL-G12B	TNCL-G12G	G1/2"	12	20.9	8	40	13	25	22.7
TNCL-G16B	TNCL-G16G	G1/2"	16	20.9	8	41	14	30	28

Metric Thread / Straight (EN 60423)

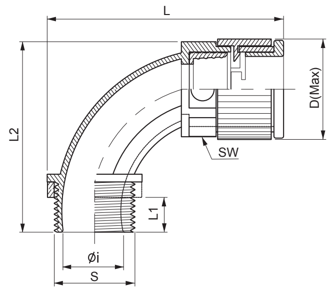
Black	Gray	Thread	For tube size	S	L1	L	Øi	ØD	SW
TNCL-M10B	TNCL-M10G	M12 X 1.5	10	12	8	40	7.5	25	19.8
TNCL-M120B	TNCL-M120G	M16 X 1.	10	16	8	40	10	25	19.8
TNCL-M20B	TNCL-M20G	M20 X 1.5	10	20	8	40	10	25	19.8
TNCL-M102B	TNCL-M102G	M12 X 1.5	12	12	8	40	7.5	25	22.7
TNCL-M12B	TNCL-M12G	M16 X 1.5	12	16	8	40	11	25	22.7
TNCL-M202B	TNCL-M202G	M20 X 1.5	12	20	8	40	13	25	22.7
TNCL-M126B	TNCL-M126G	M16 X 1.5	16	16	8	41	11.5	30	28
TNCL-M16B	TNCL-M16G	M20 X 1.5	16	20	8	41	14	30	28
TNCL-M226B	TNCL-M226G	M25 X 1.5	16	25	8	41	14	30	28

Pg Thread/ Straight (DIN 40424)

Black	Gray	Thread	For tube size	S	L1	L	Øi	ØD	SW
TNCL-P09B	TNCL-P09G	Pg09	10	15.2	8	40	10	25	19.8
TNCL-P160B	TNCL-P160G	Pg16	10	22.5	8	40	10	25	19.8
TNCL-P0912B	TNCL-P0912G	Pg09	12	15.2	8	40	10	25	22.7
TNCL-P11B	TNCL-P11G	Pg11	12	18.6	8	40	12.5	25	22.7
TNCL-P136B	TNCL-P136G	Pg13.5	16	20.4	8	41	14	30	28
TNCL-P16B	TNCL-P16G	Pg16	16	22.5	8	41	14	30	28

TWCL IP67

Black
Gray



G(PF) M Pg

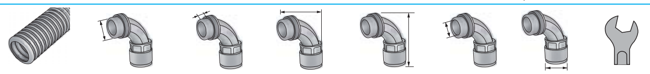
- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc. connector for jointing into
  Limit - Switch.

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 기계의 리미트스위치에
  결합하기 위한 전용커넥터.

PF Thread / 90°Elbow (JIS B0204)

(dimensions in mm)

Order No.



Black	Gray	Thread	For tube size	S	L1	L2	L	Ø i	ØD	SW
TWCL-G10B	TWCL-G10G	G1/2"	10	20.9	8	51	62	10	25	19.8
TWCL-G12B	TWCL-G12G	G1/2"	12	20.9	8	51	60	12	25	22.7
TWCL-G16B	TWCL-G16G	G1/2"	16	20.9	8	59	66	13	30	28

Metric Thread / 90°Elbow (EN 60423)

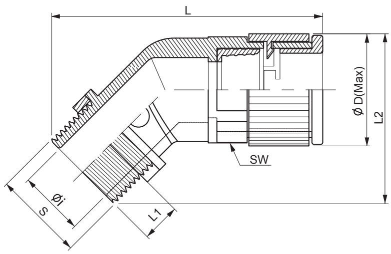
Black	Gray	Thread	For tube size	S	L1	L2	L	Ø i	ØD	SW
TWCL-M10B	TWCL-M10G	M12 X 1.5	10	12	8	51	62	7	25	19.8
TWCL-M12B	TWCL-M12G	M16 X 1.5	12	16	8	51	60	10	25	22.7
TWCL-M202B	TWCL-M202G	M20 X 1.5	12	20	8	51	60	12	25	22.7
TWCL-M16B	TWCL-M16G	M20 X 1.5	16	20	8	59	66	13	30	28

Pg Thread / 90°Elbow (DIN 40424)

Black	Gray	Thread	For tube size	S	L1	L2	L	Ø i	ØD	SW
TWCL-P09B	TWCL-P09G	Pg09	10	15.2	8	51	62	9	25	19.8
TWCL-P110B	TWCL-P110G	Pg11	10	18.6	8	51	62	10	25	19.8
TWCL-P130B	TWCL-P130G	Pg13.5	10	20.4	8	51	62	10	25	19.8
TWCL-P11B	TWCL-P11B	Pg11	12	18.6	8	51	60	10	25	22.7
TWCL-P132B	TWCL-P132G	Pg13.5	12	20.4	8	51	60	12	25	22.7
TWCL-P162B	TWCL-P162G	Pg16	12	22.5	8	51	60	12	25	22.7
TWCL-P136B	TWCL-P136G	Pg13.5	16	20.4	8	59	66	13	30	28
TWCL-P16B	TWCL-P16G	Pg16	16	22.5	8	59	66	13	30	28

TACL IP67

Black
Gray



G(PF) M Pg

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc. connector for jointing into
  Limit - Switch.

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 기계의 리미트스위치에
  결합하기 위한 전용커넥터.

PF Thread / 45°Elbow (JIS B0204)

(dimensions in mm)

Order No.

Black	Gray	Thread	For tube size	S	L1	L2	L	Øi	ØD	SW
TACL-G10B	TACL-G10G	G1/2"	10	20.9	8	35.4	59	10	25	19.8
TACL-G12B	TACL-G12G	G1/2"	12	20.9	8	38.4	62	12	25	22.7
TACL-G16B	TACL-G16G	G1/2"	16	20.9	8	43.4	64	13	30	28

Metric Thread / 45°Elbow (EN 60423)

Black	Gray	Thread	For tube size	S	L1	L2	L	Øi	ØD	SW
TACL-M10B	TACL-M10G	M12 X 1.5	10	12	8	32.2	56	6	25	19.8
TACL-M12B	TACL-M12G	M16 X 1.5	12	16	8	36.9	60	9	25	22.7
TACL-M16B	TACL-M16G	M20 X 1.5	16	20	8	43	65	13	30	28

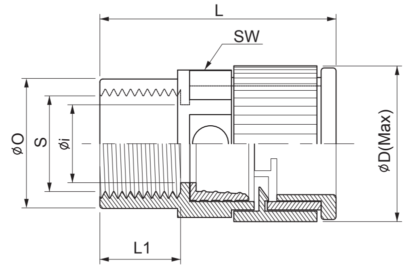
Pg Thread / 45°Elbow (DIN 40424)

Black	Gray	Thread	For tube size	S	L1	L2	L	Øi	ØD	SW
TACL-P09B	TACL-P09G	Pg09	10	15.2	8	33.4	60	9	25	19.8
TACL-P110B	TACL-P110G	Pg11	10	18.6	8	34.4	60	9	25	19.8
TACL-P130B	TACL-P130G	Pg13.5	10	20.4	8	35	60	9	25	19.8
TACL-P11B	TACL-P11G	Pg11	12	18.6	8	37.7	66	9	25	19.8
TACL-P136B	TACL-P136G	Pg13.5	16	20.4	8	43.2	66	13	30	28
TACL-P16B	TACL-P16G	Pg16	16	22.5	8	44	66	13	30	28

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

TIPC IP67

Black
Gray



G(PF)

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc. Pipe with connector.

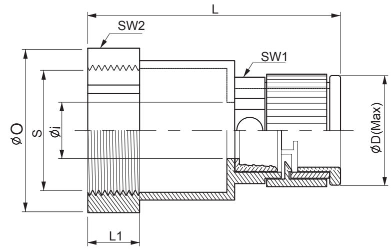
- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 파이프에 결합하기 위한 커넥터.

