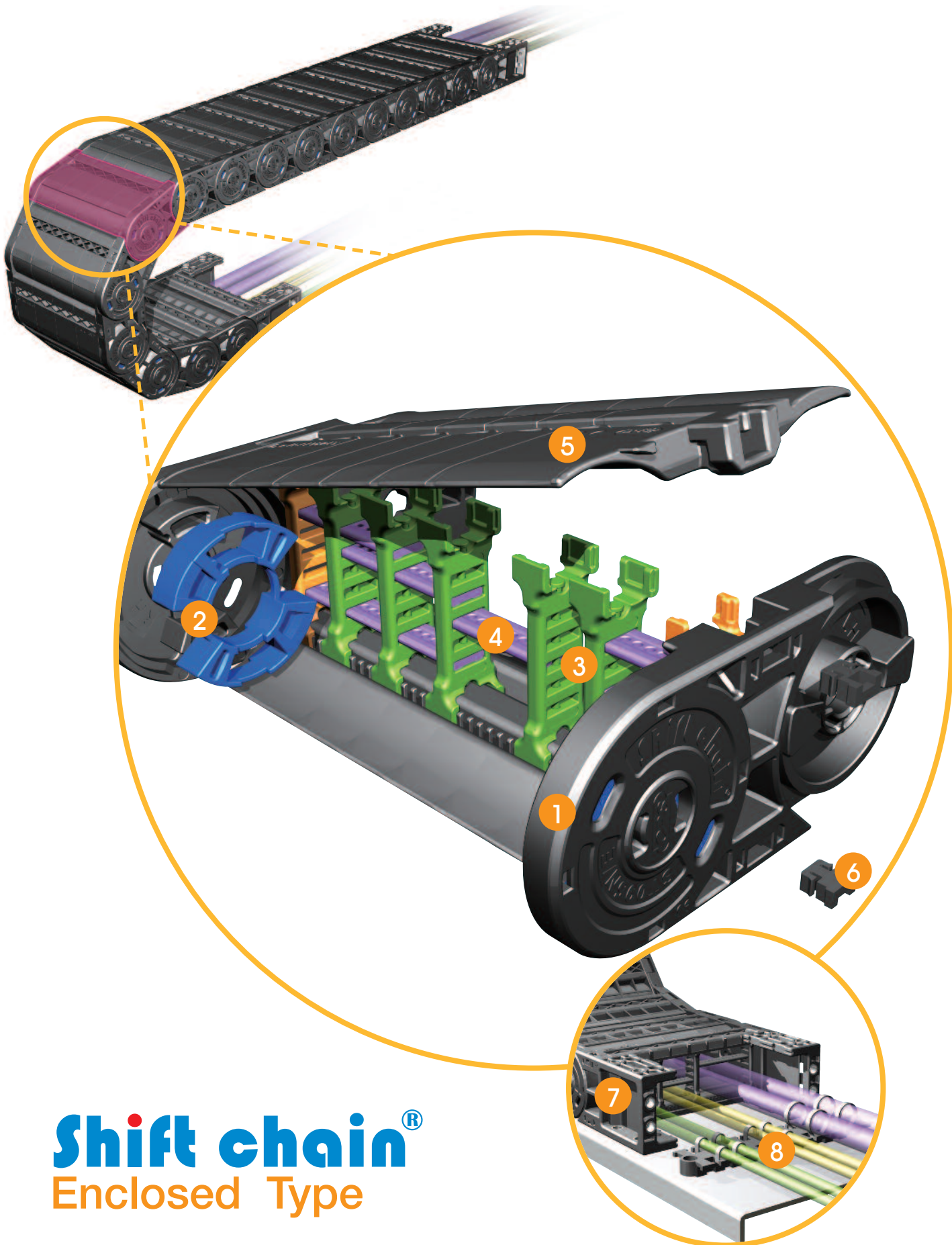


# Shift chain<sup>®</sup> E TYPE : Enclosed

- ST044E - 206p
- ST055E - 211p
- ST072E - 216p
- ST095E - 221p
- ST120E - 226p
- ST150E - 231p



# 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 밴드식별 결합방식으로 Side Band 지지 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, 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 damage of cables by equipment of rollers to the divider(R-Type).

Shift chain 내부에 입선되는 다수의 케이블을 세로로 분리하는 역할로, 체인측면전용디바이더(S-Type)와 세퍼레이터 핀을 삽입하여 디바이더와 세퍼레이터를 고정하여 디바이더의 유동을 방지하는 기능의 디바이더(M-Type)로 구분하여 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 연결지시대 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 at upper, 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 45도 이상으로 꺾임이 적용되어 다양한 방식으로 체인을 고정.

ST150N의 경우 Steel Insert형식의 Bracket적용.

※ ES, ERS-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.

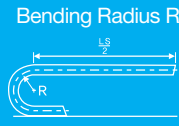













케이블을 고정하기 위해 사용되며 케이블을 일렬로 정렬시키는 역할로 케이블의 엉킴현상을 방지하고 사양에 따라 Free End Bracket 삽입형과 Free End Bracket 분리형으로 구분.

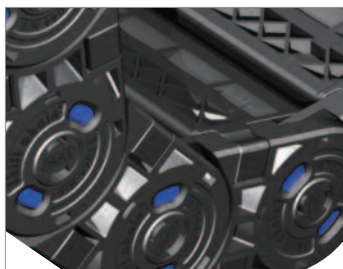


ST095E

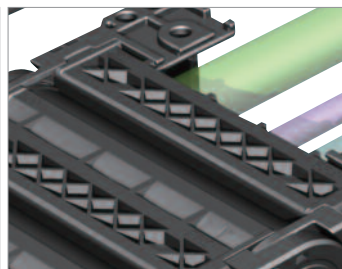
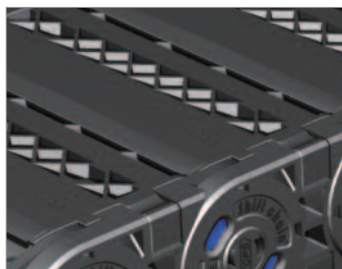


## KINDS AND DIMENSIONS / 제품종류와 치수안내 (주문표)

Shift 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		
ST044E .035	44	70, 90, 120, 150	1.03	10	-30 ~ +130	56	38	35	24.5		
ST044E .055	44		76			38	55	24.5			
ST044E .075	44		96			38	75	24.5			
ST044E .100	44		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		96			52	75	38.5			
ST055E .100	55		121			52	100	38.5			
ST055E .125	55		146			52	125	38.5			
ST055E .150	55		171			52	150	38.5			
ST072E .050	72	120, 145, 200, 250, 300	2.03	10	-30 ~ +130	82	66	50	44		
ST072E .075	72		107			66	75	44			
ST072E .100	72		132			66	100	44			
ST072E .125	72		157			66	125	44			
ST072E .150	72		182			66	150	44			
ST095E .100	95	150, 200, 230, 280, 400	3.55	10	-30 ~ +130	138	82	100	55		
ST095E .125	95		163			82	125	55			
ST095E .150	95		188			82	150	55			
ST095E .175	95		213			82	175	55			
ST095E .200	95		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		242			108	200	76			
ST120E .250	120		292			108	250	76			
ST120E .300	120		342			108	300	76			
ST150E .200	150	305, 405, 505, 605	8.16	10	-30 ~ +130	246	141	200	110		
ST150E .250	150		296			141	250	110			
ST150E .300	150		346			141	300	110			
ST150E .350	150		396			141	350	110			
ST150E .400	150		446			141	400	110			



ST044E-view

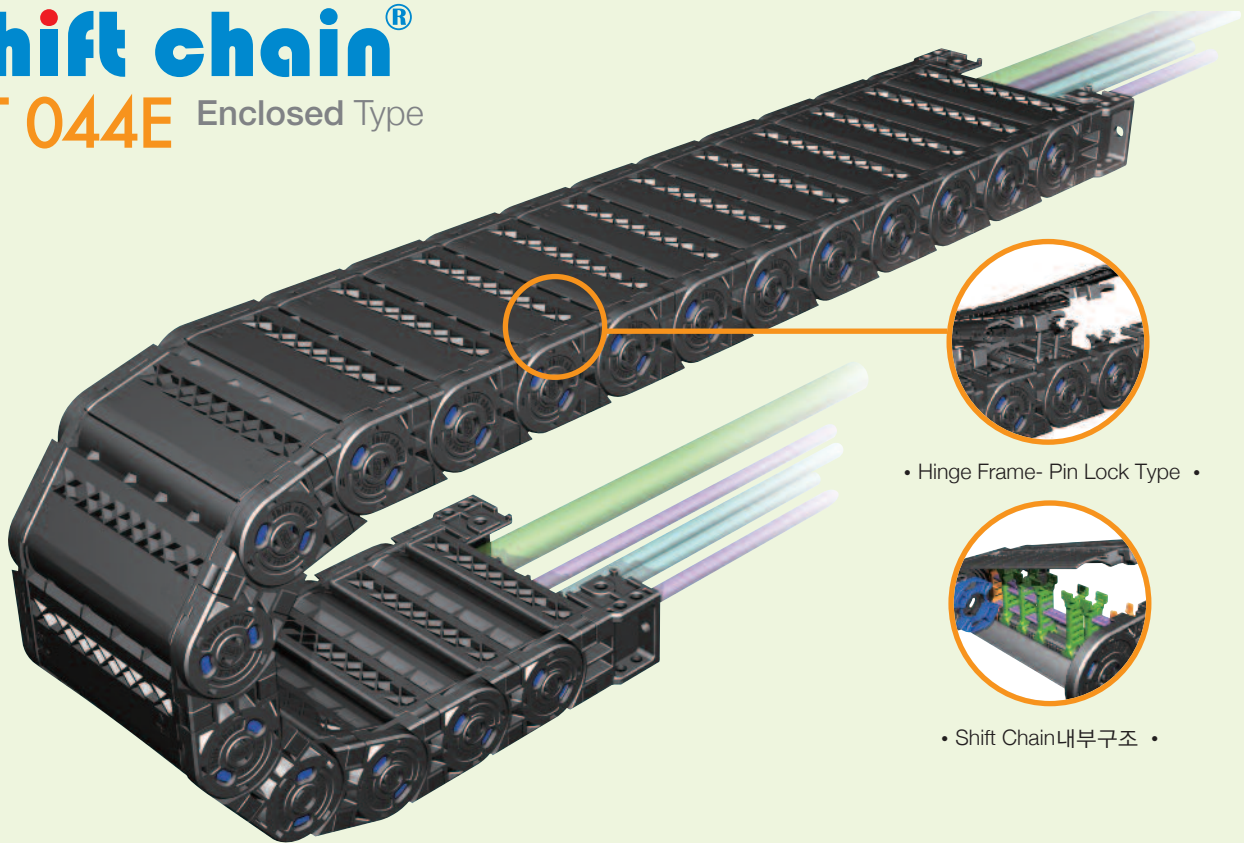






Min ●●●●●● Max

## Shift chain<sup>®</sup> ST 044E Enclosed 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 2.0m  
Vertical curve below= max 40m  
Side Mounted, Unsupported= max 1.0m

### Applications

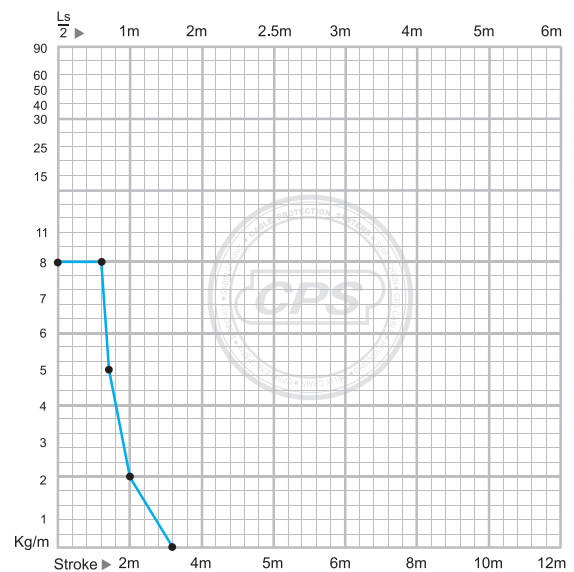
Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인등에 적용. 겐츨리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부 위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용 가능.

### Calculation of the chain length

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

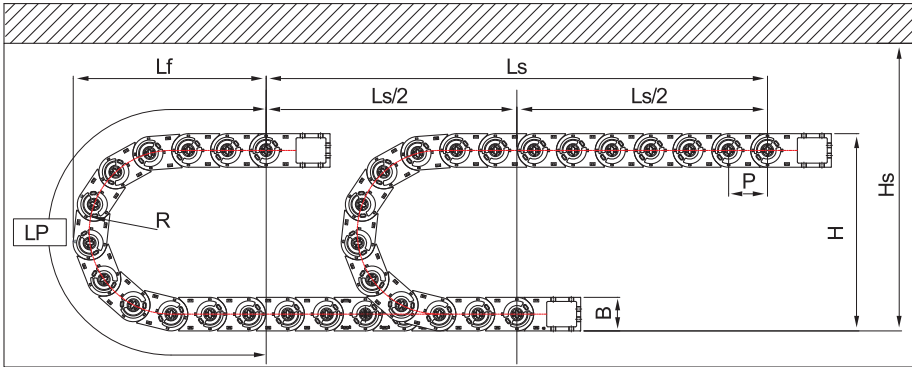
### Load diagrams self-supporting length





## Enclosed Type **ST 044E**

### LAYOUT OF THE CHAIN



(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

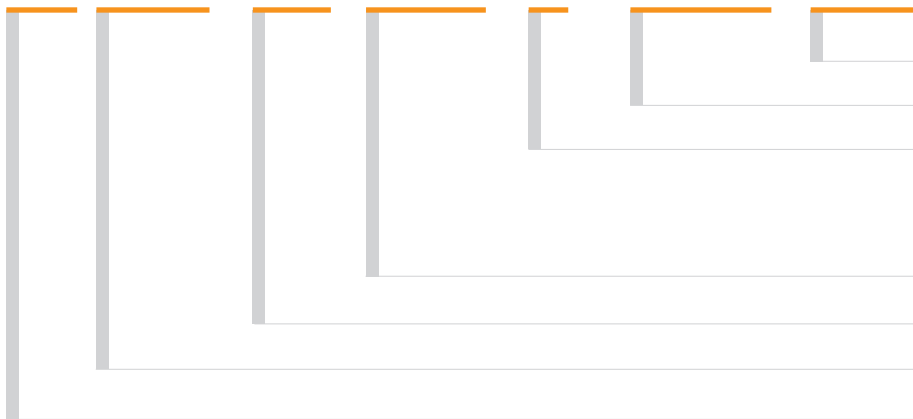
- Ls:** Stroke
- Lp:** Loop Length
- L f:** Loop Projection
- Hs:** Safe Space

### ST 044E Type

- Pitch P:** 44mm
- Height B:** 38mm
- Height H:** 2R+38mm
- Hs ≥ H+30mm**

### ORDERING (주문방법)

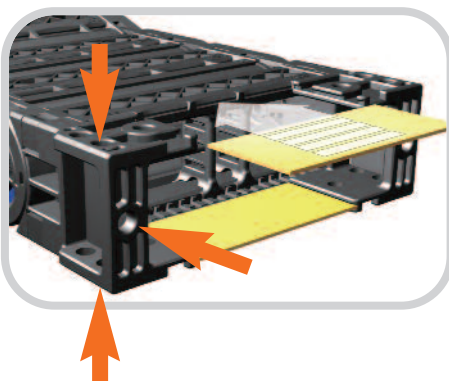
## ST 044E. 100. R120 / F - 1500L : 10ST



- 주문수량 Q'ty(set)
- 체인길이 Length(mm)
- 브라켓 F : Free End Bracket  
G : Guide Channel Type  
V : Vertical Guide Type
- 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. 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.)



