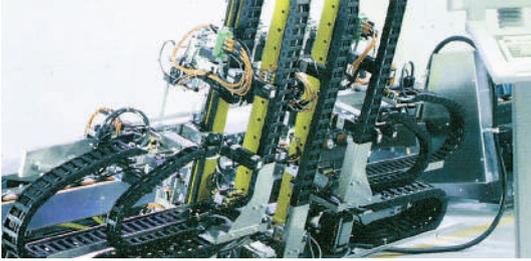


# Hanshin RoboChain®

로보체인은 일정거리의 왕복 반복운동을 요하는 장치를 위한 유공압, 전원 및 콘트롤을 위한 전기배선 호스를 굴절, 습기, 진동, 먼지 등으로 부터 보호 유지하여 주는 안전장치입니다.

*RoboChains are designed to move predefined lengths in order to maximize protection of cables and hoses that provide electricity, pneumatic pressure and so forth for prolonged durability and use.*



## HSP TYPE

- 자동화 기계, 산업용로봇 등에 적용됩니다.

*Applicable for automation systems, in wood work, food processing and industrial robot related industries.*



## HSPNC, HSC TYPE

- 용접ROBOT, 자동화기계, 공작기계 등 고속 Cable Hose의 보호에 적용 됩니다.

*Designed for cables and hoses in soldering robots, automated machines and milling machines in high speed movement.*



## HSSP TYPE

- 자동차 생산설비, 공작기계 및 장거리 설비에 적용됩니다.

*Suitable for industries that require long stroke applications such as the automobile industry and the machining center.*



## HSS TYPE

- 제철·제강설비, 운반기계, 공작기계 및 모든 기계에 적용됩니다.

*Applicable for most industrial machines to include iron and steel mill, conveying machine, and machining center.*

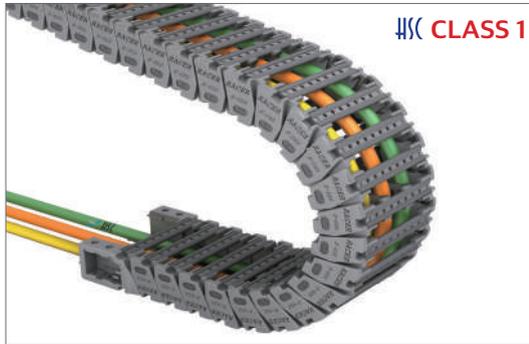


## RoboFlex TYPE

- 공작기계, 용접 ROBOT, 자동화기계, 철도차량, 조선 등

*Applicable for machine building, welding Robot, Automation system, Traction, etc.*

# For Clean room



## Racer Plus TYPE

- CLEAN ROOM, 반도체, 전자, 디스플레이 장비, 2차전지, 정밀스테이지 및 자동화 설비

*Applicable for Clean Room, Semiconductor, Electronics, Display Machinery, Secondary Battery, Precision Stage, etc.*



## HST-PAD TYPE

- CLEAN ROOM, 반도체, 전자, 디스플레이 장비, 2차전지, 정밀스테이지 및 자동화 설비

*Applicable for Clean Room, Semiconductor, Electronics, Display Machinery, Secondary Battery, Precision Stage, etc.*



## HSR TYPE

- CLEAN ROOM, 반도체, 전자, 디스플레이 장비, 2차전지, 정밀스테이지 및 자동화 설비

*Applicable for Clean Room, Semiconductor, Electronics, Display Machinery, Secondary Battery, Precision Stage, etc.*



## HST-RAIL TYPE

- CLEAN ROOM, 반도체, 전자, 디스플레이 장비, 2차전지, 정밀스테이지 및 자동화 설비

*Applicable for Clean Room, Semiconductor, Electronics, Display Machinery, Secondary Battery, Precision Stage, etc.*

## STEP 1

# 선정에 필요한 기초자료

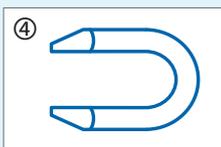
User Data Gathering

다음과 같은 기초자료가 형식을 결정하기전에 필요한 자료입니다.

Following data should be gathered prior to decide a proper type.

- ① 기계의 이동거리  
Stroke S (m)
- ② 기계의 이동속도  
Velocity V (m/min)
- ③ 케이블·호스의 외경과 수량  
Outer diameter and number of lines  $\phi d \times n$
- ④ 케이블·호스의 합계중량  
Total Weight W (kg/m)
- ⑤ 허용곡률반경  
Radius R (mm)
- ⑥ 기계의 작동회수  
Number of Operation F (Times/Day)
- ⑦ 주위 환경온도  
Temperature  $^{\circ}C$
- ⑧ 주위 조건  
Clean Room 용적률(40~50%)

### ▶ Bracket의 연결 Attachment of Bracket



## STEP 2

# 형식의 선정

Choose a Proper Type

### RACER PLUS

CLEAN ROOM



반도체 생산설비, DISPLAY장비, CLEAN ROOM 등 고속·저소음용에 적합합니다.

### HSR Type

CLEAN ROOM



반도체 생산설비, DISPLAY장비, CLEAN ROOM 등 고속·저소음용에 적합합니다.

### ROBOFLEX

CLEAN ROOM



반도체 생산설비, DISPLAY장비, CLEAN ROOM 등 고속·저소음용에 적합합니다.

### HSP Type

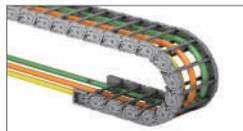
표준품



자동화기계, 목공기계, 식품기계, 산업로봇 등에 적합합니다.

### HSSP Type

플라스틱 장거리 타입



공작기계 및 장거리 설비에 적합합니다.

### HSC Type

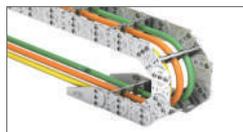
플라스틱 밀폐 타입



공작기계, 용접 ROBOT, 자동차 산업, 철강설비 등에 적합합니다.

### HSS Type

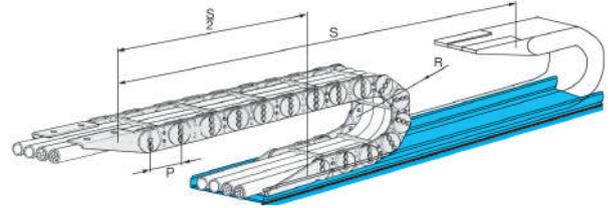
스틸 제품



Cable, Hose가 비교적 적고 가벼운 설비에 적합 합니다.

## 필요 기장 계산

Compute Chain Length



필요한 체인의 길이는 다음의 공식으로 얻을 수 있습니다.

Necessary chain length can be obtained through following equation.

$$L = \frac{S}{2} + \pi R + 2K$$

L : 로보체인 필요 기장 (mm)

Necessary robochain length

S : 이동거리 (mm) Stroke

R : 곡률반경 (mm) Bending Radius

Cable, Hose 허용곡률반경 (r) < Robochain 표준곡률 반경 (R)

**Hose 허용곡률반경 (r) ≥ Hose 외경×9**  
**Cable 허용곡률반경 (r) ≥ Cable 외경×7.5**

P : 체인 Pitch (mm) Chain Pitch

K : 여유기장

\* 타입별 여유기장 상세 페이지 확인

- 세계 최고 등급(CLASS1) 인증
  - 독일 IPA 크린룸 인증기관
- LINKLESS 구조로 10m/s 이상의 고속 주행이 가능합니다.
- 고속주행에도 소음 및 분진이 발생하지 않습니다.
- 기장 연결이 (늘임-줄임) 가능합니다.
- 크린룸 환경의 최적의 상품입니다.

- 세계 최고 등급(CLASS1) 인증
  - 독일 IPA 크린룸 인증기관
- LINKLESS 구조로 10m/s 이상의 고속 주행이 가능합니다.
- 고속주행에도 소음 및 분진이 발생하지 않습니다.
- 기장 조절이 별도의 공구없이 더욱 쉽게 가능합니다.
- 크린룸 환경의 최적의 상품입니다.

- 세계 최고 등급(CLASS1) 인증
  - 독일 IPA 크린룸 인증기관
- LINKLESS 구조로 10m/s 이상의 고속 주행이 가능합니다.
- 고속주행에도 소음 및 분진이 발생하지 않습니다.
- 크린룸 환경의 최적의 상품입니다.

- 본체는 개폐형으로 Cable, Hose의 설치가 쉽습니다.
- 경량이어서 움직임이 원활합니다.
- Divider가 좌우로 움직입니다.

- HS, HSS Type을 경량화시킨 엔지니어링 플라스틱으로 되어 있기 때문에 가벼우며 움직임이 보다 부드럽습니다.
- 간편조작형으로 Cable, Hose의 분해 및 설치가 용이하고 칸막이가 자유롭게 조정됩니다.

- Chip, Slag등 이물질로부터 Cable, Hose를 보호합니다.
- 안쪽 Cover가 개폐형으로 Cable, Hose의 분해 설치가 용이합니다.
- 부분보수가 가능합니다.

- 분해 및 설치가 용이하고 칸막이가 자유롭게 조정됩니다.
- Frame부가 규격화 되어 간편하며 짧은 납기에 좋습니다.
- 불필요한 무게를 줄였습니다.

## ▶ 여유공간

Cable 이나 Hose 삽입 시 사용환경에 따라 허용 용적률에 차이가 있습니다.

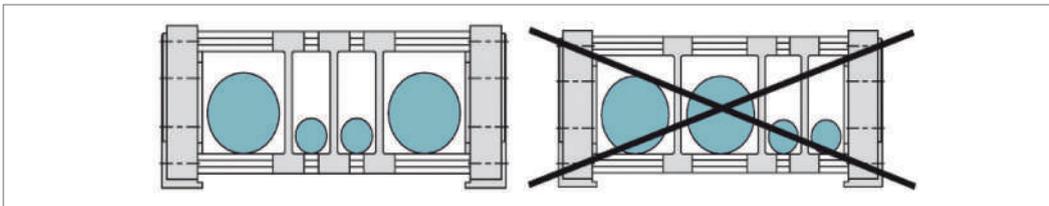
아래 표는 사용환경에 따른 허용 용적률을 보여주고 있으며, 허용치를 초과하여 사용할 경우 Cable 및 Hose의 마찰로 분진이 발생되며 단선발생의 주요 원인이 됩니다.

	CLEAN ROOM	NORMAL
허용 용적률(%)	40~50%	50~60%

## ▶ 중량 밸런스

Cable 및 Hose 삽입 시 직경과 중량을 고려하여 배치하여야 안정적인 주행을 보장할 수 있습니다.

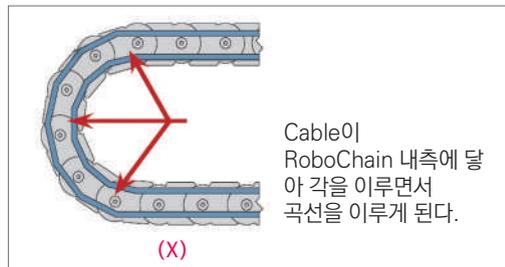
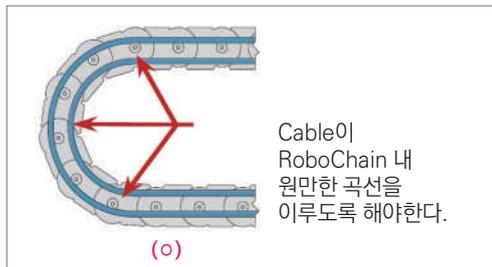
밸런스가 맞지 않을 경우 구동 중 쓸림이 발생하거나, 이탈할 수 있으므로 Cable 포설 전 반드시 확인하여야 합니다.



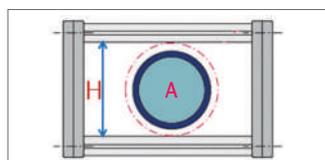
## ▶ 곡률반경

	Cable	Hose
권장 곡률반경(Radius)	외경(Dia) X 7.5	외경(Dia) X 9

아래의 그림을 보면 Cable의 삽입 시 적절한 곡률반경을 선정하여 배치된 사례와 그렇지 않은 사례를 보여주고 있습니다.



## ▶ Cable 및 Hose의 적절한 용적률



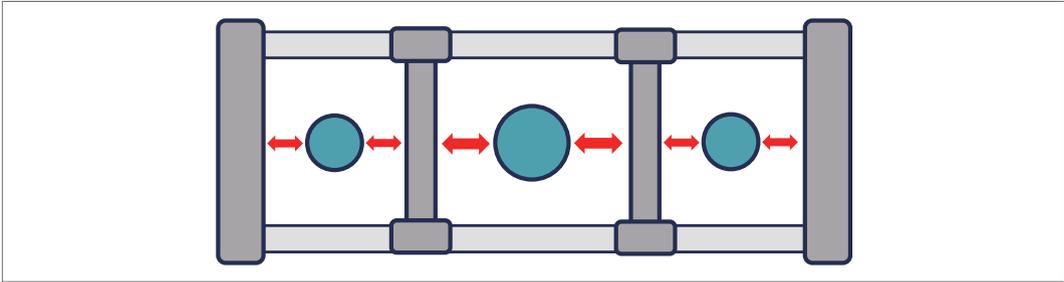
	Cable	Pneumatic Hose (공압 호스)	Hydraulic Hose (유압 호스)
H(height)	$H \geq A \times 1.1$	$H \geq A \times 1.15$	$H \geq A \times 1.2$

## ▶ 디바이더 디자인

Cable 및 Hose의 수량과 배열을 파악하여 꼬임과 단선을 막을 수 있도록 디바이더의 배열을 가로, 세로로 분할하여 설정할 수 있습니다.

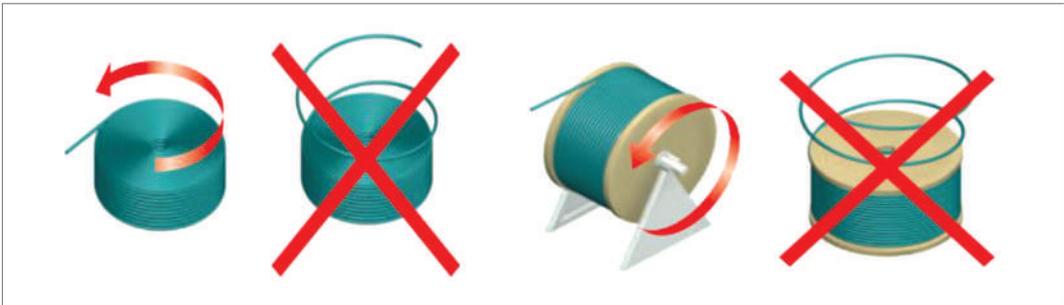
또한, **Cable과 디바이더는 할당 된 공간의 15%~20%(폭 기준) 여유공간을 확보**해야 합니다.

디바이더를 많이 삽입할 경우 실제적인 Cable의 용적이 줄어들게 되므로 폭(Width)에 적당한 수량을 삽입하시길 바랍니다.



## ▶ 케이블, 호스의 풀림 정렬

최초 Cable 삽입 전, 감겨있는 Cable을 풀 때 감겨있는 순방향으로 풀지 않을 경우 Cable이 뒤틀린 상태로 포설될 수 있으므로 주의하여야 합니다.



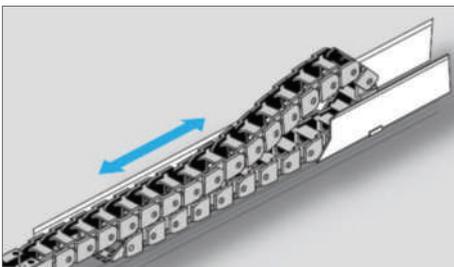
## ▶ RoboChain 전용 케이블, 호스 사용

Cable 및 Hose는 RoboChain 전용으로 생산된 제품을 사용하여야 합니다.

일반 Cable 및 Hose는 장기간 주행 시 단선이나 파열의 가능성이 있습니다.

Cable 및 Hose 선정 시 구동용으로 **사용이 가능한 여부를 확인**하시기 바랍니다.

## ▶ Guide Rail



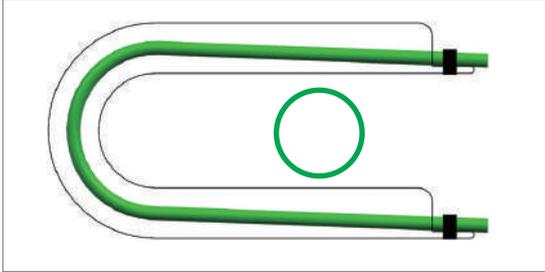
Free span(자체 수평 지지가능거리)을 초과하여 사용할 경우 반드시 Guide Rail을 설치하여야 합니다.

Guide Rail은 RoboChain의 이탈을 방지하고, 안정적인 주행을 보장할 수 있는 최선의 방법입니다.

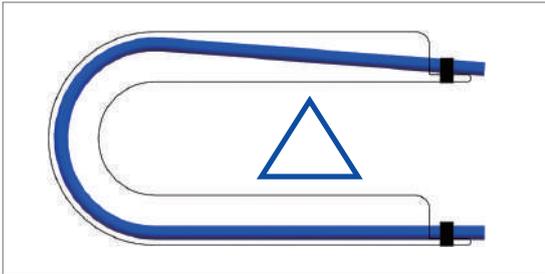
Guide Rail의 형태와 상세치수는 카다로그를 참고하시길 바랍니다.

## ▶ 케이블·호스 길이 조정

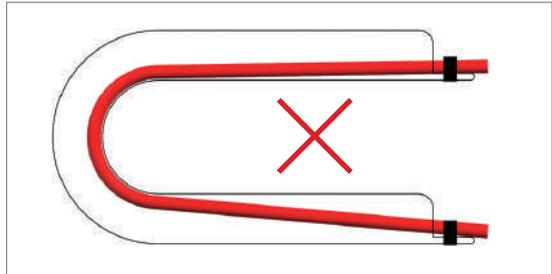
로보체인 가운데 케이블 포설(마모 없음, 적합)



로보체인 바깥쪽 케이블 포설(마모 적음, 적합)

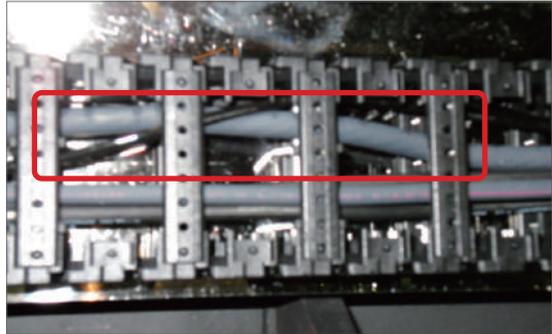


로보체인 안쪽 케이블 포설(마모 많음, 부적합)



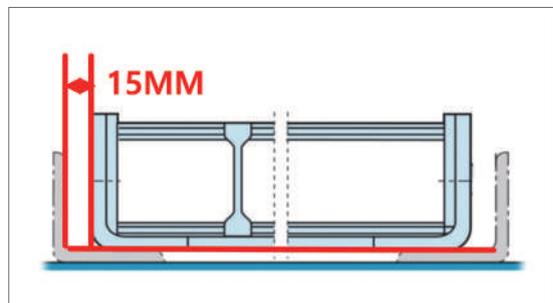
## ▶ 케이블·호스 정렬

케이블과 호스는 반드시 일렬로 정렬하여야 함



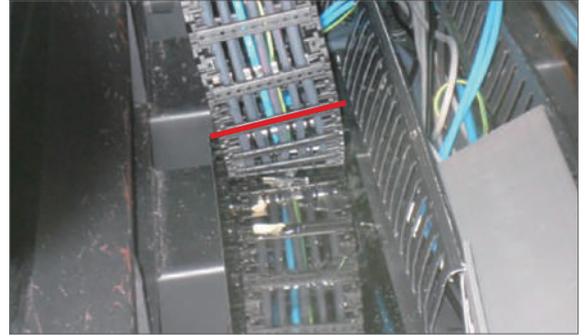
## ▶ 가이드레일

로보체인 주행 구간에는 가이드 레일을 설치하며 가이드 레일 위에는 저마모 테이프 HST-RAIL을 약 15mm 여유있게 부착하여 분진을 예방한다.

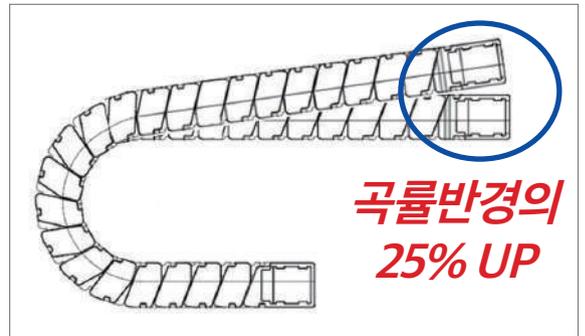


▶ 가이드레일, E/B 수평

GUIDE RAIL의 기울기가 수평을 유지 하여야함



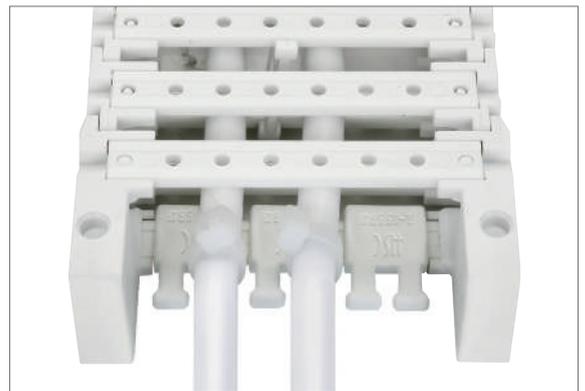
▶ 엔드 브라켓 취부 높이



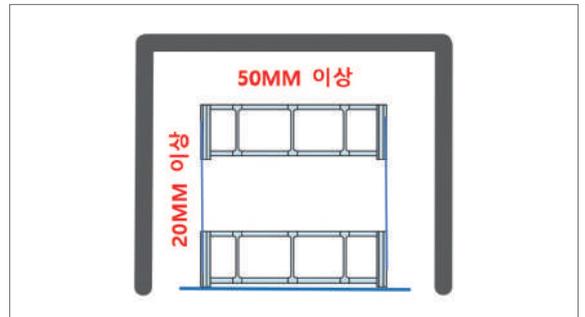
▶ Eng.P Strain Relief(PL-S/R)

(엔지니어링 플라스틱 스트레인 릴리프)

고정부위 Cable의 뒤틀림과 꼬임을 막기 위해  
END BRACKET 에 Strain Relief(스트레인 릴리프) 부착



▶ 로보체인 상하 좌우 여유 공간



## ▶ 케이블, 호스 끝단 처리 및 여유기장

고정부의 Cable의 뒤틀림과 꼬임현상을 막기 위해 FIXED End Bracket에 Strain Relief의 부착을 권장합니다.

**Cable 끝단 여유기장 = Cable 최대외경 X 30**

RoboChain 주행시 움직이지 않는 부분을 반드시 두어야 Cable의 마모 및 수명을 연장할 수 있습니다.

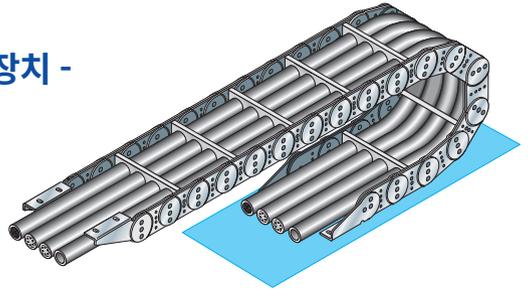


## ▶ RoboChain 전용소재 Robo-S Mate(POLYAMID) 내 화학성 Report

약품	
아세톤(수용성)	○
포름산(수용성)	△
가솔린	○
벤졸	○
붕산(수용성)	△
염수소	x
크롬산(수용성)	△
디젤유	○
아세트산	○
식용유	○
포름알데히드(수용성)	△
수용성기름	○
메틸아세테이트	○
우유	○
탄산나트륨	○
기름, 윤활유	○
프로판사스	○
수은	○
염산	△
잉크, 인쇄잉크	○

○ : 우수 △ : 조건부 사용 X : 사용불가

## CABLE과 HOSE를 완벽하게 보호하여 주는 장치 - 최적의 성능을 위한 한신 RoboChain



한신 RoboChain은 종전에 사용하던 커튼, 릴 형태의 장치와 비교 하였을 때 그 우수성을 확인 할 수 있습니다. 기존의 시스템과는 전혀 다르게 능률을 향상시킬 수 있으며 케이블과 호스의 수명을 크게 연장시키며 작업의 효율을 올릴 수 있습니다.

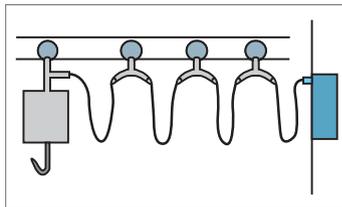
한신 RoboChain은 국내외 기술진이 연구 개발하여 생산하고 있으며, 기존의 국산제품의 개념을 초월한 완벽한 제품으로 해외에도 많은 수출을 하고 있습니다.

*When the RoboChain product from Hanshin Chain is compared to the conventional Curtain or Cable Reel systems, the advantages are obvious. Improved efficiency and ensuring long operation life are guaranteed. All Hanshin Chain products are developed by its own R&D staff with technical partner, and the superior quality has been appreciated throughout the local and overseas customers.*

## 한신 RoboChain이 기존의 시스템보다 성능이 우수한 이유

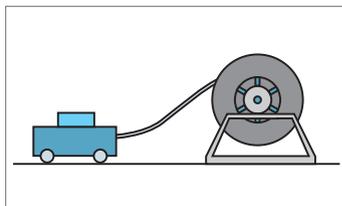
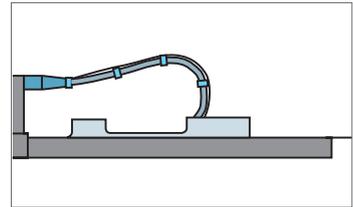
- 케이블이나 호스에 손상이 없음 (*Minimizing wear and providing better protection of cable and hose*)
- 기계적 스트레스에서 보호되어 수명을 연장 (*Long life of lines from mechanical stress*)
- 케이블 수리로 인한 작업중단시간의 절감 (*Reduction of down-time*)
- 공간활용의 극대화 (*Little space required*)
- 간단한 설치 (*Simple installation*)
- 유지보수비가 저렴 (*Low maintenance cost*)
- 시각적으로 청결감 유지 (*Good visual appearances*)
- 표준설치에 관하여 신속한 납기 (*Timely delivery for standard measurements*)

### 기존의 시스템들 Conventional Systems



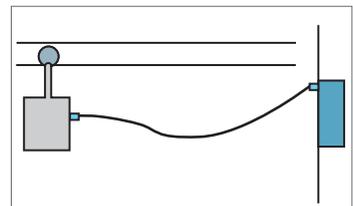
Curtain Style

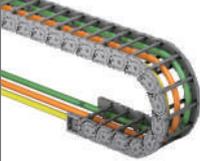
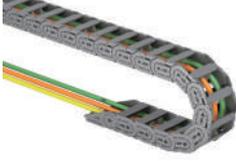
Roll-in Style



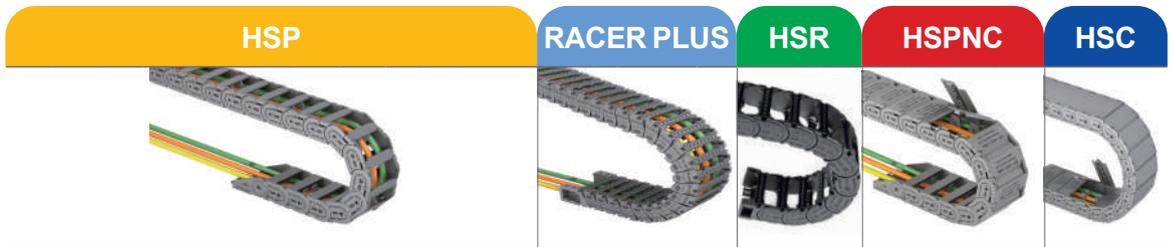
Cable Reel

Unsupported Style



		HSS			HSSP				HSP											
Spec.	Type																			
	ROBO CHAIN NO.	SIZE			HSS 130	HSS 180	HSS 250	HSSP 070	HSSP 095	HSSP 130	HSSP 100	HSP 0120		HSP 0130			HSP 0180			
Bending Radius (mm)	200 250 300 400 500	250 300 400 500 700	350 450 600 750	75 90 125 145 200	125 145 200 250 300	200 250 300 400 500	145 200 250 300	15 20 30	12	18 28 37	18 28 37	18 28 37	18 28 37 50	18 28 37 50	28 37 50	28 37 50	28 37 50	30		
Chain Pitch(mm)	130		180	250	70	95	130	100	12	13			18				30			
Free Span(M)	6	8	11.5	3	4	5	6	0.3	0.3	0.7	0.5	0.7	0.5	1	1	1	1	1	1	
Moving Stroke	Without Support Roller	11.6	15.7	22	-	-	-	-	0.5	0.5	1.3	0.9	1.3	0.9	1.75	1.75	1.75	1.75	1.75	1.6
	With One Support Roller	17.4	23.5	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	With Two Support Roller	23.2	31.4	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cable/Hose Out Dia. (mm)	50	80	80	32	52	63	65	5	5	8	8	8	8	12	12	12	12	12	6	
Cable/Hose Weight(kg/m)	70	80	100	10	20	30	40	0.2	0.2	0.4	0.4	0.4	0.4	1	1	1.3	1.3	1.3	1	
Moving Speed (m/min)	60			120				180												
Twin Chain Weight(kg/m)	15	21	40	2.4	2.9	5.2	3.88	0.08	0.08	0.12	0.12	0.14	0.14	0.24	0.24	0.28	0.26	0.32	0.14	
Temperature(°C)	-25 ~100			-25 ~100				-25 ~100												
Operating Condition	Acidity / Alkali(X)			Acidity / Alkali(X)				Acidity / Alkali(X)												
Part Material	chain	Steel			Eng. Plastic				Eng. Plastic											
	Supporter	Aluminum, eng. Plastic			Aluminum, eng. Plastic				Eng. Plastic											
	End Link	Steel			Eng. Plastic, Steel				Eng. Plastic											
Stock	부품재고(Part in stock) 주문제작(On order)			부품재고 (Part in stock)				완성품재고(Product in stock)												

\* Free Span은 자체 수평 지지 가능한 거리입니다.



HSP				RACER PLUS					HSR			HSPNC				HSC										
HSP 0320				HSP 0350			HSP 0450				HSP 0625		RACER PLUS					HSR			HSP 0450 NC				HSC 0555	HSC 0665
15 (1BN)	24 (2BN)	35 (35B)	50 (3BN)	1B	2B	2BW	1B (1BN)	2B (2BN)	3BN	4BN	1BN	2BN	SL 015	SL 022	SL 033	SL 044	SL 055	0260	0380	0520	1BNC	2BNC	3BNC	4BNC	B125	B150
37	37	37	37	40	40	40	50	50	50	50	75	75	37	55	75	100	150	33	45	75	50	50	50	50	100	120
50	50	50	50				75	75	75	75	90	90	50	75	90	120	180	50	60	90	75	75	75	75	125	140
75	75	75	75				95	95	95	95	125	125	75	90	120	150	200	75	75	120	95	95	95	95	160	200
100	100	100	100				125	125	125	125	150	150	100	110	150	200	250	100	100	150	125	125	125	125	200	250
							150	150	150	150	200	200					300				150	150	150	150	200	300
32				35			45				62.5		15	22	33	44	55	26	38	52	45				55.5	66.5
1.2	1.2	1.2	1.2	1	1	1	1.5	1.5	1.5	1.5	2.25	2.25	1	1.5	1.7	2.5	3.5	1	1.5	1.7	1.5	1.5	1.5	1.5	1.8	2.3
2.2	2.2	2.2	2.2	1.6	1.6	1.6	2.8	2.8	2.8	2.8	4.4	4.4	1.6	2	2.4	3	3.3	1.6	2	2.4	2.8	2.8	2.8	2.8	3.2	4.1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	16	16	16	16	16	16	22	22	22	22	31	31	16	20	35	58	65	16	20	35	22	22	22	22	28	33
1.5	1.6	1.7	1.8	1	1	1	3.2	3.2	3.2	3.2	5	5	1	2	3	4	5	1	2	3	3.2	3.2	3.2	3.2	7	10
180												600					600			180				200		
0.38	0.42	0.46	0.52	0.28	0.32	0.34	0.78	0.96	1.12	1.24	1.8	2	0.26	0.58	0.86	1.74	2.62	0.33	0.6	1	0.84	1.1	1.25	1.4	2.4	3.5
-25 ~ 100												-10 ~ 90					-10 ~ 90			-25 ~ 100				-25 ~ 100		
Acidity / Alkali(X)												Acidity / Alkali(X)					Acidity / Alkali(X)			Acidity / Alkali(X)				Acidity / Alkali(X)		
Eng, Plastic												Eng, Plastic					Eng, Plastic			Eng, Plastic				Eng, Plastic		
Eng, Plastic												Eng, Plastic					Eng, Plastic			Eng, Plastic				Eng, Plastic		
Eng, Plastic												Eng, Plastic					Eng, Plastic			Eng, Plastic, Steel				Steel		
완성품재고(Product in stock)												부품재고 (Part in stock)					부품재고 (Part in stock)			완성품재고 (Product in stock)				완성품재고 (Product in stock)		

# Low noise



RoHS

## 저소음 HSP series

### HSP TYPE

HSP 0120 series   HSP 0320 series  
HSP 0130 series   HSP 0450 series  
HSP 0180 series   HSP 0625 series  
HSP 0200 series   HSP 0550 series  
HSP 0250 series   HSP 0665 series



## ESD 대전 방지 로보체인



Robo-s Mate는 한신체인에서 개발한 로보체인 전용소재로 제품수명을 극대화하고, 마모를 줄이고, 소음과 분진을 최소화한 새로운 소재입니다.



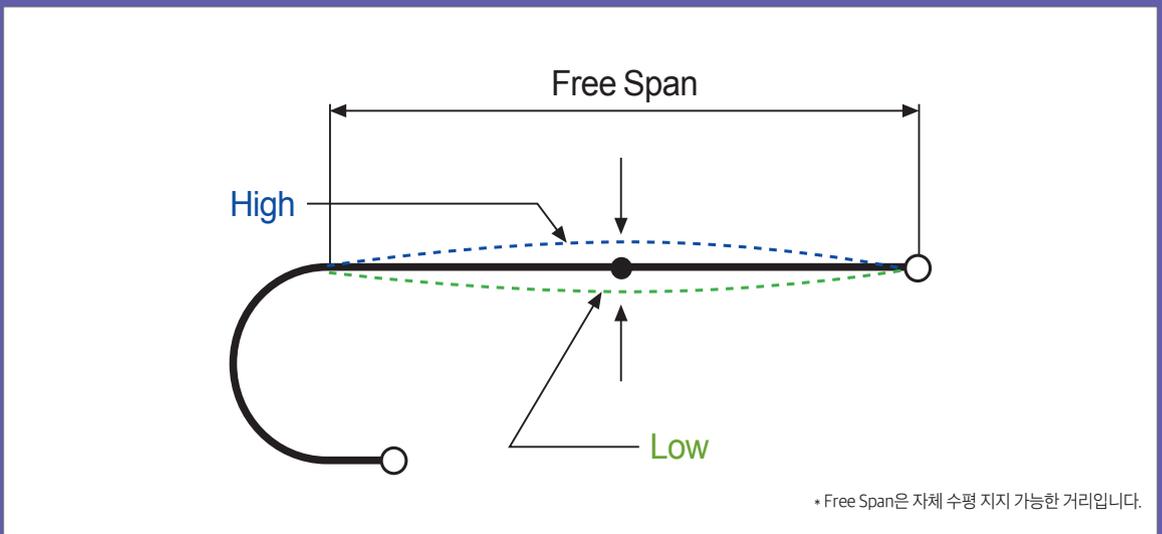
전 규격  
재고 보유



# RACER PLUS

## 레이서 플러스

고객의 사용 조건에 따라 RACER PLUS(레이서 플러스) Free Span 조절 가능



☑ 사양 선정 시 당사 기술영업팀과 협의 바랍니다.

### HST-PAD



### HST-RAIL

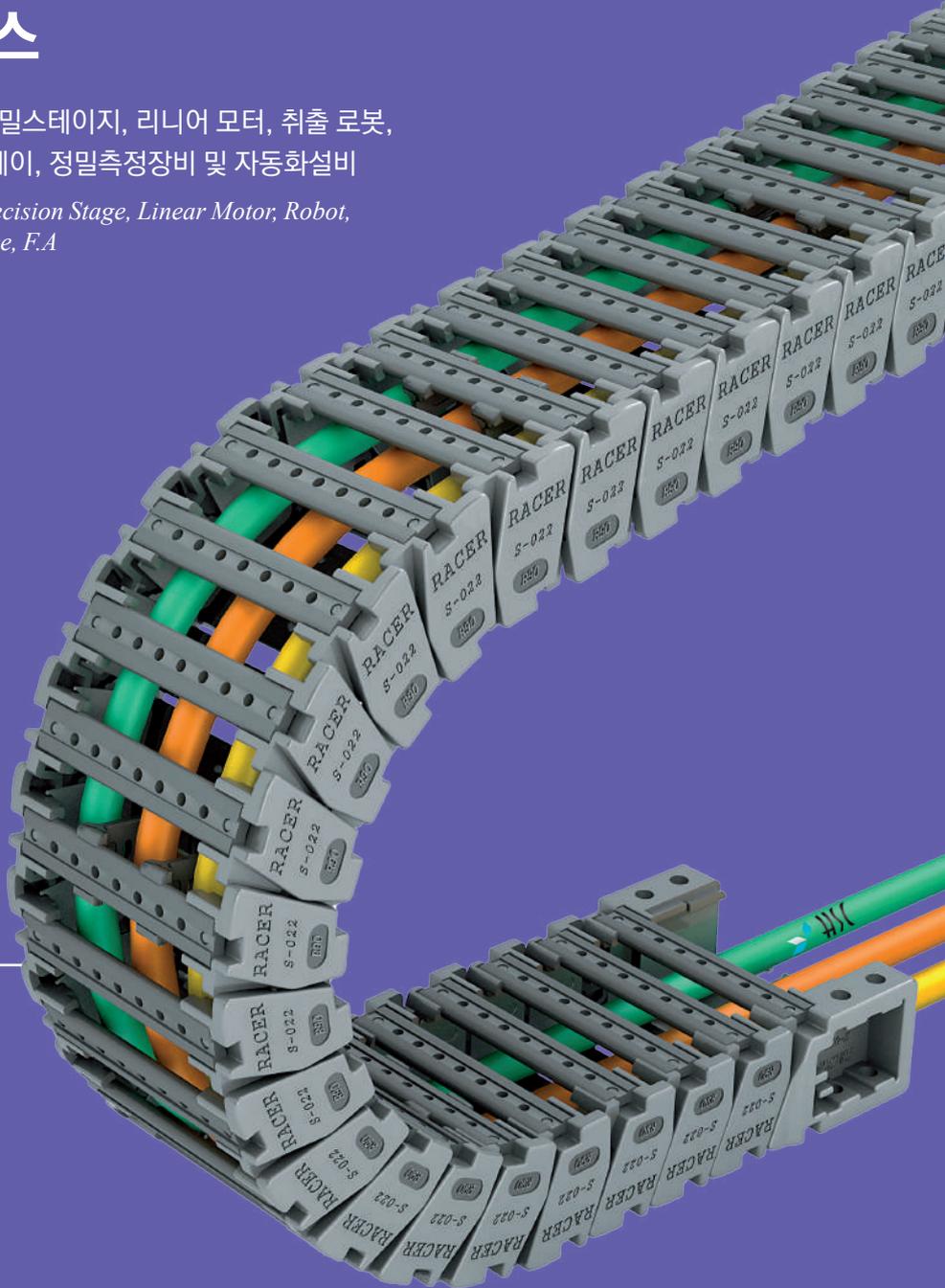


# RACER PLUS

## 레이서 플러스

크린룸, 2차 전지, 반도체, 정밀스테이지, 리니어 모터, 취출 로봇,  
용접로봇, 공작기계, 디스플레이, 정밀측정장비 및 자동화설비

*Clean room, Semi-conduct, Precision Stage, Linear Motor, Robot,  
Display, Machinery, Automotive, F.A*



**SL-015 / 015N**

**SL-022 / 022N**

**SL-033 / 033N**

**SL-044**

**SL-055**

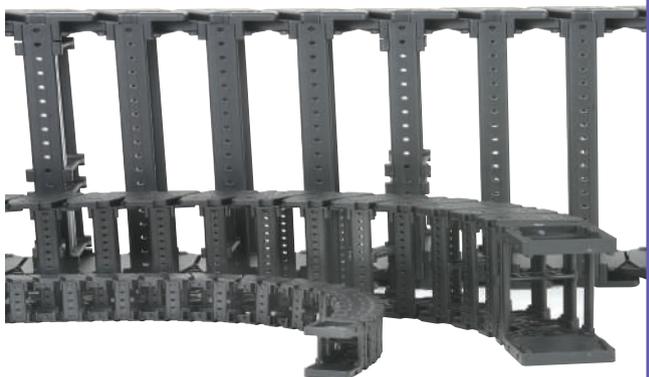
☑ For Clean Room  
Class 1  
39dB



☑ B(내폭) : 20~295mm



☑ 가장 조정이 간편한  
레이서 플러스!  
**EASY ASSEMBLING!**



☑ G/S타입 옵션 가능

- \*SL-015: B28, 52, 76, 100 적용 가능
- \*SL-022: B52, 76, 100, 124 적용 가능
- \*SL-033: B52, 76, 100, 124 적용 가능

☑ 위&아래 BAR를 뒤집어 체결하여  
디바이더 고정으로 변경 가능

이해를 돕기 위해 디바이더 노란색으로 표현  
실물은 검정색



# SL-015 / 015N



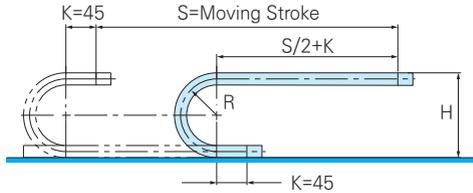
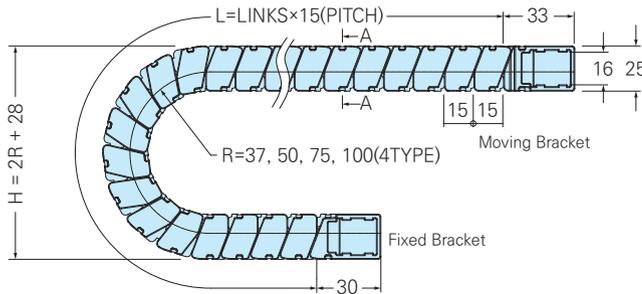
## ORDER EXAMPLE

SL-015 37R B28 D:1 975L 3SETS  
 Type Radius Width Divider Length Q'ty

※ Option : HST-PAD 적용시 규격 끝에 HST-PAD 문구 추가 삽입

- Pitch (mm) : 15
- Bending Radius (mm) : 37, 50, 75, 100
- 가능내폭 (mm) B : 20~100 (+8mm) (표준 : 20, 28, 36, 44, 52, 60, 68, 76, 84, 92, 100)
- 내측높이 (mm) : 19
- 전체외폭 (mm) : B+10
- End Bracket 외폭 (mm) : B+12
- 전체높이 (mm) : H = 2R + 28 (MIN)
- Free Span (m) : 1
- End Bracket 취부높이 (mm) : H + 곡률반경의 25% Up

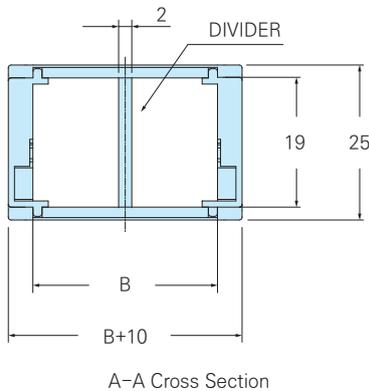
## Chain



$$\text{Length}(L) = \frac{S}{2} + \pi R + 90$$

Radius(R)	37	50	75	100
Height(H)	102	128	178	228
권장 취부높이	115	140	197	253

## B(Width)



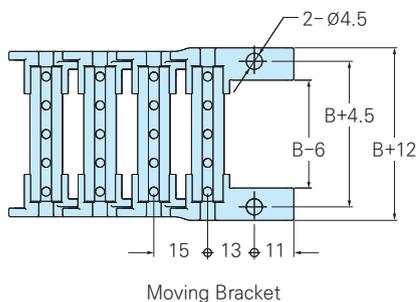
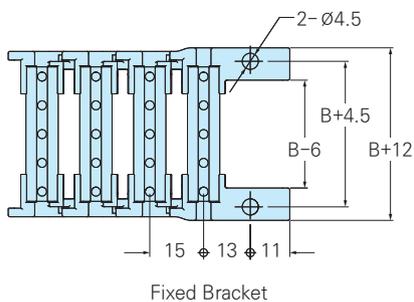
B	B+10	D	B	B+10	D
20	30	0	68	78	2
28	38	0	76	86	2
36	46	1	84	94	2
44	54	1	92	102	2
52	62	1	100	110	2
60	70	2			

※ D=디바이더(세로 분리대)

※ B쪽에 따른 권장 디바이더 개수(4링크당 적용)

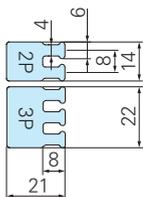
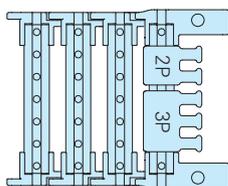
※ 디바이더 미표기시 기본 수량이 적용됩니다.

