

2014 GENERAL CATALOGUE  
**SABIN CHAIN**



## CHARACTERISTIC AND MERIT OF NEW SABIN CHAIN / nsb Chain의 특징 및 장점

### New Sabin Chain

is a new generation cable chain with a new structure, which improved the existing Sabin Chain. This creative method is our own invention to connect the sidebands by holding pin. Those two elements could make up the mutual reverse curvature-angle. The holding pin performs not only connecting sidebands ,but also deteriorating the curvature stress of the sidebands consequently.

Armed with a design which launches us into the next generation of cable protection , New Sabin Chain virtually eliminates sound during operation and takes "clean" to a whole new level with a Class 2 clean room certification.

The New Sabin Chain is an unique technology of CP System Co., Ltd, which is registered in domestic patent, and is now being applied for international patent in Germany, China, Europe, U.S.A, and so forth. Furthermore, to satisfy needs of customers in the strict European market and for the safety of clients worldwide, New Sabin Chain includes none of the 6 harmful substances; Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr6+), PBB, PB, DEs etc...making it completely recyclable and harmless both to the user and to the environment, and this high-quality engineering plastic product is developed as a next generation cable chain for best protection.

Product line-up of the New Sabin Chain is clean room type(CR-Type), normal type(N-Type), and Enclosed type(E-Type), which are developed, and Sliding type(S-Type) is under development now.

Product line-up of the New Sabin Chain is clean room type(CR-Type), normal type(N-Type), and Enclosed type(E-Type), which are developed.

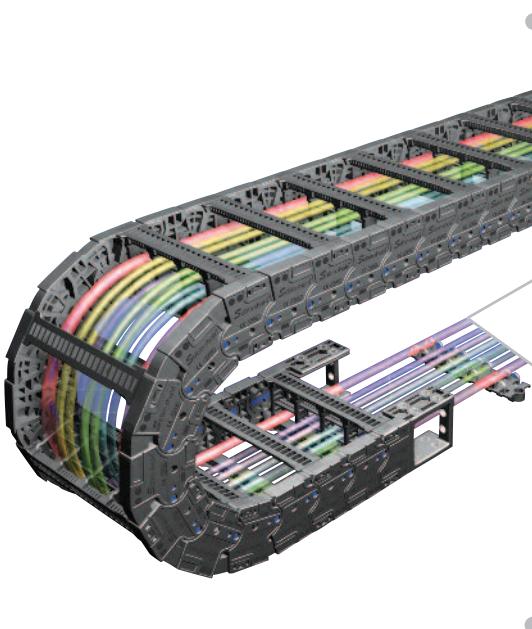
### New Sabin Chain

은 기존의 Sabin Chain을 혁신적으로 개선한 새로운 방식의 차세대 케이블체인입니다. New Sabin Chain은 헐딩핀 결합방식의 구조로 개발된 체인으로 사이드밴드와 헐딩핀이 상호 역방향 곡률구조를 이루고 있으며 헐딩핀은 사이드밴드의 결합 및 사이드밴드에 가해지는 비틀림 응력을 상쇄시키는 역할을 합니다.

New Sabin Chain은 IT산업과 기술고도화 산업의 발전으로 클린룸지역에서 요구되는 저분진, 저소음을 완벽하게 실현한 케이블 보호용 제품으로써, 이는 분진이 많이 발생하고 소음이 심한 기존의 케이블체인을 혁신적으로 개선한 차세대 케이블체인입니다.

New Sabin Chain은 씨피시스템만의 독자기술로 개발되어 국내특허에 등록되었으며 현재 독일, 중국, 일본, 미국 등 세계 주요국가에 국제특허 출원중입니다. 그리고 유럽시장에서 규제하는 6대유해물질[납(Pb), 카드뮴(Cd), 수은(Hg), 6가크롬(Cr+6)PBB,PBDES 등]을 포함하지 않는 고품질 엔지니어링 플라스틱 소재로써, 인체에 무해하고 재활용이 가능한 제품으로 케이블을 최적의 상태로 보호할 수 있습니다.

New Sabin Chain은 사용환경에 따라 클린룸형(CR-Type), 표준형(N-Type), 밀폐형(E-Type)으로 개발 되었습니다.



### nsb N Type

**N-TYPE (Normal type / 표준형)** : Designed to be more durable and more flexible than the existing cable protection systems. It is a virtual wall around the inner chamber allowing for only necessary movement and creating flexibility options for machines which don't track perfectly every time.

내구성 및 탄성력을 강화시켜 이동속도가 빠르고 저소음, 저분진 체인으로 기존 케이블체인의 대체 사양으로 개발된 제품입니다. 프레임을 비롯하여 각 부품의 구조를 개선하여 내구성을 강화시키고 케이블의 쓸림현상에 의한 피복손상을 방지하도록 개발되었습니다.

## nsb E Type

**E-TYPE ( Enclosed type / 밀폐형 ) :** Designed to protect the inserted cables by forming a complete enclosure which runs the entire length of the cable chain, resulting in total protection from outside impact or foreign objects. The New Sabin Chain E can be found on car manufacturer's welding line robot carriages and press lines as well as on any machine where excess material can damage your inserted cables. Compared to current enclosed systems, it is stronger, quieter and more flexible, making it the right choice for harsh, dangerous or otherwise unclean environments.

외부 이물질로부터 케이블을 완벽하게 보호할 수 있도록 개발된 제품으로 자동차 생산 용접 라인, 도장 라인 등 여러 외부 위험 요소로 부터 케이블을 안전하게 보호할 수 있습니다. 이는 기존 밀폐형 체인의 단점인 소음과 분진 발생을 억제하고 밀폐구조를 개선하여 내부 입선되는 케이블과 체인과의 마찰로 인한 케이블의 피로도를 최소화할 수 있도록 개발되었습니다. New Sabin chain E-Type은 강한 외부충격에 케이블을 보호할 수 있도록 설계되었으며, 환경이 열악한 작업장에서 효과적으로 케이블을 보호할 수 있습니다.

## nsb CR Type

**CR-TYPE ( Clean Room type / 클린룸형 ) :** Designed to meet the low noise and low dust demands of semiconductor production lines, LCD/PDP production lines, and any application where "clean" and "quiet" are a necessity.

소음과 분진발생이 없는 체인으로 기술 고도화 사업장인 반도체 생산라인, LCD/PDP 생산라인 등 분진 및 소음 규제가 철저한 사업장에 사용적합한 제품입니다.

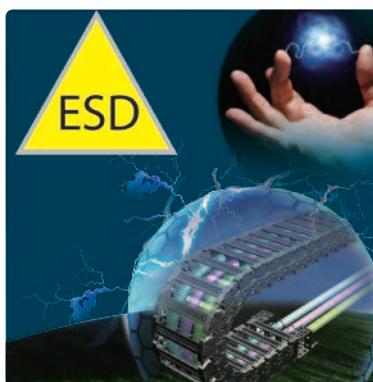
**정전기 방지기능 제품 제작 가능!**  
**Possible to produce for Electrostatic Discharge Product!**

According to the rapid progress of electricity, electron technical, high-integration, high intellect, High tech equipment has to be progressed currently, CPSYSTEM has developed to protect in advance by any flame, explosion from any other materials. And electron technical circuit damage in the semiconductor production line and any loss from the error of computers, can be protected by using ESD product.

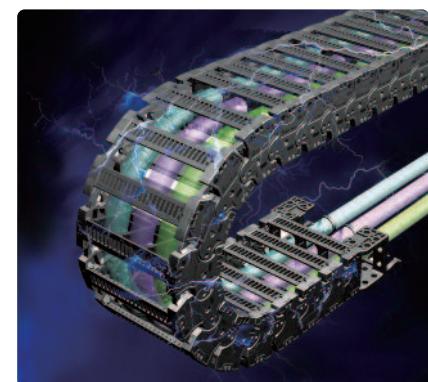
각종 전기, 전자 기술의 급진적인 발달로 고집적화, 고지능화, 최첨단화 설비가 주를 이루고 있는 가운데 정전기로 인한 반도체 제조라인의 고집적 회로 손상, 컴퓨터 오작동 등으로 인한 데이터 손실 인화물질에 의한 점화, 폭발 등의 정전기 피해를 미연에 방지 할 수 있음.



ESD



ESD





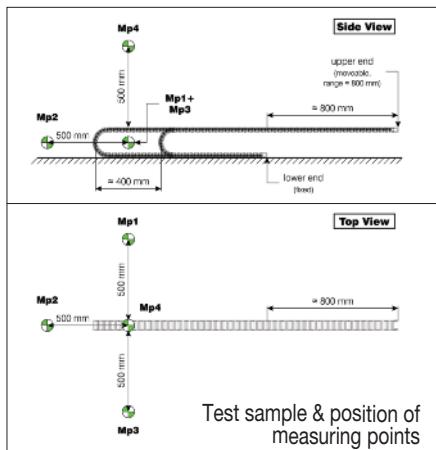
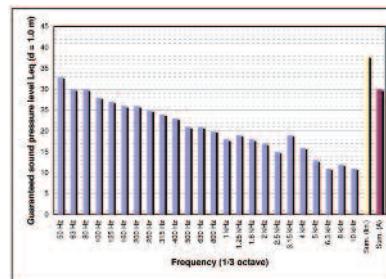
## THE QUIETEST CABLE CHAIN IN THE WORLD!

세계에서 가장 조용한 케이블체인!



Unsatisfied with only just our own in-house testing, we sent our cable chain to the experts at the TUV testing facility in Germany and let them decide. The result was a mouse-like 30db noise level. The quietest ever recorded. It is the patented techniques CPS spends so much time perfecting this astounding accomplishment possible.

독일 소음테스트 전문기관인 TUV에 Sabin chain의 소음테스트를 의뢰한 결과 30dB로 세계에서 가장 소음이 적은 케이블체인으로 이는 씨피시스템만의 기술력입니다.



All measurement results in detail are compiled in Annex 2 (p. 9). The summary below describes the evaluation of the measurements according to 2000/14/EC [1] and the guidelines belong to this directive [2].

- Arithmetic mean of the  $L_{AEC}$  ( $d = 0.5 \text{ m}$  (as measured)): 33.1 dB  
( $d = 1.0 \text{ m}$  (calculated)): 27.1 dB
- Product standard deviation  $S_p$ : 0.8 dB
- Estimated comparative standard deviation  $S_h$ : 1.0 dB
- Total standard deviation  $S_t$ : 1.3 dB
- Confidence level: 95 %
- Quantity of samples: 5
- Coverage factor (see [2], annex A to part 4, table A1): 2.132
- Correction value K ( $K = S_t \times \text{coverage factor}$ ): 2.8
- Guaranteed sound pressure level  $L_{AEC}$  ( $d = 1.0 \text{ m}$ ): 30 dB

Figure 2 shows the guaranteed sound pressure level  $L_{eq}$  for frequencies from 50 Hz to 10 kHz (1/1 octave). The values for each frequency band are calculated as given above.

### Measurement results

### 3 Measurement Procedure

#### 3.1 Fundamentals

- Date and time of measurements: March 15th 2007
- Environmental conditions:
  - Temperature: 21 °C (indoor, air conditioned)
  - Background noise level:  $L_{PA} \leq 29 \text{ dB(A)}$  (air condition off during measurements)  $\Rightarrow$  no correction was made for the influence of background noise (see Annex 2, p. 9)
- Environmental correction  $K_{SA}$ :  $K_{SA} = 0 \text{ dB}$

[1] DIRECTIVE 2000/14/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors

[2] Position paper on guidelines for the application of the European Parliament and Council Directive 2000/14/EC on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors, December 2001

[3] DIN EN ISO 3744 (ISO 3744 : 1995), Acoustics – Determination of sound power level of noise sources using sound pressure – Engineering method in an essentially free field over a reflecting plane, November 1995

[4] DIN EN ISO 4871 (ISO 4871 : 1996), Acoustics – Declaration and verification of noise emission values of machinery and equipment, March 1997

[5] DIN EN 61672-1 (IEC 61672-1:2002), Electroacoustics – Sound level meters – Part 1: Specification, October 2003

### Reference documents



## NEW EXCELLENTE TECHNOLOGY!

국가기관이 인증한 신기술 인증 제품!



Sabin Chain is a low dust, low noise cable chain. It is certified by the Ministry of Science & Technology after three times strict inspection and awarded NET(New Excellent Technology) Certification from the Korean Government.

Sabin chain은 과학기술부 주관의 신기술(NET)인증심사에서 엄격한 심사를 거쳐 클린룸전용 저분진, 저소음 케이블체인 제작 기술의 기술명으로 신기술(NET)인증을 받은 제품으로 Sabin chain은 국가기관이 인정한 제품입니다.

## LOW DUST CHAIN WITH MOST SUITABLE FOR CLEANROOM AREA!

클린룸 환경에 적합한 저분진 케이블체인!

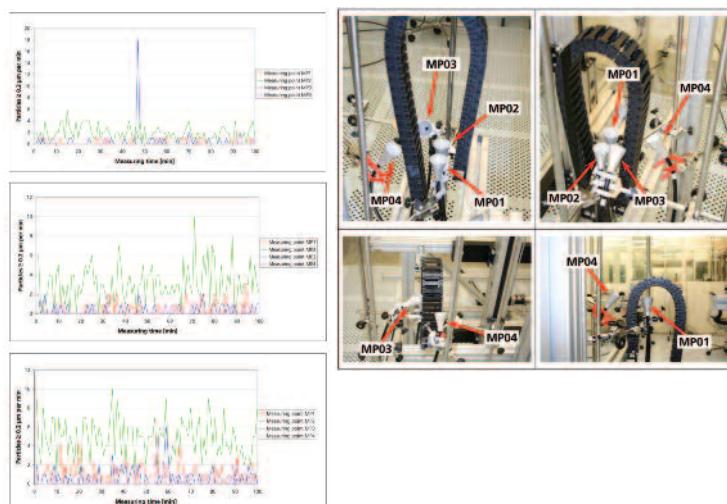


Sabin Chain was given CLASS1 clean room certification according to the Germany IPA Dust Collection Test (VDI 2083 CLASS 1 / DIN EN 14644-1 ISO CLASS 3) thereby surpassing the allowable standard of Class 1 and easily qualifying it for use in semiconductor production lines on automation machine tools and machines requiring quiet but quick applications.

독일의 IPA분진 테스트(VDI2083 CLASS 1 / DIN EN 14644-1 ISO CLASS 3) 결과 CLASS 1등급으로 클린룸지역에서 분진발생 허용기준을 충족하는 제품입니다. Sabin chain은 "CLASS1" 이내의 분진규제가 적용되는 반도체 생산라인, 저소음을 요구하는 사업장, 고속을 요하는 자동화 공작기계 및 산업기계 등에 적용하는 클린룸 전용 차세대 케이블체인 입니다.

This test was done by the IPA TEST CENTER for the semiconductor manufacturer equipment and measurement processed with CLASS1 CLEAN ROOM(US Federal Standard 209E)

Test는 반도체 제조장치를 위한 IPA Test Center에서 수행하였으며 모든 측정들은 CLASS 1CLEAN ROOM(US Federal Standard 209E) 에서 진행.



### ■ Clean room environment

Air speed(0.45 m/s)  
Temperature( +5°C)  
Humidity (45%)

### ■ Test equipment

Fraunhofer IPA Test machine

### ■ Measurement Skill

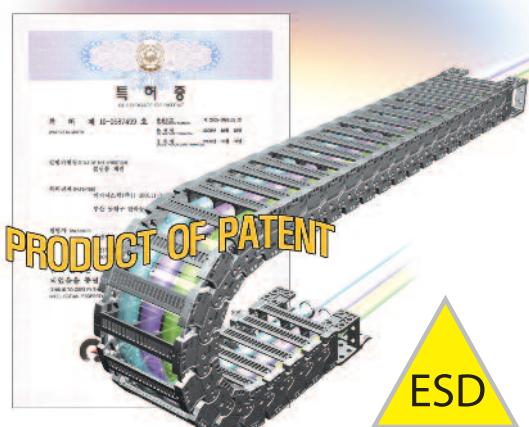
To checking the dust dimension of >0.2μm, >0.3μm, >0.5μm, use LPSA210 TYPE machine made by PMS.

### ■ Test operation and analysis

Operated by the guideline of VDI 2083 Part8

## NEXT GENERATION CHAIN WITH ORIGINAL TECHNOLOGY!

독자기술로 개발한 차세대 케이블체인!



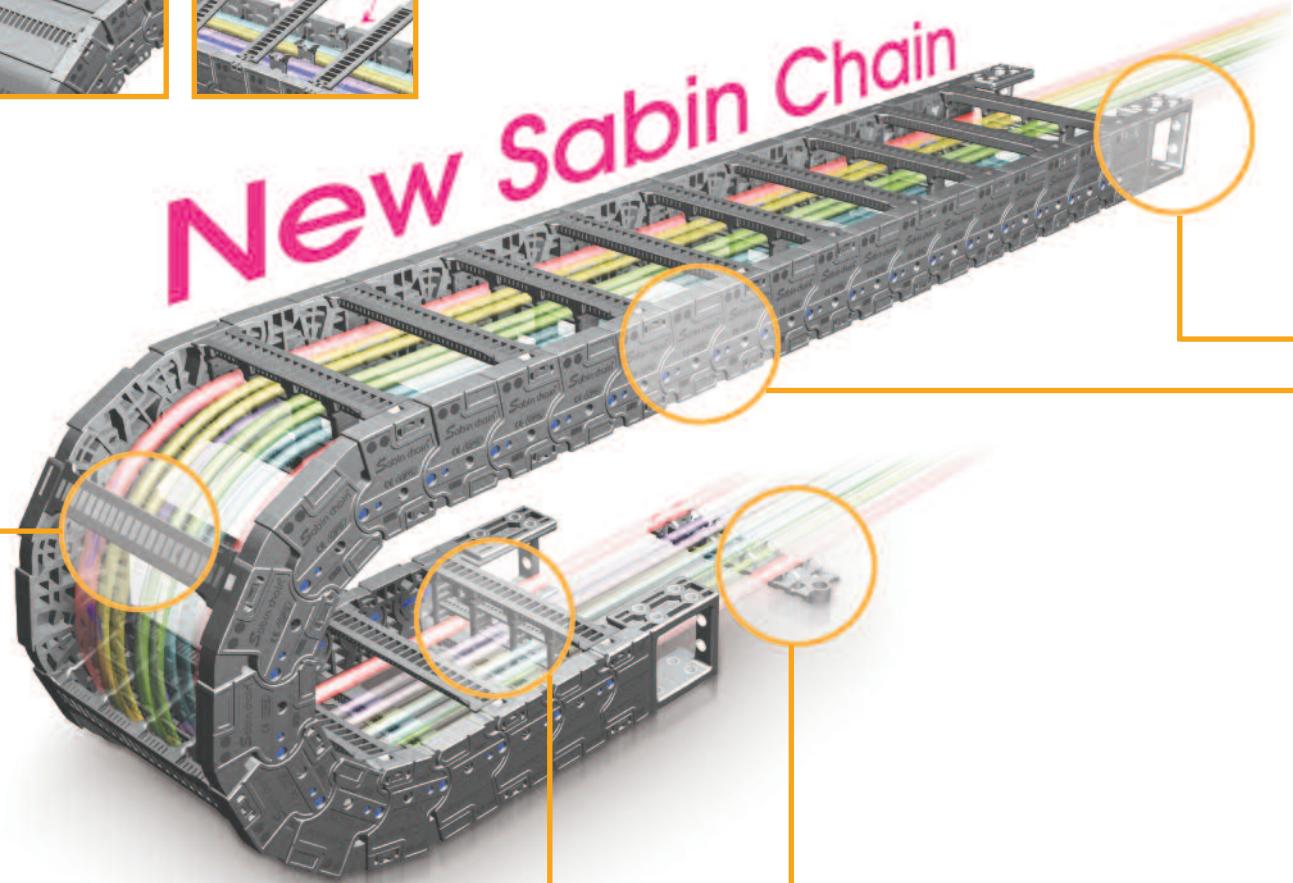
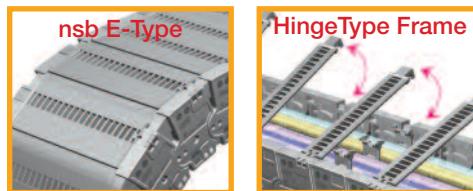
Sabin Chain's patented unique function and design has received a Domestic Patent in Korea as well as International patents from China and the USA, and is under review in Germany and Italy.

Sabin Chain은 독자기술로 개발된 제품으로 미국특허와 중국특허, 국내특허에 등록(CR-Type등록번호 : 10-0587499호, E-Type등록번호 : 10-0838583, S-Type등록번호 : 10-0854053) 되었으며 현재 독일, 이탈리아 국제특허출원을 마쳤습니다.



## ARTICLE NAME AND DETAILS OF NEW SABIN CHAIN

### / nsb 구성명칭 및 세부설명



#### FR (Frames)

Connects the side bands (its structure is Hinge Type), creates protection for cable and application. CR-Type and N-Type use same frame for both of them and E-Type has its own frame. Patented teeth on frame are for the fixing of divider's position.

사이드밴드의 연결지대 역할을 하며 Hinge Type방식으로 구성되며 CR-Type과 N-Type은 공용으로 사용하며 E-Type은 별도 구분하여 사용. 디바이더 고정홀기로 인해 디바이더의 좌, 우 유동 및 이탈을 방지.

#### SP (Separators)

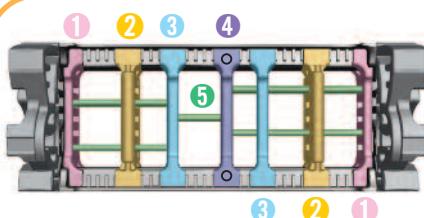
With separators available in lengths from 20mm to 600mm, we are able to custom design the most effective cable pattern for our clients. furthermore, holes every 5mm to match the 5mm grooves in the frame, means creation and application of complicated cable position, which were never a possibility before, can now become a reality giving you the exact cable pattern you need to get the job done safely and effectively.

체인에 입선되는 케이블들을 가로방향으로 분리시켜 케이블의 꼬임과 마찰로 인한 피복손상을 방지하는 역할을 하며 최소20mm~최대600mm까지 설치 가능하고 5mm간격으로 절단하여 사용 가능.

#### DV (Dividers)

Dividers (vertical) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separate from each other. (available on S, R, M, T Type)

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

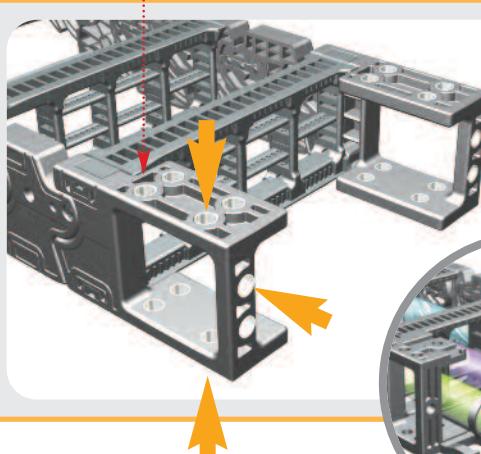


- ① DV-S Type
- ② DV-R Type
- ③ DV-M Type
- ④ DV-T Type
- ⑤ Separators(SP)

**Steel Insert  
FEB(Free End Bracket)**
**FEB (Free End Bracket)**

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

체인을 고정하는 끝단부로 기존 케이블체인의 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높이고 스틸와셔를 결합하여 더욱 견고한 취부가 가능. S-Type의 Moving End Bracket의 경우 S-Type Moving 전용브라켓을 사용.


**nsb020, 022, 028, 035 Type (Attach with bracket)**
**SB (Side Band)**

A method connecting sidebands by holding pins holds curvature stress and minimizes surface friction, so as to restrain dust and noise happening as well as to enforce elastic force and durability of the product.

홀딩핀 연결방식으로 비틀림응력을 잡아주고 마찰면을 최소화하여 분진 및 소음발생 억제 및 탄성력과 내구성을 강화시킴.

**TW (Tiewrap)**

Used to fix the cables in one straight line to prevent twisting during operation. There are two types available depending on the application; attached to bracket and separated from bracket.