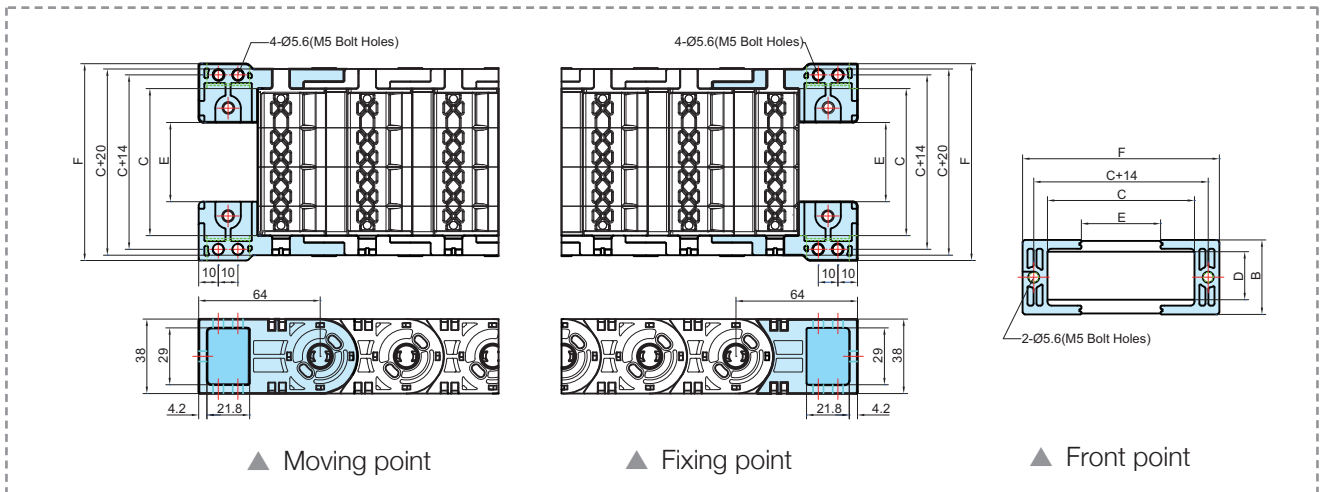
Enclosed Type **ST 044E**

**CHAIN CROSS SECTION**



Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 044E.035	56		35			1.03
ST 044E.055	76	38	55	24.5	70, 90, 120, 150	1.21
ST 044E.075	96		75			1.37
ST 044E.100	121		100			1.58

**FREE END BRACKET**



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	

2014 NEW PRODUCT

Unity Systems®

Enclosed Type ST 044E

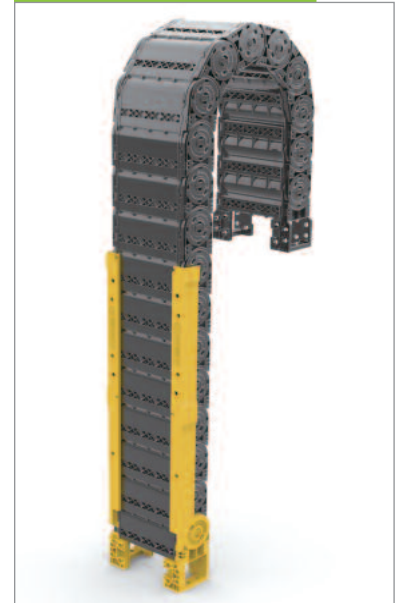
This type of bracket is to protect deflection of chain which will support the weight of certain section start from bracket, also will protect the damage of chain.

케이블 보호 장치에 전해지는 하중을 지지하여 케이블 체인의 처짐이 없이 일정구간을 끈게 유지 하므로, 케이블 체인의 파손을 방지하는 Guide Channel 일체형 브라켓입니다.

▼ Horizon Type 수평형

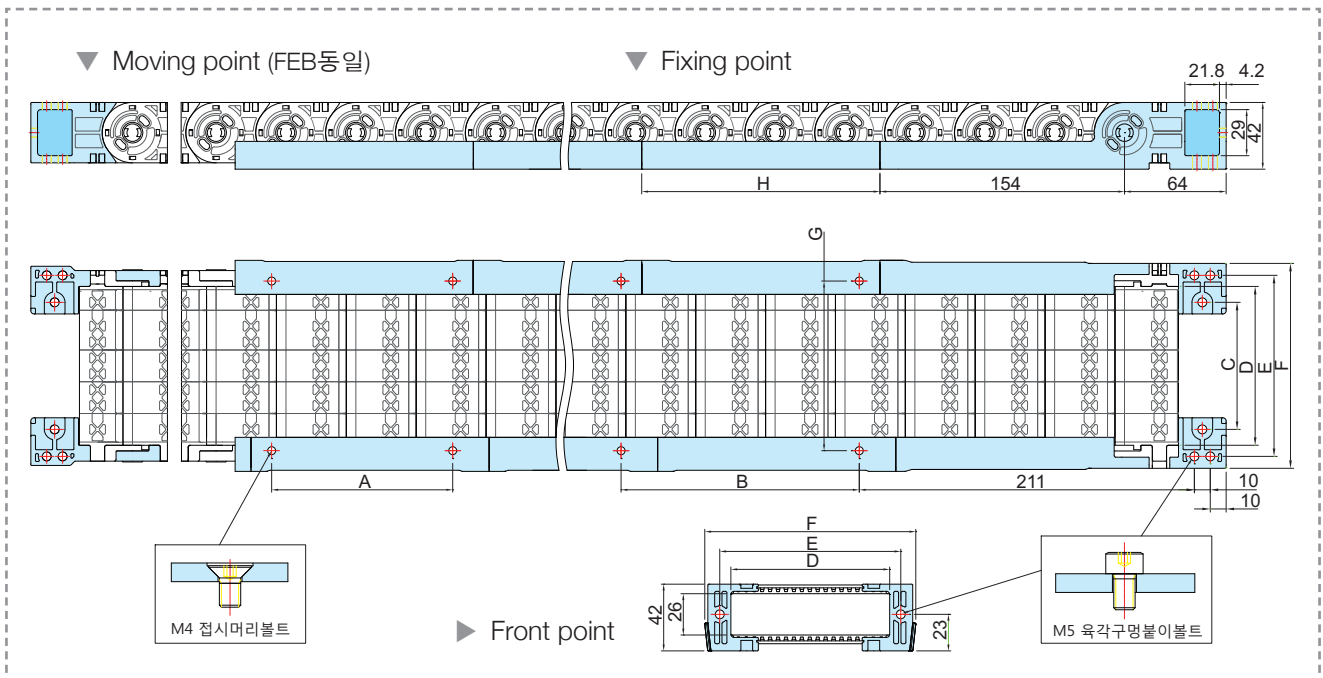


▼ Vertical Type 수직형



GUIDE CHANNEL TYPE END BRACKET

(단위: mm)



Chain Type	C FEB fix hole(inner)	D Frame length dimension	E FEB width	F FEB width	G GC hole width	GC TYPE	H GC length	B GC fixing hole	A GC hole dimension
ST 044E.035	15	35	49	68	41.8	GC150	150	151	114
ST 044E.055	35	55	69	88	61.8				
ST 044E.075	55	75	89	108	81.8	GC250	250	251	214
ST 044E.100	80	100	114	133	106.8				



## Enclosed Type **ST 044E**

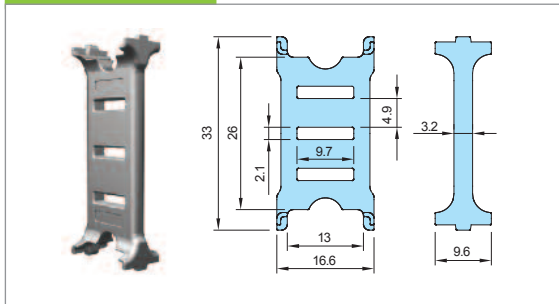
### DIVIDERS & SEPARATORS

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.

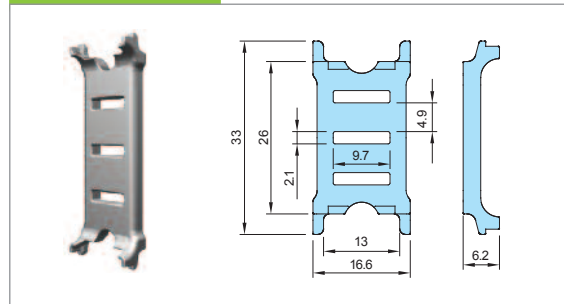
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 **피복손상 및 단선**을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야 합니다.

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

ST 044E DV-M



ST 044E DV-S

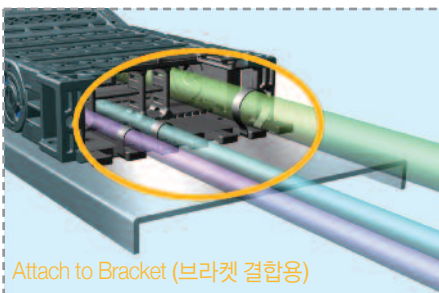


▶ Assemble divider every Two links. / 2링크마다 결합.

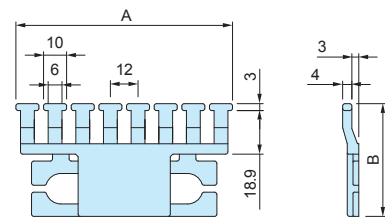
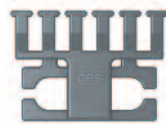
ST 044E Separators (SP) (No. : S-SP/M)

Chain Type	Separators	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.

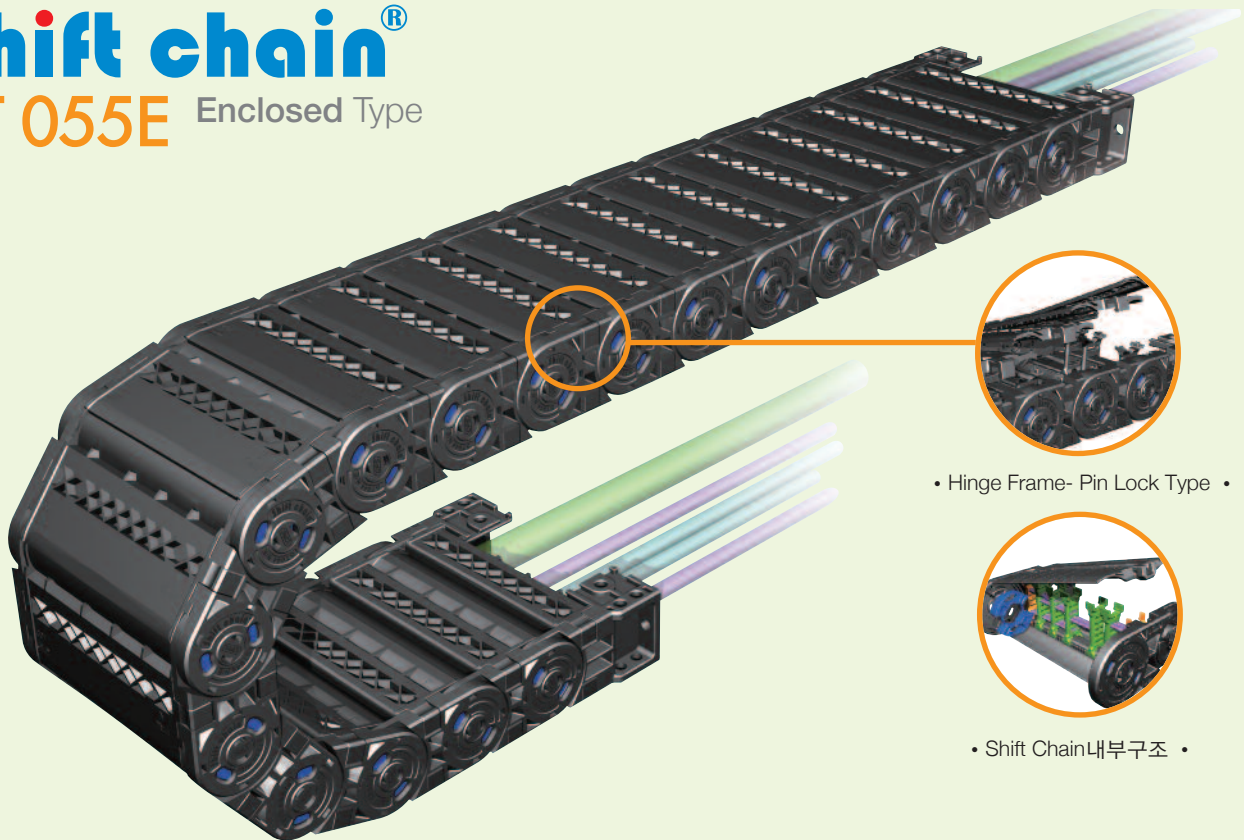
Tie Wrap은 Shift Chain의 브라켓을 기준으로 설치함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Shift Chain의 Tie wrap은 브라켓부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.





Min ●●●●● Max

## Shift chain® ST 055E Enclosed 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 3.0m  
Vertical curve below= max 50m  
Side Mounted, Unsupported= max 1.0m

### Applications

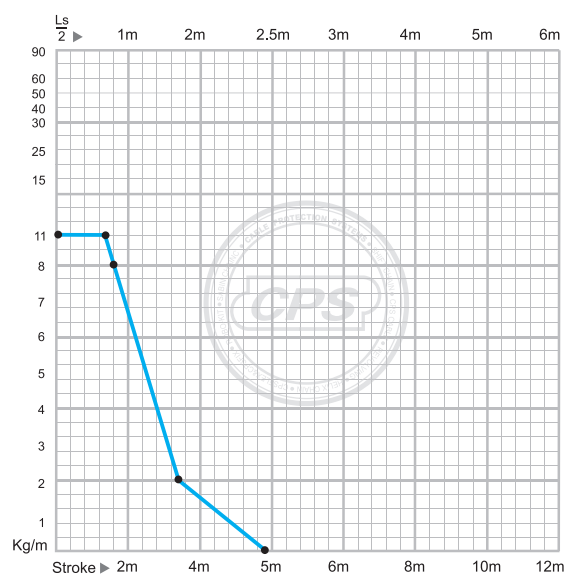
Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인등에 적용. 건츄리 로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용 가능.