## Brackets



## Eng.P Strain Relief(PL-S/R)

(엔지니어링 플라스틱 스트레인 릴리프)



- ※ B폭에 따라 2P와 3P 조합으로 구성됩니다.
- ※ 기본으로 장착되며 손 쉽게 탈부착 가능합니다.

## Option

- N타입 옵션 가능



- HST-PAD 옵션 가능



- GS타입 옵션 가능(B28, 52, 76, 100)



# SL-022 / 022N



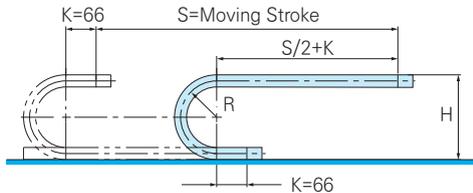
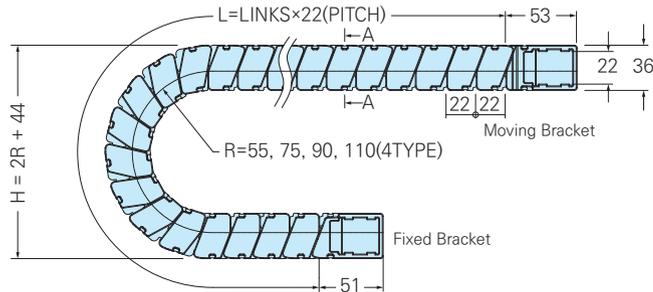
## ORDER EXAMPLE

SL-022 55R B68 D:2 1430L 3SETS  
 Type Radius Width Divider Length Q'ty

※ Option : HST-PAD 적용시 규격 끝에 HST-PAD 문구 추가 삽입

- Pitch (mm) : 22
- Bending Radius (mm) : 55, 75, 90, 110 (4TYPE)
- 가능내폭 (mm) B : 36~140 (+8mm) (표준 : 36, 44, 52, 60, 68, 76, 84, 92, 100, 108, 116, 124, 132, 140)
- 내측높이 (mm) : 28
- 전체외폭 (mm) : B+16
- End Bracket 외폭 (mm) : B+20
- 전체높이 (mm) : H = 2R + 44 (MIN)
- Free Span(m) : 1.5
- End Bracket 취부높이 (mm) : H + 곡률반경의 25% Up

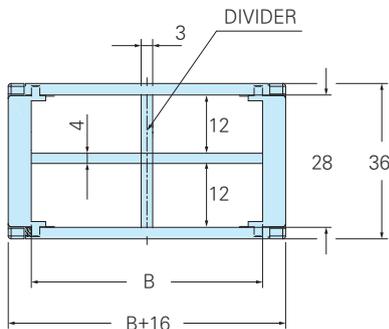
## Chain



$$\text{Length}(L) = \frac{S}{2} + \pi R + 132$$

Radius(R)	55	75	90	110
Height(H)	154	194	224	264
권장 취부높이	170	213	247	292

## B(Width)



A-A Cross Section

B	B+16	D	B	B+16	D
36	52	1	92	108	2
44	60	1	100	116	2
52	68	1	108	124	2
60	76	2	116	132	2
68	84	2	124	140	2
76	92	2	132	148	2
84	100	2	140	156	2

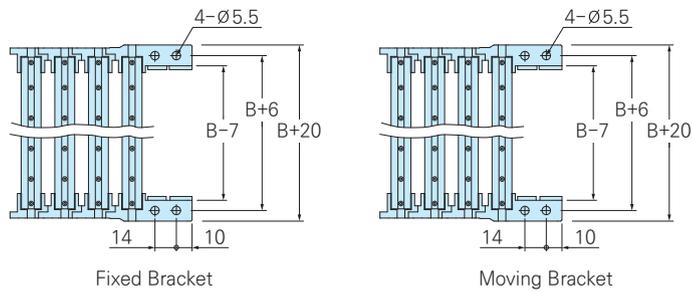
※ D=디바이더(세로 분리대)

※ B폭에 따른 권장 디바이더 개수(4링크당 적용)

※ 디바이더 미표기시 기본 수량이 적용됩니다.

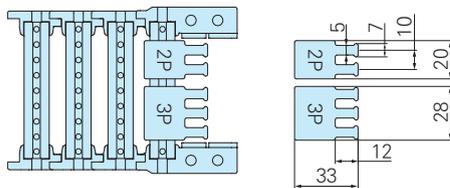
※ 가로 분리대는 옵션입니다.(디바이더 2개 필수)

## Brackets



## Eng.P Strain Relief(PL-S/R)

(엔지니어링 플라스틱 스트레인 릴리프)



- ※ B폭에 따라 2P와 3P 조합으로 구성됩니다.
- ※ 기본으로 장착되어 손 쉽게 탈부착 가능합니다.

## Option

- N타입 옵션 가능



- HST-PAD 옵션 가능



- GS타입 옵션 가능(B52,76,100,124)



# SL-033 / 033N



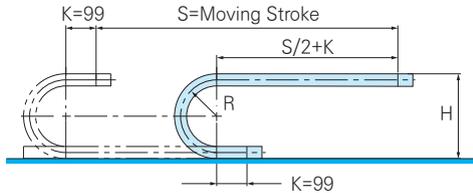
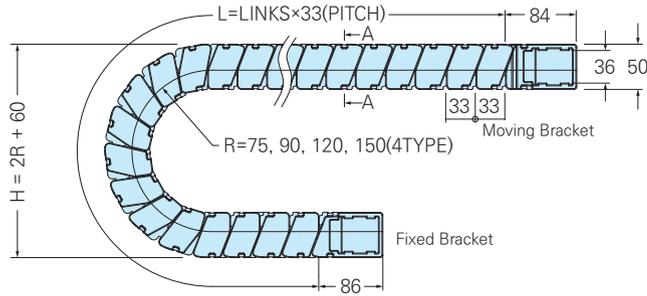
## ORDER EXAMPLE

SL-033 75R B84 D:3 1815L 3SETS  
 Type Radius Width Divider Length Q'ty

※ Option : HST-PAD 적용시 규격 끝에 HST-PAD 문구 추가 삽입

- Pitch (mm) : 33
- Bending Radius (mm) : 75, 90, 120, 150 (4TYPE)
- 가능내폭 (mm) B : 36~140 (+8mm) (표준 : 36, 44, 52, 60, 68, 76, 84, 92, 100, 108, 116, 124, 132, 140)
- 내측높이 (mm) : 42
- 전체외폭 (mm) : B+20
- End Bracket 외폭 (mm) : B+23
- 전체높이 (mm) : H = 2R + 60 (MIN)
- Free Span(m) : 1.7
- End Bracket 취부높이 (mm) : H + 곡률반경의 25% Up

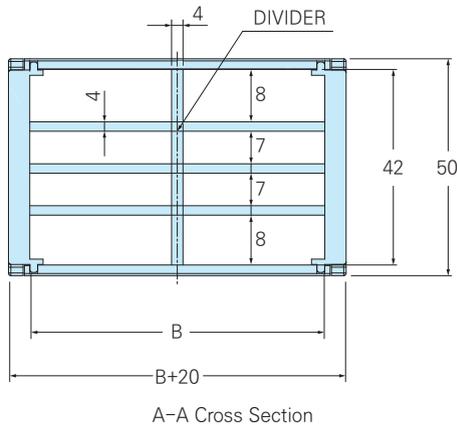
## Chain



$$\text{Length}(L) = \frac{S}{2} + \pi R + 198$$

Radius(R)	75	90	120	150
Height(H)	210	240	300	360
권장 취부높이	230	263	330	398

## B(Width)



B	B+20	D	B	B+20	D
36	56	1	92	112	2
44	64	1	100	120	2
52	72	1	108	128	2
60	80	2	116	136	2
68	88	2	124	144	2
76	96	2	132	152	2
84	104	2	140	160	2

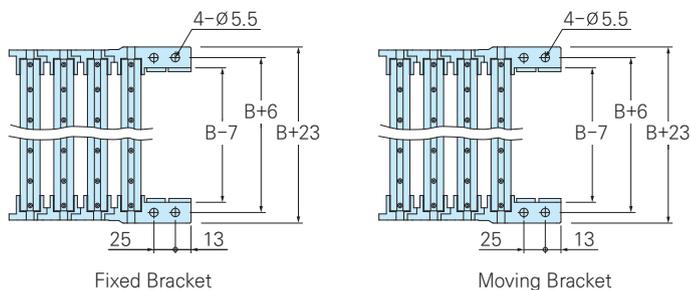
※ D=디바이더(세로 분리대)

※ B폭에 따른 권장 디바이더 개수(4링크당 적용)

※ 디바이더 미표기시 기본 수량이 적용됩니다.

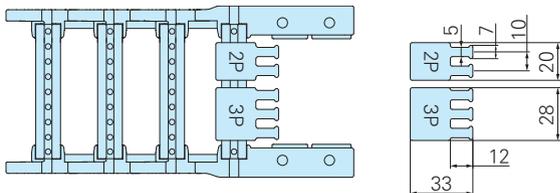
※ 가로 분리대는 옵션입니다.(디바이더 2개 필수)

## Brackets



## Eng.P Strain Relief(PL-S/R)

(엔지니어링 플라스틱 스트레인 릴리프)



※ B쪽에 따라 2P와 3P 조합으로 구성됩니다.  
 ※ 기본으로 장착되며 손 쉽게 탈부착 가능합니다.

## Option

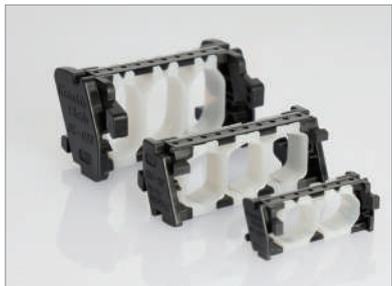
- N타입 옵션 가능



- HST-PAD 옵션 가능



- GS타입 옵션 가능(B52,76,100,124)



# SL-044



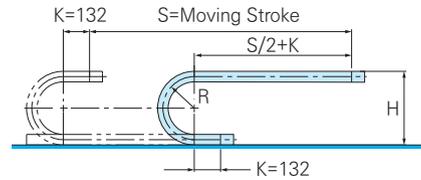
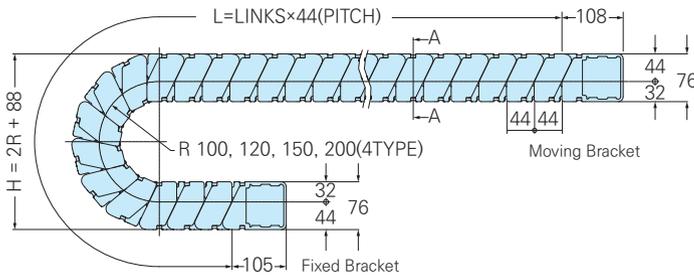
## ORDER EXAMPLE

SL-044 100R B130 D:2 1848L 3SETS  
 Type Radius Width Divider Length Q'ty

- Pitch (mm) : 44
- Bending Radius (mm) : 100, 120, 150, 200 (4TYPE)
- 가능내폭 (mm) B : 70~295 (+15mm) (표준 : 70, 85, 100, 115, 130, 145, 160, 175, 190, 205, 220, 235, 250, 265, 280, 295)
- 내측높이 (mm) : 63
- 전체외폭 (mm) : B+35
- End Bracket 외폭 (mm) : B+35
- 전체높이 (mm) : H = 2R + 88 (MIN)
- Free Span(m) : 2.5
- End Bracket 취부높이 (mm) : H + 곡률반경의 25% Up

※ Option : HST-PAD 적용시 규격 끝에 HST-PAD 문구 추가 삽입

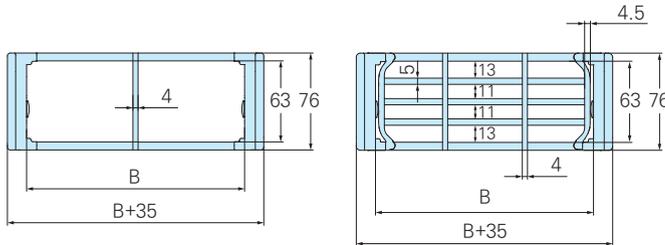
## Chain



$$\text{Length}(L) = \frac{S}{2} + \pi R + 264$$

Radius(R)	100	120	150	200
Height(H)	288	328	388	488
권장 취부높이	315	358	426	538

## B(Width)



A-A Cross Section

A-A Cross Section

B	B+35	D	B	B+35	D
70	105	2	190	225	2
85	120	2	205	240	2
100	135	2	220	255	2
115	150	2	235	270	2
130	165	2	250	285	2
145	180	2	265	300	2
160	195	2	280	315	2
175	210	2	295	330	2

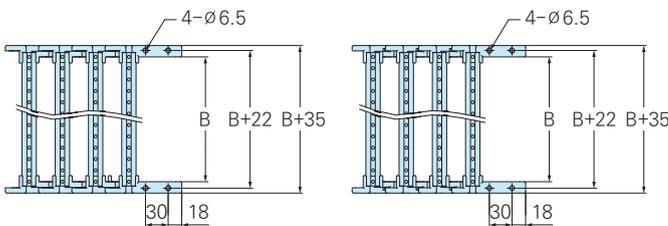
※ D=디바이더(세로 분리대)

※ B쪽에 따른 권장 디바이더 개수(4링크당 적용)

※ 디바이더 미표기시 기본 수량이 적용됩니다.

※ 가로 분리대는 옵션입니다.(디바이더 2개 필수)

## Brackets

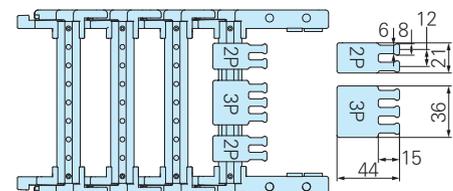


Fixed Bracket

Moving Bracket

## Eng.P Strain Relief(PL-S/R)

(엔지니어링 플라스틱 스트레인 릴리프)



※ B쪽에 따라 2P와 3P 조합으로 구성됩니다.

※ 기본으로 장착되며 손 쉽게 탈부착 가능합니다.

# SL-055



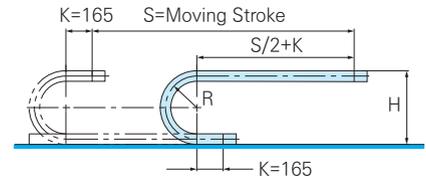
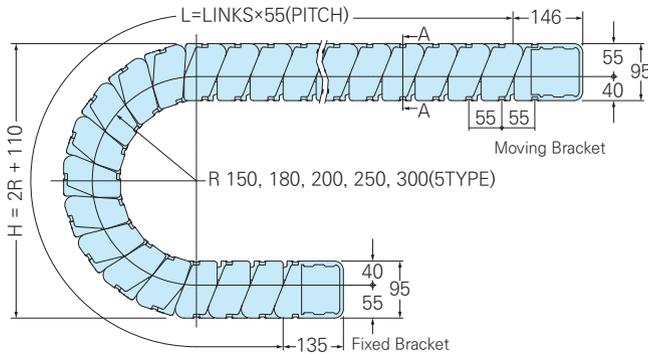
## ORDER EXAMPLE

SL-055 180R B205 D:2 1430L 3SETS  
 Type Radius Width Divider Length Q'ty

※ Option : HST-PAD 적용시 규격 끝에 HST-PAD 문구 추가 삽입

- Pitch (mm) : 55
- Bending Radius (mm) : 150, 180, 200, 250, 300 (5TYPE)
- 가능내폭 (mm) B : 70~295 (+15mm) (표준 : 70, 85, 100, 115, 130, 145, 160, 175, 190, 205, 220, 235, 250, 265, 280, 295)
- 내측높이 (mm) : 82
- 전체외폭 (mm) : B+41
- End Bracket 외폭 (mm) : B+41
- 전체높이 (mm) : H = 2R + 110 (MIN)
- Free Span(m) : 3.5
- End Bracket 취부높이 (mm) : H + 곡률반경의 25% Up

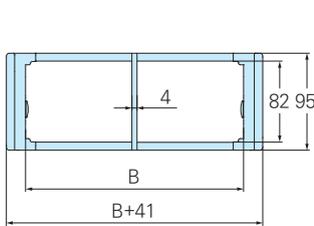
## Chain



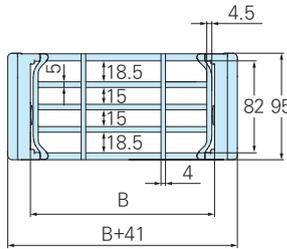
$$\text{Length}(L) = \frac{S}{2} + \pi R + 330$$

Radius(R)	150	180	200	250	300
Height(H)	410	470	510	610	710
권장 취부높이	450	515	560	673	785

## B(Width)



A-A Cross Section



A-A Cross Section

B	B+41	D	B	B+41	D
70	111	2	190	231	2
85	126	2	205	246	2
100	141	2	220	261	2
115	156	2	235	276	2
130	171	2	250	291	2
145	186	2	265	306	2
160	201	2	280	321	2
175	216	2	295	336	2

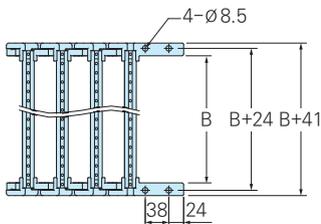
※ D=디바이더(세로 분리대)

※ B폭에 따른 권장 디바이더 개수(4링크당 적용)

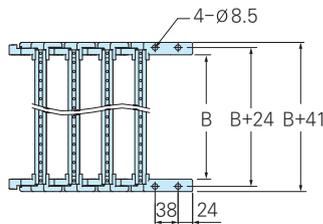
※ 디바이더 미표기시 기본 수량이 적용됩니다.

※ 가로 분리대는 옵션입니다.(디바이더 2개 필수)

## Brackets



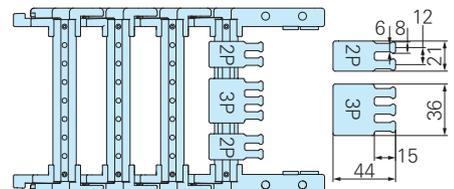
Fixed Bracket



Moving Bracket

## Eng.P Strain Relief(PL-S/R)

(엔지니어링 플라스틱 스트레인 릴리프)



※ B폭에 따라 2P와 3P 조합으로 구성됩니다.

※ 기본으로 장착되며 손 쉽게 탈부착 가능합니다.

# HST-PAD **NEW**

## 크린룸에 최적합 솔루션! HST-패드

☑ For Clean Room  
Class 1  
39dB



### HST-PAD | HST-패드

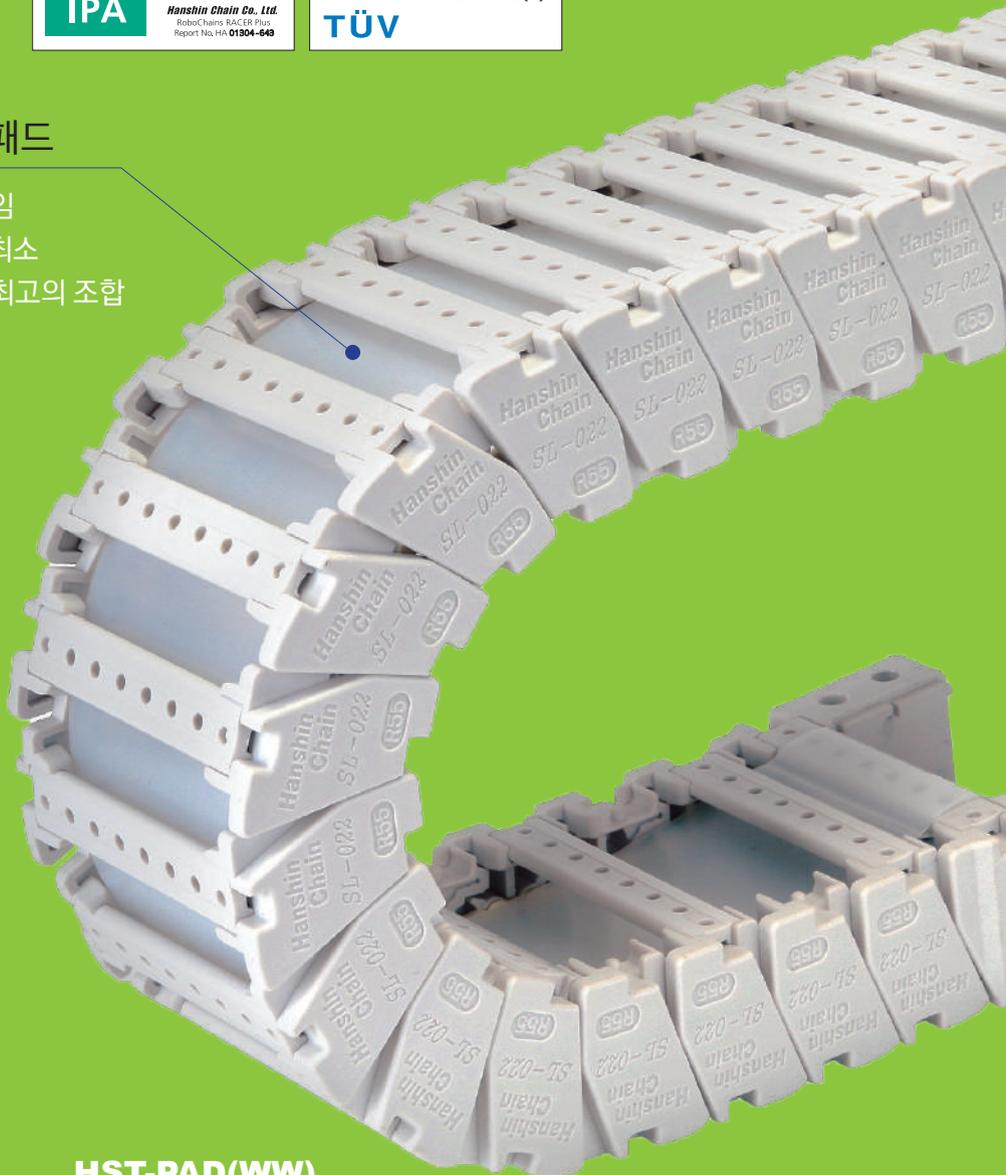
- 케이블, 호스의 마모를 줄임
- 로보체인 내 이물질 발생 최소
- 레이서, 레이서 플러스와 최고의 조합



HST-PAD(BW)



HST-PAD(BB)



HST-PAD(WW)

## ☑ HST-PAD의 사용목적



CLASS 1 인증된 레이서 플러스에 마찰계수가 타 소재 대비 1/3 수준의 특수한 SHEET를 안쪽과 바깥쪽에 삽입하여 분진을 최소화 합니다.

디바이더 없이 패드를 최대한 넓게 적용하는 것을 권장하며 양쪽 끝단 PL-S/R(스트레인 릴리프) 기본 장착

## ☑ HST-PAD 사용 전·후 비교 사진(500만회 주행 테스트 결과)

케이블&호스의 마모를 극대화 시키기 위해 상부엔 **무빙용이 아닌 고정용** 호스를 적용하였고 하부는 케이블의 여유기장 없이 **양쪽을 잡아 당겨 고정** 후, 마모를 유도

HST-PAD 사용 전



HST-PAD 사용 후



※ 케이블&호스와 맞지 않는 로보체인 곡률반경 선정, 케이블&호스의 용적률 과다, 고정용 케이블&호스 사용, 여유기장 없이 케이블&호스의 타이트한 고정은 마모를 유발하지만 **HST-PAD 적용으로 최대 95%까지 감소**

## ☑ HST-PAD 옵션 적용



디바이더 적용 가능  
(자세한 문의는 영업부와 협의 바랍니다)



HST-PAD 3열  
(패드를 상, 중, 하 적용하여 케이블을 위, 아래로 분리 가능)

# HST-RAIL

크린룸을 위한 저마모 테이프!

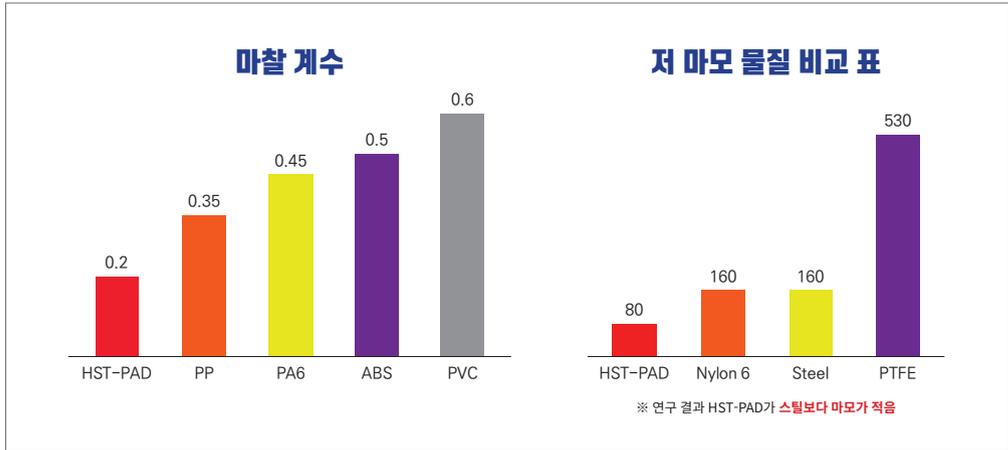
**크린룸 최적화 필수 아이템!**  
**원하는 위치에 원하는 만큼 더욱 쉽고 간편하게!**

- 크린룸, 반도체, 디스플레이, 정밀스테이지, 리니어모터, 취출로봇, 정밀측정장비 및 자동화 설비에 적용.

For Clean Room



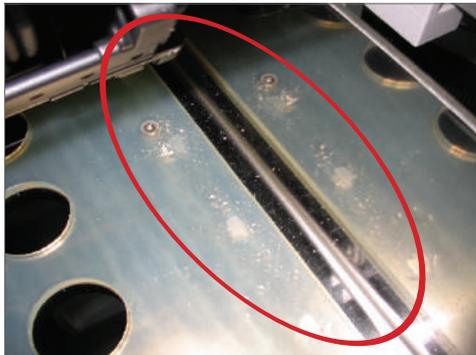
## ☑ HST-RAIL 기술 그래프



## ☑ HST-RAIL 규격

품명	두께	넓이	롤 길이
HST-RAIL 0330	0.3mm	30mm	20m
HST-RAIL 0350	0.3mm	50mm	20m
HST-RAIL 0375	0.3mm	75mm	20m
HST-RAIL 03100	0.3mm	100mm	20m
HST-RAIL 03125	0.3mm	125mm	20m
HST-RAIL 03150	0.3mm	150mm	20m

품명	두께	넓이	롤 길이
HST-RAIL 0530	0.5mm	30mm	16.5m
HST-RAIL 0550	0.5mm	50mm	16.5m
HST-RAIL 0575	0.5mm	75mm	16.5m
HST-RAIL 05100	0.5mm	100mm	16.5m
HST-RAIL 05125	0.5mm	125mm	16.5m
HST-RAIL 05150	0.5mm	150mm	16.5m



사용 전  
(주행구간에 로보체인인 분진 발생)



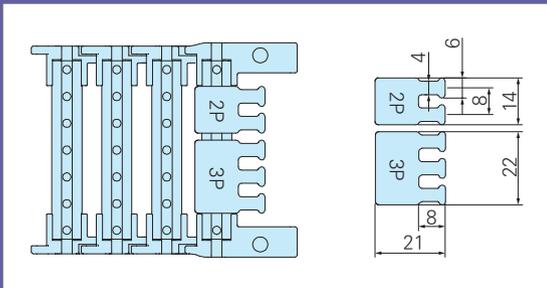
사용 후  
(마찰계수를 낮춰 움직임을 부드럽게 하여 분진 발생 방지)

# RACER PLUS (PL-S/R) **NEW**

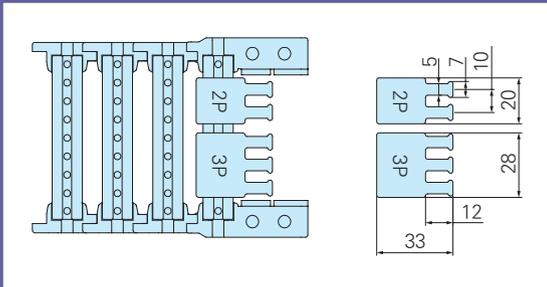


RACER PLUS, HSR, HST-PAD  
모든 크린 사양에 기본 적용

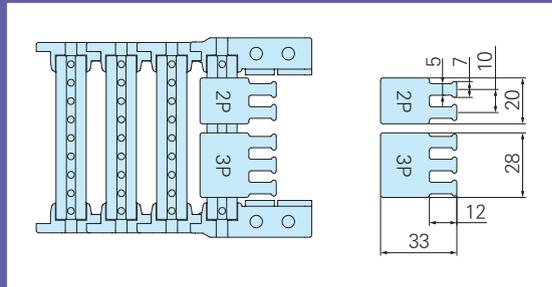
## SL-015 PL-S/R



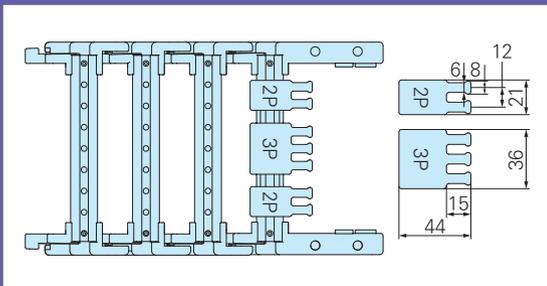
## SL-022 PL-S/R



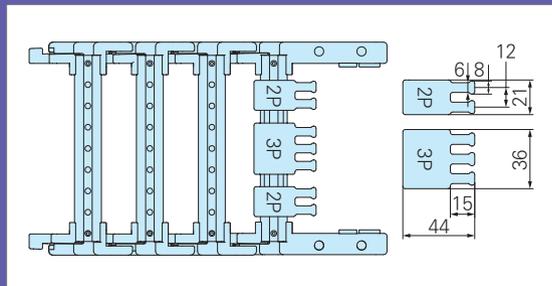
## SL-033 PL-S/R

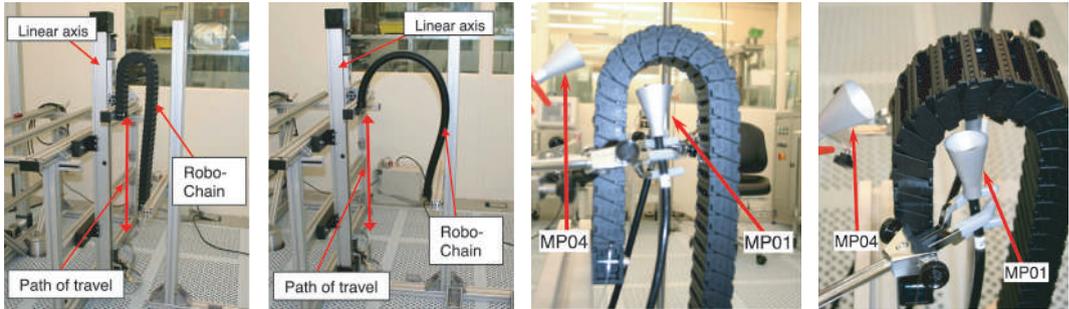


## SL-044 PL-S/R



## SL-055 PL-S/R



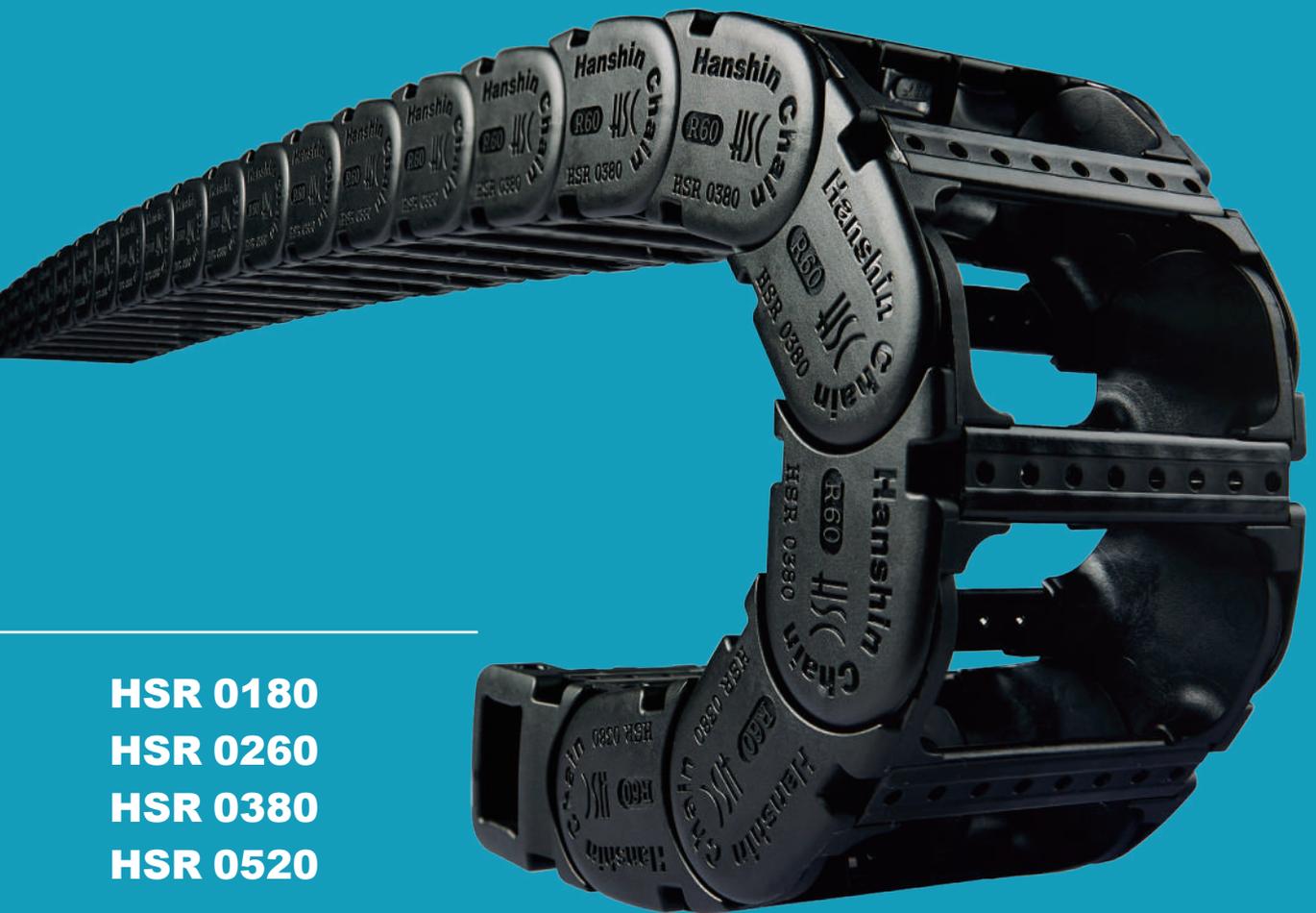


Class specification	Highest limiting values permitted for particle values $\geq 0.5$ (rounded)							
	GMP "at rest"	GMP "in operation"	US / Federal Standard 209E		VDI 2083		ISO 14644-1	
	per m $\geq$	per m $\geq$	per m $\geq$	per cbf	per m $\geq$	per cbf	per m $\geq$	per cbf
ISO Class 1							0	0.01
ISO Class 2							4	0.1
"Class" 1			35	1				
Class 1					45	1		
ISO Class 3							35	1
"Class" 10			353	10				
Class 2					450	13		
ISO Class 4							352	10
"Class" 100			3,530	100				
Class 3					4,500	128		
ISO Class 5							3,520	100
Room Grade A	3,500	3,500						
"Class" 1,000			35,300	1,000				
Class 4					45,000	1277		
ISO Class 6							35,200	1,000
Room Grade B	3,500	350,000						
"Class" 10,000			353,000	10,000				
Class 4					450,000	12768		
ISO Class 6							352,000	10,000
Room Grade B	350,000	3,500,000						
"Class" 100,000			3,530,000	100,000				
Class 4					4,500,000	127677		
ISO Class 6							3,520,000	100,000
Room Grade B	3,500,000							

# HSR type

크린룸, 2차 전지, 반도체, 정밀스테이지, 리니어 모터, 취출 로봇, 용접로봇, 공작기계,  
디스플레이, 정밀측정장비 및 자동화설비

*Clean room, Semi-conduct, Precision Stage, Linear Motor, Robot, Display,  
Machinery, Automotive, F.A*



**HSR 0180**

**HSR 0260**

**HSR 0380**

**HSR 0520**

☑ For Clean Room  
Class 1



☑ 기장 조절이 간편한 저소음 저분진 제품!

## EASY ASSEMBLY!



☑ 측면 갈림 최소화



☑ Round 설계

HSR TYPE

# HSR 0180



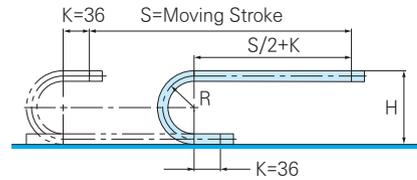
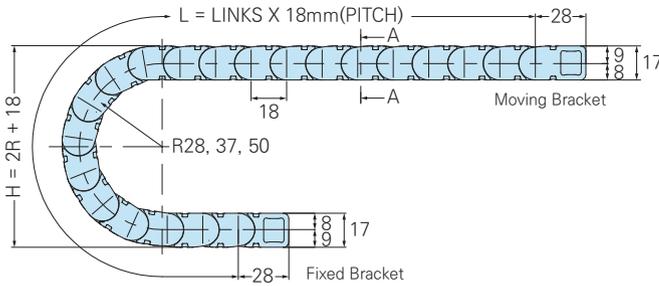
## ORDER EXAMPLE

HSR 0180 28R B36 D:0 342L 3SETS  
 Type Radius Width Divider Length Q'ty

- Pitch (mm) : 18
- Bending Radius (mm) : 28, 37, 50
- 가능내폭 (mm) B : 20~100 (+8mm) (표준 : 20, 28, 36, 44, 52, 60, 68, 76, 84, 92, 100)
- 내측높이 (mm) : 12
- 전체외폭 (mm) : B+8
- End Bracket 외폭 (mm) : B+12
- 전체높이 (mm) : H = 2R + 18 (MIN)
- Free Span(m) : 0.5
- End Bracket 취부높이 (mm) : H + 곡률반경의 25% Up

※ Option : HST-PAD 적용시 규격 끝에 HST-PAD 문구 추가 삽입

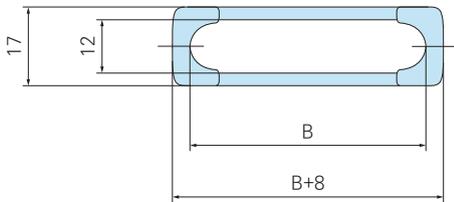
## Chain



$$\text{Length}(L) = \frac{S}{2} + \pi R + 72$$

Radius(R)	28	37	50
Height(H)	74	92	118
권장 취부높이	85	105	135

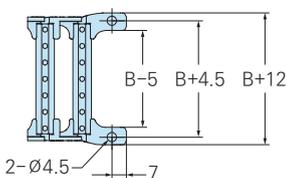
## B(Width)



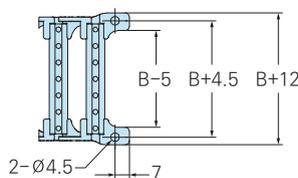
A-A Cross Section

B	B+8	B	B+8
20	28	68	76
28	36	76	84
36	44	84	92
44	52	92	100
52	60	100	108
60	68		

## Brackets



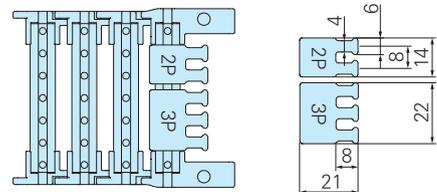
Fixed Bracket



Moving Bracket

## Eng.P Strain Relief(PL-S/R)

(엔지니어링 플라스틱 스트레인 릴리프)



※ B폭에 따라 2P와 3P 조합으로 구성됩니다.

※ 기본으로 장착되며 손 쉽게 탈부착 가능합니다.

# HSR 0260



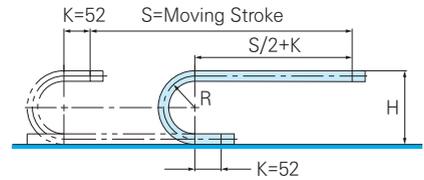
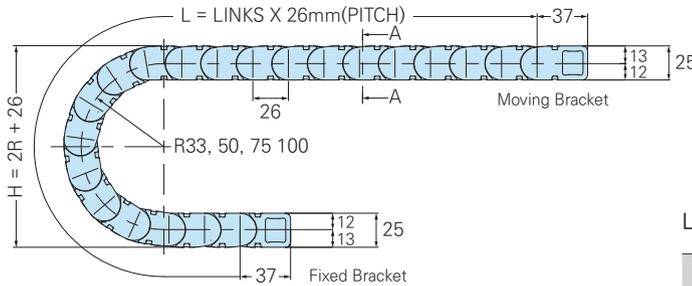
## ORDER EXAMPLE

HSR 0260 33R B28 D:1 962L 3SETS  
 Type Radius Width Divider Length Q'ty

- Pitch (mm) : 26
- Bending Radius (mm) : 33, 50, 75, 100
- 가능내폭 (mm) B : 20~100 (+8mm) (표준 : 20, 28, 36, 44, 52, 60, 68, 76, 84, 92, 100)
- 내측높이 (mm) : 19
- 전체외폭 (mm) : B+12
- End Bracket 외폭 (mm) : B+14
- 전체높이 (mm) : H = 2R + 26 (MIN)
- Free Span(m) : 1
- End Bracket 취부높이 (mm) : H + 곡률반경의 25% Up

※ Option : HST-PAD 적용시 규격 끝에 HST-PAD 문구 추가 삽입

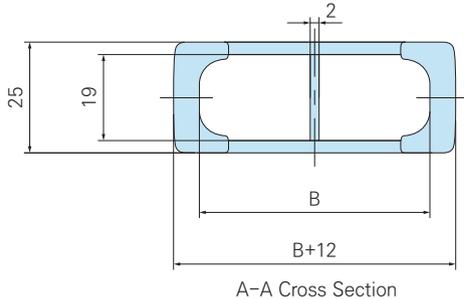
## Chain



$$\text{Length}(L) = \frac{S}{2} + \pi R + 104$$

Radius(R)	33	50	75	100
Height(H)	92	126	176	226
권장 취부높이	105	140	197	253

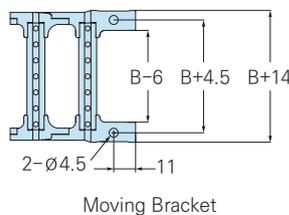
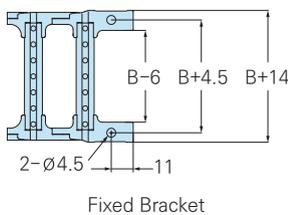
## B(Width)



B	B+12	D	B	B+12	D
20	32	0	68	80	2
28	40	0	76	88	2
36	48	1	84	96	2
44	56	1	92	104	2
52	64	1	100	112	2
60	72	2			

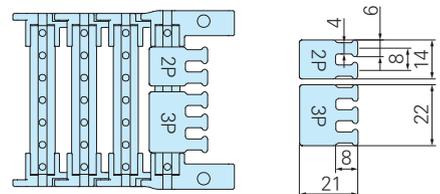
- ※ D=디바이더(세로 분리대)
- ※ B폭에 따른 권장 디바이더 개수(4링크당 적용)
- ※ 디바이더 미표기시 기본 수량이 적용됩니다.

