

Shift chain[®] N - TYPE : Normal

ST044N _ 53p

ST055N _ 57p

ST072N _ 61p

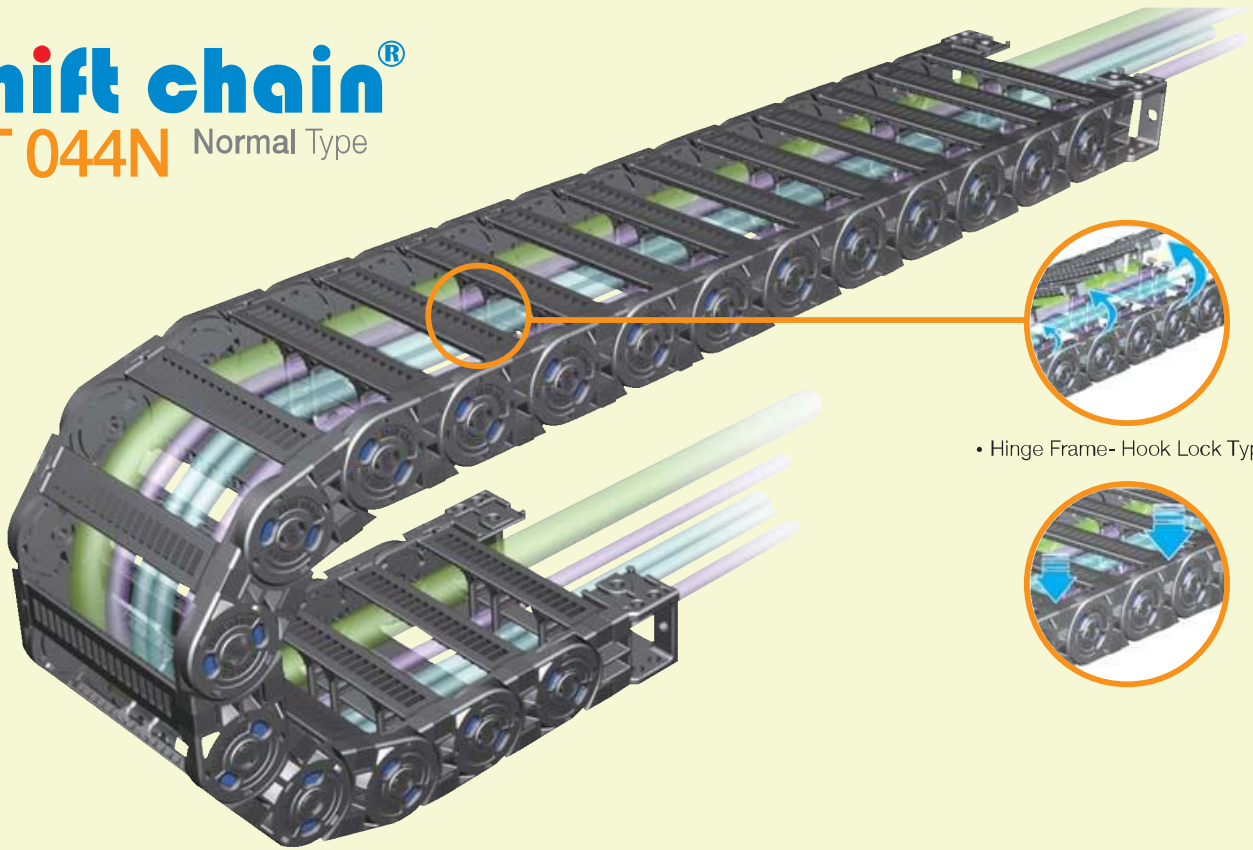
ST095N _ 65p

ST120N _ 69p

ST150N _ 73p

Min ●●●●● Max

Shift chain® ST 044N Normal Type



• Hinge Frame- Hook Lock Type •

SHIFT CHAIN

SAVEN CHAIN

REVOLVING CHAIN

HELIX CHAIN

ROBO-KIT

OPSTILEX

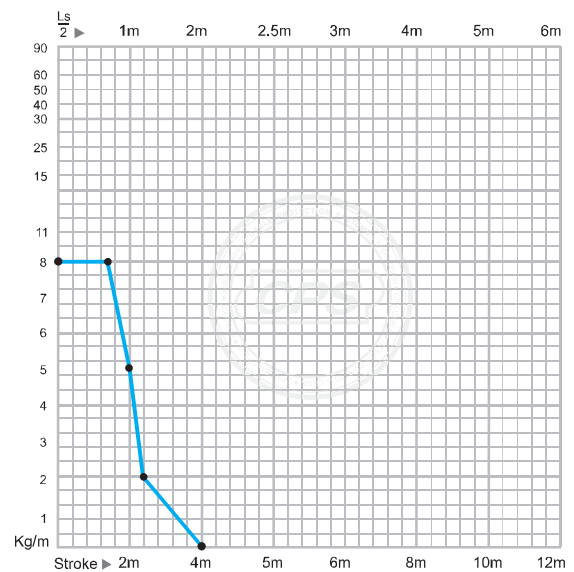
OPSTRIX

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.
컨츄리 로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지 등 케이 블체인이 적용사업장에 사용가능.
- **Calculation of the chain length**

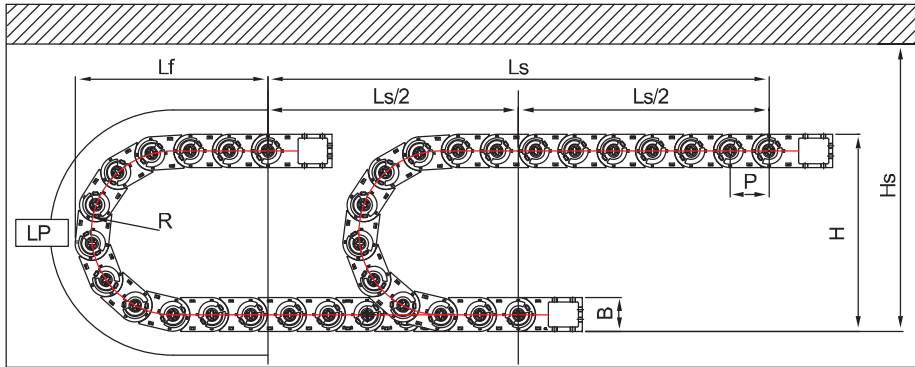
$$\left[L = \frac{Ls}{2} + Lp \right]$$

Load diagrams self-supporting length



ST 044N Normal Type

LAYOUT OF THE CHAIN



(Dimensions in mm)

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

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

ST 044N Type

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

ORDERING (주문방법)

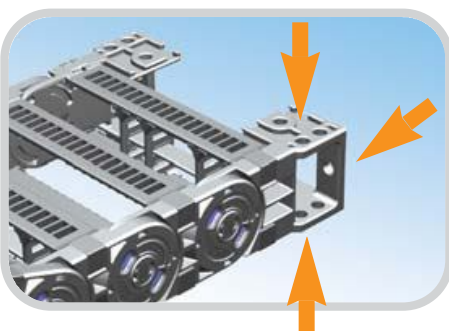
ST 044N. 100. R120 / F - 1500L : 10ST



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

Shift Chain

BRACKET TYPE (브라켓타입)



FEB (Free End Bracket)

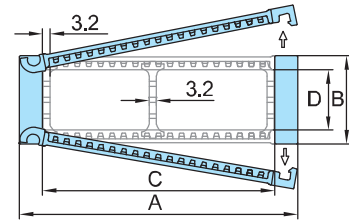
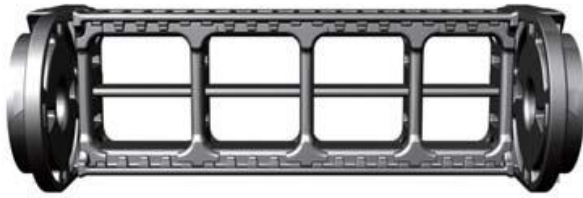
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

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.)

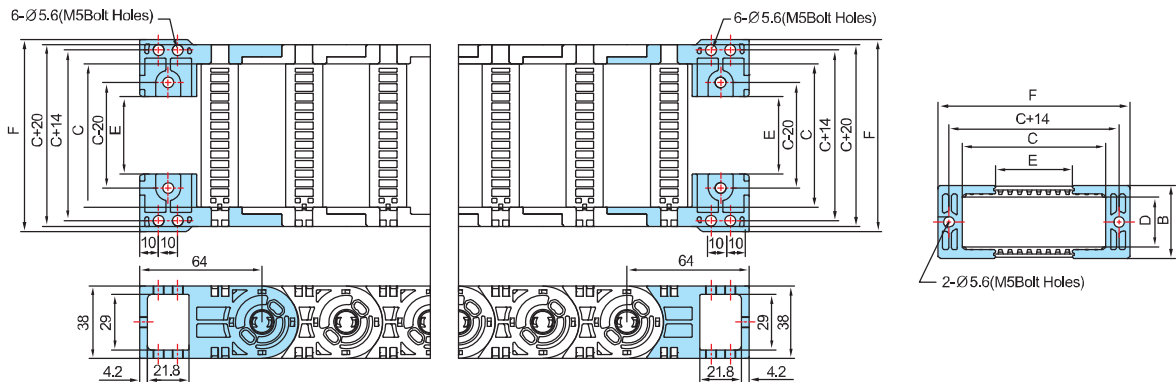
ST 044N Normal Type

CHAIN CROSS SECTION



Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 044N.035	56		35		50, 70, 90, 120, 150	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		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 BRACKET



ST044N Moving point

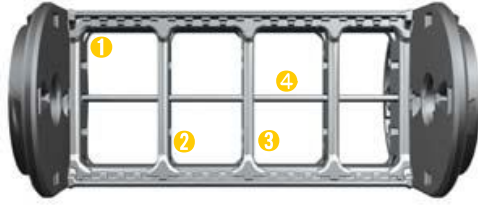
ST044N Fixing point

ST044N Front point

Chain Type	F	B	C	D	E	Hole Type
ST 044N.035	60,4		35		0,4	M5 Bolt Holes
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	
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

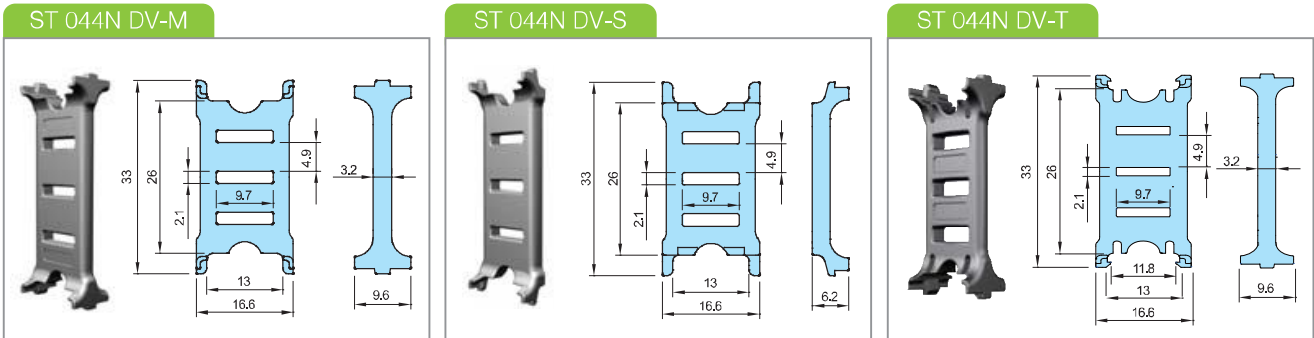


- ① DV-S (축면전용디바이더)
- ② DV-M
- ③ DV-T
- ④ Separator(SP)

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 단선**을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.