### Calculation of the chain length

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

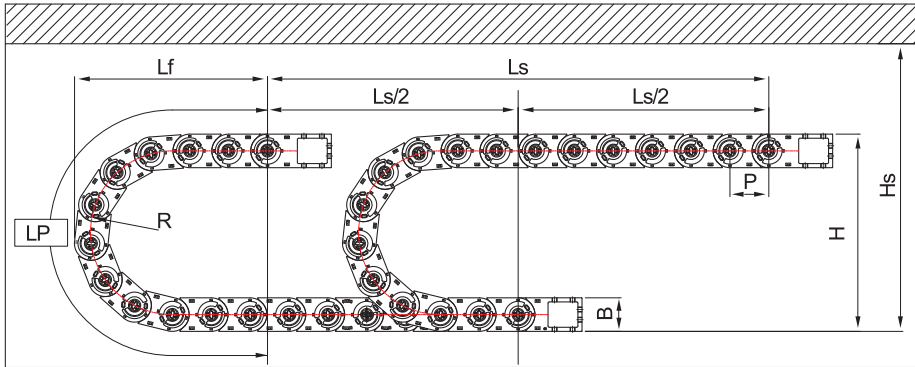
### Load diagrams self-supporting length





## Enclosed Type **ST 055E**

### LAYOUT OF THE CHAIN



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

(Dimensions in mm)

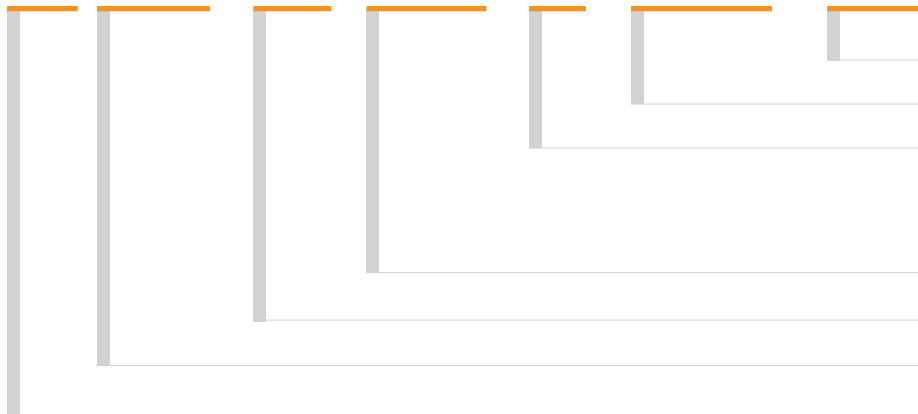
Bending radius R	100	125	150	200
Lp	535	613	692	849
Lf	236	261	286	336
H	252	302	352	452

### ST 055E Type

- Pitch P:** 55mm
- Height B:** 52mm
- Height H:**  $2R+52\text{mm}$
- Hs**  $\geq H+35\text{mm}$

### ORDERING (주문방법)

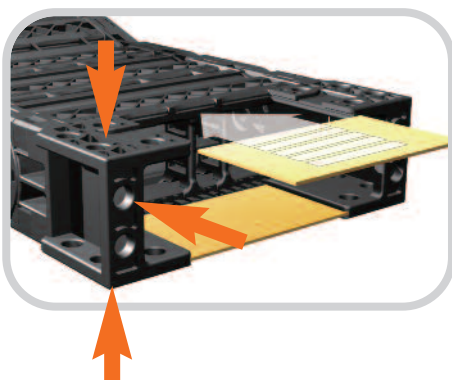
## ST 055E. 150. R150 / F - 1800L : 10ST



- 주문수량 Q'ty(set)
- 체인길이 Length(mm)
- 브라켓 F : Free End Bracket  
G : Guide Channel Type  
V : Vertical Guide Type
- 곡률반경 Bending Radius
- 내폭 Inside Width
- 밀폐형태입 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. Also, inseting plastic sheets creates enclosed structure in the bracket.

(The order for subsidiary materials is extra.)

체인을 고정하는 끝부분으로 기존 Easy End Bracket 과 Normal End Bracket 을 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.)



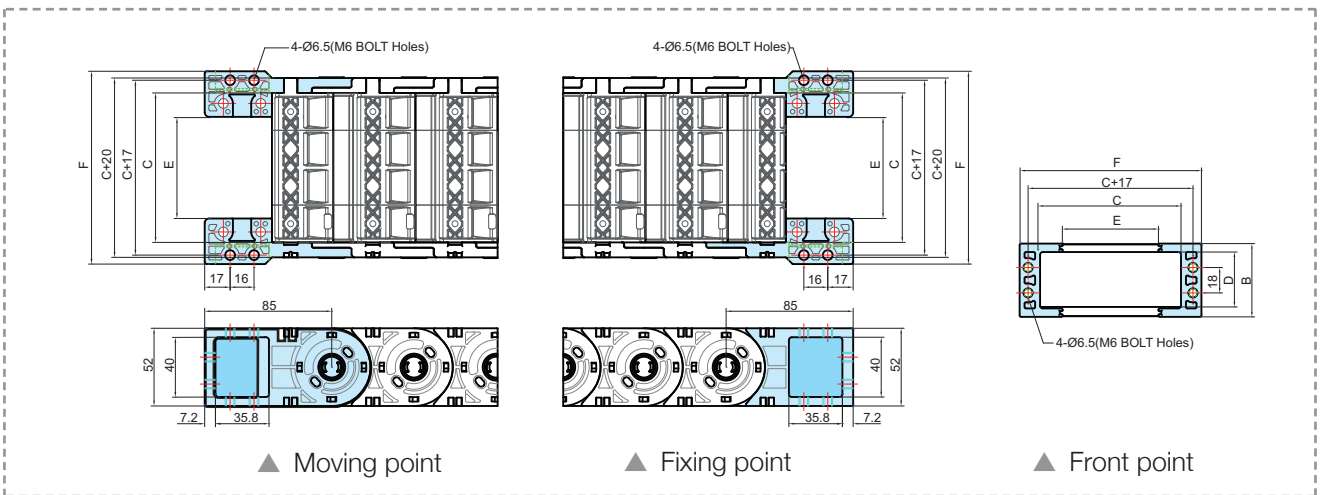
## Enclosed Type **ST 055E**

### CHAIN CROSS SECTION



Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 055E.050	71		50			1.36
ST 055E.075	96		75			1.56
ST 055E.100	121	52	100	38.5	100, 125, 150, 200	1.76
ST 055E.125	146		125			1.97
ST 055E.150	171		150			2.21

### FREE END BRACKET



Chain Type	F	B	C	D	E	Hole Type
ST 055E.050	79		50		18	M6 Bolt Holes
ST 055E.075	104		75		43	
ST 055E.100	129	52	100	38.5	68	
ST 055E.125	154		125		93	
ST 055E.150	179		150		118	



2014 NEW PRODUCT

Unity Systems<sup>®</sup>

Enclosed Type **ST 055E**

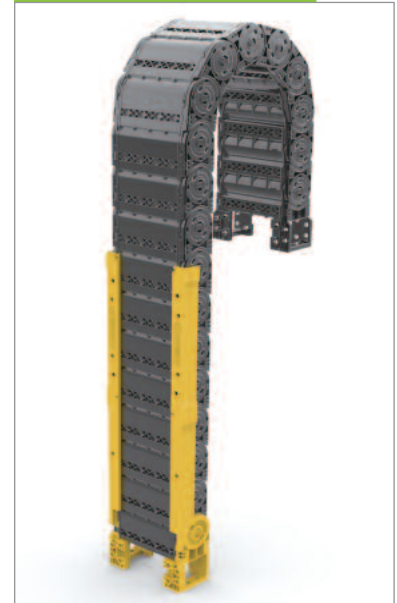
This type of bracket is to protect deflection of chain which will support the weight of certain section start from bracket, also will protect the damage of chain.

케이블 보호 장치에 전해지는 하중을 지지하여 케이블 체인의 처짐이 없이 일정구간을 곧게 유지하므로, 케이블 체인의 파손을 방지하는 Guide Channel 일체형 브라켓입니다.

▼ Horizon Type 수평형

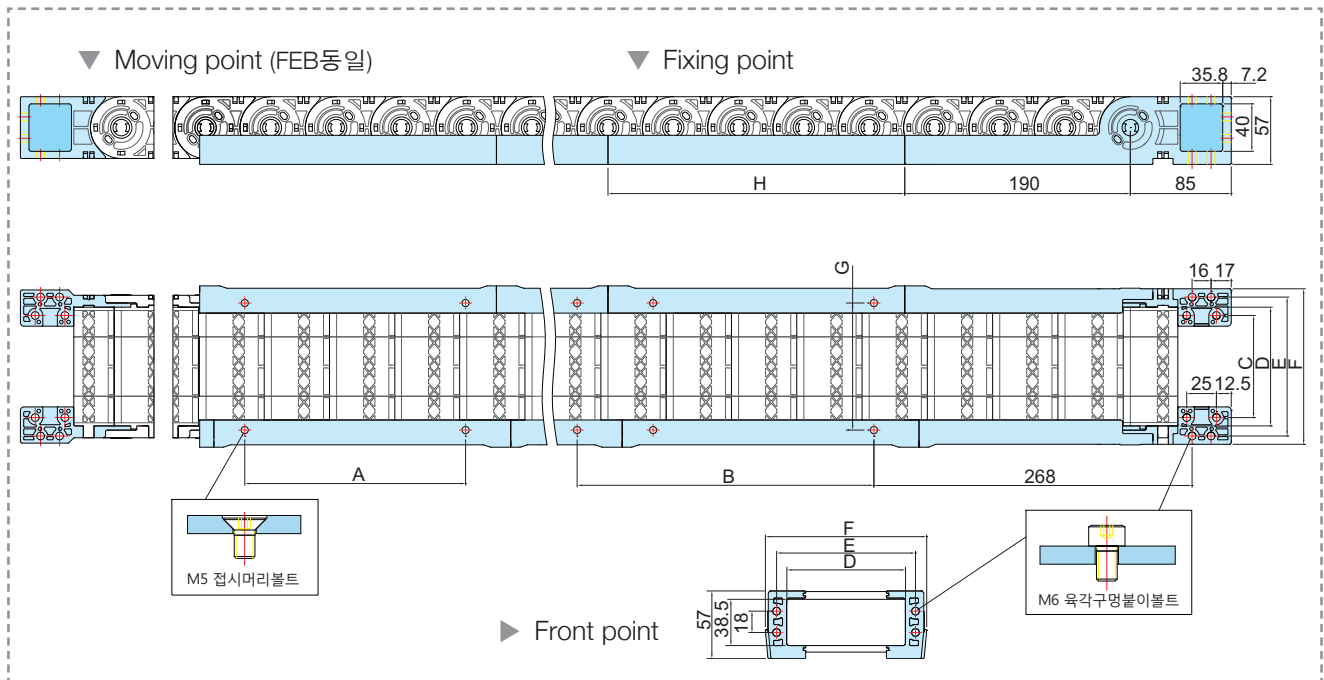


▼ Vertical Type 수직형



GUIDE CHANNEL TYPE END BRACKET

(Dimensions in mm)



Chain Type	C FEB fix hole(inner)	D Frame length dimension	E FEB width	F FEB width	G GC hole width	GC TYPE	H GC length	B GC fixing hole	A GC hole dimension
ST 055E.050	36	50	67	86	57	GC250	250	251	186
ST 055E.075	61	75	92	111	82				
ST 055E.100	86	100	117	136	107				
ST 055E.125	111	125	142	161	132	GC400	400	400	336
ST 055E.150	136	150	167	186	157				



## Enclosed Type **ST 055E**

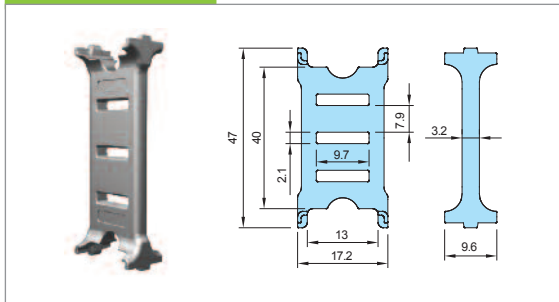
### DIVIDERS & SEPARATORS

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.

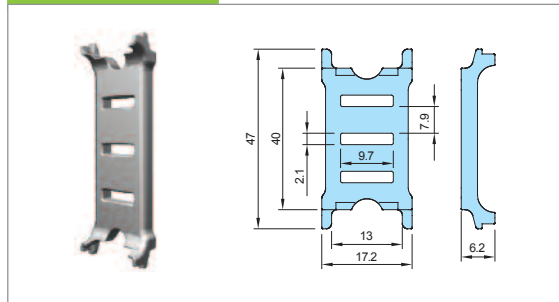
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 **피복손상 및 단선을 방지하는 역할**을 하며 케이블과 10%이상의 여유공간을 확보해야 합니다.

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

#### ST 055E DV-M



#### ST 055E DV-S

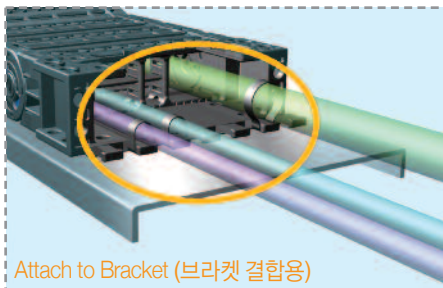


▶ Assemble divider every Two links. / 2링크마다 결합.

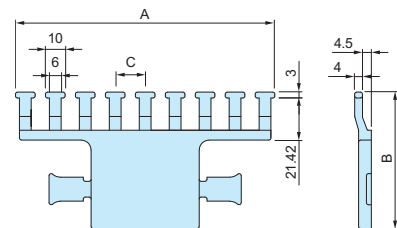
#### ST 055E Separators (SP) (No. : S-SP/M)

Chain Type	Separators	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	050	075	100	125	150	175	200
A	82	107	132	157	182	203	232
B	69.42	69.42	69.42	69.42	69.42	69.42	69.42
C	12	12.13	15.25	14.7	14.35	12.31	13.88

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 체인 내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Shift Chain의 Tie Wrap은 브라켓 부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양으로 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.

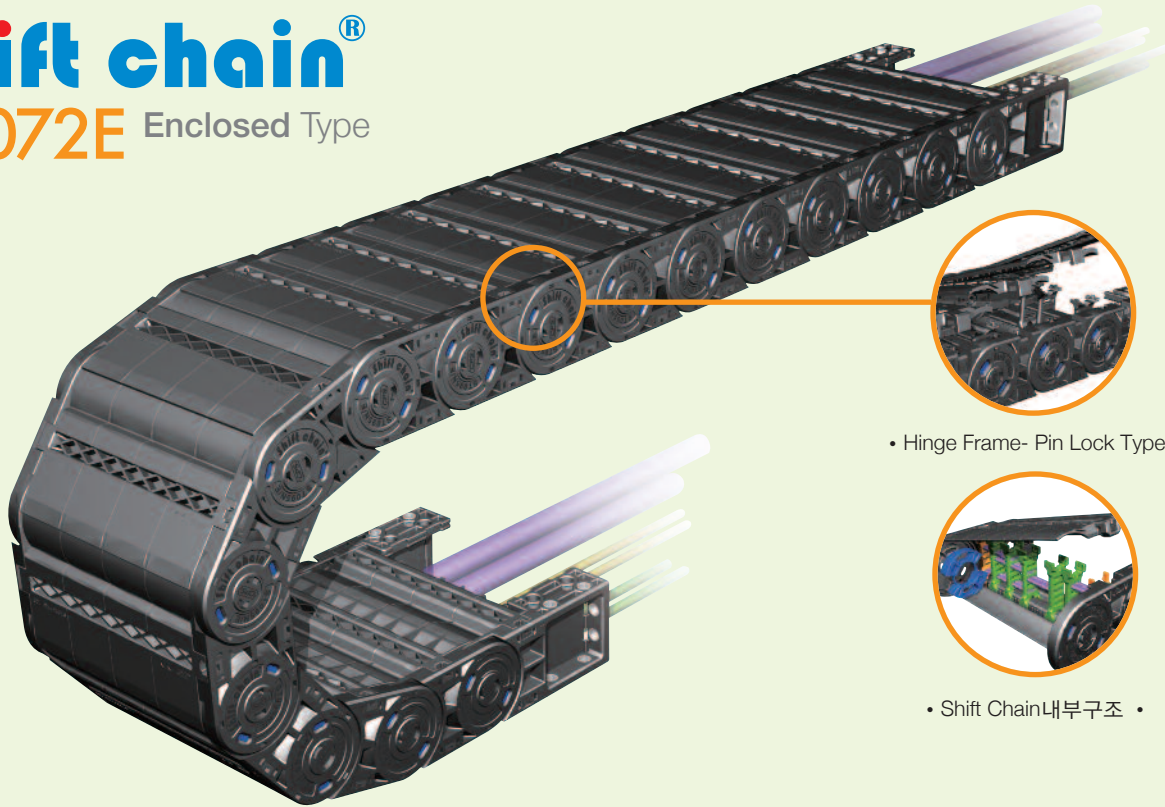
ST 055N, 제품은 삽입형 Tie Wrap을 사용하며 적용되는 Frame은 50, 75, 100, 125, 150, 175, 200입니다.