## Brackets



## Eng.P Strain Relief(PL-S/R)

(엔지니어링 플라스틱 스트레인 릴리프)



- ※ B폭에 따라 2P와 3P 조합으로 구성됩니다.
- ※ 기본으로 장착되며 손 쉽게 탈부착 가능합니다.

# HSR 0380



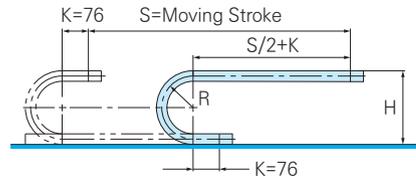
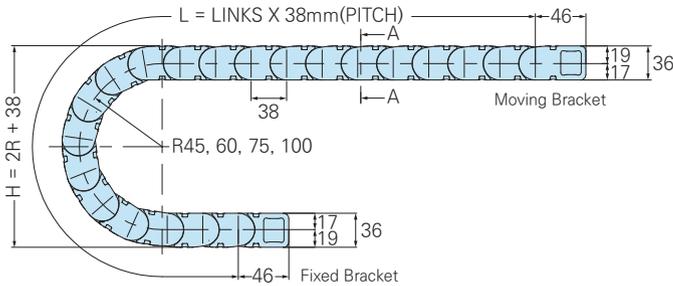
## ORDER EXAMPLE

HSR 0380 45R B36 D:1 1406L 3SETS  
 Type Radius Width Divider Length Q'ty

- Pitch (mm) : 38
- Bending Radius (mm) : 45, 60, 75, 100
- 가능내폭 (mm) B : 36~140 (+8mm) (표준 : 36, 44, 52, 60, 68, 76, 84, 92, 100, 108, 116, 124, 132, 140)
- 내측높이 (mm) : 28
- 전체외폭 (mm) : B+16
- End Bracket 외폭 (mm) : B+20
- 전체높이 (mm) : H = 2R + 38 (MIN)
- Free Span(m) : 1.5
- End Bracket 취부높이 (mm) : H + 곡률반경의 25% Up

※ Option : HST-PAD 적용시 규격 끝에 HST-PAD 문구 추가 삽입

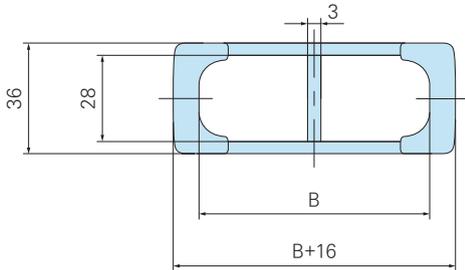
## Chain



$$\text{Length(L)} = \frac{S}{2} + \pi R + 152$$

Radius(R)	45	60	75	100
Height(H)	128	158	188	238
권장 취부높이	143	175	210	265

## B(Width)



A-A Cross Section

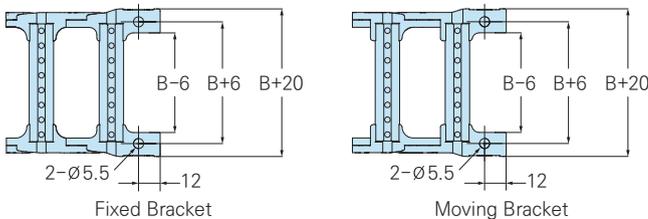
B	B+16	D	B	B+16	D
36	52	1	92	108	2
44	60	1	100	116	2
52	68	1	108	124	2
60	76	2	116	132	2
68	84	2	124	140	2
76	92	2	132	148	2
84	100	2	140	156	2

※ D=디바이더(세로 분리대)

※ B폭에 따른 권장 디바이더 개수(4링크당 적용)

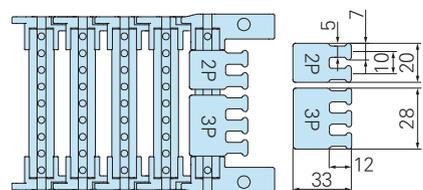
※ 디바이더 미표기시 기본 수량이 적용됩니다.

## Brackets



## Eng.P Strain Relief(PL-S/R)

(엔지니어링 플라스틱 스트레인 릴리프)



※ B폭에 따라 2P와 3P 조합으로 구성됩니다.

※ 기본으로 장착되며 손 쉽게 탈부착 가능합니다.

# HSR 0520



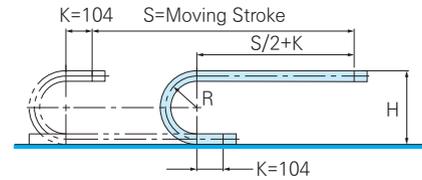
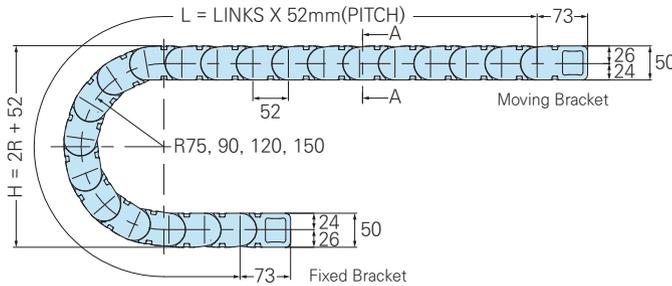
## ORDER EXAMPLE

HSR 0520 75R B36 D:1 1092L 3SETS  
 Type Radius Width Divider Length Q'ty

- Pitch (mm) : 52
- Bending Radius (mm) : 75, 90, 120, 150
- 가능내폭 (mm) B : 36~140 (+8mm) (표준 : 36, 44, 52, 60, 68, 76, 84, 92, 100, 108, 116, 124, 132, 140)
- 내측높이 (mm) : 42
- 전체외폭 (mm) : B+20
- End Bracket 외폭 (mm) : B+23
- 전체높이 (mm) : H = 2R + 52 (MIN)
- Free Span(m) : 1.7
- End Bracket 취부높이 (mm) : H + 곡률반경의 25% Up

※ Option : HST-PAD 적용시 규격 끝에 HST-PAD 문구 추가 삽입

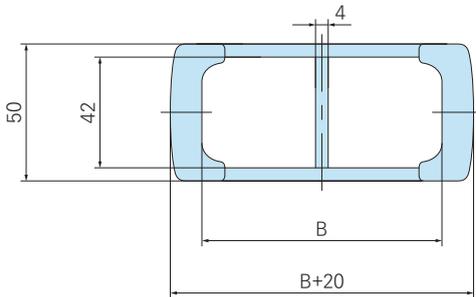
## Chain



$$\text{Length}(L) = \frac{S}{2} + \pi R + 208$$

Radius(R)	75	90	120	150
Height(H)	202	232	292	352
권장 취부높이	225	255	325	390

## B(Width)



A-A Cross Section

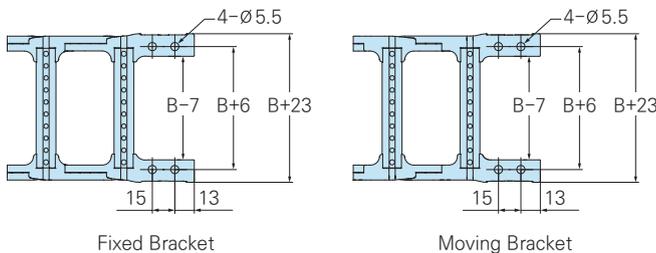
B	B+20	D	B	B+20	D
36	56	1	92	112	2
44	64	1	100	120	2
52	72	1	108	128	2
60	80	2	116	136	2
68	88	2	124	144	2
76	96	2	132	152	2
84	104	2	140	160	2

※ D=디바이더(세로 분리대)

※ B폭에 따른 권장 디바이더 개수(4링크당 적용)

※ 디바이더 미표기시 기본 수량이 적용됩니다.

## Brackets

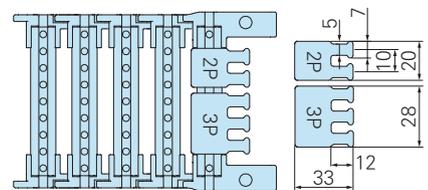


Fixed Bracket

Moving Bracket

## Eng.P Strain Relief(PL-S/R)

(엔지니어링 플라스틱 스트레인 릴리프)



※ B폭에 따라 2P와 3P 조합으로 구성됩니다.

※ 기본으로 장착되며 손 쉽게 탈부착 가능합니다.

# HSP type



ESD | 대전 방지 로보체인

자동화기계, 반도체, LED, LCD, PDP, OLED, 전자, 식품기계, 취출로봇, 섬유기계, 특장차 자동차생산설비, 의료기계, 각종 공작기계 및 컴퓨터 관련기계에 적용.

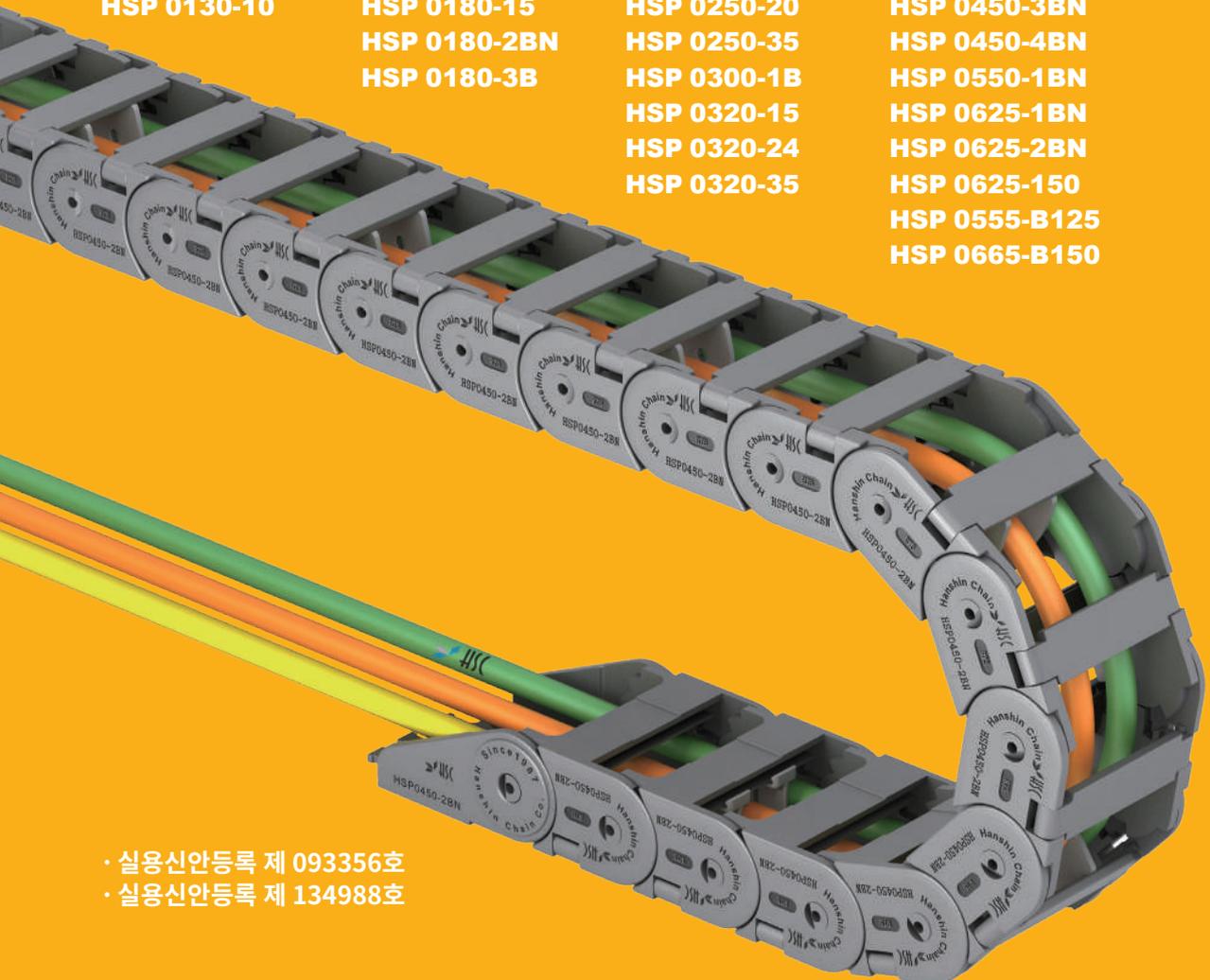
*Factory automation, Wood work machine, Food processing, Grabbing-and-extracting robot, Fabric machine, Special purpose vehicle, Automobile industry, Medical machine, Machining center and Computer related machine*

**HSP 0120-7E**  
**HSP 0120-13E**  
**HSP 0130-1N**  
**HSP 0130-10**

**HSP 0130-2**  
**HSP 0130-2B**  
**HSP 0180-1N**  
**HSP 0180-15**  
**HSP 0180-2BN**  
**HSP 0180-3B**

**HSP 0180-4BN**  
**HSP 0180-50**  
**HSP 0200-1E**  
**HSP 0250-20**  
**HSP 0250-35**  
**HSP 0300-1B**  
**HSP 0320-15**  
**HSP 0320-24**  
**HSP 0320-35**

**HSP 0320-50**  
**HSP 0450-1B [N]**  
**HSP 0450-2B [N]**  
**HSP 0450-3BN**  
**HSP 0450-4BN**  
**HSP 0550-1BN**  
**HSP 0625-1BN**  
**HSP 0625-2BN**  
**HSP 0625-150**  
**HSP 0555-B125**  
**HSP 0665-B150**



- 실용신안등록 제 093356호
- 실용신안등록 제 134988호

## ☑ Features

- 본체는 개폐형으로 Cable, Hose의 설치가 쉽습니다.
- 경량이어서 움직임이 원활합니다.
- Divider가 좌우로 움직입니다.
- 150여종의 다양한 모델과 특수 규격도 주문가능합니다.
- 자동화기계, 목공기계, 식품기계, 산업용로봇 등 다방면에 적합한 모델입니다.
- *HSP type provides cover lead for easy installation of cables and hoses.*
- *Its light weight provides prompt movement.*
- *Divider is adjustable.*
- *Applicable for factory automation, wood work, food processing, industrial robot and many more.*
- *150 various models are manufactured.*
- *Special orders can be made.*

## ☑ Operation

HSP Type은 플라스틱 RoboChain으로 케이블 및 호스의 인입을 용이하게 하는 개폐형으로 설계되어 있습니다. HSP Type의 RoboChain은 모든 구성품이 고강도 엔지니어링 플라스틱으로 설계 제작되어 소음이 적고, 가벼운 장점이 있습니다. 특히 HSP 0450-1BN 이상의 Type은 Divider를 부착하여 사용할 수 있습니다. HSP Type은 전자기계, 산업용 로봇 공작기계 및 다방면에 사용되는 이상적인 장치입니다.

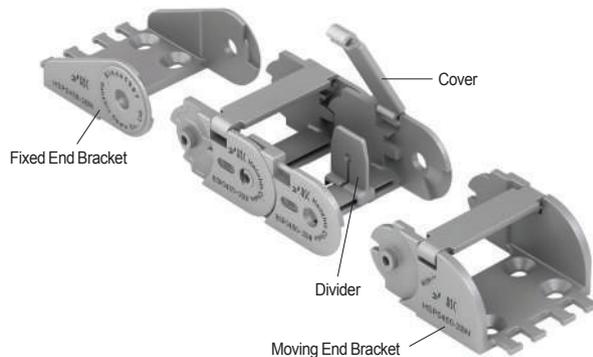
*Cover in HSP Type provides easy access and installation of cables and hoses. All parts are made of highly durable engineering plastic. Therefore, it features less noise, good appearance and light weight. In particular, HSP 0450-1BN and higher types accommodate divider.*

*This type is applicable for many areas such as electronic and electrical machine, industrial robot, machine center and many more.*

## ☑ Properties

- 운동속도 : 180m/min이하
- 케이블 호스의 직경 : 36mm 이하
- 사용온도 : -25 ~ 100°C
- 장력 : 190(건조), 120(공기습도) N/mm<sup>2</sup>
- 인장 팽창 : 4(건조), 6(공기습도) %
- 탄성계수 : 10000(건조), 7000(공기습도) N/mm<sup>2</sup>
- 미끄럼 마찰 : 0.4 (무윤활시)
- 기본색 : Black
- 재질 : 엔지니어링 플라스틱
- *Moving Velocity: below 180m/min*
- *Diameter of Cable Hose: less than 36mm*
- *Operating Temperature: -25 ~ 100°C*
- *Tension: 190(in dry), 120(in moisture) N/mm<sup>2</sup>*
- *Stretch: 4(in dry), 6(in moisture) %*
- *Elasticity: 10000(in dry), 7000(in moisture) N/mm<sup>2</sup>*
- *Sliding Friction: 0.4(non-greased)*
- *Basic Color: Black*
- *Material: Engineering Plastic*

## ☑ Structure

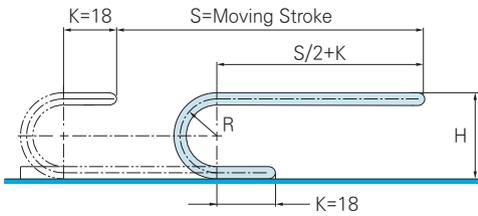
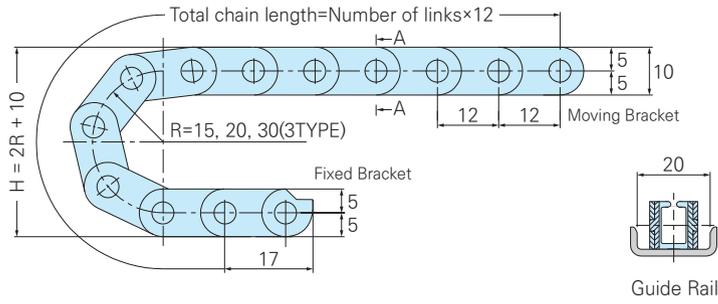


# HSP 0120-7E (국내 최소형)

## ORDER EXAMPLE

HSP0120-7E 15R 1000L 3SETS  
 Type Radius Length Q'ty

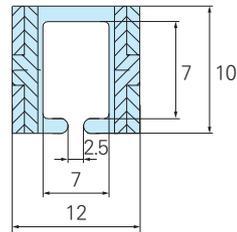
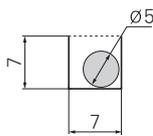
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 36$$

Radius(R)	15	20	30
Height(H)	40	50	70

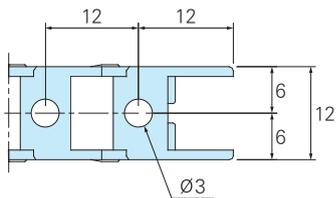
## Max. Cable Diameter Cross Section



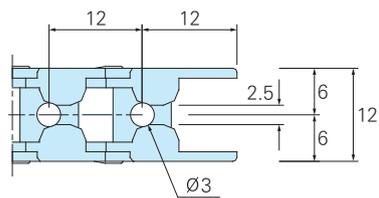
A-A Cross Section

## Brackets

(별도의 END BRACKET이 없이 CHAIN에 취부)



Fixed Bracket

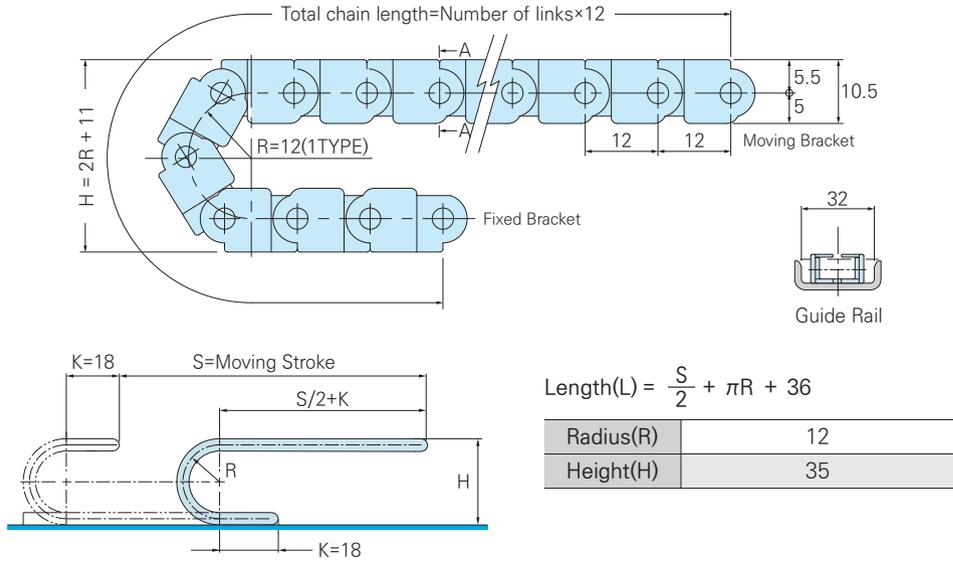


Moving Bracket

# HSP 0120-13E

ORDER EXAMPLE			
HSP0120-13E	12R	1000L	3SETS
Type	Radius	Length	Q'ty

## Chain, Guide Rail

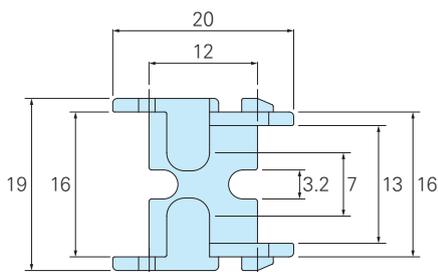


## Max. Cable Diameter Cross Section



## Brackets

(별도의 END BRACKET이 없이 CHAIN에 취부)

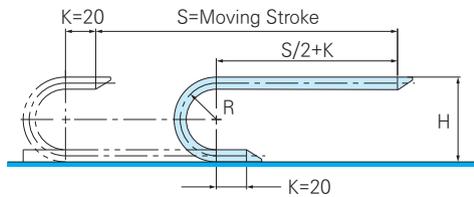
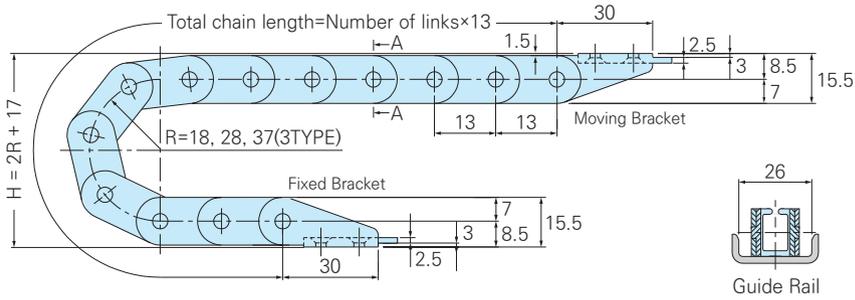


# HSP 0130-1N (Cover 일체형)

## ORDER EXAMPLE

HSP0130-1N 37R 1000L 3SETS  
 Type Radius Length Q'ty

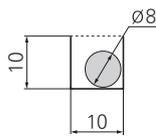
## Chain, Guide Rail



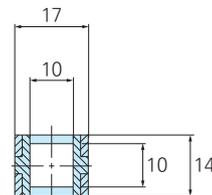
$$\text{Length}(L) = \frac{S}{2} + \pi R + 40$$

Radius(R)	18	28	37
Height(H)	53	73	91

## Max. Cable Diameter Cross Section

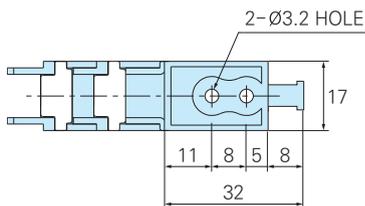


(Cover 일체형)

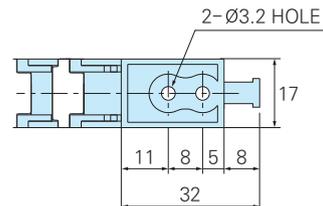


A-A Cross Section

## Brackets



Fixed Bracket



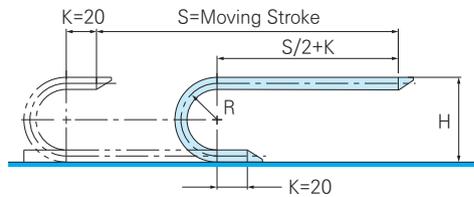
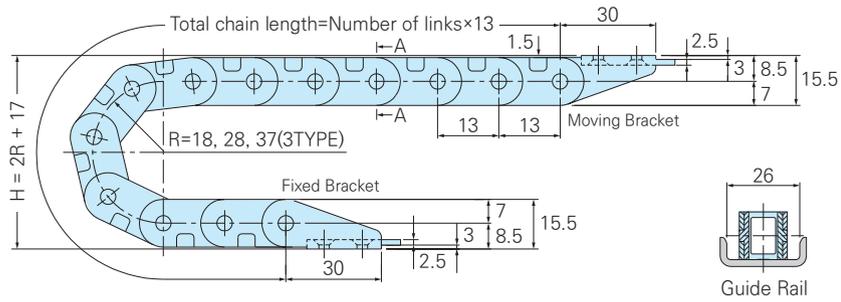
Moving Bracket

# HSP 0130-10 (HSP 0130-1BN)

ORDER EXAMPLE

HSP 0130-10 37R 1000L 3SETS  
 Type Radius Length Q'ty

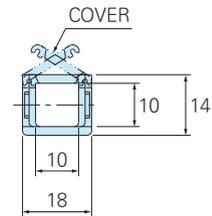
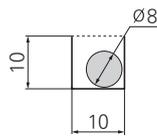
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 40$$

Radius(R)	18	28	37
Height(H)	53	73	91

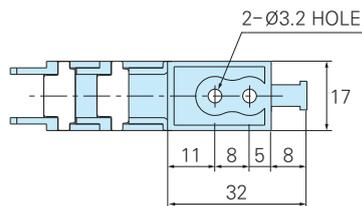
## Max. Cable Diameter Cross Section



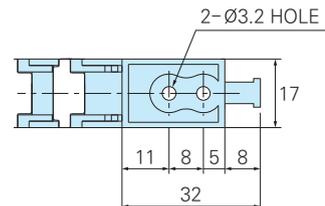
A-A Cross Section

## Brackets

(Hole 간격 8mm)



Fixed Bracket



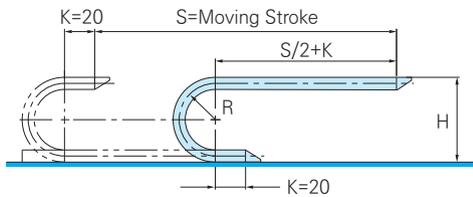
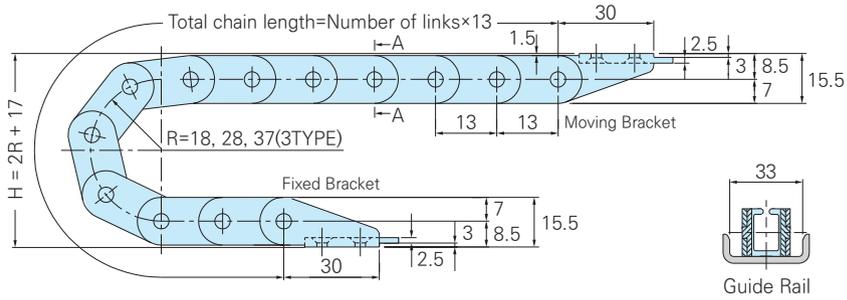
Moving Bracket

# HSP 0130-2 (Cover 일체형)

## ORDER EXAMPLE

HSP0130-2    28R    2000L    10SETS  
 Type          Radius    Length    Q'ty

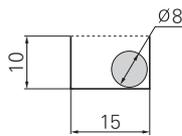
## Chain, Guide Rail



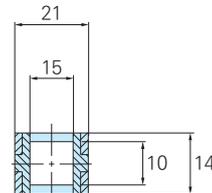
$$\text{Length}(L) = \frac{S}{2} + \pi R + 40$$

Radius(R)	18	28	37
Height(H)	53	73	91

## Max. Cable Diameter Cross Section

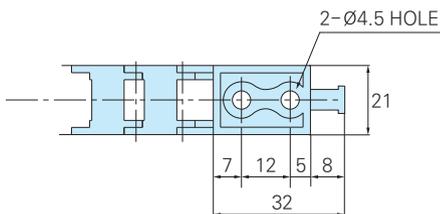


(Cover 일체형)

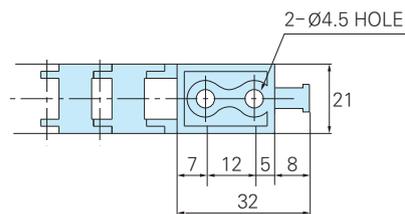


A-A Cross Section

## Brackets



Fixed Bracket



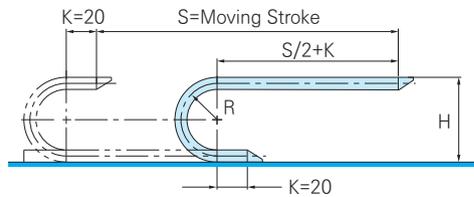
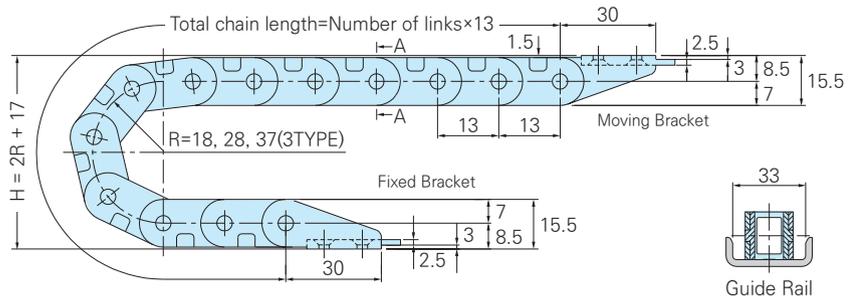
Moving Bracket

# HSP 0130-2B

ORDER EXAMPLE

HSP0130-2B 28R 1000L 7SETS  
 Type Radius Length Q'ty

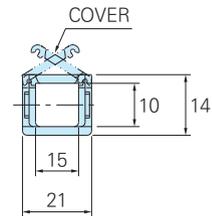
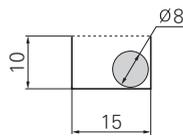
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 40$$

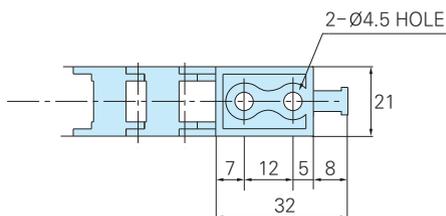
Radius(R)	18	28	37
Height(H)	53	73	91

## Max. Cable Diameter Cross Section

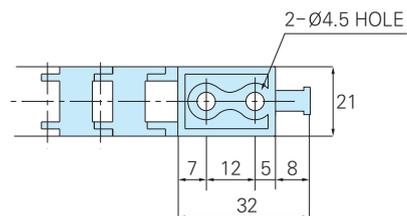


A-A Cross Section

## Brackets



Fixed Bracket



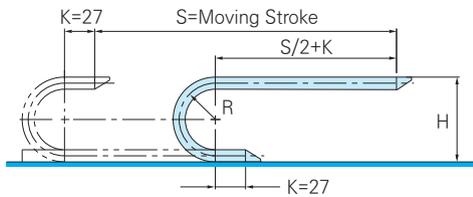
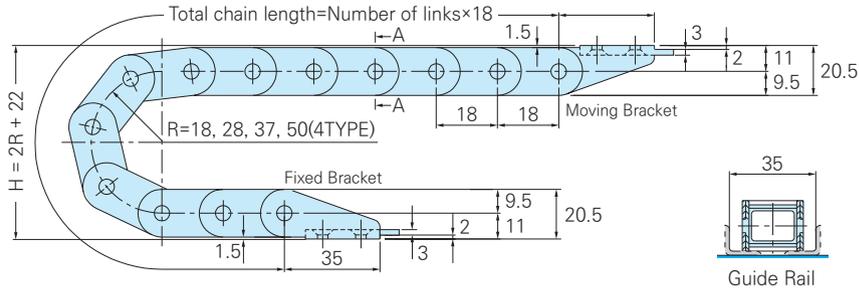
Moving Bracket

# HSP 0180-1N (Cover 일체형)

## ORDER EXAMPLE

HSP0180-1N 50R 1000L 3SETS  
 Type Radius Length Q'ty

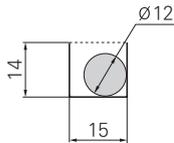
## Chain, Guide Rail



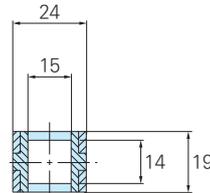
$$\text{Length}(L) = \frac{S}{2} + \pi R + 54$$

Radius(R)	18	28	37	50
Height(H)	58	78	96	122

## Max. Cable Diameter Cross Section

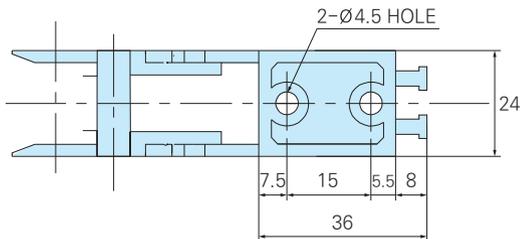


(Cover 일체형)

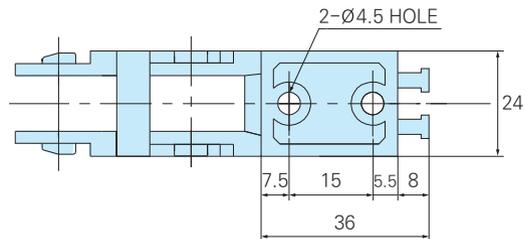


A-A Cross Section

## Brackets



Fixed Bracket

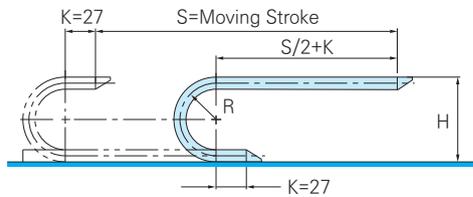
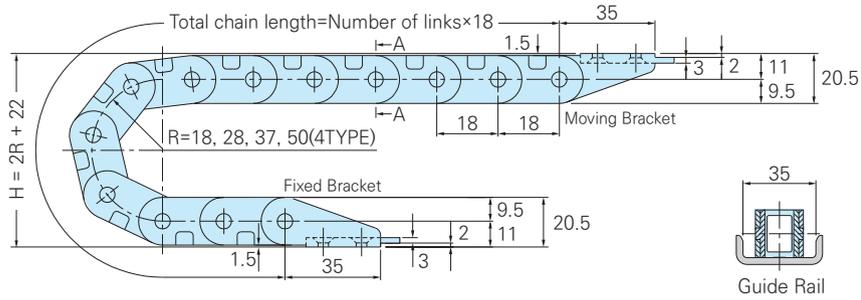


Moving Bracket

# HSP 0180-15 (HSP 0180-1BN)

ORDER EXAMPLE			
HSP 0180-15	28R	1000L	3SETS
Type	Radius	Length	Q'ty

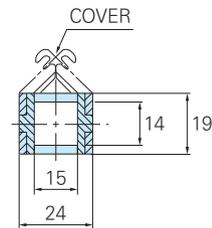
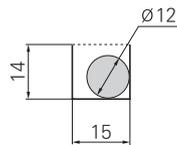
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 54$$

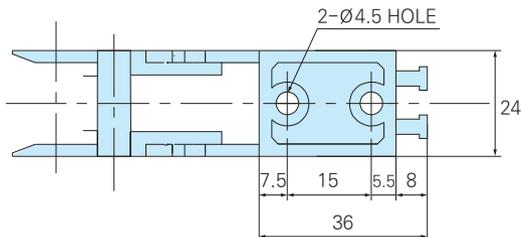
Radius(R)	18	28	37	50
Height(H)	58	78	96	122

## Max. Cable Diameter Cross Section

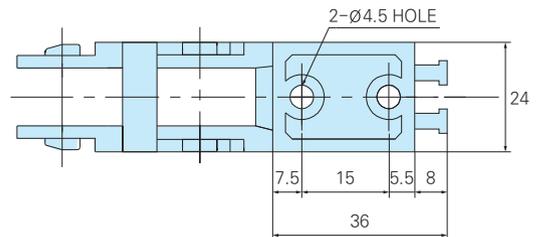


A-A Cross Section

## Brackets



Fixed Bracket



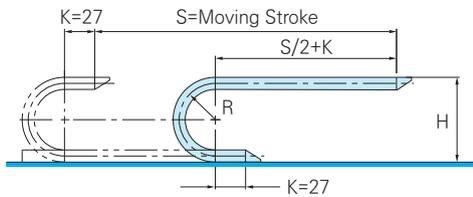
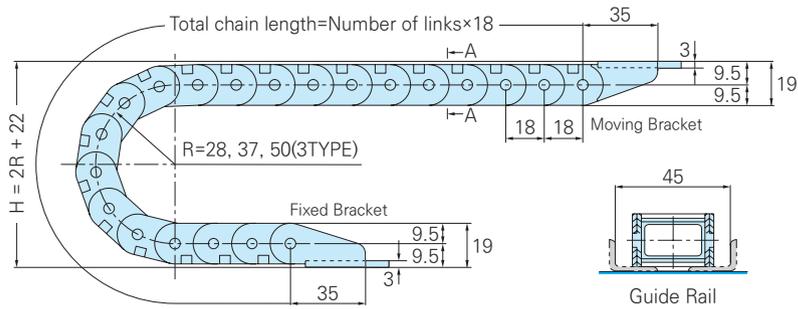
Moving Bracket

# HSP 0180-2BN

## ORDER EXAMPLE

HSP0180-2BN 50R 1500L 3SETS  
 Type Radius Length Q'ty

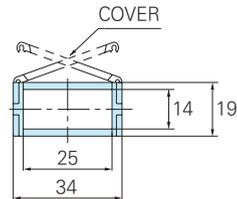
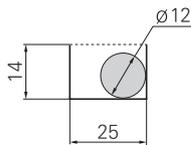
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 54$$

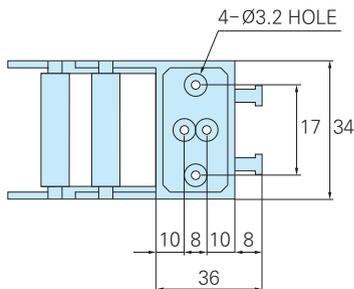
Radius(R)	28	37	50
Height(H)	78	96	122

## Max. Cable Diameter Cross Section

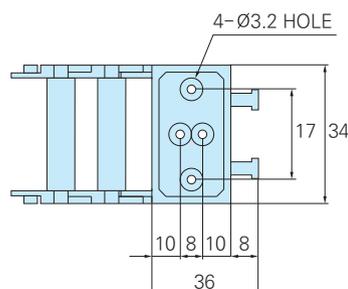


A-A Cross Section

## Brackets



Fixed Bracket



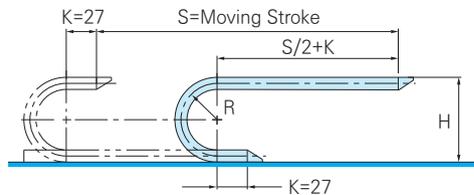
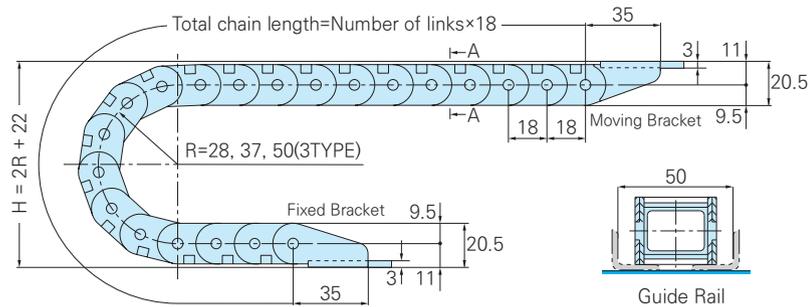
Moving Bracket

# HSP 0180-3B

## ORDER EXAMPLE

HSP0180-3B 50R 1000L 3SETS  
 Type Radius Length Q'ty

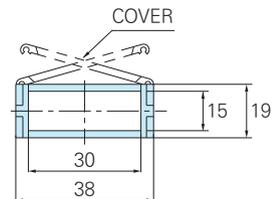
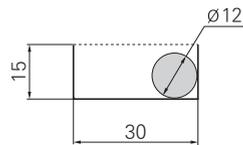
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 54$$

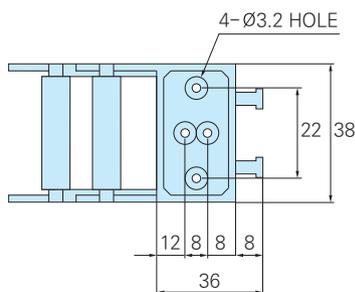
Radius(R)	28	37	50
Height(H)	78	96	122

## Max. Cable Diameter Cross Section

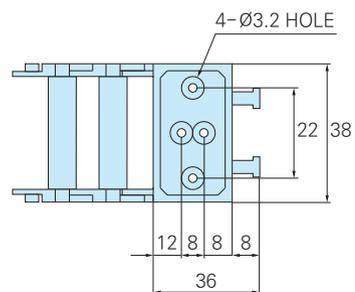


A-A Cross Section

## Brackets



Fixed Bracket



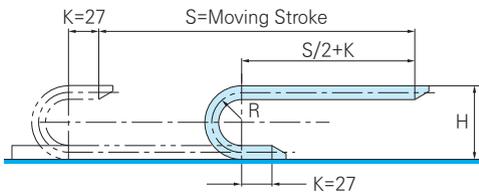
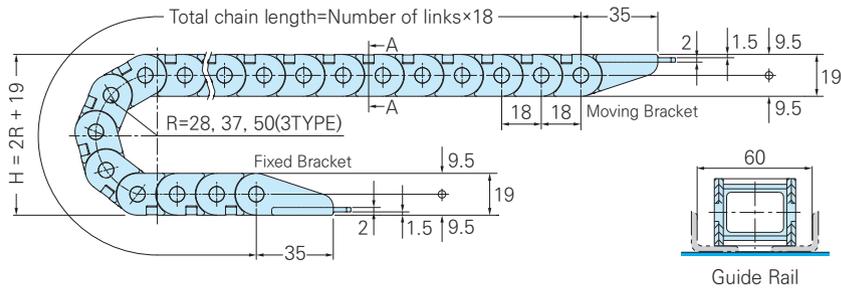
Moving Bracket

# HSP 0180-4BN

## ORDER EXAMPLE

HSP0180-4BN 50R 1500L 3SETS  
 Type Radius Length Q'ty

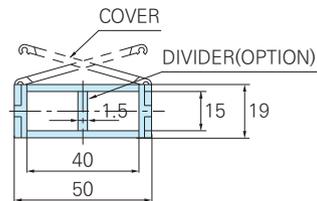
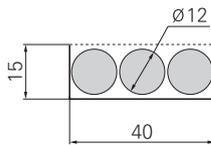
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 54$$