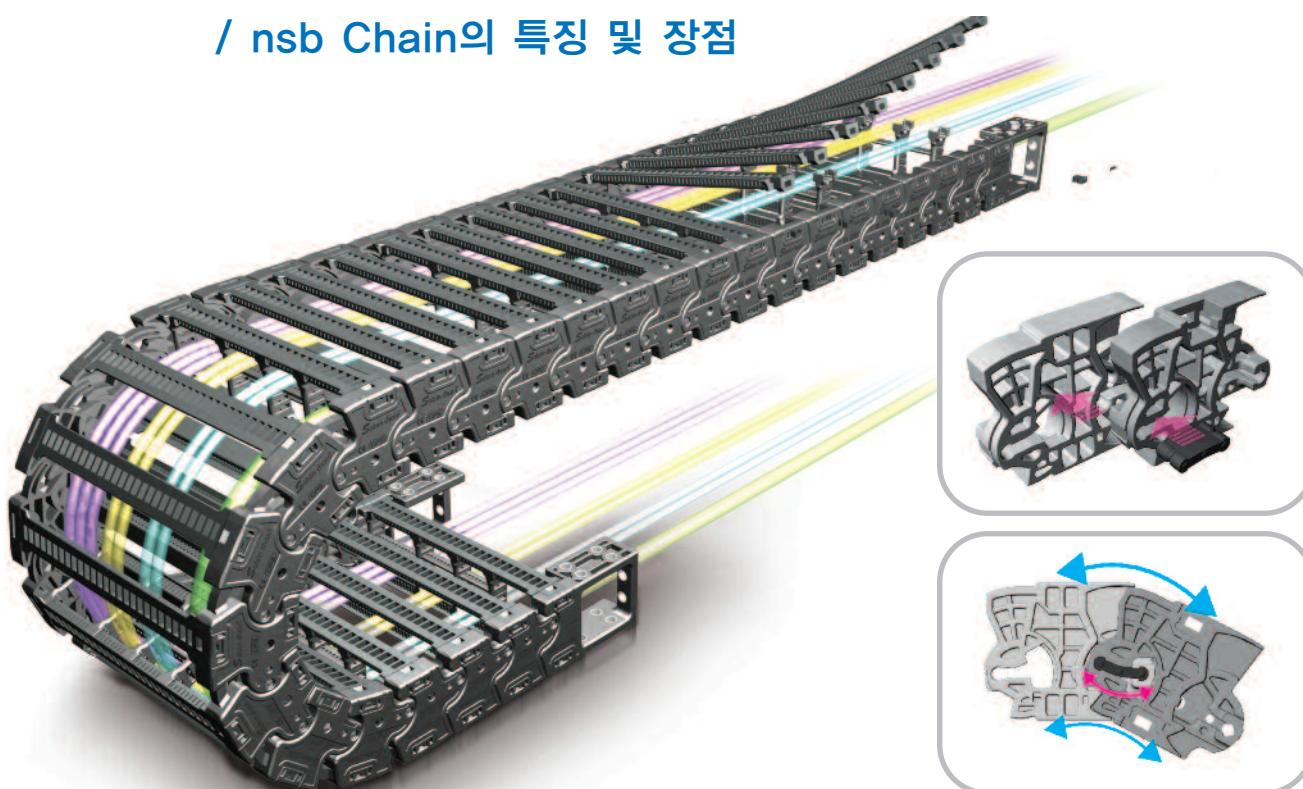
케이블을 고정하기 위해 사용되며 케이블을 일렬로 정렬시키는 역할로 케이블의 엉킴현상을 방지하고 사양에 따라 Free End Bracket 삽입형과 Free End Bracket 분리형으로 구분.


**nsb045, 060, 075 Type**



## CHARACTERISTIC AND MERIT OF NEW SABIN CHAIN

/ nsb Chain의 특징 및 장점



### 1 A Creative Holding pin connection method! 독창적인 홀딩핀 결합구조!

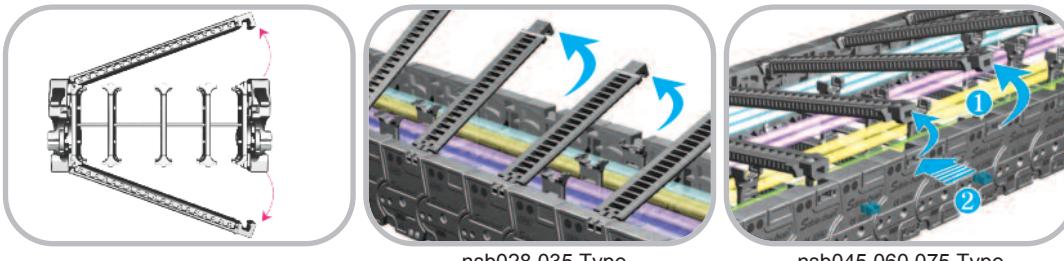
This creative method is our own invention to connect the Side Band by Holding pin. Those two elements could make up the mutual reverse curvature-angle. Holding pin perform not only connection but also does as like deterioration on the curvature stress of the Side Band consequentially.

사이드밴드를 홀딩핀으로 결합하는 독창적인 구조는 자체개발한 고유기술로써 사이드밴드와 홀딩핀은 상호 역방향으로 곡률각도를 형성하는 독창적인 구조입니다. 사이드밴드를 연결하는 홀딩핀은 단지 연결 수단이 아닌 사이드밴드에 기해지는 비틀림응력을 효과적으로 잡아주는 역할과 함께 사이드밴드를 더욱 견고하게 결합시키는 역할을 합니다.

### 2 Hinge Frame Type! 더욱 편리한 프레임구조-Hinge Frame Type!

The hinge type frame is created by using the original frame (inserting frame pins) but locking it into place with a ball hinge on one side and making the cables easily accessible by opening the other. Available on New Sabin Chain CR-Type (except nsb020CR and nsb022CR), N-Type, and E-Type (nsb028E and nsb035E). It can open to expose the inserted cables on the topside and underside of the carrier. For nsb045, 060, 075(CR and N Type), frame pins are inserted at both sides to secure the frames in order to prevent from frame open by strong outside impact in any cases.

기존의 프레임판 삽입방식을 개선한 방식으로 Side Band의 한 방향에 고정시키고 다른 방향은 열고 닫을수있는 Hinge(경첩)구조로 되어있어 케이블 삽입과 체인 조립 및 보수가 편리합니다. Hinge 방식의 Frame은 New Sabin Chain CR-Type (nsb020CR, nsb022CR제외), N-Type, E-Type (nsb028E, nsb035E)에 적용됩니다. (nsb045, 060, 075E사양은 프레임 고정핀 결합방식) Hinge Frame은 Side Band 위쪽과 아래쪽모두 적용되어 Cable 삽입이 어느 방향이든지 프레임을 오픈시켜 케이블 입선이 가능한 구조입니다. nsb045, 060, 075(CR, N)사양의 경우 강한 충격에도 프레임이 오픈되지 않도록 프레임 한쪽방향으로 프레임 고정판을 사용하여 프레임을 고정합니다.



nsb028,035 Type

nsb045,060,075 Type

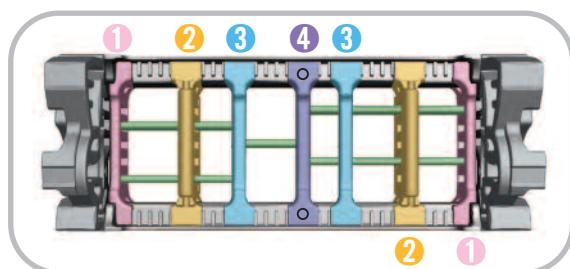
### 3 Effective Divider Use! 효과적인 디바이더 사용!

Designed to use more effective due to use a three sort of dividers like DV-S Type for Side Divider, DV-R Type for Roller Divider and DV\_M Type for Divider using separator pin. DV-S Type for side divider be installed at both side of inner Chain is to be fixed to end part of separator.

The separators are locked into place at each end by the fixing pin traveling through the divider and through the separator respectively, locking it into place. this allows for innumerable possibilities when designing the cable position and opens a door to virtually unlimited combinations. the outer and roller dividers placed against the sidebands offset more strength and more protection from side impact and strengthen the frame for resistance of downward force caused by the weight of the inserted cables, especially in sliding applications. also, dividers with roller which is attached the friction surface of divider and cable prevent damage to the cables and reduce dust.

**측면용 디바이더(DV-S Type)와 롤러부착 디바이더(DV-R Type) 그리고 세퍼레이터 핀 사용 디바이더(DV-M Type)로 구분하여 보다 효과적으로 사용할 수 있도록 개발하였습니다.**

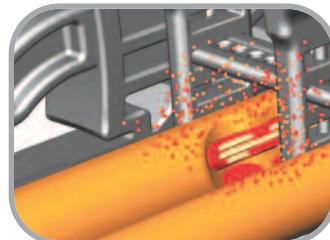
측면용 디바이더(DV-S Type)는 체인 내부 양측면에 설치하여 세퍼레이터 끝단부를 고정하는 역할을 합니다. 중앙부분에 설치되는 디바이더(DV-R Type, DV-M Type)는 세퍼레이터와 디바이더를 결합하고 세퍼레이터 핀을 관통시켜 디바이더와 세퍼레이터를 고정하는 방식으로 강한 충격에도 이탈되지 않습니다. 또한 롤러부착형 디바이더(DV-R Type)는 케이블과 디바이더의 마찰면에 롤러를 부착하여 마찰면에 의한 케이블의 피복손상을 방지하고 분진발생을 억제하는 역할을 합니다.



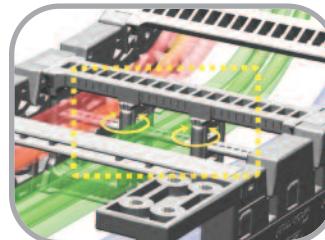
① DV-S Type    ② DV-R Type    ③ DV-M Type    ④ DV-T Type



► DV-R type for Rollor Divider and DV-M Type for Divider using separator pin are applied to nsb045, 060, 075 Type.  
롤러디바이더와 세퍼레이터 고정핀방식의 디바이더는 nsb045, 060, 075 Type에 적용.



► Damage to the cables and get dust by the friction surface.  
마찰면에 의한 케이블 피복손상 및 분진발생 현상.

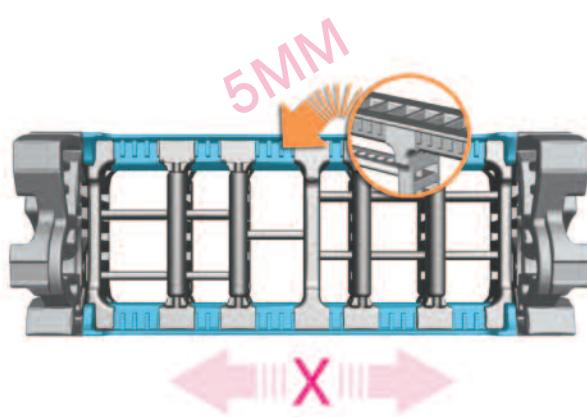


► Prevent damage to the cables and reduce dust by rotating roller of dividers!  
디바이더에 부착된 롤러의 회전으로 케이블과의 마찰로 인한 피복손상과 분진발생 감소 효과!

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

With teeth positioned every 5mm, Sabin Chain's patented grooves grip the dividers locking them in place and eliminating any left or right movement during operation. Furthermore, your cables are protected from the shock of outside force as the dividers are locked in firmly and securely ensuring that each of your cables center is held intact and preventing sheathing caused by current systems' inability to secure the dividers properly. Stoppers can fall out or become damaged, resulting in more maintenance and down time. With the Sabin Chain divider system, you eliminate the need for small excess parts which can break and possibly gain entry to and damage operating machinery. (applicable to the nsb028, 035, 045, 060, 075 type)

프레임에 5mm간격으로 돌기를 형성하고 프레임돌기홈에 디바이더를 결합시키는 구조로 기존 일반 체인에서 디바이더가 좌, 우 유동 및 과도한 충격시 디바이더가 넘어져 이탈하는 현상을 완벽하게 차단 합니다. **디바이더의 좌, 우 유동 및 이탈현상을 차단**함으로써 입선된 케이블을 보다 안전하게 보호하는 역할을 합니다. (nsb 028, 035, 045, 060, 075 Type에 적용.)

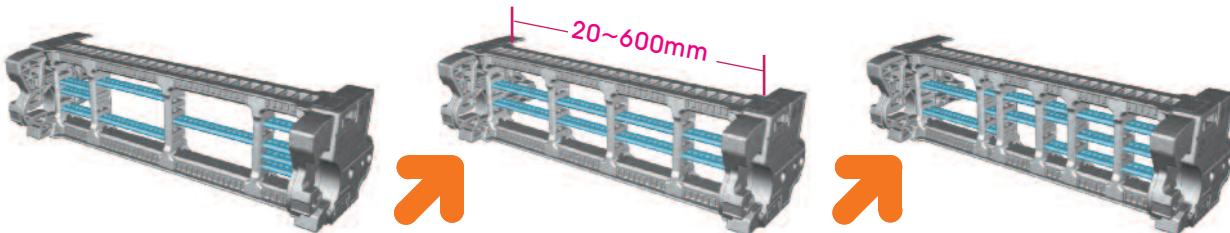




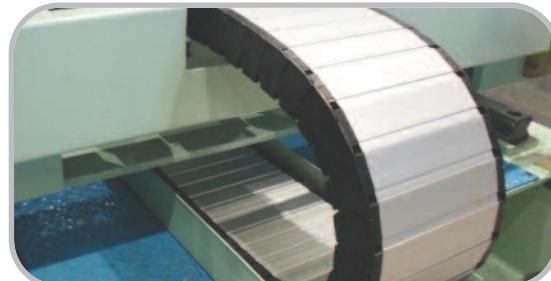
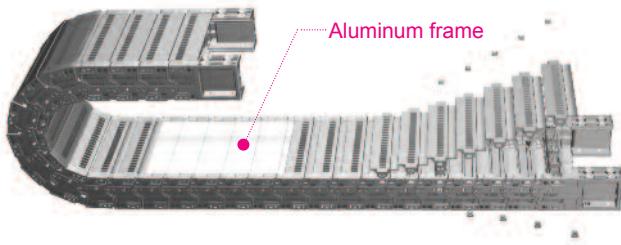
## 5 Diversity & Functionality Combine in this New Separator and Divider Creation! 디바이더와 세퍼레이터를 활용한 다양한 공간창출!

Designed to create more options for customers, the combined use of divider and fixing pin creates innumerable possibilities. With separators available in lengths from 20mm to 600mm we are able to custom design the most effective cable pattern for our clients. Furthermore, holes every 5mm to match the 5mm grooves in the frame, means creation and application of complicated cable positions, which were never a possibility before, can now become a reality giving you the exact cable pattern you need to get the job done safely and effectively.

디바이더와 세퍼레이터의 다양한 조합으로 케이블입선공간의 자유로운 구성이 가능하고, 효율적인 케이블입선이 가능하며 더욱 안전하게 케이블을 보호할 수 있습니다. 특히 세퍼레이터 고정핀을 사용하여 세퍼레이터를 견고히 고정할 수 있도록 설계되었습니다. 세퍼레이터길이는 최소20mm~ 최대600mm까지 설치가능하며 5mm간격으로 절단사용가능합니다. (nsb 045, 060, 075 Type에 적용.)



## 6 Applicable to Aluminum frame in Enclosed type! 알루미늄 프레임 적용 가능! (nsb E-Type)

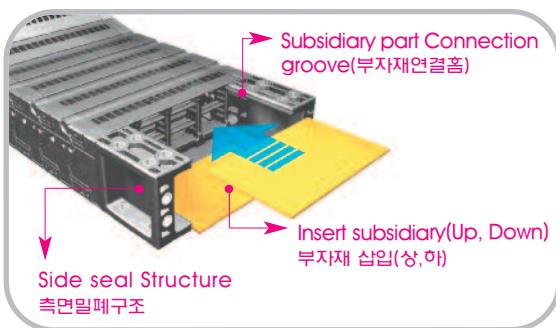


It is specially developed to prevent cables more safely from welding line where excess material can damage your inserted cables by applying aluminium frame to the exist new sabin chain E-type. (applicable to the nsb045E, 060E, 075E type)

New Sabin chain의 밀폐형 Type의 프레임을 기준 재질 이외에 알루미늄 재질을 적용시킨 프레임을 선택할 수 있습니다.

알루미늄재질의 프레임은 용접라인 등에서 발생할 수 있는 위험요소로부터 케이블을 더욱 안전하게 보호할 수 있도록 개발된 특별사항입니다. (nsb045E, 060E, 075E Type에 적용가능)

## 7 Made up completely sealed chain with subsidiary parts! 부자재 추가구성으로 완전밀폐실현!



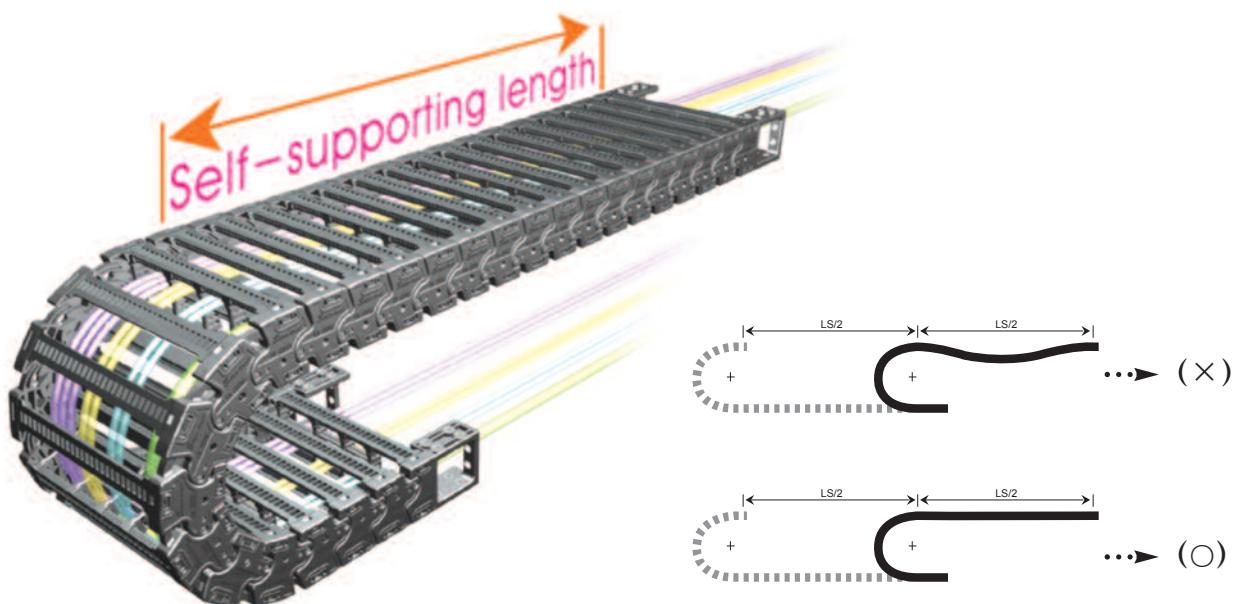
Any contaminants can't get into through the gap of bracket by inserted subsidiary parts in the FEB.

New Sabin chain의 밀폐형 Type의 FEB(브라켓)부분에 부자재를 삽입하여 브라켓부분을 통해 외부 이물질이 체인 안으로 침투하는 현상을 방지하고 완벽한 밀폐로 입선된 케이블을 보호할 수 있습니다.

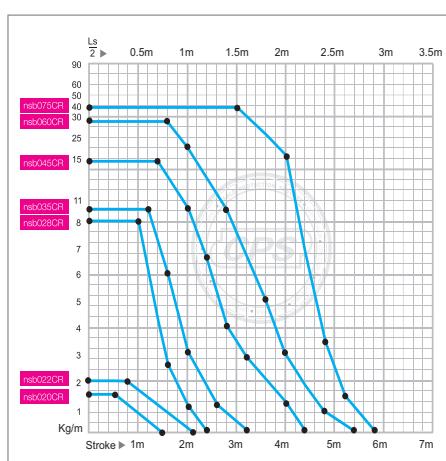
## 8 Self-supporting length?

Self-supporting length is chain length( $LS/2$ ) which forms straight under set-up condition of the chain and doesn't loose down depending on weight of inserted cables into the cable chain. The Self-supporting length will be different on each models and in general, the bigger size of chain is, the longer self-supporting length it has, so that the self-supporting length must be checked when selecting chains to see if chain installment is available or not.

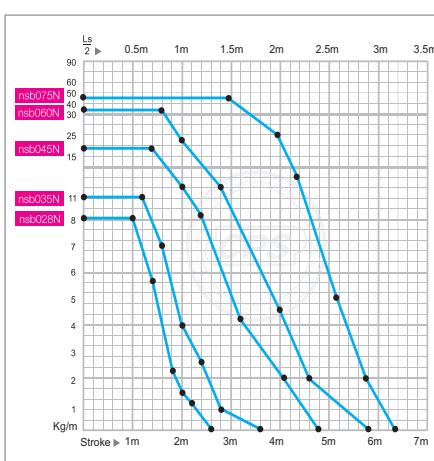
케이블체인에 입선되는 케이블의 무게에 따라 체인이 처지지 않고 설치된 체인이 일직선으로 형성될 수 있는 체인길이( $LS/2$ )를 Self-supporting length라고 하며, 체인사양별로 Self-supporting length는 달라지며 일반적으로 체인사양이 커지면 Self-supporting length도 길어집니다. 따라서 체인선정시 체인사양별 Self-supporting length를 확인하여 체인설치 가능여부를 체크해야 합니다.



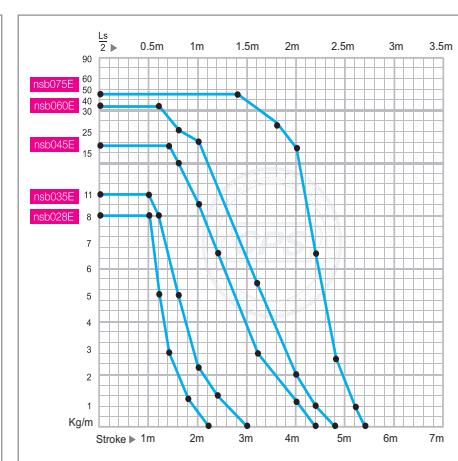
## 9 Load diagrams self-supporting length



■ nsb CR-Type ■



■ nsb N-Type ■



■ nsb E-Type ■



## INNOVATED INTEGRAL BRACKET SUPPORTER

/신개념의 Bracket 일체형 체인 지지대 (Bracket + Guide Channel)

### THE STRONG POINT OF PRODUCT / 제품의 특장점



적용 전(X)



적용 후(O)



Cost-Saving effect by using the plastic material, as the substitute with previous expensive Material such as Stainless & Aluminium.

Stainless, Aluminium보다 plastic 재질을 사용하여, 대폭 원가 절감.



Time-Saving effect of installation by all-in-one constitution. No need to any additional extra fee when connecting with the cable chain.

제품 체결 시 별도 추가 구매 없이, 일체형 구성으로 조립 시간 단축.



Delivery Times saving because the extra designing process is unnecessary. Installation with only the parts is feasible.

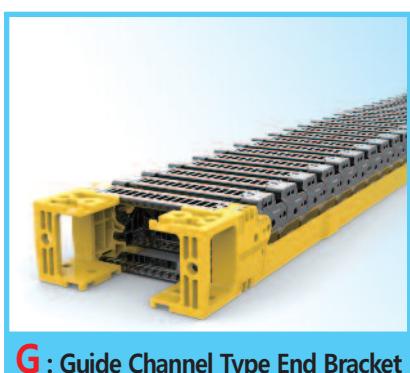
별도의 설계과정이 필요 없고, 구성품만으로 설치가 가능하므로 즉시 납품.



Technically renovated product which is strong in breaking or chain deviation as the Unity Systems supports the chain when installing the Vertical Chain.

Vertical 형식의 Chain 설치 시 Unity Systems의 구성으로 장치를 지지함에 따라 Chain의 이탈이나 파손방지에 효과적인 기술 혁신형 제품.