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



▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 125~200적용(상하 프레임을 연결)

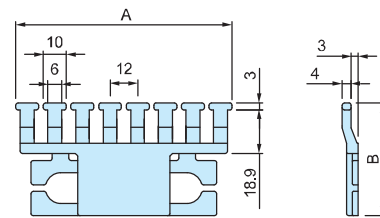
ST044N Separators (SP) (No. : S-SP/M)

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)

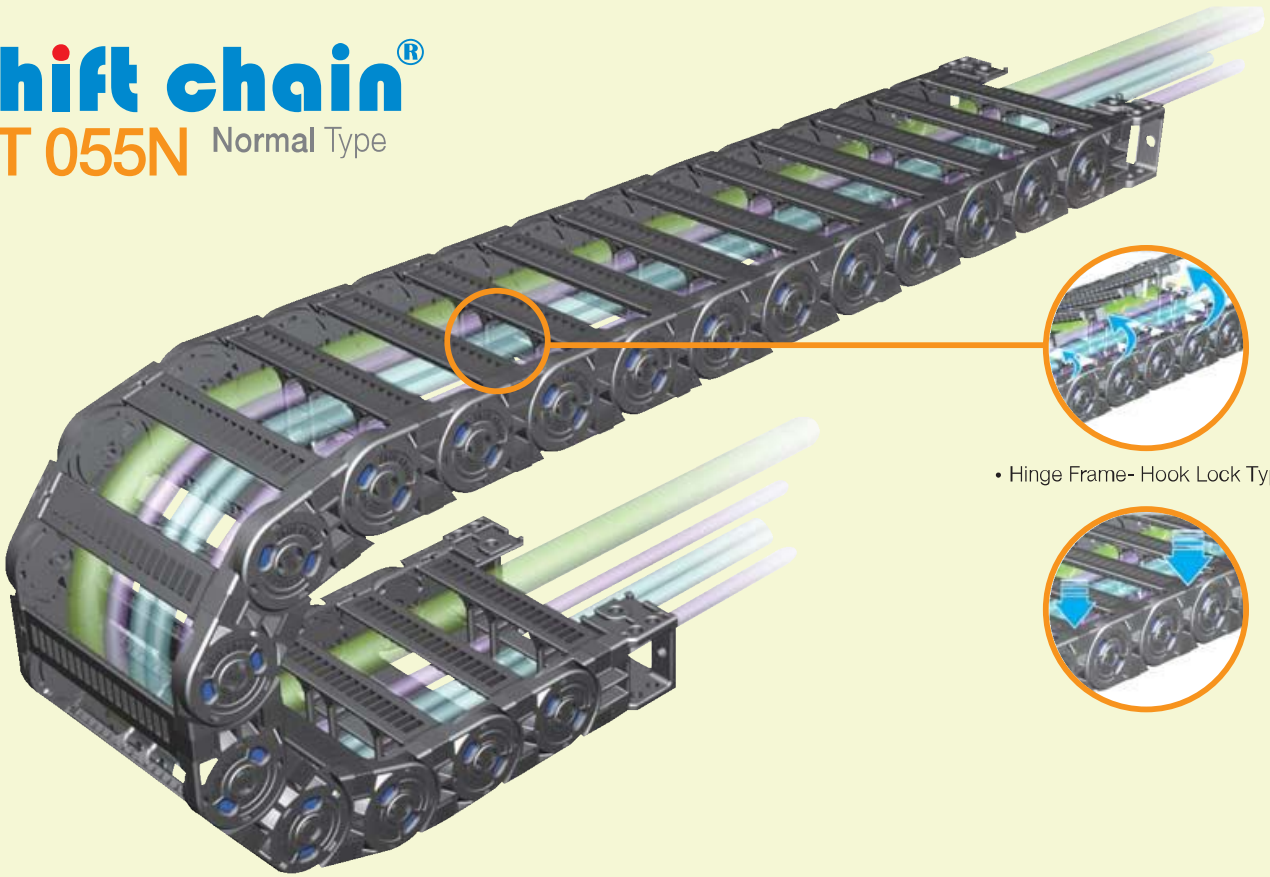
Tie Wrap	035	055	075	100	125
A	46	70	94	118	142
B	35.4	48.9	48.9	48.9	48.9

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 사양으로 구분되어 사용할 수 있다.

Min ●●●●● Max

Shift chain® ST 055N Normal Type



• Hinge Frame- Hook Lock Type •



SHIFT CHAIN

SAVEN CHAIN

REVOLVING CHAIN

HELIX CHAIN

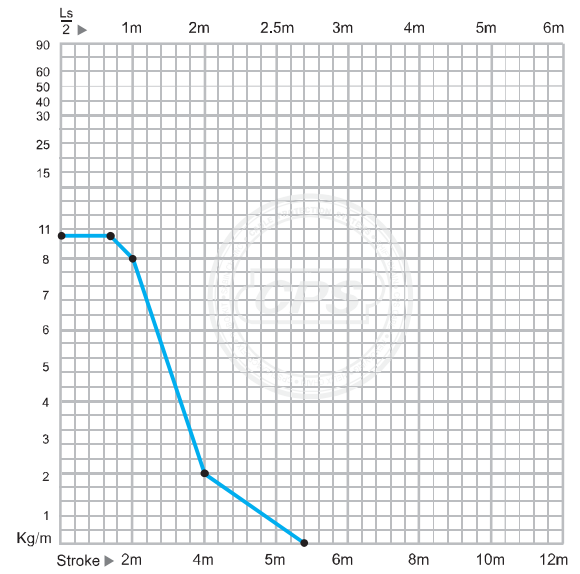
MATERIAL

- **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.
컨츄리로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리리지 등 케이블 체인의 적용사업장에 사용가능.

Calculation of the chain length

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

Load diagrams self-supporting length



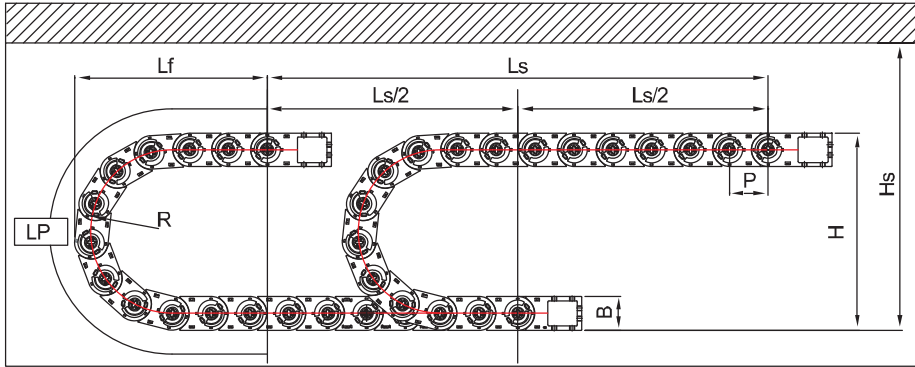
ROBOT-IT

OPSTEX

OPSTEX

ST 055N Normal Type

LAYOUT OF THE CHAIN



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

(Dimensions in mm)

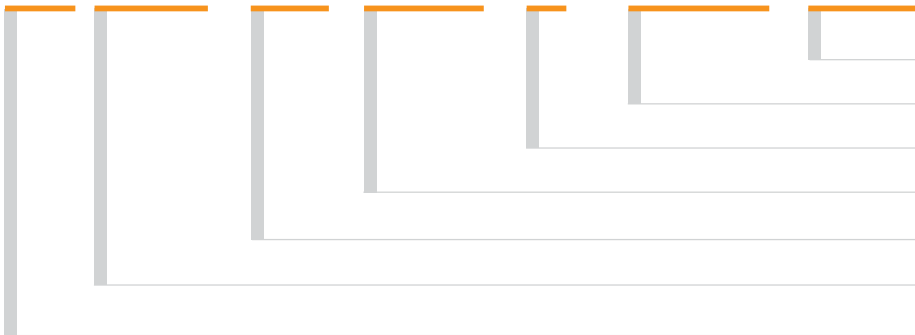
Bending radius R	65	75	100	125	150	200
Lp	424	456	535	613	692	849
L f	201	211	236	261	286	336
H	182	202	252	302	352	452

ST 055N Type

- Pitch P:** 55mm
- Height B:** 52mm
- Height H:** 2R+52mm
- Hs ≥ H+35mm**

ORDERING (주문방법)

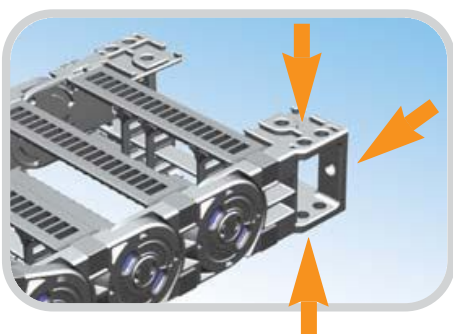
ST 055N. 150. R150 / F - 1800L : 10ST



- 주문수량 Q' ty(set)
- 체인길이 Length(mm)
- 브라켓 Free End Bracket
- 곡률반경 Bending Radius
- 내폭 Inside Width
- 표준형태입 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.

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ST 055N Normal Type

SHIFT CHAIN

SABIN CHAIN

PERCLING CHAIN

ELIX CHAIN

ROBO-KIT

CPS-ELIX

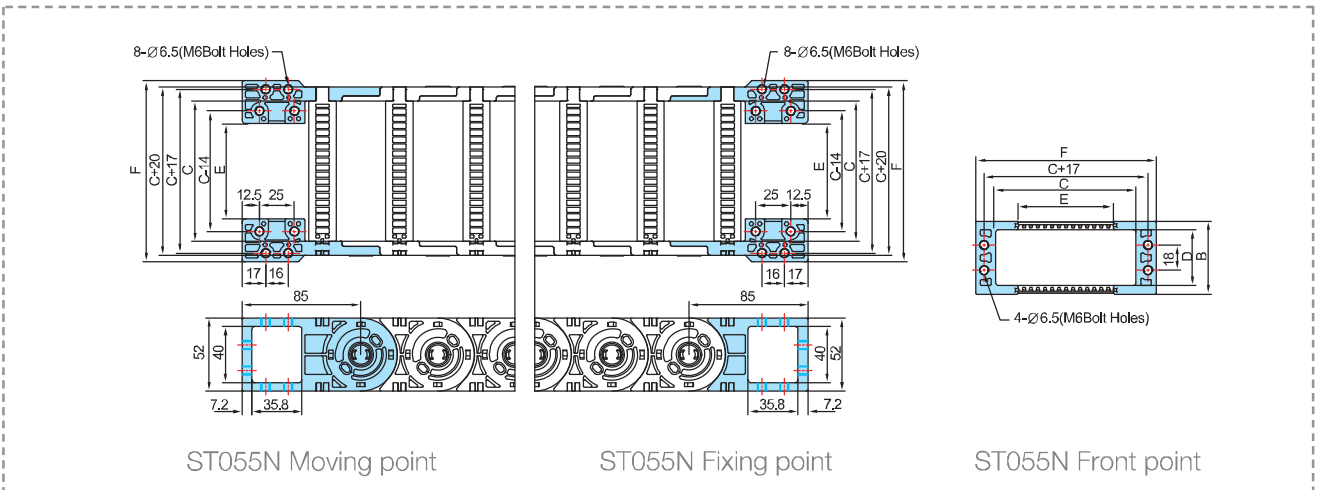
CPS-ELIX

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

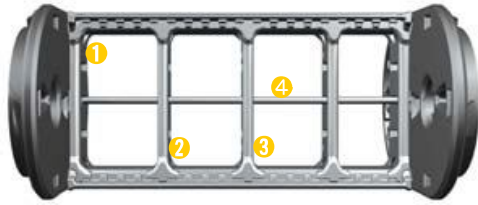
FREE END BRAKET



Chain Type	F	B	C	D	E	Hole Type
ST 055N.035	64		35		3	M6 Bolt Holes
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	
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



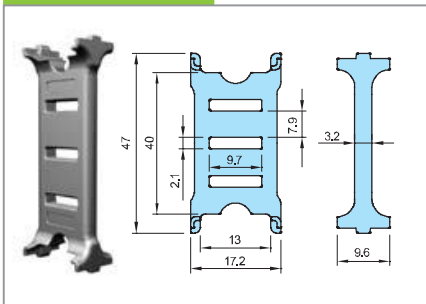
- ① DV-S (측면전용디바이더)
- ② DV-M
- ③ DV-T
- ④ Separator(SP)

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.