PF Thread (JIS B0204)

(dimensions in mm)

Order No.										
Black	Gray	Thread	For tube size	S	L_1	L	Øi	Øo	ØD	SW
TIPC-G16B	TIPC-G16G	G1/2"	16	18.6	13.8	41.8	14	28	30	27.7
TIPC-G22B	TIPC-G22G	G3/4"	22	24.1	15	49	18	35	41	36.9
TIPC-G28B	TIPC-G28G	G1"	28	30.2	15	54	25	41.5	47	43
TIPC-G36B	TIPC-G36G	G1 1/4"	36	38.9	29	75	30	53	56	52.2
TIPC-G42B	TIPC-G42G	G1 1/2"	48	44.8	29	81	42	66	68	64.1
TIPC-G48B	TIPC-G48G	G2"	48	56.6	29	81	42	66	68	64.1

TIS IP67



M

- Material: High Quality Polycarbonate
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Transparency
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc. Sensor with connector

- 재 질 : 고품질 폴리카보나이트
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 투명
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 센서커넥터에 결합하기 위한 커넥터

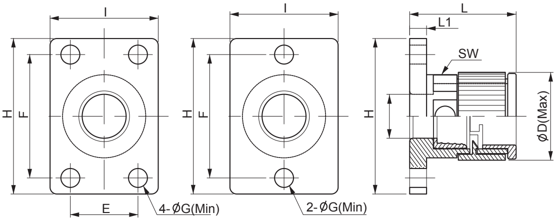
Metric Thread (EN 60423)

(dimensions in mm)

Order No.	Thread	For tube size	S	L_1	L	Øi	Øo	ØD	SW	SW
TIS-M08T	M8 X 1	10	7.7	12.8	61.5	5	17.5	23	20	16
TIS-M12T	M12 X 1	10	11.6	12.8	61.5	9	20	23	20	18.3
TIS-M18T	M18 X 1	10	17.7	12.8	61.5	9	24	23	20	22
TIS-M30T	M30 X 1.5	10	28.5	12.8	61.5	9	38	23	20	34

TNOC IP67

Black
Gray



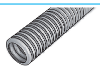
G(PF)

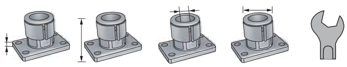
- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc.Control Box with connector

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 컨트롤 판넬외부에 부착하기
  위해 사용되는 커넥터.

(dimensions in mm)

Order No.

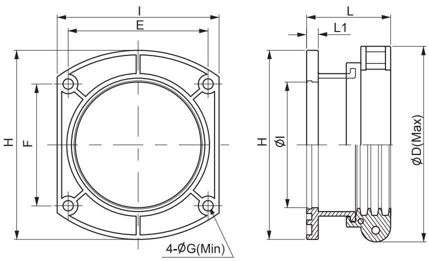




Black	Gray	For tube size	E	F	G	H	I	L_1	L	Øi	ØD	SW
TNOC-12B	TNOC-12G	12	-	36.5	5.5	46	32	5	31.2	11	25	22.7
TNOC-16B	TNOC-16G	16	-	36.5	5.5	46	32	5	33.3	14	30	28
TNOC-22B	TNOC-22G	22	31	54.8	6.5	64.8	45	6	39	18	41	37.5
TNOC-28B	TNOC-28G	28	31	54.8	6.5	64.8	45	6	45	25	47	43
TNOC-36B	TNOC-36G	36	31	72.6	6.5	86.6	60	6	52	25	56	52.2
TNOC-48B	TNOC-48G	48	30.5	72.6	6.5	86.6	73	6	58	48	68	64.1

TNOC IP67

Black
Gray



G(PF)

- Material: High Quality Polyamide6
- Protective: IP 65 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc.Control Box with connector

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 65 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 컨트롤 판넬외부에 부착하기
  위해 사용되는 커넥터.

(dimensions in mm)

Order No.

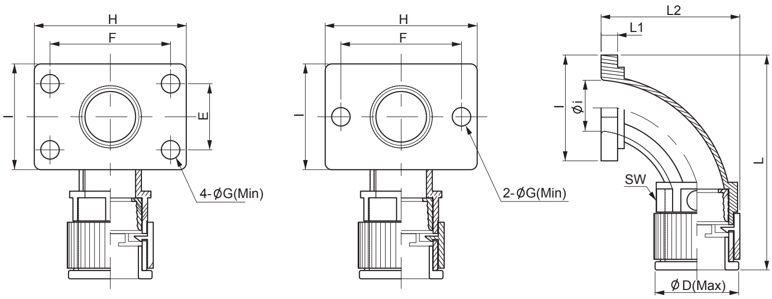
Black	Gray	For tube size	E	F	G	H	I	L1	L	Øi	ØD	SW
TNOC-56B	TNOC-56G	56	67	61	7	96	81	4	39.2	56	93	-
TNOC-70B	TNOC-70G	70	84	78	7	113	98	9	52	70	121	-
TNOC-95B	TNOC-95G	95	108	94	8	146	125	9	64.7	92	151	-

TWOC IP67

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc.Control Box with connector

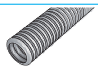
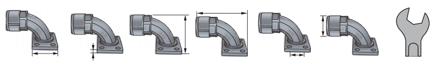
- 재　　질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : –40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색　　상 : 검정색, 회색
- 적　　용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 컨트롤 판넬외부에 부착하기
  위해 사용되는 커넥터.

Black
Gray



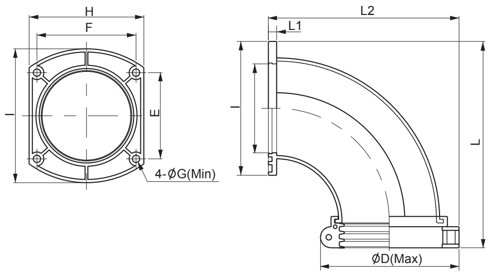
G(PF)

(dimensions in mm)

Order No.  

Black	Gray	For tube size	E	F	G	H	I	L1	L2	L	Øi	ØD	SW
TWOC-12B	TWOC-12G	12	-	36.5	5.5	45	32	5	43	61	12	25	22.7
TWOC-16B	TWOC-16G	16	-	36.5	5.5	45	32	5	51	71	13	30	28
TWOC-22B	TWOC-22G	22	30.5	53.5	5.5	66	45	6	58	81	19	41	37.5
TWOC-28B	TWOC-28G	28	30.5	55	6	66	45	6	66	98	26	47	43
TWOC-36B	TWOC-36G	36	30.5	73	7	86	64	6	82	123	32	56	52.2
TWOC-48B	TWOC-48G	48	30.5	73	7	86	78	6	97	147	43	68	64.1

TWOC IP67



Black
Gray

G(PF)

- Material: High Quality Polyamide6
- Protective: IP 65 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Machine tool, Shipbuilding, Tramway
  Industrial / Automatic Machinery
  Printing Machine etc.Control Box with connector.

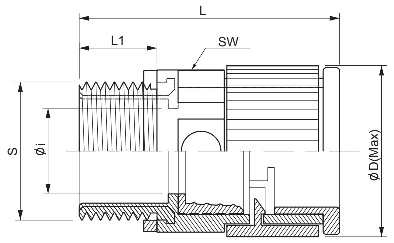
- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 65 (EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 공작기계, 산업기계, 자동화기계
  조선소, 전동차등 컨트롤 판넬외부에 부착하기
  위해 사용되는 커넥터.

(dimensions in mm)

Order No.

Black	Gray	For tube size	E	F	G	H	I	L1	L2	L	Øi	ØD	SW
TWOC-56B	TWOC-56G	56	61	67	7	81	96	6	117.5	139.2	56	93	-
TWOC-70B	TWOC-70G	70	78	84	7	98	113	9	171.5	191.6	70	121	-
TWOC-95B	TWOC-95G	95	94	108	8	125	146	9	195	225	92	151	-

SNC IP67



Black
Gray

M Pg

- Material: High Quality Polyamide6+Brass Nickel plated
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Tramway Vehicle Construction etc.

- 재 질 : 고품질 폴리아미드6+ 황동니켈도금
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 진동이 큰 철도차량에 사용되는 커넥터.

Pg Thread (DIN 40430)

(dimensions in mm)

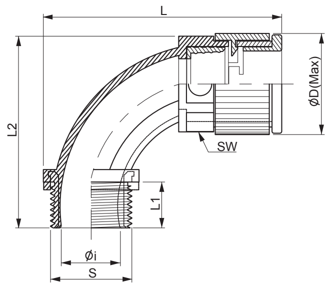
Order No.

Black	Gray	Thread	For tube size	S	L1	L	Øi	ØD	SW
SNC-P09B	SNC-P09G	Pg09	10	15.2	13	42	10	25	19.8
SNC-P11B	SNC-P11G	Pg11	12	18.6	13	42	12	25	22.7
SNC-P132B	SNC-P132G	Pg13.5	12	20.4	13	42	12	25	22.7
SNC-P136B	SNC-P136G	Pg13.5	16	20.4	13	43	14	30	28
SNC-P16B	SNC-P16G	Pg16	16	22.5	15	43	15	30	28
SNC-P21B	SNC-P21G	Pg21	22	28.3	15	51	19	41	37.5
SNC-P29B	SNC-P29G	Pg29	28	37	15	55	26	47	43
SNC-P36B	SNC-P36G	Pg36	36	47	19	67	33	56	52.2
SNC-P48B	SNC-P48G	Pg48	48	59.3	21	74	48	68	64.1

Metric Thread (EN 60424)

SNC-M10B	SNC-M10G	M12 X 1.5	10	12	13	42	7	25	19.8
SNC-M12B	SNC-M12G	M16 X 1.5	12	16	13	42	10	25	22.7
SNC-M16B	SNC-M16G	M20 X 1.5	16	20	13	43	14	30	28
SNC-M22B	SNC-M22G	M25 X 1.5	22	25	15	51	16	41	37.5
SNC-M28B	SNC-M28G	M32 X 1.5	28	32	15	55	23	47	43
SNC-M36B	SNC-M36G	M40 X 1.5	36	40	19	67	31	56	52.2
SNC-M48B	SNC-M48G	M50 X 1.5	48	50	21	74	40	68	64.1

SWC IP67



Black
Gray

M Pg

- Material: High Quality Polyamide6+Brass Nickel plated
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Tramway Vehicle Construction etc.