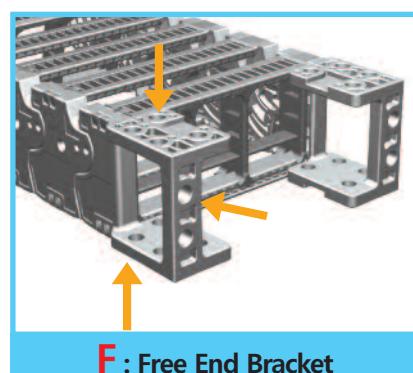
### BRACKET TYPE / 브라켓 타입



G : Guide Channel Type End Bracket



V : Vertical Guide Type End Bracket

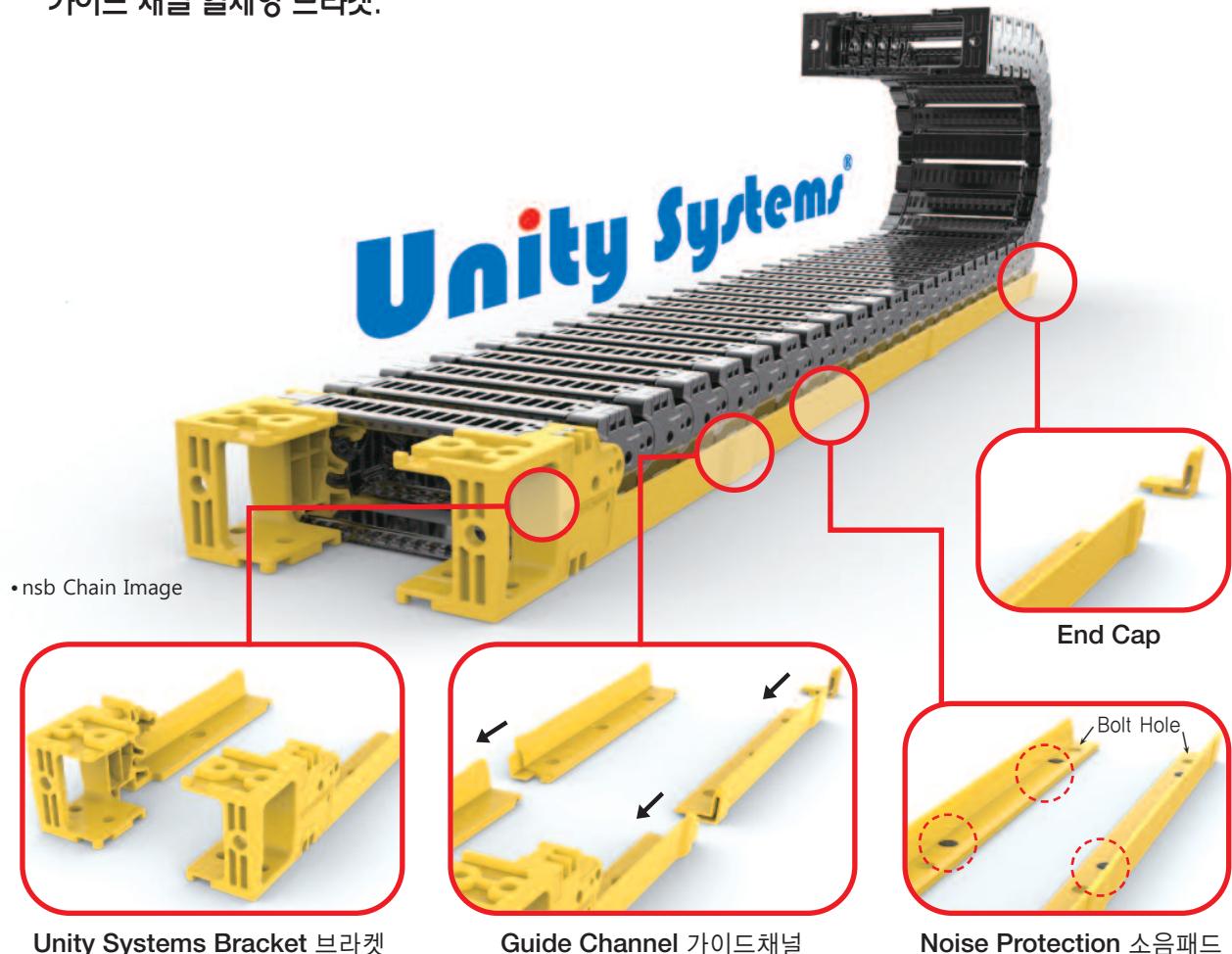


F : Free End Bracket

## DETAILS OF Unity Systems / Unity Systems의 구성명칭

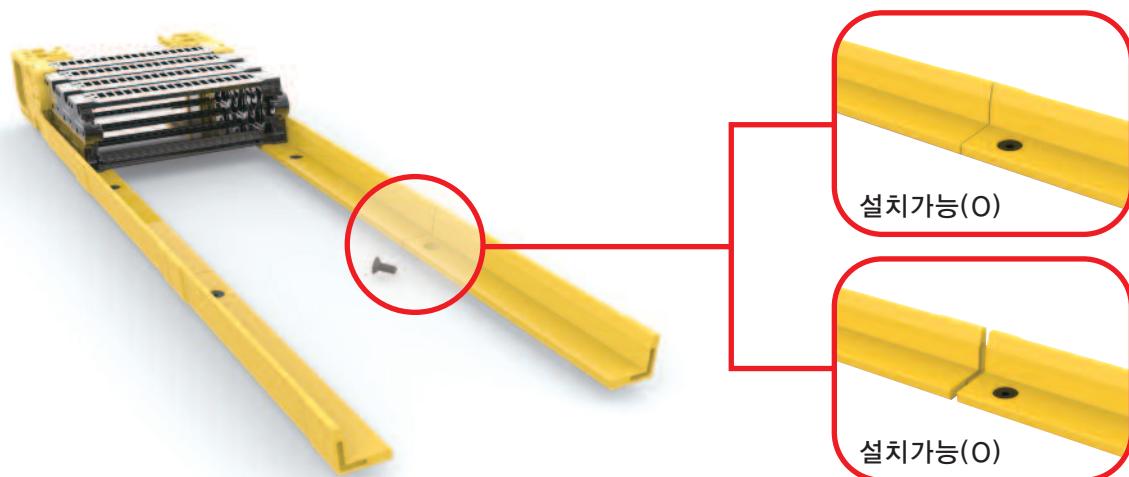
This type of bracket is to protect deflection of chain which will support the weight of certain section start from bracket, also will protect the damage of chain.

케이블 보호 장치에 전해지는 하중을 지지하여 케이블 체인의 처짐에 의한 파손을 방지하는 가이드 채널 일체형 브라켓.



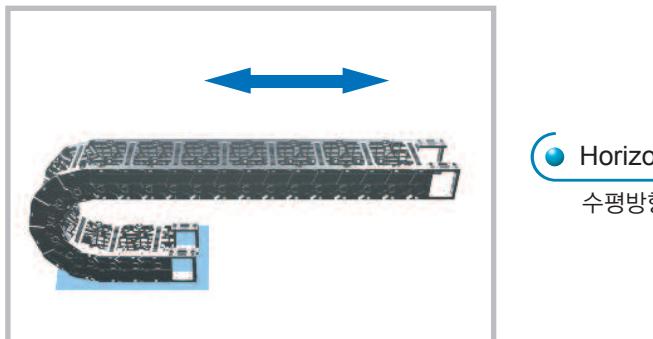
### Assembling by horizontal / 수평방식 설치 시

The interval may be adjusted with the keeping condition of straightness.  
GUIDE CHANNEL의 직진도가 유지됨의 전제하에, 흘(탭) 위치에 의한 간격 일부 허용.



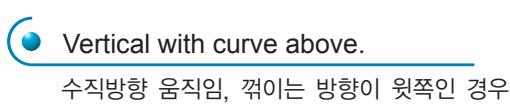


## CHAIN APPLICATION STYLES / 체인적용 스타일



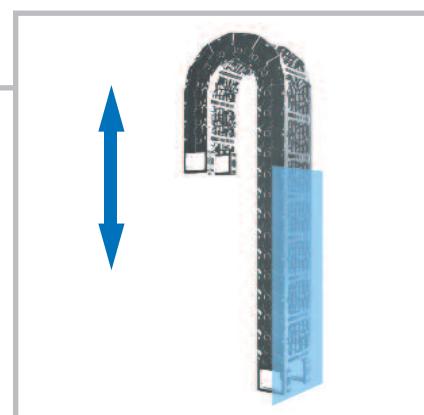
Horizontal with moving point above.

수평방향 움직임, 운동 방향이 위쪽인 경우



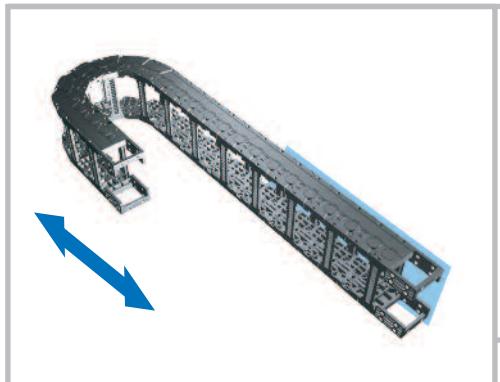
Vertical with curve above.

수직방향 움직임, 꺾이는 방향이 위쪽인 경우



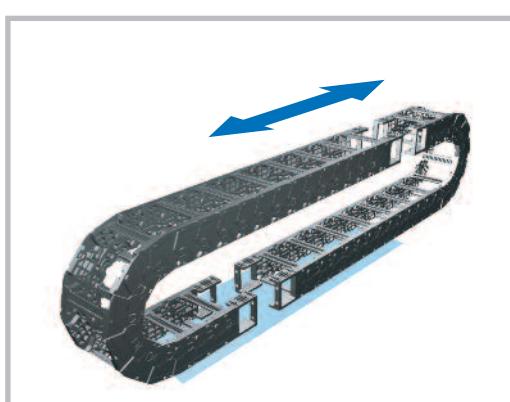
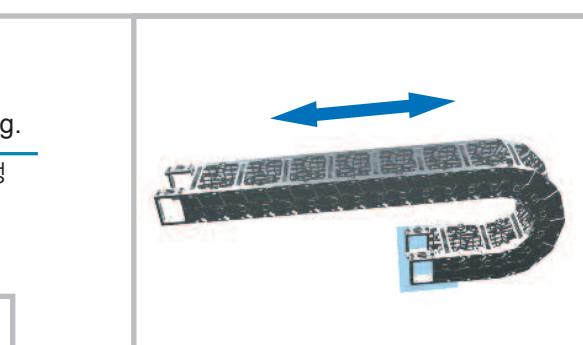
Horizontal application mounted on its side.

체인의 측면 설치시, 수평방향 움직임



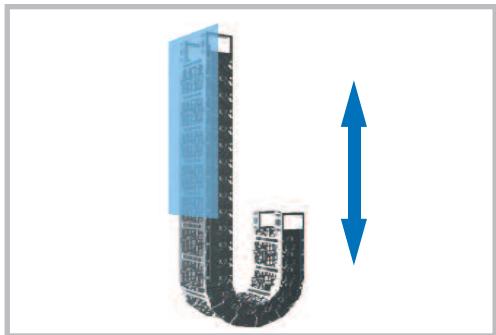
Horizontal self-supporting/overhanging.

수평방향 움직임, 운동방향 위쪽 하단부 고정  
면이 브라켓 부위에 한정될 경우



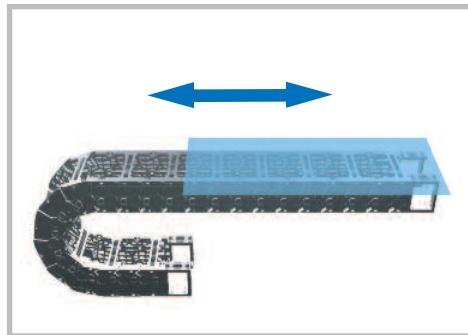
Opposing movement application.

원형 형태로 체인을 양방향으로 사용하는 경우



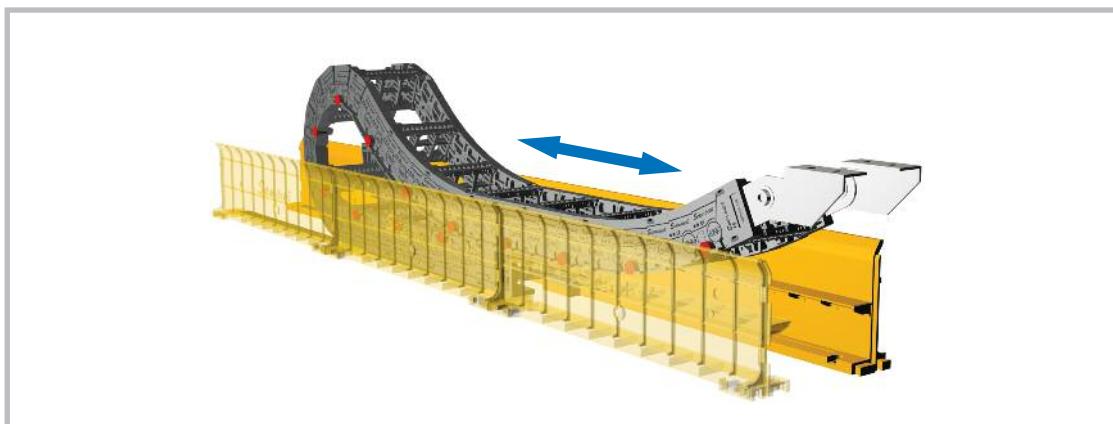
Vertical with curve below.

수직방향 움직임, 꺾이는 방향이 아래쪽인 경우



Horizontal with moving point below.

수평방향 움직임, 운동 방향이 위 아래쪽인 경우



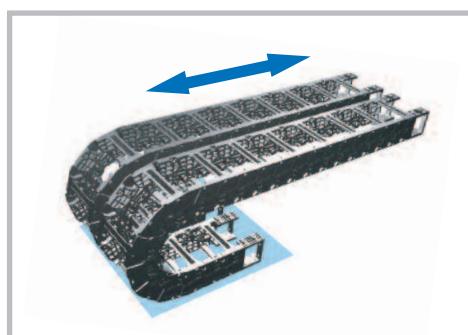
Horizontal sliding application with guide channel.

가이드잔넬에 장착하여 슬라이딩 형태로 수평방향 움직임으로 사용하는 경우



Revolving Chain for special movement.

로테이션 상태로 사용되는 경우



Horizontal application mounted side-by-side.

수평방향으로 체인을 평행하게 사용하는 경우



## CHAIN INSTALLATION TIPS / Chain 설치방법

New Sabin Chain is perfect for applications including but not limited to production lines, machine tools, robots, press lines, conveyors, loaders, automatic storage systems, printers, train manufacturing, cranes, and more. Developed especially to protect your cables, hoses and or inserted tubes and conduits, New Sabin Chain is used in various applications worldwide.

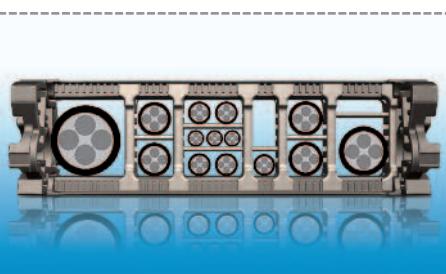
With the first ever band connection method in Korea, New Sabin Chain is now patented in various countries all over the globe. Low-dust, low-noise, and applicable for speeds of up to 15m/sec., New Sabin Chain is the only choice for maximum cable protection. New Sabin Chain's high-quality material make-up combined with continuous discovery and product development has helped to make it the worldwide success that it is today. Virtually any application and virtually any environment are acceptable locations for your next New Sabin Chain installation. For best results, please review the following instructions before installing New Sabin Chain.

New Sabin Chain은 반도체 생산라인, 산업용기계, 로봇, 기계공구, 산업용 용접라인, 컨베이어, 로더, 자동시스템, 인쇄기계, 철도건설, 크레인, 조선소등에 사용되는 케이블이나 투브를 보호할 수 있도록 개발되었으며 산업전반에 걸쳐 다양하게 적용되고 있습니다.

국내최초로 밴드결합방식을 채택하여 저분진, 저소음을 실현하고 최대 15m/s의 초고속 이동이 가능하고 고품질 엔지니어링 플라스틱 소재로 개발된 Sabin Chain은 어떠한 설치환경에서도 케이블을 완벽하게 보호할 수 있도록 개발된 차세대 케이블체인입니다.

New Sabin Chain을 설치할때는 아래와 같은 방법으로 설치해야 안전하게 케이블을 보호할 수 있습니다.

### INSTRUCTIONS FOR INSTALLATION OF CABLE



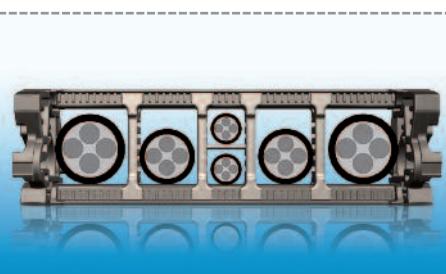
To extend the lifetime of your cables and protect the cables from sheathing or shearing, CPS recommends that as a rule, you keep at least 10% of space between the inserted cables and New Sabin Chain's frames and sidebands. To center and balance each inserted cable, the correct use of New Sabin Chain's new locking divider and separator system is recommended

케이블의 직경과 케이블체인 내경 사이에는 10%의 여유공간이 있어야 하며 크기가 다른 여러 케이블이 입선될 시 각 케이블마다 디바이더를 설치하고 케이블간 10%이상의 공간이 있을 시 필히 세퍼레이터를 설치해야 한다.

for round cable: 10% of the cable diameter

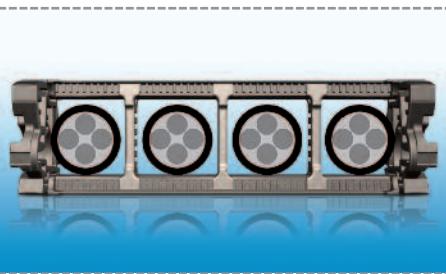
for flat cables: each 10% of the cable width resp. thickness

for hoses: 20% of the hose diameter



Installing more than one size of cable in the same space as a rule is unacceptable. To ensure balance, cables of the same size are to be inserted next to or on top of each other as illustrated, and the inserted cables should be installed with the largest cables or hoses on the outside of the chamber with the smallest on the inside. With the use of New Sabin Chain's new separator pin, virtually any cable pattern is a possibility.

케이블체인 내의 전선배열은 가로1열 배열을 원칙으로 하며 겹쳐서 배열해서는 안된다. 케이블체인내의 전선배열은 체인 바깥쪽에 굵은 크기의 전선을 중앙에 작은 사이즈의 전선을 배열한다.



Cables will retain their exact same shape and position. To ensure effective installation, the cables should be inserted in a straight line and properly centered.

케이블은 케이블체인내에서 일직선으로 배열되어야 하며 그 위치는 체인내부 중앙으로부터 설치하여야 한다.

## BENDING RADIUS "R"



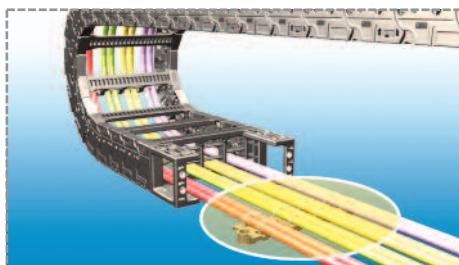
New Sabin Chain's turning radius is larger than that of its inserted cables. To find a suitable bending radius for your application, as a rule you should multiply the outside diameter of your largest inserted cable by 8-10 times.

체인의 회전반경은 케이블 또는 튜브의 곡률반경보다 커야한다. 체인의 R값은 입선될 케이블 중 직경이 가장 큰 케이블의 8~10배로 계산한다.

$R_{min} > 8\dots10 \times \text{cable outer diameter}$

$R_{min} > 15\dots20 \times \text{hose outer diameter}$

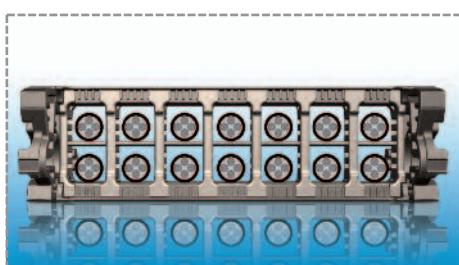
## MOUNTING AND FIXING INSERTED CABLES / TUBES



When securing the cables at both the fixing point and the moving point, the tiewrap should be secured at a safe distance. To calculate this distance, multiply the outside diameter of the largest cable by 30 times.

전선을 고정할때 Fixing point 또는 Moving point에서 직경이 가장 큰 적용케이블직경의 약 30배정도 해당하는 위치에 고정시킨다.

## DISTRIBUTION OF CABLES AND HOSES



When cables of two different sizes are placed inside the carrier together, if the total outside diameter of the two cables is more than 1.2 times the inner height of the carrier dividers are not necessary. However, when the total outside diameter of the two inserted cables is less than 1.2 times the inner height of the carrier, dividers must be used. When the outside diameter of any cable or hose to be inserted is less than 0.5 times the inner height of the carrier, separators are necessary.

크기가 다른 2개의 케이블의 직경 합이 체인내고의 1.2배 이상일때는 디바이더를 설치하지 않아도 되나 1.2배 이하일 때는 반드시 디바이더를 설치하여야 한다. 모든 케이블 또는 호스의 직경이 체인내고 X 0.5 이하인 경우에는 반드시 Separator를 설치하여야 한다.



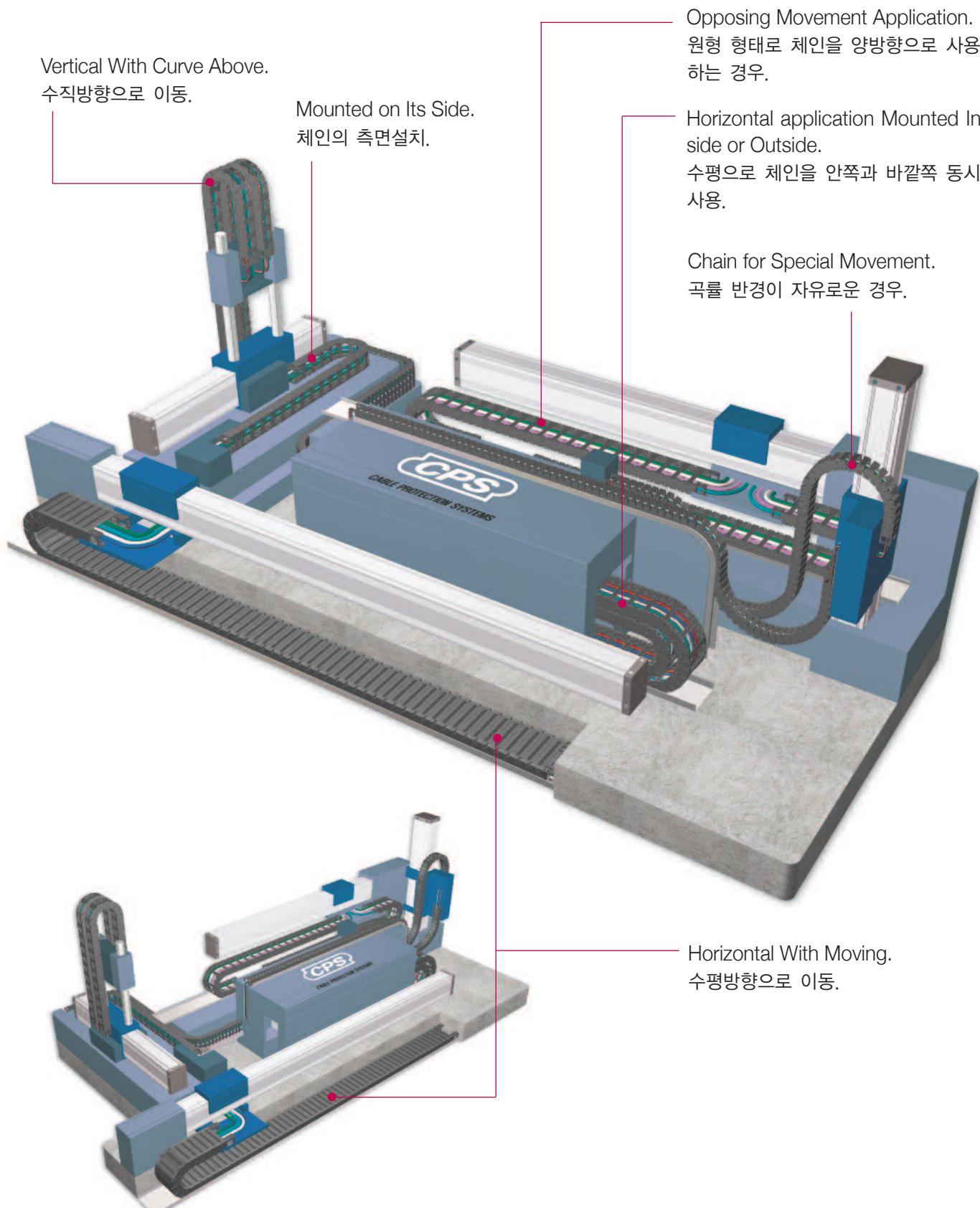
To ensure that the inserted cables are not twisted at the time of insertion, CPS recommends first unreeling the cables and then making sure that the writing on the cables all line up. In this way, you can ensure that your Sabin Chain will function properly. The straight line is key here.