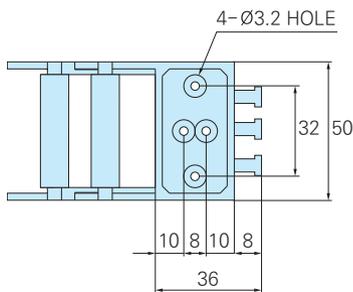
Radius(R)	28	37	50
Height(H)	75	93	119

## Max. Cable Diameter Cross Section

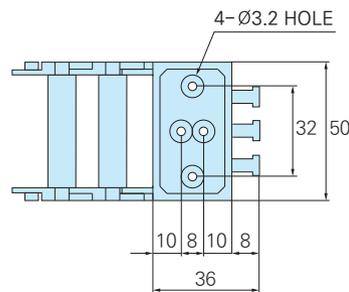


A-A Cross Section

## Brackets



Fixed Bracket

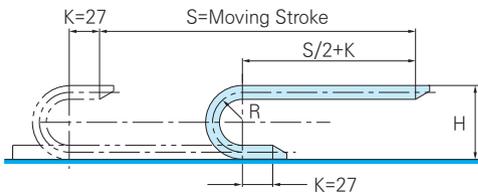
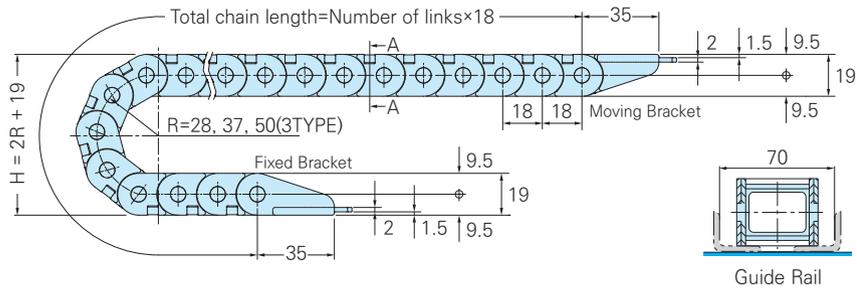


Moving Bracket

# HSP 0180-50 *NEW*

ORDER EXAMPLE			
HSP0180-50	50R	1500L	3SETS
Type	Radius	Length	Q'ty

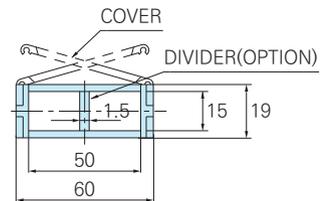
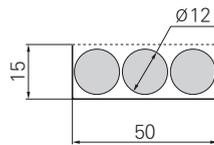
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 54$$

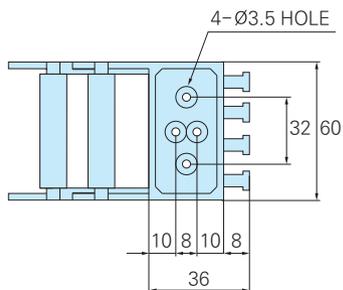
Radius(R)	28	37	50
Height(H)	75	93	119

## Max. Cable Diameter Cross Section

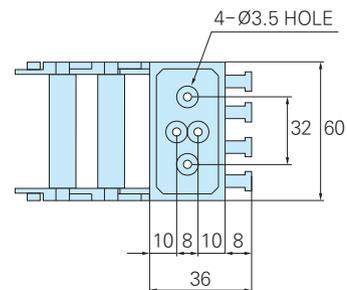


A-A Cross Section

## Brackets



Fixed Bracket



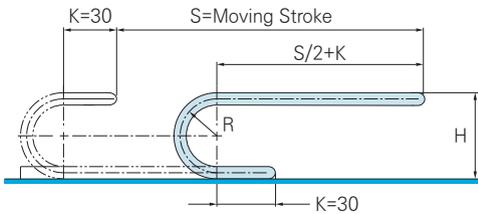
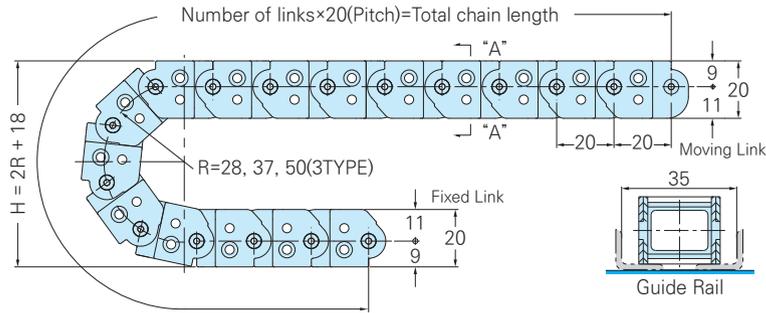
Moving Bracket

# HSP 0200-1E *NEW*

## ORDER EXAMPLE

HSP0200-1E 28R 1000L 3SETS  
 Type Radius Length Q'ty

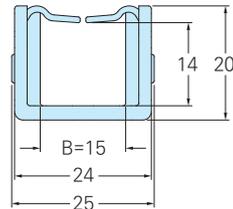
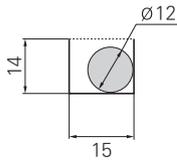
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 60$$

Radius(R)	28	37	50
Height(H)	74	92	118

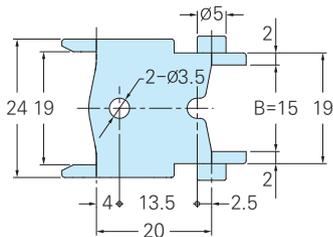
## Max. Cable Diameter Cross Section



A-A Cross Section

## Brackets

(별도의 END BRACKET이 없이 CHAIN에 취부)



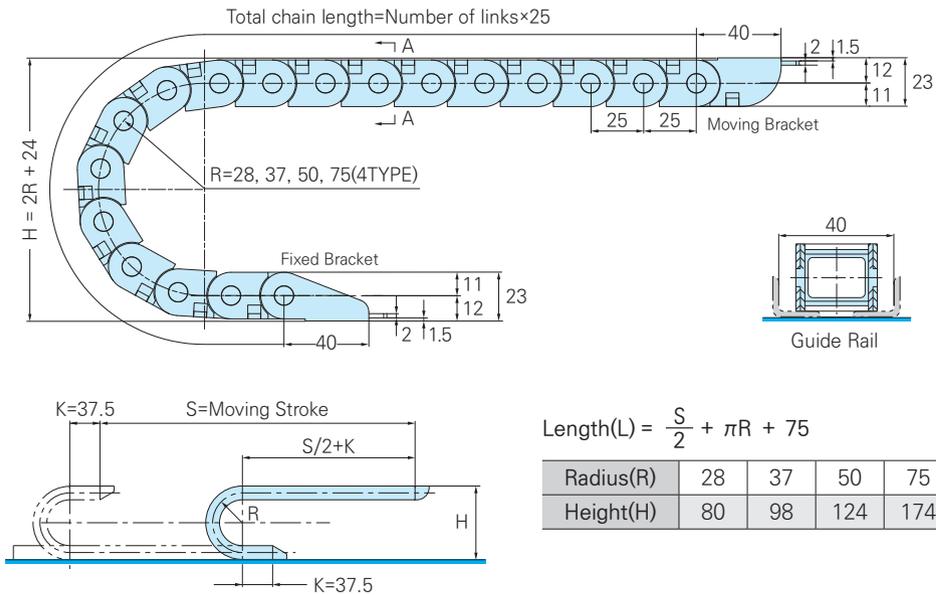
Moving-Fixed Link



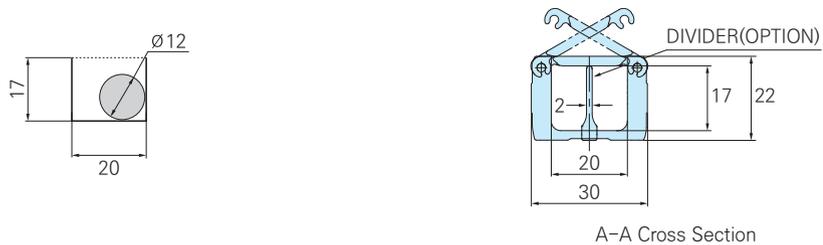
# HSP 0250-20 *NEW*

ORDER EXAMPLE			
HSP0250-20	28R	1000L	3SETS
Type	Radius	Length	Q'ty

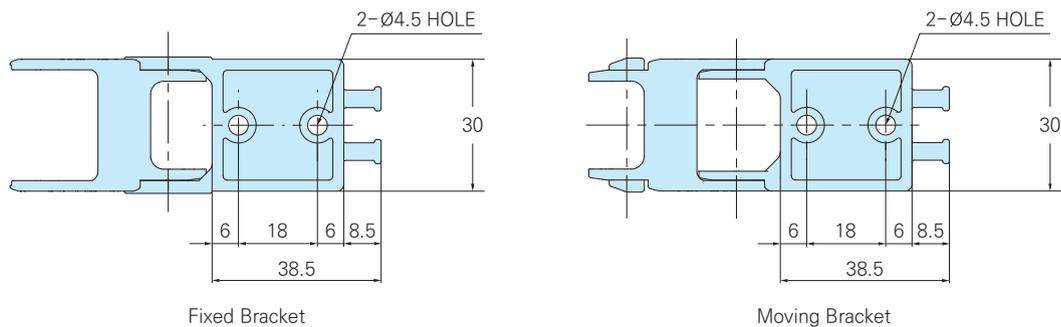
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



## Brackets

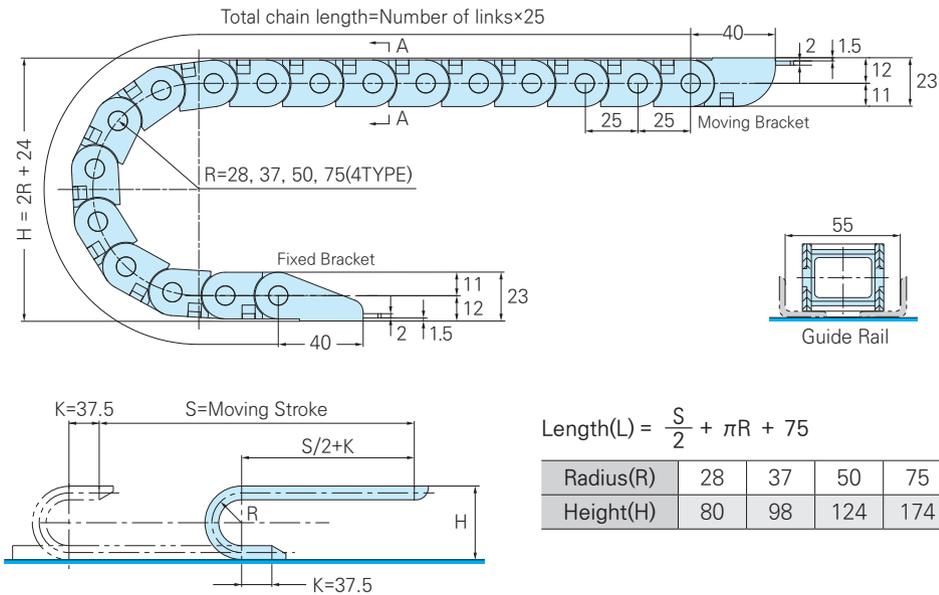


# HSP 0250-35 *NEW*

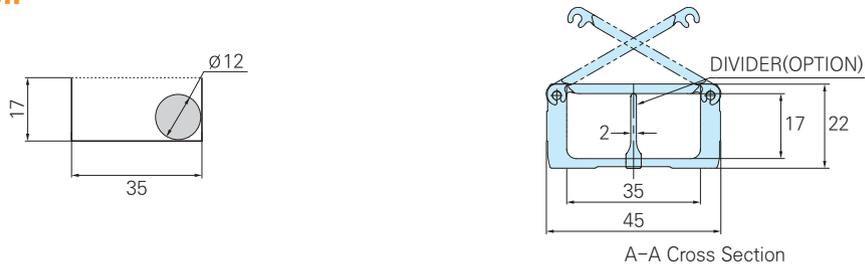
## ORDER EXAMPLE

HSP0250-35 28R 1000L 3SETS  
 Type Radius Length Q'ty

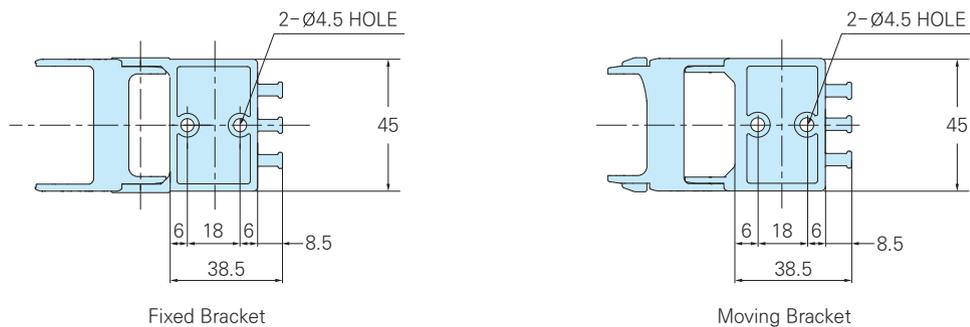
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



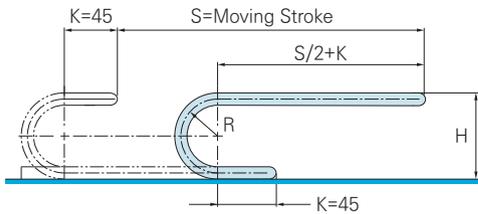
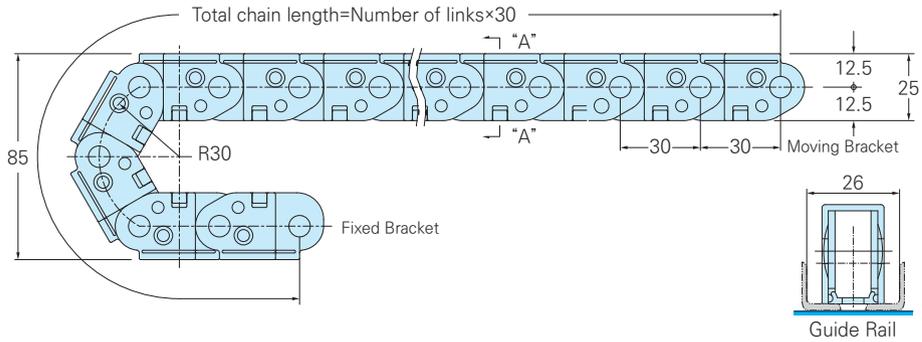
## Brackets



# HSP 0300-1B

ORDER EXAMPLE			
HSP0300-1B	30R	1000L	3SETS
Type	Radius	Length	Q'ty

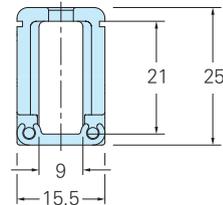
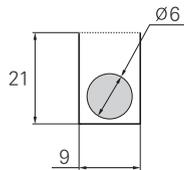
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 90$$

Radius(R)	30
Height(H)	85

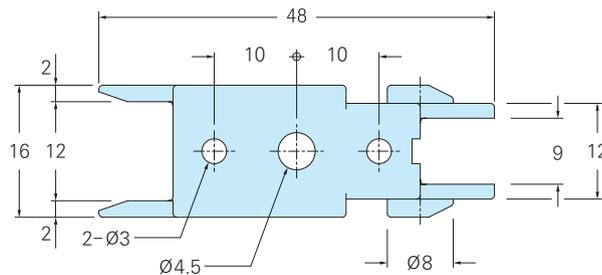
## Max. Cable Diameter Cross Section



A-A Cross Section

## Brackets

(별도의 END BRACKET이 없이 CHAIN에 취부)

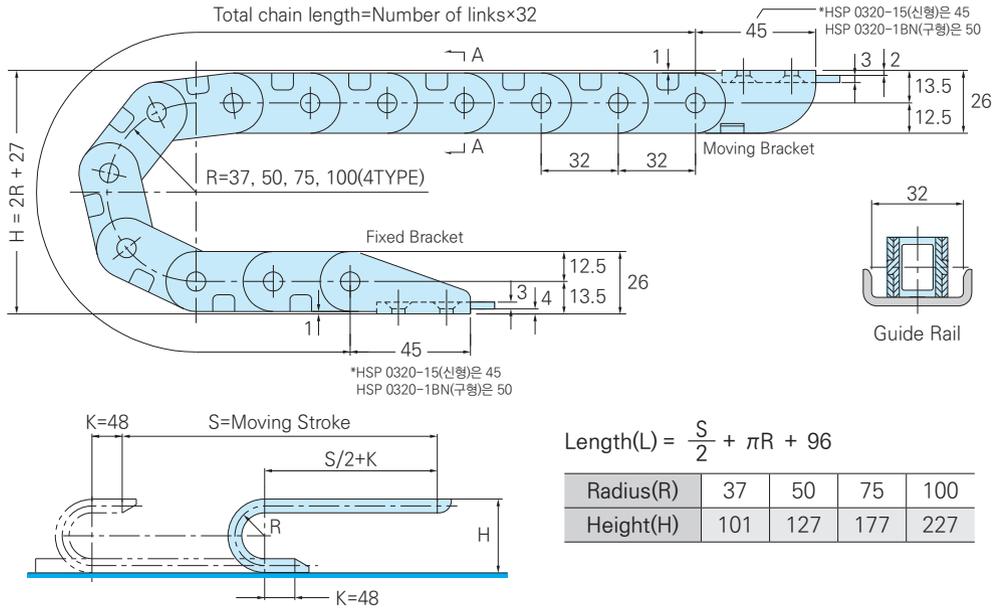


# HSP 0320-15 (HSP 0320-1BN)

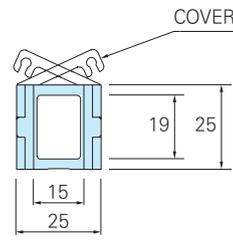
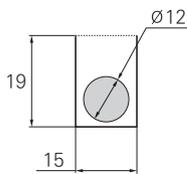
## ORDER EXAMPLE

HSP0320-15 50R 2000L 3SETS  
 Type Radius Length Q'ty

## Chain, Guide Rail



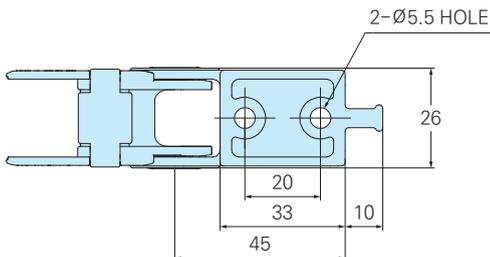
## Max. Cable Diameter Cross Section



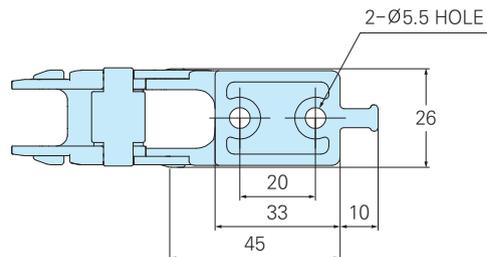
A-A Cross Section

\*HSP 0320-15(신형) B폭 15, HSP 0320-1BN(구형) B폭 13.5

## Brackets



Fixed Bracket

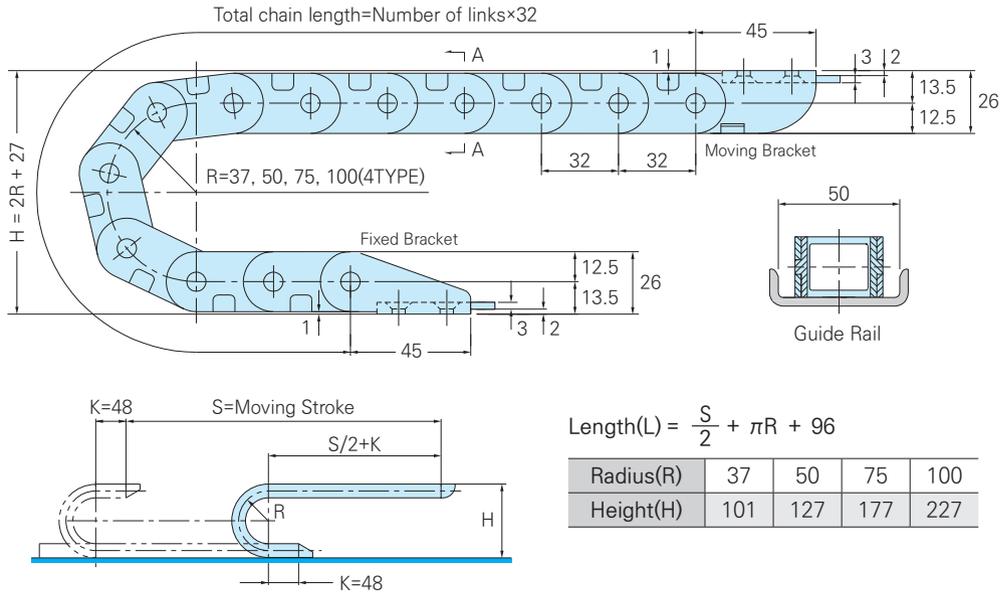


Moving Bracket

# HSP 0320-24 (HSP 0320-2BN)

ORDER EXAMPLE			
HSP0320-24	75R	1000L	3SETS
Type	Radius	Length	Q'ty

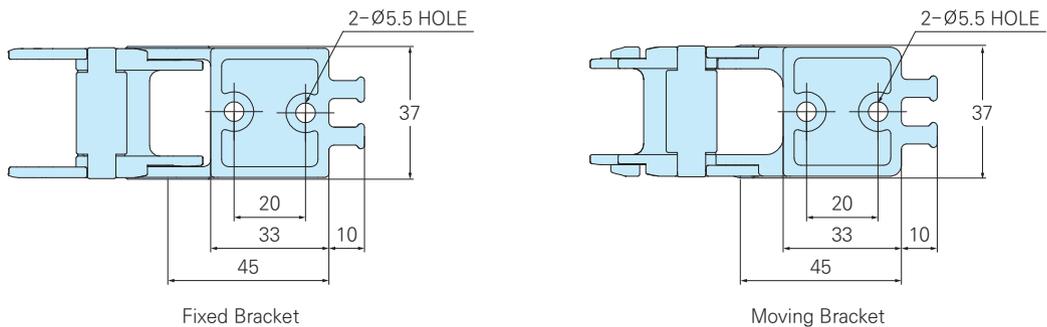
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



## Brackets

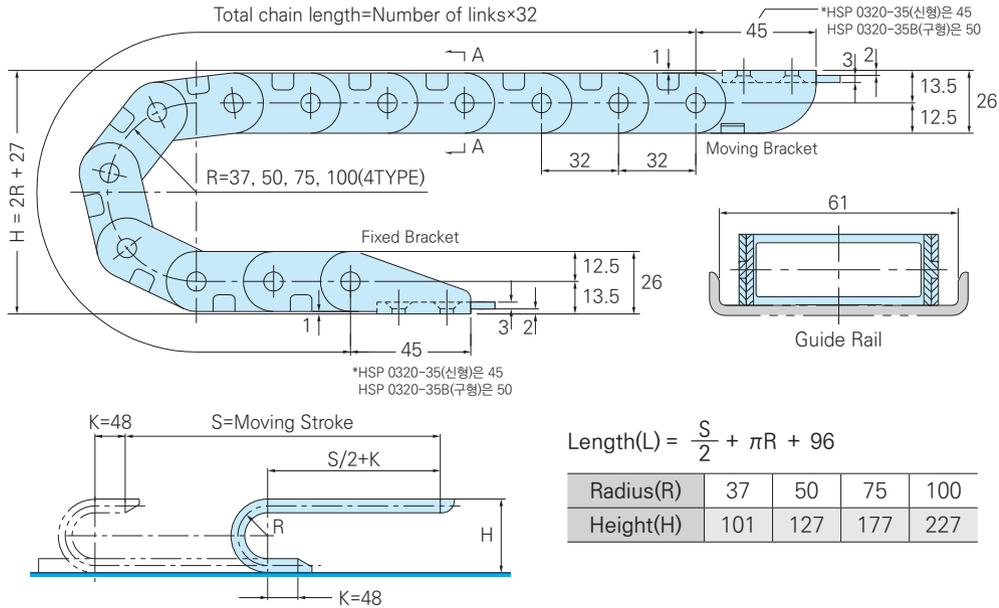


# HSP 0320-35 (HSP 0320-35B)

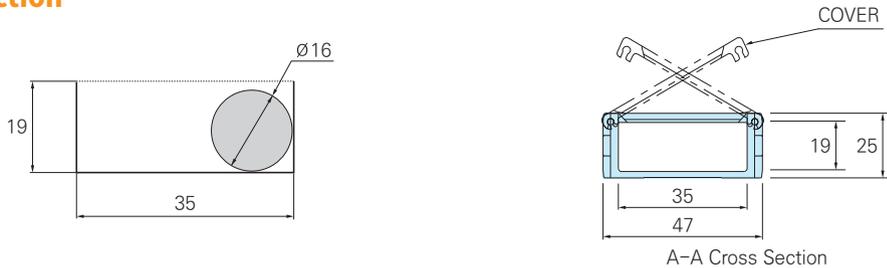
## ORDER EXAMPLE

HSP0320-35 37R 2000L 10SETS  
 Type Radius Length Q'ty

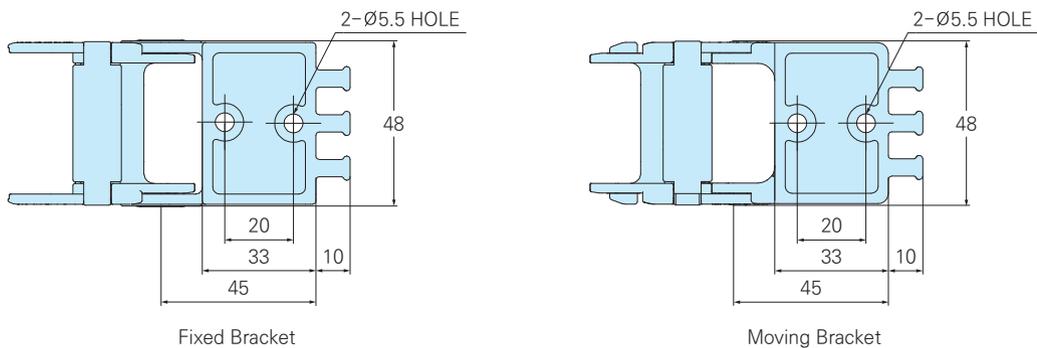
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



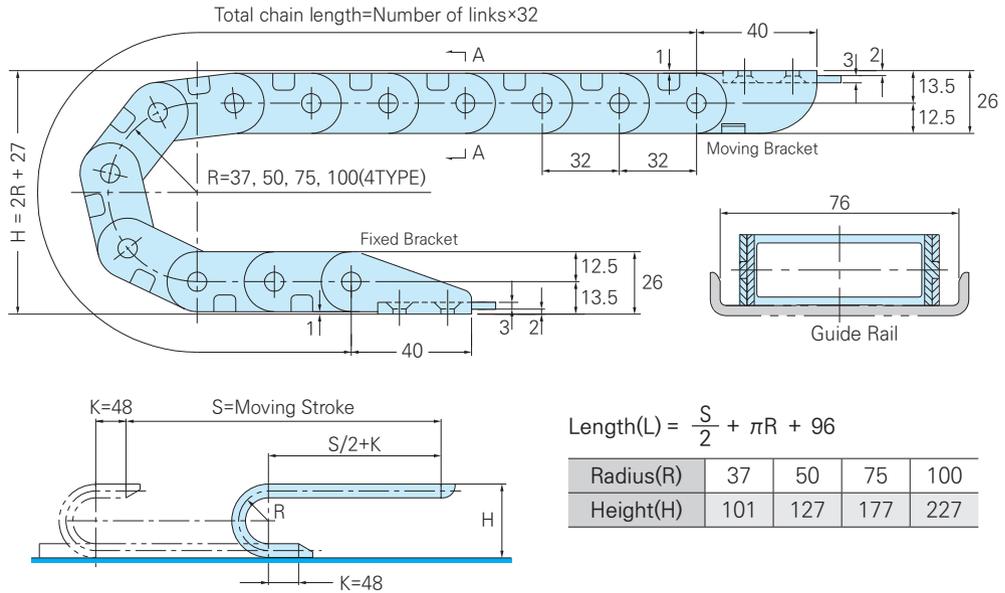
## Brackets



# HSP 0320-50 (HSP 0320-3BN)

ORDER EXAMPLE			
HSP0320-50	50R	1000L	3SETS
Type	Radius	Length	Q'ty

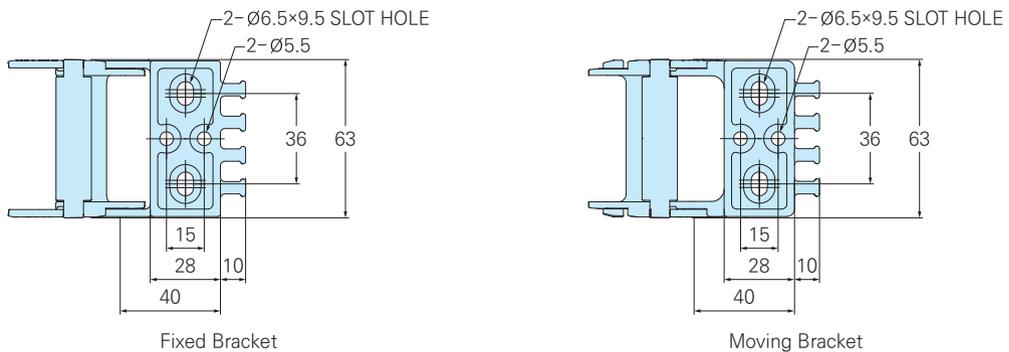
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



## Brackets

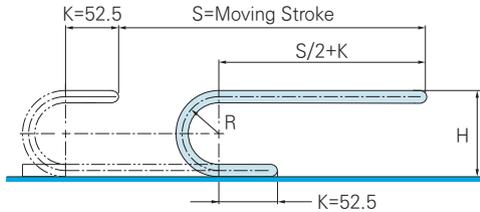
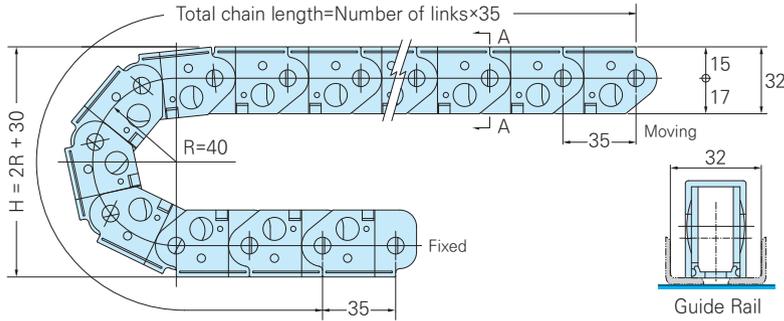


# HSP 0350-1B

## ORDER EXAMPLE

HSP0350-1B 40R 2000L 10SETS  
 Type Radius Length Q'ty

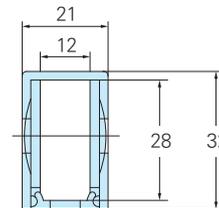
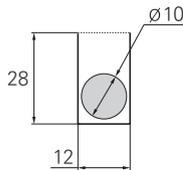
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 105$$

Radius(R)	40
Height(H)	110

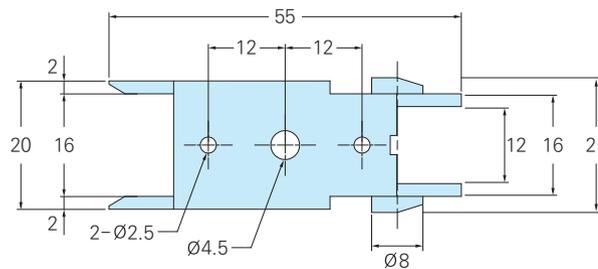
## Max. Cable Diameter Cross Section



A-A Cross Section

## Brackets

(별도의 END BRACKET이 없이 CHAIN에 취부)

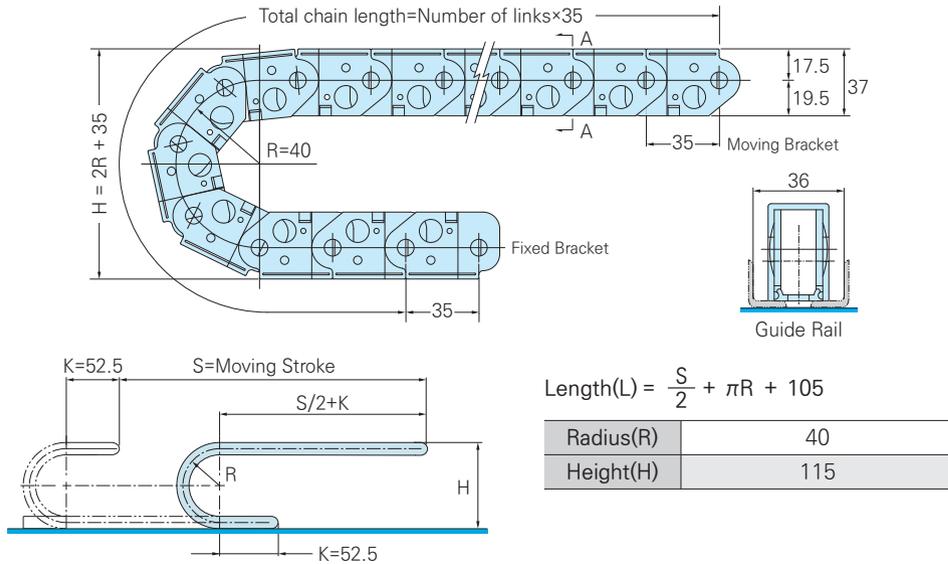


# HSP 0350-2B

ORDER EXAMPLE

HSP0350-2B 40R 1000L 3SETS  
 Type Radius Length Q'ty

## Chain, Guide Rail

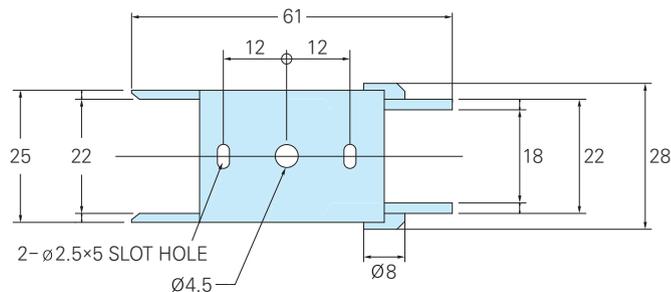


## Max. Cable Diameter Cross Section



## Brackets

(별도의 END BRACKET이 없이 CHAIN에 취부)

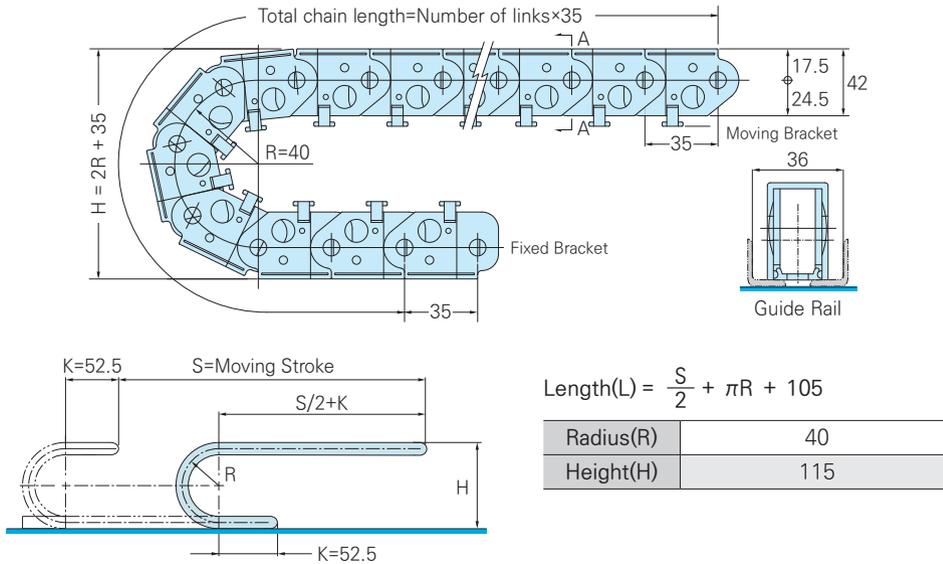


# HSP 0350-2BW

## ORDER EXAMPLE

HSP0350-2BW 40R 1000L 3SETS  
 Type Radius Length Q'ty

## Chain, Guide Rail

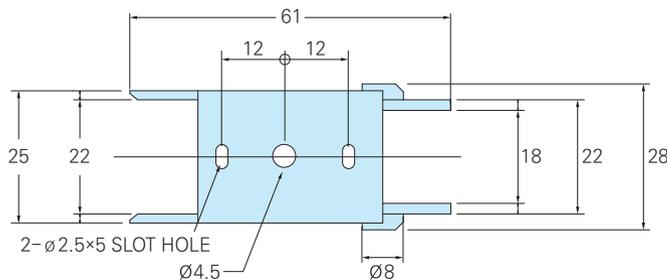


## Max. Cable Diameter Cross Section



## Brackets

(별도의 END BRACKET이 없이 CHAIN에 취부)



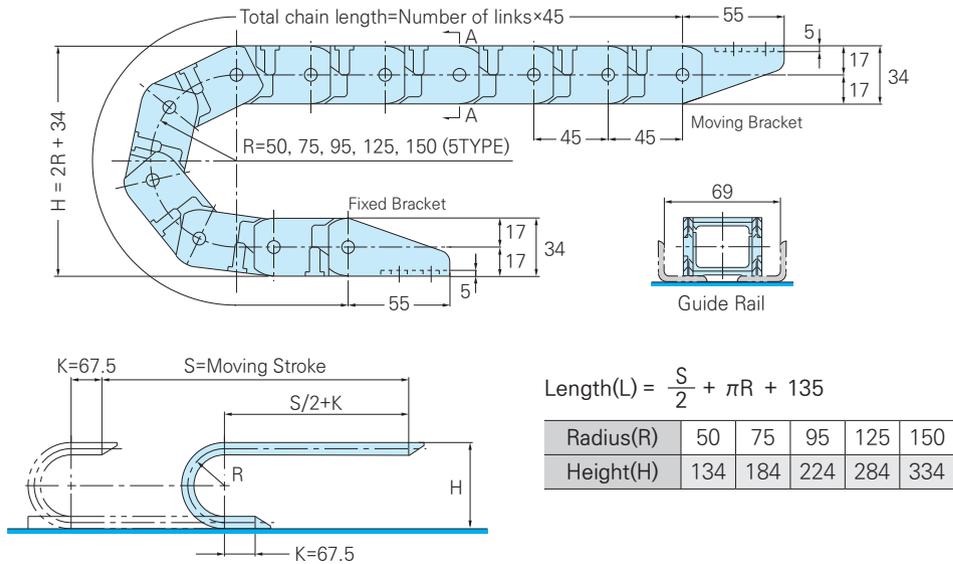
# HSP 0450-1B

HSP 0450-1B 제품은 기존제품으로  
신형인 HSP 0450-1BN으로 권장합니다.

## ORDER EXAMPLE

HSP0450-1B 150R 2000L 3SETS  
Type Radius Length Q'ty

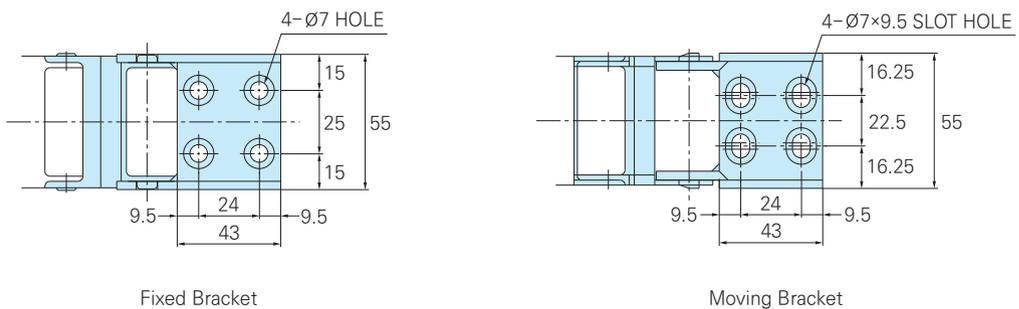
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



## Brackets

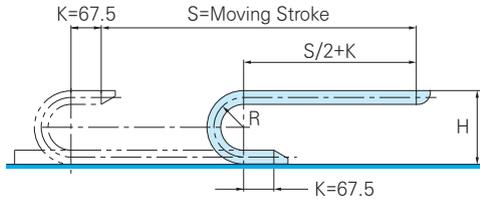
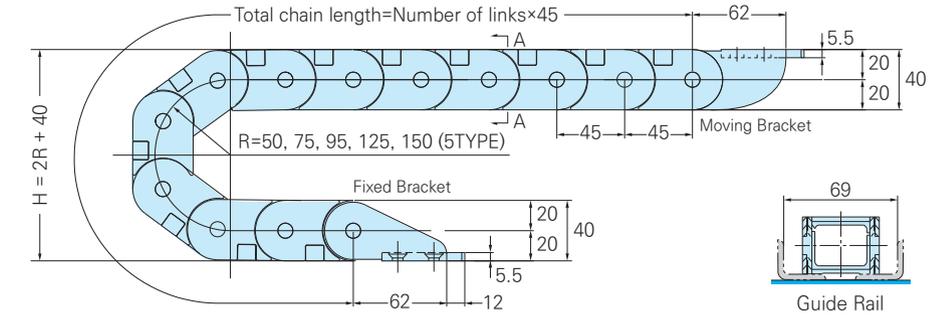


# HSP 0450-1BN

## ORDER EXAMPLE

HSP0450-1BN 150R 2000L 3SETS  
 Type Radius Length Q'ty

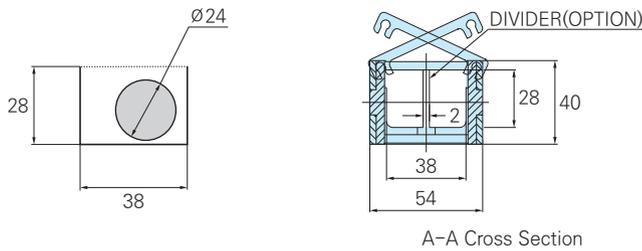
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 135$$

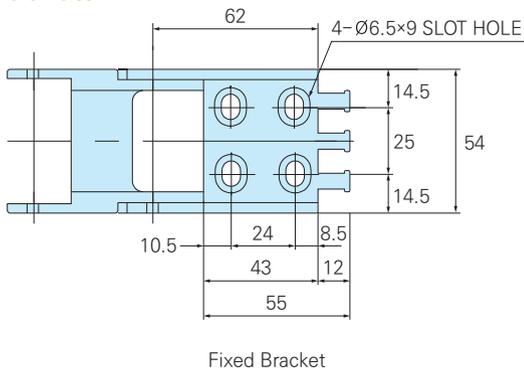
Radius(R)	50	75	95	125	150
Height(H)	140	190	230	290	340

## Max. Cable Diameter Cross Section

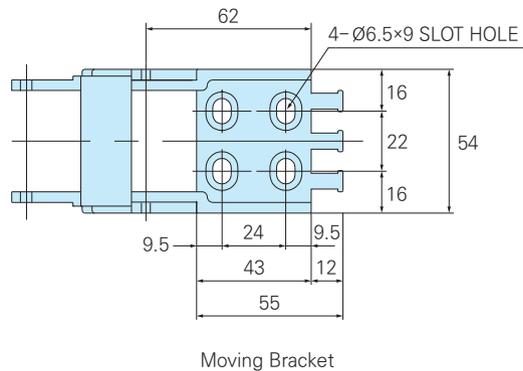


HSP 0450-1BNC  
 See page 86

## Brackets



Fixed Bracket



Moving Bracket

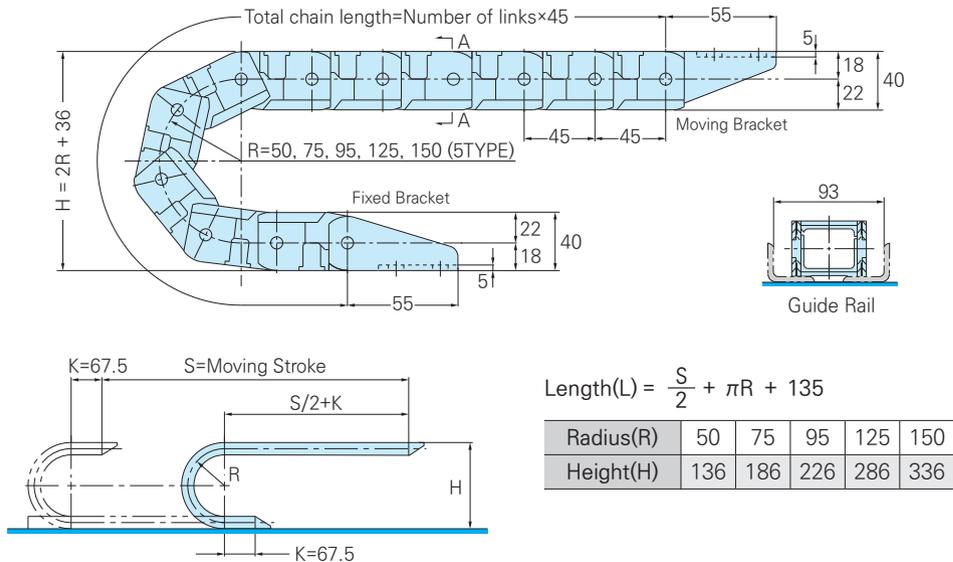
# HSP 0450-2B

HSP 0450-2B 제품은 기존제품으로  
신형인 HSP 0450-2BN으로 권장합니다.