- 재 질 : 고품질 폴리아미드6+ 황동니켈도금
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 진동이 큰 철도차량에 사용되는 커넥터.

Pg Thread (DIN 40430)

(dimensions in mm)

Order No.

Black	Gray	Thread	For tube size	S	L_1	L_2	L	Øi	ØD	SW
SWC-P077B	SWC-P077G	Pg07	07	12.5	11	33	41	6	17	14.2
SWC-P09B	SWC-P09G	Pg09	10	15.2	13	53	62	8	25	19.8
SWC-P11B	SWC-P11G	Pg11	12	18.6	13	53	60	9	25	22.7
SWC-P136B	SWC-P136G	Pg13.5	16	20.4	13	62	66	12	30	28
SWC-P16B	SWC-P16G	Pg16	16	22.5	13	62	66	12	30	28
SWC-P21B	SWC-P21G	Pg21	22	28.3	15	71	81	18	41	37.5
SWC-P29B	SWC-P29G	Pg29	28	37	15	77	96	25	47	43
SWC-P36B	SWC-P36G	Pg36	36	47	19	97	119	31	56	52.2
SWC-P48B	SWC-P48G	Pg48	48	59.3	19	112	141	42	68	64.1

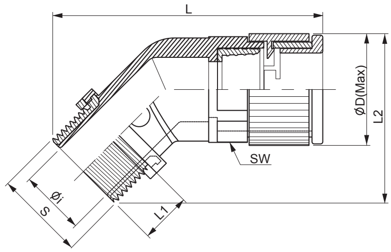
Metric Thread (EN 60424)

Black	Gray	Thread	For tube size	S	L_1	L_2	L	Øi	ØD	SW
SWC-M107B	SWC-M107G	M12 X 1.5	07	12	11	33	41	6	17	14.2
SWC-M10B	SWC-M10G	M12 X 1.5	10	12	13	53	62	6	25	19.8
SWC-M12B	SWC-M12G	M16 X 1.5	12	16	13	53	60	9	25	22.7
SWC-M16B	SWC-M16G	M20 X 1.5	16	20	13	62	66	12	30	28
SWC-M22B	SWC-M22G	M25 X 1.5	22	25	15	71	81	16	41	37.5
SWC-M28B	SWC-M28G	M32 X 1.5	28	32	15	77	96	23	47	43
SWC-M36B	SWC-M36G	M40 X 1.5	36	40	19	97	119	31	56	52.2
SWC-M48B	SWC-M48G	M50 X 1.5	48	50	19	112	141	41	68	64.1

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

SAC IP67

Black
Gray



M Pg

- Material: High Quality Polyamide6+Brass Nickel plated
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Tramway Vehicle Construction etc.

- 재 질 : 고품질 폴리아미드6+ 황동니켈도금
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 진동이 큰 철도차량에 사용되는 커넥터.

Pg Thread (DIN 40430)

(dimensions in mm)

Order No.

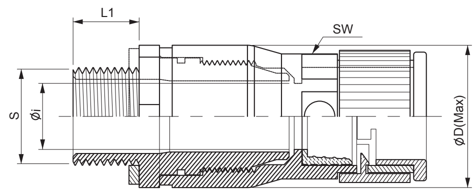
Black	Gray	Thread	For tube size	S	L_1	L_2	L	Øi	ØD	SW
SAC-P09B	SAC-P09G	Pg09	10	15.2	13	34	62	8	25	19.8
SAC-P11B	SAC-P11G	Pg11	12	18.6	13	39	68	9	25	22.7
SAC-P136B	SAC-P136G	Pg13.5	16	20.4	13	45	68	12	30	28
SAC-P16B	SAC-P16G	Pg16	16	22.5	13	46	68	12	30	28
SAC-P21B	SAC-P21G	Pg21	22	28.3	15	58	82	18	41	37.5
SAC-P29B	SAC-P29G	Pg29	28	37	15	63	92	25	47	43
SAC-P36B	SAC-P36G	Pg36	36	47	20	77	104	31	56	52.2
SAC-P48B	SAC-P48G	Pg48	48	59.3	20	92	125	47	68	64.1

Metric Thread (EN 60424)

SAC-M10B	SAC-M10G	M12 X 1.5	10	12	13	33	58	6	25	19.8
SAC-M12B	SAC-M12G	M16 X 1.5	12	16	13	38	62	9	25	22.7
SAC-M16B	SAC-M16G	M20 X 1.5	16	20	13	45	67	12	30	28
SAC-M22B	SAC-M22G	M25 X 1.5	22	25	15	56	80	16	41	37.5
SAC-M28B	SAC-M28G	M32 X 1.5	28	32	15	61	92	23	47	43
SAC-M36B	SAC-M36G	M40 X 1.5	36	40	20	74	104	31	56	52.2
SAC-M48B	SAC-M48G	M50 X 1.5	48	50	20	89	125	40	68	64.1

SNIC IP67

Black
Gray



M Pg

- Material: High Quality Polyamide6+Brass Nickel plated
- Protective: IP 68 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Tramway Vehicle Construction etc.

- 재 질 : 고품질 폴리아미드6+ 황동니켈도금
- 방 수 등 급 : IP 68 (EN 60529)
- 적용온도범위 : –40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 진동이 큰 철도차량에 사용되는 커넥터.
  전기신호나 전자파로부터 보호.

Pg Thread (DIN 40430)

(dimensions in mm)

Order No.

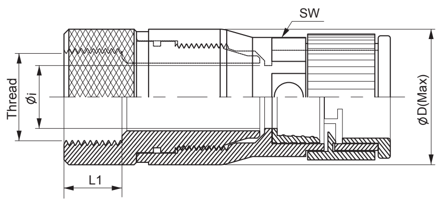
Black	Gray	Thread	For tube size	S	L1	Øi	ØD	SW
SNIC-P09B	SNIC-P09G	Pg09	10	15.2	13	10	25	19.8
SNIC-P11B	SNIC-P11G	Pg11	12	18.6	13	12	25	22.7
SNIC-P136B	SNIC-P13G	Pg13.5	16	20.4	13	14	30	28
SNIC-P16B	SNIC-P16G	Pg16	16	22.5	13	15	30	28
SNIC-P21B	SNIC-P21G	Pg21	22	28.3	15	19	41	37.5
SNIC-P29B	SNIC-P29G	Pg29	28	37	15	26	47	43
SNIC-P36B	SNIC-P36G	Pg36	36	47	17	33	56	52.2
SNIC-P48B	SNIC-P48G	Pg48	48	59.3	17	48	68	64.1

Metric Thread (EN 60423)

Black	Gray	Thread	For tube size	S	L1	Øi	ØD	SW
SNIC-M10B	SNIC-M10G	M12 X 1.5	10	12	13	7	25	19.8
SNIC-M12B	SNIC-M12G	M16 X 1.5	12	16	13	10	25	22.7
SNIC-M16B	SNIC-M16G	M20 X 1.5	16	20	13	14	30	28
SNIC-M22B	SNIC-M22G	M25 X 1.5	22	25	15	16	41	37.5
SNIC-M28B	SNIC-M28G	M32 X 1.5	28	32	15	23	47	43
SNIC-M36B	SNIC-M36G	M40 X 1.5	36	40	17	31	56	52.2
SNIC-M48B	SNIC-M48G	M50 X 1.5	48	50	17	40	68	64.1

SICC IP68

Black
Gray



UNEF

- Material: High Quality Polyamide6+Brass Nickel plated
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Tramway Vehicle Construction etc.

- 재 질 : 고품질 폴리아미드6+ 황동니켈도금
- 방 수 등 급 : IP 67 (EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 진동이 큰 철도차량에 사용되는 커넥터.
  전기신호나 전자파로부터 보호..

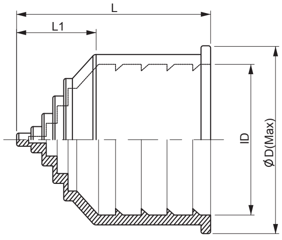
UNEF Thread

(dimensions in mm)

Order No.