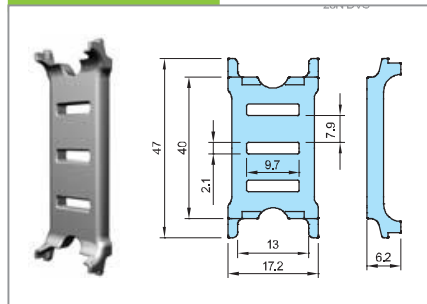
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 **피복손상 및 단선**을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.

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

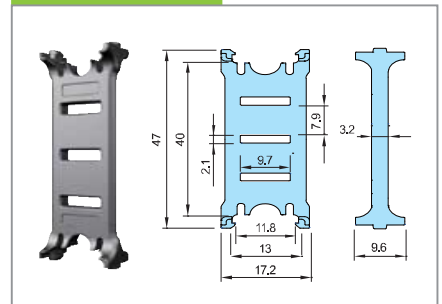
ST 055N DV-M



ST 055N DV-S



ST 055N DV-T



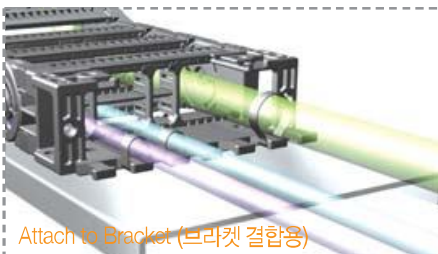
▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 125~200적용(상하 프레임을 연결)

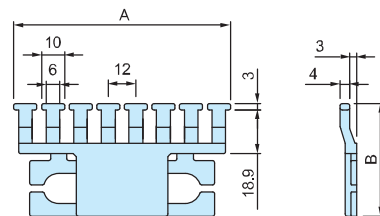
ST044N Separators (SP) (No. : S-SP/M)

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

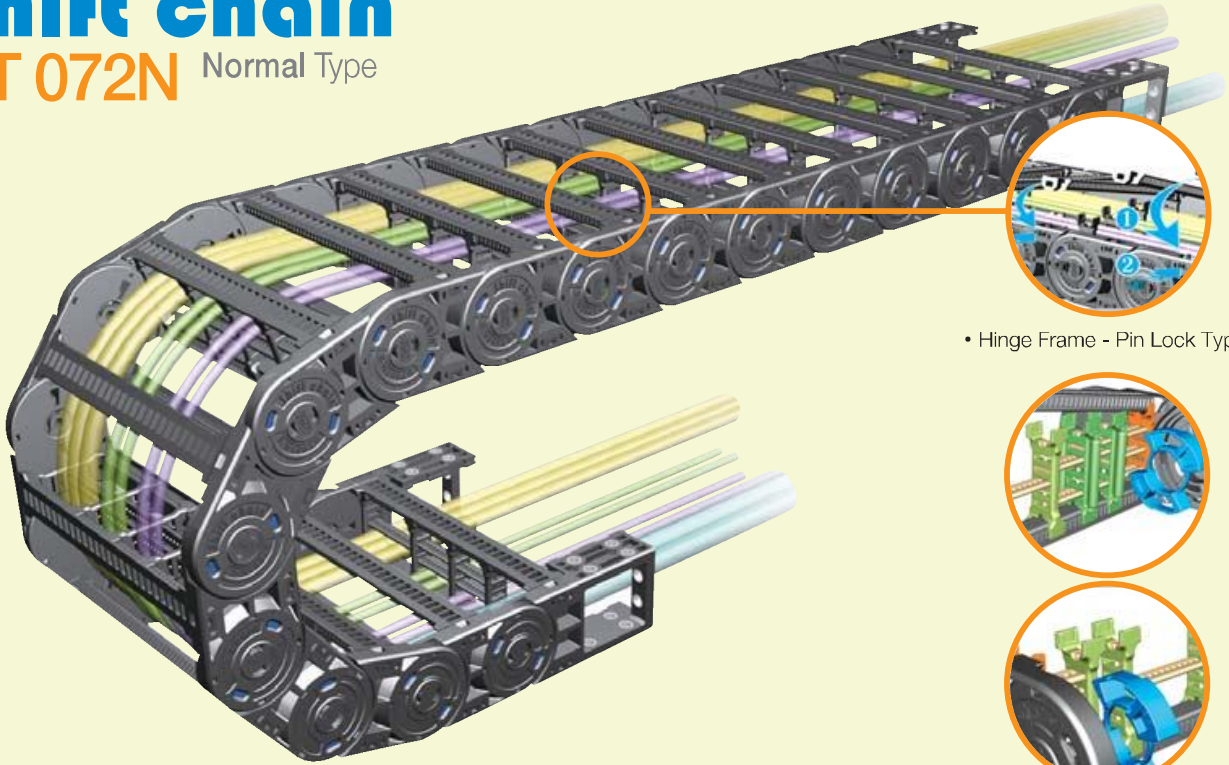
The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation. There are two types in the tie wrap; Attached & Unattached to the bracket.

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 사양으로 구분되어 사용할 수 있다.

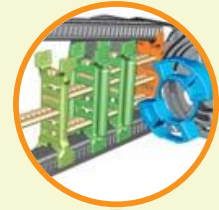
When using the tie wrap option for the Shift Chain ST 055 series, the corresponding frame sizes will be 50, 75, 100, 125, 150, 175 and 200mm respectively. ST 055N, 제품은 삽입형 Tie Wrap을 사용하며 적용되는 Frame은 50, 75, 100, 125, 150, 175, 200 입니다.

Min ●●●●● Max

Shift chain[®] ST 072N Normal Type



• Hinge Frame - Pin Lock Type •



• Shift chain - 내부구조 •

SHIFT CHAIN

SAVEN CHAIN

RECYCLING CHAIN

ELIX CHAIN

ROBO-KIT

CPS-ELIX

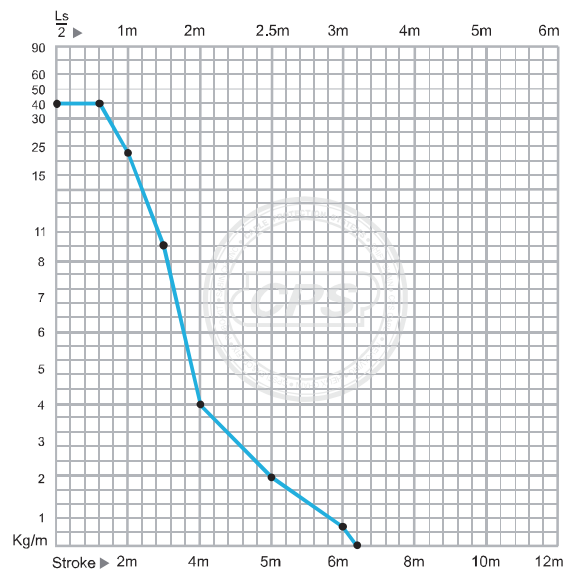
CPS-ELIX

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.
컨츄리 로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지 등 케이블 체인의 적용사업장에 사용가능.
- **Calculation of the chain length**

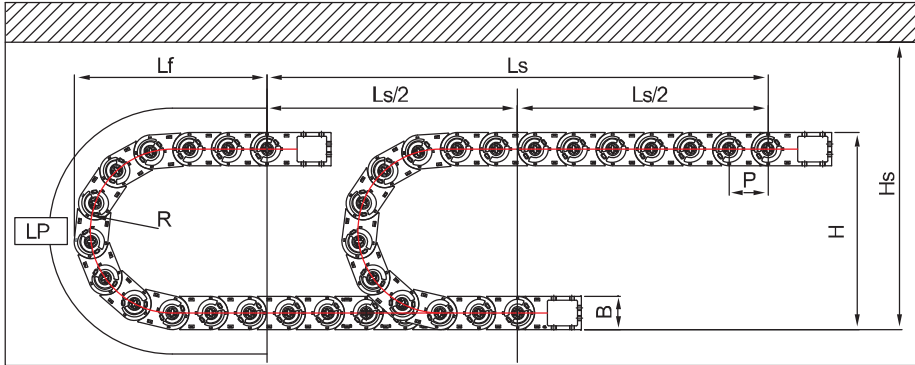
$$\left[L = \frac{L_s}{2} + L_p \right]$$

Load diagrams self-supporting length



ST 072N Normal Type

LAYOUT OF THE CHAIN



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

(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

ST 072N Type

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

ORDERING (주문방법)

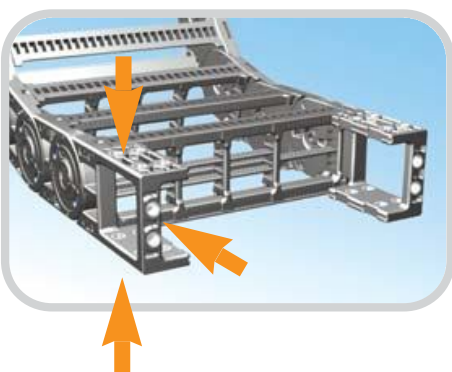
ST 072N. 175. R200 / F - 2000L : 10ST



- 주문수량 Q' ty(set)
- 체인길이 Length(mm)
- 브라켓 Free End Bracket
- 곡률반경 Bending Radius
- 내폭 Inside Width
- 표준형태입 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