케이블들은 체인 속에서 서로 꼬이지 않게 일직선으로 배열해야한다.

또한 체인 안에 넣기 전에 통에 말려진 케이블은 손상이 없어야 할 뿐만 아니라 일직선으로 되어야 한다.



## APPLICATION IMAGE / 적용이미지



# CHAIN REQUEST FOR SELECTING SORTS / 체인사양 선정 요청서

DATE. 20

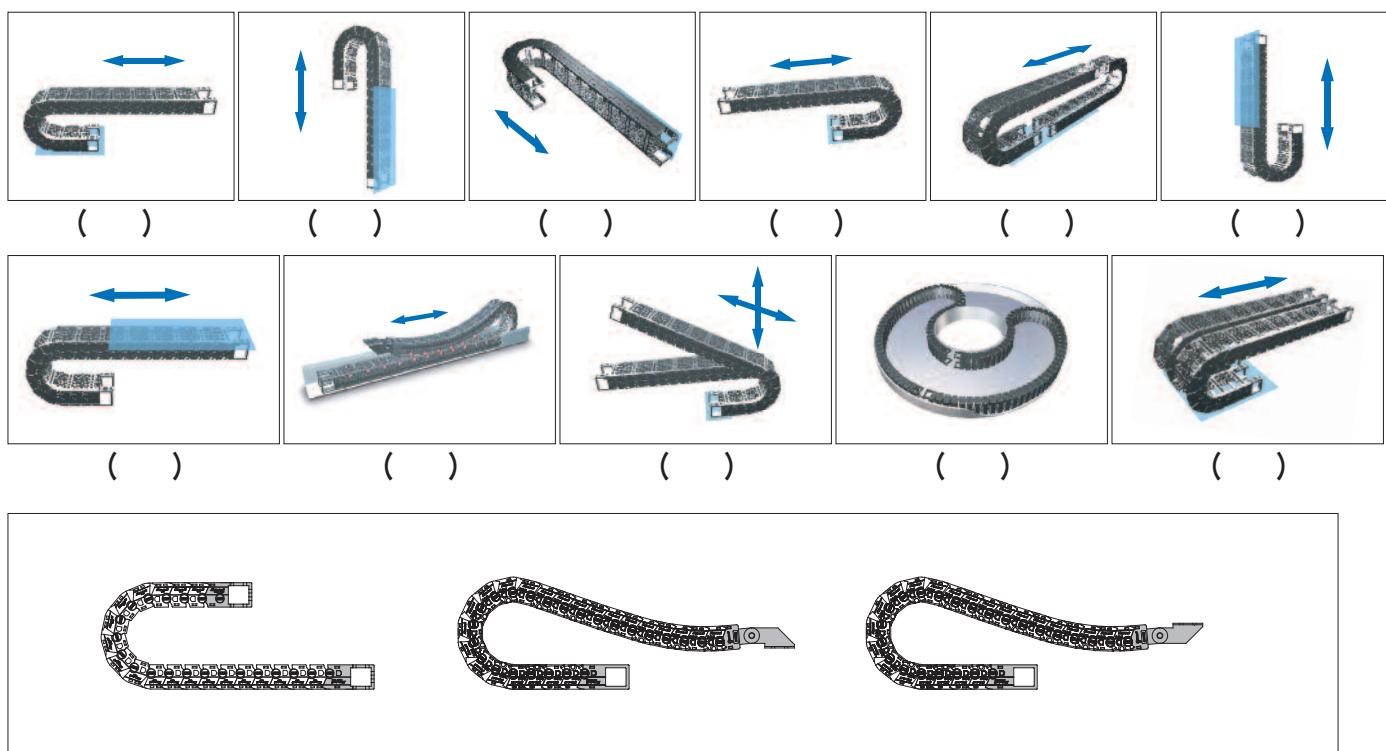
Company (회사명)	Address (주소)
Person in charge (담당자)	TEL / FAX / E-mail

## ■ Inserted cables inside cable chain (Cable chain에 입선될 케이블사양)

Outer Diameter 외경(Φ)	EA 수량	Bending Radius 허용곡률반경(R)	Kg/m 미터당 중량	Product No. 품 번	Remark 비 고

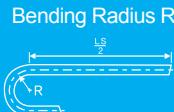
- Traveling distance of the machine (기계의 이동거리)(S):
- Traveling speed of the machine (기계의 이동속도)(S):
- Traveling speed of the machine (기계의 이동속도)(S):
- Bending radius (허용곡률반경) (R):
- The range of surrounding interference when chain traveling (체인이동시 주위간섭 범위):
- Dividers (세로분리대): YES  NO
- Separators (가로분리대): YES  NO

## ■ Type of chain installation (chain 설치형태)





## KINDS AND DIMENSIONS / 제품종류와 치수안내 (주문표)

New Sabin Chain CR Type	Pitch	Bending Radius R 	Weight kg / m	Speed m / sec	Temperature °C	Clearance				Frame style	Divider possible with frame
						A	B	C	D		
nsb 020CR.20	20	28,38,48	0.32	15	-30 ~ +130	34 54	22 22	20 40	15 15		
nsb 020CR.40	20		0.35								
nsb 022CR.16	22		0.43			30 41	29 29	16 27	22 22		
nsb 022CR.27	22		0.47			51 61	29 29	37 47	22 22		
nsb 022CR.37	22	35, 45, 75, 100, 120	0.51	15	-30 ~ +130	81 91	29 29	67 77	22 22		
nsb 022CR.47	22		0.55								
nsb 022CR.67	22		0.67								
nsb 022CR.77	22		0.69								
nsb 028CR.035	28		0.90			55 70 75	38 38 38	35 50 55	26 26 55		
nsb 028CR.050	28		0.98								
nsb 028CR.055	28		1.02								
nsb 028CR.075	28		1.12								
nsb 028CR.100	28	50, 70, 90, 120, 150	1.27	15	-30 ~ +130	95 120 145 170 195 220	38 38 38 38 38 38	75 100 125 150 175 200	26 26 26 26 26 26		
nsb 028CR.125	28		1.41								
nsb 028CR.150	28		1.59								
nsb 028CR.175	28		1.74								
nsb 028CR.200	28		1.84								
nsb 035CR.035	35		1.00			55 70 75	52 52 52	35 50 55	40 40 40		
nsb 035CR.050	35		1.06								
nsb 035CR.055	35		1.09								
nsb 035CR.075	35	75, 100, 125, 150, 200	1.17	15	-30 ~ +130	95 120 145 170 195 220	52 52 52 52 52 52	75 100 125 150 175 	40 40 40 40 40 40		
nsb 035CR.100	35		1.29								
nsb 035CR.125	35		1.39								
nsb 035CR.150	35		1.53								
nsb 035CR.175	35		1.65								
nsb 035CR.200	35		1.73								
nsb 045CR.050	45		2.59			80 105 130	70 70 70	50 75	49 49 49		
nsb 045CR.075	45		2.74								
nsb 045CR.100	45		2.90								
nsb 045CR.125	45	75, 100, 120, 140, 200, 250, 300	3.11	15	-30 ~ +130	155 180 205 230 280 330	70 70 70 70 70 70	125 150 175 200 250 	49 49 49 49 49 49		
nsb 045CR.150	45		3.31								
nsb 045CR.175	45		3.48								
nsb 045CR.200	45		4.18								
nsb 045CR.250	45		4.76								
nsb 045CR.300	45		5.32								
nsb 060CR.075	60		3.56			115 140 165 190 215 240	82 82 82 82 82 82	75 100 125 150 175 	56 56 56 56 56 56		
nsb 060CR.100	60		3.66								
nsb 060CR.125	60		3.97								
nsb 060CR.150	60		4.16								
nsb 060CR.175	60	125, 140, 190, 220, 270, 390	4.33	15	-30 ~ +130	290 340	82 82	175 300	56 56		
nsb 060CR.200	60		4.64								
nsb 060CR.250	60		5.06								
nsb 060CR.300	60		5.48								
nsb 060CR.350	60		6.09								
nsb 060CR.400	60		6.66								
nsb 075CR.075	75		5.37			115 140 165 190 215 	108 108 108 108 108 108	75 100 125 150 175 	78 78 78 78 78 78		
nsb 075CR.100	75		5.57								
nsb 075CR.125	75		5.82								
nsb 075CR.150	75		6.01								
nsb 075CR.175	75		6.26								
nsb 075CR.200	75		6.68								
nsb 075CR.250	75	180, 200, 250, 300, 350, 400, 500	7.22	15	-30 ~ +130	290 340	108 108	250 300	78 78		
nsb 075CR.300	75		7.94								
nsb 075CR.350	75		8.67								
nsb 075CR.400	75		9.43								
nsb 075CR.450	75		10.01								
nsb 075CR.500	75		10.41								
nsb 075CR.550	75		11.88								
nsb 075CR.600	75		12.17								

## KINDS AND DIMENSIONS / 제품종류와 치수안내 (주문표)

New Sabin Chain N Type	Pitch	Bending Radius R 	Weight kg / m	Speed m / sec	Temperature °C	Clearance				Frame style	Divider possible with frame
						A	B	C	D		
nsb 028N.035	28		0.79			55	38	35	26		
nsb 028N.050	28		0.82			70	38	50	26		
nsb 028N.055	28		0.85			75	38	55	55		
nsb 028N.075	28		0.90			95	38	75	26		
nsb 028N.100	28	46, 66, 86, 116, 146	0.98	15	-30 ~ +130	120	38	100	26		
nsb 028N.125	28		1.08			145	38	125	26		
nsb 028N.150	28		1.18			170	38	150	26		
nsb 028N.175	28		1.45			195	38	175	26		
nsb 028N.200	28		1.59			220	38	200	26		
nsb 035N.035	35		1.10			55	52	35	40		
nsb 035N.050	35		1.13			70	52	50	40		
nsb 035N.055	35		1.15			75	52	55	40		
nsb 035N.075	35	55, 65, 90, 115, 140, 190	1.18	15	-30 ~ +130	95	52	75	40		
nsb 035N.100	35		1.25			120	52	100	40		
nsb 035N.125	35		1.32			145	52	125	40		
nsb 035N.150	35		1.41			170	52	150	40		
nsb 035N.175	35		1.62			195	52	175	40		
nsb 035N.200	35		1.72			220	52	200	40		
nsb 045N.050	45		2.06			80	66	50	45		
nsb 045N.075	45		2.14			105	66	75	45		
nsb 045N.100	45		2.22			130	66	100	45		
nsb 045N.125	45		2.32			155	66	125	45		
nsb 045N.150	45	90, 110, 135, 165, 185, 235, 285	2.42	15	-30 ~ +130	180	66	150	45		
nsb 045N.175	45		2.51			205	66	175	45		
nsb 045N.200	45		2.86			230	66	200	45		
nsb 045N.250	45		3.15			280	66	250	45		
nsb 045N.300	45		3.43			330	66	300	45		
nsb 060N.075	60		3.30			115	82	75	56		
nsb 060N.100	60		3.35			140	82	100	56		
nsb 060N.125	60		3.51			165	82	125	56		
nsb 060N.150	60		3.60			190	82	150	56		
nsb 060N.175	60	125, 135, 150, 180, 230, 270, 340	3.69	15	-30 ~ +130	215	82	175	56		
nsb 060N.200	60		3.84			240	82	200	56		
nsb 060N.250	60		4.05			290	82	250	56		
nsb 060N.300	60		4.26			340	82	300	56		
nsb 060N.350	60		4.57			390	82	350	56		
nsb 060N.400	60		4.85			440	82	400	56		
nsb 075N.075	75		4.80			115	108	75	78		
nsb 075N.100	75		4.90			140	108	100	78		
nsb 075N.125	75		5.02			165	108	125	78		
nsb 075N.150	75		5.12			190	108	150	78		
nsb 075N.175	75		5.25			215	108	175	78		
nsb 075N.200	75		5.46			240	108	200	78		
nsb 075N.250	75	160, 180, 230, 280, 330, 380, 480	5.72	15	-30 ~ +130	290	108	250	78		
nsb 075N.300	75		6.09			340	108	300	78		
nsb 075N.350	75		6.45			390	108	350	78		
nsb 075N.400	75		6.83			440	108	400	78		
nsb 075N.450	75		7.12			490	108	450	78		
nsb 075N.500	75		7.32			540	108	500	78		
nsb 075N.550	75		8.06			590	108	550	78		
nsb 075N.600	75		8.20			640	108	600	78		

CPS CABLE CHAIN

SHIFT CHAIN

REVOLVING CHAIN

CPS FLEX

CPS FIX



## KINDS AND DIMENSIONS / 제품종류와 치수안내 (주문표)

New Sabin Chain E Type	Pitch	Bending Radius R 	Weight kg / m	Speed m / sec	Temperature °C	Clearance 				Frame style	Divider possible with frame
						A	B	C	D		
nsb 028E.035	28		1.00			55	38	35	26		
nsb 028E.055	28	66, 86, 116, 146	1.13			75	38	55	26		
nsb 028E.075	28		1.30			95	38	75	26		
nsb 028E.100	28		1.50			120	38	100	26		
nsb 035E.050	35		1.45			70	52	50	40		
nsb 035E.075	35		1.64			95	52	75	40		
nsb 035E.100	35	90, 115, 140, 190	1.83	15	-30 ~ +130	120	52	100	40		
nsb 035E.125	35		2.06			145	52	125	40		
nsb 035E.150	35		2.28			170	52	150	40		
nsb 045E.075	45		2.78			105	66	75	45		
nsb 045E.100	45	90, 110, 135, 165,	3.07	15	-30 ~ +130	130	66	100	45		
nsb 045E.125	45	185, 235, 285	3.35			155	66	125	45		
nsb 045E.150	45		3.58			180	66	150	45		
nsb 060E.100	60		4.32			140	82	100	56		
nsb 060E.150	60	125, 135, 150, 180	4.86	15	-30 ~ +130	190	82	150	56		
nsb 060E.200	60	230, 270, 340	5.41			240	82	200	56		
nsb 075E.150	75		7.01			190	108	150	78		
nsb 075E.200	75	160, 180, 230, 280,	7.97	15	-30 ~ +130	240	108	200	78		
nsb 075E.300	75	330, 380, 480	9.48			340	108	300	78		

# **Sabin chain®**

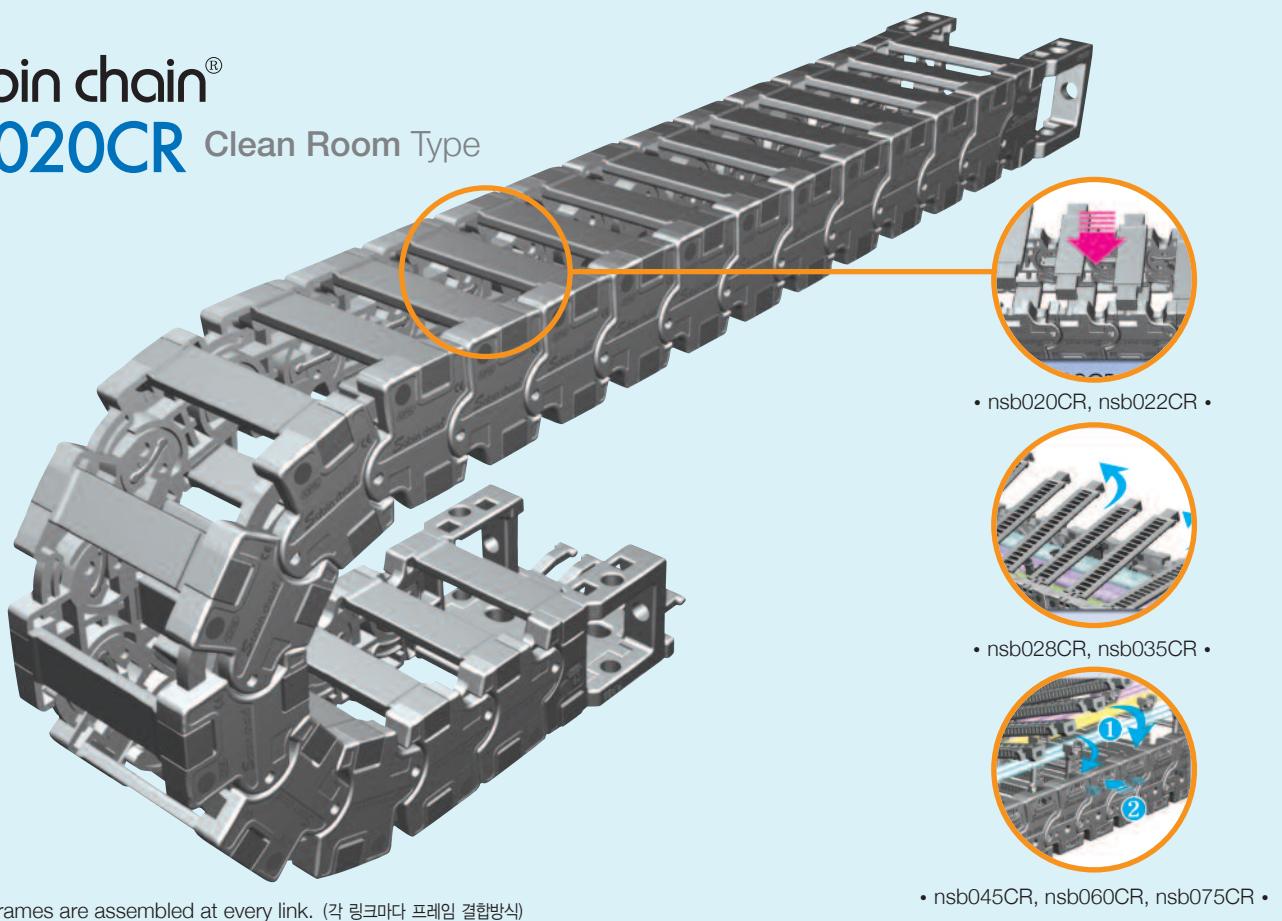
**CR TYPE : Clean Room**

- nsb020CR - 262p
- nsb022CR - 267p
- nsb028CR - 272p
- nsb035CR - 277p
- nsb045CR - 282p
- nsb060CR - 287p
- nsb075CR - 292p



Min ● ● ● ● ● Max

## Sabin chain® nsb 020CR Clean Room Type



### MATERIAL

#### Chain material:

CPS-amide UL94-HB

#### Low Noise:

TUV Test 30 dB (DIN EN61672-1)

#### Low Mote:

IPA Test VDI 2083 CLASS 1

DIN EN 14644-1 ISO CLASS 3

#### Speed :

15m/sec

#### Temperature :

-30°C ~ +130°C

#### Other installation Length:

Vertical curve above= max 1.0m

Vertical curve below= max 5m

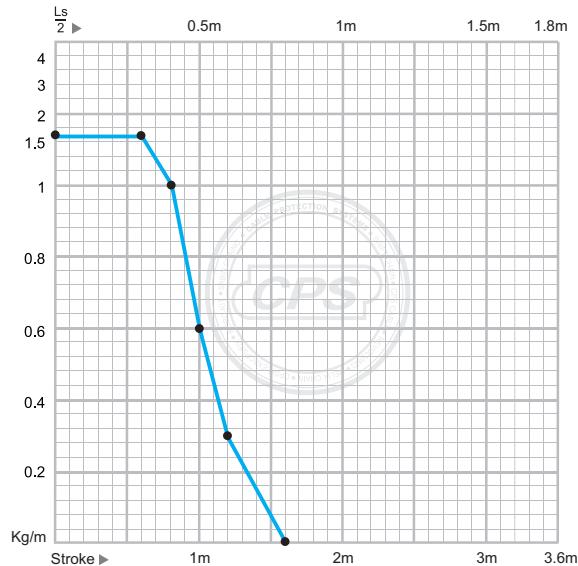
Side Mounted, Unsupported= max 0.5m

#### Applications

Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Regulation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기계등에 적용.

#### Load diagrams self-supporting length

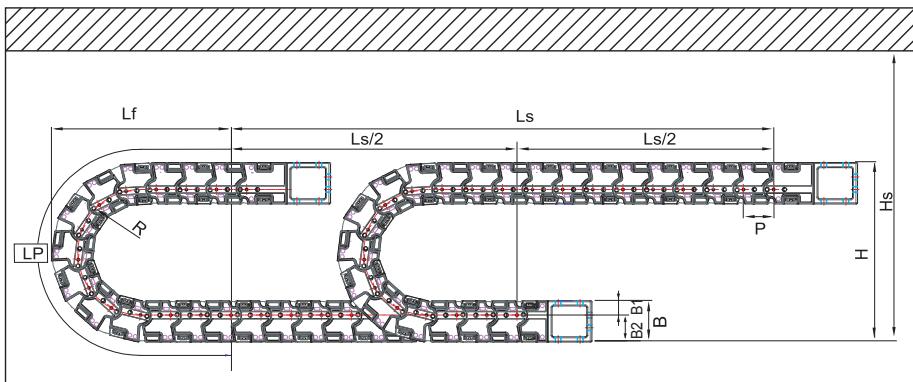


#### Calculation of the chain length

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

## Clean Room Type nsb 020CR

### LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	28	38	48
Lp	162	202	242
Lf	76	90	105
H	79	99	119

Ls: Stroke

Lp: Loop Length

Lf: Loop Projection

Hs: Safe Space

### nsb 020CR Type

Pitch P: 20mm

Height B: 22mm

Height H: 2R+23mm

Hs≥H+30mm

B1: 10.5mm B2:11.5mm

### ORDERING (주문방법)

nsb 020CR. 20. R48 / F - 600L: 10ST



주문수량 Q'ty(set)

체인길이 Length(mm)

브라켓 F : Free End Bracket

G : Guide Channel Type

V : Vertical Guide Type

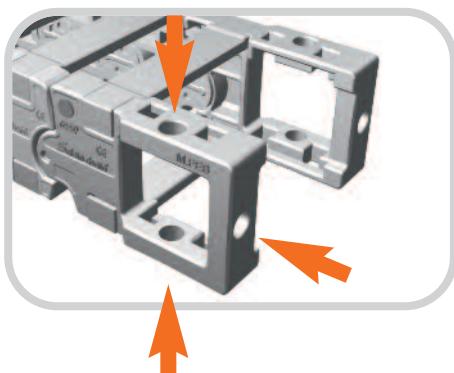
곡률반경 Bending Radius

내폭 Inside Width

클린룸타입 Clean Room Type

New Sabin Chain

### BRACKET TYPE (브라켓타입)



#### FEB (Free End Bracket)

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

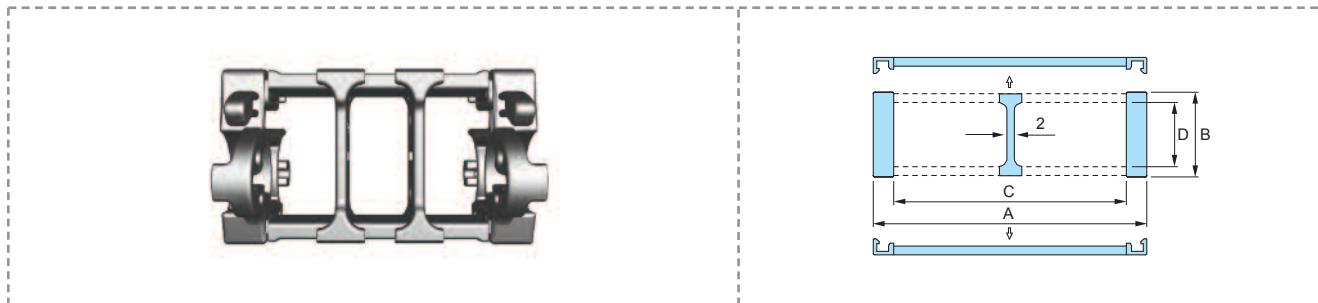
체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.