Black	Gray	Thread	For tube size	Sheel Size	L1	Øi	ØD	SW
SICC-U1010B	SICC-U1010G	1/2-28UNEF	10	8S, 10S	10	9	25	19.8
SICC-U1210B	SICC-U1210G	5/8-24UNEF	10	10SL, 12S	10	9	25	19.8
SICC-U1410B	SICC-U1410G	3/4-20UNEF	10	14, 14S	10	9	25	19.8
SICC-U1212B	SICC-U1212G	5/8-24UNEF	12	10SL, 12S	10	11	25	22.7
SICC-U1412B	SICC-U1412G	3/4-20UNEF	12	14, 14S	10	11	25	22.7
SICC-U1612B	SICC-U1612G	7/8-20UNEF	12	16, 16S	10	11	25	22.7
SICC-U1812B	SICC-U1812G	1-20UNEF	12	18	10	11	25	22.7
SICC-U1616B	SICC-U1616G	7/8-20UNEF	16	16, 16S	10	13	30	28
SICC-U1816B	SICC-U1816G	1-20UNEF	16	18	10	13	30	28
SICC-U2016B	SICC-U2016G	1 3/16-18UNEF	16	20, 22	10	13	30	28
SICC-U2316B	SICC-U2316G	1 3/8-18UNEF	16	20, 22	10	13	30	28
SICC-U2816B	SICC-U2816G	1 7/16-18UNEF	16	24, 28	10	13	30	28
SICC-U2222B	SICC-U2222G	1 3/16-18UNEF	22	20, 22	10	18	41	37.5
SICC-U2822B	SICC-U2822G	1 7/16-18UNEF	22	24, 28	10	18	41	37.5
SICC-U2828B	SICC-U2828G	1 7/16-18UNEF	28	24, 28	10	25	47	43
SICC-U3622B	SICC-U3622G	2-18UNS	22	36	10	18	41	37.5
SICC-U3228B	SICC-U3228G	13/4-18UNS	28	32	10	25	47	43
SICC-U3628B	SICC-U3628G	2-18UNS	28	36	10	25	47	43
SICC-U3636B	SICC-U3636G	2-18UNS	36	36	10	32	56	52.2

FEC IP66



Black
Gray

- Material: N.B.R (Nitrile-Butadiene Rubber)
- Properties: Tube terminal, assembled by just putting on
- Protective: IP 66 (EN 60529)
- Color: Black & Gray
- For tube type: Corrugated tubes, type of CPSFLEX.

- 재 질 : N.B.R (Nitrile-Butadiene Rubber)
- 특 징 : 전선(Cable)외경에 맞게절단하여 사용가능하며 손으로 밀어넣어 간편하게 튜브와 접속가능.
- 방 수 등 급 : IP 66 (EN 60529)
- 색 상 : 검정색, 회색
- 튜브적용타입 : 외부로 노출되는 케이블의 마감처리용 .

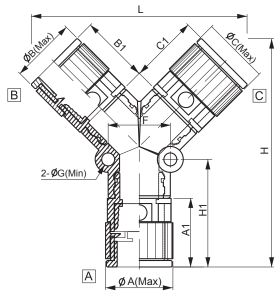
(dimensions in mm)

Order No.

Black	Gray	For tube size	Min	Max	L1	L	ID	ØD
FEC-07B	FEC-07G	07	2	7	8	24	10	16
FEC-10B	FEC-10G	10	3	10	11	33	12.5	17
FEC-12B	FEC-12G	12	4.2	12	11	33	16	23.5
FEC-16B	FEC-16G	16	6	16	12.5	34.5	21.2	29
FEC-22B	FEC-22G	22	6	22	16	43	28.5	37
FEC-28B	FEC-28G	28	6	28	16	43	34.5	43
FEC-36B	FEC-36G	36	6	36	24	58.5	42.5	52
FEC-48B	FEC-48G	48	6	48	24	58.5	54.5	64
FEC-56B	FEC-56G	56	9	56	29	71	67.2	76.7
FEC-70B	FEC-70G	70	10	70	36	86	82.5	92
FEC-95B	FEC-95G	95	13	95	45	110	106	115.5

TVC IP67

Black
Gray



FIGURE

- CPS distributors guarantee elegant layout and save on cost instead of using distribution boxes.
- Available to use not only their basic shape TYC,TTC & TVC but also various configurations.
- One Standard model can be changed into 6 different shapes.
- Nominal width from 28, reduceable to 10.

특 징

- 중계관 BOX대신 사용함으로써 미려한 외관과 원가절감효과를 낼 수있다.
- 사용용도에 따라 기본형인 TVC형, TTC형, TYC형이 있으며 이를 응용하여 다양하게 적용할수 있다.
- 1개의 표준모델로 6가지의 다양한 형태변화 가능.
- 10사이즈 부터 28사이즈 까지 다양한 결합가능.

ORDERING (주문방법)

TVC - 10 10 10 B : 100EA

- Q' ty
- Color-B:black, G:gray
- Norminal Width for C
- Norminal Width for A
- Norminal Width for B
- TVC

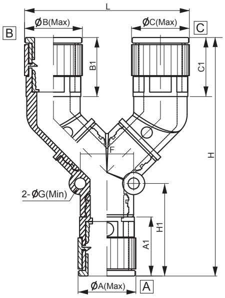
TVC Type

(dimensions in mm)

Order No.

Black	Gray	A	B	C	ØA	A1	ØB	B1	ØC	C1	ØG	F	H1	H	L
TVC-101010B	TVC-101010G	10	10	10	23	26.6	23	26.6	23	26.6	5	24	41.6	86	80
TVC-121010B	TVC-121010G	12	10	10	25	26.5	23	26.6	23	26.6	5	24	41.5	86	80
TVC-121210B	TVC-121210G	12	12	10	25	26.5	25	26.5	23	26.6	5	24	41.5	88	83
TVC-121212B	TVC-121212G	12	12	12	25	26.5	25	26.5	25	26.5	5	24	41.5	88	83
TVC-161010B	TVC-161010G	16	10	10	30	28.5	23	26.6	23	26.6	5	24	43.5	88	83
TVC-161210B	TVC-161210G	16	12	10	30	28.5	25	26.5	23	26.6	5	24	43.5	90	81
TVC-161212B	TVC-161212G	16	12	12	30	28.5	25	26.5	25	26.5	5	24	43.5	90	83
TVC-161616B	TVC-161616G	16	16	16	30	28.5	30	28.5	30	28.5	5	24	43.5	93	89.8
TVC-222222B	TVC-222222G	22	22	22	41	33.3	41	33.3	41	33.3	5.6	39	48.2	112	112
TVC-282222B	TVC-282222G	28	22	22	47	39	41	33.3	41	33.3	5.6	39	53.9	118	112
TVC-282822B	TVC-282822G	28	28	22	47	39	47	39	41	33.3	5.6	39	53.9	124	118
TVC-282828B	TVC-282828G	28	28	28	47	39	47	39	47	39	5.6	39	53.9	124	124

TYC IP67



Black
Gray

FIGURE

- CPS distributors guarantee elegant layout and save on cost instead of using distribution boxes.
- Available to use not only their basic shape TYC,TTC & TVC but also various configurations.
- One Standard model can be changed into 6 different shapes.
- Nominal width from 28, reduceable to 10.

특 징

- 중계관 BOX대신 사용함으로써 미려한 외관과 원가절감효과를 낼 수있다.
- 사용용도에 따라 기본형인 TVC형, TTC형, TYC형이 있으며 이를 응용하여 다양하게 적용할수 있다.
- 1개의 표준모델로 6가지의 다양한 형태변화 가능.
- 10사이즈 부터 28사이즈 까지 다양한 결합가능.

ORDERING (주문방법)

TYC - 10 10 10 B : 100EA

- Q' ty
- Color-B:black, G:gray
- Norminal Width for C
- Norminal Width for A
- Norminal Width for B
- TYC

TYC Type

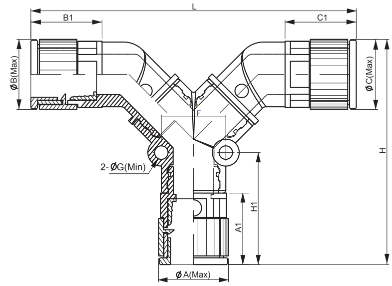
(dimensions in mm)

Order No.

Black	Gray	A	B	C	ØA	A1	ØB	B1	ØC	C1	ØG	F	H1	H	L
TYC-101010B	TYC-101010G	10	10	10	23	26.6	23	24	23	24	5	24	41.6	104	67
TYC-121010B	TYC-121010G	12	10	10	25	26.5	23	24	23	24	5	24	41.5	104	67
TYC-121210B	TYC-121210G	12	12	10	25	26.5	25	24.4	23	24	5	24	41.5	107	69.7
TYC-121212B	TYC-121212G	12	12	12	25	26.5	25	24.4	25	24.4	5	24	41.5	107	73.5
TYC-161010B	TYC-161010G	16	10	10	30	28.5	23	24	23	24	5	24	43.5	105.7	67
TYC-161210B	TYC-161210G	16	12	10	30	28.5	25	24.4	23	24	5	24	43.5	108.7	69.7
TYC-161212B	TYC-161212G	16	12	12	30	28.5	25	24.4	25	24.4	5	24	43.5	108.7	73
TYC-161616B	TYC-161616G	16	16	16	30	28.5	30	26	30	26	5	24	43.5	110.8	83
TYC-222222B	TYC-222222G	22	22	22	41	33.3	41	33.5	41	33.5	5.6	39	48.2	134.5	108
TYC-282222B	TYC-282222G	28	22	22	47	39	41	33.5	41	33.5	5.6	39	53.9	142	108
TYC-282822B	TYC-282822G	28	28	22	47	39	47	39.5	41	33.5	5.6	39	53.9	150	111
TYC-282828B	TYC-282828G	28	28	28	47	39	47	39.5	47	39.5	5.6	39	53.9	150	114

TTC IP67

Black
Gray



FIGURE

- CPS distributors guarantee elegant layout and save on cost instead of using distribution boxes.
- Available to use not only their basic shape TYC,TTC & TVC but also various configurations.
- One Standard model can be changed into 6 different shapes.
- Nominal width from 28, reduceable to 10.