## ORDER EXAMPLE

HSP0450-2B 150R 2000L 3SETS  
Type Radius Length Q'ty

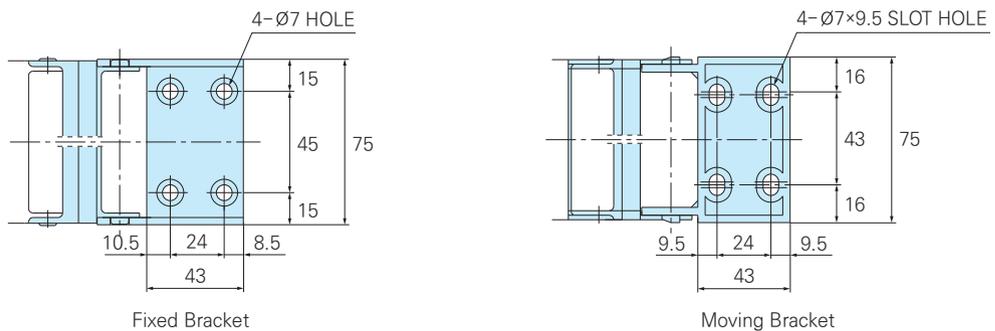
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



## Brackets

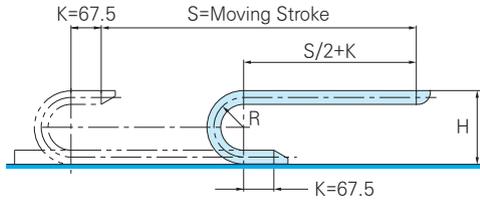
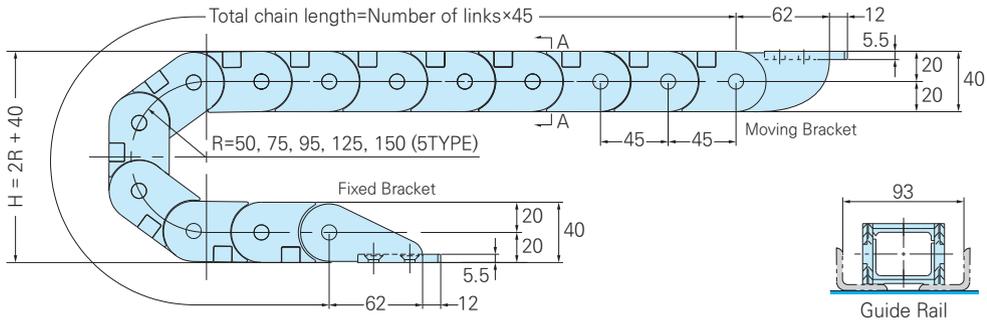


# HSP 0450-2BN

## ORDER EXAMPLE

HSP0450-2BN 150R 2000L 3SETS  
 Type Radius Length Q'ty

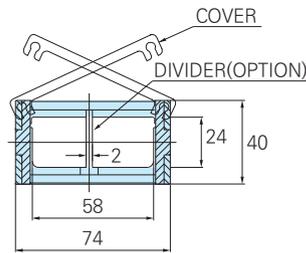
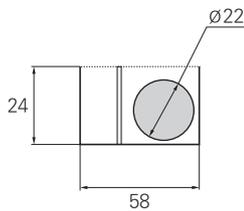
## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 135$$

Radius(R)	50	75	95	125	150
Height(H)	140	190	230	290	340

## Max. Cable Diameter Cross Section

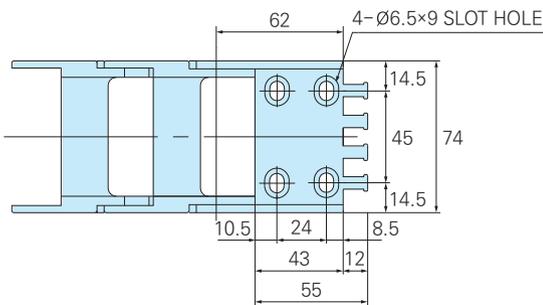


A-A Cross Section

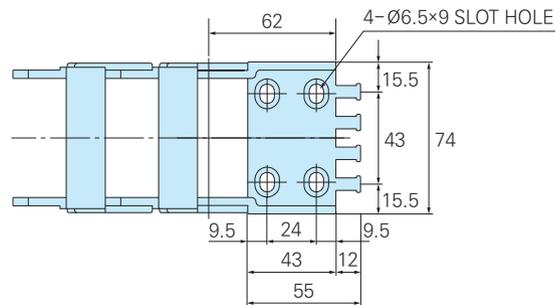


HSP 0450-2BNC  
 See page 87

## Brackets



Fixed Bracket

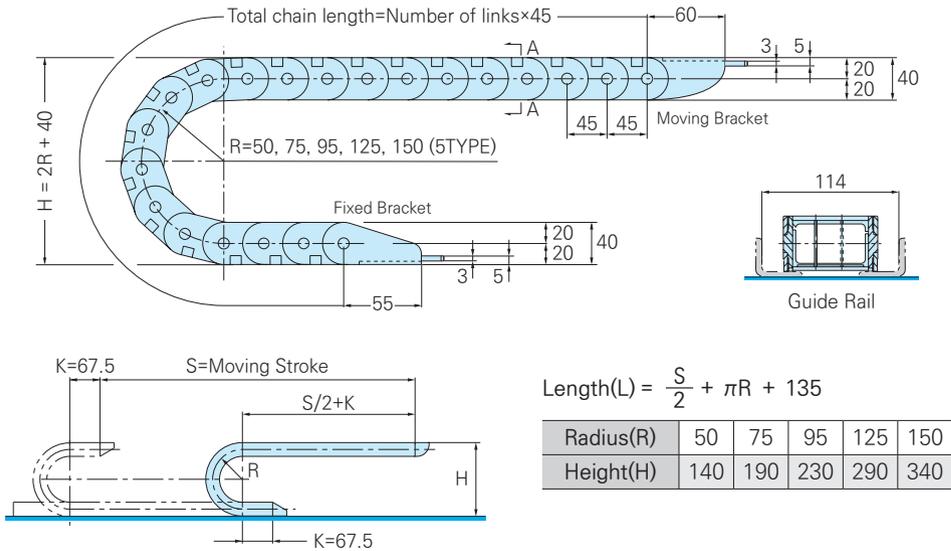


Moving Bracket

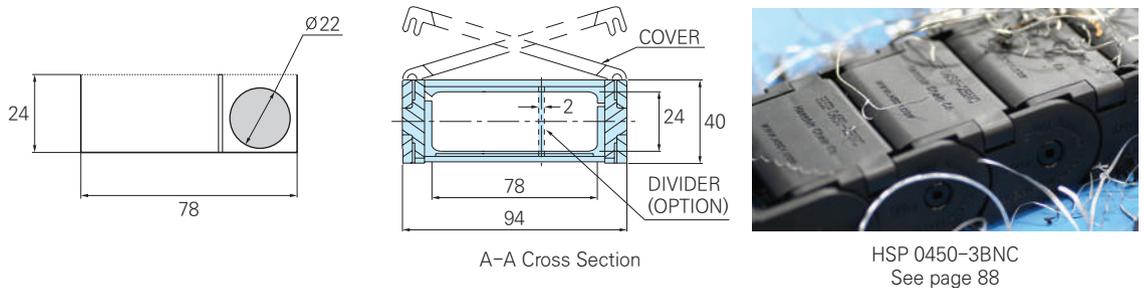
# HSP 0450-3BN

ORDER EXAMPLE			
HSP0450-3BN	50R	2000L	3SETS
Type	Radius	Length	Q'ty

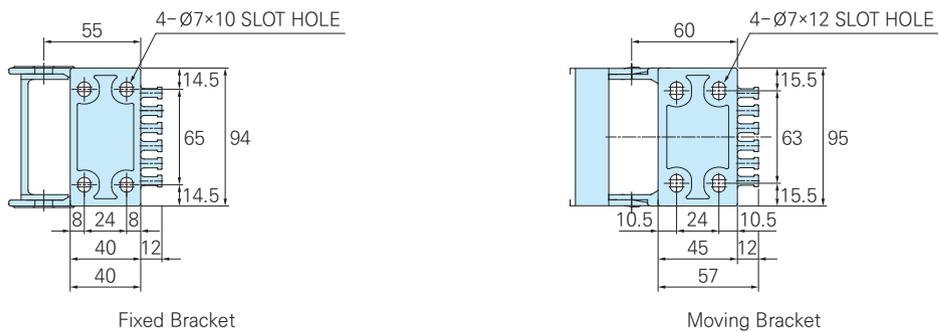
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



## Brackets

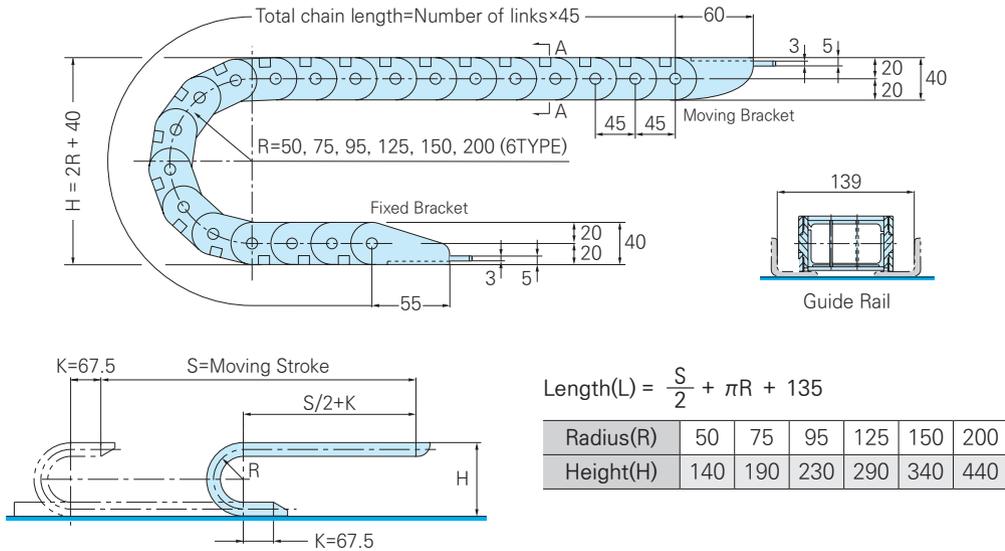


# HSP 0450-4BN

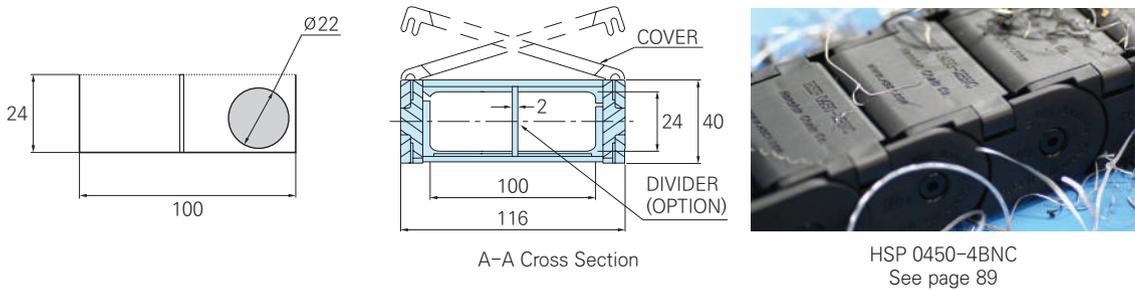
## ORDER EXAMPLE

HSP0450-4BN 150R 3000L 3SETS  
 Type Radius Length Q'ty

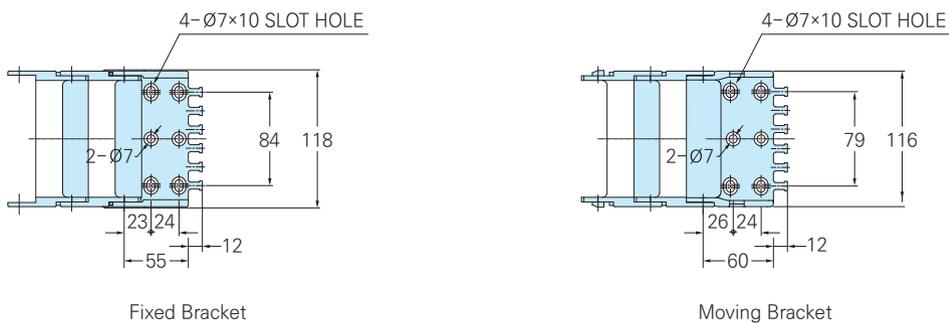
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



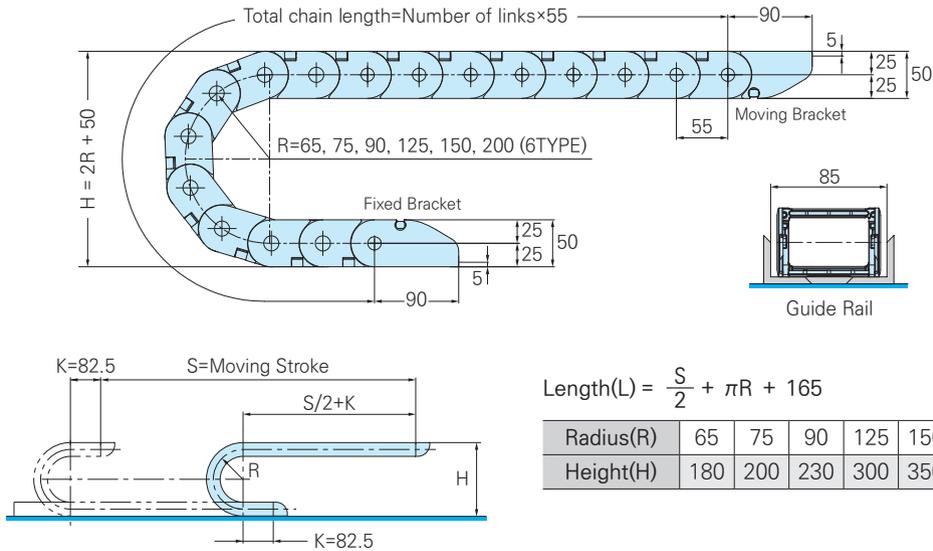
## Brackets



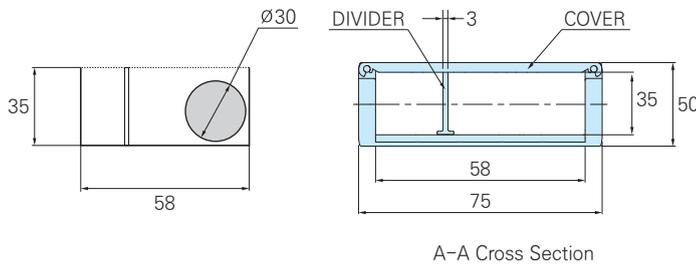
# HSP 0550-1BN

ORDER EXAMPLE			
HSP0550-1BN	90R	2000L	3SETS
Type	Radius	Length	Q'ty

## Chain, Guide Rail



## Max. Cable Diameter Cross Section



## How to assemble



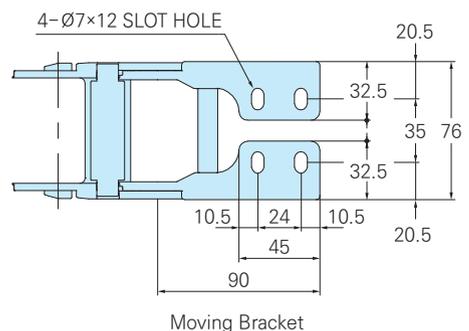
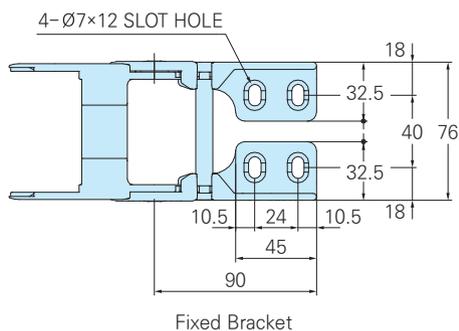
1. 우레탄 망치 등을 사용하여 동봉된 PL-BAR를 엔드 브라켓 홈에 끼워줍니다.



2. 전용 렌치나 기타 공구를 사용하여 90도로 돌려 PL-BAR를 고정 시켜 줍니다.

\* 전용 렌치는 요청하시면 제품 출고 시 무상으로 동봉됩니다.

## Brackets

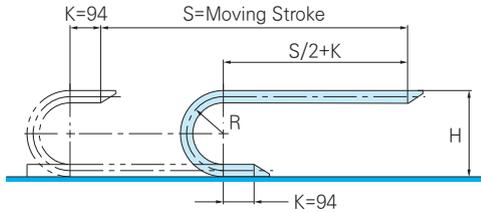
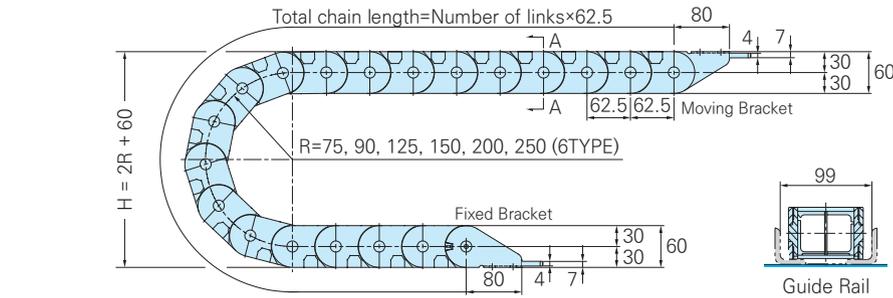


# HSP 0625-1BN

## ORDER EXAMPLE

HSP0625-1BN 90R 2000L 3SETS  
 Type Radius Length Q'ty

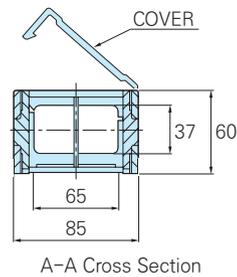
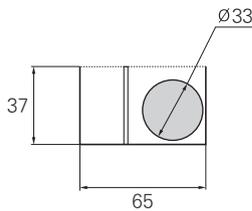
## Chain, Guide Rail



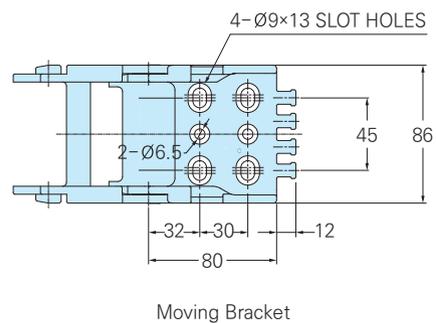
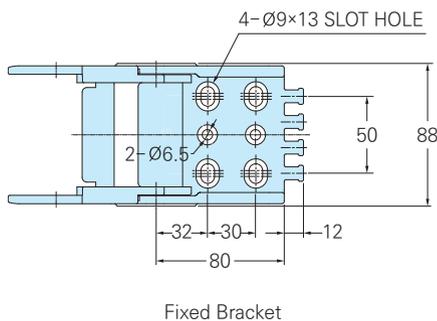
$$\text{Length}(L) = \frac{S}{2} + \pi R + 188$$

Radius(R)	75	90	125	150	200	250
Height(H)	210	240	310	360	460	560

## Max. Cable Diameter Cross Section



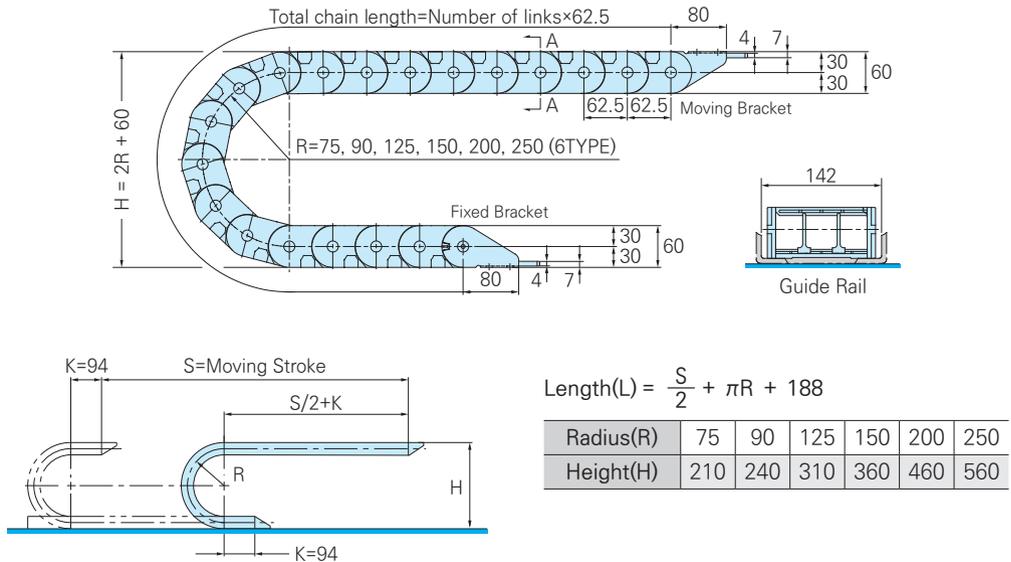
## Brackets



# HSP 0625-2BN

ORDER EXAMPLE			
HSP0625-2BN	90R	2000L	3SETS
Type	Radius	Length	Q'ty

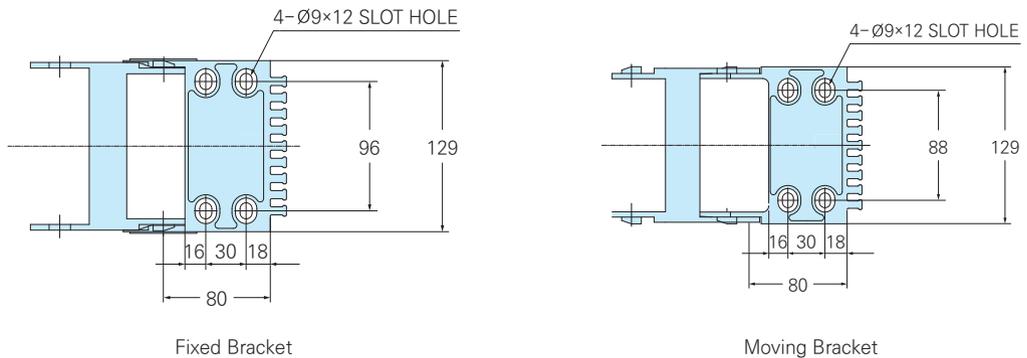
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



## Brackets

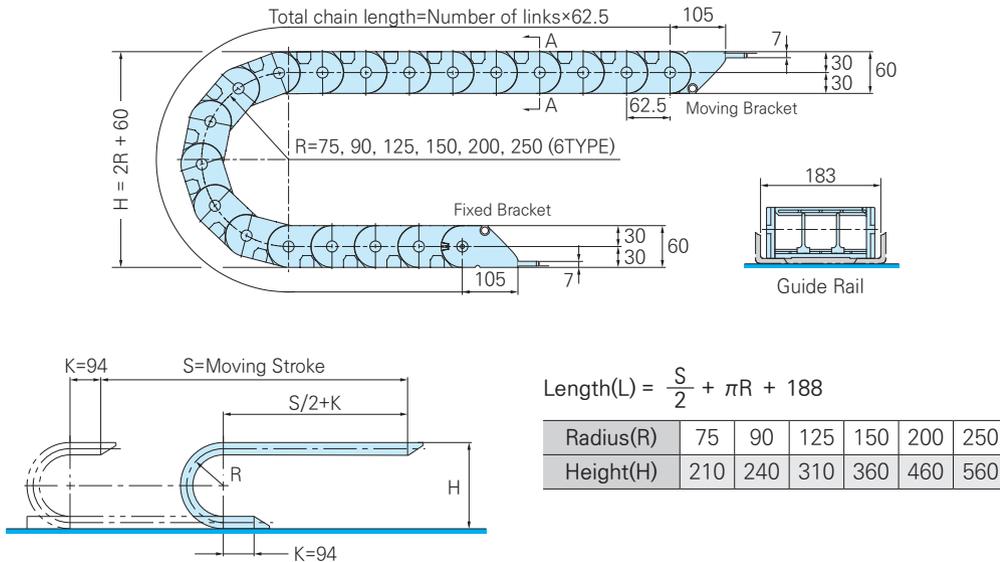


# HSP 0625-150 *NEW*

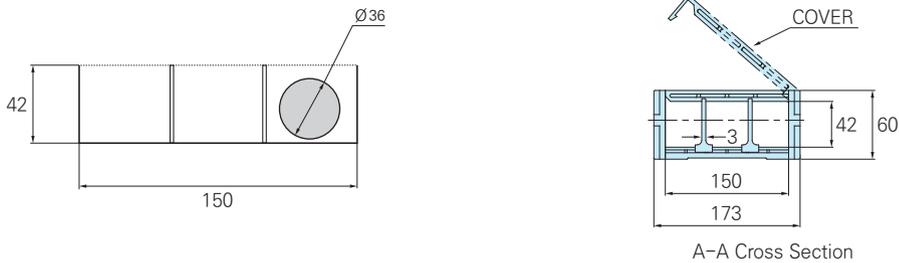
## ORDER EXAMPLE

HSP 0625-150 90R 2000L 3SETS  
 Type Radius Length Q'ty

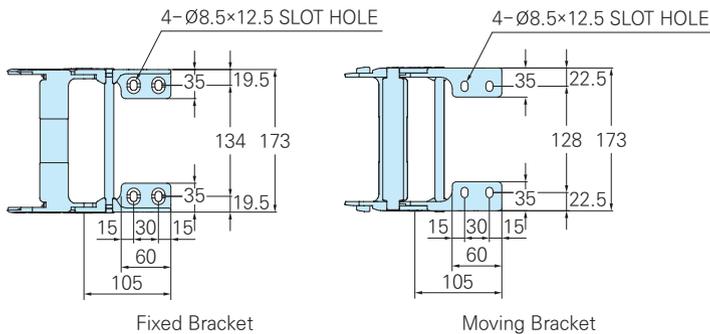
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



## Brackets



1. 우레탄 망치 등을 사용하여 동봉된 PL-BAR를 엔드 브라켓 홈에 끼워줍니다.



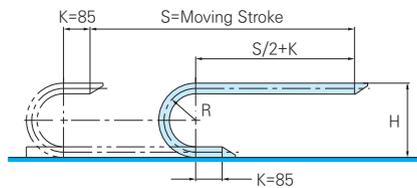
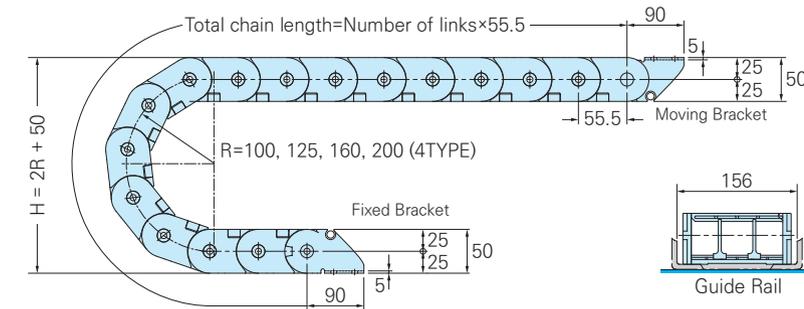
2. 전용 렌치나 기타 공구를 사용하여 90도로 돌려 PL-BAR를 고정 시켜 줍니다.  
 \* 전용 렌치는 요청하시면 제품 출고 시 무상으로 동봉됩니다.

# HSP 0555-B125

ORDER EXAMPLE

HSP0555-B125 100R 2000L 3SETS  
 Type Radius Length Q'ty

## Chain, Guide Rail

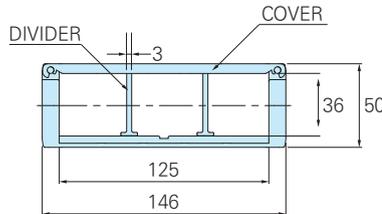
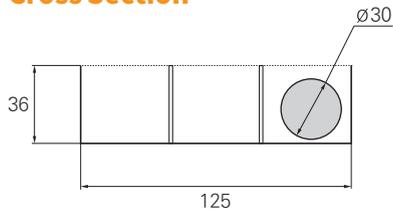


$$\text{Length}(L) = \frac{S}{2} + \pi R + 170$$

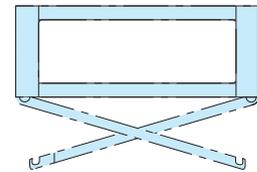
Radius(R)	100	125	160	200
Height(H)	250	300	370	450

\*HSP 0555, 0665(왼쪽)는 반밀폐이며 HSC 0555, 0665(오른쪽)는 완전 밀폐입니다.  
 \*두 타입 모두 커버가 안쪽에서 열립니다.  
 \*두 타입 모두 바깥 부분은 완전 밀폐입니다.

## Max. Cable Diameter Cross Section



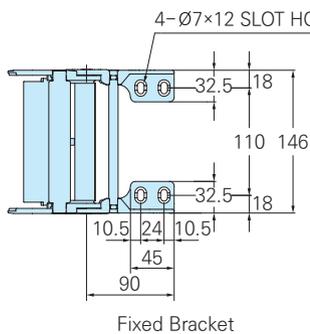
A-A Cross Section



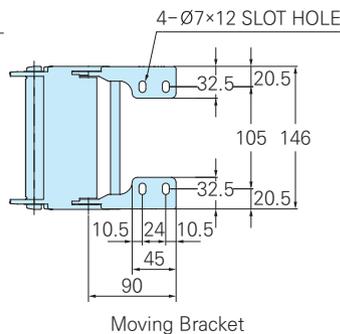
Openable Lower Cover

## Brackets

(Plastic)



Fixed Bracket



Moving Bracket



1. 우레탄 망치 등을 사용하여 동봉된 PL-BAR를 엔드 브라켓 홈에 끼워줍니다.



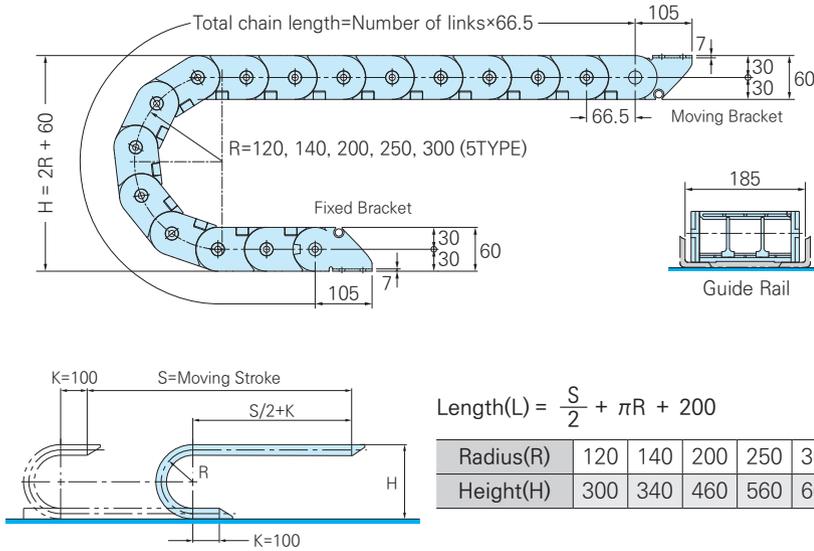
2. 전용 렌치나 기타 공구를 사용하여 90도로 돌려 PL-BAR를 고정 시켜 줍니다.  
 \* 전용 렌치는 요청하시면 제품 출고 시 무상으로 동봉됩니다.

# HSP 0665-B150

## ORDER EXAMPLE

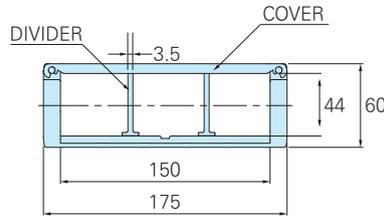
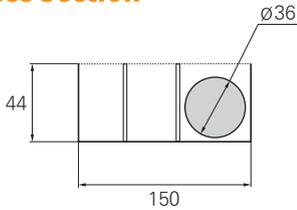
HSP0665-B150 120R 2000L 3SETS  
 Type Radius Length Q'ty

## Chain, Guide Rail

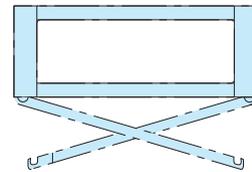


\*HSP 0555, 0665(왼쪽)는 반밀폐이며  
 HSC 0555, 0665(오른쪽)는 완전 밀폐입니다.  
 \*두 타입 모두 커버가 안쪽에서 열립니다.  
 \*두 타입 모두 바깥 부분은 완전 밀폐입니다.

## Max. Cable Diameter Cross Section



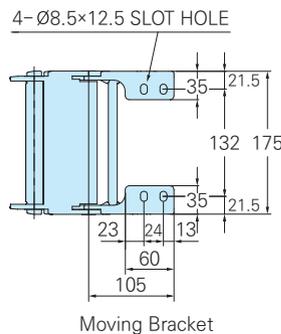
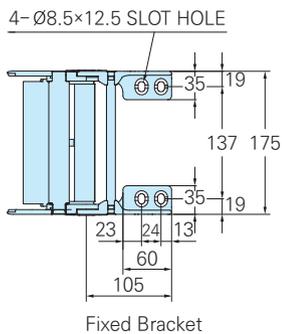
A-A Cross Section



Openable Lower Cover

## Brackets

(Plastic)



1. 우레탄 망치 등을 사용하여 동봉된 PL-BAR를 엔드 브라켓 홈에 끼워줍니다.

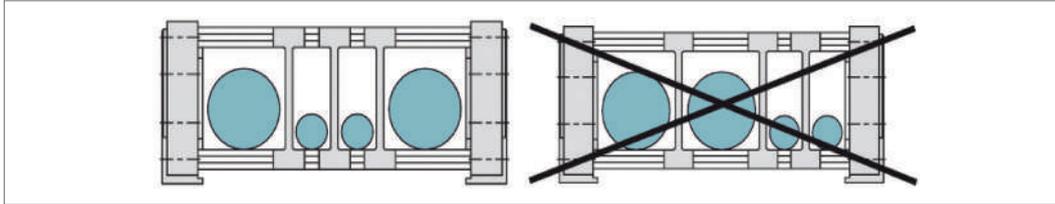


2. 전용 렌치나 기타 공구를 사용하여 90도로 돌려 PL-BAR를 고정 시켜 줍니다.  
 \* 전용 렌치는 요청하시면 제품 출고 시 무상으로 동봉됩니다.

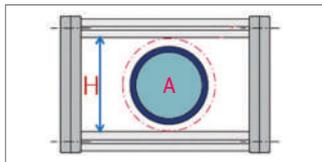
## 기술 노트 Technical Note

### ▶ 중량 밸런스

Cable 및 Hose 삽입 시 직경과 중량을 고려하여 배치하여야 안정적인 주행을 보장할 수 있습니다. 밸런스가 맞지 않을 경우 구동 중 쓸림이 발생하거나, 이탈할 수 있으므로 Cable 포설 전 반드시 확인하여야 합니다.



### ▪ Cable 및 Hose의 적절한 용적률



	Cable	Pneumatic Hose (공압 호스)	Hydraulic Hose (유압 호스)
H(height)	$H \geq A \times 1.1$	$H \geq A \times 1.15$	$H \geq A \times 1.2$

### ▪ RoboChain 전용소재 Robo-S Mate(POLYAMID) 내 화학성 Report

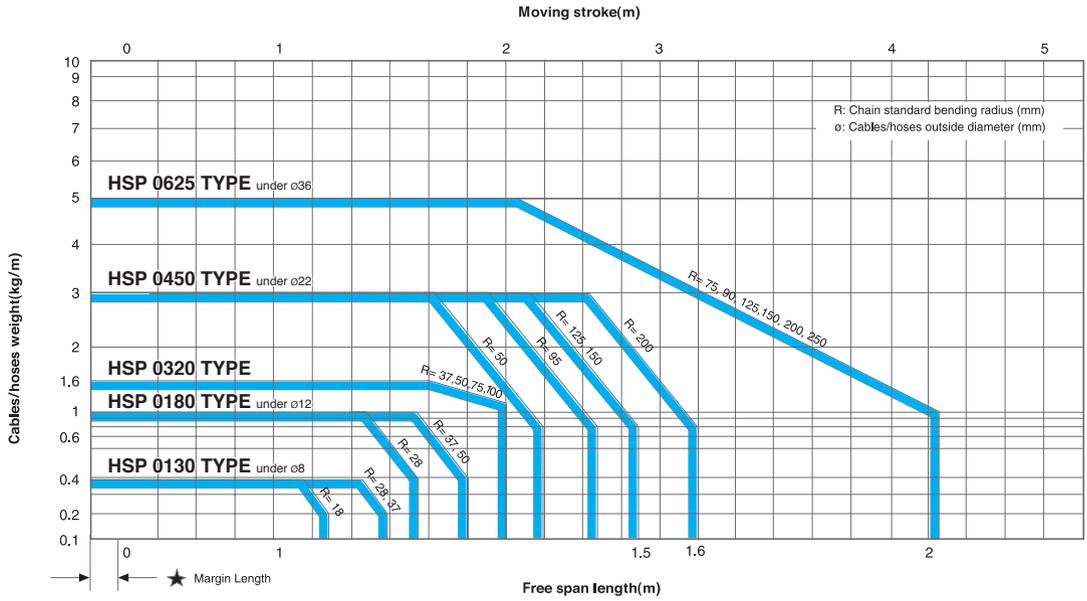
약품		약품	
아세톤(수용성)	○	포름알데히드(수용성)	△
포름산(수용성)	△	수용성기름	○
가솔린	○	메틸아세테이트	○
벤젠	○	우유	○
붕산(수용성)	△	탄산나트륨	○
염수소	X	기름, 윤활유	○
크롬산(수용성)	△	프로판가스	○
디젤유	○	수은	○
아세트산	○	염산	△
식용유	○	잉크, 인쇄잉크	○

○ : 우수 △ : 조건부 사용 X : 사용불가

# 응용예 Application Examples



# 능력선도(HSP) Capability Graph

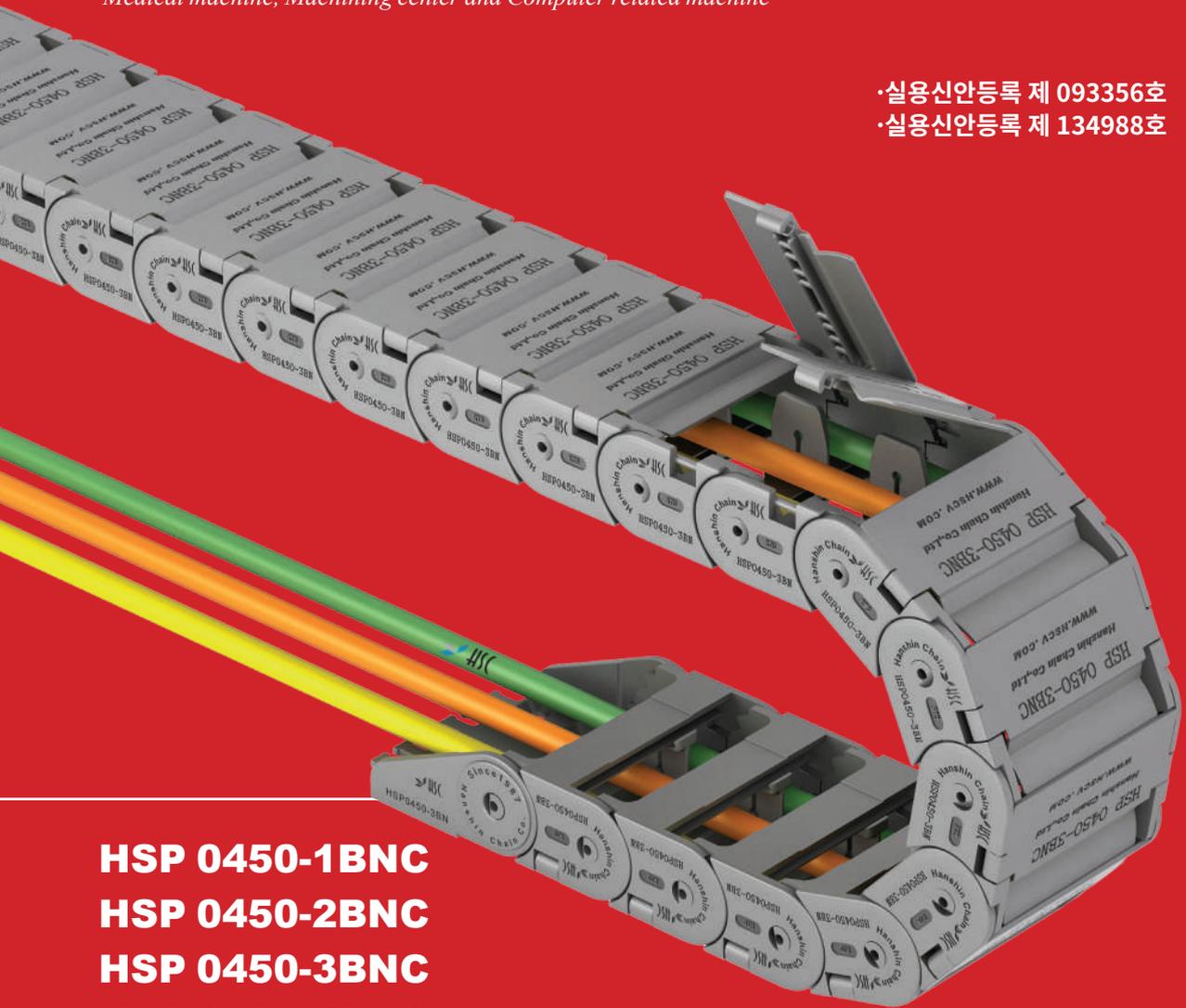


# HSP NC type

자동화기계, 반도체, 전자, 목공기계, 식품기계, 취출로봇, 섬유기계, 특장차  
자동차생산설비, 의료기계, 각종 공작기계 및 컴퓨터 관련기에 적용.

*Factory automation, Wood work machine, Food processing, Grabbing-and-  
extracting robot, Fabric machine, Special purpose vehicle, Automobile industry,  
Medical machine, Machining center and Computer related machine*

- 실용신안등록 제 093356호
- 실용신안등록 제 134988호



**HSP 0450-1BNC**  
**HSP 0450-2BNC**  
**HSP 0450-3BNC**  
**HSP 0450-4BNC**

## ☑ Features

- 본체는 개폐형으로 Cable, Hose의 설치가 쉽습니다.
- 경량이어서 움직임이 원활합니다.
- Divider가 좌우로 움직입니다.
- 150여종의 다양한 모델과 특수 규격도 주문가능합니다.
- 자동화기계, 목공기계, 식품기계, 산업용로봇 등 다방면에 적합한 모델입니다.
- *HSP-C type provides cover lead for easy installation of cables and hoses.*
- *Its light weight provides prompt movement.*
- *Divider is adjustable.*
- *Applicable for factory automation, wood work, food processing, industrial robot and many more.*
- *150 various models are manufactured.*
- *Special orders can be made.*

## ☑ Operation

HSPNC Type은 플라스틱 RoboChain으로 케이블 및 호스의 인입을 용이하게 하는 개폐형으로 설계 되어있습니다. HSPNC Type의 RoboChain은 모든 구성품이 고강도 엔지니어링 플라스틱으로 설계 제작되어 소음이 적고, 깨끗하며 작고, 가벼운 장점이 있습니다. 특히 HSP 0450-1BNC이상의 Type은 Divider를 부착하여 사용할 수 있습니다. HSPNC Type은 전자기계, 산업용 로봇 공작기계 및 다방면에 사용되는 이상적인 장치입니다.