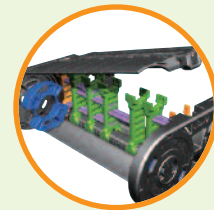


Min ●●●●●● Max

## Shift chain<sup>®</sup> ST 072E 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 2.5m

### Applications

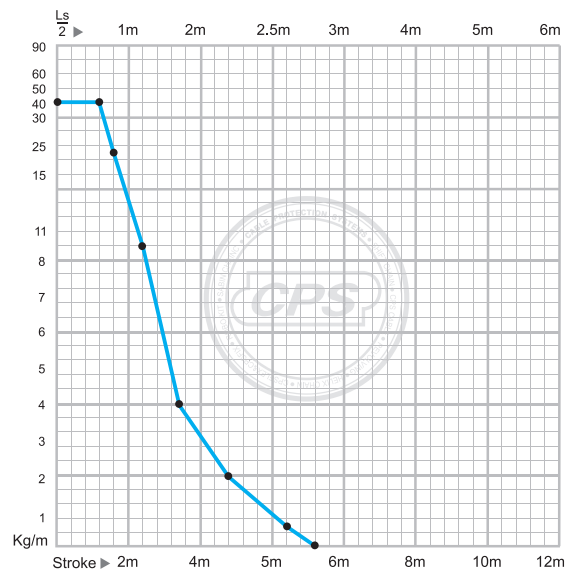
Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인등에 적용. 갠츨리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

### Calculation of the chain length

$$\left[ L = \frac{L_s}{2} + L_p \right]$$

### Load diagrams self-supporting length



## Enclosed Type **ST 072E**

CPS CABLE CHAIN

SHIFT CHAIN

SABIN CHAIN

REVOLVING CHAIN

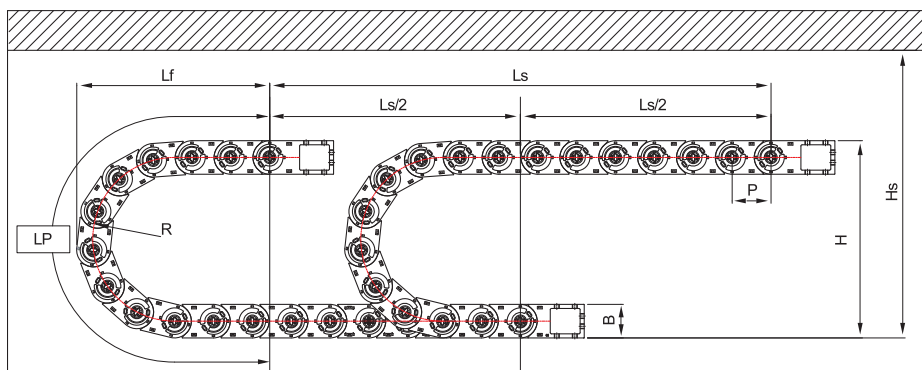
HELIX CHAIN

ROBO-KIT

CPS FLEX

CPS FIX

### LAYOUT OF THE CHAIN



(Dimensions in mm)

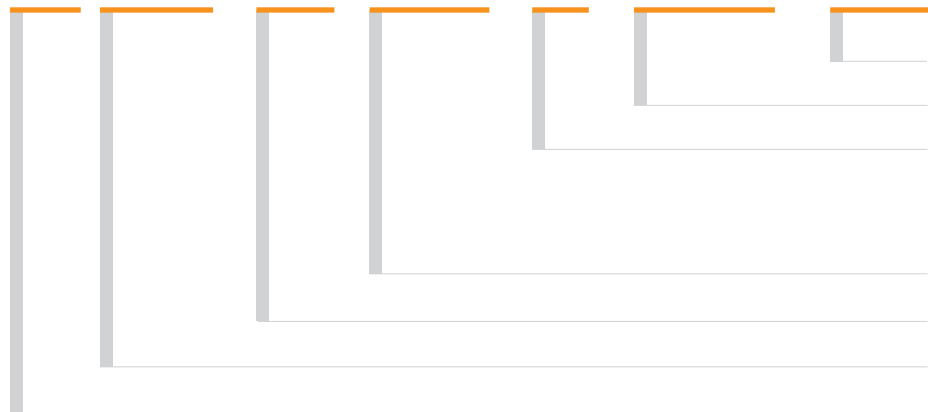
Bending radius R	120	145	200	250	300
Lp	665	743	916	1,074	1,230
L f	297	322	377	427	477
H	306	356	466	566	666

### ST 072E Type

- Pitch P:** 72 mm
- Height B:** 66mm
- Height H:** 2R+66mm
- Hs** ≥ H+40mm

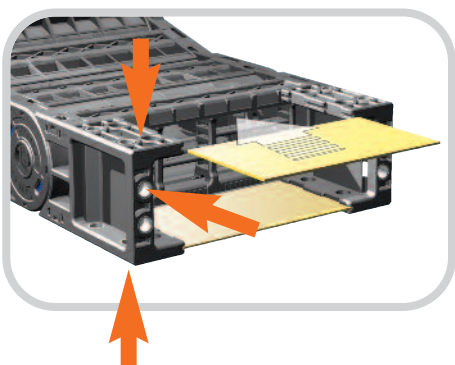
### ORDERING (주문방법)

## ST 072E. 150. R200 / F - 3000L : 10ST



- 주문수량 Q'ty(set)
  - 체인길이 Length(mm)
  - 브라켓 F : Free End Bracket  
G : Guide Channel Type  
V : Vertical Guide Type
  - 곡률반경 Bending Radius
  - 내폭 Inside Width
  - 밀폐형태입 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. Also, inserting 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.

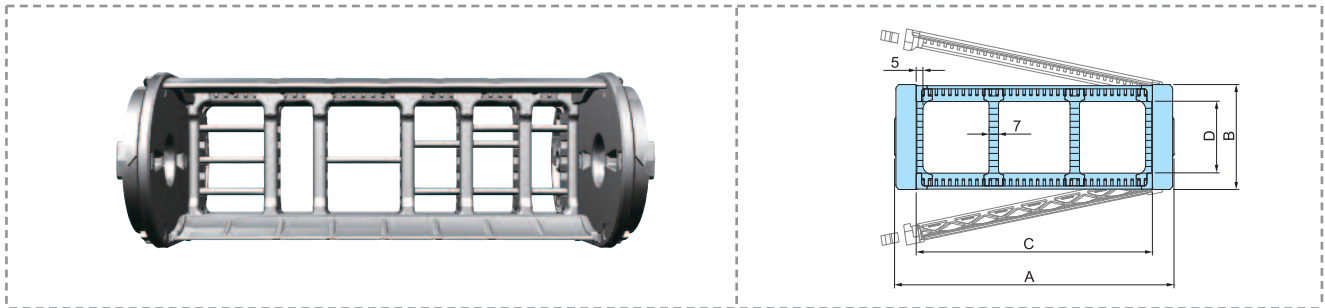
(부자재는 별도 주문)

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



## Enclosed Type **ST 072E**

### CHAIN CROSS SECTION

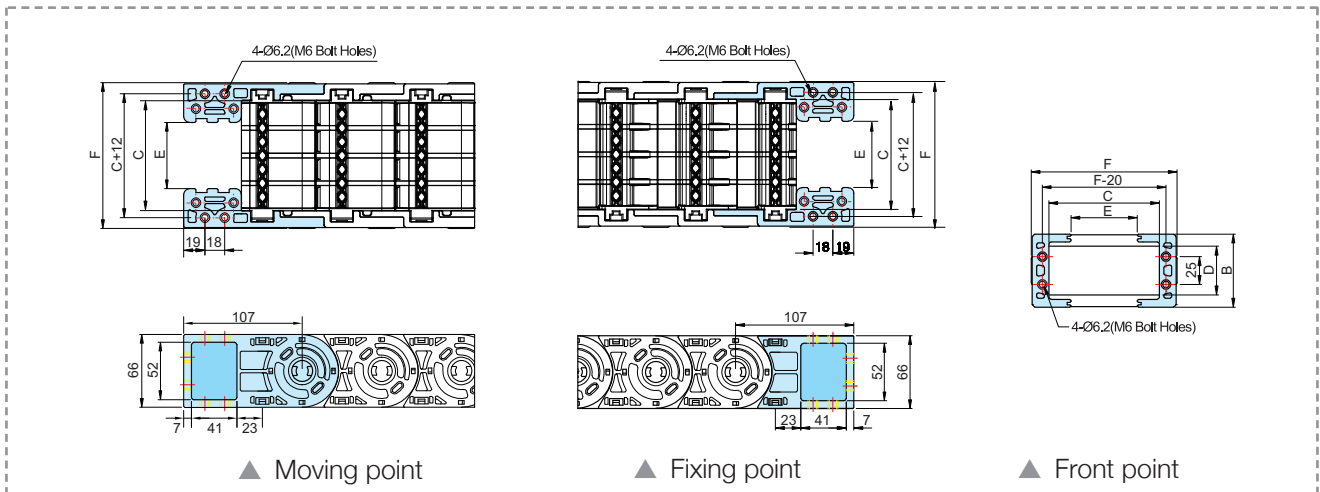


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 072E.050	82		50		120, 145, 200, 250, 300	2.37
ST 072E.075	107		75			2.61
ST 072E.100	132	66	100	44		2.85
ST 072E.125	157		125			3.09
ST 072E.150	182		150			3.33

▲ 특수 프레임 적용 가능. (C:140,165,190,240)

▲ Application of special frame. (C:140,165,190,240)

### FREE END BRACKET



▲ Moving point

▲ Fixing point

▲ Front point

Chain Type	F	B	C	D	E	Hole Type
ST 072E.050	82		50		10	M6 Bolt Holes
ST 072E.075	107		75		35	
ST 072E.100	132	66	100	44	60	
ST 072E.125	157		125		85	
ST 072E.150	182		150		110	

▲ 특수 프레임 적용 가능. (C:140,165,190,240)

▲ Application of special frame. (C:140,165,190,240)

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Enclosed Type **ST 072E**

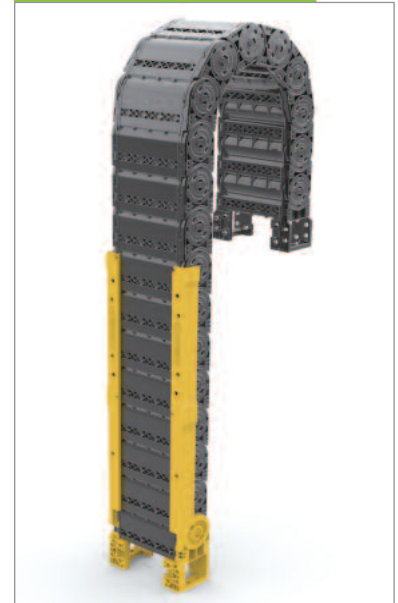
This type of bracket is to protect deflection of chain which will support the weight of certain section start from bracket, also will protect the damage of chain.

케이블 보호 장치에 전해지는 하중을 지지하여 케이블 체인의 처짐이 없이 일정구간을 끈게 유지 하므로, 케이블 체인의 파손을 방지하는 Guide Channel 일체형 브라켓입니다.

▼ Horizon Type 수평형

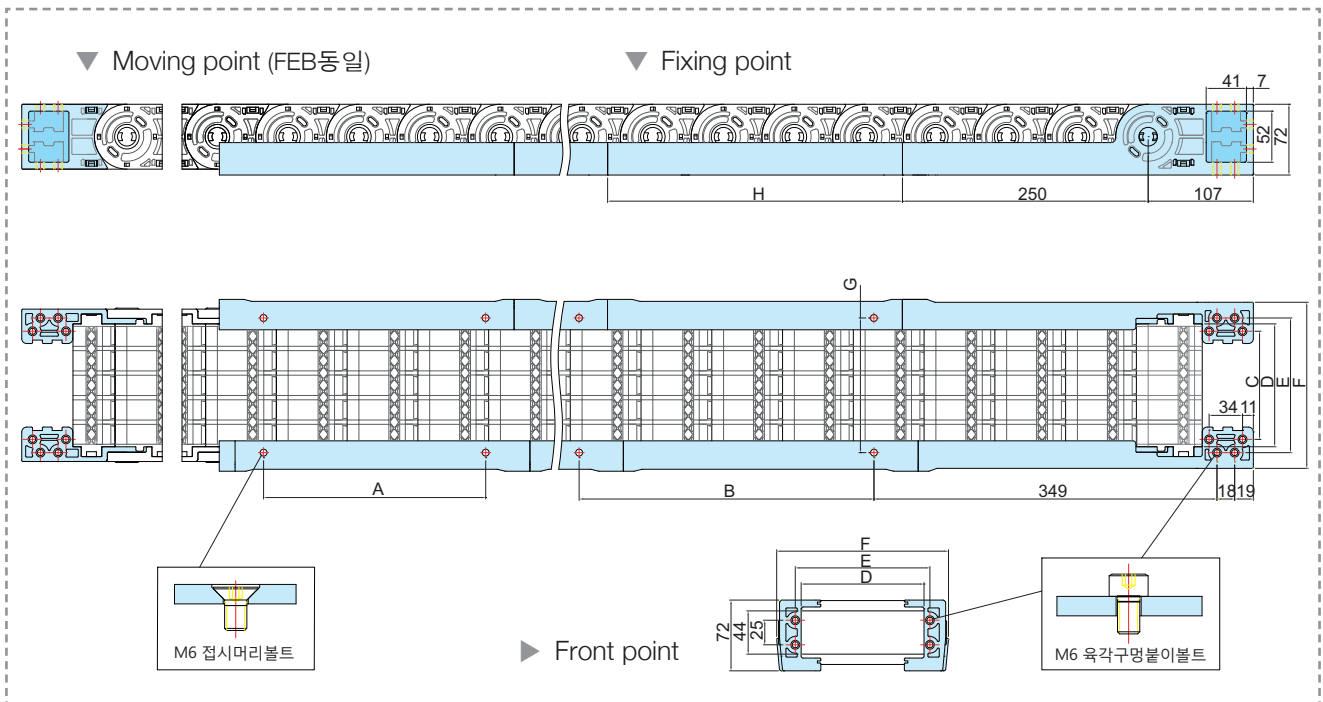


▼ Vertical Type 수직형



**GUIDE CHANNEL TYPE END BRACKET**

(Dimensions in mm)



Chain Type	C FEB fix hole(inner)	D Frame length dimension	E FEB width	F FEB width	G GC hole width	GC TYPE	H GC length	B GC fixing hole	A GC hole dimension
ST 072E.050	35	50	62	100	62	GC300	300	301	226
ST 072E.075	60	75	87	125	87				
ST 072E.100	85	100	112	150	112				
ST 072E.125	110	125	137	175	137	GC500	500	501	426
ST 072E.150	135	150	162	200	162				



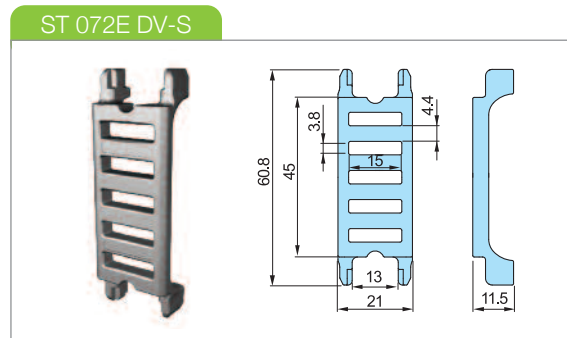
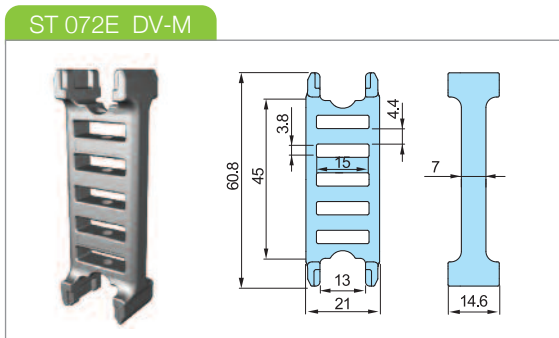
## Enclosed Type **ST 072E**

### 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.

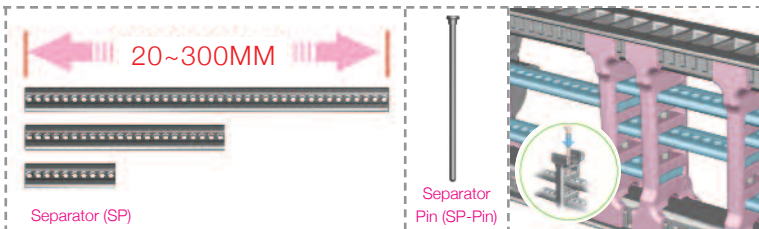
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 **피복손상 및 단선**을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야 합니다.