특 징

- 중계관 BOX대신 사용함으로써 미려한 외관과 원가절감효과를 낼 수있다.
- 사용용도에 따라 기본형인 TVC형, TTC형, TYC형이 있으며 이를 응용하여 다양하게 적용할수 있다.
- 1개의 표준모델로 6가지의 다양한 형태변화 가능.
- 10사이즈 부터 28사이즈 까지 다양한 결합가능.

ORDERING (주문방법)

TTC -10 10 10 B : 100EA

- Q' ty
- Color-B:black, G:gray
- Norminal Width for C
- Norminal Width for A
- Norminal Width for B
- TTC

TTC Type

(dimensions in mm)

Order No.

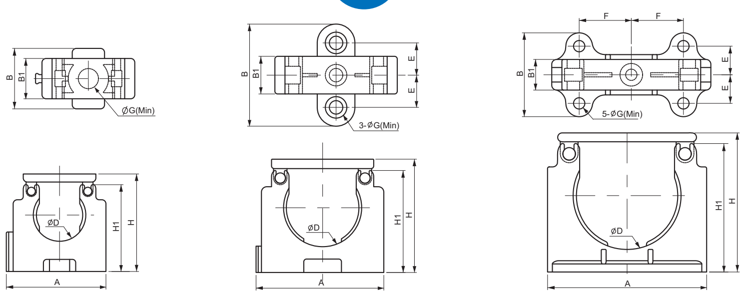
Black	Gray	A	B	C	ØA	A1	ØB	B1	ØC	C1	ØG	F	H1	H	L
TTC-101010B	TTC-101010G	10	10	10	23	26.6	23	24	23	24	5	24	41.6	81	114
TTC-121010B	TTC-121010G	12	10	10	25	26.5	23	24	23	24	5	24	41.5	81	114
TTC-121210B	TTC-121210G	12	12	10	25	26.5	25	24.4	23	24	5	24	41.5	83	118
TTC-121212B	TTC-121212G	12	12	12	25	26.5	25	24.4	25	24.4	5	24	41.5	83	120
TTC-161010B	TTC-161010G	16	10	10	30	28.5	23	24	23	24	5	24	43.5	82	114
TTC-161210B	TTC-161210G	16	12	10	30	28.5	25	24.4	23	24	5	24	43.5	85	118
TTC-161212B	TTC-161212G	16	12	12	30	28.5	25	24.4	25	24.4	5	24	43.5	85	120
TTC-161616B	TTC-161616G	16	16	16	30	28.5	30	26	30	26	5	24	43.5	90	124
TTC-222222B	TTC-222222G	22	22	22	41	33.3	41	33.5	41	33.5	5.6	39	48.2	110	156
TTC-282222B	TTC-282222G	28	22	22	47	39	41	33.5	41	33.5	5.6	39	53.9	116	156
TTC-282822B	TTC-282822G	28	28	22	47	39	47	39.5	41	33.5	5.6	39	53.9	120	165
TTC-282828B	TTC-282828G	28	28	28	47	39	47	39.5	47	39.5	5.6	39	53.9	120	174

NFH

Black
Gray

- Material: High Quality Polyamide6
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Fixing tubes
  By making more screw holes, the clip is more stable and the hinge cover is easy to use.
  This new clip was developed to facilitate straight arrangement and be installable at any size.

- 재 질 : 고품질 폴리아미드6
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 튜브를 고정시키기 위해 사용되는 커넥터.
  커버를 힌지방식으로 결합하며 결합 후 강한충격에도 커버가 열리지 않으며 사이즈가 다른 제품과의 결합가능한 구조로 기능성과 효율성을 높임. 다수의 고정홈을 통해 설치장소의 제약을 감소시켰으며 튜브의 고정성을 더욱 높임.



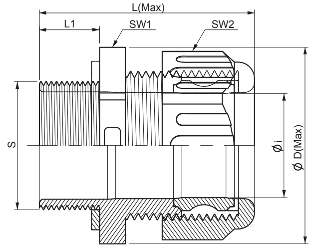
NFH Type

(dimensions in mm)

Order No.

Black	Gray	For tube size	ØD	A	H	H1	B	B1	E	F	ØG	Bolt
NFH-07B	NFH-07G	07	10	16.6	20.5	17.9	14.5	10	-	-	5	1-M4
NFH-10B	NFH-10G	10	13	23	24.2	21.6	15	10	-	-	5	1-M4
NFH-12B	NFH-12G	12	16	27.5	25.7	22.5	33	14	10.6	-	5.4	3-M5
NFH-16B	NFH-16G	16	21.5	34.2	33	29.5	36	14	12	-	5.4	3-M5
NFH-22B	NFH-22G	22	29	45.5	42.2	38	38	14	12	-	6.4	3-M6
NFH-28B	NFH-28G	28	35	55	49.8	45.3	37	14	12.5	17	6.4	5-M6
NFH-36B	NFH-36G	36	42	66	59.5	54.3	41.5	14	13.5	18.75	6.4	5-M6
NFH-48B	NFH-48G	48	54	84.9	73.2	66.9	41.5	14	13.5	28	6.4	5-M6
NFH-56B	NFH-56G	56	66.8	98.6	86.3	79.7	52	19	17.75	32.3	6.4	5-M6
NFH-70B	NFH-70G	70	82	121	105.8	97.6	63	23	21.5	39.5	8.4	5-M8
NFH-95B	NFH-95G	95	105.6	155.4	136.3	125.8	82	30	28	51.7	8.4	5-M8

FCG IP68



Black
Gray

G(PF) M Pg

- Material: High Quality Polyamide6
- Protective: IP 68 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Connector for control box radio box or cables from electric machine. water & dust, oil proof halogen free.

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급: IP 68(EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 분전함, 제어함, 통신함 또는 각종 전기 기기로 부터 케이블을 인출할때 사용하는 커넥터. 방수, 방진, 방유구조가 확실하고 내절연, 내충격 및 난연성이 뛰어난 커넥터.

PF Thread (DIN 40430)

(dimensions in mm)

Order No.

Black	Gray	Thread	Øi(Min)	Øi(Max)	S	L1	L	ØD	SW1	SW2
FCG-G10B	FCG-G10G	G1/2"	3.5	6.5	20.9	15	43.9	25.4	22.6	18
FCG-G12B	FCG-G12G	G1/2"	4	8	20.9	15	46.2	28.8	25.5	21.3
FCG-G16B	FCG-G16G	G1/2"	7	12.3	20.9	15	47.2	28.6	25.4	25.4
FCG-G1622B	FCG-G1622G	G1/2"	12	15.2	20.9	15	53.4	38.2	34	34
FCG-G22B	FCG-G22G	G3/4"	12	18	26.4	15	53.4	38.2	34	34
FCG-G228B	FCG-G228G	G3/4"	18	20.3	26.4	15	53.4	49	43.4	43.4
FCG-G28B	FCG-G28G	G1"	18	26	33.2	15	53.4	49	43.4	43.4
FCG-G36B	FCG-G36G	G1 1/4"	22	33	41.9	19	67.7	59	53	51.6
FCG-G48B	FCG-G48G	G2"	36	42	59.6	19	69.7	74	66.5	67

Metric Thread (EN 60423)

(dimensions in mm)

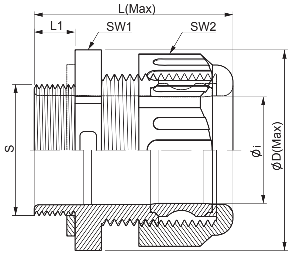
Order No. Black	Gray	Thread	Øi(Min)	Øi(Max)	S	L1	L	ØD	SW1	SW2
FCG-M10B	FCG-M10G	M12 X 1.5	3.5	6.5	12	15	43.9	25.4	22.6	18
FCG-M120B	FCG-M120G	M16 X 1.5	3.5	6.5	16	15	43.9	25.4	22.6	18
FCG-M102B	FCG-M102G	M12 X 1.5	4	7.1	12	15	46.2	28.8	25.5	21.3
FCG-M12B	FCG-M12G	M16 X 1.5	4	8	16	15	46.2	28.8	25.5	21.3
FCG-M162B	FCG-M162G	M20 X 1.5	4	8	20	15	46.2	28.8	25.5	21.3
FCG-M126B	FCG-M126G	M16 X 1.5	7	10.9	16	15	47.2	28.6	25.4	25.4
FCG-M16B	FCG-M16G	M20 X 1.5	7	12.3	20	15	47.2	28.6	25.4	25.4
FCG-M1622B	FCG-M1622G	M20 X 1.5	12	14.5	20	15	53.4	38.2	34	34
FCG-M22B	FCG-M22G	M25 X 1.5	12	18	25	15	53.4	38.2	34	34
FCG-M228B	FCG-M228G	M25 X 1.5	18	19.5	25	15	53.4	49	43.4	43.4
FCG-M28B	FCG-M28G	M32 X 1.5	18	26	32	15	53.4	49	43.4	43.4
FCG-M36B	FCG-M36G	M40 X 1.5	22	33	40	19	67.7	59	53	51.6
FCG-M48B	FCG-M48G	M50 X 1.5	36	42	50	19	69.7	74	66.5	67