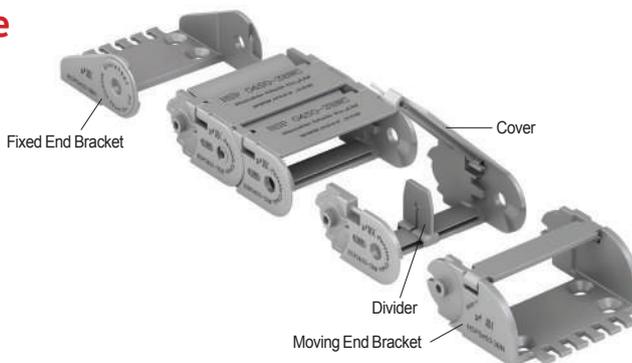
*Cover in HSP-C Type provides easy access and installation of cables and hoses. All parts are made of highly durable engineering plastic. Therefore, it features less noise, good appearance and light weight. In particular, HSP 0450-1BNC and higher types accommodate divider.*

*This type is applicable for many areas such as electronic and electrical machine, industrial robot, machine center and many more.*

## ☑ Properties

- 운동속도 : 180m/min이하
- 케이블 호스의 직경 : 22mm 이하
- 사용온도 : -25 ~ 100°C
- 장력 : 190 (건조), 120 (공기습도) N/mm<sup>2</sup>
- 인장 팽창 : 4 (건조), 6 (공기습도) %
- 탄성계수 : 10000 (건조), 7000 (공기습도) N/mm<sup>2</sup>
- 미끄럼 마찰 : 0.4 (무윤활시)
- 기본색 : Black (칼라 주문가능)
- 재질 : 엔지니어링 플라스틱
- *Moving Velocity : below 180m/min*
- *Diameter of Cable Hose : less than 22mm*
- *Operating Temperature : -25 ~ 100°C*
- *Tension : 190 (in dry), 120 (in moisture) N/mm<sup>2</sup>*
- *Stretch : 4 (in dry), 6 (in moisture) %*
- *Elasticity : 10000 (in dry), 7000 (in moisture) N/mm<sup>2</sup>*
- *Sliding Friction : 0.4 (non-greased)*
- *Basic Color : Black*
- *Material : Engineering Plastic*

## ☑ Structure

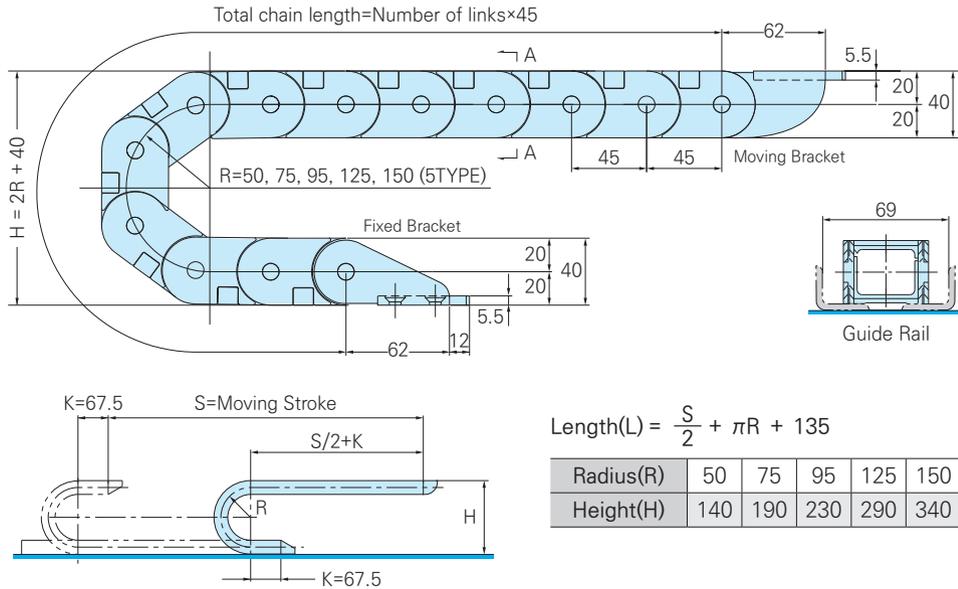


# HSP 0450-1BNC

ORDER EXAMPLE

HSP0450-1BNC 150R 2000L 3SETS  
 Type Radius Length Q'ty

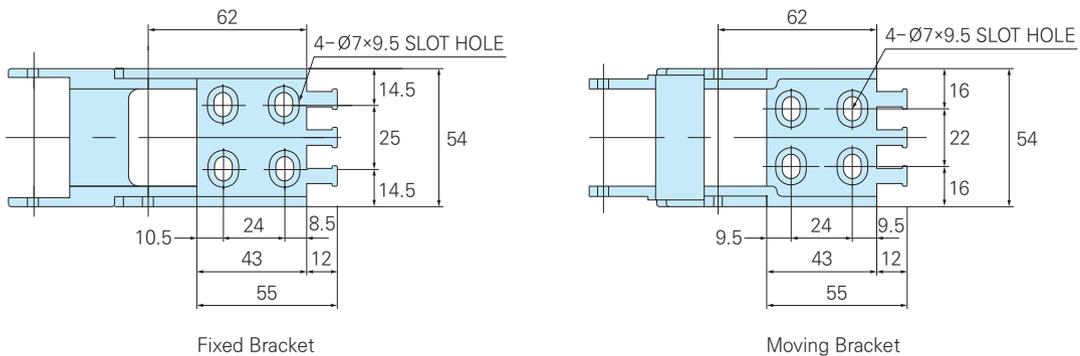
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



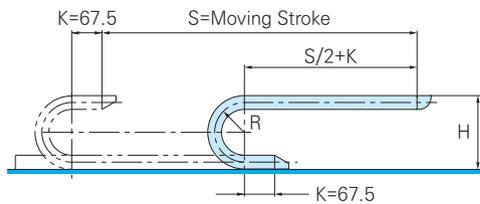
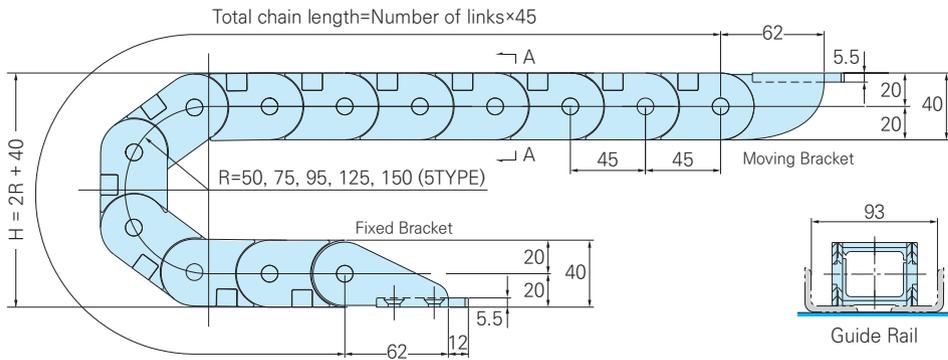
## Brackets



# HSP 0450-2BNC

ORDER EXAMPLE  
 HSP0450-2BNC 150R 2000L 3SETS  
 Type Radius Length Q'ty

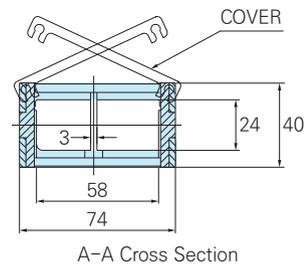
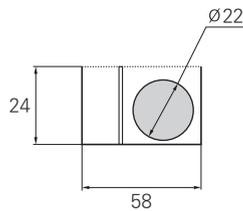
## Chain, Guide Rail



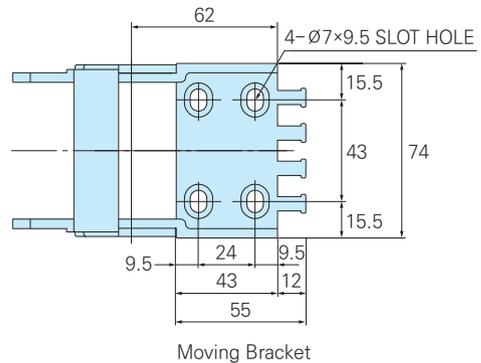
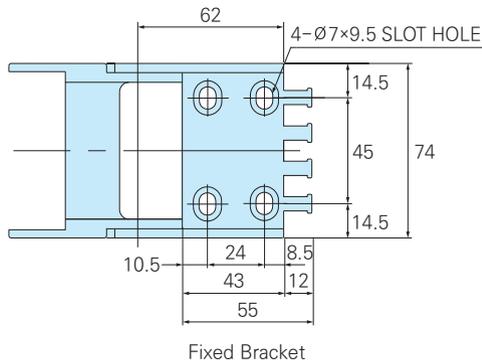
$$\text{Length}(L) = \frac{S}{2} + \pi R + 135$$

Radius(R)	50	75	95	125	150
Height(H)	140	190	230	290	340

## Max. Cable Diameter Cross Section



## Brackets

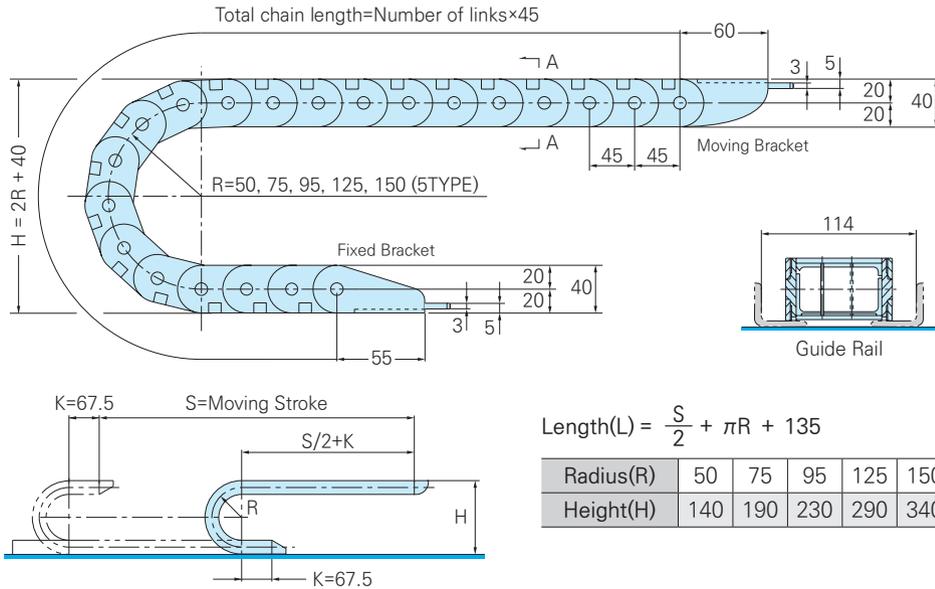


# HSP 0450-3BNC

## ORDER EXAMPLE

HSP0450-3BNC 50R 2000L 3SETS  
 Type Radius Length Q'ty

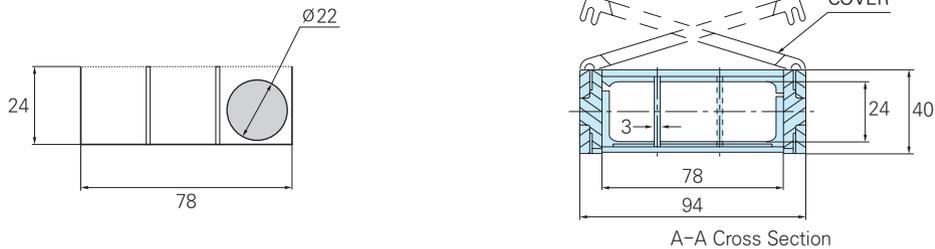
## Chain, Guide Rail



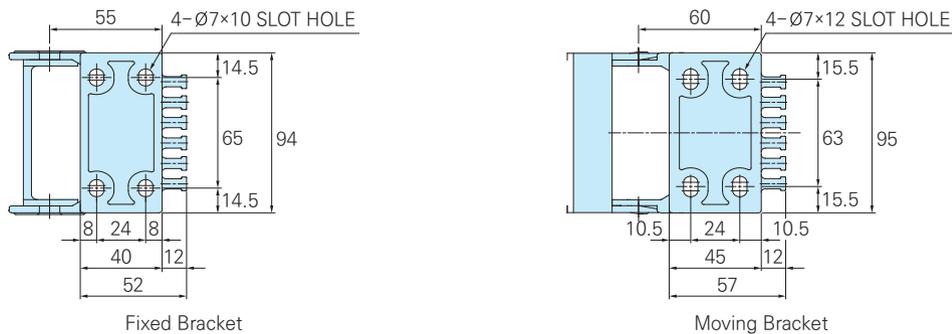
$$\text{Length}(L) = \frac{S}{2} + \pi R + 135$$

Radius(R)	50	75	95	125	150
Height(H)	140	190	230	290	340

## Max. Cable Diameter Cross Section



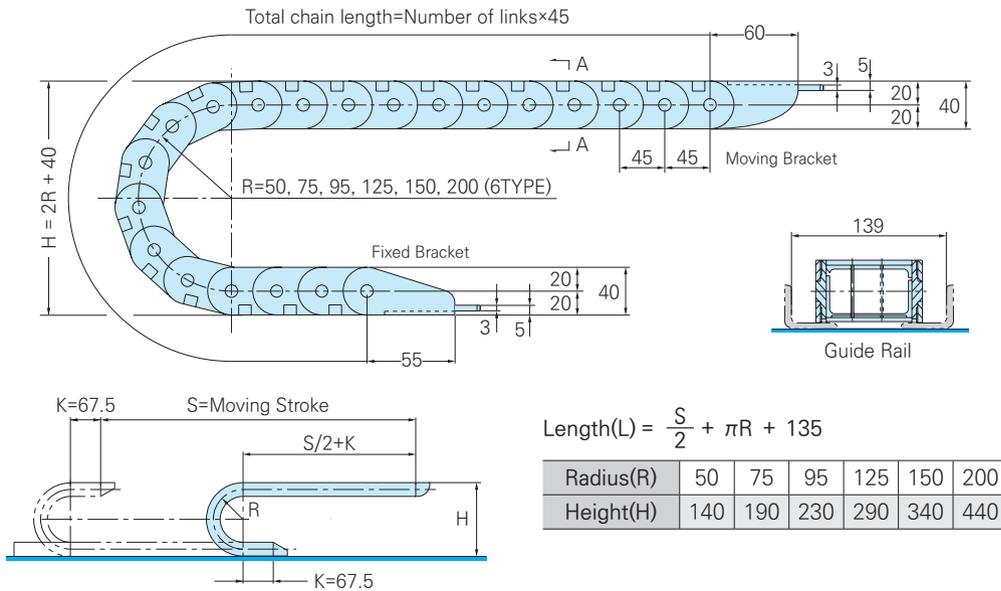
## Brackets



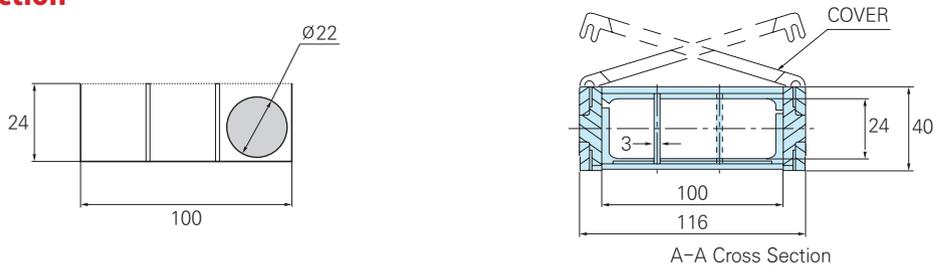
# HSP 0450-4BNC

ORDER EXAMPLE  
 HSP0450-4BNC 150R 3000L 3SETS  
 Type Radius Length Q'ty

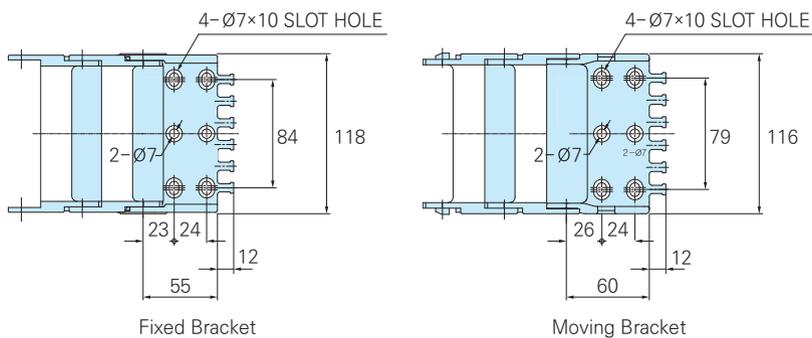
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



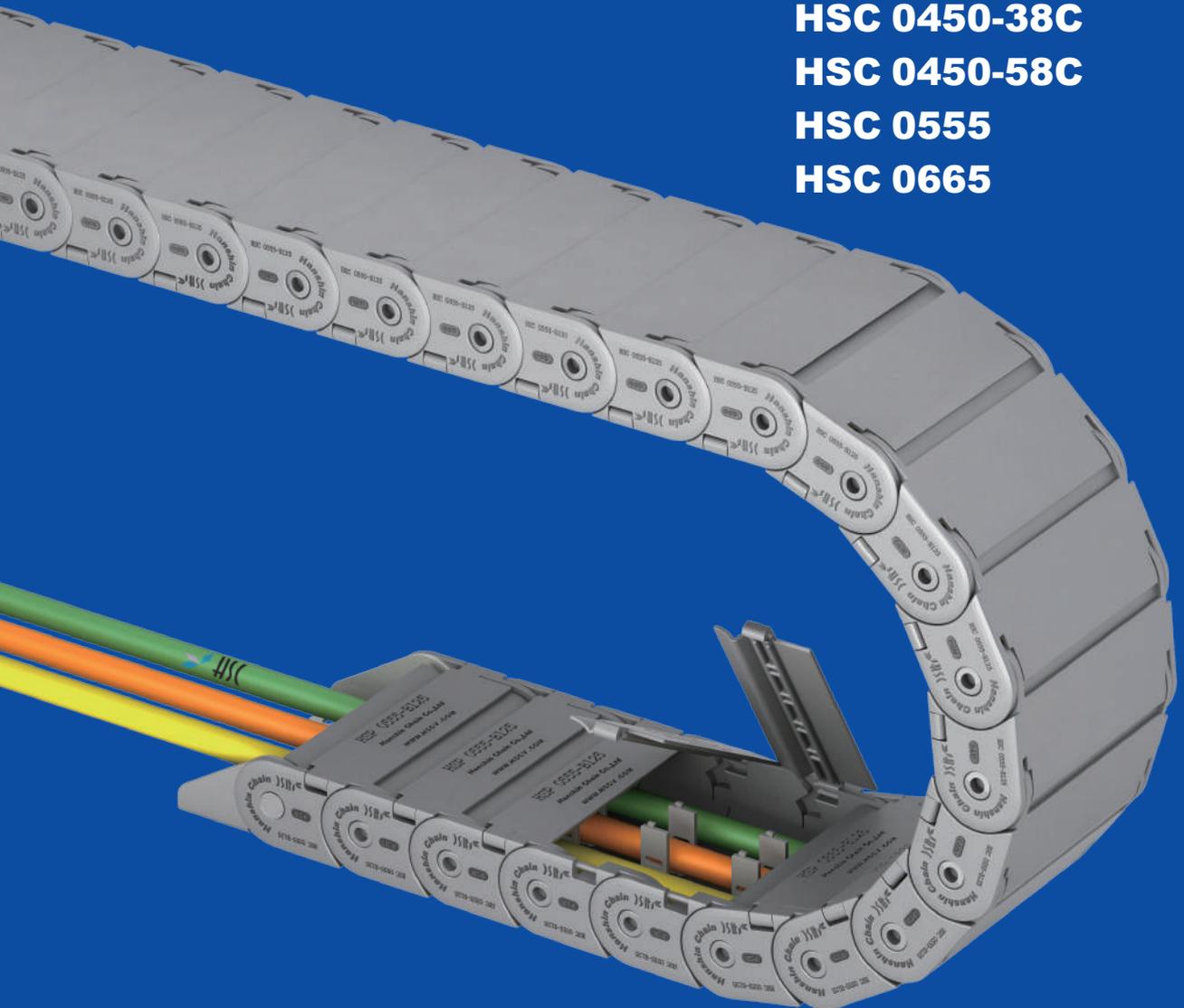
## Brackets



# HSC type

공작기계, 용접 ROBOT, 자동차산업, 목공기계, 반도체생산설비, 철강설비에 적용

*Machining center, Soldering robot, Automobile industry, Wood work machine, Semiconductor production facility and Steel mill industry*



**HSC 0450-38C**

**HSC 0450-58C**

**HSC 0555**

**HSC 0665**

## ☑ Features

- 밀폐형으로 이물질로부터 Cable, Hose를 보호할 수 있습니다.
- 경량이어서 움직임이 원활합니다.
- 본체의 Cover가 안쪽으로 개폐되어 Cable, Hose의 설치가 쉽습니다.
- 50여종의 다양한 모델이 있습니다.
- End Bracket에 Cable, Hose 고정용 Clamp가 있어서 고정용 Tie를 이용할 경우 꼬임을 방지할 수 있습니다.
- *Insulation design prevents cables and hoses from alien materials.*
- *Its light weight provides prompt movement.*
- *Body cover can be open for easy installation of cable and hose.*
- *50 various models are manufactured.*
- *Special orders can be made.*

## ☑ Operation

HSC Type 의 RoboChain는 모든 구성품이 고강도 엔지니어링 플라스틱으로 설계 제작되어 소음이 적고, 깨끗하며 작고, 가벼운 장점이 있습니다. 특히 밀폐형으로 이물질로부터 Cable, Hose 보호에 적합합니다.

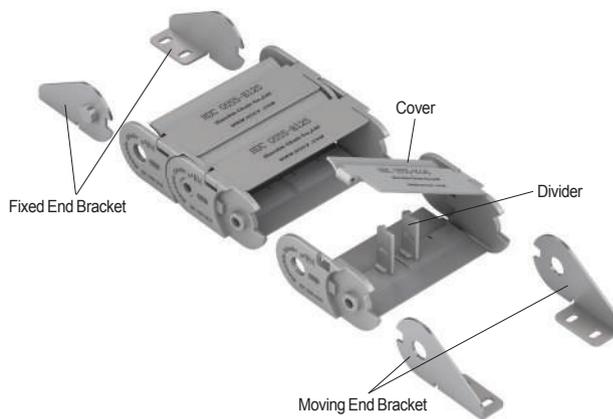
*All parts of HSC type RoboChain are made of very high strength engineering plastic, and it is designed for reducing noise and light weight.*

*In particular, insulation design can prevent cable and hose from alien materials.*

## ☑ Properties

- 운동속도 : 200m/min이하 (Freespan내)
- 사용온도 : -25 ~ 100°C
- 기본색 : Black
- 재질 : 엔지니어링 플라스틱
- *Moving Velocity: below 300m/min (within freespan)*
- *Operating Temperature: -25 ~100°C*
- *Basic Color: Black*
- *Material: Engineering Plastic*

## ☑ Structure

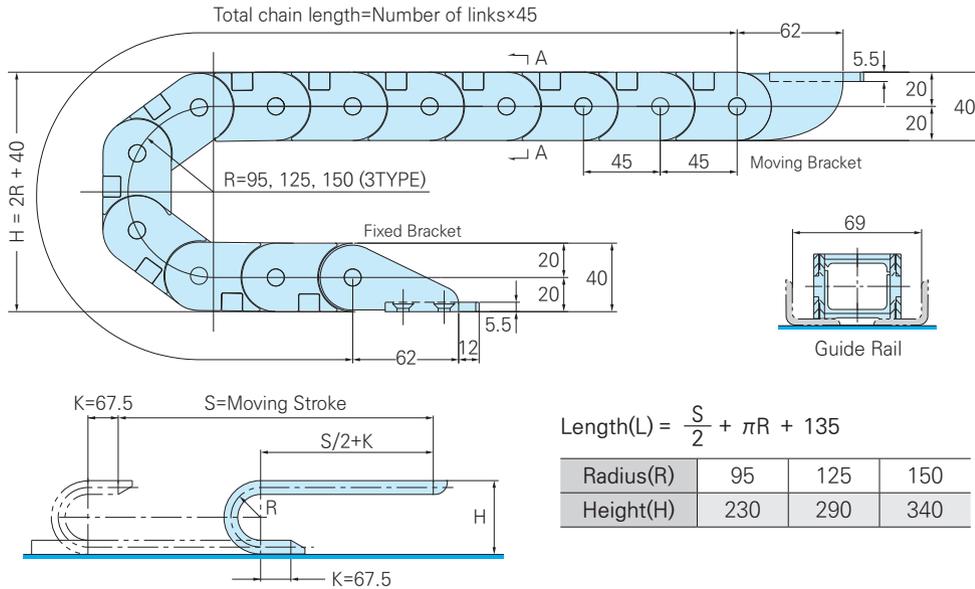


# HSC 0450-38C *NEW*

ORDER EXAMPLE

HSC 0450-38C 95R 2000L 3SETS  
 Type Radius Length Q'ty

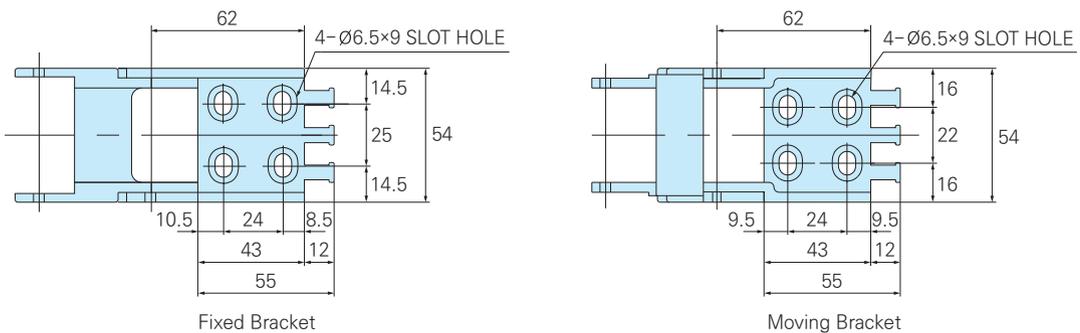
## Chain, Guide Rail



## Max. Cable Diameter Cross Section



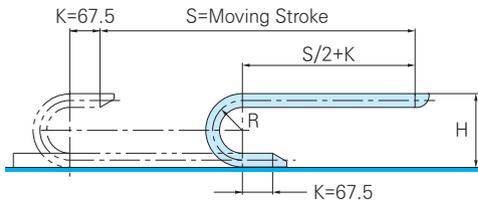
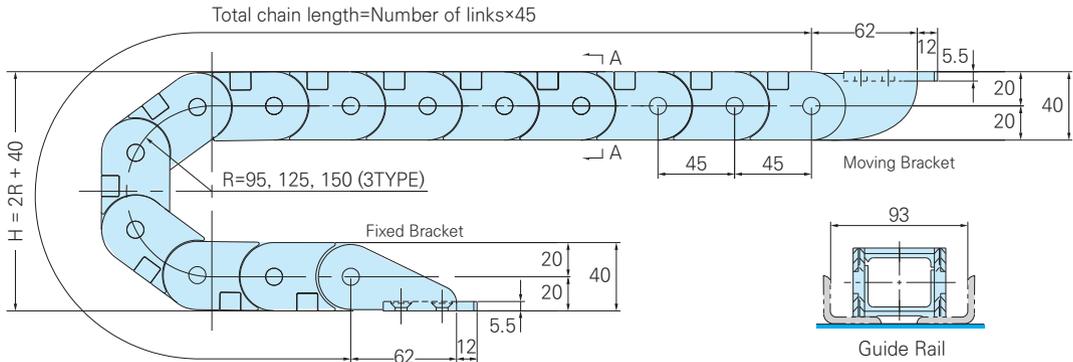
## Brackets



# HSC 0450-58C *NEW*

ORDER EXAMPLE			
HSC0450-58C	150R	2000L	3SETS
Type	Radius	Length	Q'ty

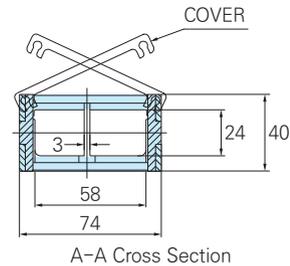
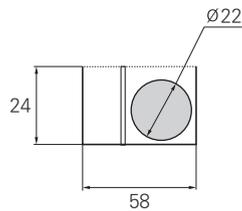
## Chain, Guide Rail



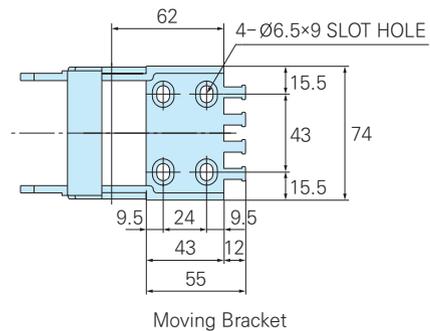
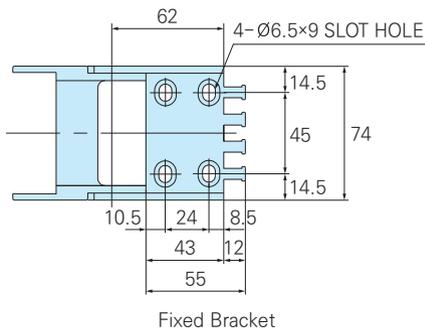
$$\text{Length}(L) = \frac{S}{2} + \pi R + 135$$

Radius(R)	95	125	150
Height(H)	230	290	340

## Max. Cable Diameter Cross Section



## Brackets

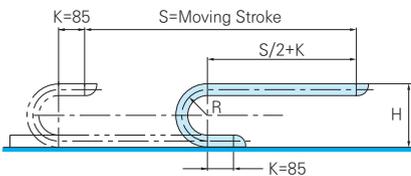
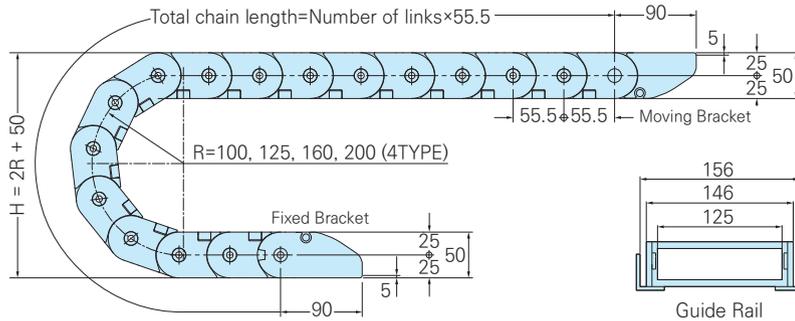


# HSC 0555

## ORDER EXAMPLE

HSC0555	160R	B125	1665L	5SETS
Type	Radius	Width	Length	Q'ty

## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 170$$

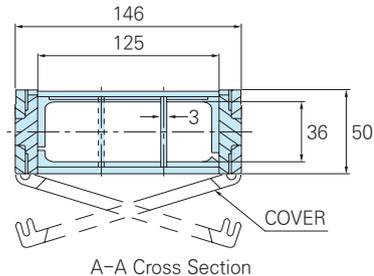
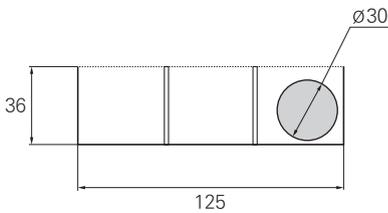
Radius(R)	100	125	160	200
Height(H)	250	300	370	450

\*HSP 0555, 0665(왼쪽)는 반밀폐이며  
HSC 0555, 0665(오른쪽)는 완전 밀폐입니다.

\*두 타입 모두 커버가 안쪽에서 열립니다.

\*두 타입 모두 바깥 부분은 완전 밀폐입니다.

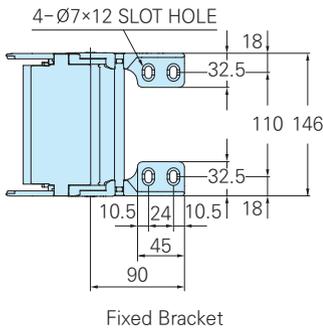
## Max. Cable Diameter Cross Section



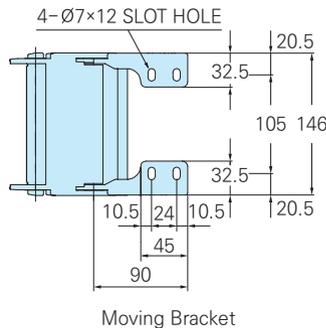
A-A Cross Section

## Brackets

(Plastic)



Fixed Bracket



Moving Bracket



1. 우레탄 망치 등을 사용하여 동봉된 PL-BAR를 엔드 브라켓 홈에 끼워줍니다.



2. 전용 렌치나 기타 공구를 사용하여 90도로 돌려 PL-BAR를 고정 시켜 줍니다.

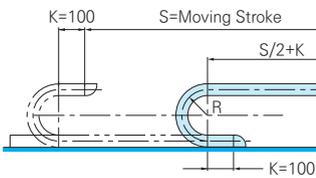
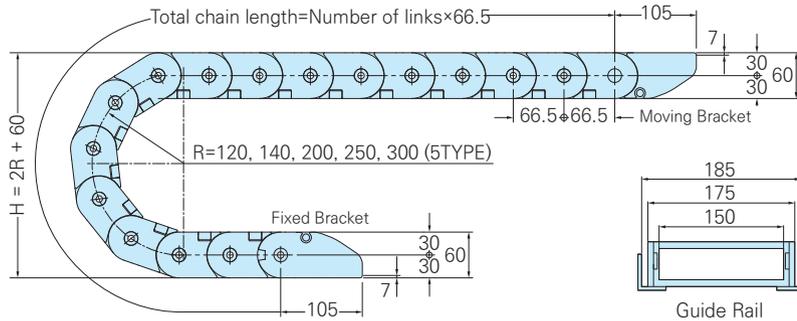
\* 전용 렌치는 요청하시면 제품 출고 시 무상으로 동봉됩니다.

# HSC 0665

## ORDER EXAMPLE

HSC0665	140R	B150	1729L	5SETS
Type	Radius	Width	Length	Q'ty

## Chain, Guide Rail



$$\text{Length}(L) = \frac{S}{2} + \pi R + 200$$

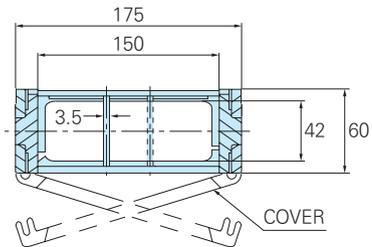
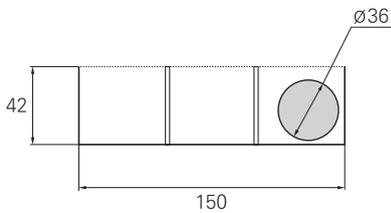
Radius(R)	120	140	200	250	300
Height(H)	300	340	460	560	660

\*HSP 0555, 0665(왼쪽)는 반밀폐이며 HSC 0555, 0665(오른쪽)는 완전 밀폐입니다.

\*두 타입 모두 커버가 안쪽에서 열립니다.

\*두 타입 모두 바깥 부분은 완전 밀폐입니다.

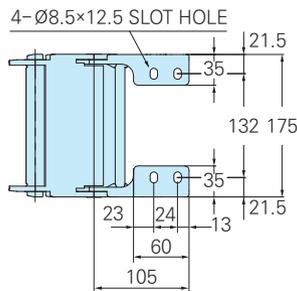
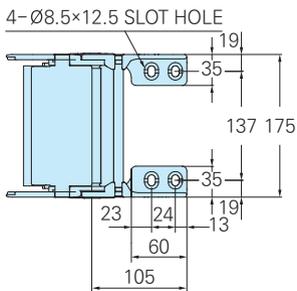
## Max. Cable Diameter Cross Section



A-A Cross Section

## Brackets

(Plastic)



1. 우레탄 망치 등을 사용하여 동봉된 PL-BAR를 엔드 브라켓 홈에 끼워줍니다.



2. 전용 렌치나 기타 공구를 사용하여 90도로 돌려 PL-BAR를 고정 시켜 줍니다.

\* 전용 렌치는 요청하시면 제품 출고 시 무상으로 동봉됩니다.

## 기술 노트 Technical Note

### ▶ 여유공간

Cable 이나 Hose 삽입 시 사용환경에 따라 허용 용적율에 차이가 있습니다.

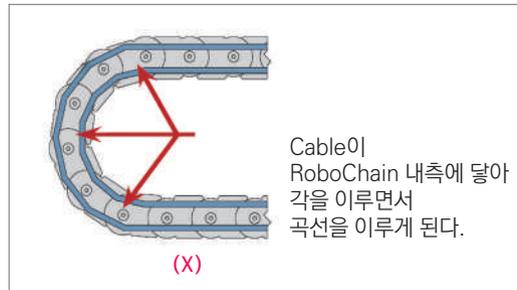
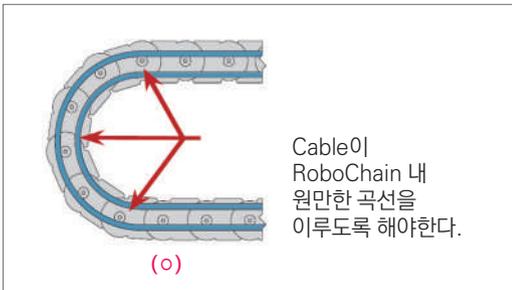
아래 표는 사용환경에 따른 허용 용적율을 보여주고 있으며, 허용치를 초과하여 사용할 경우 Cable 및 Hose의 마찰로 분진이 발생되며 단선발생의 주요 원인이 됩니다.

	CLEAN ROOM	NORMAL
허용 용적률(%)	40~50%	50~60%

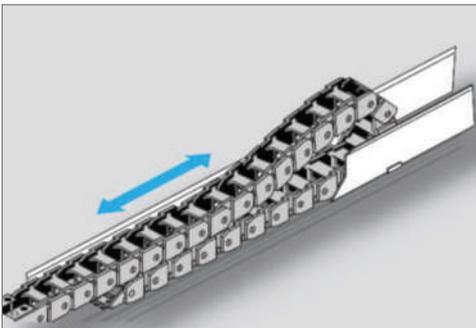
### ▶ 곡률반경

	Cable	Hose
권장 곡률반경(Radius)	외경(Dia) X 7.5	외경(Dia) X 9

아래의 그림을 보면 Cable의 삽입 시 적절한 곡률반경을 선정하여 배치된 사례와 그렇지 않은 사례를 보여주고 있습니다.



### ▶ Guide Rail

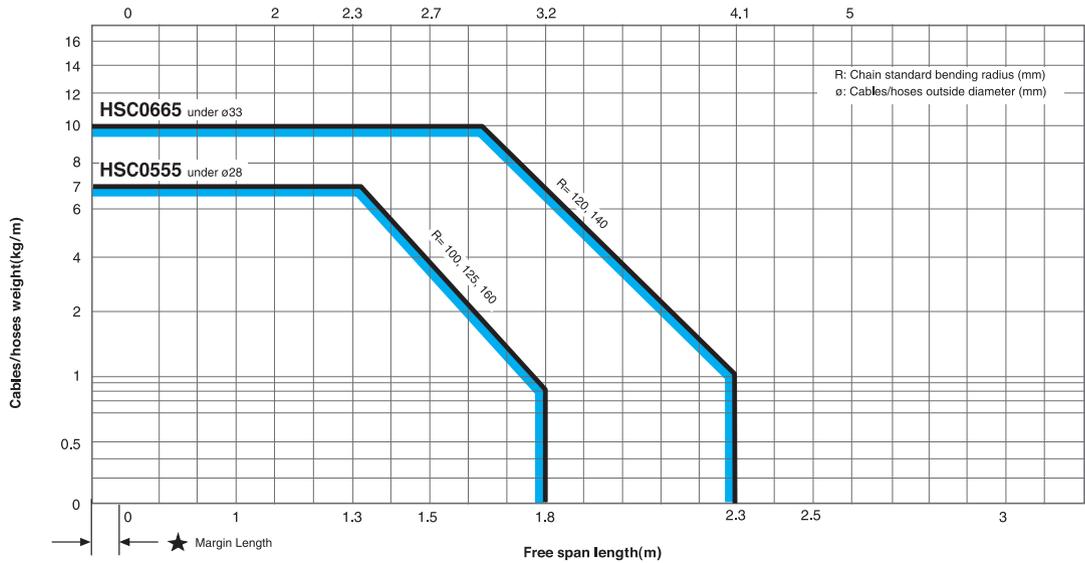


Free span(자체 수평 지지가능거리)을 초과하여 사용할 경우 반드시 Guide Rail을 설치하여야 합니다.

Guide Rail은 RoboChain의 이탈을 방지하고, 안정적인 주행을 보장할 수 있는 최선의 방법입니다.

Guide Rail의 형태와 상세치수는 카다로그를 참고하시길 바랍니다.