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



▶ Assemble divider every Two links. / 2링크마다 결합.

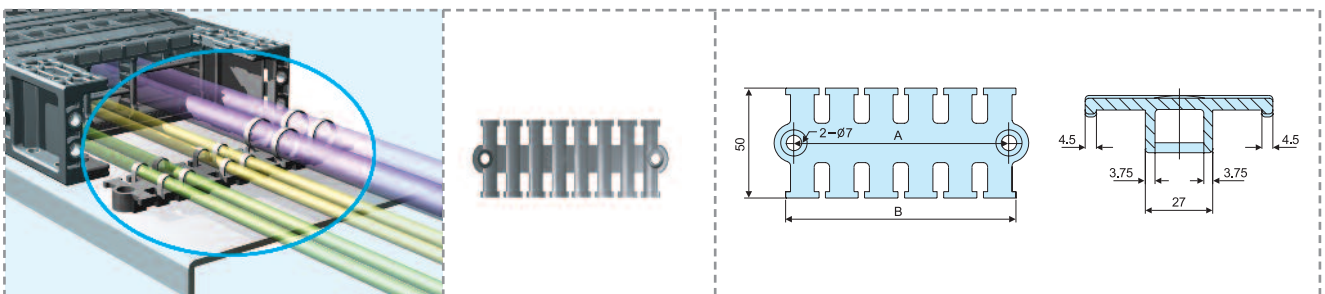
### SEPARATORS (SP)



Separator is available in length from 20mm to 300mm and can be cut every 5mm for use. The combined use of divider and separator 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 Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

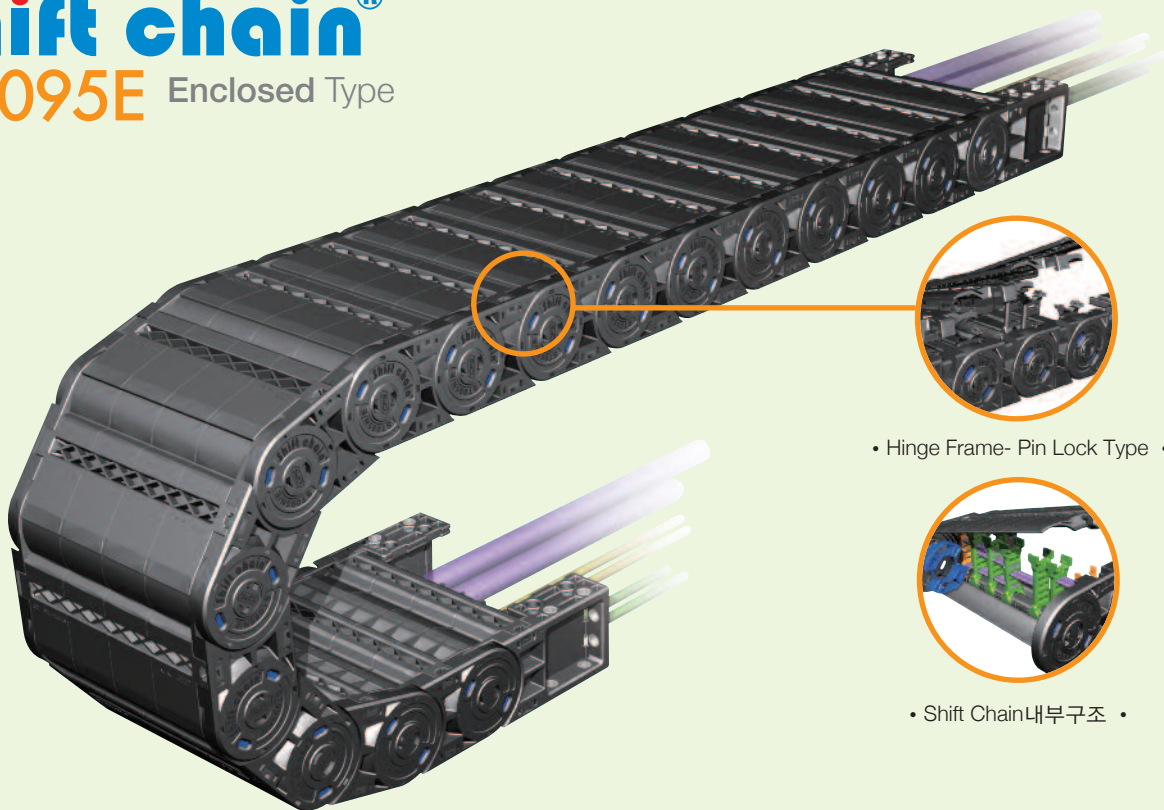
Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 케이블의 유동을 방지하고자 고정하는 시스템으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.



Min ●●●●●●● Max

# Shift chain®

## ST 095E Enclosed 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

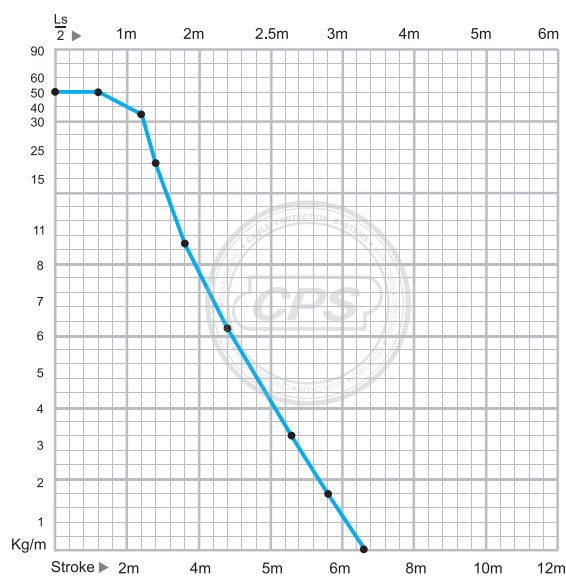
Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용. 겐츨리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

### Calculation of the chain length

$$\left[ L = \frac{L_s}{2} + L_p \right]$$

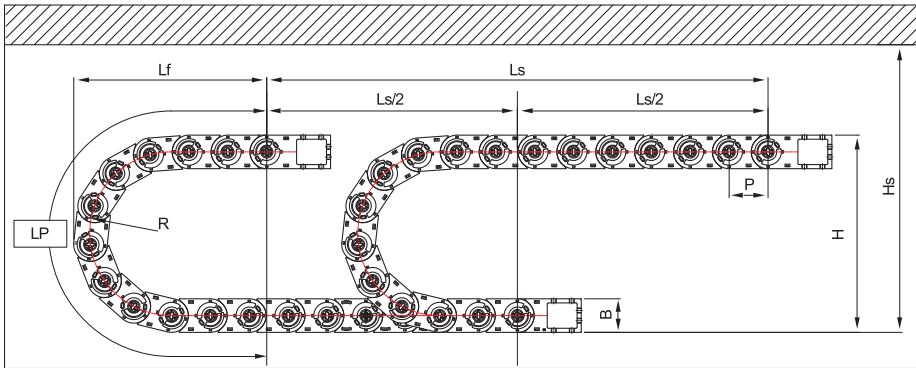
### Load diagrams self-supporting length





## Enclosed Type **ST 095E**

### LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	150	200	230	280	400
$L_p$	855	1,010	1,110	1,260	1,640
$L_f$	374	428	459	505	629
$H$	382	482	542	642	882

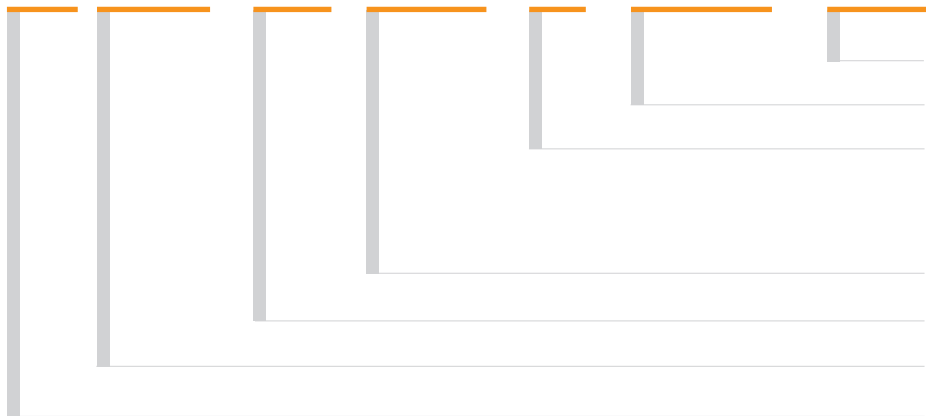
- Ls:** Stroke
- Lp:** Loop Length
- Lf:** Loop Projection
- Hs:** Safe Space

### ST 095E Type

- Pitch P:** 95 mm
- Height B:** 82mm
- Height H:**  $2R+82$ mm
- Hs**  $\geq H+50$ mm

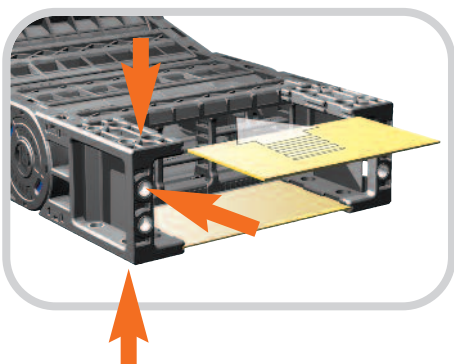
### ORDERING (주문방법)

## ST 095E. 200. R200 / F - 3000L : 10ST



- 주문수량 Q'ty(set)
- 체인길이 Length(mm)
- 브라켓 F : Free End Bracket  
G : Guide Channel Type  
V : Vertical Guide Type
- 곡률반경 Bending Radius
- 내폭 Inside Width
- 밀폐형태입 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. 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 Bracket 을 하나로 통합한 방식으로 취부의 효율성을 높임.

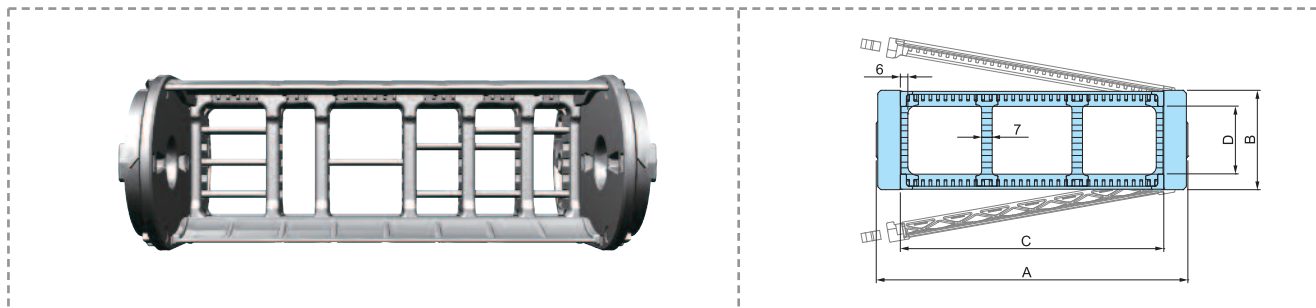
또한 부자재를 삽입하여 브라켓부분이 완전밀폐가 될 수 있는 구조.

(부자재는 별도 주문)

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

# Enclosed Type ST 095E

## CHAIN CROSS SECTION

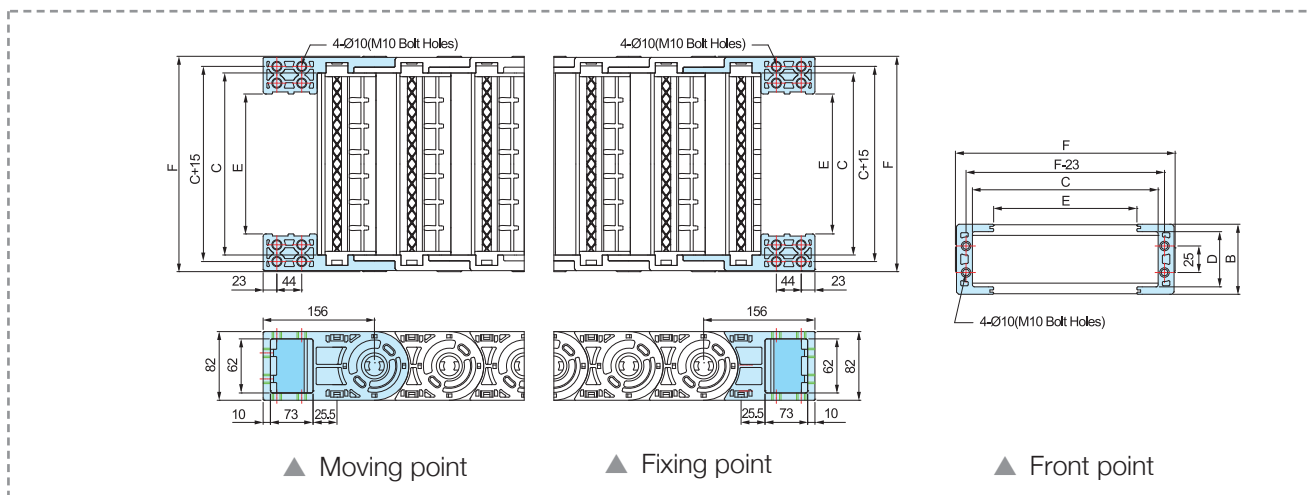


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 095E.100	138		100			3.55
ST 095E.125	163		125			3.79
ST 095E.150	188	82	150	55	150, 200	4.04
ST 095E.175	213		175		230, 280, 400	4.29
ST 095E.200	238		200			4.53

▲ 특수 프레임 적용 가능. (C:190,240)

▲ Application of special frame. (C:190,240)

## FREE END BRACKET



▲ Moving point

▲ Fixing point

▲ Front point

Chain Type	F	B	C	D	E	Hole Type
ST 095E.100	138		100		49	M10 Bolt Holes
ST 095E.125	163		125		74	
ST 095E.150	188	82	150	55	99	
ST 095E.175	213		175		124	
ST 095E.200	238		200		149	

▲ 특수 프레임 적용 가능. (C:190,240)

▲ Application of special frame. (C:190,240)



**2014 NEW PRODUCT**

**Unity Systems**<sup>®</sup>

Enclosed Type **ST 095E**

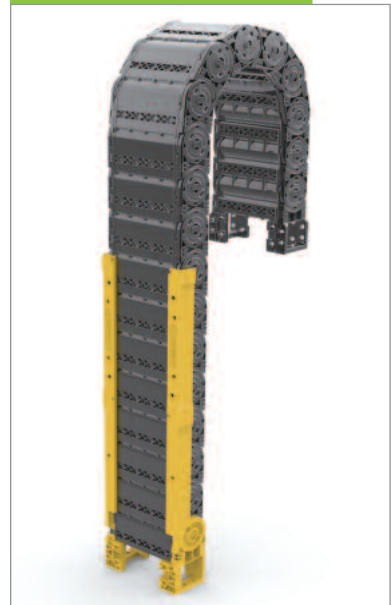
This type of bracket is to protect deflection of chain which will support the weight of certain section start from bracket, also will protect the damage of chain.

케이블 보호 장치에 전해지는 하중을 지지하여 케이블 체인의 처짐이 없이 일정구간을 끈게 유지 하므로, 케이블 체인의 파손을 방지하는 Guide Channel 일체형 브라켓입니다.