Pg Thread (DIN 40424)

Black	Gray	Thread	Øi(Min)	Øi(Max)	S	L1	L	ØD	SW1	SW2
FCG-P07B	FCG-P07G	Pg07	3.5	6.5	12.5	15	43.9	25.4	22.6	18
FCG-P09B	FCG-P09G	Pg09	3.5	6.5	15.2	15	43.9	25.4	22.6	18
FCG-P072B	FCG-P072G	Pg07	4	8	12.5	15	46.2	28.8	25.5	21.3
FCG-P092B	FCG-P092G	Pg09	4	8	15.2	15	46.2	28.8	25.5	21.3
FCG-P11B	FCG-P11G	Pg11	4	8	18.6	15	46.2	28.8	25.5	21.3
FCG-P132B	FCG-P132G	Pg13.5	4	8	20.4	15	46.2	28.8	25.5	21.3
FCG-P162B	FCG-P162G	Pg16	4	8	22.5	15	46.2	28.8	25.5	21.3
FCG-P096B	FCG-P096G	Pg09	7	10.6	15.2	15	47.2	28.6	25.4	25.4
FCG-P116B	FCG-P116G	Pg11	7	12.3	18.6	15	47.2	28.6	25.4	25.4
FCG-P13B	FCG-P13G	Pg13.5	7	12.3	20.4	15	47.2	28.6	25.4	25.4
FCG-P16B	FCG-P16G	Pg16	7	12.3	22.5	15	47.2	28.6	25.4	25.4
FCG-P122B	FCG-P122G	Pg11	12	13.9	18.6	15	53.4	38.2	34	34
FCG-P1322B	FCG-P1322G	Pg13.5	12	14.8	20.4	15	53.4	38.2	34	34
FCG-P1622B	FCG-P1622G	Pg16	12	17.3	22.5	15	53.4	38.2	34	34
FCG-P21B	FCG-P21G	Pg21	12	18	28.3	15	53.4	38.2	34	34
FCG-P218B	FCG-P218G	Pg21	18	22.5	28.3	15	53.4	49	43.4	43.4
FCG-P29B	FCG-P29G	Pg29	18	26	37	15	53.4	49	43.4	43.4
FCG-P36B	FCG-P36G	Pg36	22	33	47	19	67.7	59	53	51.6
FCG-P48B	FCG-P48G	Pg48	36	42	59.3	19	69.7	74	66.5	67

FCGL IP68

Black
Gray



G(PF) M Pg

- Material: High Quality Polyamide6
- Protective: IP 68 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Connector for control box radio box or cables from electric machine.
  water & dust, oil proof halogen free.

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 68(EN 60529)
- 적용온도범위 : -40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 케이블그랜드는 분전함, 제어함, 통신함 또는 각종 전기 기기로 부터 케이블을 인출할때 사용하는 커넥터. 방수, 방진, 방유구조가 확실하고 내절연, 내충격 및 난연성이 뛰어난 커넥터.

PF Thread (JIS B0204)

(dimensions in mm)

Order No.

Black	Gray	Thread	Øi(Min)	Øi(Max)	S	L1	L	ØD	SW1	SW2
FCGL-G10B	FCGL-G10G	G1/2"	3.5	6.5	20.9	9	37.9	25.4	22.6	18
FCGL-G12B	FCGL-G12G	G1/2"	4	8	20.9	9	40.2	28.8	25.5	21.3
FCGL-G16B	FCGL-G16G	G1/2"	7	12.3	20.9	9	41.2	28.6	25.4	25.4

Metric Thread (EN 60423)

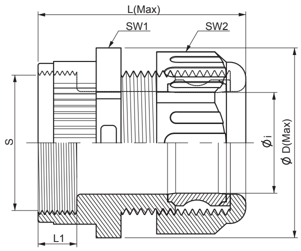
Black	Gray	Thread	Øi(Min)	Øi(Max)	S	L1	L	ØD	SW1	SW2
FCGL-M10B	FCGL-M10G	M12 X 1.5	3.5	6.5	12	9	37.9	25.4	22.6	18
FCGL-M120B	FCGL-M120G	M16 X 1.5	3.5	6.5	16	9	37.9	25.4	22.6	18
FCGL-M102B	FCGL-M102G	M12 X 1.5	4	7.1	12	9	40.2	28.8	25.5	21.3
FCGL-M12B	FCGL-M12G	M16 X 1.5	4	8	16	9	40.2	28.8	25.5	21.3
FCGL-M162B	FCGL-M162G	M20 X 1.5	4	8	20	9	40.2	28.8	25.5	21.3
FCGL-M126B	FCGL-M126G	M16 X 1.5	7	10.9	16	9	41.2	28.6	25.4	25.4
FCGL-M16B	FCGL-M16G	M20 X 1.5	7	12.3	20	9	41.2	28.6	25.4	25.4
FCGL-M216B	FCGL-M216G	M25 X 1.5	7	12.3	25	9	41.2	28.6	25.4	25.4

Pg Thread (DIN 40424)

Black	Gray	Thread	Øi(Min)	Øi(Max)	S	L1	L	ØD	SW1	SW2
FCGL-P09B	FCGL-P09G	Pg09	3.5	6.5	15.2	9	37.9	25.4	22.6	18
FCGL-P092B	FCGL-P092G	Pg09	4	8	15.2	9	40.2	28.8	25.5	21.3
FCGL-P11B	FCGL-P11G	Pg11	4	8	18.6	9	40.2	28.8	25.5	21.3
FCGL-P132B	FCGL-P132G	Pg13.5	4	8	20.4	9	40.2	28.8	25.5	21.3
FCGL-P162B	FCGL-P162G	Pg16	4	8	22.5	9	40.2	28.8	25.5	21.3
FCGL-P116B	FCGL-P116G	Pg11	7	12.3	18.6	9	41.2	28.6	25.4	25.4
FCGL-P13B	FCGL-P13G	Pg13.5	7	12.3	20.4	9	41.2	28.6	25.4	25.4
FCGL-P16B	FCGL-P16G	Pg16	7	12.3	22.5	9	41.2	28.6	25.4	25.4

TICG

■ Black
■ Gray



● G(PF) ● M ● Pg

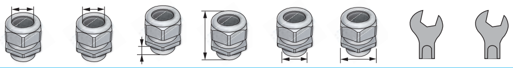
- Material: High Quality Polyamide6
- Protective: IP 68 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Short Term: up to +150˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Color: Black & Gray
- Application: Connector for control box radio box or cables from electric machine.
  water & dust, oil proof halogen free.

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 68(EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up +150˚C
- 자기소화성 : UL94-HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 케이블그랜드는 분전함, 제어함, 통신함 또는 각종 전기 기기로 부터 케이블을 인출할때 사용하는 커넥터. 방수, 방진, 방유구조가 확실하고 내절연, 내충격 및 난연성이 뛰어난 커넥터.

UNEF Thread (MIL 5015)

(dimensions in mm)

Order No.