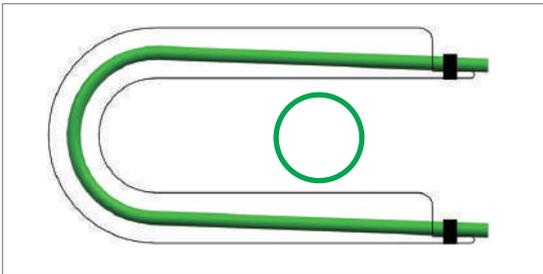
## 능력선도(HSP) Capability Graph



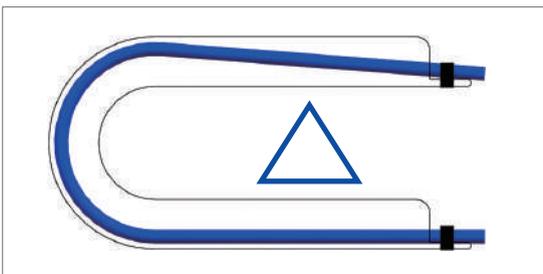
## 사용환경 Environmental and Application Variables

### ▶ 케이블·호스 길이 조정

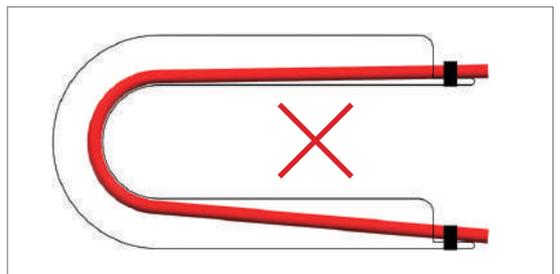
로보체인 가운데 케이블 포설(마모 없음, 적합)



로보체인 바깥쪽 케이블 포설(마모 적음, 적합)



로보체인 안쪽 케이블 포설(마모 많음, 부적합)



# HSSP type

- 실용신안등록 제 090068호
- 실용신안등록 제 134987호
- 실용신안등록 제 142619호

공작기계, 운반기계, 자동차 생산설비, 산업용 플랜트, 자동용접기, 산업용로봇 등  
장거리 설비에 적용

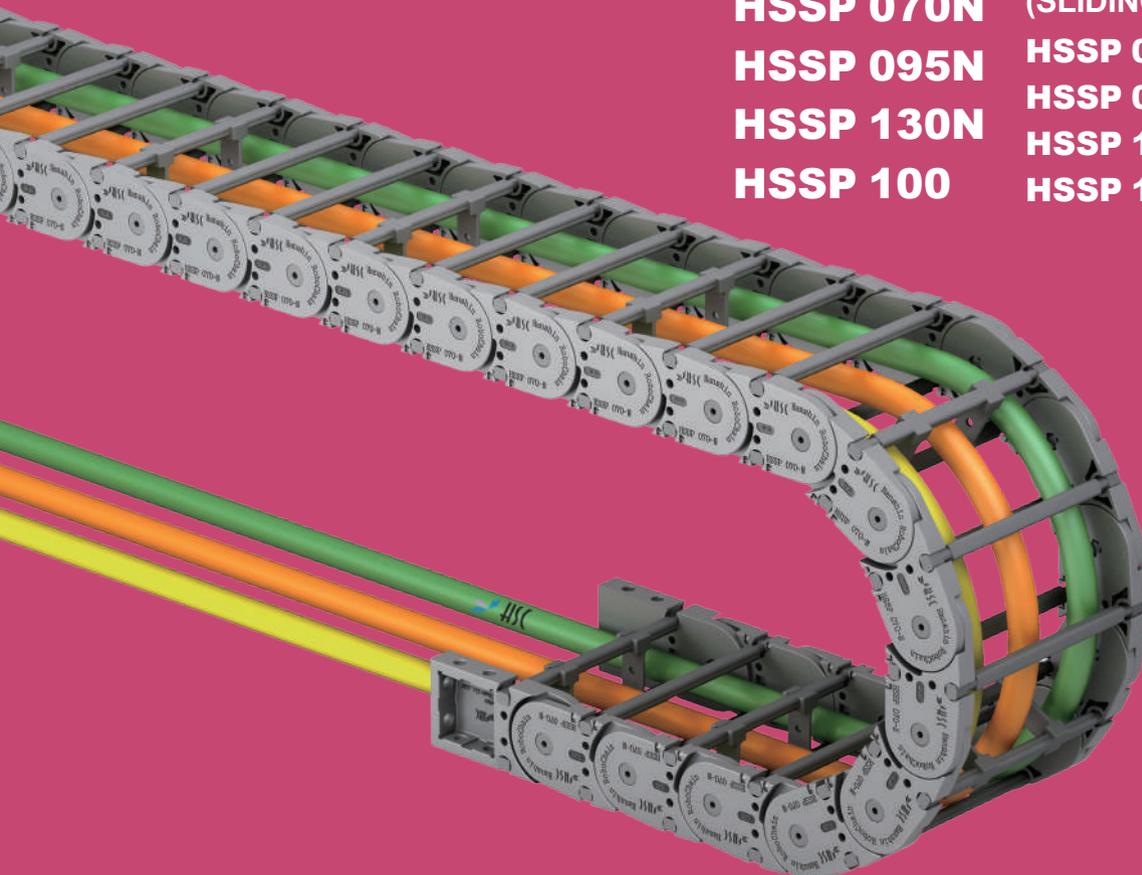
*Applicable for long stroke use such as Machining center, Conveying machine, Automobile industry, Industrial plant facility, Automatic soldering machine, Industrial robot and so forth*

## ☑ Operation

HSSP Type의 RoboChain은 고강도 엔지니어링 플라스틱으로 설계 제작되어 경량이며 소음이 적고 취급이 간편합니다. 케이블 호스의 Supporter 부위는 플라스틱 및 알루미늄을 사용하여 중량을 최소화하여 장거리 응용분야에 적합합니다.

*HSSP Type RoboChain is made of highly durable engineering plastic. It features light weight, less noise, and easy handling. Supporter part of cable hose is made of engineering plastic or aluminum to lighten the weight. This feature also contributes to long stroke application.*

<b>HSSP 070N</b>	<b>(SLIDING TYPE)</b>
<b>HSSP 095N</b>	<b>HSSP 070NS</b>
<b>HSSP 130N</b>	<b>HSSP 095NS</b>
<b>HSSP 100</b>	<b>HSSP 130NS</b>
	<b>HSSP 100S</b>



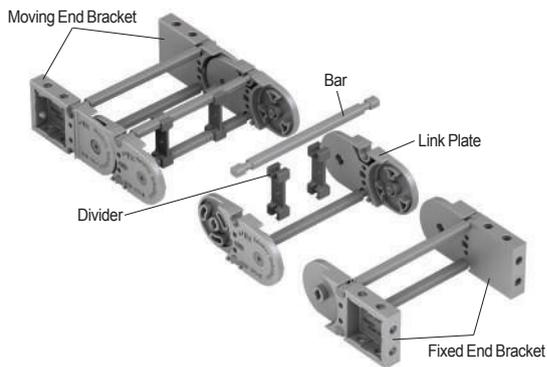
## ☑ Features

- HS, HSS Type을 경량화 시켰으며 엔지니어링 플라스틱으로 되어 있기 때문에 가벼우며 보다 움직임이 부드럽습니다.
- 간편 조작형으로 Cable, Hose의 분해 및 설치가 용이하고 칸막이가 자유롭게 조정됩니다.
- 공작기계 및 장거리 설비에 적합합니다.
- 30종의 다양한 모델이 있습니다.
- Link Plate에 장거리 주행을 위한 Side Cover, Slider를 부착할 수 있습니다.
- 공작기계, 운반기계, 자동차 생산설비, 산업용 플랜트, 자동용접기, 산업용로봇 등 장거리 설비에 적합합니다.
- *HSSP Type is made of engineering plastic to lighten the weight applicable for long stroke.*
- *Easily adjustable dividers.*
- *Machining center that requires long stroke applications.*
- *Side cover and slider are attachable to link plate for long stroke movement.*
- *30 various models are manufactured.*

## ☑ Properties

- 운동속도 : 120m/min 이하
- 케이블 호스의 직경 : 75mm 이하
- 사용온도 : -25 ~ 100°C
- 장력 : 190 (건조), 120 (공기습도) N/mm<sup>2</sup>
- 인장 팽창 : 4 (건조), 6 (공기습도) %
- 탄성계수 : 10000 (건조), 7000 (공기습도) N/mm<sup>2</sup>
- 미끄럼 마찰 : 0.4 (무윤활시)
- 기본색 : Black (칼라주문가능)
- 재질 : 엔지니어링 플라스틱, Aluminum
- *Moving Velocity : below 120m/min*
- *Diameter of Cable Hose : less than 75mm*
- *Operating Temperature : -25 ~ 100°C*
- *Tension : 190 (in dry), 120 (in moisture) N/mm<sup>2</sup>*
- *Stretch : 4 (in dry), 6 (in moisture) %*
- *Elasticity : 10000 (in dry), 7000 (in moisture) N/mm<sup>2</sup>*
- *Sliding Friction : 0.4 (non-greased)*
- *Basic Color : White Zinc Coating*
- *Material : Engineering Plastic, Aluminum*

## ☑ Structure

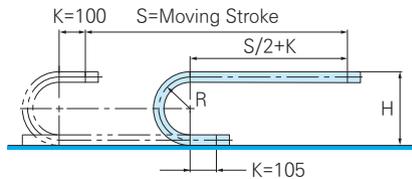
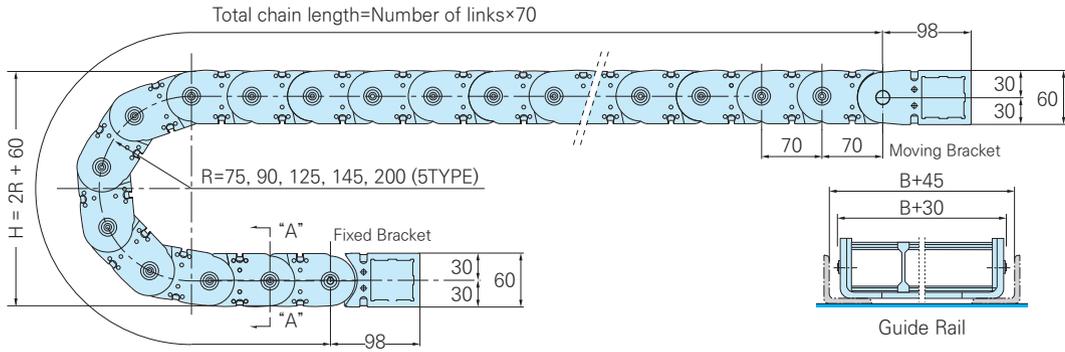


# HSSP 070N

## ORDER EXAMPLE

HSSP070N 145R B200 D:3 2940L 3SETS  
 Type Radius Width Divider Length Q'ty

## Chain, Cross Section



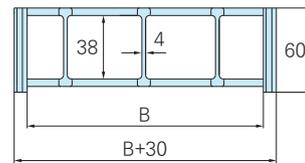
$$\text{Length}(L) = \frac{S}{2} + \pi R + 210$$

Radius(R)	75	90	125	145	200
Height(H)	210	240	310	350	460

## Divider

Cable/Hose dmax	Ø32					
Frame Dim. "B"	80	100	125	150	200	250
Divider(Standard)	1	1	1	1	2	3

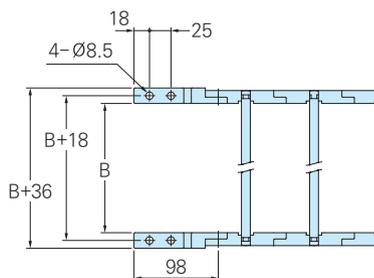
\* Eng. Plastic(표준) : 80~200  
 Aluminum(옵션) : 80~250(비규격 : 문의)



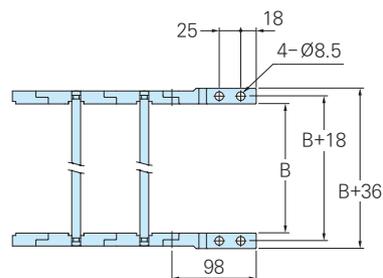
A-A Cross Section

## Brackets

\* Eng. Plastic(표준), 장거리 옵션(기술팁과 협의)



Fixed Bracket



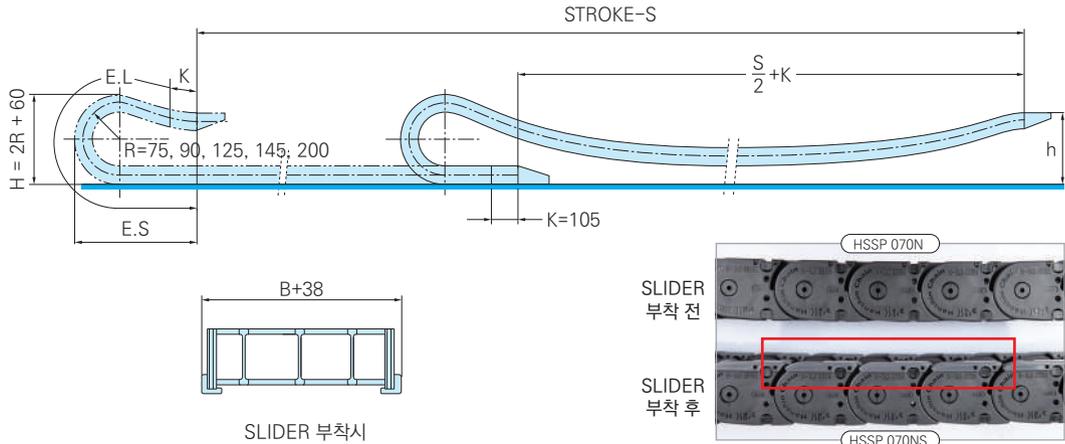
Moving Bracket

# HSSP 070NS (슬라이더 부착형)

ORDER EXAMPLE

HSSP070NS 145R B200 D:3 15050L 2SETS  
 Type Radius Width Divider Length Q'ty

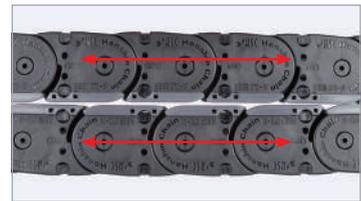
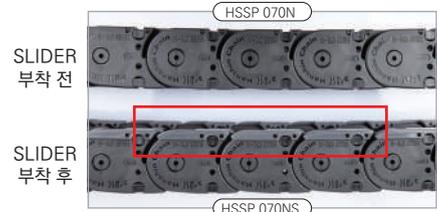
## Chain



$$\text{Length}(L) = \frac{S}{2} + E.L + 210$$

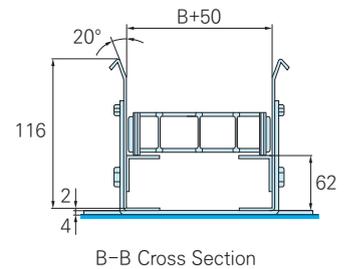
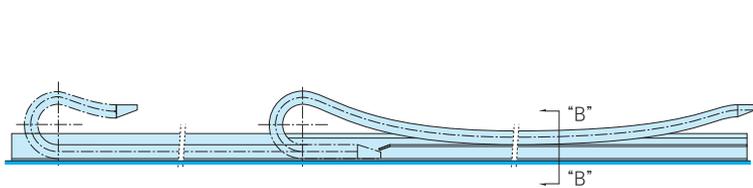
Radius(R)	75	90	125	145	200
Height(H)	210	240	310	350	460
Moving Point Height(h)	200	200	200	200	200
Extra Length(E.L)	560	700	910	1050	1470
Extra Space(E.S)	230	260	380	450	580

- \* h: 역R 적용 시 취부 높이
- \* 역R 제품은 주문 전 영업부와 협의 바랍니다.

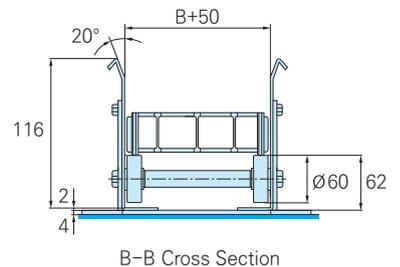
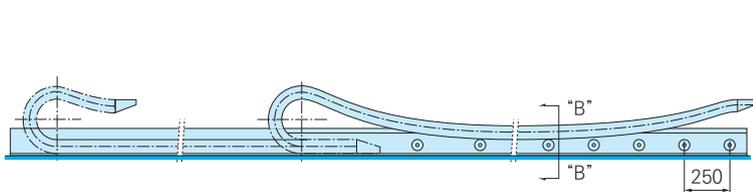


장거리 사용시 슬라이더를 부착하여 매끄럽고 부드럽게 주행  
 로보체인 링크 플레이트의 마모를 막아주고  
 슬라이더만 교체하여 오랜 기간 사용 가능

## Guide Rail



## Guide Roller

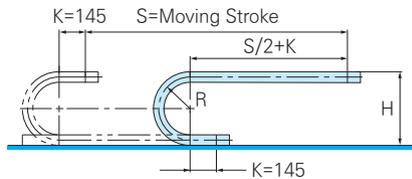
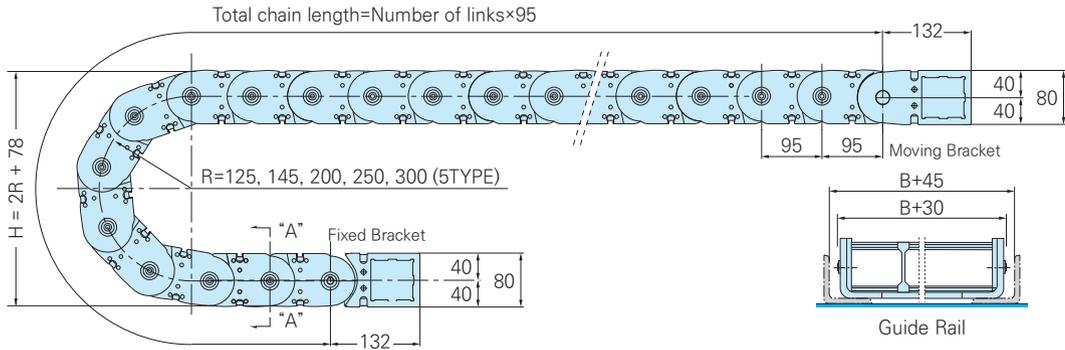


# HSSP 095N

## ORDER EXAMPLE

HSSP095N 300R B200 D:3 3990L 3SETS  
 Type Radius Width Divider Length Q'ty

## Chain, Cross Section



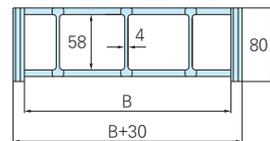
$$\text{Length}(L) = \frac{S}{2} + \pi R + 290$$

Radius(R)	125	145	200	250	300
Height(H)	328	368	478	578	678

## Divider

Cable/Hose dmax	Ø52						
Frame Dim. "B"	80	100	125	150	200	250	300
Divider(Standard)	1	1	1	2	2	3	3

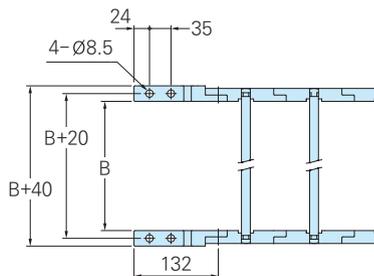
\* Eng. Plastic(표준) : 80~200  
 Aluminum(옵션) : 80~300(비규격 : 문의)



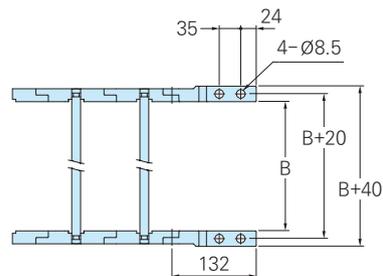
A-A Cross Section

## Brackets

\* Eng. Plastic(표준), 장거리 옵션(기술팁과 협의)



Fixed Bracket



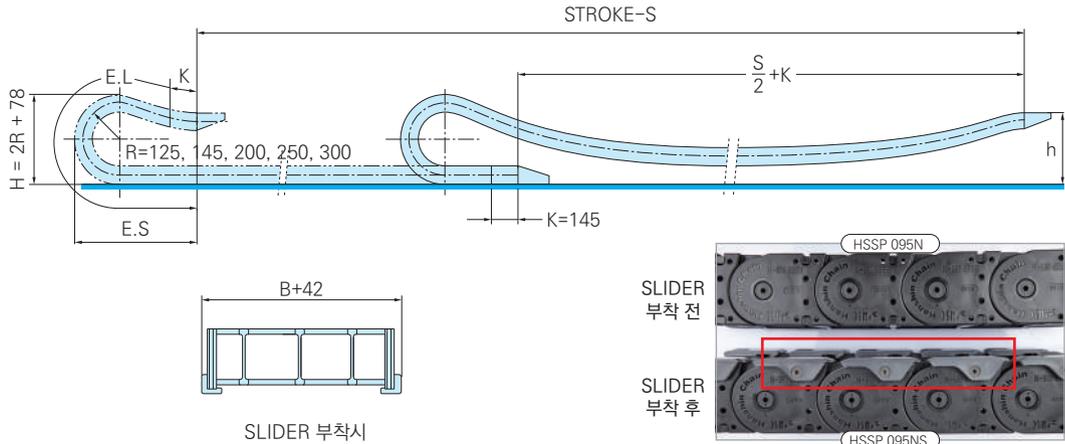
Moving Bracket

# HSSP 095NS (슬라이더 부착형)

## ORDER EXAMPLE

HSSP095NS 300R B200 D:3 19950L 2SETS  
 Type Radius Width Divider Length Q'ty

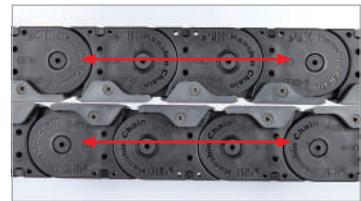
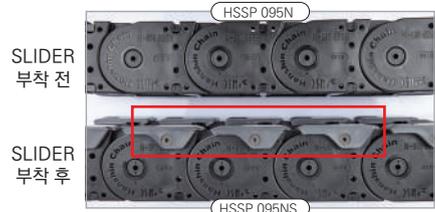
## Chain



$$\text{Length}(L) = \frac{S}{2} + E.L + 290$$

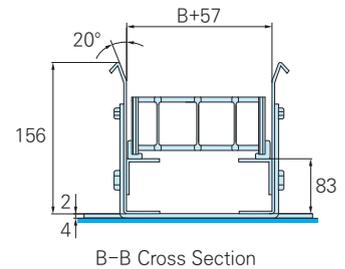
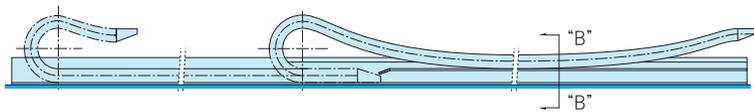
Radius(R)	125	145	200	250	300
Height(H)	328	368	478	578	678
Moving Point Height(h)	250	250	250	250	250
Extra Length(E.L.)	950	1140	1520	1900	2185
Extra Space(E.S.)	340	430	600	750	860

- \* h: 역R 적용 시 취부 높이
- \* 역R 제품은 주문 전 영업부와 협의 바랍니다.

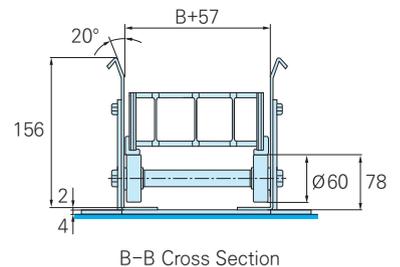
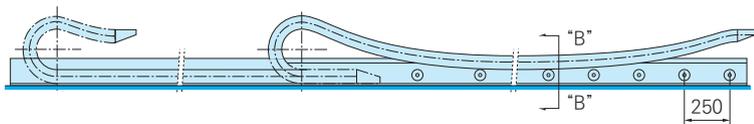


장거리 사용시 슬라이더를 부착하여 매끄럽고 부드럽게 주행  
 로보체인 링크 플레이트의 마모를 막아주고  
 슬라이더만 교체하여 오랜 기간 사용 가능

## Guide Rail



## Guide Roller

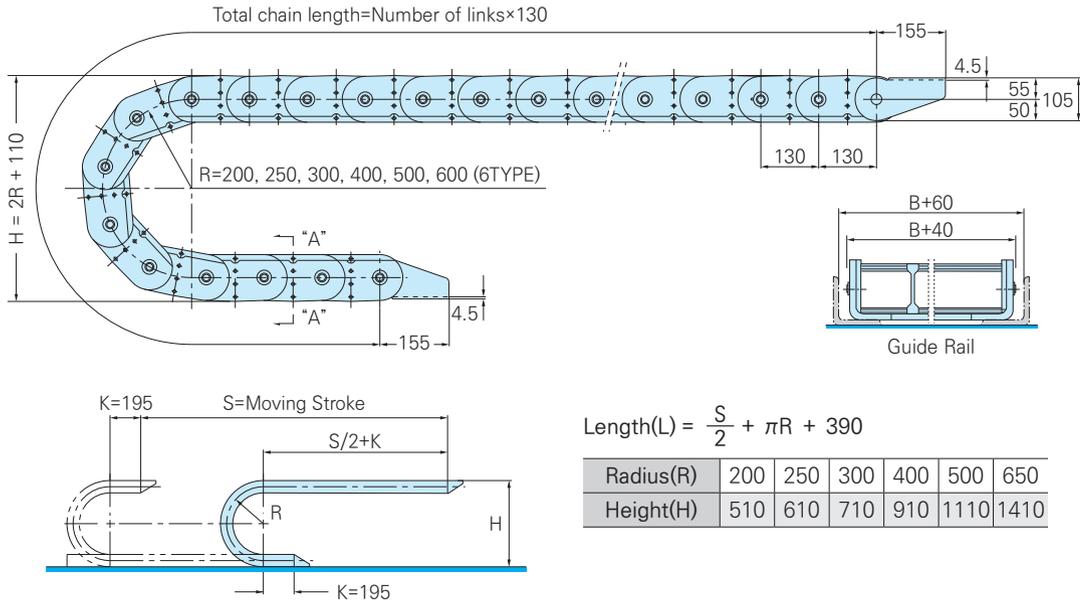


# HSSP 130N

## ORDER EXAMPLE

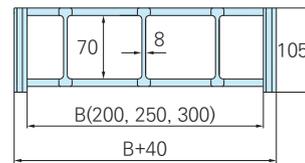
HSSP130N 250R B200 D:3 4420L 3SETS  
 Type Radius Width Divider Length Q'ty

## Chain, Cross Section



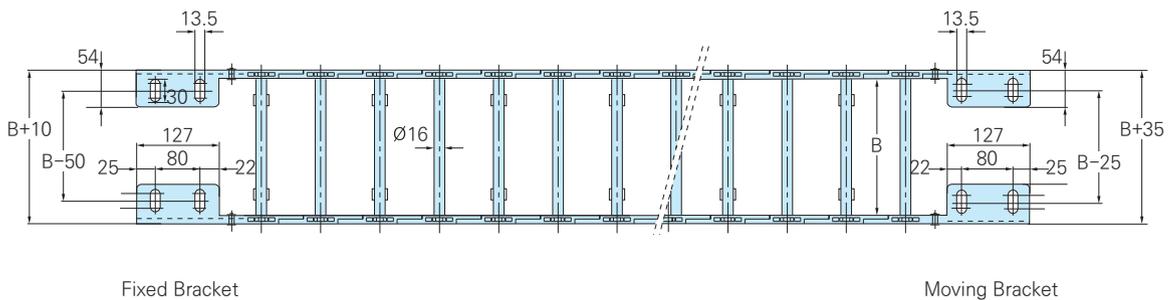
## Divider

Cable/Hose dmax	Ø63				
Frame Dim. "B"	200	250	300	350	400
Divider(Standard)	2	3	3	4	4



A-A Cross Section

## Brackets

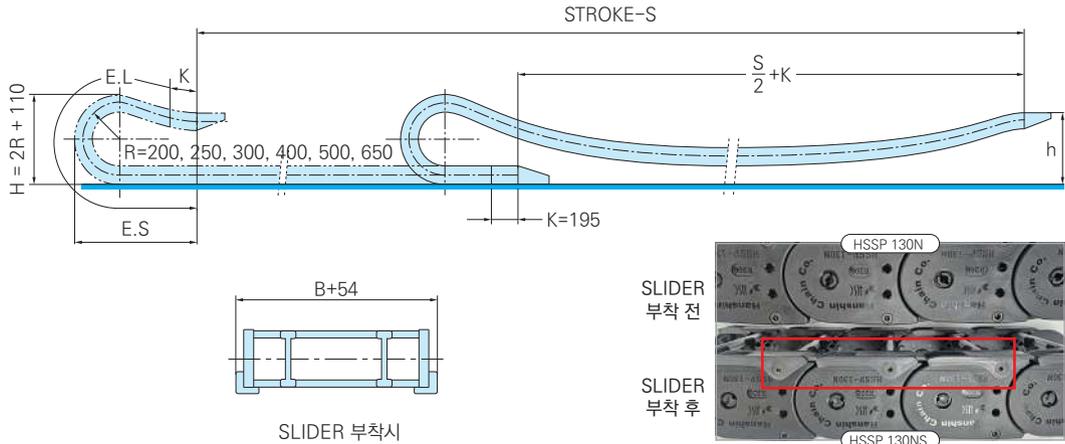


# HSSP 130NS (슬라이더 부착형)

ORDER EXAMPLE

HSSP130NS 400R B300 D:3 24960L 3SETS  
 Type Radius Width Divider Length Q'ty

## Chain



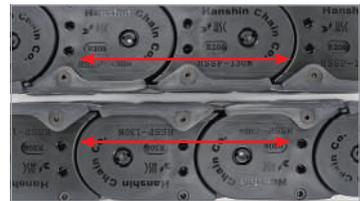
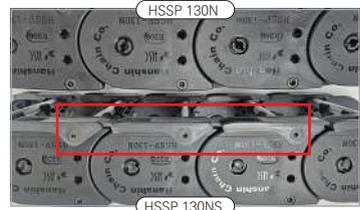
$$\text{Length}(L) = \frac{S}{2} + E.L + 390$$

Radius(R)	200	250	300	400	500	650
Height(H)	510	610	710	910	1110	1410
Moving Point Height(h)	300	300	300	300	300	300
Extra Length(E.L)	1560	1820	2210	2990	3640	4200
Extra Space(E.S)	780	950	1100	1400	1700	2000

- \* h: 역R 적용 시 취부 높이
- \* 역R 제품은 주문 전 영업부와 협의 바랍니다.

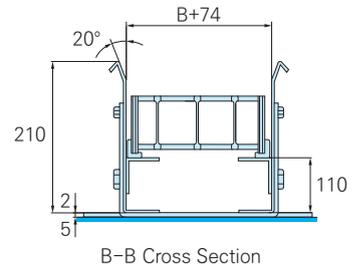
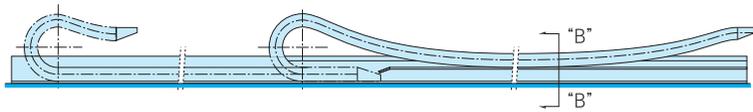
SLIDER  
부착 전

SLIDER  
부착 후

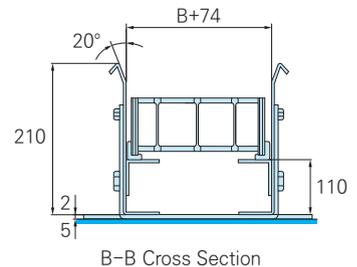
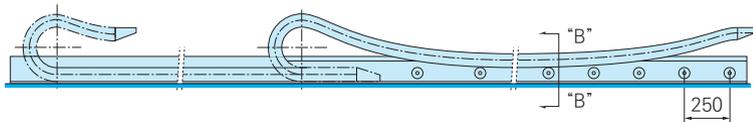


장거리 사용시 슬라이더를 부착하여 매끄럽고 부드럽게 주행  
 로보체인 링크 플레이트의 마모를 막아주고  
 슬라이더만 교체하여 오랜 기간 사용 가능

## Guide Rail



## Guide Roller

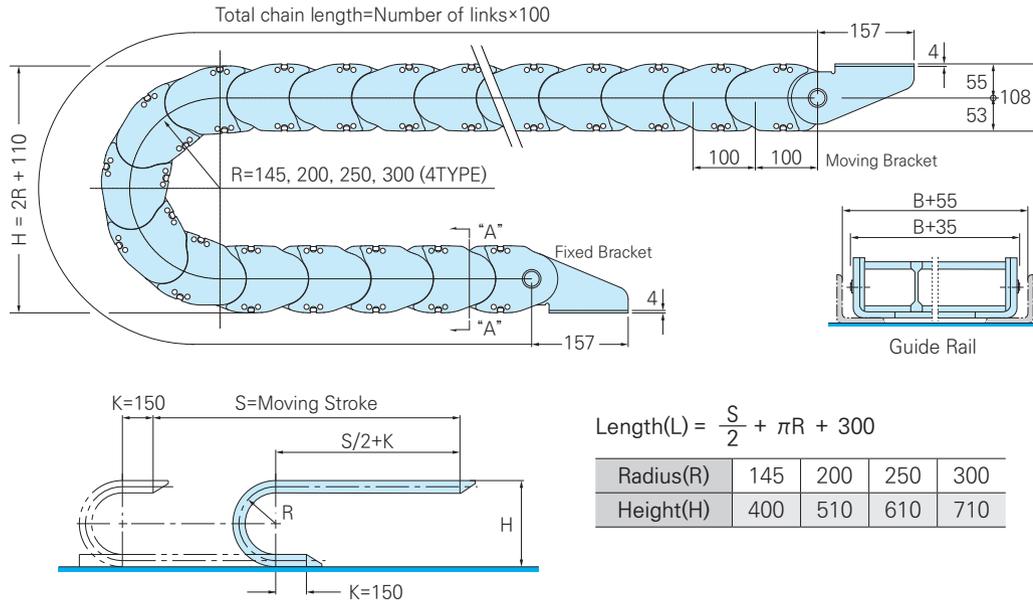


# HSSP100

## ORDER EXAMPLE

HSSP100 250R B200 D:3 4400L 3SETS  
 Type Radius Width Divider Length Q'ty

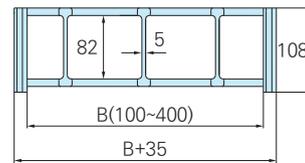
## Chain, Cross Section



## Divider

Cable/Hose dmax	Ø75				
Frame Dim. "B"	200	250	300	350	400
Divider(Standard)	2	3	3	4	4

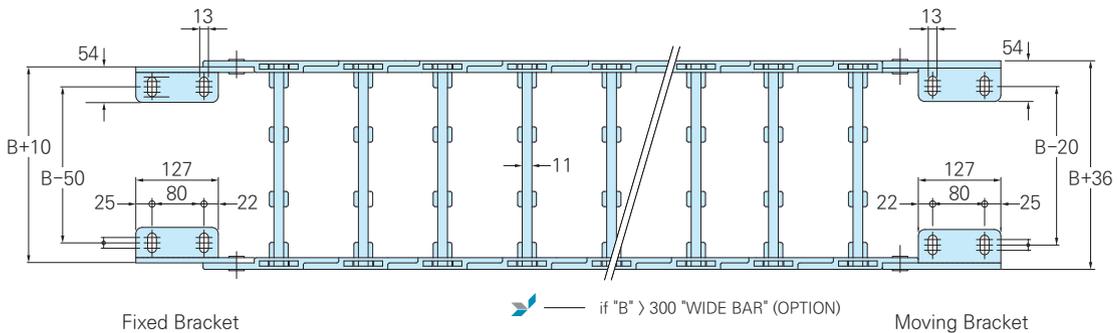
\* WIDE BAR: OPTION(B300 이상 WIDE BAR 권장)



A-A Cross Section

\* WIDE BAR 적용 시 내측 높이 78

## Brackets

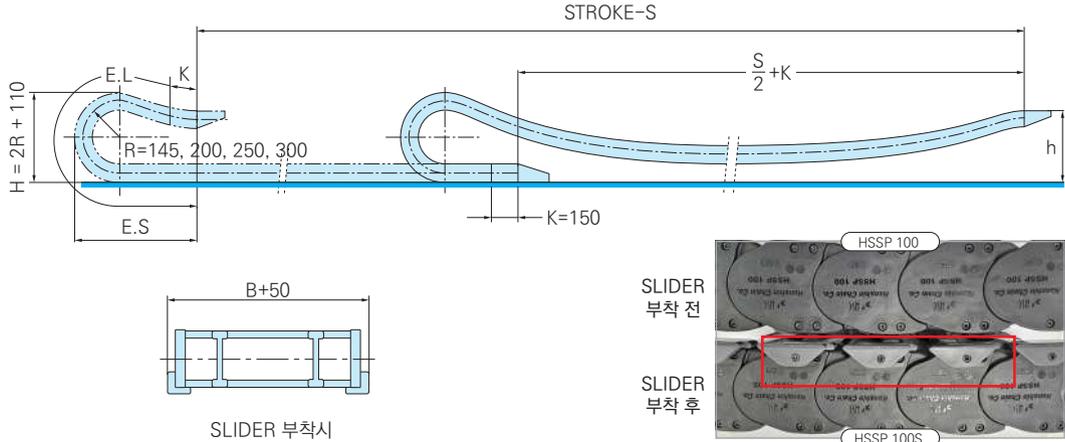


# HSSP100S (슬라이더 부착형)

ORDER EXAMPLE

HSSP100S 300R B300 D:3 24900L 3SETS  
 Type Radius Width Divider Length Q'ty

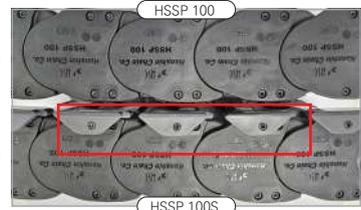
## Chain



$$\text{Length}(L) = \frac{S}{2} + E.L + 300$$

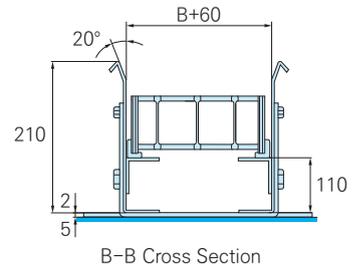
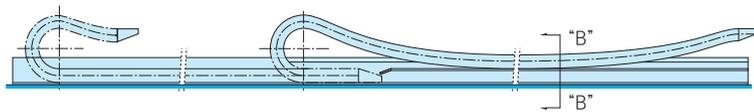
Radius(R)	145	200	250	300
Height(H)	400	510	610	710
Moving Point Height(h)	300	300	300	300
Extra Length(E.L)	1400	1700	2300	2800
Extra Space(E.S)	730	850	1070	1300

- \* h: 역R 적용 시 취부 높이
- \* 역R 제품은 주문 전 영업부와 협의 바랍니다.

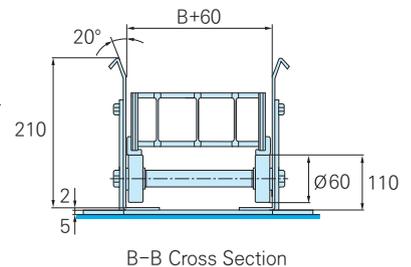
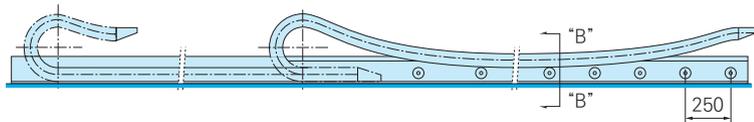


장거리 사용시 슬라이더를 부착하여 매끄럽고 부드럽게 주행  
 로보체인 링크 플레이트의 마모를 막아주고  
 슬라이더만 교체하여 오랜 기간 사용 가능

## Guide Rail



## Guide Roller



# HSSP Sliding



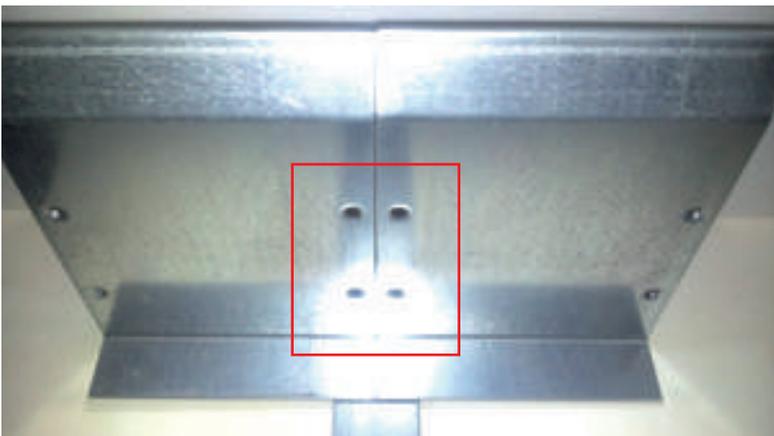
HSSP 095NS



HSSP 130S 400R B200 65000L



가이드 레일 여유 폭 과다 적용 시  
편 마모 및 끼임 발생으로 주의

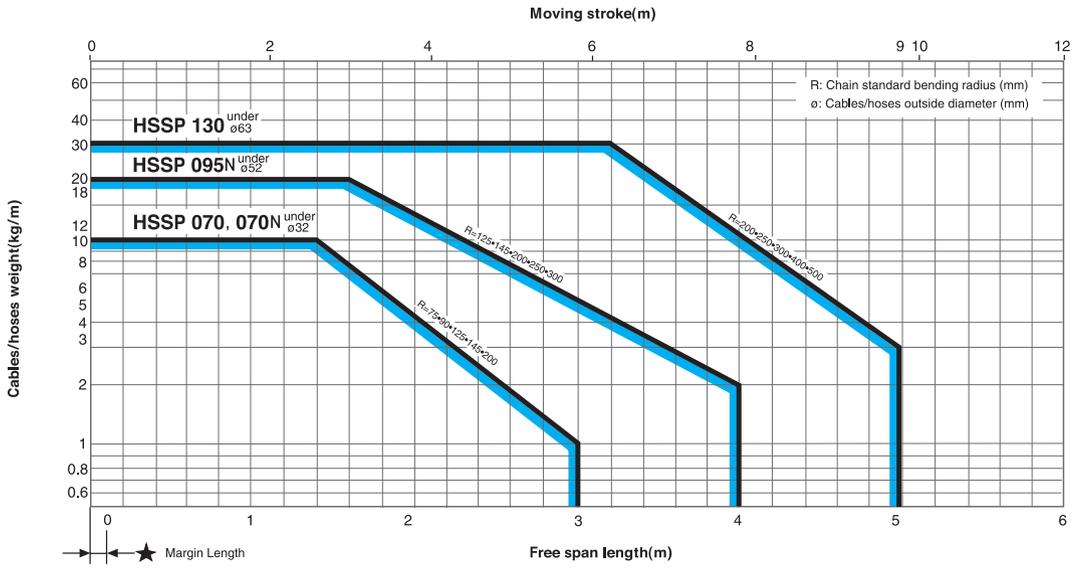


로보체인이 주행하는 가이드 레일  
내부에는 볼트 머리 등의  
간섭&돌출부가 없어야 합니다.