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



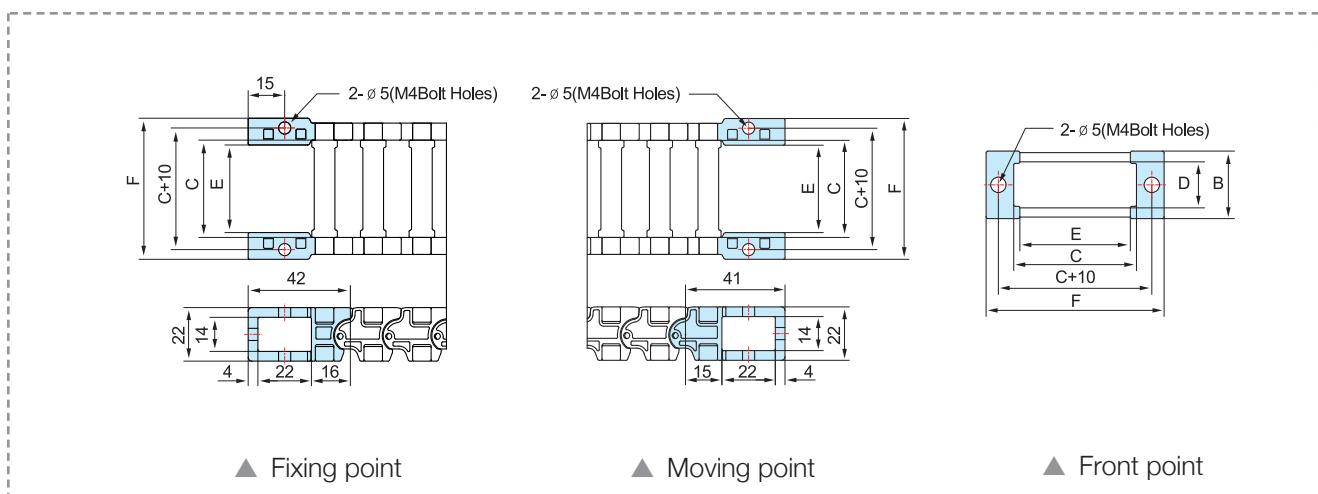
## Clean Room Type nsb 020CR

### CHAIN CROSS SECTION

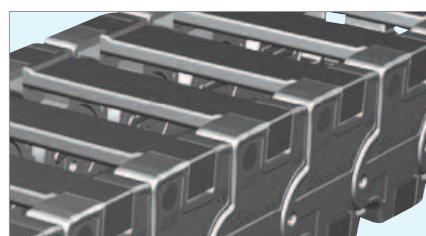
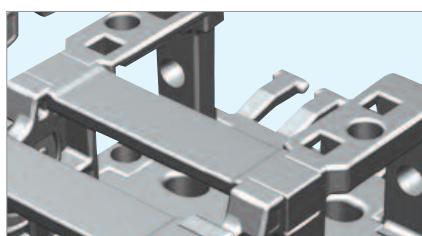


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 020CR.20	34		20		28, 38, 48	0.32
nsb 020CR.40	54	22	40	15		0.35

### FREE END BRACKET



Chain Type	F	B	C	D	E	Hole Type
nsb 020CR.20	38		20		16	
nsb 020CR.40	58	22	40	15	36	M4 Bolt Holes



2014 NEW PRODUCT

# Unity Systems®

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

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

## ▼ Horizon Type 수평형



Clean Room Type nsb 020CR

## ▼ Vertical Type 수직형

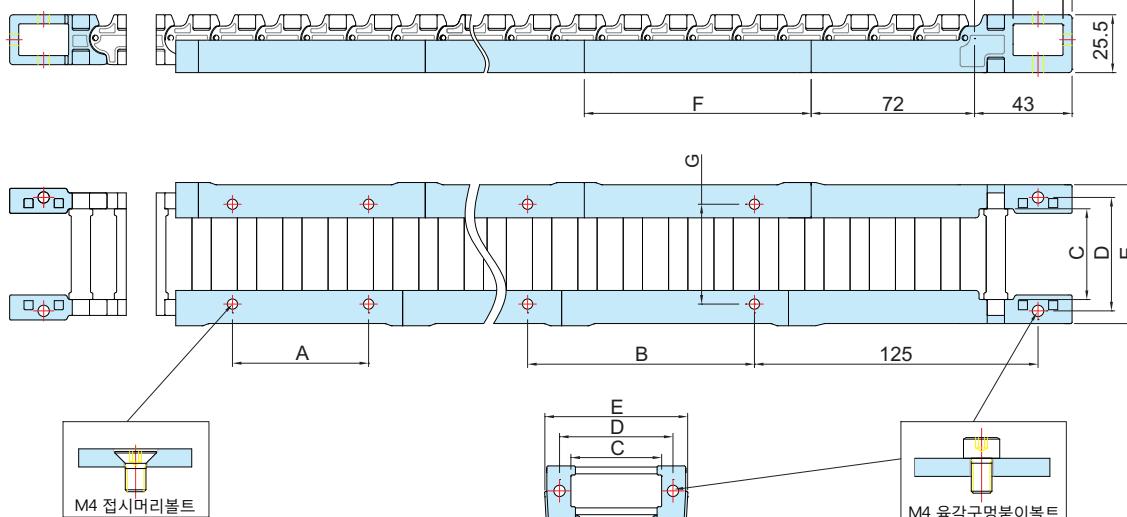


## GUIDE CHANNEL TYPE END BRACKET

(Dimensions in mm)

## ▼ Moving point (FEB동일)

## ▼ Fixing point



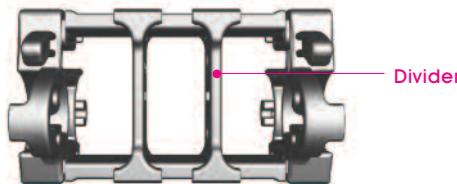
## ▲ Front point

Chain Type	C Frame length dimension	D FEB fixing hole	E FEB width	G GC hole width	GC TYPE	F GC length	B GC fixing hole	A GC hole
nsb 020CR.20	20	30	44	24	GC100	100	101	60
nsb 020CR.40	40	50	64	44	GC200	200	201	160



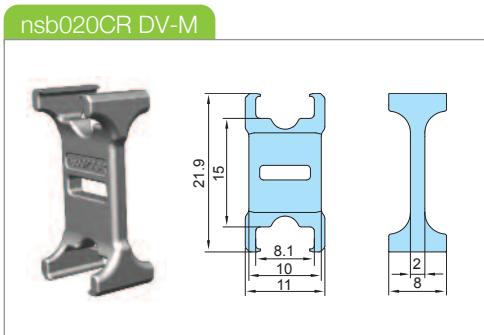
## Clean Room Type nsb 020CR

### DIVIDERS



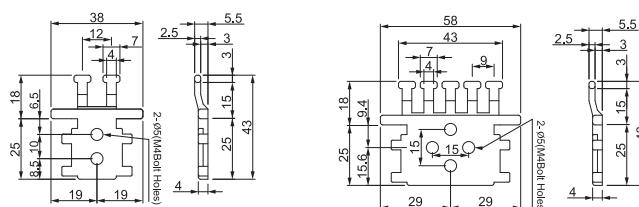
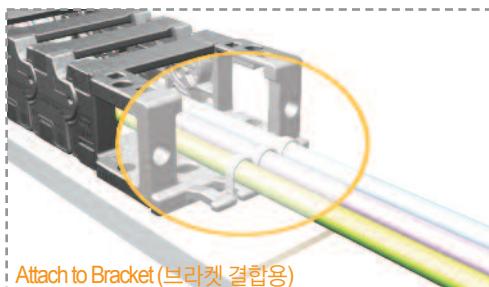
Dividers (Vertical) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separate from each other. The use of the dividers can reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule there needs to be at least 10% space between the inserted cable and its enclosure. Also, for nsb020CR and 022CR, Separators (Horizontal) are not used but dividers (Vertical) are only used to divide space in the inner chamber of the cable chain.

디바이더(세로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다. 또한 nsb020CR, 022CR의 경우 세퍼레이터(가로분리대)는 사용하지 않고 디바이더만 사용하여 체인 내 공간을 분리합니다.



▶ Assemble divider every Three links. / 3링크마다 결합.

### TIE WRAP

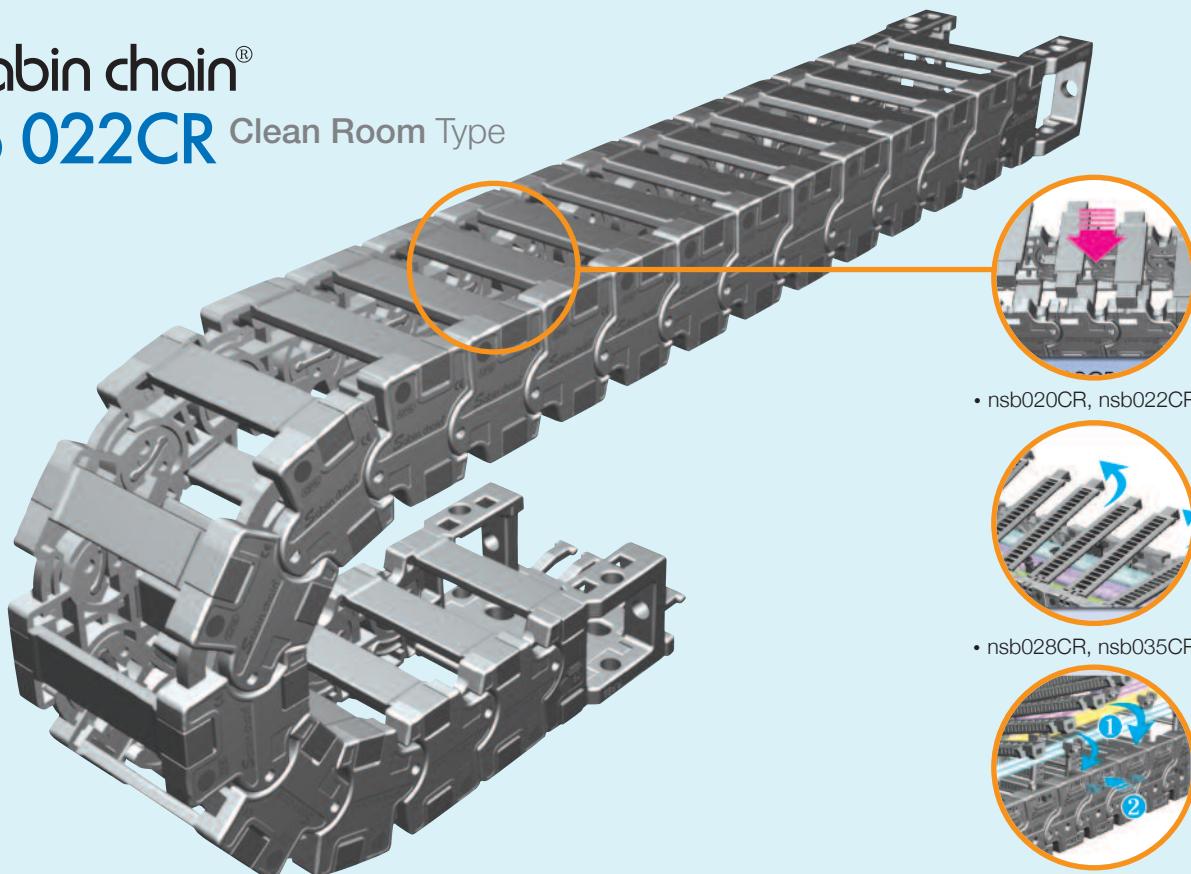


The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation.

Tie Wrap은 Sabin Chain 체인의 **브라켓을 기준으로 설치**함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 **단선되는 경우를 방지**할 수 있다.

Min ● ● ● ● ● Max

# Sabin chain® nsb 022CR Clean Room Type



- Frames are assembled at every link. (각 링크마다 프레임 결합방식)

- nsb020CR, nsb022CR •

- nsb028CR, nsb035CR •

- nsb045CR, nsb060CR, nsb075CR •

## MATERIAL

### Chain material:

CPS-amide UL94-HB

### Low Noise:

TUV Test 30 dB (DIN EN 61672-1)

### Low Mote:

IPA Test VDI 2083 CLASS 1

DIN EN 14644-1 ISO CLASS 3

Speed : 15m / sec

### Temperature :

-30°C ~ +130°C

### Other installation Length:

Vertical curve above= max 1.0m

Vertical curve below= max 5m

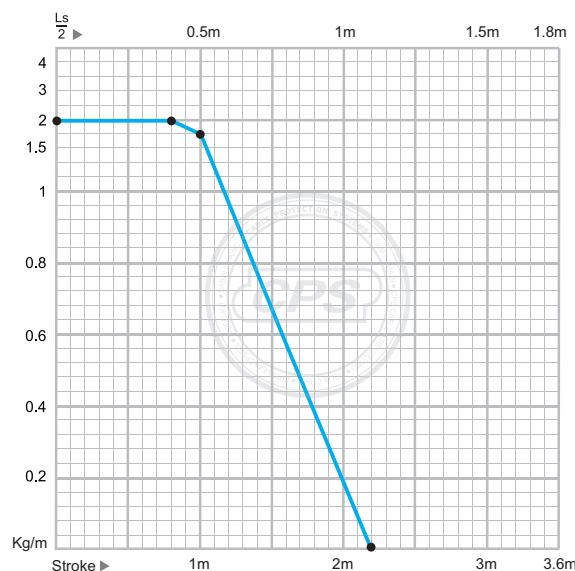
Side Mounted, Unsupported= max 0.5m

### Applications

Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Regulation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업 기계등에 적용.

### Load diagrams self-supporting length



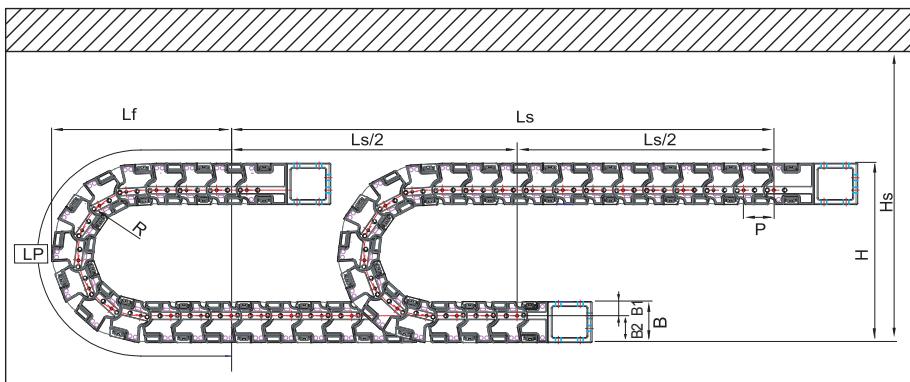
### Calculation of the chain length

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



## Clean Room Type nsb 022CR

### LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	35	45	75	100	120
Lp	222	266	353	441	485
Lf	108	125	152	182	192
H	106	126	186	236	276

Ls: Stroke

Lp: Loop Length

Lf: Loop Projection

Hs: Safe Space

### nsb 022CR Type

Pitch P: 22mm

Height B: 29mm

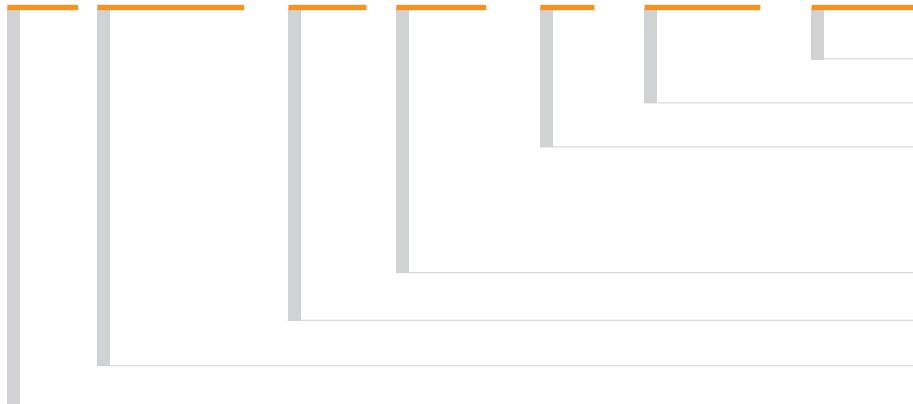
Height H: 2R+36mm

Hs≥H+30mm

B1: 11mm B2: 18mm

### ORDERING (주문방법)

**nsb 022CR. 47. R45 / F - 846L: 10ST**



주문수량 Q'ty(set)

체인길이 Length(mm)

브라켓 F : Free End Bracket

G : Guide Channel Type

V : Vertical Guide Type

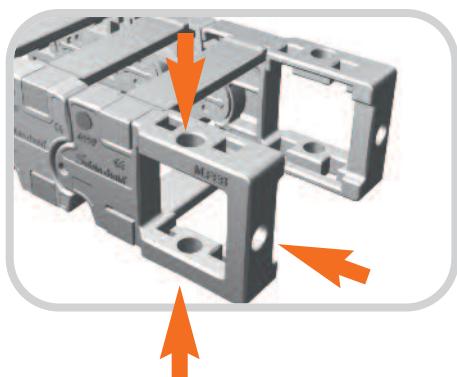
곡률반경 Bending Radius

내폭 Inside Width

클린룸타입 Clean Room Type

New Sabin Chain

### BRACKET TYPE (브라켓타입)



#### FEB (Free End Bracket)

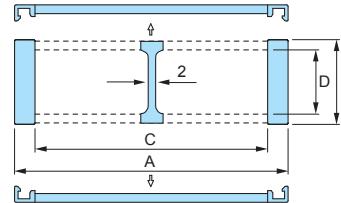
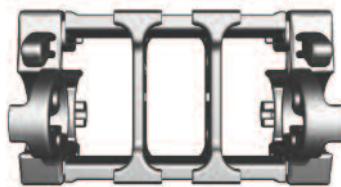
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

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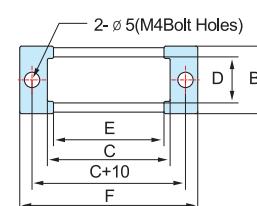
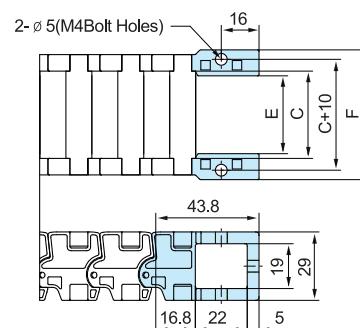
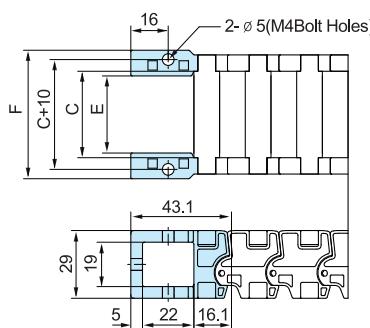
## Clean Room Type nsb 022CR

### CHAIN CROSS SECTION



Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 022CR.16	30		16			0.43
nsb 022CR.27	41		27			0.47
nsb 022CR.37	51		37			0.51
nsb 022CR.47	61		47	22	35, 45, 75, 100, 120	0.55
nsb 022CR.67	81		67			0.67
nsb 022CR.77	91		77			0.69

### FREE END BRACKET



▲ Fixing point

▲ Moving point

▲ Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 022CR.16	34		16		12	
nsb 022CR.27	45		27		23	
nsb 022CR.37	55		37		33	
nsb 022CR.47	65	29	47	22	43	M4 Bolt Holes
nsb 022CR.67	85		67		63	
nsb 022CR.77	95		77		73	



**Sabin chain®**

Low Dust Low Noise Cable Chain!

**INNOVATION**

2014 NEW PRODUCT

**Unity Systems®**

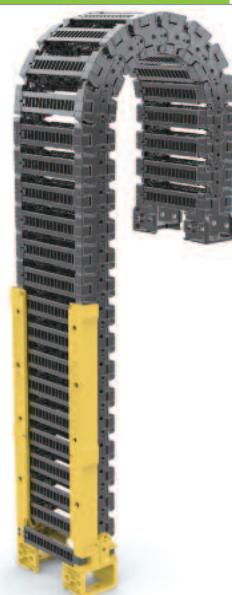
This type of bracket is to protect deflection of chain which will support the weight of certain section start from bracket, also will protect the damage of chain.

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▼ Horizon Type 수평형



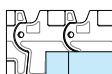
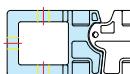
▼ Vertical Type 수직형



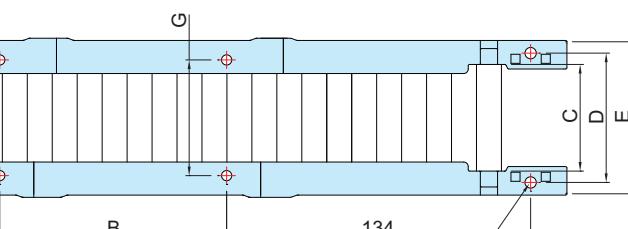
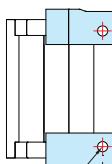
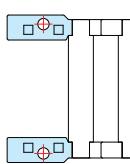
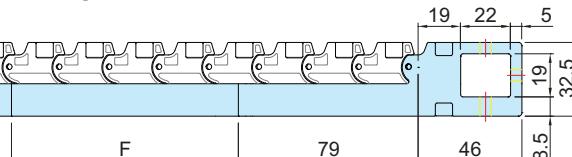
### GUIDE CHANNEL TYPE END BRACKET

(Dimensions in mm)

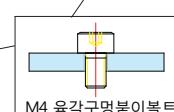
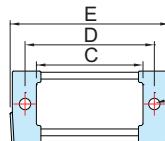
▼ Moving point (FEB동일)



▼ Fixing point



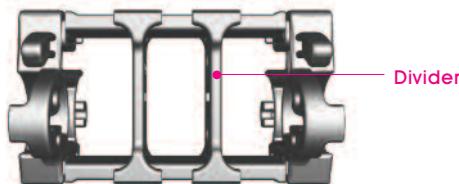
► Front point



Chain Type	C Frame length dimension	D FEB fixing hole	E FEB width	G GC hole width	GC TYPE	F GC length	B GC fixing hole	A GC hole
nsb 022CR.16	16	26	40	20	GC100	100	101	60
nsb 022CR.27	27	37	51	31				
nsb 022CR.37	37	47	61	41				
nsb 022CR.47	47	57	71	51				
nsb 022CR.67	67	77	91	71	GC200	200	201	160
nsb 022CR.77	77	87	101	81				

# Clean Room Type nsb 022CR

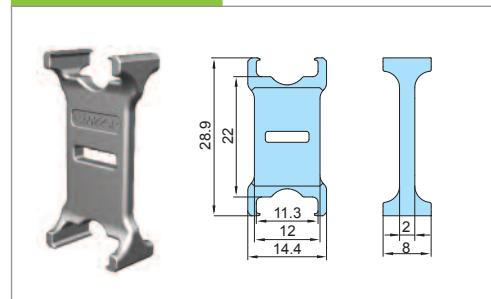
## DIVIDERS



Dividers (Vertical) divide the inner chamber of the cable chain to give each cable diameter its own center and keep the cables separate from each other. The use of the dividers can reduce the width requirements as two or more levels can be made within the same chamber. To prevent twisting or damage to the cables, as a rule there needs to be at least 10% space between the inserted cable and its enclosure. Also, for nsb020CR and 022CR, Separators (Horizontal) are not used but dividers (Vertical) are only used to divide space in the inner chamber of the cable chain.