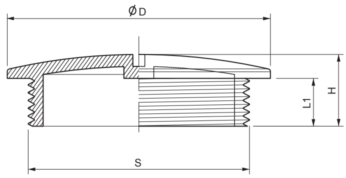


Black	Gray	Thread	Sheel size	Øi(Min)	Øi(Max)	L1	L	ØO	ØD	SW1	SW2
TICG-U1010B	TICG-U1010G	1/2-28UNEF	8S, 10S	3.5	6.5	10	43.9	18.4	25.4	22.6	18
TICG-U1210B	TICG-U1210G	5/8-24UNEF	10SL, 12S	3.5	6.5	10	43.9	20.6	25.4	22.6	18
TICG-U1410B	TICG-U1410G	3/4-20UNEF	14, 14S	3.5	6.5	10	43.9	24	25.4	22.6	18
TICG-U1610B	TICG-U1610G	7/8-20UNEF	16, 16S	3.5	6.5	10	43.9	28	25.4	22.6	18
TICG-U1810B	TICG-U1810G	1-20UNEF	18	3.5	6.5	10	43.9	31	25.4	22.6	18
TICG-U2010B	TICG-U2010G	1 3/16-18UNEF	20, 22	3.5	6.5	10	43.9	35.5	25.4	22.6	18
TICG-U2810B	TICG-U2810G	1 7/16-18UNEF	24, 28	3.5	6.5	10	43.9	42	25.4	22.6	18
TICG-U1212B	TICG-U1212G	5/8-24UNEF	10SL, 12S	4	8	10	46.2	20.6	28.8	25.5	21.3
TICG-U1412B	TICG-U1412G	3/4-20UNEF	14, 14S	4	8	10	46.2	24	28.8	25.5	21.3
TICG-U1612B	TICG-U1612G	7/8-20UNEF	16, 16S	4	8	10	46.2	28	28.8	25.5	21.3
TICG-U1812B	TICG-U1812G	1-20UNEF	18	4	8	10	46.2	31	28.8	25.5	21.3
TICG-U2012B	TICG-U2012G	1 3/16-18UNEF	20, 22	4	8	10	46.2	35.5	28.8	25.5	21.3
TICG-U2812B	TICG-U2812G	1 7/16-18UNEF	24, 28	4	8	10	46.2	42	28.8	25.5	21.3
TICG-U1616B	TICG-U1616G	7/8-20UNEF	16, 16S	7	12.3	10	47.2	28	28.6	25.4	25.4
TICG-U1816B	TICG-U1816G	1-20UNEF	18	7	12.3	10	47.2	31	28.6	25.4	25.4
TICG-U2016B	TICG-U2016G	1 3/16-18UNEF	20, 22	7	12.3	10	47.2	35.5	28.6	25.4	25.4
TICG-U2816B	TICG-U2816G	1 7/16-18UNEF	24, 28	7	12.3	10	47.2	42	28.6	25.4	25.4
TICG-U2222B	TICG-U2222G	1 3/16-18UNEF	20, 22	12	18	10	53.4	35.5	38.2	34	34
TICG-U2822B	TICG-U2822G	1 7/16-18UNEF	24, 28	12	18	10	53.4	42	38.2	34	34
TICG-U3222B	TICG-U3222G	1 3/4-18UNS	32	12	18	10	53.4	50	38.2	34	34
TICG-U3622B	TICG-U3622G	2-18UNS	36	12	18	10	53.4	56.5	38.2	34	34
TICG-U3228B	TICG-U3228G	1 3/4-18UNS	32	18	26	10	53.4	50	49	43.4	43.4
TICG-U3628B	TICG-U3628G	2-18UNS	36	18	26	10	67.7	56.5	59	53	51.6
TICG-U3636B	TICG-U3636G	2-18UNS	36	22	33	10	69.7	56.5	74	66.5	67

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

BBS CPS NUT

Gray
White



Pg

Resistant to impact, made of Polyamide, according to DIN 46320

- Material: High Quality Polyamide6
- Temperature Range: -30˚C to + 80˚C
- Operating temperature: +150°C intermittent
- Color: Black & White

- 재 질 : 고품질 폴리아미드6
- 적용온도범위 : –30˚C + 80˚C
- 적 용 온 도 : +150 intermittent
- 색 상 : 검정색, 흰색

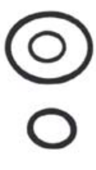
Pg Thread

(dimensions in mm)

Order No.

White	Gray	Thread	S	L1	H	QD
BBS-P07W	BBS-P07G	Pg07	12.5	6	8	15
BBS-P09W	BBS-P09G	Pg09	15.2	6	9	19
BBS-P11W	BBS-P11G	Pg11	18.6	6	10	22
BBS-P13W	BBS-P13G	Pg13.5	20.4	6	10	25
BBS-P16W	BBS-P16G	Pg16	22.5	6	10	27
BBS-P21W	BBS-P21G	Pg21	28.3	8	12	33
BBS-P29W	BBS-P29G	Pg29	37	8	12	44
BBS-P36W	BBS-P36G	Pg36	47	10	15	55

FWH CPS WASHER

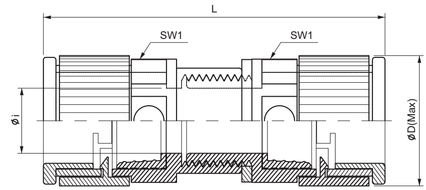


Order No.

PF(G) Thread	Metric Thread	Pg Thread
-	-	FWH-P07
FWH-G10	FWH-M10	FWH-P09
FWH-G12	FWH-M12	FWH-P11
FWH-G16	FWH-M16	FWH-P13
FWH-G22	FWH-M22	FWH-P16
FWH-G28	FWH-M28	FWH-P21
FWH-G36	FWH-M36	FWH-P29
FWH-G42	-	FWH-P36
FWH-G48	FWH-M48	FWH-P48

TNSC

■ Black
■ Gray



☐ G(PF) ☐ M ◉ Pg ☐ NFH

- Material: High Quality Polyamide6
- Protective: IP 67 (EN 60529)
- Temperature Range: -40˚C to + 105˚C
- Self-Extinguishing: UL94-HB
  Free of Halogen Phosphorous and cadmium
- Operating temperature: +150°C intermittent
- Color: Black & Gray
- Application: The connector which can connect tube and tube each other.

- 재 질 : 고품질 폴리아미드6
- 방 수 등 급 : IP 68(EN 60529)
- 적용온도범위 : −40˚C + 105˚C
- 순간최대온도 : up + 150˚C
- 자기소화성 : UL94–HB
  Free of Halogen Phosphorous and cadmium
- 색 상 : 검정색, 회색
- 적 용 : 튜브와 튜브를 연결하는 커넥터.

(dimensions in mm)

Order No.

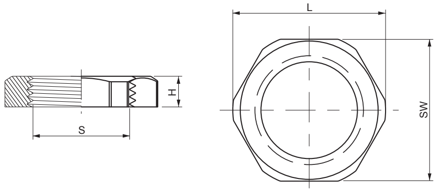
Black	Gray	For tube size	L	Qi	QD	SW1	SW2
TNSC-10B	TNSC-10G	10 + 10	70	8	25	19.8	19.8
TNSC-12B	TNSC-12G	12 + 12	71	11	25	22.7	22.7
TNSC-16B	TNSC-16G	16 + 16	72	12.5	30	28	28
TNSC-22B	TNSC-22G	22 + 22	90	19	41	37.5	37.5
TNSC-28B	TNSC-28G	28 + 28	100	22	47	43	43
TNSC-36B	TNSC-36G	36 + 36	122	30	56	52.2	52.2
TNSC-48B	TNSC-48G	48 + 48	133	42	68	64.1	64.1

SHIFT CHAIN
SABIN CHAIN
REVOLVING CHAIN
HELIX CHAIN
ROBO-KIT
CPSFLEX
CPSFIX

FLN / SLN

FLN •Material: Polyamide Black Gray

SLN • Material: Brass+Nickel Plated Steel



PF Thread

(dimensions in mm)

Order No. Black	Gray	Thread	S	H	L	SW	Order No. (SLN)
FLN-G07B	FLN-G07G	G1/4"	13	6	20.7	19	SLN-G07
FLN-G10B	FLN-G10G	G1/2"	20.9	6	29.5	27.3	SLN-G10
FLN-G12B	FLN-G12G	G1/2"	20.9	6	29.5	27.3	SLN-G12
FLN-G16B	FLN-G16G	G1/2"	20.9	6	29.5	27.3	SLN-G16
FLN-G22B	FLN-G22G	G3/4"	26.4	6.8	38.4	36	SLN-G22
FLN-G28B	FLN-G28G	G1"	33.2	6.8	47.8	44	SLN-G28
FLN-G36B	FLN-G36G	G1 1/4"	41.9	8	52.3	49	SLN-G36
FLN-G42B	FLN-G42G	G1 1/2"	47.8	8	72.3	65	SLN-G42
FLN-G48B	FLN-G48G	G2"	59.6	8	76.5	70	SLN-G48

Metric Thread / M Thread

Black	Gray	Thread	S	H	L	SW	SLN
FLN-M10B	FLN-M10G	M12 X 1.5	12	6	18.5	17	SLN-M10
FLN-M12B	FLN-M12G	M16 X 1.5	16	6	23.9	22	SLN-M12
FLN-M16B	FLN-M16G	M20 X 1.5	20	6	27.8	26	SLN-M16
FLN-M22B	FLN-M22G	M25 X 1.5	25	6.8	35.3	33	SLN-M22
FLN-M28B	FLN-M28G	M32 X 1.5	32	6.8	43.4	40	SLN-M28
FLN-M36B	FLN-M36G	M40 X 1.5	40	8	55.8	50	SLN-M36
FLN-M48B	FLN-M48G	M50 X 1.5	50	8	67.1	60	SLN-M48

Pg Thread

Black	Gray	Thread	S	H	L	SW	SLN
FLN-P07B	FLN-P07G	Pg07	12.5	4	21.1	19	SLN-P07
FLN-P09B	FLN-P09G	Pg09	15.2	4	23.9	22	SLN-P09
FLN-P11B	FLN-P11G	Pg11	18.6	6	25.8	24	SLN-P11
FLN-P13B	FLN-P13G	Pg13.5	20.4	6	28.7	27	SLN-P13
FLN-P16B	FLN-P16G	Pg16	22.5	6	32.1	30	SLN-P16
FLN-P21B	FLN-P21G	Pg21	28.3	6.8	38.5	36	SLN-P21
FLN-P29B	FLN-P29G	Pg29	37	6.8	49.7	46	SLN-P29
FLN-P36B	FLN-P36G	Pg36	47	8	66.5	60	SLN-P36
FLN-P48B	FLN-P48G	Pg48	59.3	8	78.1	70.2	SLN-P48

APPLICATION / CPSFLEX & CPSFIX

CPSFIX is available for Use in dense Areas.
CPSFIX는 밀집된 구조에 용이합니다.