▼ Horizon Type 수평형

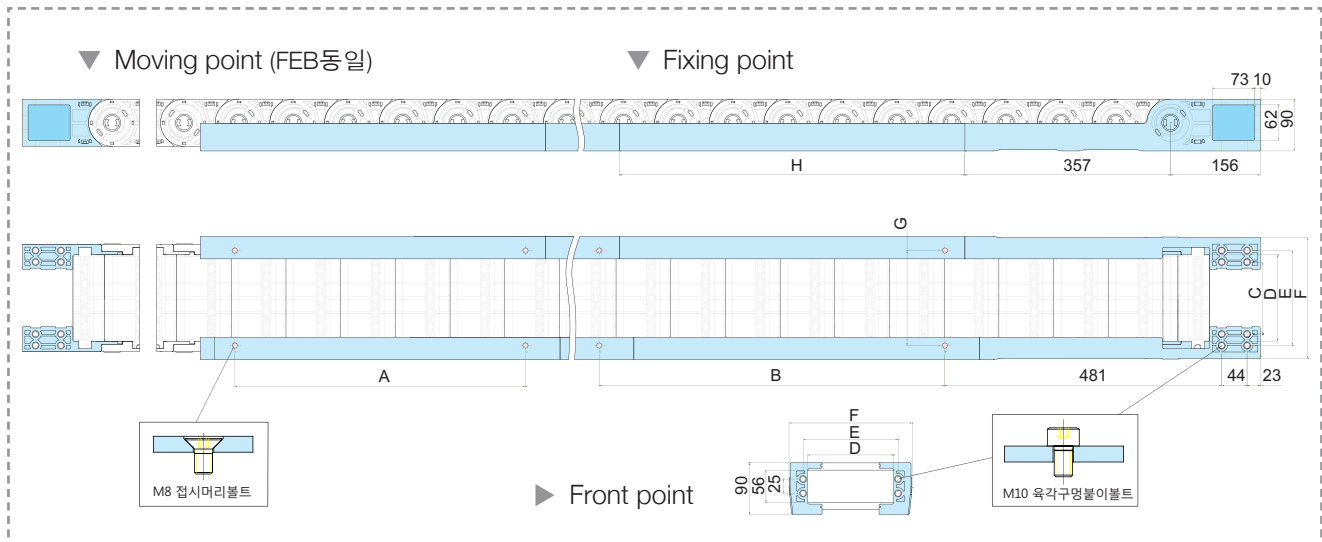


▼ Vertical Type 수직형



**GUIDE CHANNEL TYPE END BRACKET**

(Dimensions in mm)



Chain Type	C FEB fix hole(inner)	D Frame length dimension	E FEB width	F FEB width	G GC hole width	GC TYPE	H GC length	B GC fixing hole	A GC hole dimension
ST 095E.100	75	100	115	160	115	GC600	600	601	505
ST 095E.125	100	125	140	185	140				
ST 095E.150	125	150	165	210	165				
ST 095E.175	150	175	190	235	190	GC800	800	801	705
ST 095E.200	175	200	215	260	215				



## Enclosed Type **ST 095E**

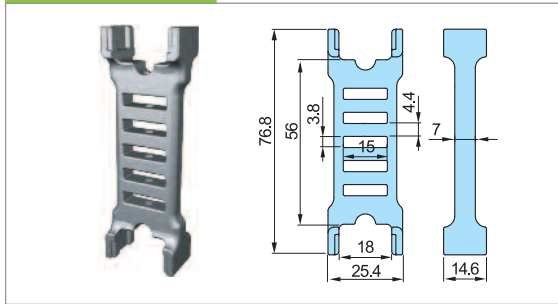
### DIVIDERS

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.

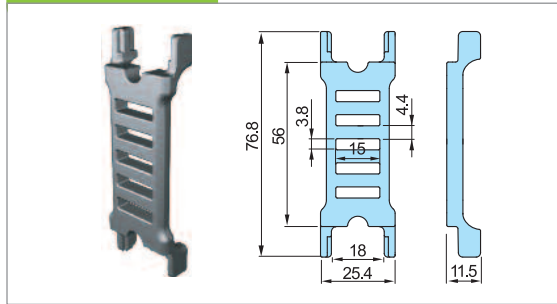
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 **피복손상 및 단선을 방지하는 역할**을 하며 케이블과 10%이상의 여유공간을 확보해야 합니다.

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

ST 095E DV-M

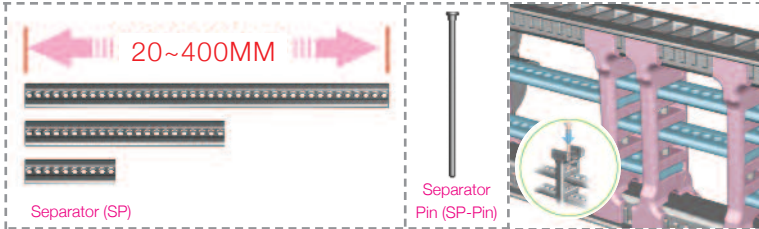


ST 095E DV-S



▶ Assemble divider every Two links. / 2링크마다 결합.

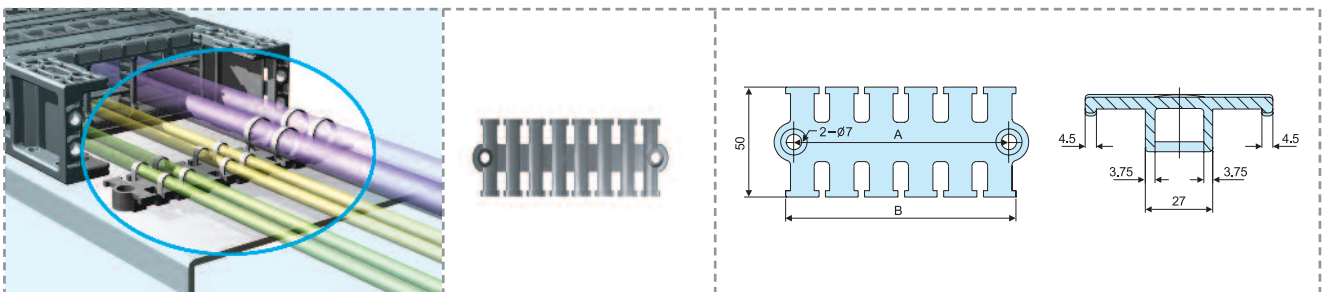
### SEPARATORS (SP)



Separator is available in length from 20mm to 400mm and can be cut every 5mm for use. The combined use of divider and separator 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 케이블에 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

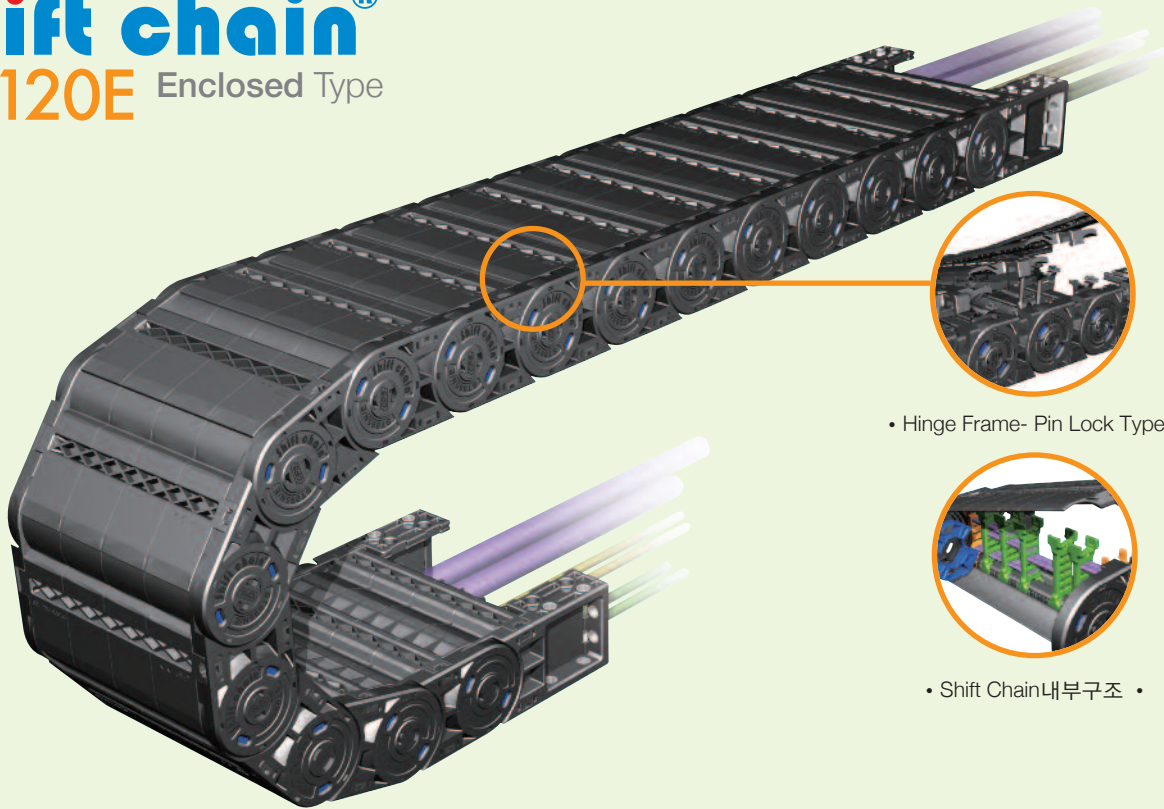
Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 **케이블의 유동을 방지하고자 고정하는 시스템**으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.





Min ●●●●●●● Max

## Shift chain<sup>®</sup> ST 120E Enclosed 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

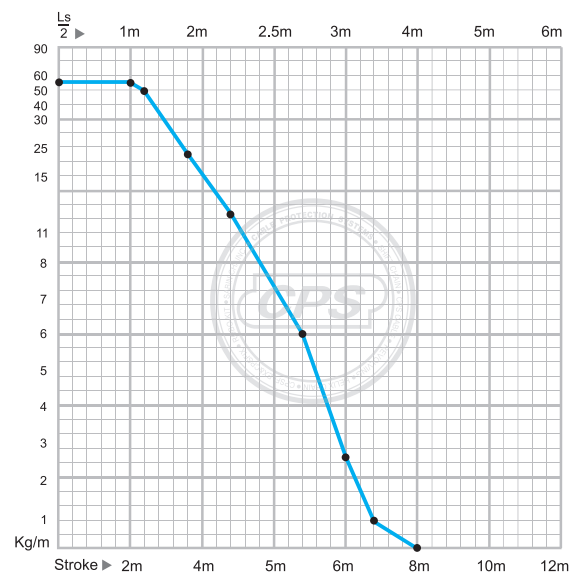
Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables.

산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인 등에 적용. 건추리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

### Calculation of the chain length

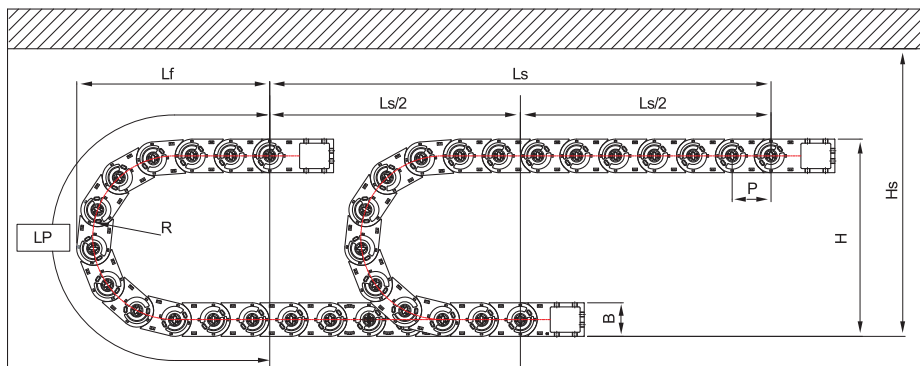
$$\left[ L = \frac{Ls}{2} + Lp \right]$$

### Load diagrams self-supporting length



## Enclosed Type **ST 120E**

### LAYOUT OF THE CHAIN



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

(Dimensions in mm)

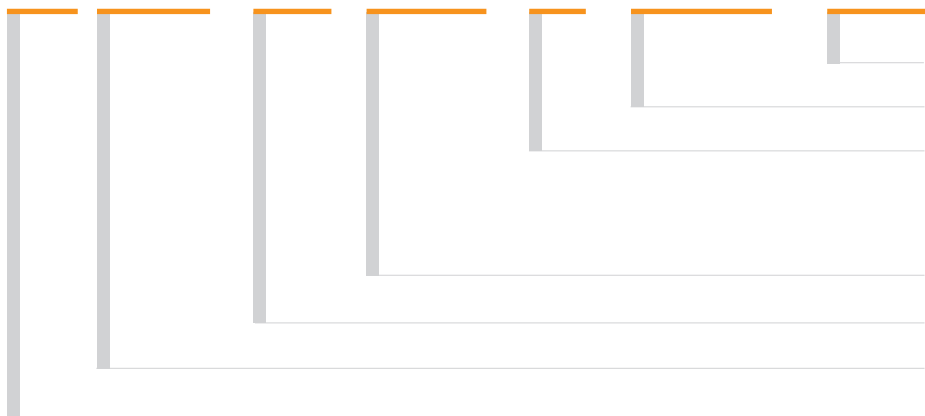
Bending radius R	200	250	300	350	400	500
Lp	1,109	1,266	1,423	1,580	1,737	2,051
L f	494	544	594	644	694	794
H	508	608	708	808	908	1,108

### ST 120E Type

- Pitch P:** 120 mm
- Height B:** 108mm
- Height H:** 2R+108mm
- Hs** ≥ H+60mm

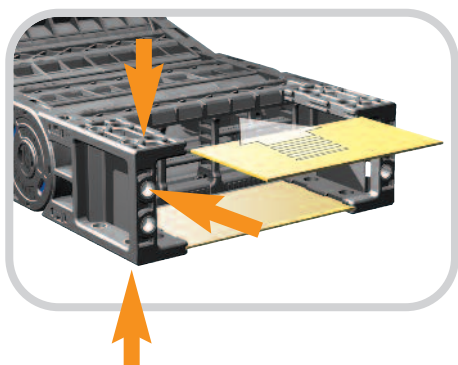
### ORDERING (주문방법)

## ST 120E. 200. R200 / F - 3000L : 10ST



- 주문수량 Q'ty(set)
  - 체인길이 Length(mm)
  - 브라켓 F : Free End Bracket  
G : Guide Channel Type  
V : Vertical Guide Type
  - 곡률반경 Bending Radius
  - 내폭 Inside Width
  - 밀폐형태입 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. 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.