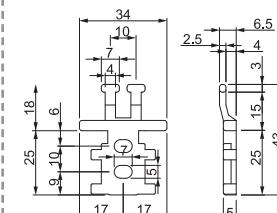
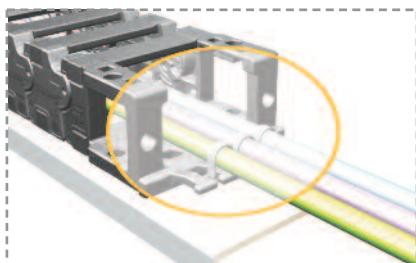
디바이더(세로분리대)는 체인내에 많은 케이블들이 입설텐 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다. 또한 nsb020CR, 022CR의 경우 세퍼레이터(가로분리대)는 사용하지 않고 디바이더만 사용하여 체인 내 공간을 분리합니다.

nsb022CR DV-M

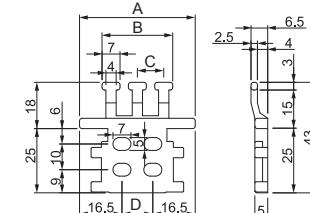


▶ Assemble divider every Three links. / 3링크마다 결합.

## TIE WRAP



nsb-TW022.16



nsb-TW022.27/37/47/67/77

	16	27	37	47	67	77
A	34	45.0	55.0	65.0	85	95
B	-	27.5	41.0	48.0	68	78
C	10	10.2	8.5	10.4	10	8.87
D	-	12.0	22.0	32.0	52	62

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

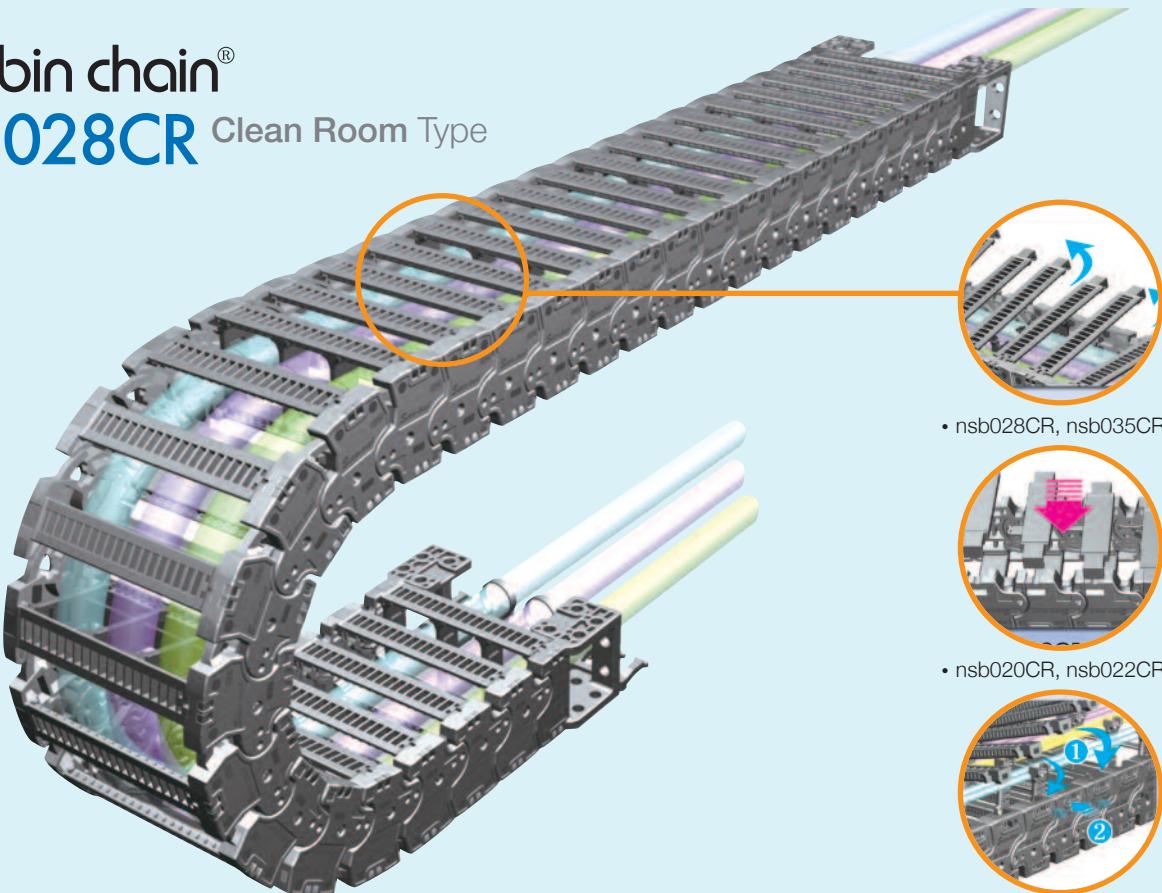
There are two types in the tie wrap; Attached & Unattached to the bracket.

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



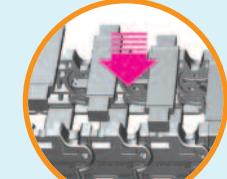
Min ● ● ● ● ● Max

## Sabin chain® nsb 028CR Clean Room Type

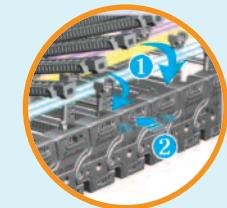


• Frames are assembled at every link. (각 링크마다 프레임 결합방식)

• nsb028CR, nsb035CR •



• nsb020CR, nsb022CR •



• nsb045CR, nsb060CR, nsb075CR •

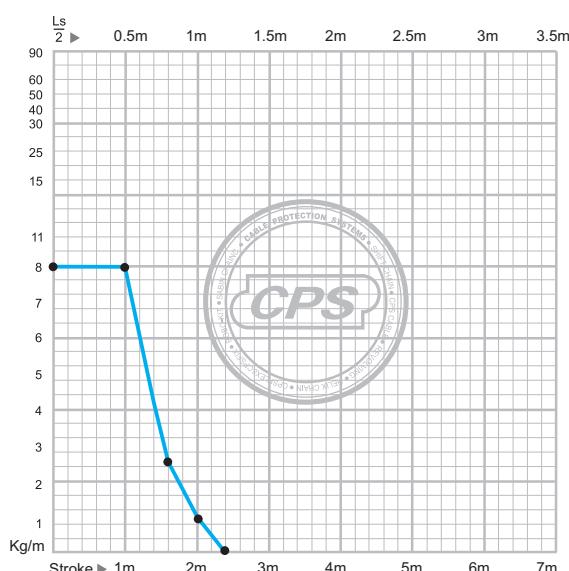
### MATERIAL

- **Chain material:**  
CPS-amide UL94-HB
- **Low Noise:** TUV Test 30 dB (DIN EN 61672-1)
- **Low Mote:** IPA Test VDI 2083 CLASS 1  
DIN EN 14644-1 ISO CLASS 3
- **Speed :** 15m / sec
- **Temperature :** -30°C ~ +130°C
- **Other installation Length:**  
Vertical curve above= max 2.0m  
Vertical curve below= max 40m  
Side Mounted, Unsupported= max 1.0m

### Applications

Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Regulation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.  
CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기계등에 적용.

### Load diagrams self-supporting length

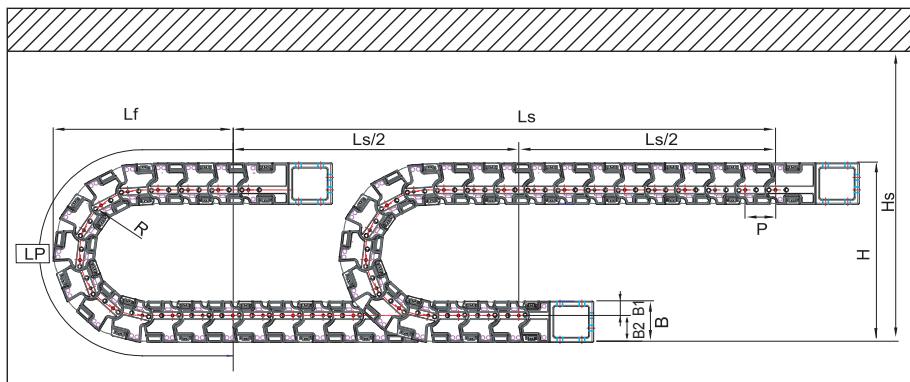


### Calculation of the chain length

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

# Clean Room Type nsb 028CR

## LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	50	70	90	120	150
Lp	311	367	422	533	589
Lf	149	135	182	221	232
H	146	186	226	286	346

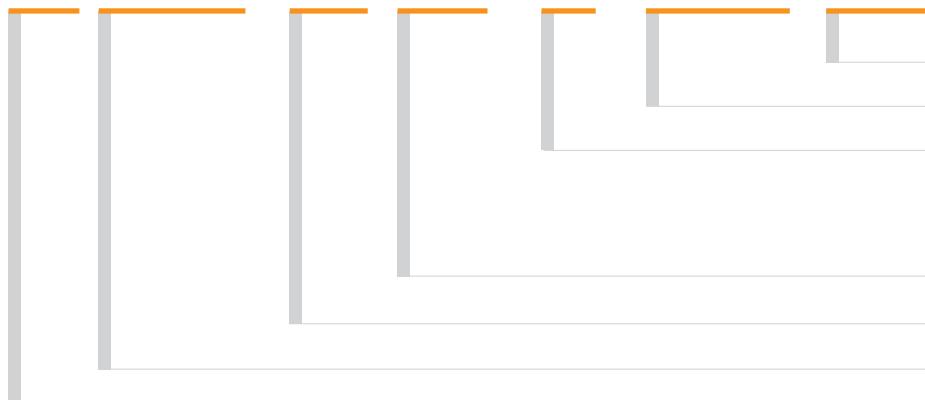
**Ls:** Stroke  
**Lp:** Loop Length  
**Lf:** Loop Projection  
**Hs:** Safe Space

## nsb 028CR Type

**Pitch P:** 28mm  
**Height B:** 38mm  
**Height H:** 2R+46mm  
**Hs**  $\geq$  H+30mm  
**B1:** 15mm **B2:** 23mm

## ORDERING (주문방법)

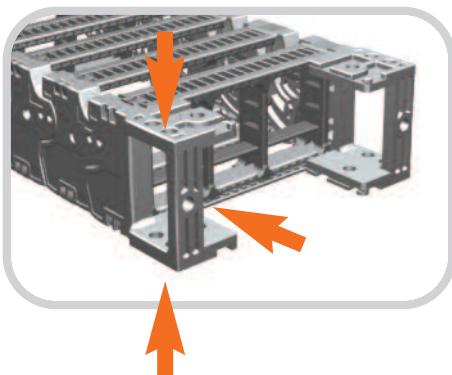
nsb 028CR. 075. R70 / F - 1000L: 10ST



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

New Sabin Chain

## BRACKET TYPE (브라켓타입 )



### FEB (Free End Bracket)

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

체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.

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



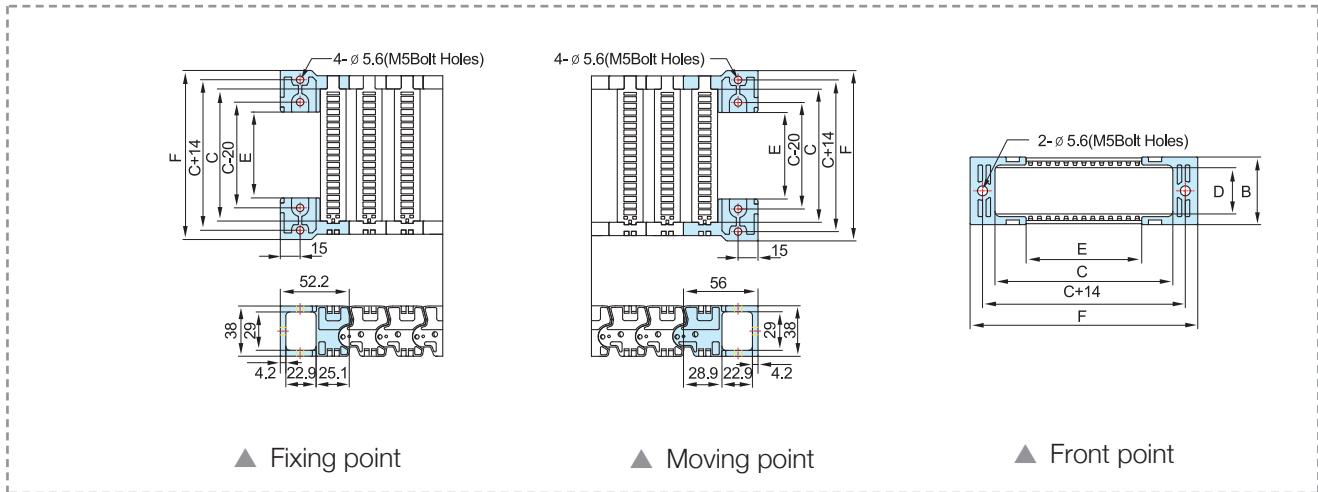
Clean Room Type **nsb 028CR**

**CHAIN CROSS SECTION**



Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 028CR.035	55		35			0.90
nsb 028CR.050	70		50			0.98
nsb 028CR.055	75		55			1.02
nsb 028CR.075	95		75			1.12
nsb 028CR.100	120	38	100	26	50, 70, 90, 120, 150	1.27
nsb 028CR.125	145		125			1.41
nsb 028CR.150	170		150			1.59
nsb 028CR.175	195		175			1.74
nsb 028CR.200	220		200			1.84

**FREE END BRACKET**



Chain Type	F	B	C	D	E	Hole Type
nsb 028CR.035	63		35		0	
nsb 028CR.050	78		50		15	
nsb 028CR.055	83		55		20	
nsb 028CR.075	103		75		40	
nsb 028CR.100	128	38	100	26	65	M5 Bolt Holes
nsb 028CR.125	153		125		90	
nsb 028CR.150	178		150		115	
nsb 028CR.175	203		175		140	
nsb 028CR.200	228		200		165	

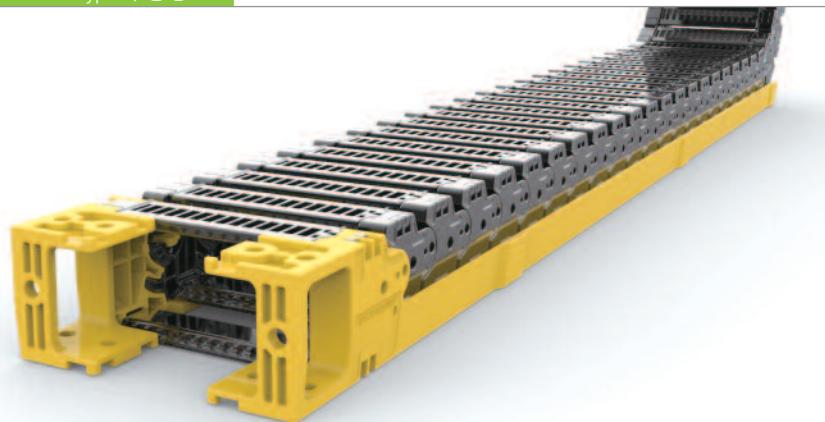
2014 NEW PRODUCT

# Unity Systems®

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

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

## ▼ Horizon Type 수평형



Clean Room Type nsb 028CR

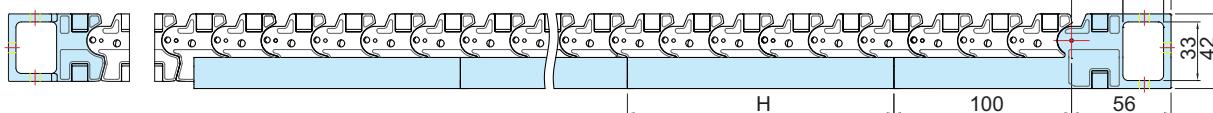
## ▼ Vertical Type 수직형



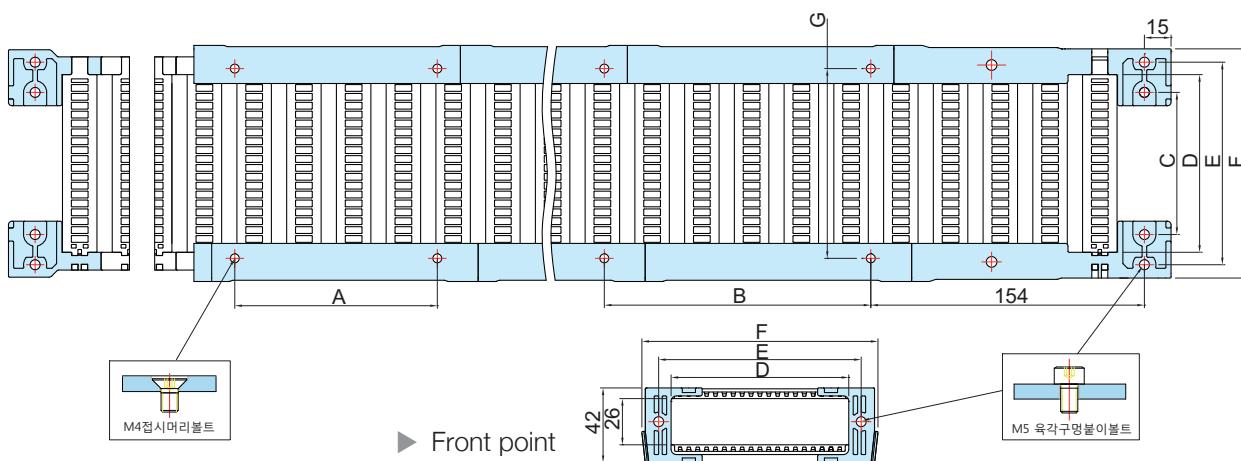
## GUIDE CHANNEL TYPE END BRACKET

(Dimensions in mm)

## ▼ Moving point (FEB동일)



## ▼ Fixing point



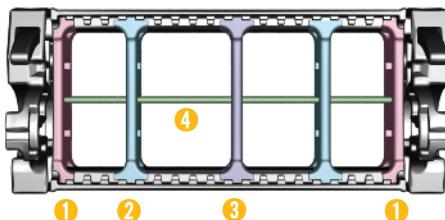
## ► Front point

Chain Type	C FEB fix hole(inner)	D Frame length dimension	E FEB width	F FEB width	G GC hole width	GC TYPE	H GC length	B GC fixing hole	A GC hole dimension
nsb 028CR.035	15	35	49	68	41.8	GC150	150	151	114
nsb 028CR.050	30	50	64	83	56.8				
nsb 028CR.055	35	55	69	88	61.8	GC250	250	251	214
nsb 028CR.075	55	75	89	108	81.8				
nsb 028CR.100	80	100	114	133	106.8				
nsb 028CR.125	105	125	139	158	131.8				
nsb 028CR.150	130	150	164	183	156.8				
nsb 028CR.175	155	175	189	208	181.8				
nsb 028CR.200	180	200	214	233	206.8				



## Clean Room Type nsb 028CR

### DIVIDERS & SEPARATORS

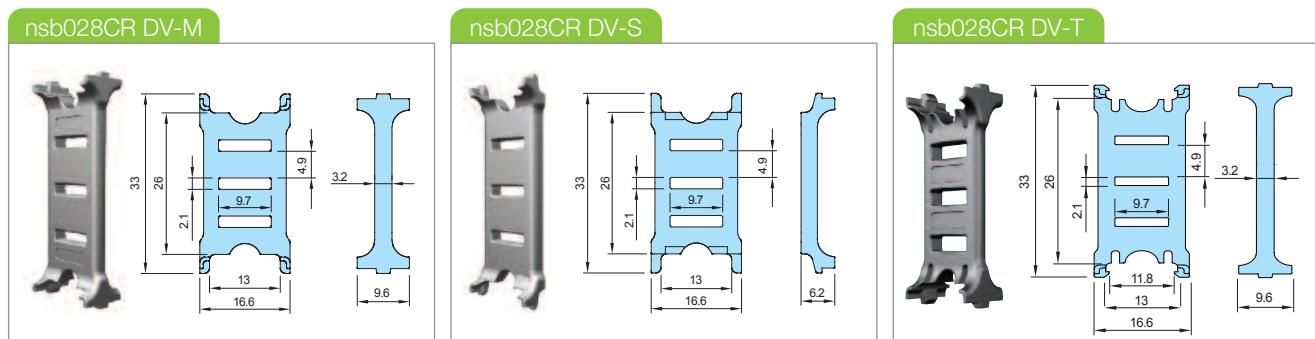


- ① DV-S (측면전용디바이더)
- ② DV-M
- ③ DV-T
- ④ Separator (SP)

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

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

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

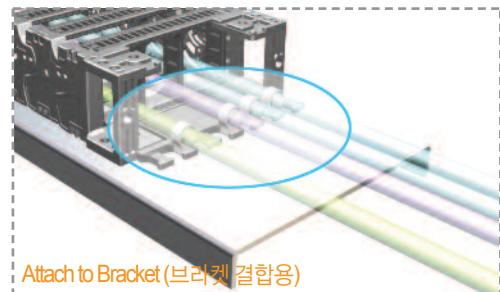


▶ Assemble divider every Four links. / 4링크마다 결합.

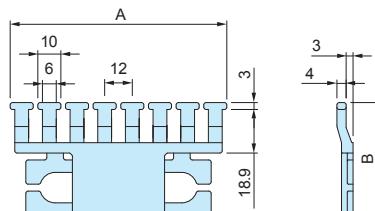
nsb028CR Separators (SP) (No. : S-SP/M)

Chain Type	Separators	SP 035	SP 050	SP 055	SP 075	SP 100	SP 125	SP 150	SP 175	SP 200
nsb028CR	○	○	○	○	○	○	○	○	○	○
nsb035CR	○	○	○	○	○	○	○	○	○	○

### TIE WRAP



Attach to Bracket (브라켓 결합용)



(Dimensions in mm)

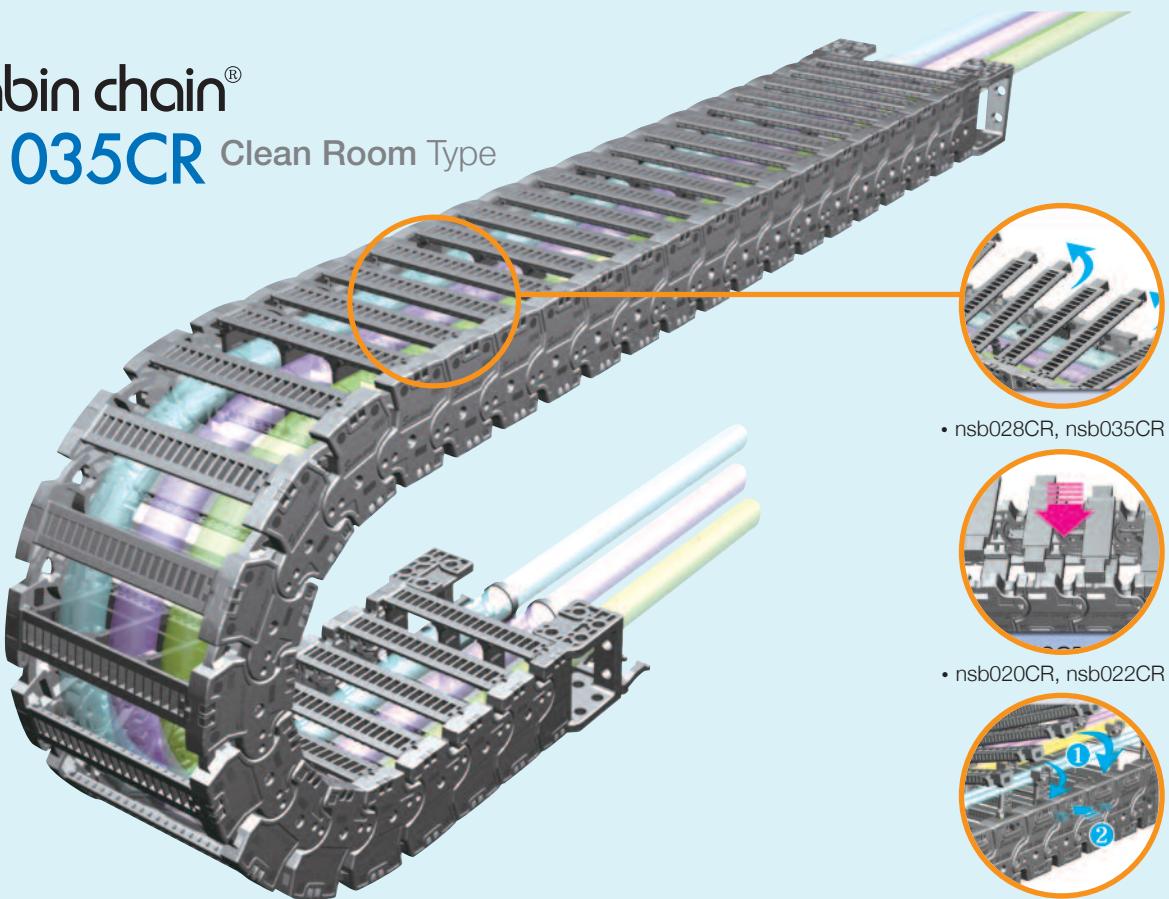
The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation. There are two types in the tie wrap; Attached & Unattached to the bracket.