SHIFT CHAIN

SABIN CHAIN

RENOLING CHAIN

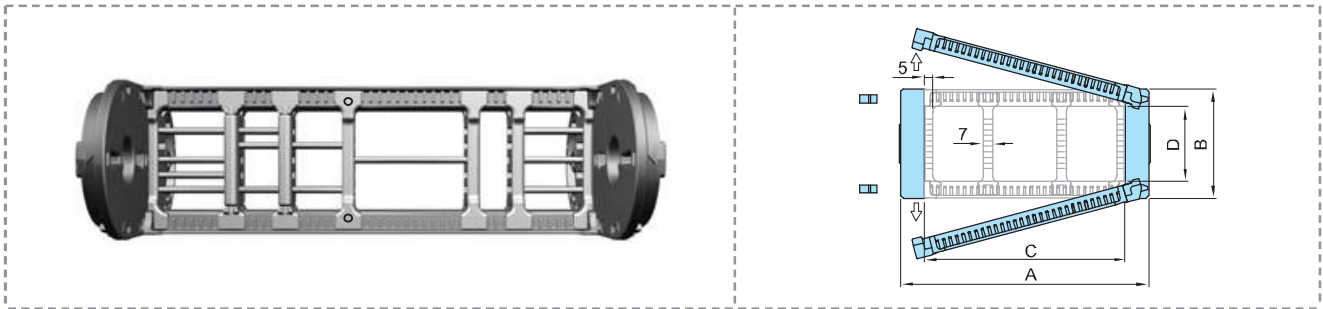
ELIX CHAIN

ROBO-KIT

CPS-ELIX

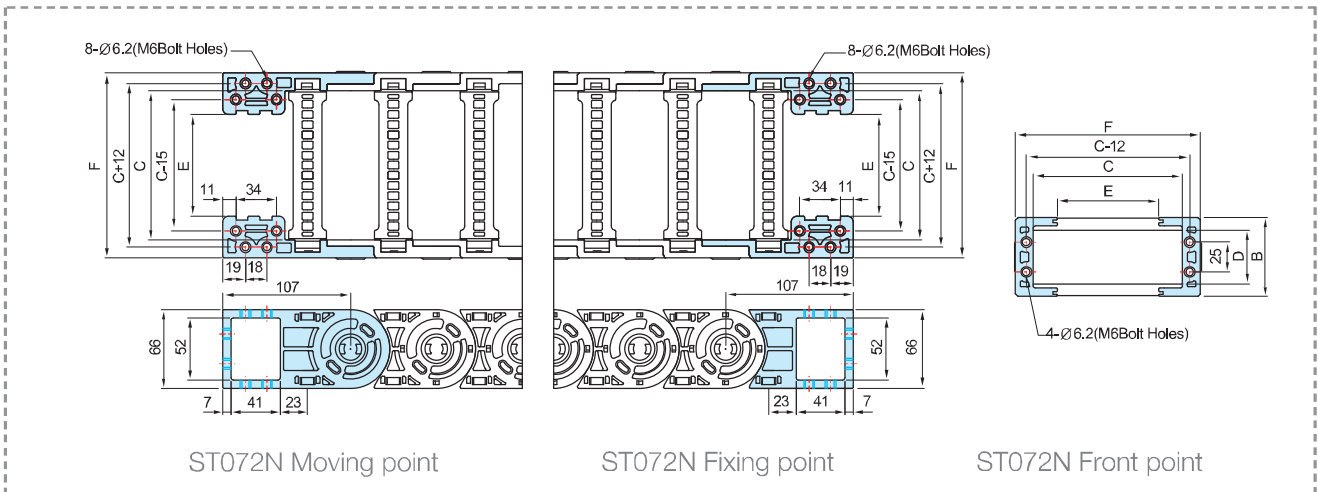
CPS-ELIX

CHAIN CROSS SECTION



Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 072N.050	82		50		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	66	150	45		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

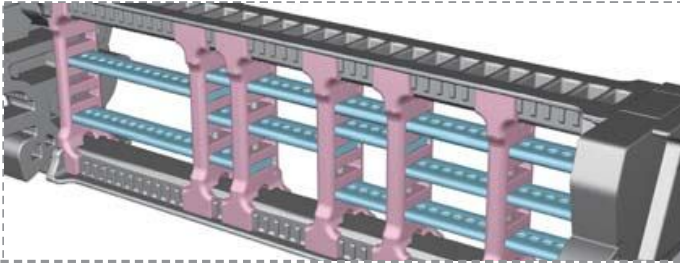
FREE END BRAKET



Chain Type	F	B	C	D	E	Hole Type
ST 072N.050	82		50		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	66	150	45	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

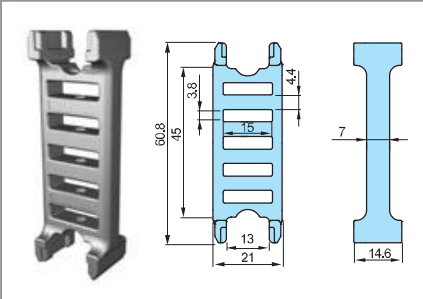
DIVIDERS



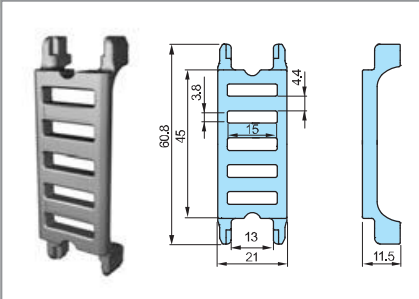
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the 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 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.

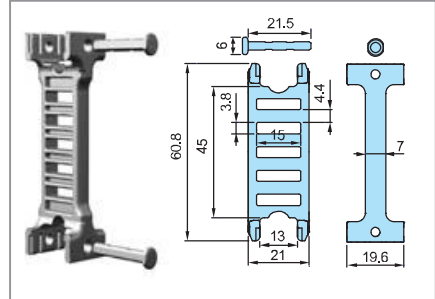
ST072N DV-M



ST072N DV-S



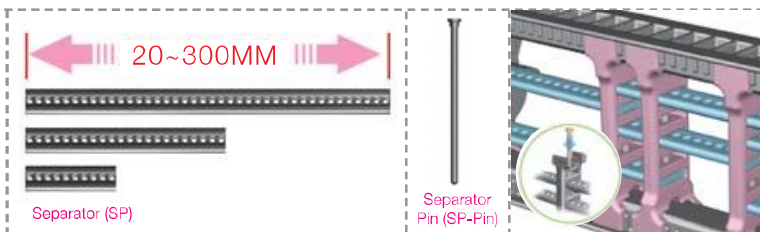
ST072N DV-T



▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 200~300적용(상하 프레임을 연결)

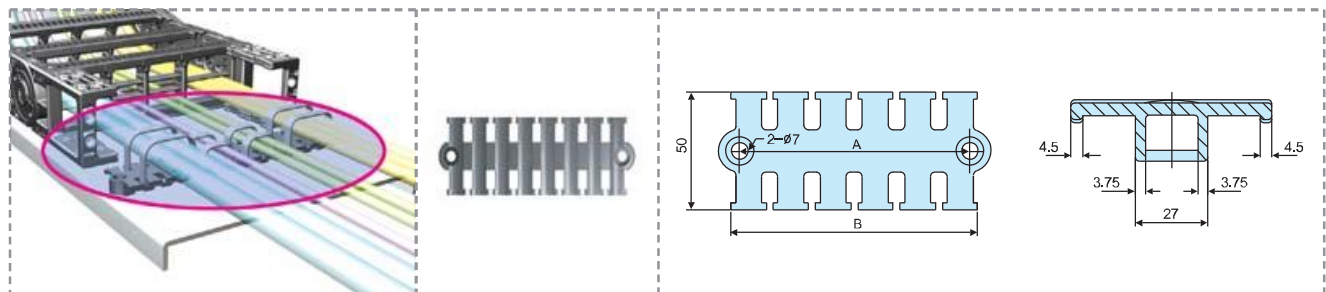
SEPARATORS (SP)



Separator 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)

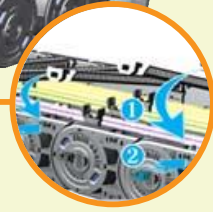
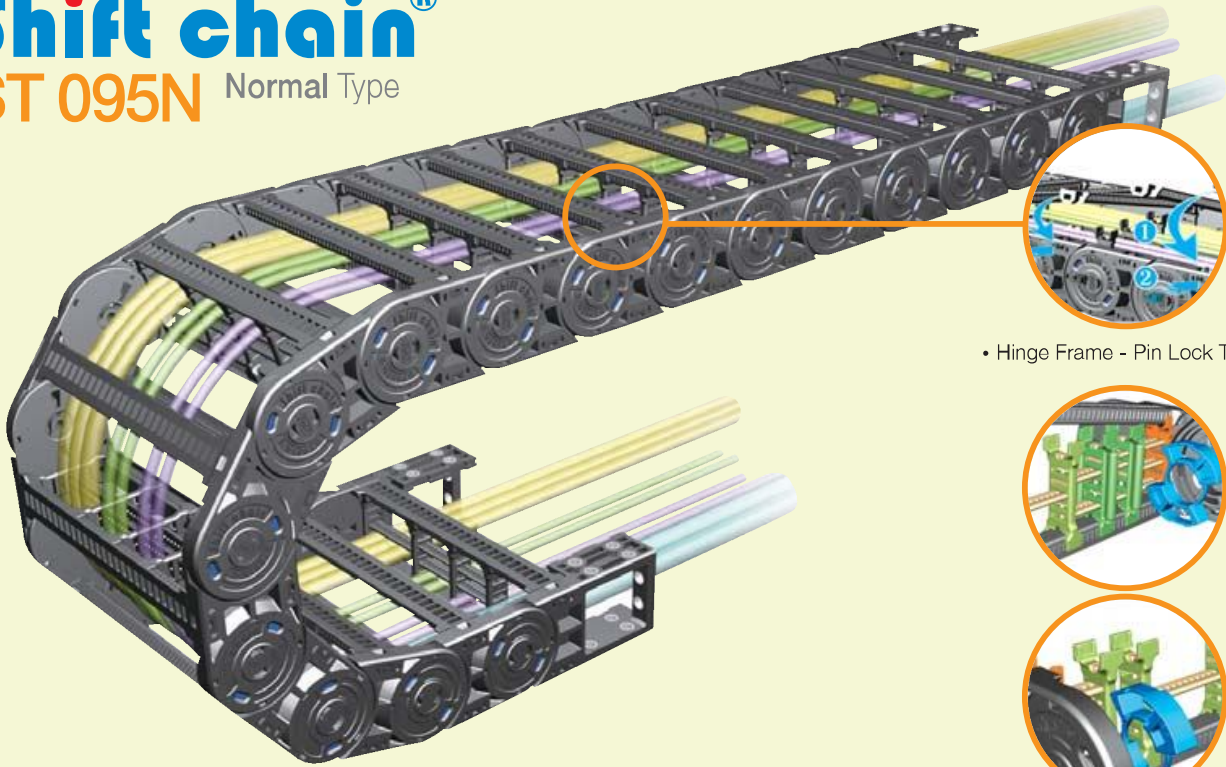
The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

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

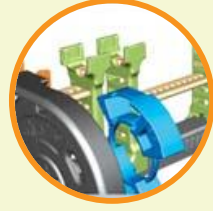
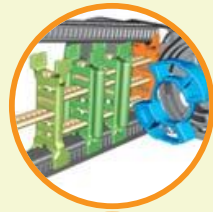
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

Min ●●●●● Max

Shift chain® ST 095N Normal Type



• Hinge Frame - Pin Lock Type •



• Shift chain - 내부구조 •

SHIFT CHAIN

SAVEN CHAIN

REVOLVING CHAIN

HELIX CHAIN

ROBOT-IT

OPSTILEX

OPSTIX

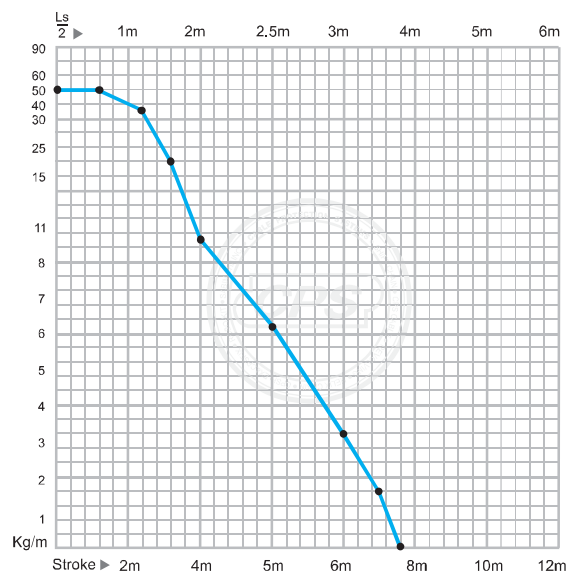
MATERIAL

- **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.
겐츨리로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지등 케이블 체인의 적용사업장에 사용가능.