HSSP TYPE

# 능력선도 (HSSP) Capability Graph

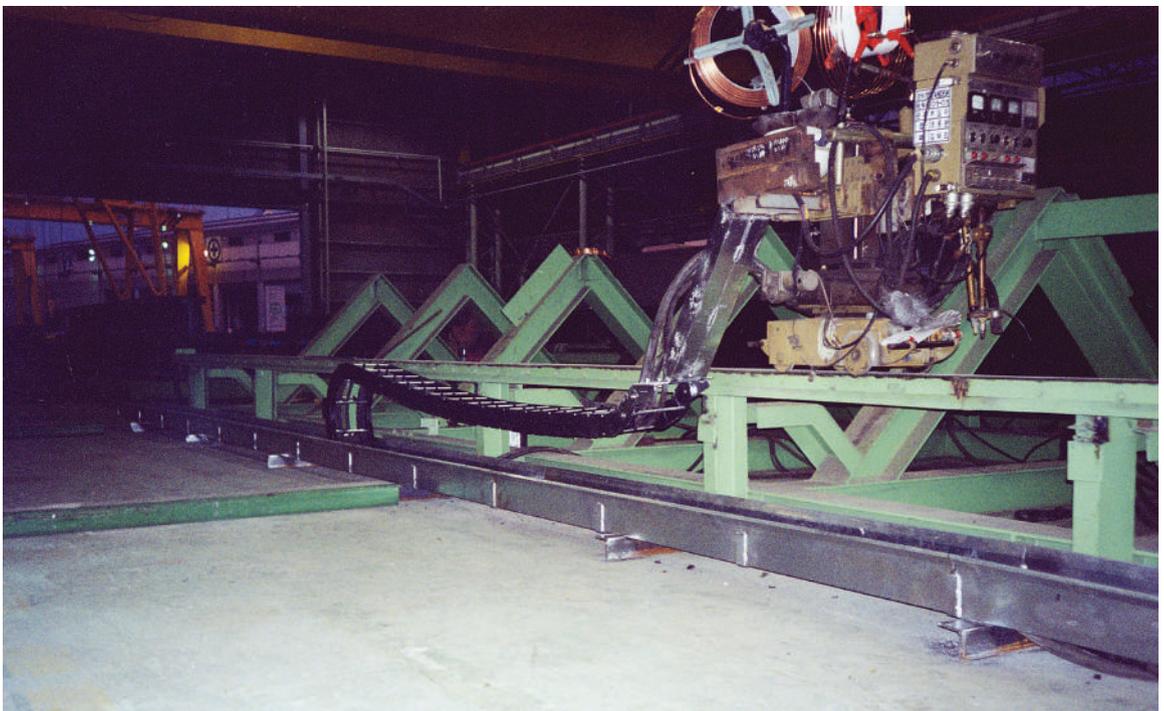


HSSP 095S

## 응용예 Application Examples



HSSP 095NS



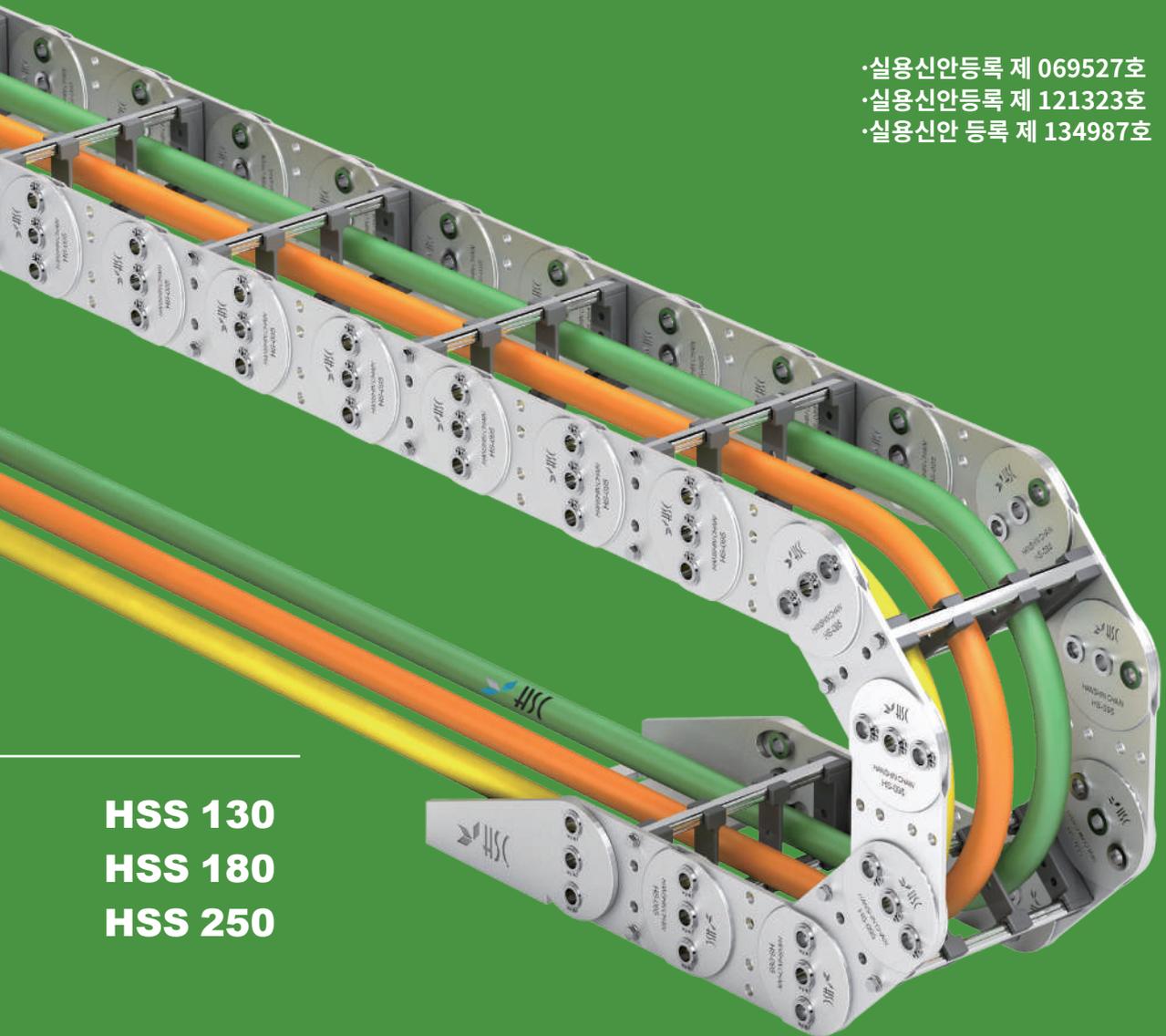
HSSP 095N

# HSS type

제철·제강설비, 공작기계, 운반기계, 자동차 생산설비, 산업용 플랜트, 냉연·압연설비 등 모든 기계에 적용

*Iron and Steel mill industry, Machining center, Conveying machine, Automobile industry, Industrial plant facilities and for most other industrial application*

- 실용신안등록 제 069527호
- 실용신안등록 제 121323호
- 실용신안 등록 제 134987호



**HSS 130**  
**HSS 180**  
**HSS 250**

## ☑ Features

- 간편조작형으로 Cable, Hose의 분해 및 설치가 용이하고 칸막이가 자유롭게 조정됩니다.
- Supporter 부가 규격화되어 간편하며 짧은 납기에 좋습니다.
- 불필요한 무게를 줄였습니다.
- Cable, Hose의 추가 증설이 용이합니다.
- 5종의 다양한 모델로 구성되어 있습니다.
- *Quick and easy manipulation for assembling and disassembling of cables and hoses.*
- *Movable divider provides more flexibility.*
- *Supporter parts are well standardized to cut the delivery time.*
- *Unnecessary weight is removed.*
- *25 various models are manufactured.*

## ☑ Operation

HSS Type의 Robochain은 HS Type과 Plate는 같습지만 Supporter가 다릅니다. HSS Type은 Supporter의 Bar를 분리하여 케이블과 호스를 쉽게 탈·부착 가능토록 간편하게 제작되어 있습니다. 한편, 엔지니어링 플라스틱 Divider를 케이블과 호스의 직경에 맞추어 사용합니다. HSS Type은 Cable, Hose 등의 추가 증설이 용이하도록 설계되었습니다. 녹이 발생하는 환경에서 사용하는 경우에는 Plate를 스테인레스 강판으로도 제작이 가능합니다.

*HSS Type shares the same plate with HS Type, however, the supporter is different.*

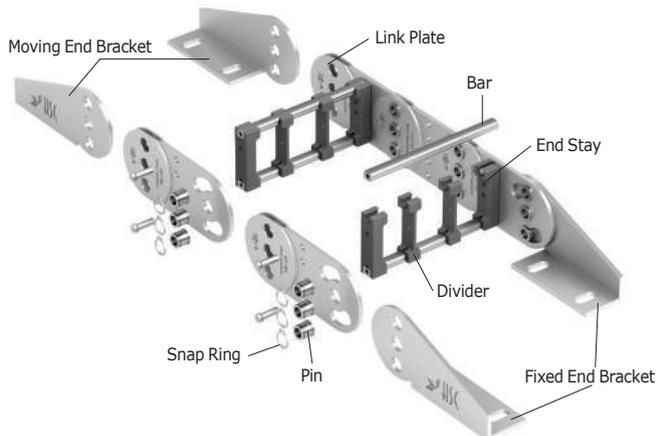
*HSS Type is designed for easy assembling and disassembling of cables and hoses through eliminating the bar of supporter. Also, divider made of engineering plastic flexibly moves to accommodate the diameter of cables or hoses.*

*For moist environments, plates can be made of stainless steel.*

## ☑ Properties

- 운동속도 : 60m/min이하
- 케이블 호스의 직경 : 80mm 이하
- 사용온도 : -25 ~ 100°C
- 기본색: 백색아연도금
- 재질: S45CM-S, Aluminum, 엔지니어링 플라스틱
- *Moving Velocity: below 60m/min*
- *Diameter of Cable Hose: less than 80mm*
- *Operating Temperature: -25 ~ 100°C*
- *Basic Color: White Zinc Coating*
- *Material: S45CM-S, Aluminum, Engineering Plastic*

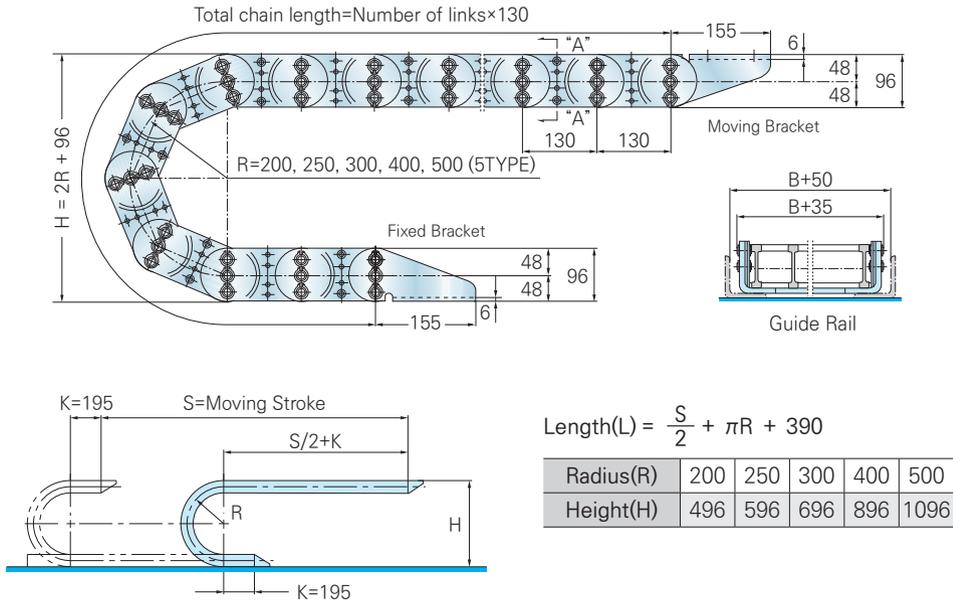
## ☑ Structure



# HSS 130

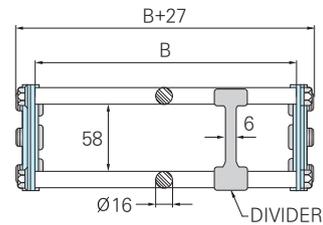
ORDER EXAMPLE					
HSS130	400R	B300	D:4	5980L	3SETS
Type	Radius	Width	Divider	Length	Q'ty

## Chain, Guide Rail



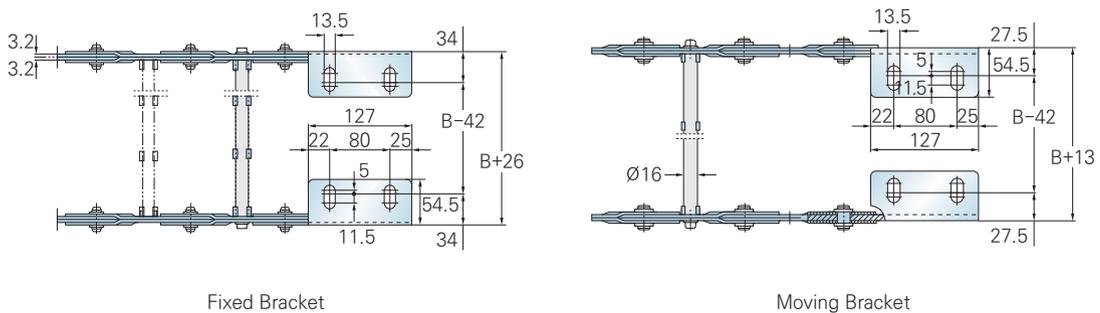
## Divider

Cable/Hose	dmax	Ø50				
Frame Dim.	"B"	200	250	300	350	400
Divider	Min.No	2	3	4	5	6
	Max.No	3	5	8	9	10



A-A Cross Section

## Brackets

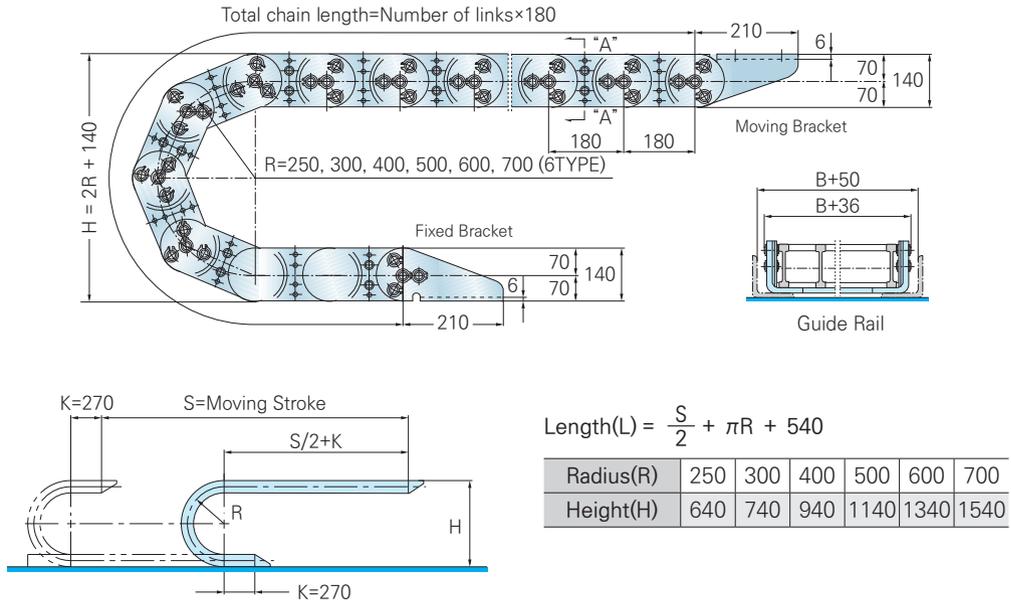


# HSS 180

## ORDER EXAMPLE

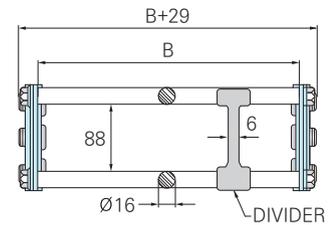
HSS180	700R	B400	D:4	7920L	3SETS
Type	Radius	Width	Divider	Length	Q'ty

## Chain, Guide Rail



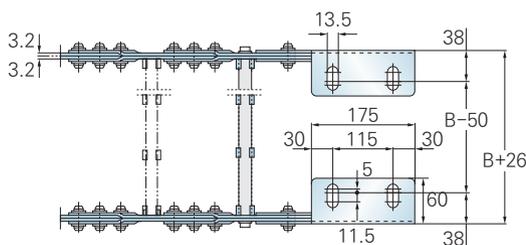
## Divider

Cable/Hose	dmax	Ø80				
Frame Dim.	"B"	300	400	500	600	700
Divider	Min.No	3	4	5	6	7
	Max.No	5	8	10	12	14

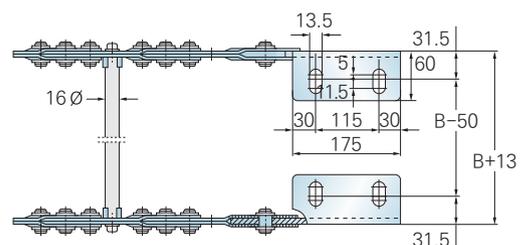


A-A Cross Section

## Brackets



Fixed Bracket



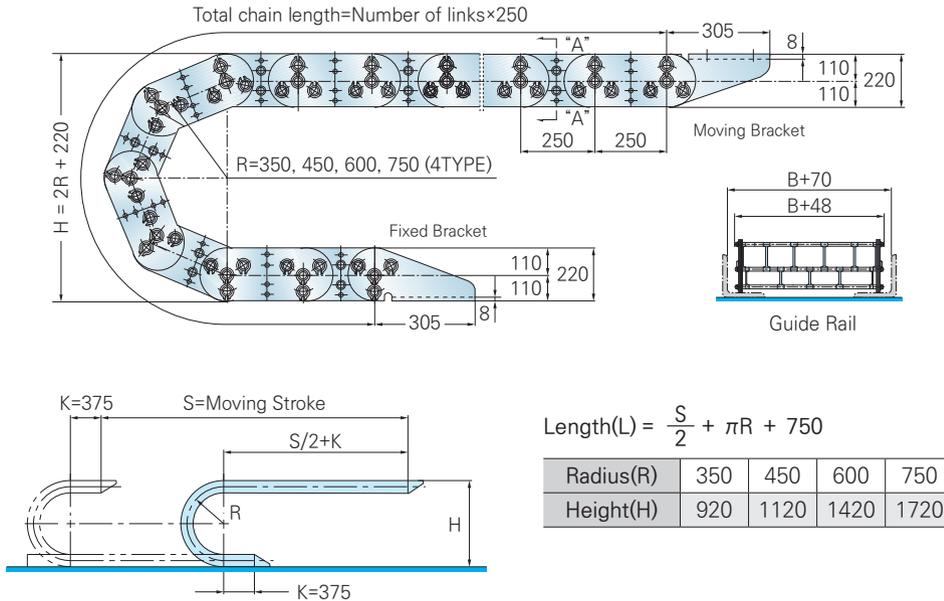
Moving Bracket

# HSS 250

## ORDER EXAMPLE

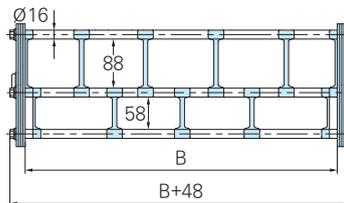
HSS250 750R B600 D:6+4 9750L 3SETS  
 Type Radius Width Divider Length Q'ty

## Chain, Guide Rail



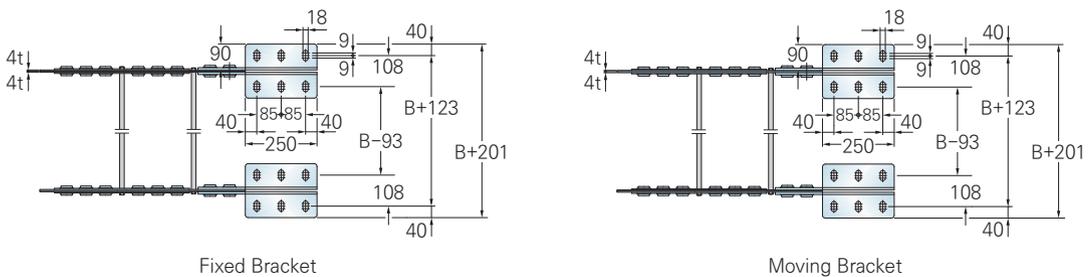
## Divider

Cable/Hose	dmax	Ø50×Ø80				
Frame Dim.	"B"	300	400	500	600	700
Divider	Min.No	3	4	5	6	7
	Max.No	5	8	10	12	14



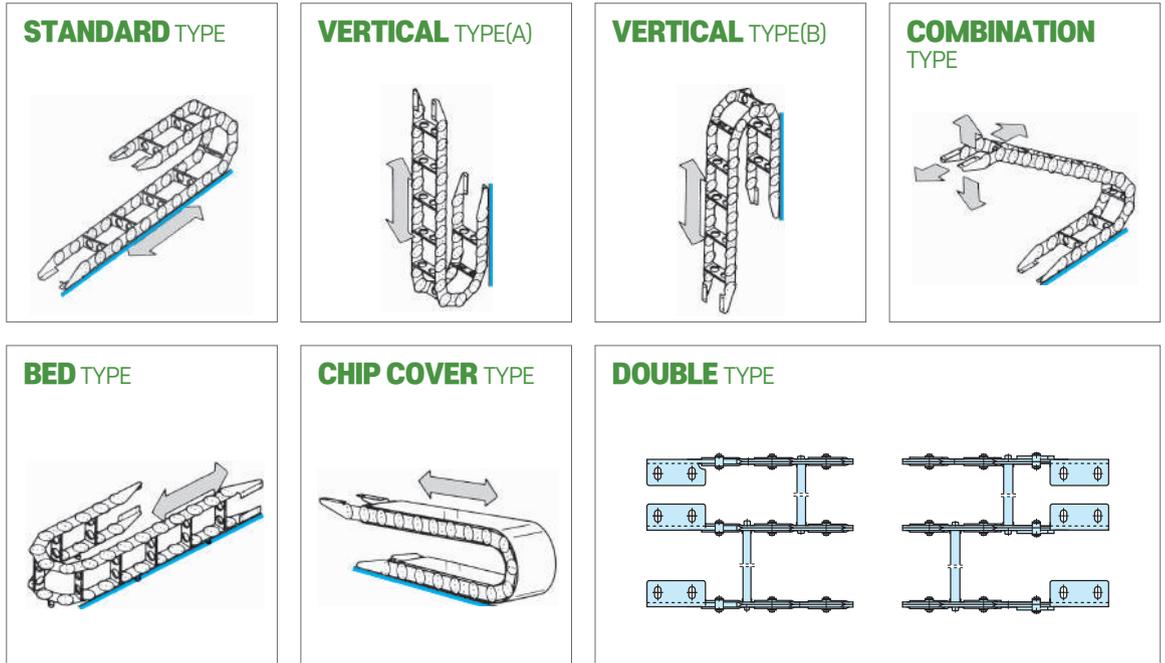
A-A Cross Section

## Brackets



※ 홀수 링크로 주문했을 시에만 더블 타입 엔드 브래킷 적용이 가능합니다.

## 응용예 Application Examples



## 선택사양 Option

### ▶ Slider

장거리용으로 Support Roller, Side Roller를 부착할 수 없는 경우 RoboChain 자체를 Slide하도록 설계되었습니다.

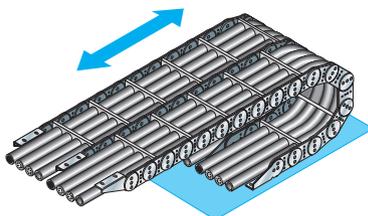
*When support roller or side roller is not applicable typically in long stroke application, the slider enables for the chain to slide on the top of other side of chain.*



### ▶ Double Type

표준사양 이상의 환경으로 사용하실 경우에는 그림과 같이 Double Type으로 설계, 제작 합니다.

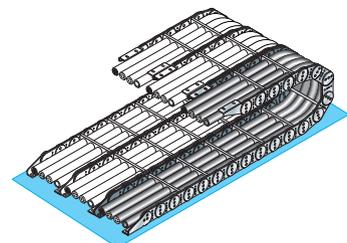
*When used in non-standard configuration, double type can be designed for customer's specification.*



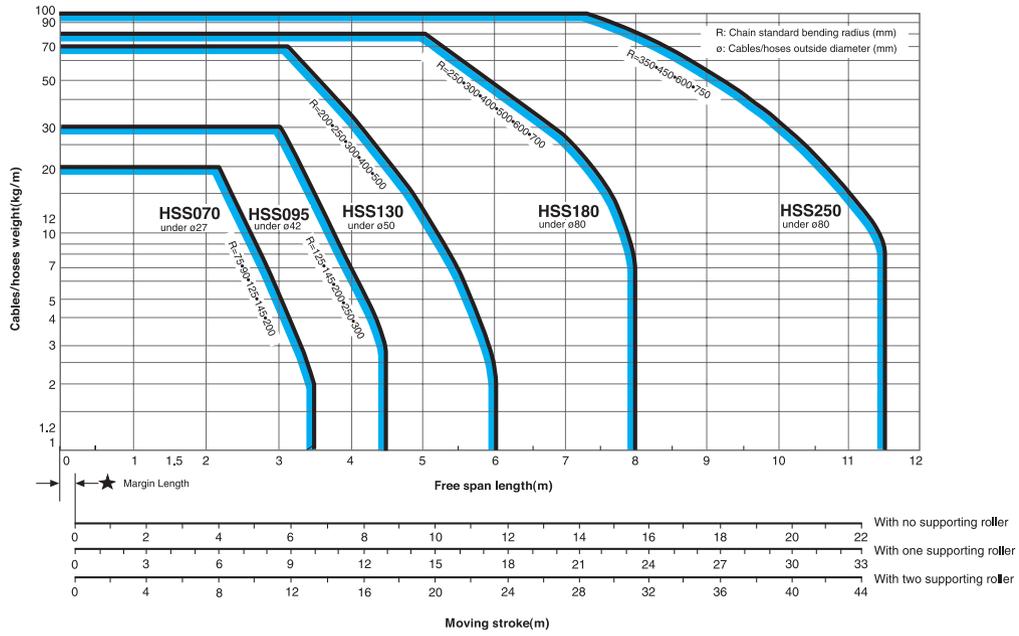
### ▶ Triple Type

복합형의 경우, 최대 Triple Type까지 설계, 제작합니다.

*For mixed type, maximum triple type configuration can be designed for customer's specification.*



# 능력선도(HSS) Capability Graph



제철소의 연주설비 TUNDISH CAR



대용량의 HSS Type RoboChain

# RoboFlex type

## 로보플렉스

크린룸, 반도체, 정밀스테이지, 리니어 모터, 취출 로봇, 용접 로봇,  
공작기계, 디스플레이, 정밀측정장비 및 자동화설비

*Clean room, Semi-conduct, Precision Stage, Linear Motor,  
Robot, Display, Machinery, Automotive, FA*

**HSRF 2538**

**HSRF 2849**

**HSRF 3560**

**HSRF 4565**

**HSRF 23B(원형)**

**HSRF 29B(원형)**

**HSRF 36B(원형)**





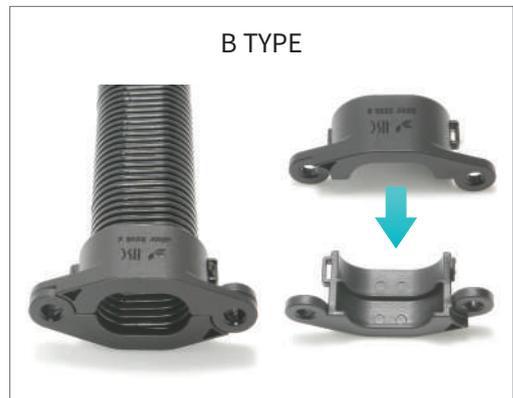
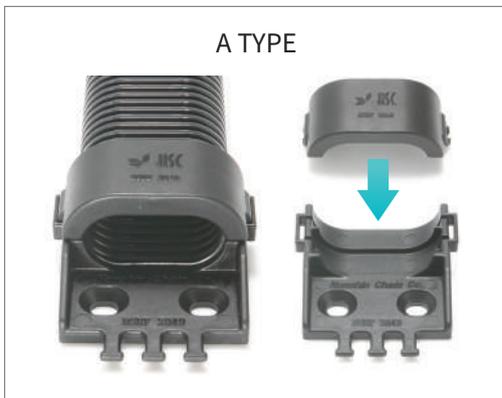
✓ **Class 1**



✓ **29dB**



✓ **END BRACKET**



✓ **MIDDLE BRACKET**



ROBOFLEX TYPE

# HSRF 2538



## ORDER EXAMPLE

HSRF 2538 6000L A+B 5ROLL  
 Type Length Brackets Q'ty

※ MOQ 6M x 5롤

### • stat. R (고정용 R값)

lowest recommended bending radius for static (fixed) installation.

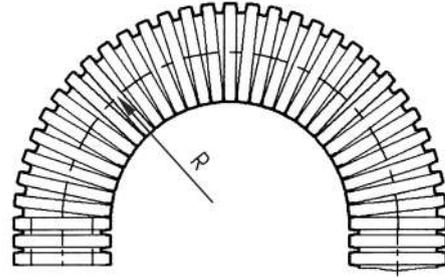
※ 고정용으로 사용시 권장하는 최소 곡률반경

### • dyn. R (무빙용 R값)

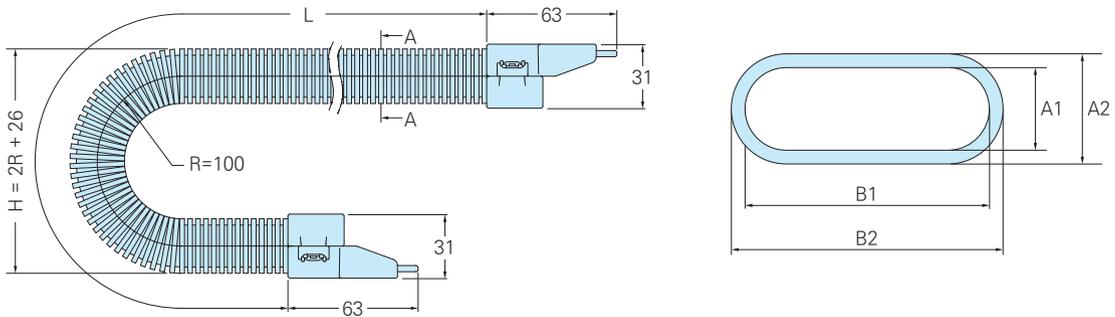
lowest recommended bending radius for dynamic (flexible) installation.

※ 무빙용으로 사용시 권장하는 최소 곡률반경

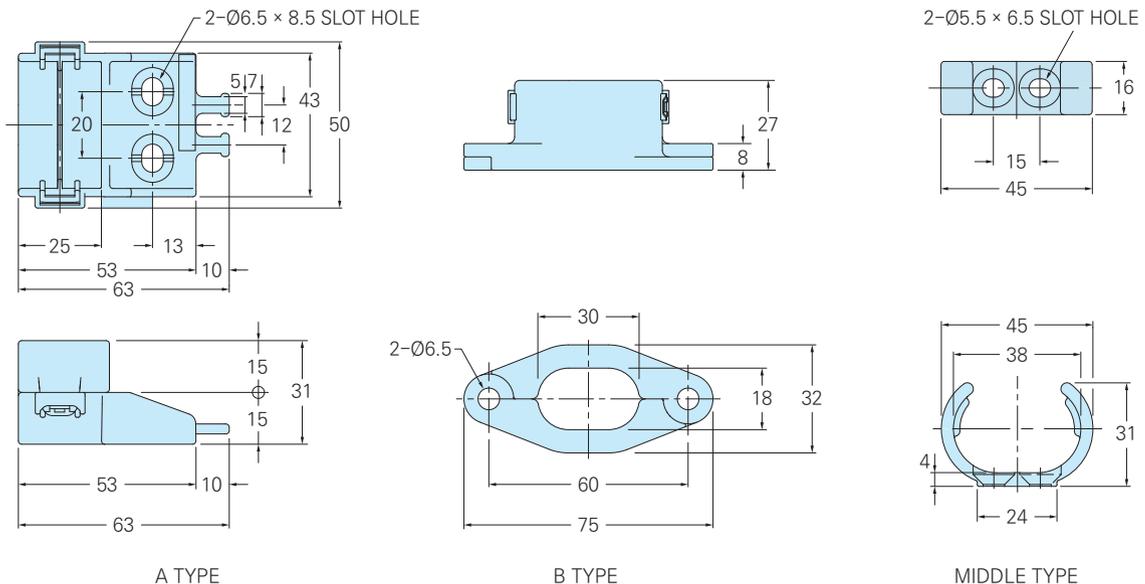
star.R	dyn.R	A1	A2	B1	B2
40	100	18	26	30	38



## RoboFlex



## Brackets



# HSRF 2849



## ORDER EXAMPLE

HSRF 2849 6000L A+B 5ROLL  
 Type Length Brackets Q'ty  
 ※ MOQ 6M x 5롤

### • stat. R (고정용 R값)

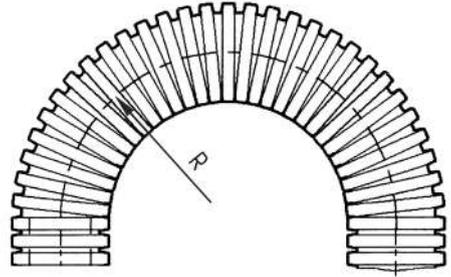
lowest recommended bending radius for static (fixed) installation.

※ 고정용으로 사용시 권장하는 최소 곡률반경

### • dyn. R (무빙용 R값)

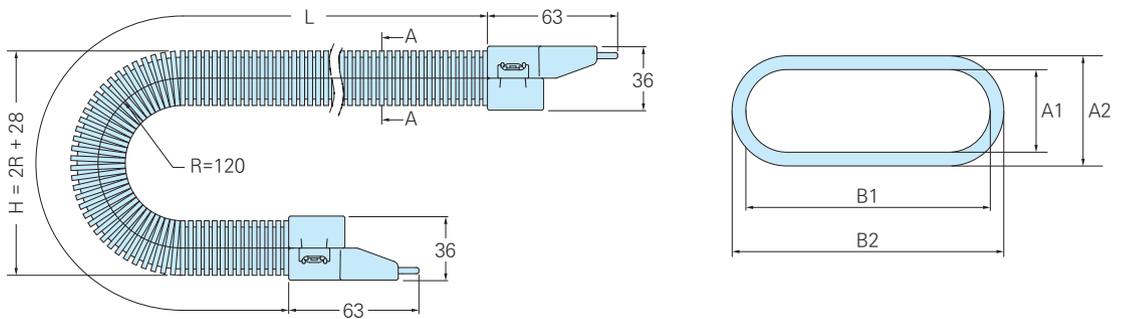
lowest recommended bending radius for dynamic (flexible) installation.

※ 무빙용으로 사용시 권장하는 최소 곡률반경

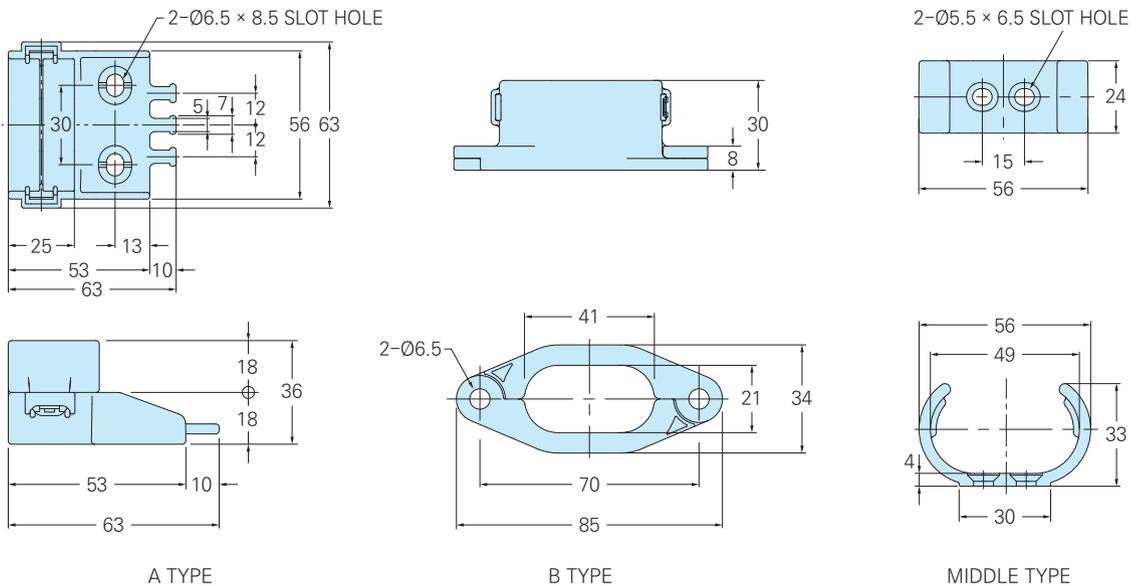


star.R	dyn.R	A1	A2	B1	B2
50	120	21	28	41	48

## RoboFlex



## Brackets



# HSRF 3560



## ORDER EXAMPLE

HSRF 3560 6000L A+B 5ROLL  
 Type Length Brackets Q'ty

※ MOQ 6M x 5롤

### • stat. R (고정용 R값)

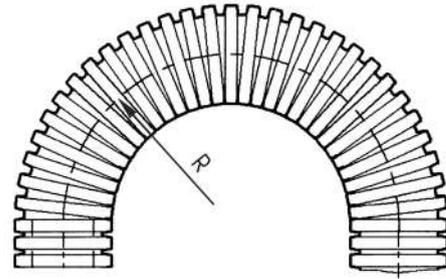
lowest recommended bending radius for static (fixed) installation.

※ 고정용으로 사용시 권장하는 최소 곡률반경

### • dyn. R (무빙용 R값)

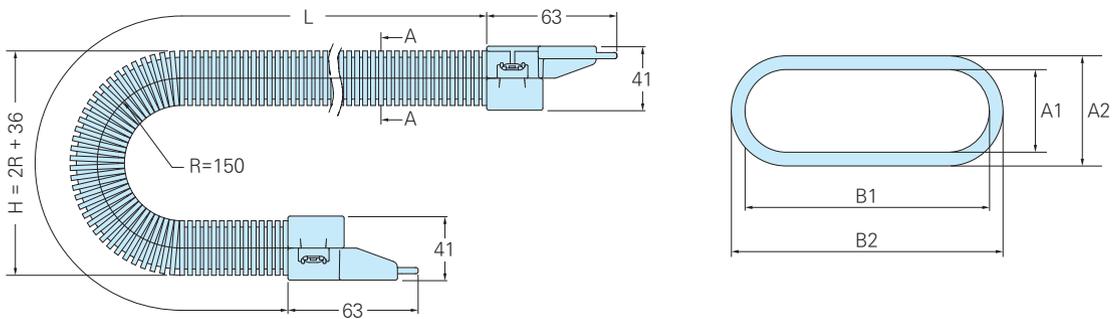
lowest recommended bending radius for dynamic (flexible) installation.

※ 무빙용으로 사용시 권장하는 최소 곡률반경

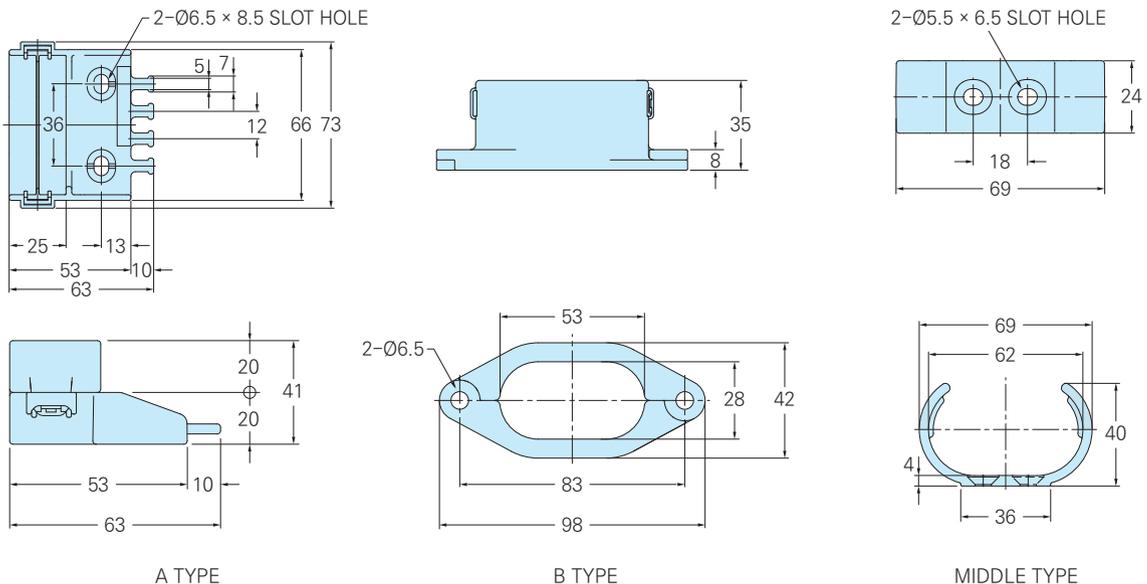


star.R	dyn.R	A1	A2	B1	B2
60	150	28	36	53	61

## RoboFlex



## Brackets



# HSRF 4565



ORDER EXAMPLE  
**HSRF 4565 6000L A+B 5ROLL**  
 Type Length Brackets Q'ty  
 ※ MOQ 6M x 5롤

• **stat. R (고정용 R값)**

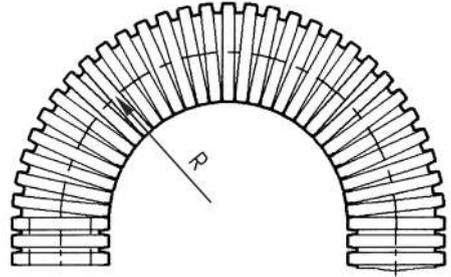
lowest recommended bending radius for static (fixed) installation.

※ 고정용으로 사용시 권장하는 최소 곡률반경

• **dyn. R (무빙용 R값)**

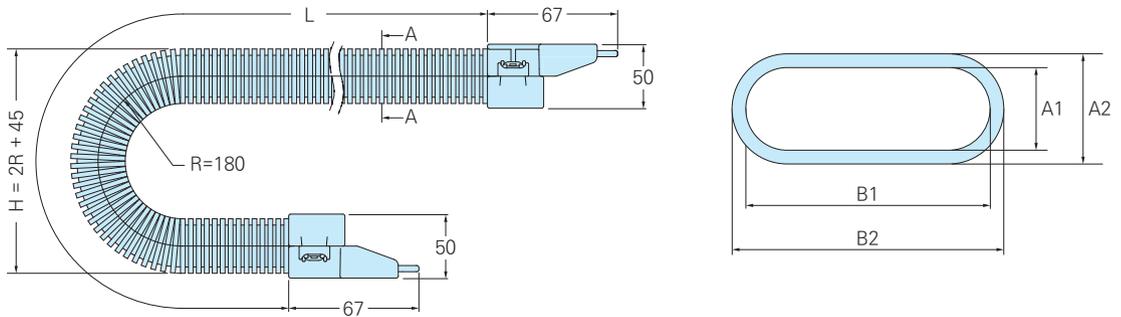
lowest recommended bending radius for dynamic (flexible) installation.

※ 무빙용으로 사용시 권장하는 최소 곡률반경

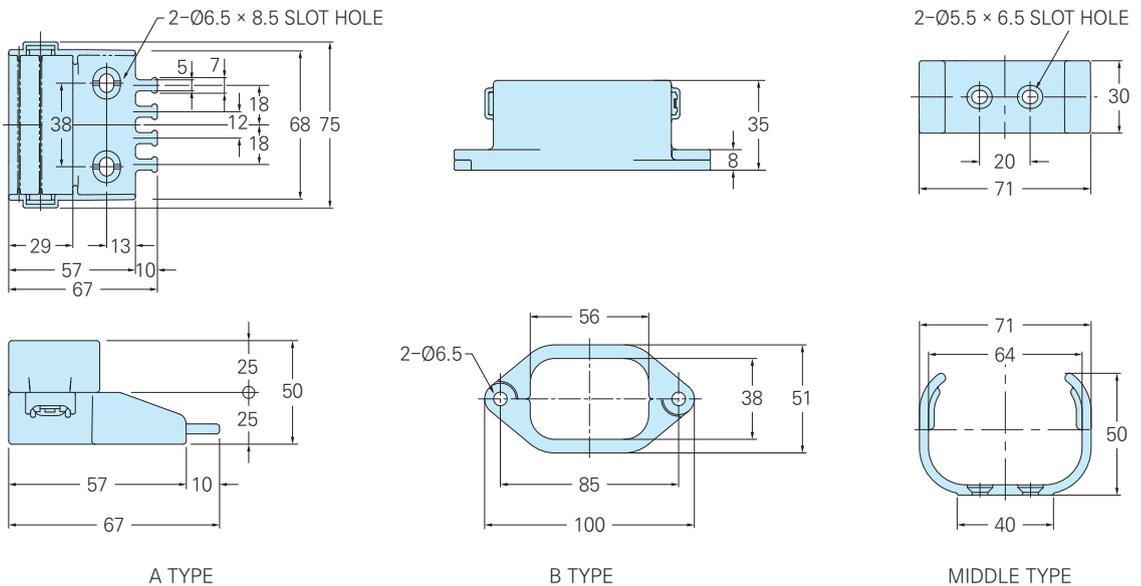


star.R	dyn.R	A1	A2	B1	B2
70	180	37	45	55	63

## RoboFlex



## Brackets



# HSRF 23B, 29B, 36B

ORDER EXAMPLE

HSRF 29B 30M 10EA



다관절 로봇 전용으로 소재가 특별한 원형 로보플렉스



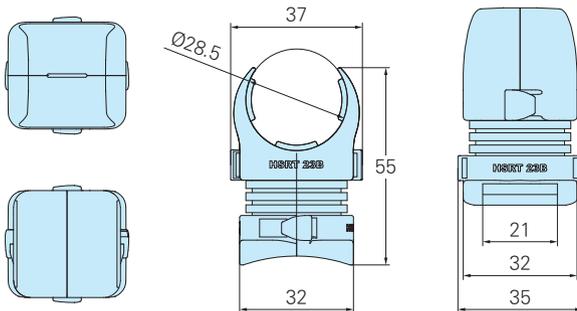
뒤틀림에 매우 강함

복원 후

# HSRT 23B

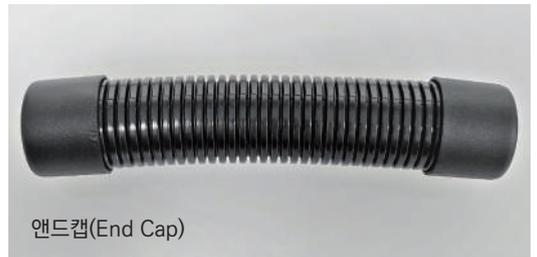


## Structure



규격	사용 가능 범위Ø
HSRT 23B BAND 50	Ø50~80
HSRT 23B BAND 80	Ø80~130

## Option



특수 소재로 개발한 원형 호스 **HSRF 23B**는  
 뒤틀림에 강하고 **복원력이 좋아**  
 다관절 로봇에 **최고의 성능**을 보장합니다