Tie Wrap은 Sabin Chain의 **브라켓을 기준으로 설치**함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 **단선되는 경우를 방지**할 수 있다. Sabin Chain의 Tiewrap은 **브라켓부분과 근접해서 사용할 수 있는 사양**과 **브라켓에 결합해서 사용할 수 있는 사양**으로 구분되어 사용할 수 있다.

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

Min ● ● ● ● ● Max

# Sabin chain® nsb 035CR Clean Room Type



## MATERIAL

### Chain material:

CPS-amide UL94-HB

### Low Noise:

TUV Test 30 dB (DIN EN 61672-1)

### Low Mote:

IPA Test VDI 2083 CLASS 1

DIN EN 14644-1 ISO CLASS 3

### Speed :

15m / sec

### Temperature :

-30°C ~ +130°C

### Other installation Length:

Vertical curve above= max 3.0m

Vertical curve below= max 50m

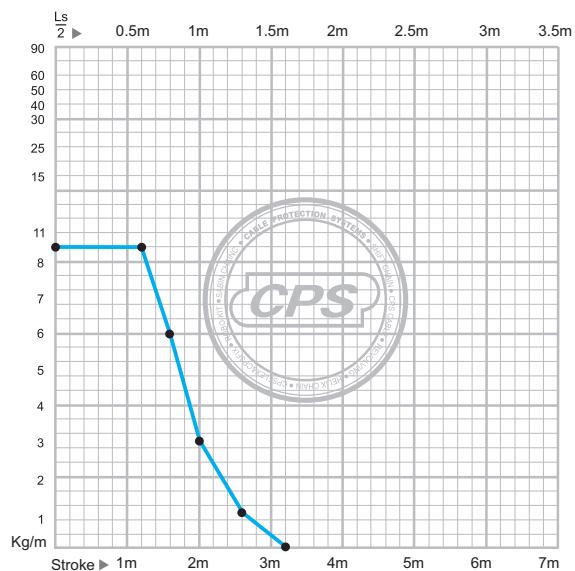
Side Mounted, Unsupported= max 1.0m

### Applications

Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Regulation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

CLASS 10 이내의 분진규제가 적용되는 반도체 라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작 기계 및 산업 기계등에 적용.

### Load diagrams self-supporting length



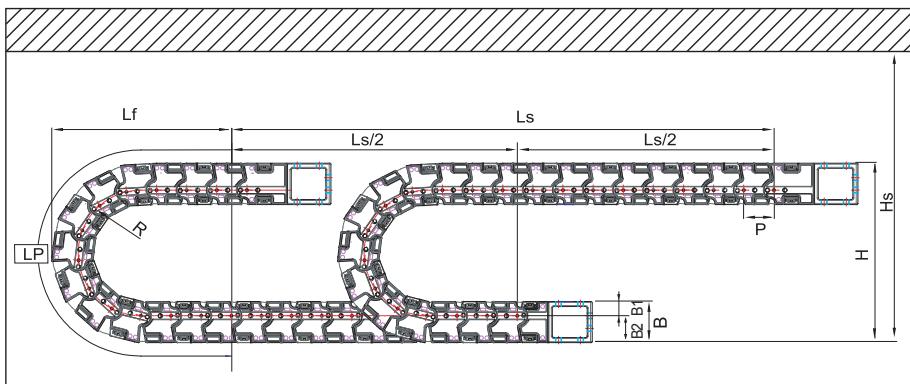
### Calculation of the chain length

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



## Clean Room Type nsb 035CR

### LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	75	100	125	150	200
Lp	471	550	628	706	863
Lf	226	251	276	301	351
H	218	268	318	368	468

**Ls:** Stroke

**Lp:** Loop Length

**Lf:** Loop Projection

**Hs:** Safe Space

### nsb 035CR Type

**Pitch P:** 35mm

**Height B:** 52mm

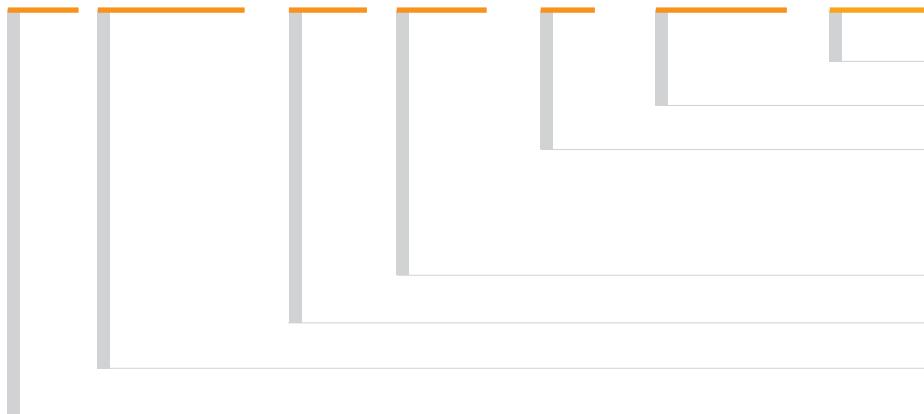
**Height H:** 2R+68mm

**Hs**  $\geq$  **H**+30mm

**B1:** 18mm **B2:** 34mm

### ORDERING (주문방법)

**nsb 035CR. 100. R75 / F - 1200L: 10ST**



주문수량 Q'ty(set)

체인길이 Length(mm)

브라켓 F : Free End Bracket

G : Guide Channel Type

V : Vertical Guide Type

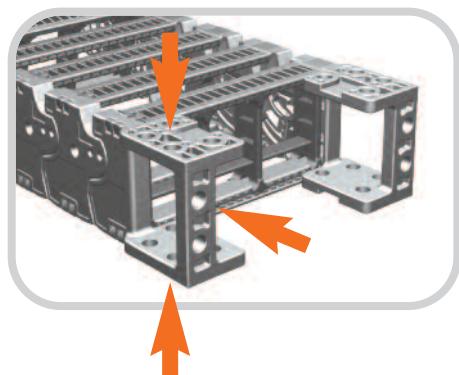
곡률반경 Bending Radius

내폭 Inside Width

클린룸타입 Clean Room Type

New Sabin Chain

### BRACKET TYPE (브라켓타입)



#### FEB (Free End Bracket)

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

체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.

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

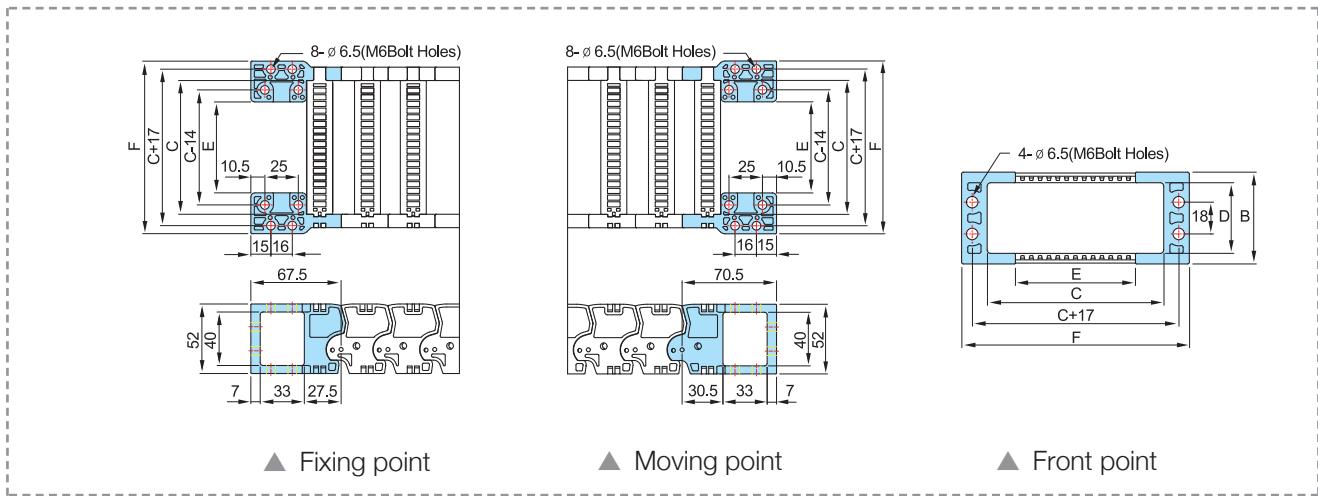
## Clean Room Type nsb 035CR

### CHAIN CROSS SECTION



Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 035CR.035	55		35			1.00
nsb 035CR.050	70		50			1.06
nsb 035CR.055	75		55			1.09
nsb 035CR.075	95		75			1.17
nsb 035CR.100	120	52	100	40	75, 100, 125, 150, 200	1.29
nsb 035CR.125	145		125			1.39
nsb 035CR.150	170		150			1.53
nsb 035CR.175	195		175			1.65
nsb 035CR.200	220		200			1.73

### FREE END BRACKET



▲ Fixing point

▲ Moving point

▲ Front point

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



2014 NEW PRODUCT  
**Unity Systems®**

Clean Room Type **nsb 035CR**

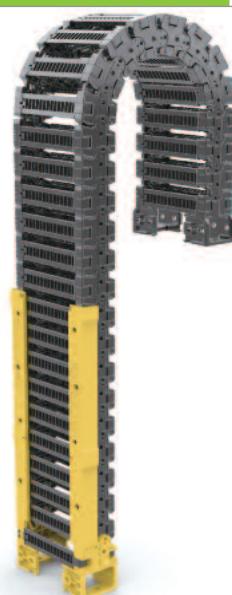
This type of bracket is to protect deflection of chain which will support the weight of certain section start from bracket, also will protect the damage of chain.

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

▼ Horizon Type 수평형



▼ Vertical Type 수직형

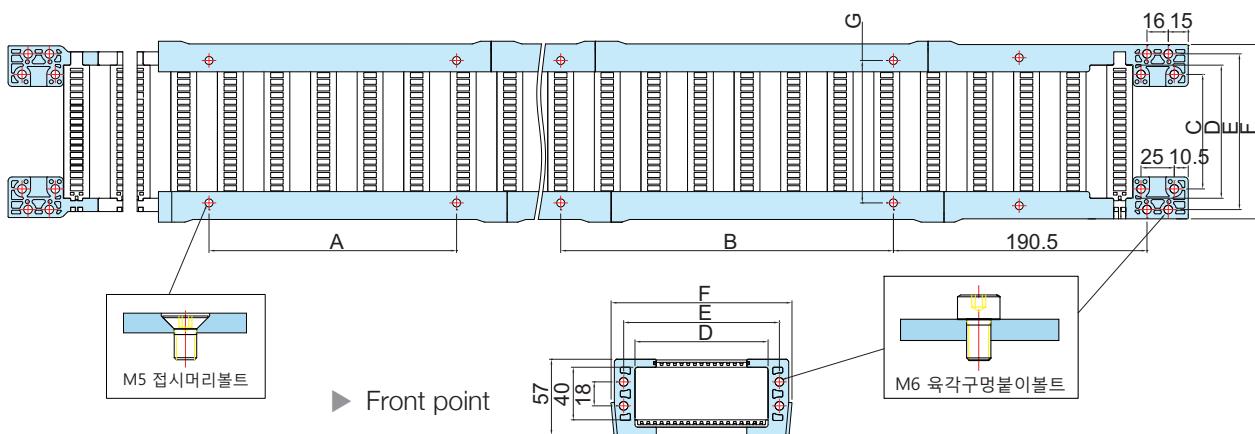
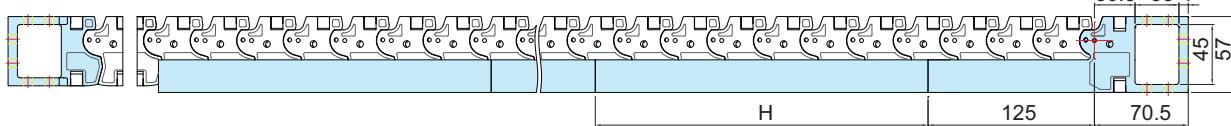


**GUIDE CHANNEL TYPE END BRACKET**

(Dimensions in mm)

▼ Moving point (FEB동일)

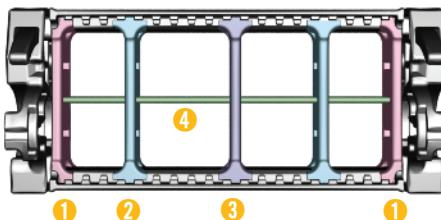
▼ Fixing point



Chain Type	C FEB fix hole(inner)	D Frame length dimension	E FEB width	F FEB width	G GC hole width	GC TYPE	H GC length	B GC fixing hole	A GC hole dimension
nsb 035CR.035	21	35	52	71	42	GC250	250	251	186
nsb 035CR.050	36	50	67	86	57				
nsb 035CR.055	41	55	72	91	62	GC400	400	401	336
nsb 035CR.075	61	75	92	111	82				
nsb 035CR.100	86	100	117	136	107				
nsb 035CR.125	111	125	142	161	132				
nsb 035CR.150	136	150	167	186	157				
nsb 035CR.175	161	175	192	211	182				
nsb 035CR.200	186	200	217	236	207				

## Clean Room Type nsb 035CR

### Dividers & Separators



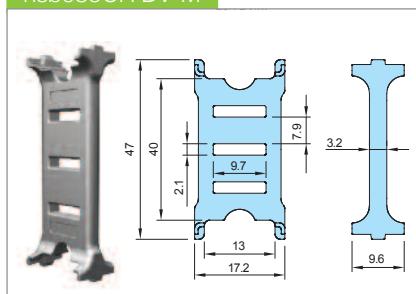
- ① DV-S (측면전용디바이더)
- ② DV-M
- ③ DV-T
- ④ Separator (SP)

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

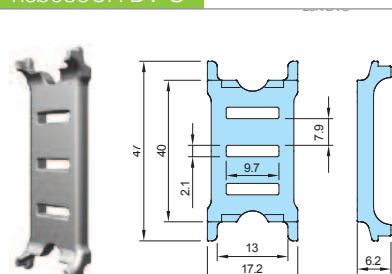
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 피복손상 및 단선을 방지하는 역할을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.

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

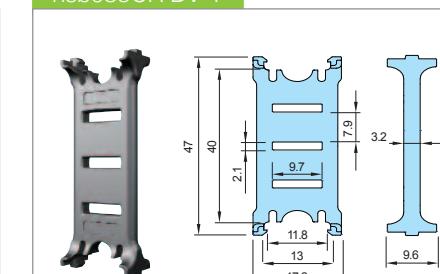
nsb035CR DV-M



nsb035CR DV-S



nsb035CR DV-T



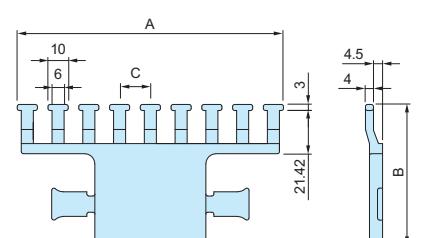
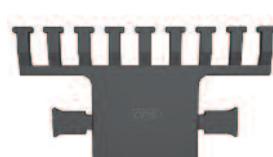
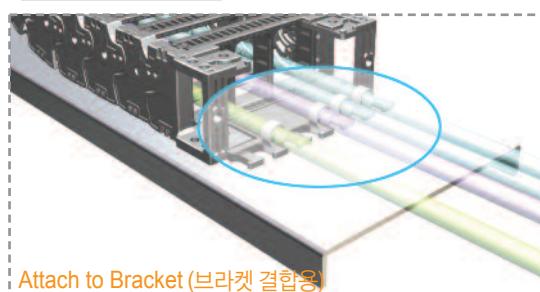
▶ Assemble divider every Four links. / 4링크마다 결합

▶ DV-T : Frame 125~200 적용(상하 프레임을 연결)

nsb035CR Separators (SP) (No. : S-SP/M)

Chain Type	Separators	SP035	SP050	SP055	SP075	SP100	SP125	SP150	SP175	SP200
nsb028CR	○	○	○	○	○	○	○	○	○	○
nsb035CR	○	○	○	○	○	○	○	○	○	○

### TIE WRAP



Attach to Bracket (브라켓 결합용)

(Dimensions in mm)

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

Tie Wrap for the Sabin Chain nsb035 series, the range of the corresponding frame sizes will be 50, 75, 100, 125, 150, 175 and 200mm respectively.

nsb035 제품은 삽입형 Tie Wrap을 사용하여 적용되는 Frame은 50, 75, 100, 125, 150, 175, 200 입니다.

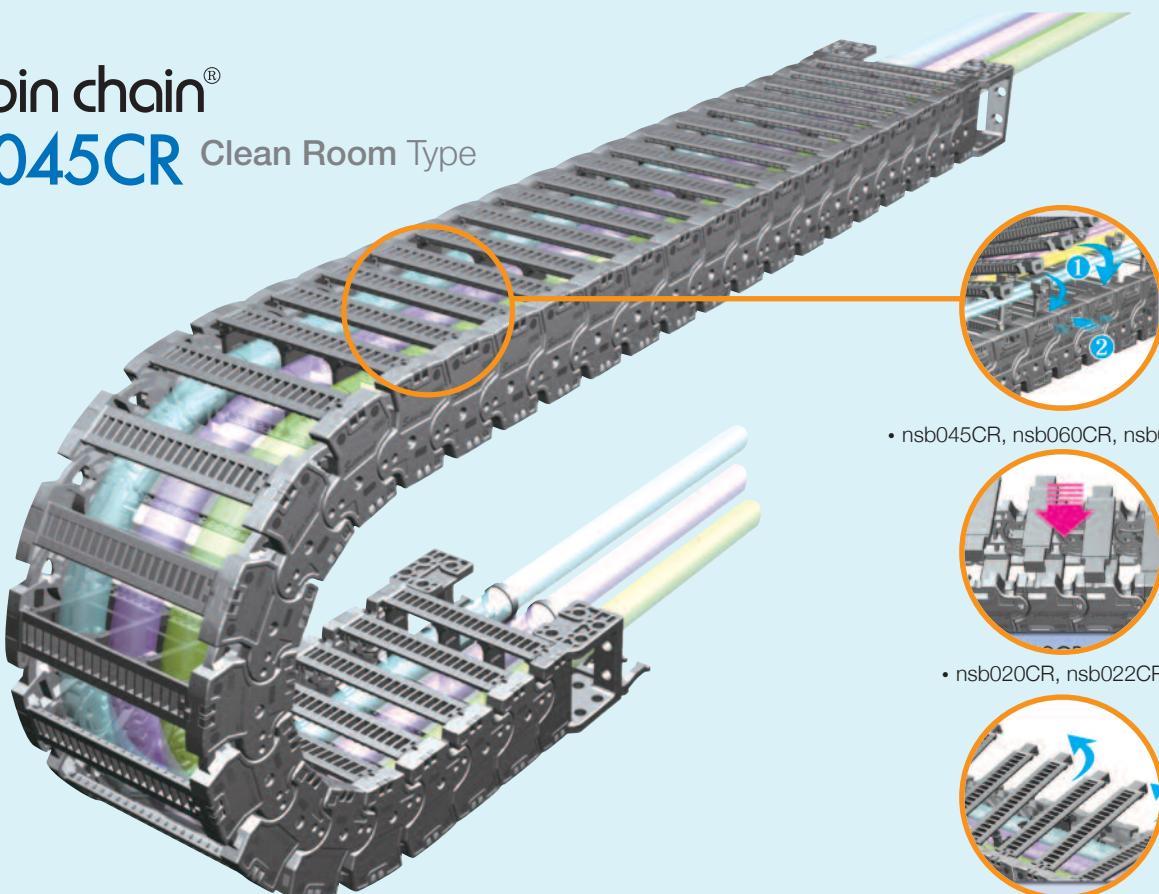
The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation. There are two types in the tie wrap; Attached & Unattached to the bracket.

Tie Wrap은 Sabin Chain 의 브라켓을 기준으로 설치함으로써 체인의 움직임으로인해 체인내의 케이블이나 호스가 당겨져 단선되는 경우를 방지할 수 있다. Sabin Chain의 TieWrap은 브라켓부분과 근접해서 사용할 수 있는 사양과 브라켓에 결합해서 사용할 수 있는 사양으로 구분되어 사용할 수 있다.



Min ●●●● Max

## Sabin chain® nsb 045CR Clean Room Type



### MATERIAL

- **Chain material:**

CPS-amide UL94-HB

- **Low Noise:** TUV Test 30 dB (DIN EN 61672-1)

- **Low Mote:** IPA Test VDI 2083 CLASS 1  
DIN EN 14644-1 ISO CLASS 3

- **Speed :** 15m/sec

- **Temperature :** -30°C ~ +130°C

- **Other installation Length:**

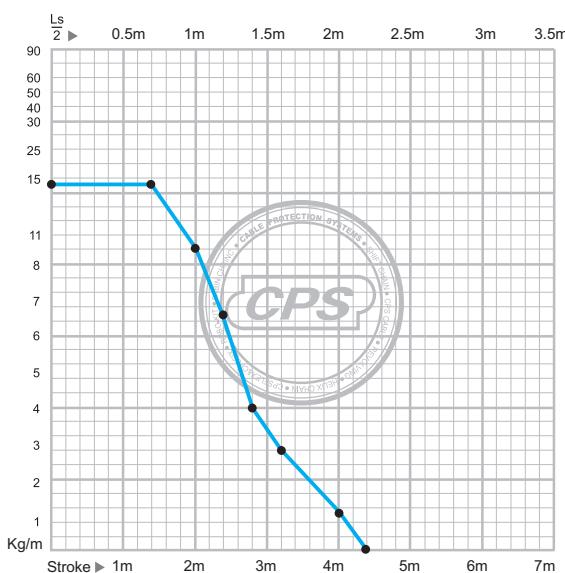
Vertical curve above, Unsupported= max 6.0m  
Vertical curve below, Unsupported= max 100m  
Side Mounted, Unsupported= max 2.5m

- **Applications**

Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Regulation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

CLASS 10 이내의 분진규제가 적용되는 반도체 라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기계등에 적용.