Calculation of the chain length

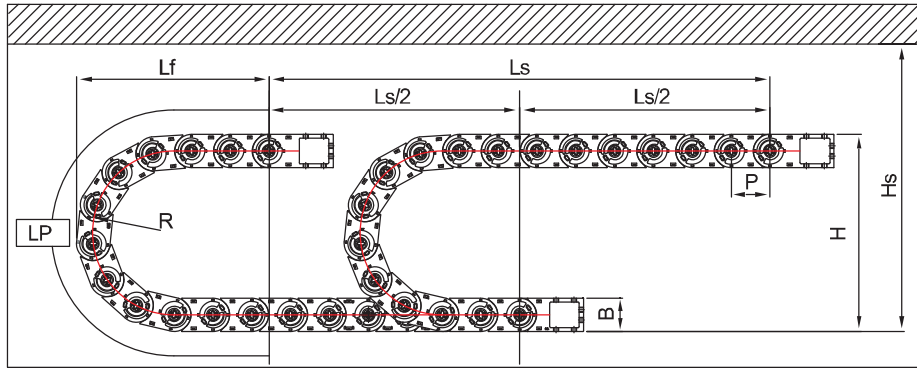
$$\left[L = \frac{Ls}{2} + Lp \right]$$

Load diagrams self-supporting length



ST 095N Normal Type

LAYOUT OF THE CHAIN



(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

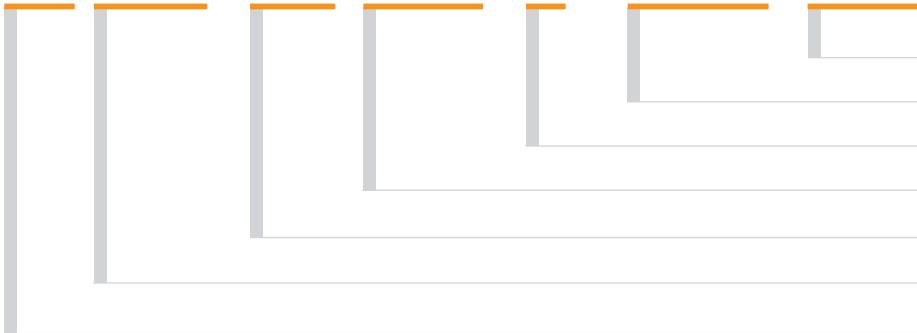
- Ls:** Stroke
- Lp:** Loop Length
- L f:** Loop Projection
- Hs:** Safe Space

ST 095N Type

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

ORDERING (주문방법)

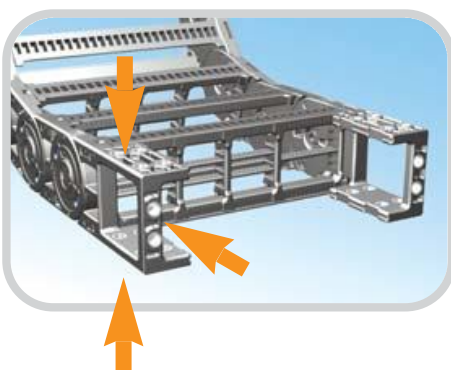
ST 095N. 200. R230 / F - 2500L : 10ST



- 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)

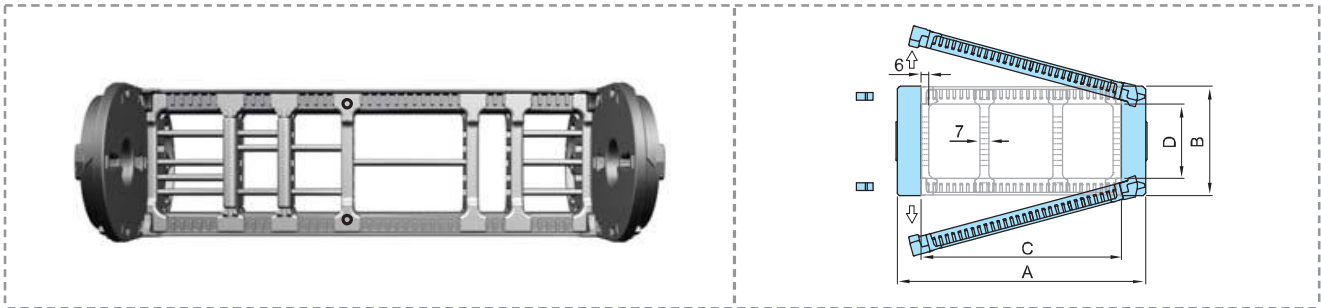
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel spacers are inserted into the fixing holes of each Free End Bracket.

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.)

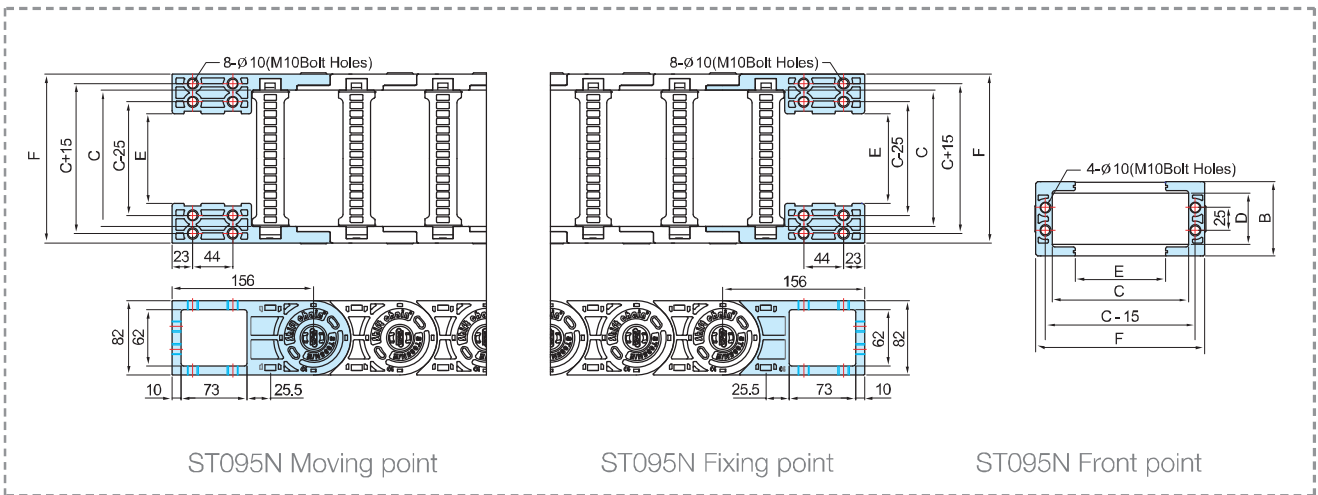
ST 095N Normal Type

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 BRACKET



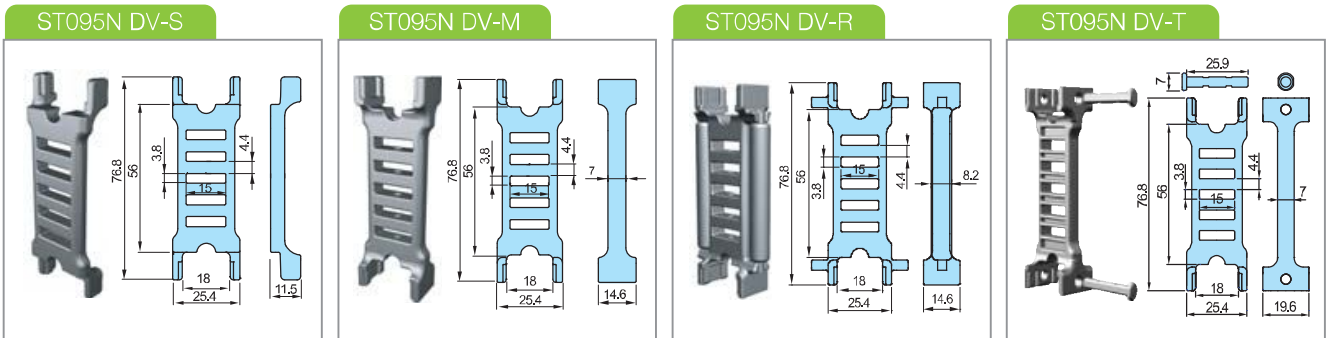
Chain Type	F	B	C	D	E	Hole Type
ST 095N.075	113	82	75	56	24	M10 Bolt Holes
ST 095N.100	138		100		49	
ST 095N.125	163		125		74	
ST 095N.150	188		150		99	
ST 095N.175	213		175		124	
ST 095N.200	238		200		149	
ST 095N.250	288		250		199	
ST 095N.300	338		300		249	
ST 095N.350	388		350		299	
ST 095N.400	438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

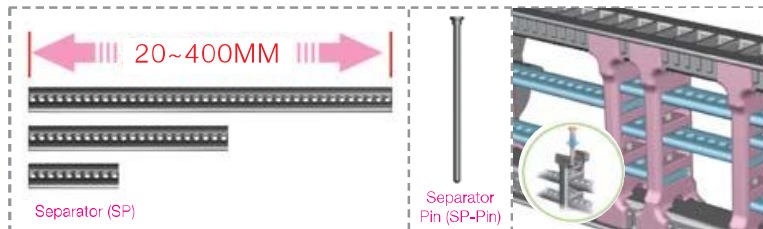
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 **피복손상 및 단선**을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야 합니다. 또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용하여 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.



▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 250~400적용(상하 프레임 연결)

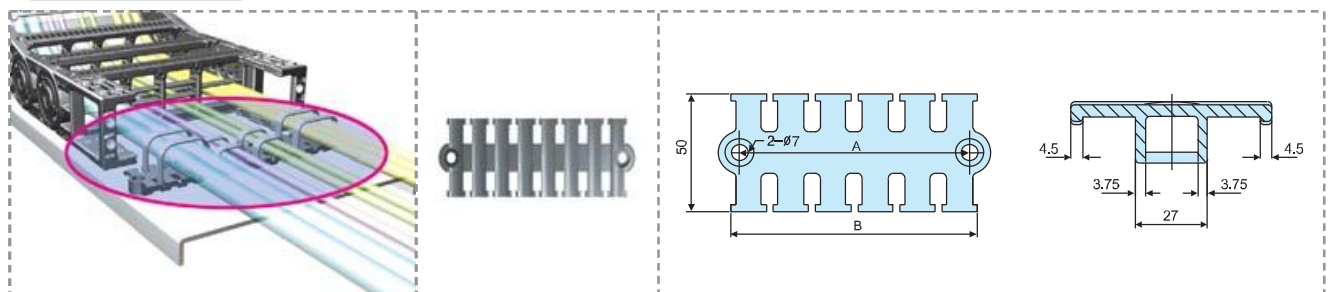
SEPARATORS (SP)



Separator is available in length from 20mm to 400mm and can be cut every 5mm for use. The combined use of divider and 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 케이블을 크기에 맞게끔 공간분할이 용이하고 세퍼레이터 핀으로 결합하여 어떠한 경우에도 안전하게 케이블의 입선공간을 유지하여 안전하게 케이블을 보호할 수 있습니다.