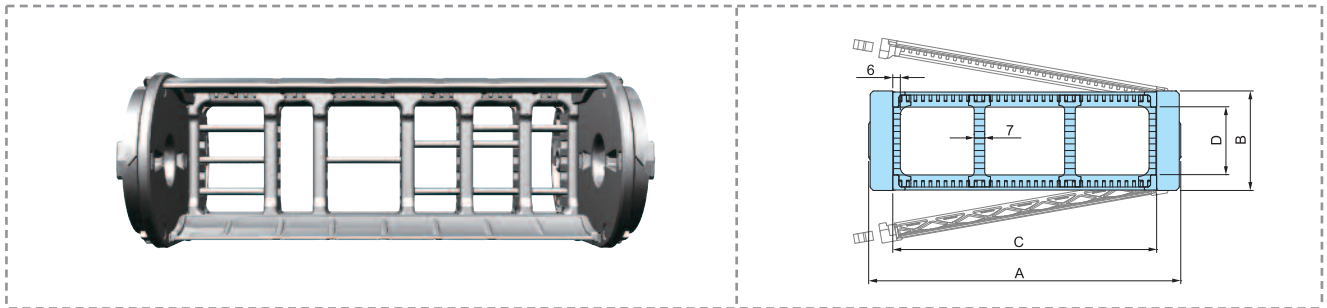
(부자재는 별도 주문)

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



## Enclosed Type **ST 120E**

### CHAIN CROSS SECTION

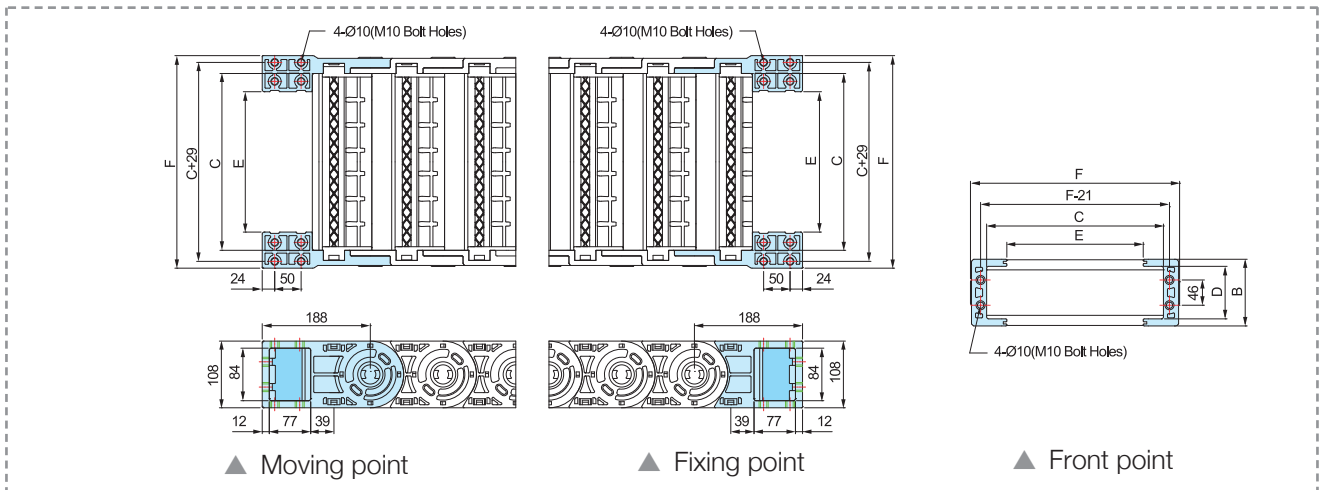


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 120E.150	192	108	150	76	200, 250, 300 350, 400, 500	5.79
ST 120E.200	242		200			6.43
ST 120E.250	292		250			7.07
ST 120E.300	342		300			7.71

▲ 특수 프레임 적용 가능. (C:115,240,290)

▲ Application of special frame. (C:115,240,290)

### FREE END BRACKET



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	

▲ 특수 프레임 적용 가능. (C:115,240,290)

▲ Application of special frame. (C:115,240,290)

2014 NEW PRODUCT

Unity Systems®

Enclosed Type ST 120E

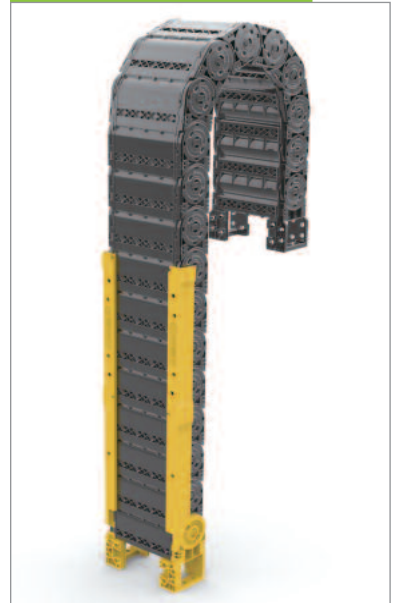
This type of bracket is to protect deflection of chain which will support the weight of certain section start from bracket, also will protect the damage of chain.

케이블 보호 장치에 전해지는 하중을 지지하여 케이블 체인의 처짐이 없이 일정구간을 끈게 유지하므로, 케이블 체인의 파손을 방지하는 Guide Channel 일체형 브라켓입니다.

▼ Horizon Type 수평형

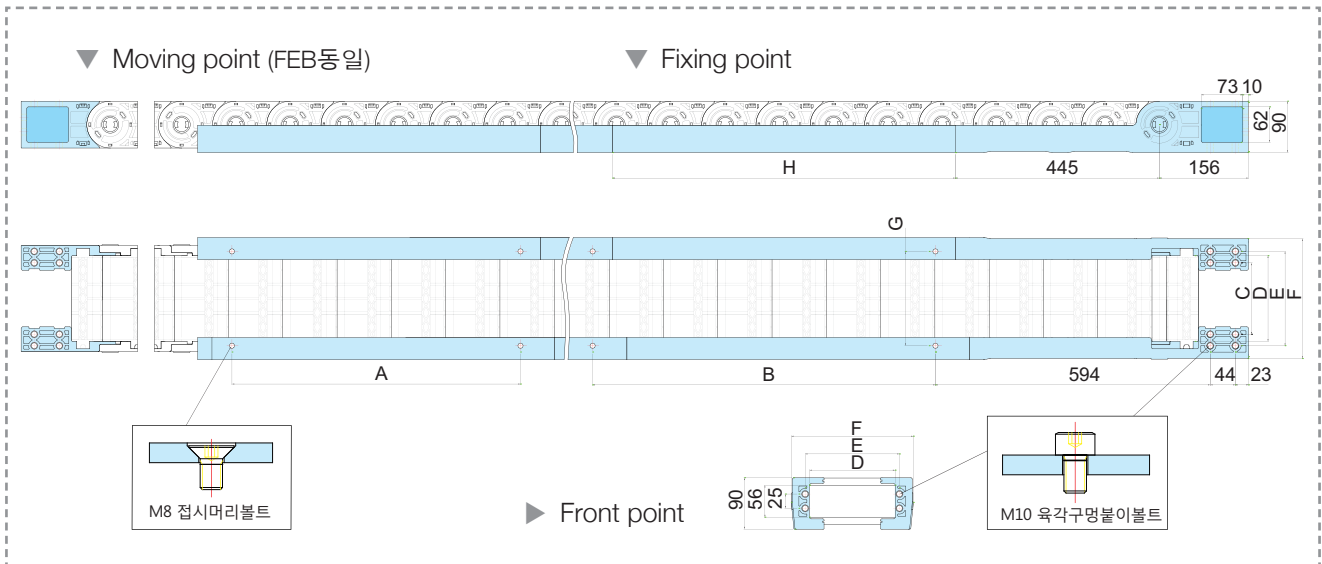


▼ Vertical Type 수직형



GUIDE CHANNEL TYPE END BRACKET

(Dimensions in mm)



Chain Type	C	D	E	F	G	GC TYPE	H	B	A
	FEB fix hole(inner)	Frame length dimension	FEB width	FEB width	GC hole width		GC length	GC fixing hole	GC hole dimension
ST 120E.150	122	150	179	214	165	GC600	600	601	505
ST 120E.200	172	200	229	264	215				
ST 120E.250	222	250	279	314	265	GC800	800	801	705
ST 120E.300	272	300	329	364	315				



## Enclosed Type **ST 120E**

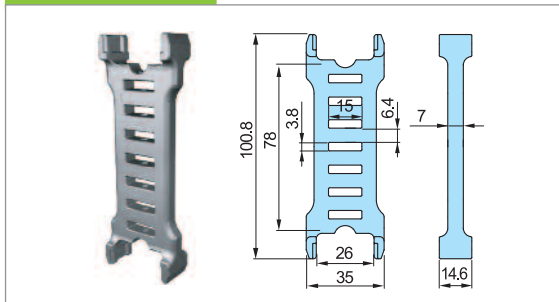
### DIVIDERS

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.

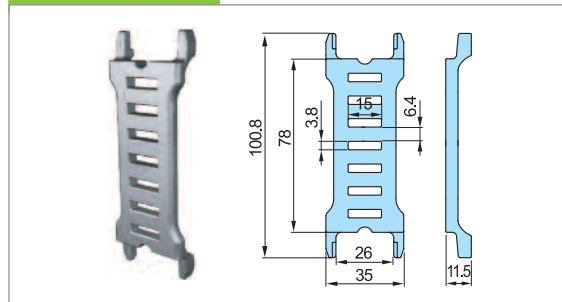
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 **피복손상 및 단선을 방지하는 역할**을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.

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

ST 120E DV-M

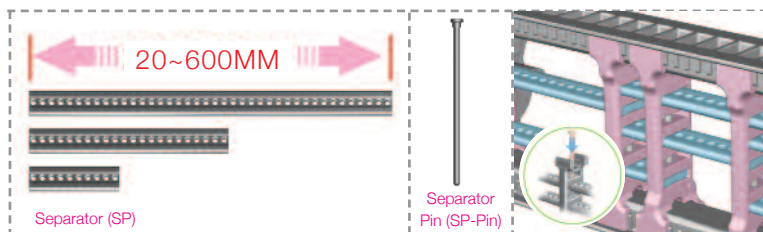


ST 120E DV-S



▶ Assemble divider every Two links. / 2링크마다 결합.

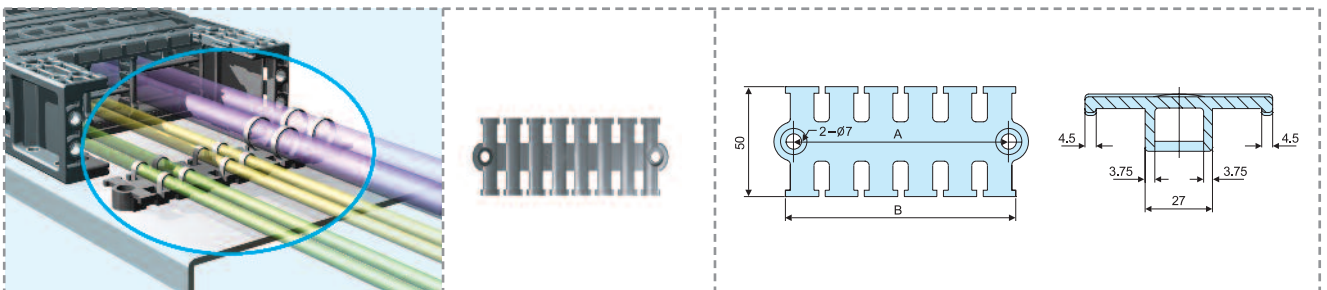
### SEPARATORS (SP)



Separator is available in length from 20mm to 600mm and can be cut every 5mm for use. The combined use of divider and separator 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 Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation

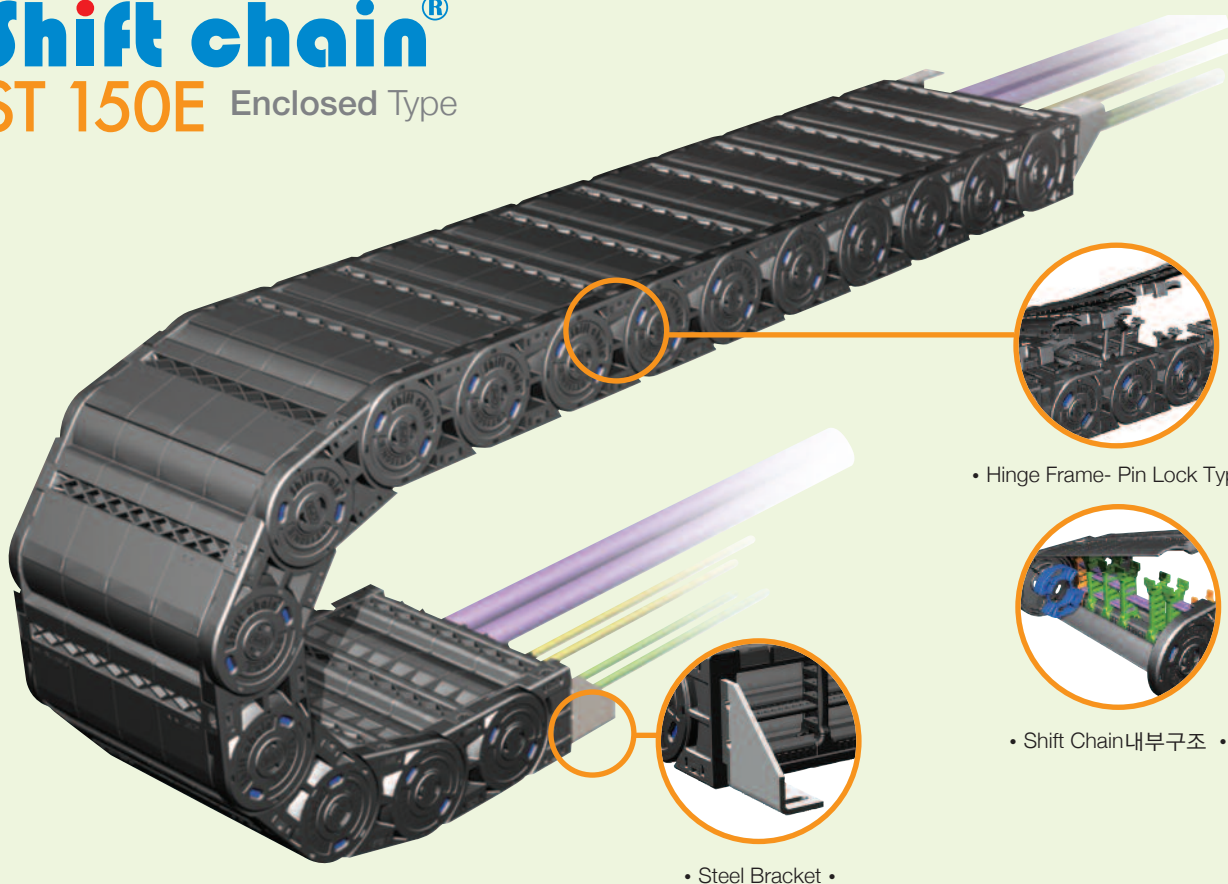
Tie Wrap은 Shift Chain의 브라켓을 기준으로 바깥으로 설치함으로써 체인의 움직임으로 인해 **케이블의 유동을 방지하고자 고정하는 시스템**으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.



Min ●●●●●● Max

# Shift chain®

## ST 150E Enclosed Type



• Hinge Frame- Pin Lock Type •

• Shift Chain 내부구조 •

• 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**

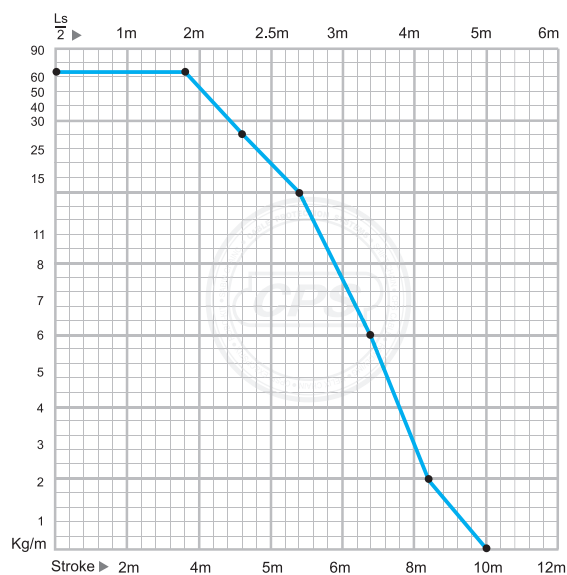
Shift Chain E-Type can be found on car manufacturer's welding line, robot carriages and press lines and on any machine where excess material can damage your inserted cables

산업현장, 외부위험 요소로부터 케이블의 보호가 필요한 용접라인, 도장라인등에 적용. 컨츄리로봇, 공작기계, 용접기계, 로봇케리지 등의 외부위험 요소로부터 케이블의 보호가 요구되는 케이블 체인의 적용 사업장에 사용가능.