CPSFIX can be applied in any circumstance, since we are producing diverse forms.
다양한 형태의 커넥터와 캐넌접속용 커넥터를 생산하므로 CPSFIX는 어떠한 환경에도 적용될수 있습니다.

We are fully equipped with diverse thread standard products, NPT, UNEF etc.
CPS는 PF, PG, M, NPT, UNEF등의 다양한 나사규격에 맞는 커넥터를 구비하고 있습니다.

CPSFIX has excellent water proof. It is applied to the overall industry, maintaining IP 67,when it combines with CPSFLEX.
CPSFIX 는 뛰어난 방수성을 가지고 있어 CPSFLEX와 결합했을때 IP67을 유지하면서 산업 전반적으로 적용될 수 있습니다.

CPSFIX and CPSFLEX protect cables In crowded spaces effectively.
CPSFIX와 CPSFLEX는 복잡한 공간에서 케이블을 효율적으로 보호합니다.

CPSFLEX, which can bear ultraviolet rays, is applied to the vehicle welding line, engine line and crane.
CPSFLEX는 자외선에 강하며 자동차 용접라인과 엔진라인, 크레인 등 에서 사용될 수 있습니다.

CPSFLEX and CPSFIX are applied to Magnetic Levitation Train and Electric Tramway with excellent flame retardant and non-toxic effect. The quality is approved worldwide and they are Widely to the overseas project.
CPSFLEX와 CPSFIX는 뛰어난 난연효과와 무독성으로 자기부상열차와 전동차에 적용되고 있으며 세계적으로 품질을 인정받아 해외 프로젝트에 채택되고 있습니다.

CPSFLEX can bear -40 degree to +150 degree and can be used outside.
We are fully equipped with diverse products with flame retardant or non-flame retardant etc.
CPSFLEX는 영하40˚에서 영상 150˚까지 견딜 수 있어 외부에서 사용이 가능합니다.
또한 당사는 난연뿐 아니라 비난연 등의 다양한 제품을 완벽하게 구비하고 있습니다.

APPLICATION IMAGE / 적용 이미지

APPLICATION IMAGE / 적용 이미지


Machining Center

Machine Tool

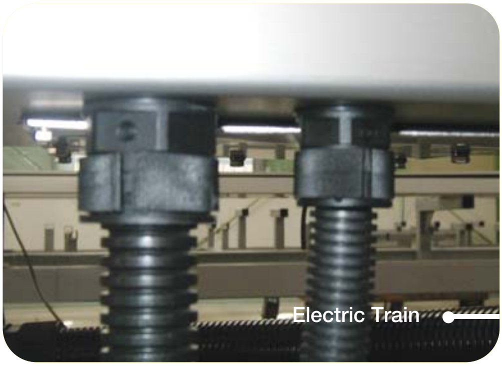

Machine Tool

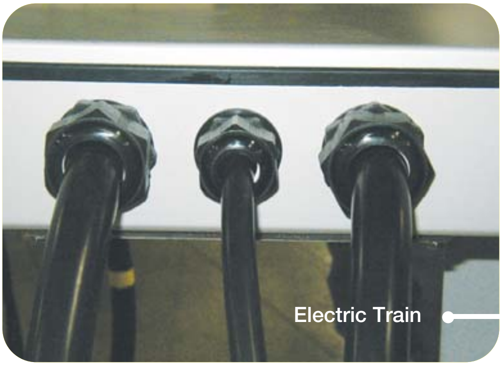

Vehicle Welding Line


Electric Train


Electric Train

APPLICATION IMAGE / 적용 이미지





APPLICATION IMAGE / 적용 이미지

Vehicle Production Line Electric Display


Machine Tool


Machine Tool


LNG Vessel


Axis shelf


Machining Center Panel

CHEMICAL TEST

Chemical resistance of Polyamide Detailed information on request

acetone	resistant
ammonia	resistant
aresenic acid, water	resistant
beer	resistant
benzol	resistant
borax, watery	resistant
boron acid, watery	conditional resistant
butance, gaseous	resistant
calcium chloride, watery	resistant
carbon disulphide	resistant
carbonic acid	resistant
copper sulphate, watery	conditional resistant
diesel oil, watery	resistant
ethyl acetate	resistant
ethyl ether	resistant
ethyl alcohol	conditional resistant
fatty acid conditional	resistant
fruit juice	resistant
formic acid, watery	non-resistant
glucose, watery	resistant
glycerine	resistant
heating oil	resistant
hydraulics oil	resistant
hydrogen	resistant
hydrogen sulphide	resistant
iron chloride	conditional resistant
lactic acid, watery	conditional resistant
methyl acetate	resistant
methyl alcohol	resistant
mineral oil	resistant
nitric acid, hydrochloride acid, watery	non-resistant
ozone	conditional resistant
paraffin	resistant
petrol	resistant
phosphoric acid, watery	resistantpoash lye,

potashlye, watery	resistant
propane, liquid	resistant
sel solution, watery	resistant
sea water	resistant
sebum	resistant
silicic acid, watery	resistant
skydrol	resistant
soap suds	resistant
sodium chloride	resistant
sodium hydroxide	resistant
sparks erosion liquids	resistant
starch, white	resistant
stearin acid	resistant
sulphuric acid	non-resistant
terpentine	resistant
toluol	resistant
transformer oil	resistant
urine	resistant
vinegar and acetic acid, watery	resistant
wine acid, watery	non-resistant
xylol	resistant
zinc sulphate, watery	conditional resistant
zyan potash, watery	resistant
Oil and Grease	
- mineral without additive, at20℃	resistant
- ASTM oil no1, 20℃	resistant
- ASTM oil no2, 20℃	resistant
- ASTM oil no3, 20℃	resistant
- animal	resistant
- vegetable	resistant
- transformer oil(pyranole)	resistant
- on silicone basis	resistant
- diesel oil	resistant
- heating	resistant
- hydraulic oil based on	
- mineral oil	resistant
- phoshate ester	resistant
- drilling oil	resistant
- cutting oil	resistant

Made of Protection

code Degree of Protection (Water)

Protection against contacting and penetrating foreign materals

FIRST INDEX

CODE	Degree of Protection(contact and foreign materials)	
0	no protection	no contact protection, no protection against. solid foreign materials.
1	protection against arge foreign materials	protection against large contact area with hands, protection against foreign materials with ∮>50mm.
2	protection against medium-sized foreign materials	protection against contact with fingers, protection against foreign materials with ∮>12mm.
3	protection against small foreign materials	protection against tool contact, wire or the like with ∮>12mm, protection against foreign material with ∮>2.5mm.
4	protection against foreign grains	see 3, but ∮>1mm.
5	protection against dual deposits.	full contact protection, protection against dust deposits inside.
6	protection against penetration	full contact protection, protection against dust penetration.

Protection against fluids

SECOND INDEX

CODE	Degree of Protection(contact and foreign materials)	
0	no protection	no protection against water
1	protection against dripping water	protection against vertical water drops
2	protection against inclined water drops	protection against inclined water drops (any < up to 15° to vertical line)
3	protection against spray water	protection against splash water from all directions, 60° to vertical line
4	protection against splash water	protection against splash water from all directions.
5	protection against jet water	protection against water jets from any <
6	protection against flooding	protection against temporary flooding.
7	protection against immersion	protection against water penetration 1m below water
8	protection against submersion	protection against pressure water for an indefinite time(customer tailored)

example : code IP67

All techincal details without engagement. All dimensions in mm. Changes without announcement, Range of tolerance : ±10%

MEMO

CPS 본사 이전안내

(2013년 중순 이전 예정)

오시는길

부산 ➔ 정관 : ※네비게이션 - 매학리 511-2번지 삼우인텍 검색후 길찾기 가능

원동IC ➔ 서울/구서IC방면(번영로) ➔ 회동교차로 ➔ 정관/철마방면 ➔ 개좌터널 ➔ ❶곰내터널 ➔ 정관산업로 ➔ ❷정관산업교차로에서 좌회전 ➔ ❸산단로 ➔ 해모로아파트앞에서 비보호 좌회전 ➔ 정관상곡1길 ➔ ❹ **CPS 도착**