TIE WRAP



(Dimensions in mm)

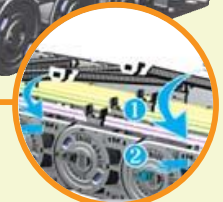
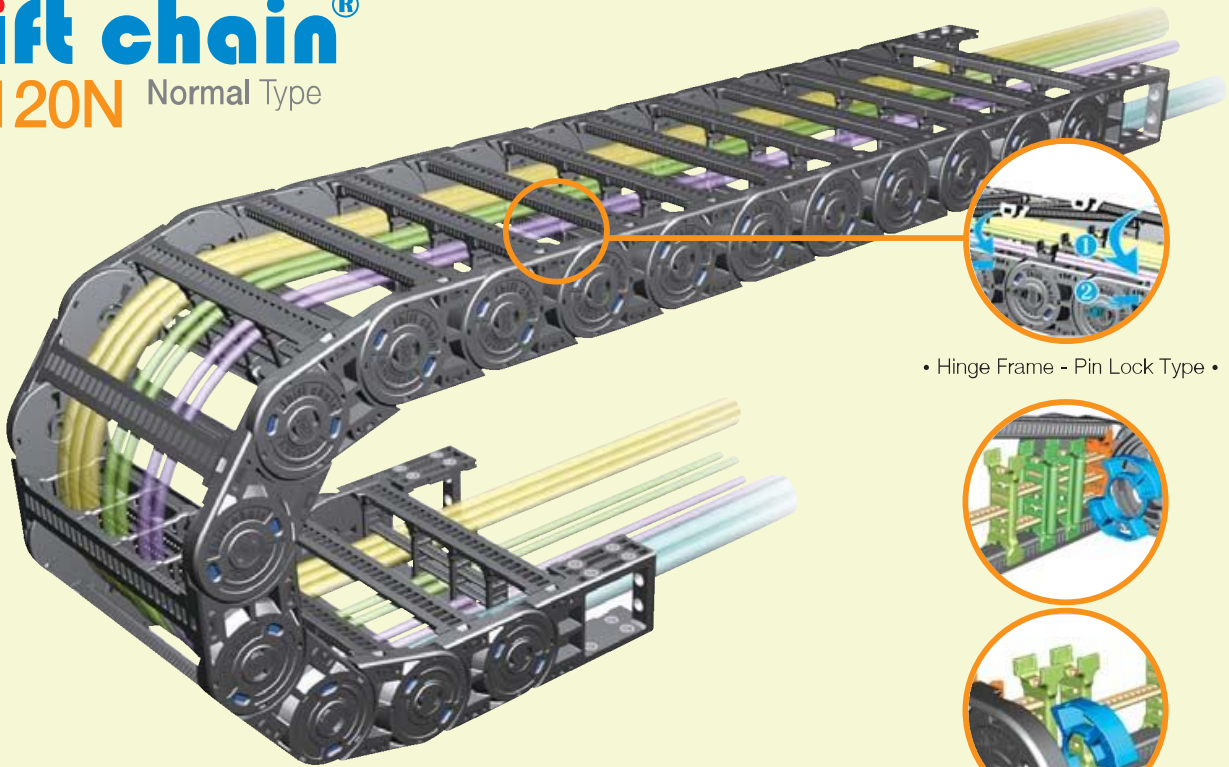
The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

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

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 •

SHIFT CHAIN

SAVEN CHAIN

REVOLVING CHAIN

HELIX CHAIN

ROBO-KIT

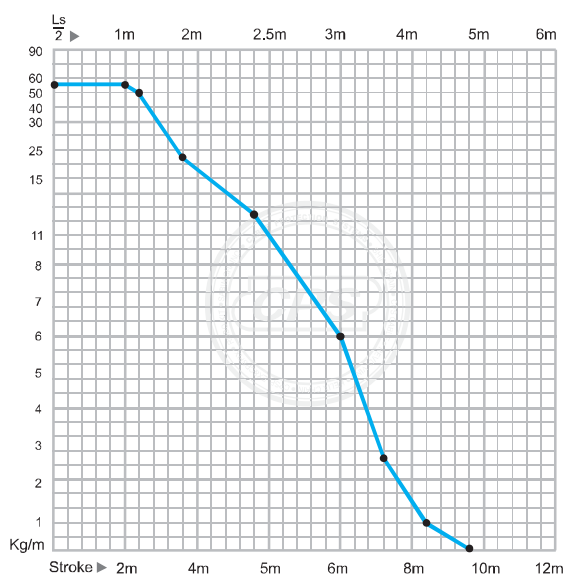
OPSTILEX

OPSRUX

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.
컨츄리로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지등 케이를 체인의 적용사업장에 사용가능.

Load diagrams self-supporting length

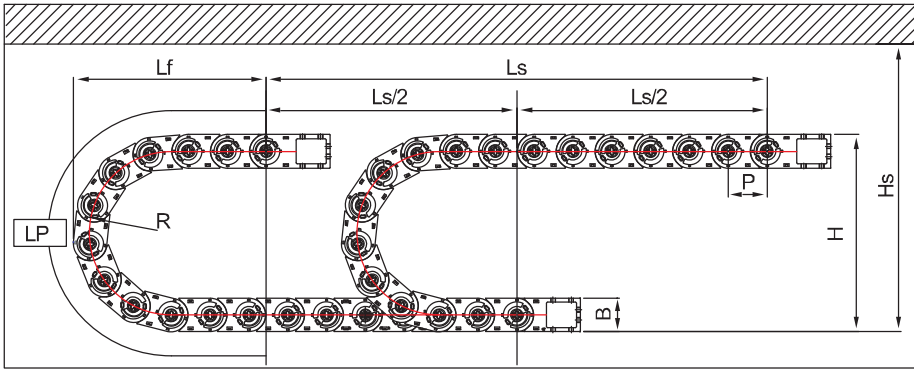


Calculation of the chain length

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

ST 120N Normal Type

LAYOUT OF THE CHAIN



(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

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

ST 120N Type

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

ORDERING (주문방법)

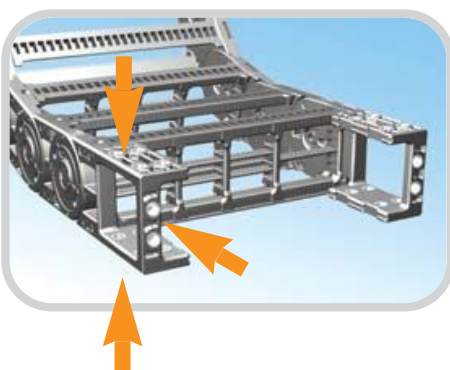
ST 120N. 400. R300 / F - 3000L : 10ST



- 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)

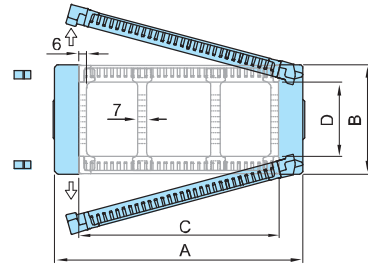
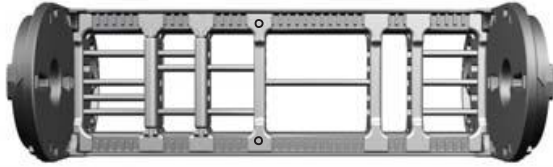
FEB Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket. For added strength, steel spacers are inserted into the fixing holes of each Free End Bracket.

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.

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

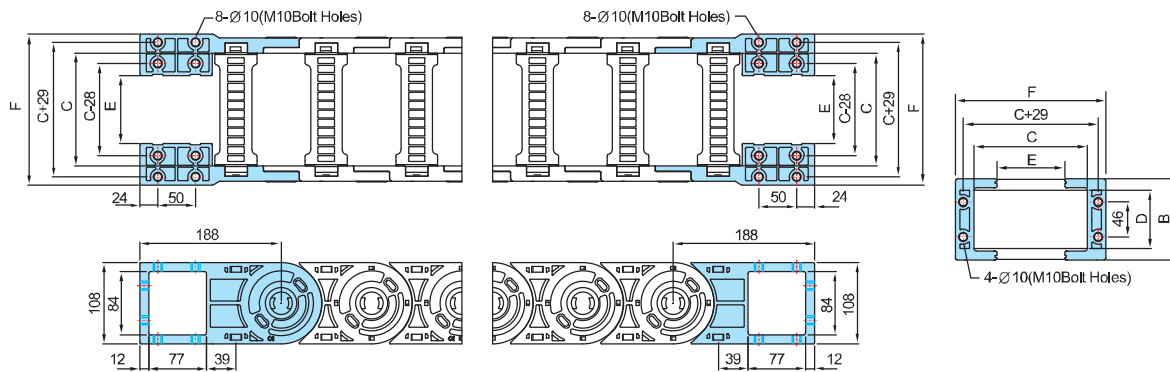
ST 120N Normal Type

CHAIN CROSS SECTION



Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 120N.075	117	108	75	78	180, 200, 250, 300, 350, 400, 500	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		250			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

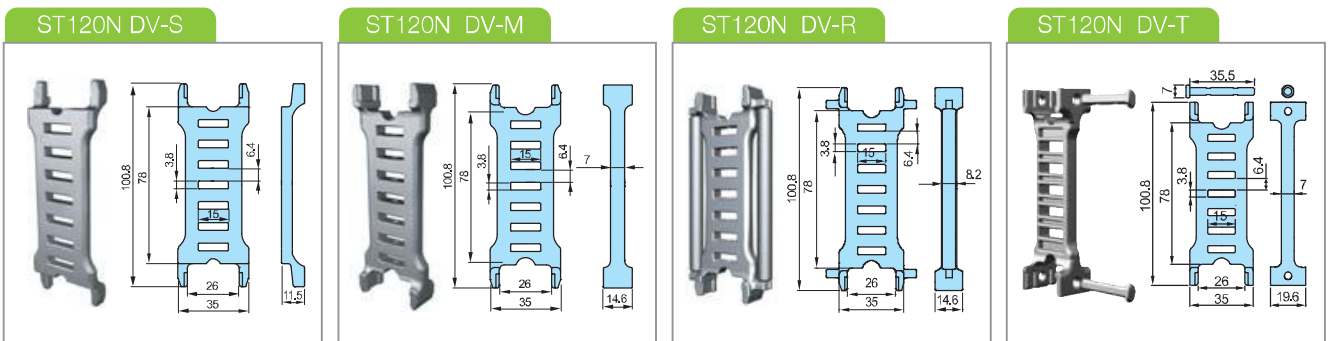
Chain Type	F	B	C	D	E	Hole Type
ST 120N.075	125	108	75	78	15	M10 Bolt Holes
ST 120N.100	150		100		40	
ST 120N.125	175		125		65	
ST 120N.150	200		150		90	
ST 120N.175	225		175		115	
ST 120N.200	250		200		140	
ST 120N.250	300		250		190	
ST 120N.300	350		300		240	
ST 120N.350	400		350		290	
ST 120N.400	450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

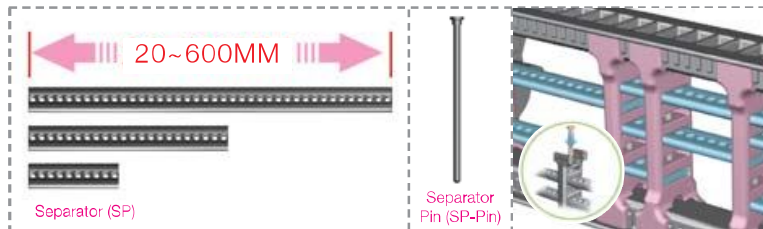
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 **피복손상 및 단선**을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야 합니다. 또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용하여 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.



▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 300~600적용(상하 프레임용 연결)

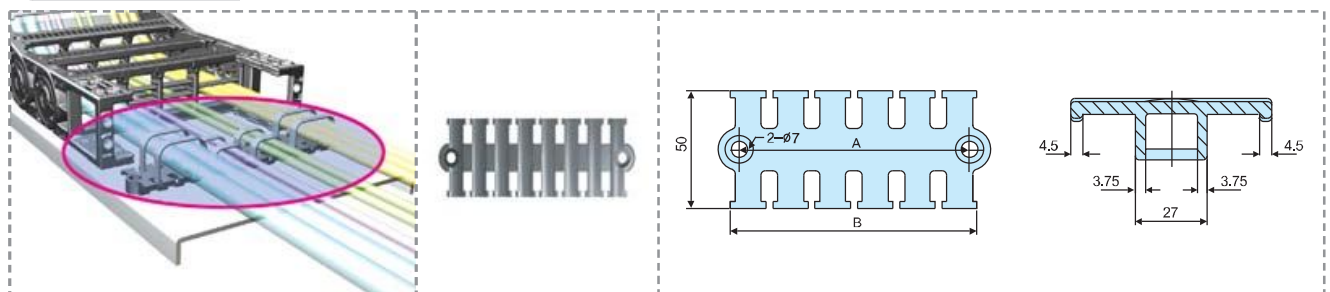
SEPARATORS (SP)



Separator is available in length from 20mm to 600mm and can be cut every 5mm for use. The combined use of divider and 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)

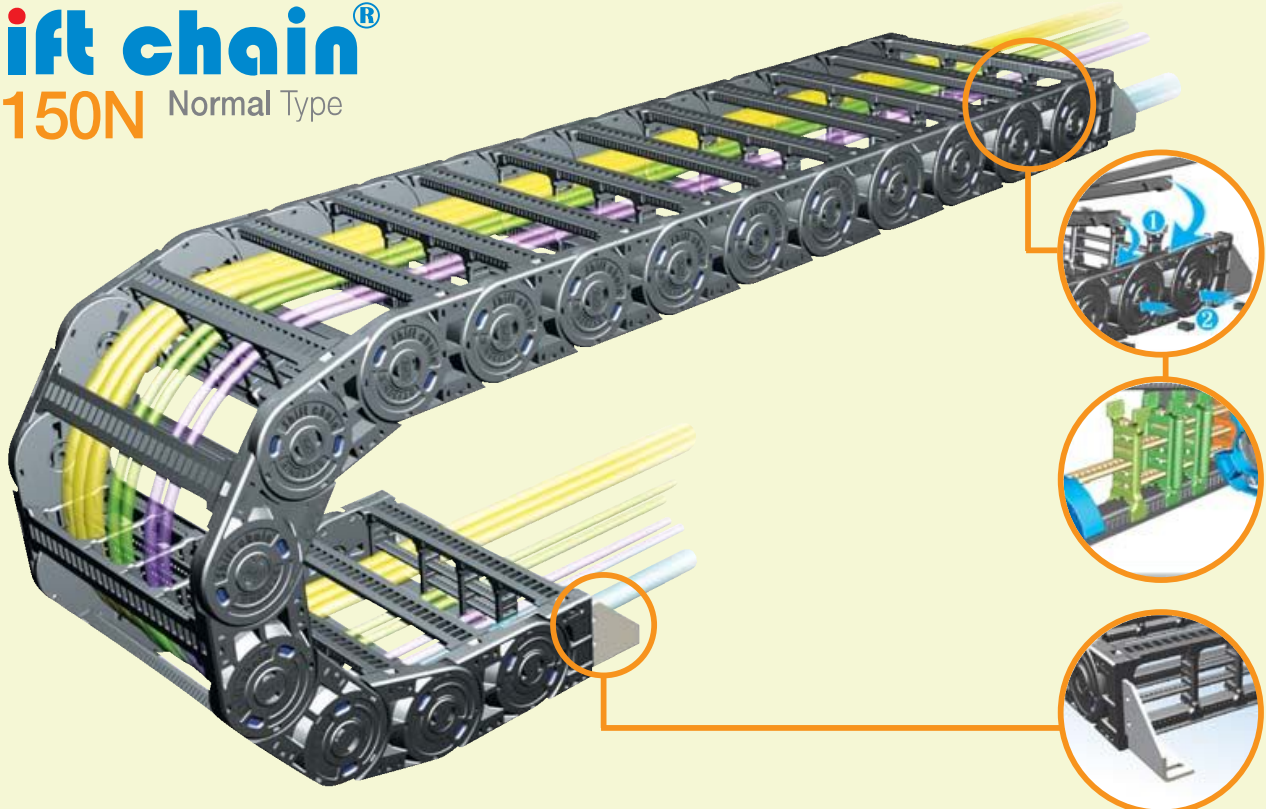
The Tie Wrap separated from the Shift Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

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

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 •

SHIFT CHAIN

SAVEN CHAIN

REVOLVING CHAIN

HELIX CHAIN

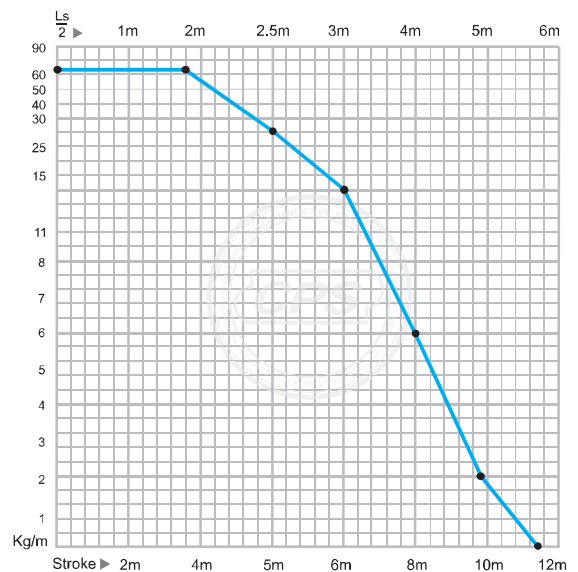
MATERIAL

- **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.
겐츨리로봇, 공작기계, 용접기계, 인쇄기계, 로봇케리지등 케이블 체인의 적용사업장에 사용가능.

● Calculation of the chain length

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

● Load diagrams self-supporting length



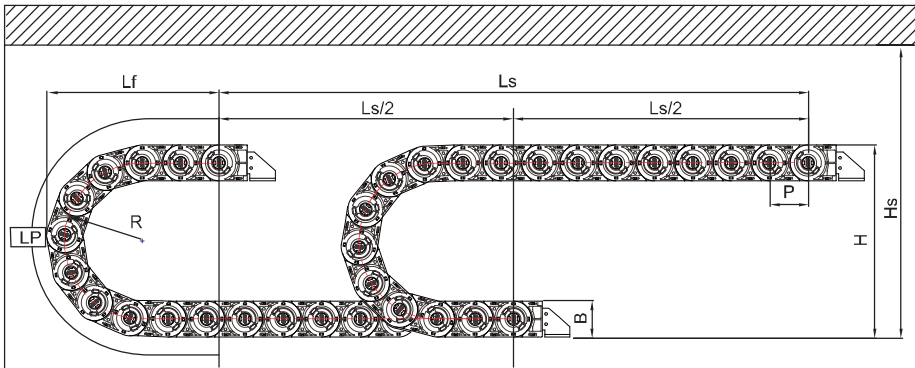
ROBOT-IT

OP-STEELX

OP-STEELX

ST 150N Normal Type

LAY OUT OF THE CHAIN



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

(Dimensions in mm)

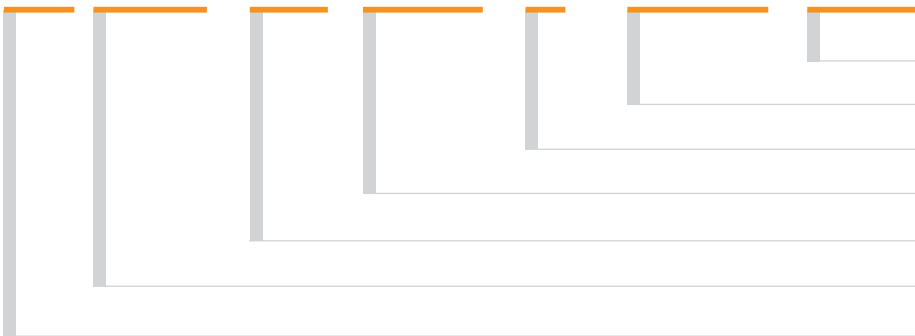
Bending radius R	205	305	405	505	605
Lp	1,215	1,510	1,807	2,106	2,405
Lf	561	651	743	835	928
H	550	750	950	1,150	1,350

ST 150N Type

- Pitch P:** 150mm
- Height B:** 140mm
- Height H:** 2R+140mm
- Hs** ≥ H+80mm

ORDERING (주문방법)

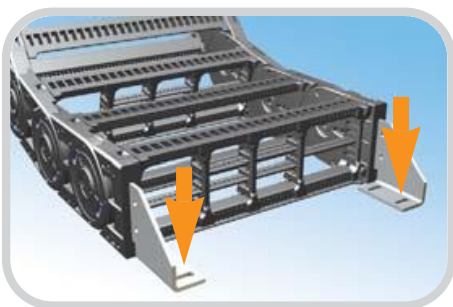
ST 150N. 400. R405 / B₁- 3000L :10ST



- 주문수량 Q' ty(set)
- 체인길이 Length(mm)
- 브라켓 End Bracket (B1, B2, B3)
- 곡률반경 Bending Radius
- 내폭 Inside Width
- 표준형태입 Normal Type

Shift Chain

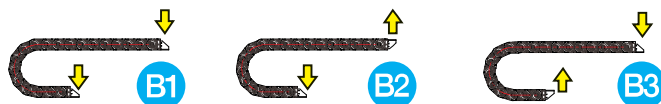
BRACKET TYPE (브라켓타입)



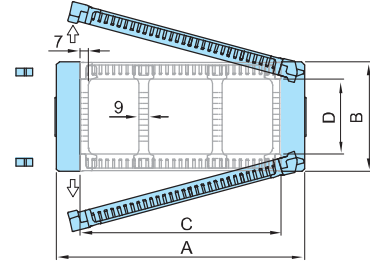
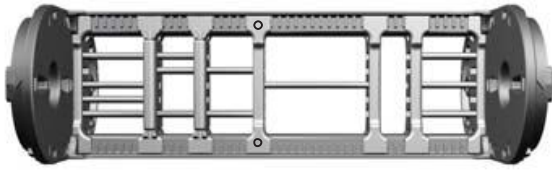
SEB (Steel End Bracket)

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 구분설치가 가능하다.