● **Calculation of the chain length**

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

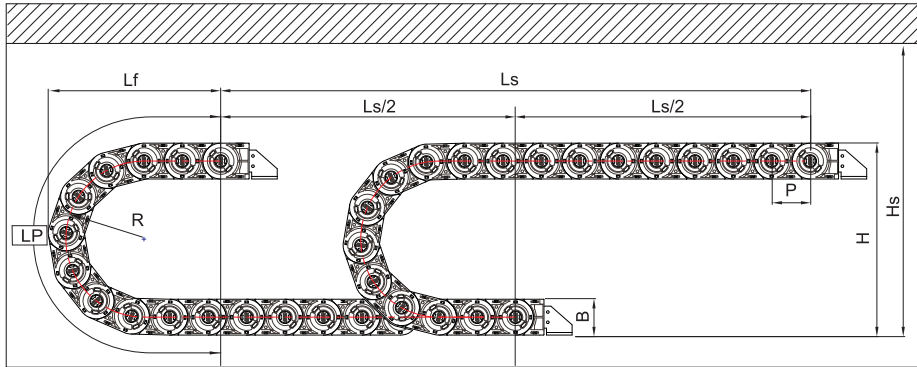
● **Load diagrams self-supporting length**





## Enclosed Type **ST 150E**

### LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	305	405	505	605
Lp	1,510	1,807	2,106	2,405
Lf	651	743	835	928
H	752	952	1,152	1,352

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

### ST 150E Type

- Pitch P:** 150 mm
- Height B:** 141mm
- Height H:** 2R+142mm
- Hs** ≥ H+80mm

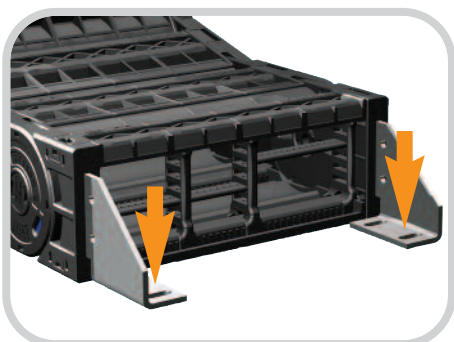
### ORDERING (주문방법)

## ST 150E. 400. R305 / B<sub>1</sub>- 4500L : 10ST



- 주문수량 Q'ty(set)
  - 체인길이 Length(mm)
  - 브라켓타입 Bracket Type B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>
  - 곡률반경 Bending Radius
  - 내폭 Inside Width
  - 밀폐형타입 Enclosed Type
- ### Shift Chain

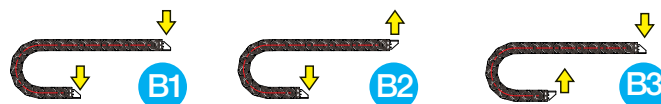
### BRACKET TYPE (브라켓타입)



### 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 B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub> types of brackets.

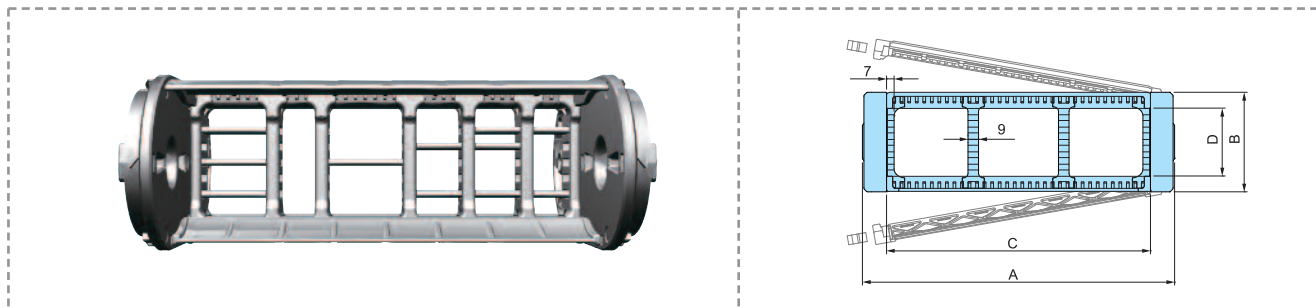
체인을 고정하는 끝부분으로 ST150E사양은 ST체인의 다른사양과는 달리 스틸브라켓을 사용하며 브라켓의 설치형태에 따라 B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub> 등으로 구분설치가 가능하다.



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

## Enclosed Type **ST 150E**

### CHAIN CROSS SECTION

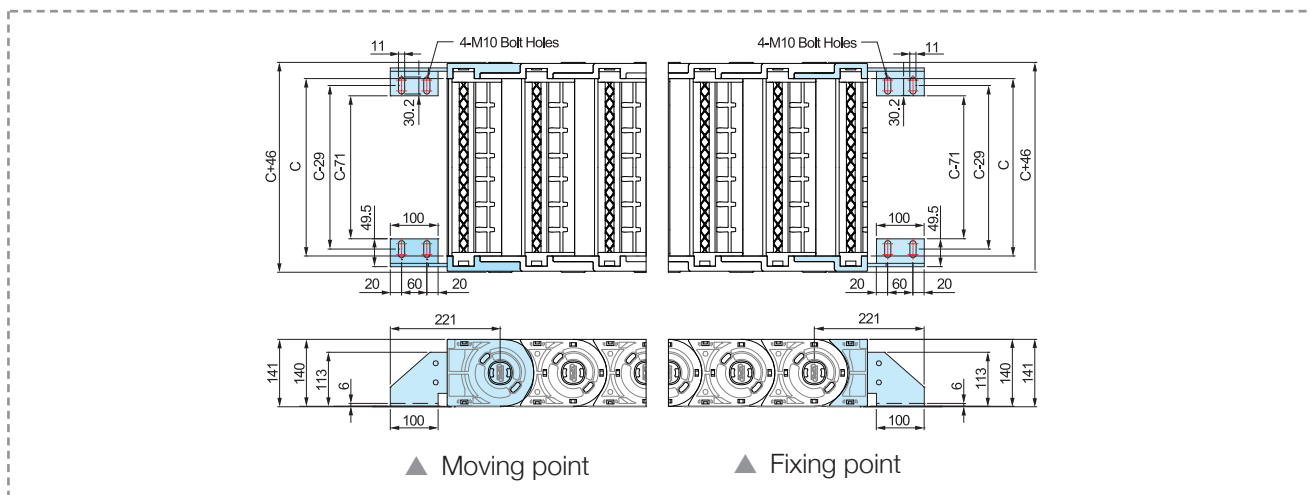


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 150E.200	246		200			8.16
ST 150E.250	296		250			6.98
ST 150E.300	346	141	300	110	305, 405, 505, 605	10.50
ST 150E.350	396		350			12.33
ST 150E.400	446		400			14.16

▲ 특수 프레임 적용 가능. (C:115,240,290)

▲ Application of special frame. (C:115,240,290)

### FREE END BRACKET



▲ Moving point

▲ Fixing point

Chain Type	F	C	D	Hole Type
ST 150E.200		200		
ST 150E.250		250		
ST 150E.300	141	300	110	M10 Bolt Holes
ST 150E.350		350		
ST 150E.400		400		

▲ 특수 프레임 적용 가능. (C:115,240,290)

▲ Application of special frame. (C:115,240,290)



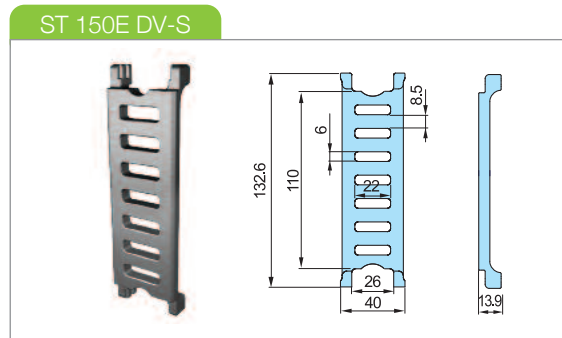
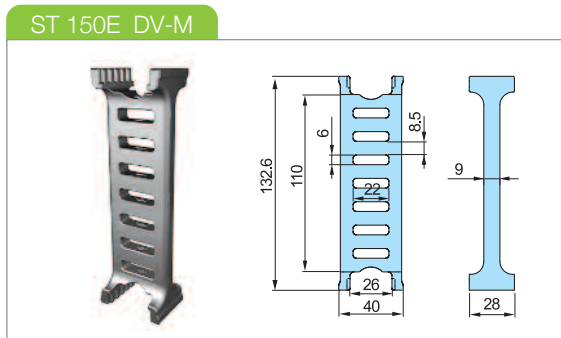
## Enclosed Type **ST 150E**

### 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.

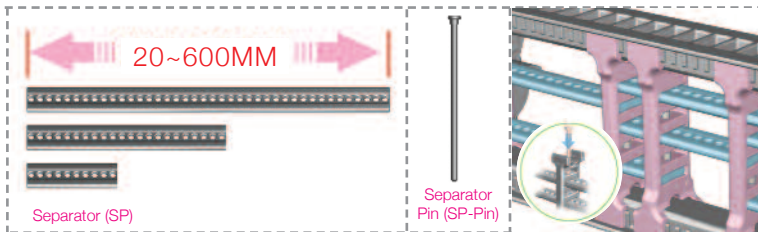
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 **피복손상 및 단선**을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.

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



▶ Assemble divider every Two links. / 2링크마다 결합.

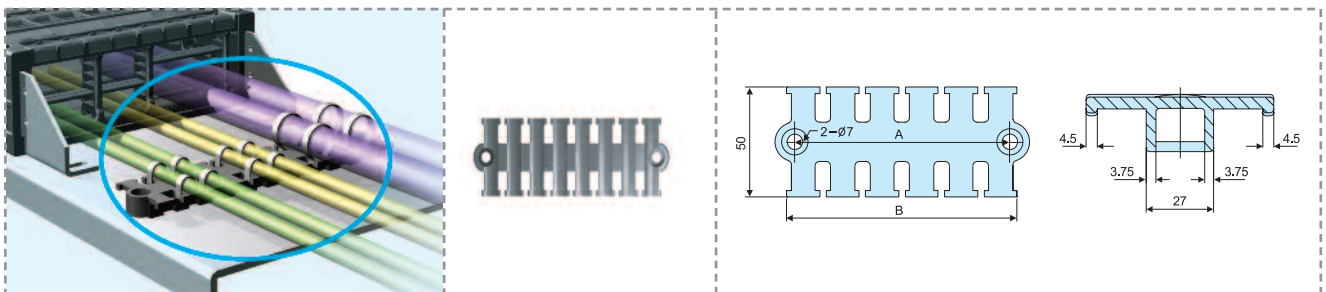
### SEPARATORS (SP)



Separator is available in length from 20mm to 600mm and can be cut every 5mm for use. The combined use of divider and separator 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 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 시스템**으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.





RoHS

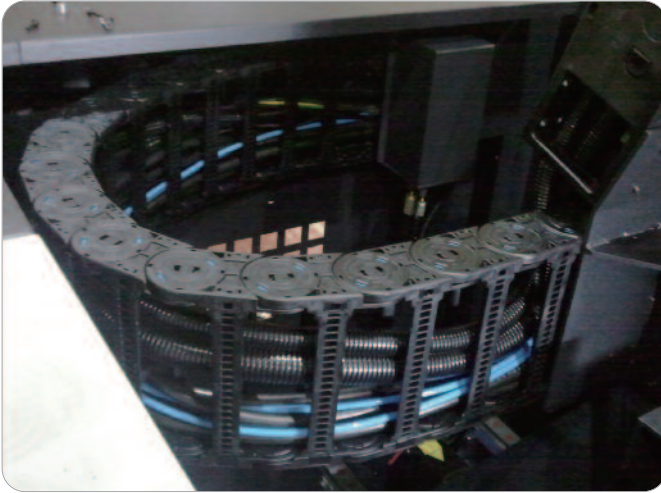
CE

AMPS

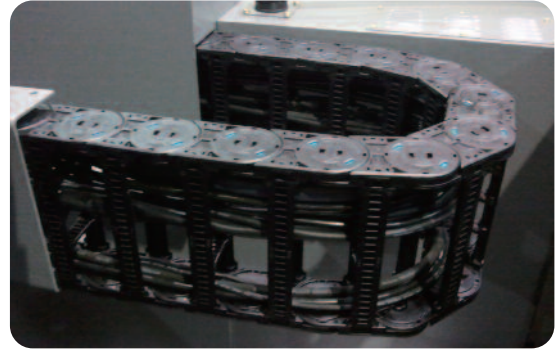
ISO 9001 / 14001

IAF

# APPLICATION IMAGE / 적용이미지



ST- N 두산인프라코어



ST- N DMC기계공작기계



ST- N 기흥기계 공작기계



ST- N 한국 GM군산차체



ST- N 현대차변속기 4부



ST- N 기아차

CPS CABLE CHAIN

SHIFT CHAIN

SABIN CHAIN

REVOLVING CHAIN

HELIX CHAIN

ROBO-KIT

CP5FLEX

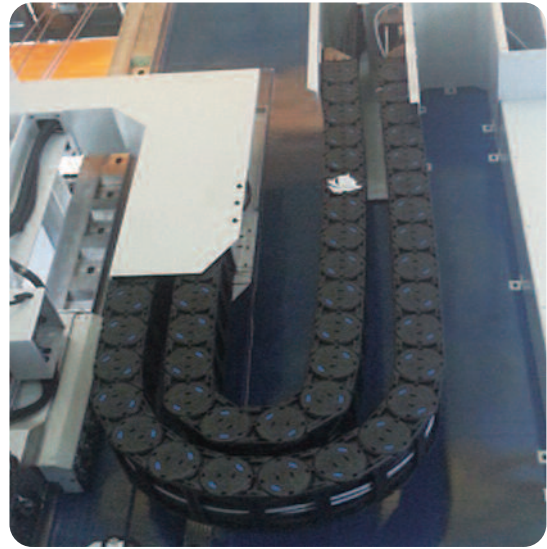
CP5FIX



## APPLICATION IMAGE / 적용이미지



▶ ST- N 한중선박기계



▶ ST- N 기흥기계 공작기계



▶ ST- S 맥스로텍



▶ ST- S 한중선박기계



▶ ST- S 기아차



▶ ST- ES 종합기계



## APPLICATION IMAGE / 적용이미지



▶ ST- RS 현대자동차



▶ ST- RS 현대자동차



▶ ST- RS 한국GM군산



▶ ST- RS 거제 경원밴딩

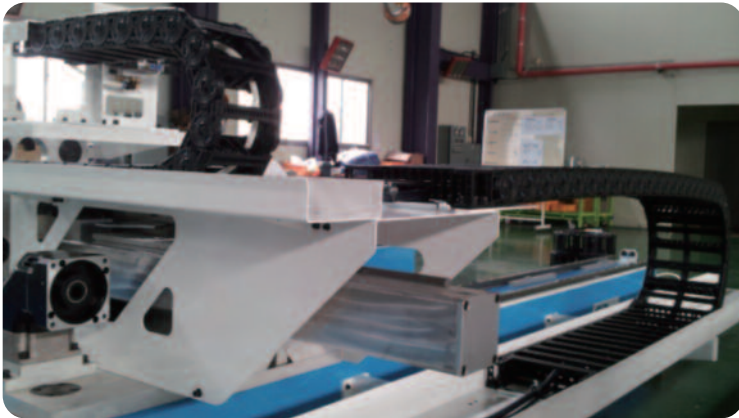


▶ ST- RS 메싸커팅시스템코리아





## APPLICATION IMAGE / 적용이미지



▶ ST- N 에스피시스템스



▶ ST- N 현대차



▶ ST- N S&T중공업



▶ ST- N 기아차



▶ ST- S 한중선박기계



▶ ST- RS 현대자동차