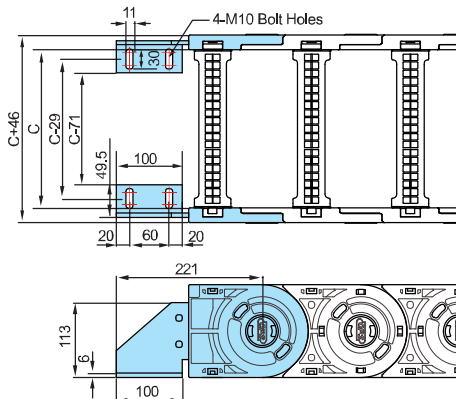


CHAIN CROSS SECTION

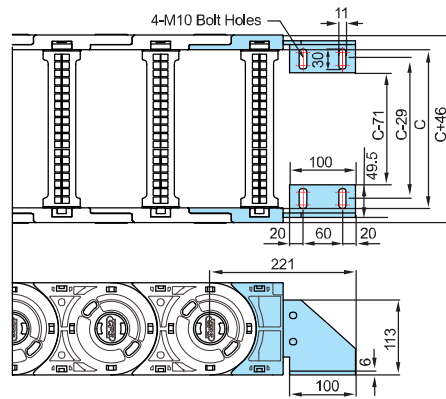


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
ST 150N.075	121	140	75	110	205, 305, 405, 505, 605	5.85
ST 150N.100	146		100			5.96
ST 150N.125	171		125			6.08
ST 150N.150	196		150			6.18
ST 150N.175	221		175			6.30
ST 150N.200	246		200			6.51
ST 150N.250	296		250			6.78
ST 150N.300	346		300			7.14
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

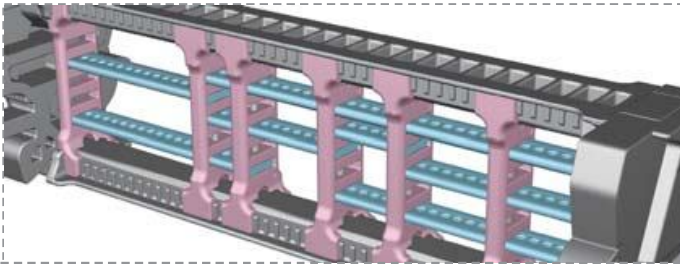


ST150N Fixing point

Chain Type	B	C	D	E	Hole Type
ST 150N.075	140	75	110	110	M10 Bolt Holes
ST 150N.100		100			
ST 150N.125		125			
ST 150N.150		150			
ST 150N.175		175			
ST 150N.200		200			
ST 150N.250		250			
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

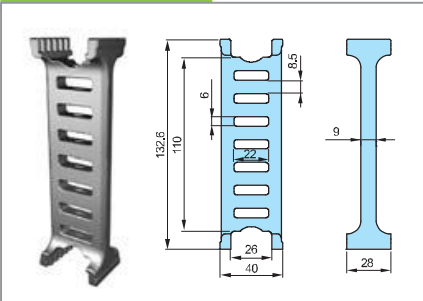
DIVIDERS



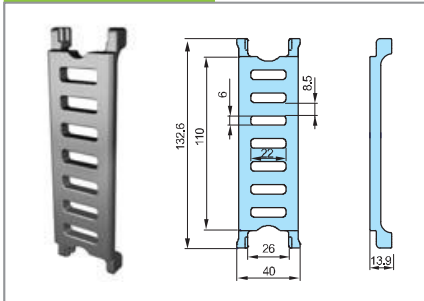
Dividers (Vertical) and Separators (Horizontal) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separated from each other. The use of separator in some cases, can also reduce the width requirements as two or more levels can be made within the 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 단선**을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다. 또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지과 피복손상을 방지할 수 있습니다.

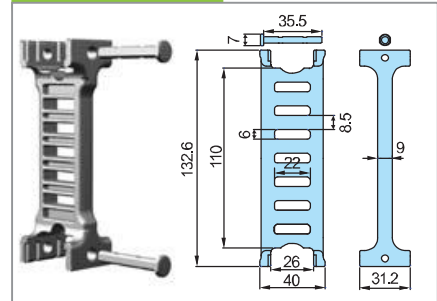
ST150N DV-M



ST150N DV-S



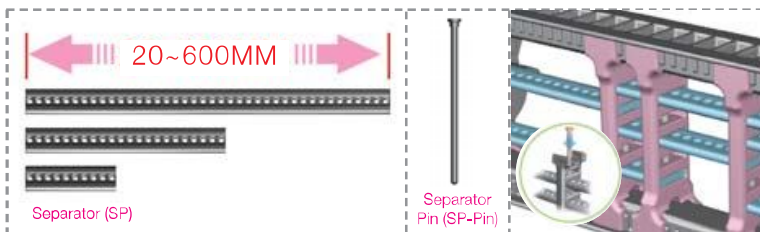
ST150N DV-T



▶ Assemble divider every Two links. / 2링크마다 결합

▶ DV/T : Frame 300~600적용(상하 프레임을 연결)

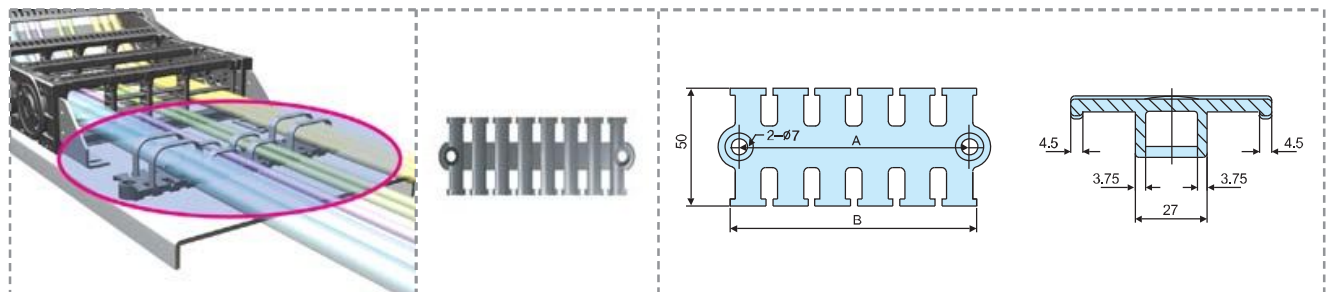
SEPARATORS (SP)



Separator 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)

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 시스템**으로 케이블의 피복손상 및 단선을 방지하는 역할을 합니다.

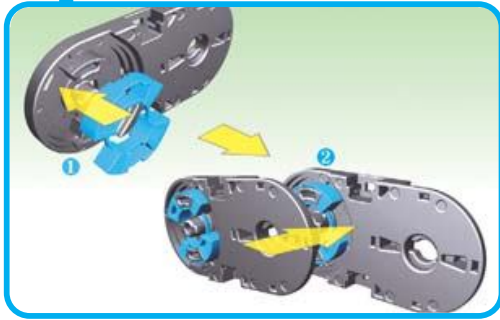
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

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, 055N Type과 072N, 095N, 120N Type 그리고 150N Type 등 제품사양에 따라 조립구성이 달라지는점을 유의하며 조립하시기 바랍니다.

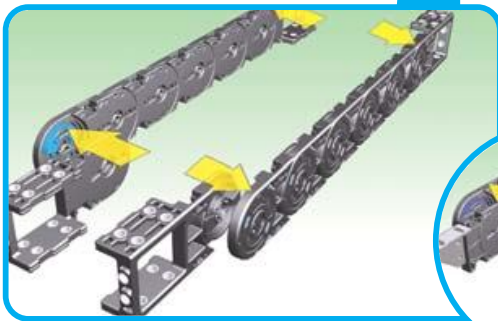
1



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(1)하고 BR링이 삽입된 사이드밴드를 원하는 길이만큼 연결(2), 좌,우 사이드밴드 동일하게 연결.

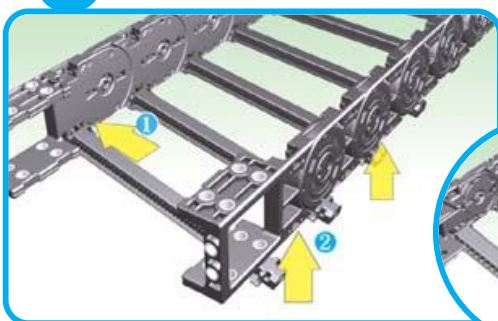
2



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.

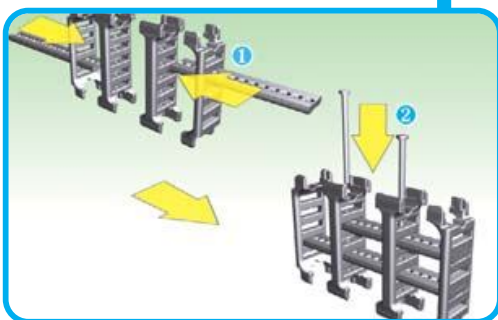
3



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

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

4

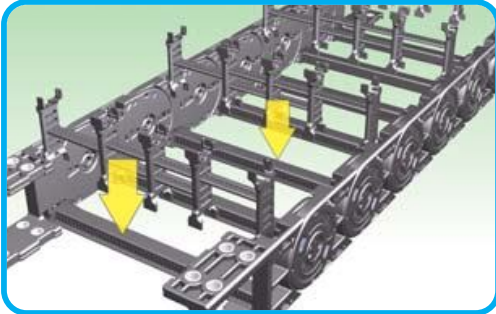


For ST072N, 095N, 120N, and 150N, connect the pin of separator in hole of divider after inserting separator in hole of divider. For ST044N and ST055N, separator fixing pins are not used.

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.

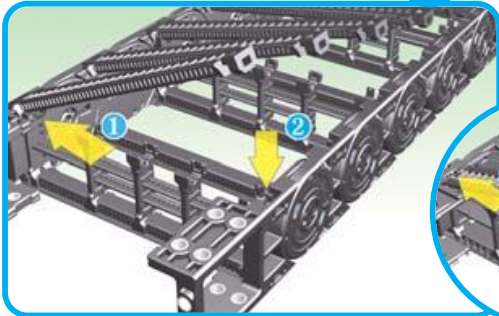
ASSEMBLY PROCEDURE / NORMAL Type

5

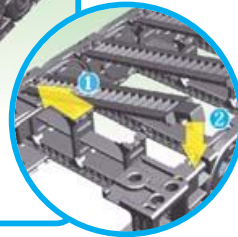


- Fix the separator and divider patterns to the bottom-side frames as needed.
세퍼레이터가 결합된 디바이더를 하측프레임에 결합.

6

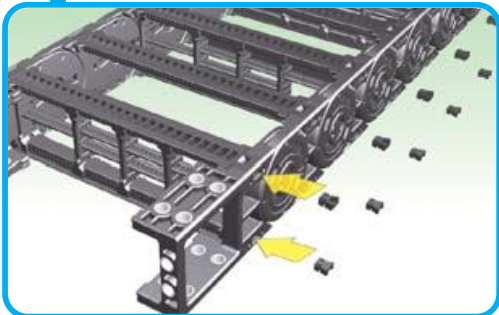


- Attach frames to one side groove on the side band, and then the other side.
프레임을 사이드밴드 측면 홈에 끼우고(1) 다른측면의 사이드밴드홈에 결합(2).



- 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.