- **Load diagrams self-supporting length**

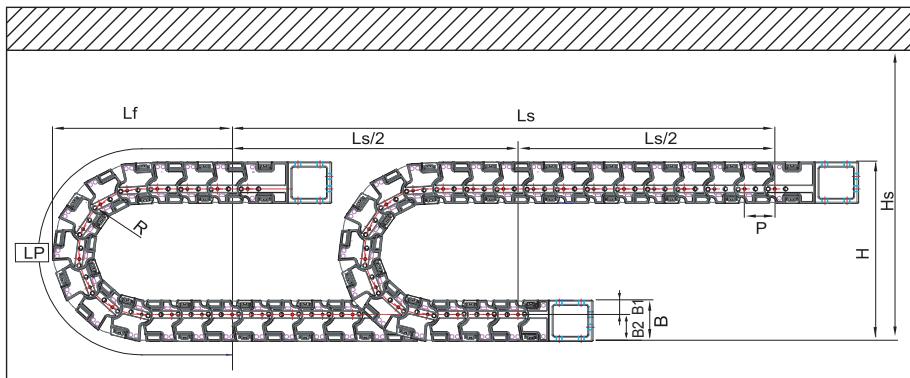


- **Calculation of the chain length**

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

## Clean Room Type nsb 045CR

### LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	75	100	120	140	200	250	300
Lp	587	665	728	791	979	1,136	1,293
Lf	279	304	324	344	404	454	504
H	243	293	333	373	493	593	693

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

### nsb 045CR Type

Pitch P: 45mm  
 Height B: 70mm  
 Height H: 2R+93mm  
 Hs  $\geq$  H+40mm  
 B1: 23.5mm B2: 46.5mm

### ORDERING (주문방법)

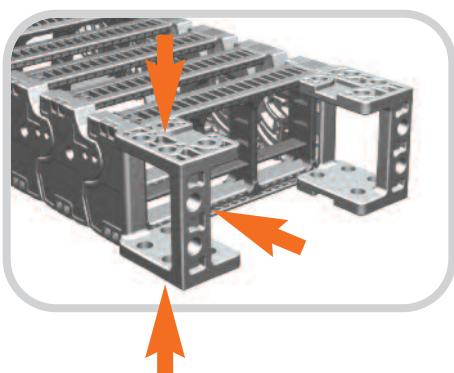
nsb 045CR. 100. R75 / F - 2000L: 10ST



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

New Sabin Chain

### BRACKET TYPE (브라켓타입)



#### FEB (Free End Bracket)

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

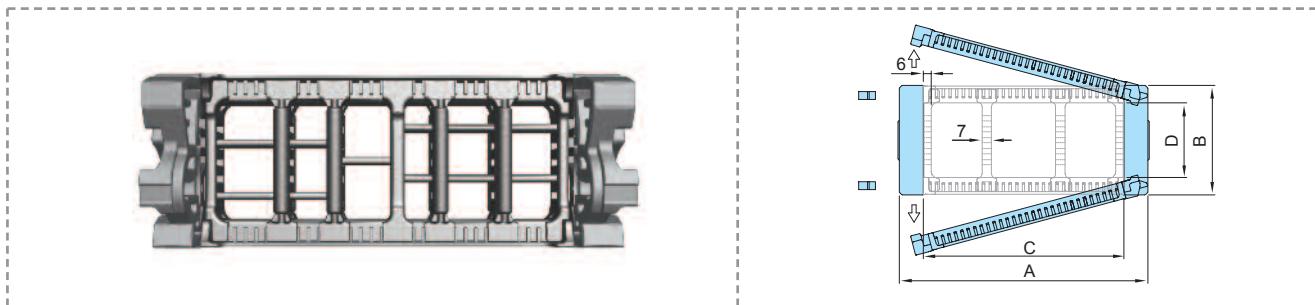
체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.

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



## Clean Room Type nsb 045CR

### CHAIN CROSS SECTION

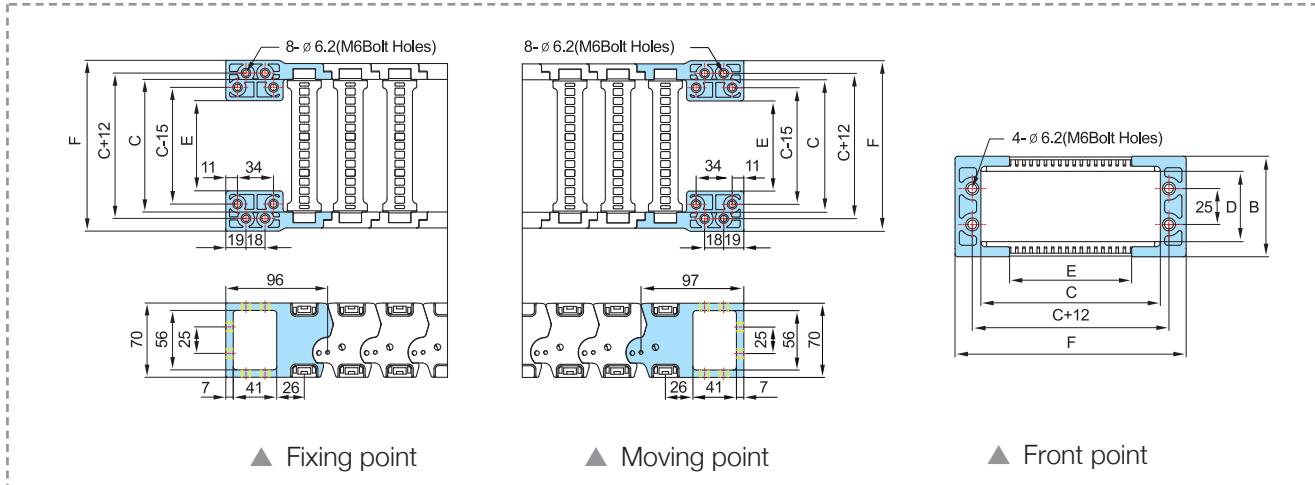


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 045CR.050	80		50			2.59
nsb 045CR.075	105		75			2.74
nsb 045CR.100	130		100			2.90
nsb 045CR.125	155		125			3.11
nsb 045CR.150	180	70	150	49	75, 100, 120, 140 200, 250, 300	3.31
nsb 045CR.175	205		175			3.48
nsb 045CR.200	230		200			4.18
nsb 045CR.250	280		250			4.76
nsb 045CR.300	330		300			5.32

▲ 특수 프레임 적용 가능. (C:140,165,190,240)

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

### FREE END BRACKET



▲ Fixing point

▲ Moving point

▲ Front point

Chain Type	F	B	C	D	E	Hole Type
nsb 045CR.050	86		50		10	
nsb 045CR.075	111		75		35	
nsb 045CR.100	136		100		60	
nsb 045CR.125	161		125		85	
nsb 045CR.150	186	70	150	49	110	M6 Bolt Holes
nsb 045CR.175	211		175		135	
nsb 045CR.200	236		200		160	
nsb 045CR.250	286		250		210	
nsb 045CR.300	336		300		260	

▲ 특수 프레임 적용 가능. (C:140,165,190,240)

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

2014 NEW PRODUCT

# Unity Systems®

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

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

## ▼ Horizon Type 수평형



## ▼ Vertical Type 수직형

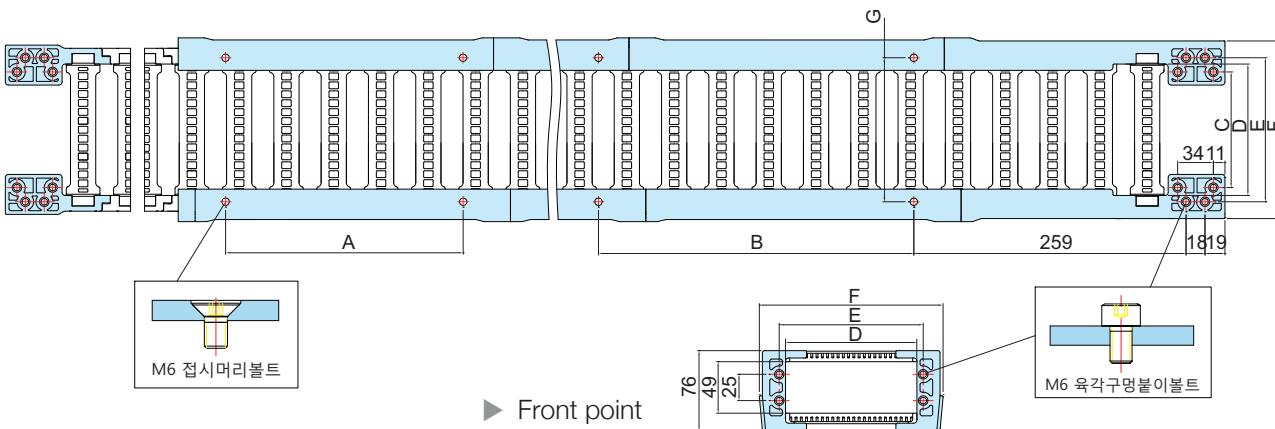
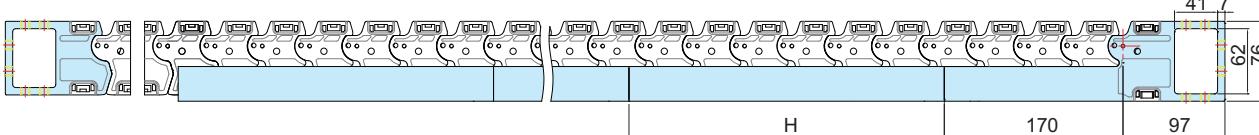


## GUIDE CHANNEL TYPE END BRACKET

(Dimensions in mm)

## ▼ Moving point (FEB동일)

## ▼ Fixing point



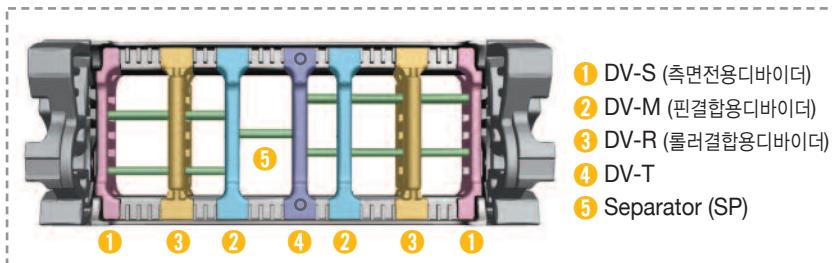
## ► Front point

Chain Type	C FEB fix hole(inner)	D Frame length dimension	E FEB width	F FEB width	G GC hole width	GC TYPE	H GC length	B GC fixing hole	A GC hole dimension
nsb 045CR.050	35	50	62	100	62				
nsb 045CR.075	60	75	87	125	87				
nsb 045CR.100	85	100	112	150	112				
nsb 045CR.125	110	125	137	175	137				
nsb 045CR.150	135	150	162	200	162				
nsb 045CR.175	160	175	187	225	187				
nsb 045CR.200	185	200	212	250	212				
nsb 045CR.250	235	250	262	300	262				
nsb 045CR.300	285	300	312	350	312				
						GC300	300	301	226
						GC500	500	501	426



## Clean Room Type nsb 045CR

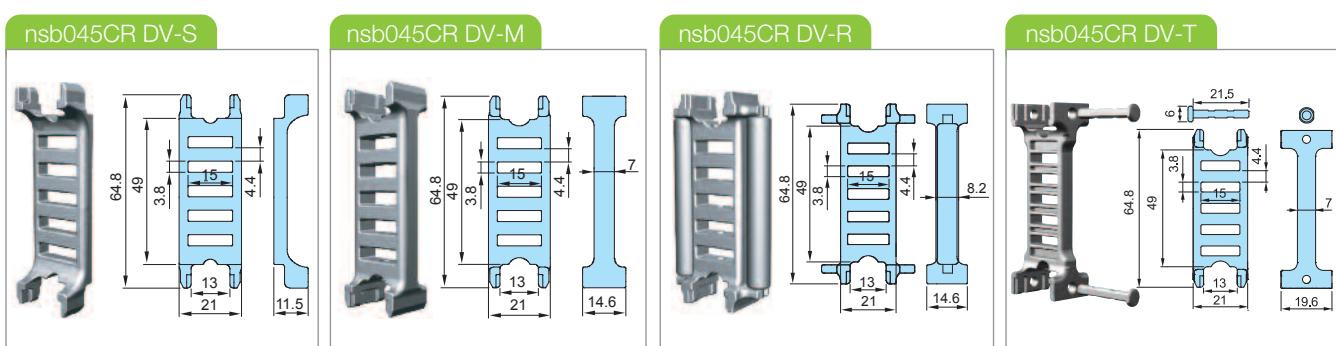
### DIVIDERS



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

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

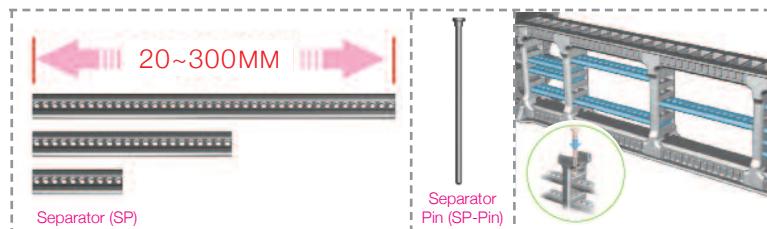
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.



▶ Assemble divider every Four links. / 4링크마다 결합

▶ DV-T : Frame 125~200 적용(상하 프레임을 연결)

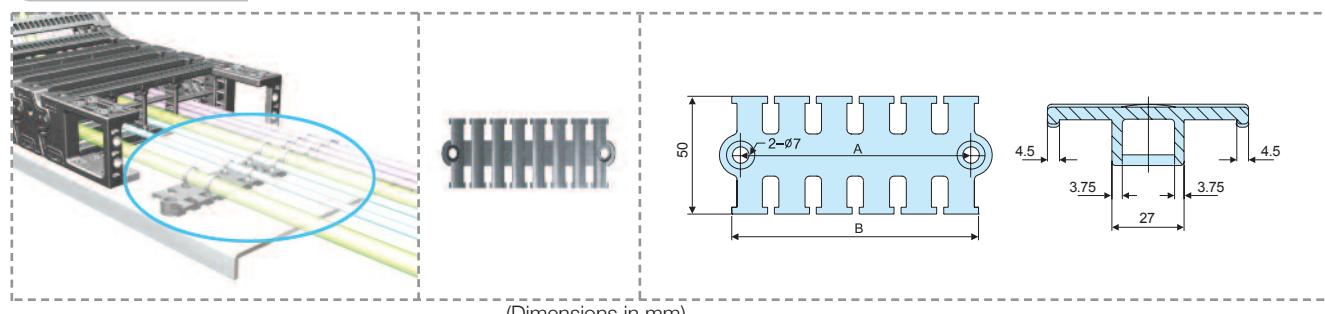
### SEPARATORS



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

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

### TIE WRAP



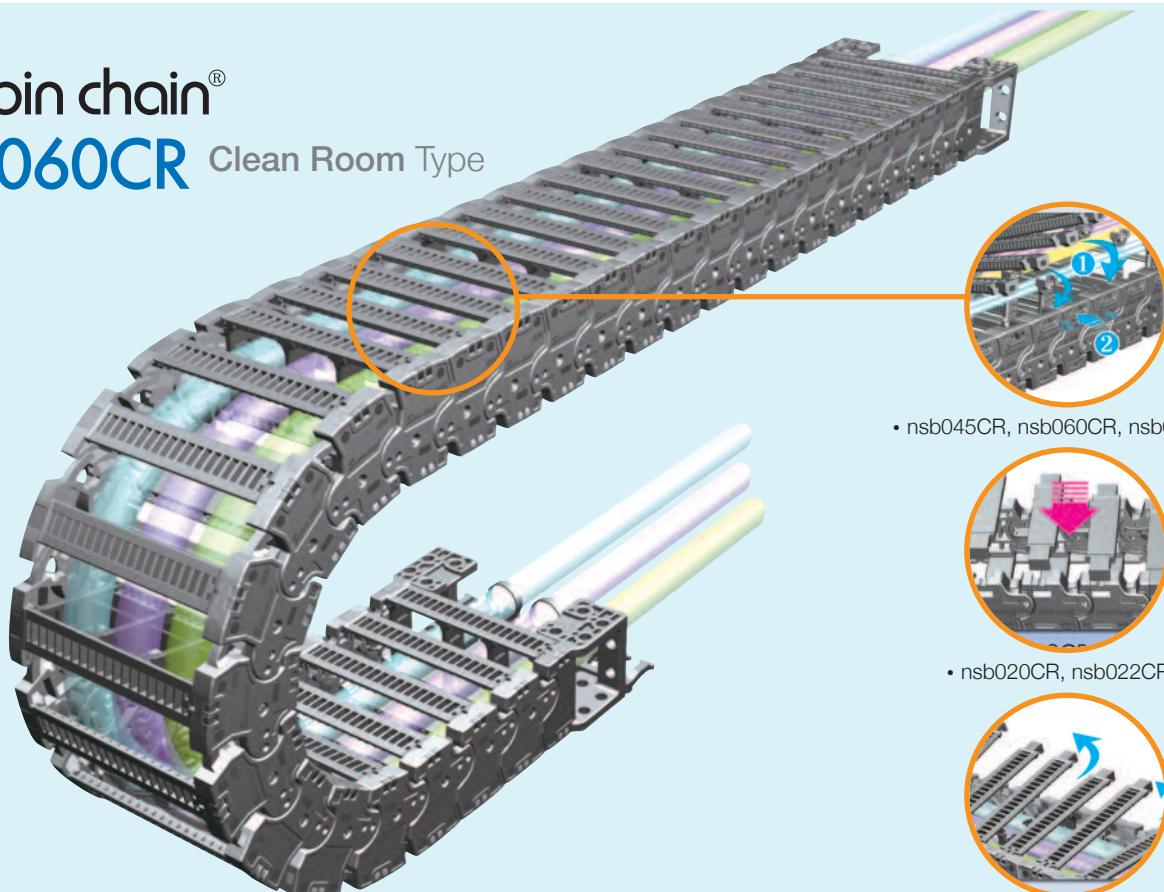
Tie Wrap	050	075	100	125	150
A	58	75	98	122	141
B	65	82	105	129	148

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

Tie Wrap은 Sabin Chain 의 **브라켓을 기준으로 설치**함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 **단선되는 경우를 방지**할 수 있다. Sabin Chain의 Tiewrap은 **브라켓부분과 근접해서 사용할 수 있는 사양**과 **브라켓에 결합해서 사용할 수 있는 사양**으로 구분되어 사용할 수 있다.

Min ●●●●● Max

# Sabin chain® nsb 060CR Clean Room Type



## MATERIAL

### Chain material:

CPS-amide UL94-HB

### Low Noise:

TUV Test 30 dB (DIN EN61672-1)

### Low Mote:

IPA Test VDI 2083 CLASS 1

DIN EN 14644-1 ISO CLASS 3

### Speed :

15m / sec

### Temperature :

-30°C ~ +130°C

### Other installation Length:

Vertical curve above, Unsupported= max 6.0m

Vertical curve below, Unsupported= max 100m

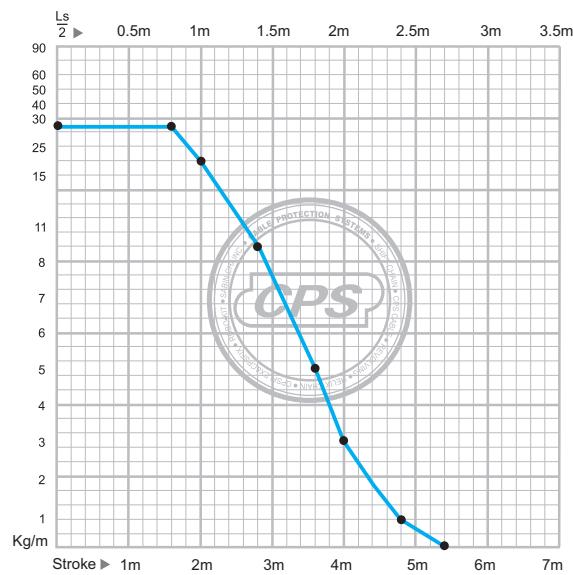
Side Mounted, Unsupported= max 3.0m

### Applications

Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Regulation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작 기계 및 산업 기계등에 적용.

### Load diagrams self-supporting length



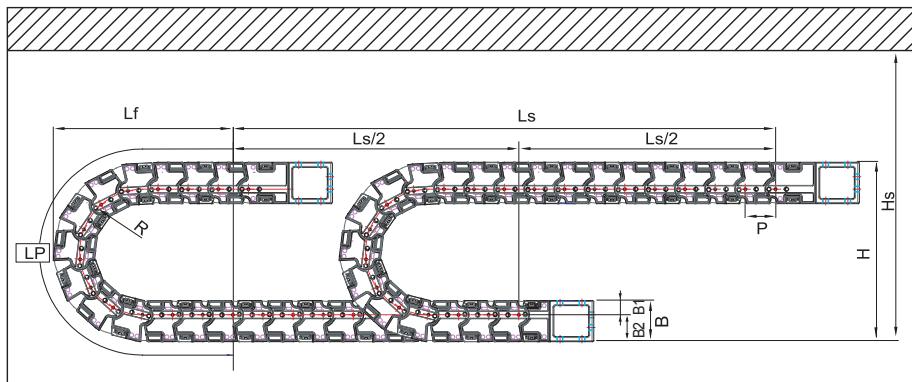
### Calculation of the chain length

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



## Clean Room Type nsb 060CR

### LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	125	140	190	220	270	390
Lp	854	901	1,058	1,152	1,309	1,686
Lf	389	404	454	484	574	654
H	358	388	488	548	648	888

**Ls:** Stroke

**Lp:** Loop Length

**Lf:** Loop Projection

**Hs:** Safe Space

### nsb 060CR Type

**Pitch P:** 60mm

**Height B:** 82mm

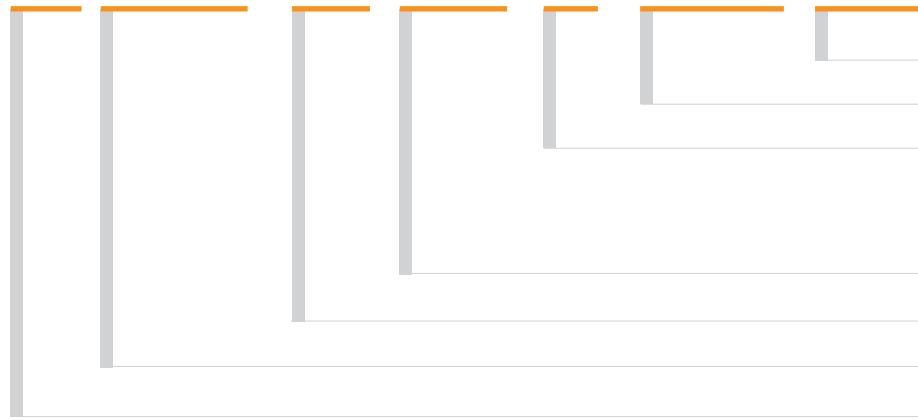
**Height H:** 2R+108mm

**Hs**  $\geq$  **H**+40mm

**B1:** 28mm **B2:** 54mm

### ORDERING (주문방법)

**nsb 060CR. 150. R140 / F -2500L: 10ST**



주문수량 Q'ty(set)

체인길이 Length(mm)

브라켓 F : Free End Bracket

G : Guide Channel Type

V : Vertical Guide Type

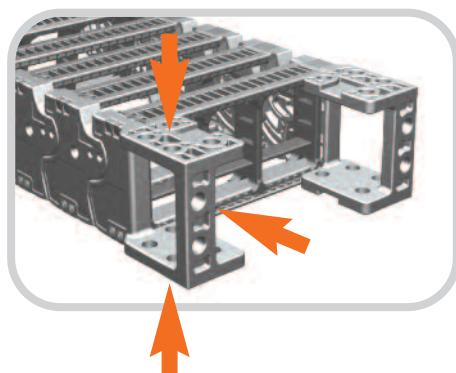
곡률반경 Bending Radius

내폭 Inside Width

클린룸타입 Clean Room Type

New Sabin Chain

### BRACKET TYPE (브라켓타입)



#### FEB (Free End Bracket)

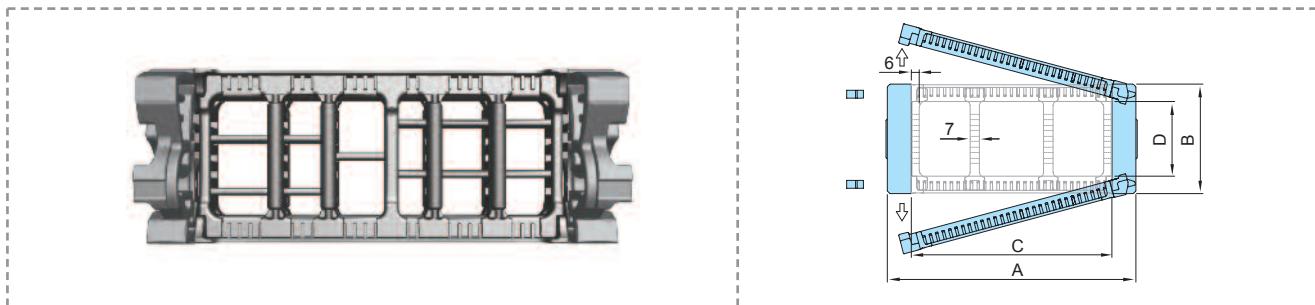
Fixes the cable chain to the machinery or moving application. CPS has improved mounting efficiency by unifying the existing Easy End Bracket and Normal End Bracket.

체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.

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# Clean Room Type nsb 060CR

## CHAIN CROSS SECTION

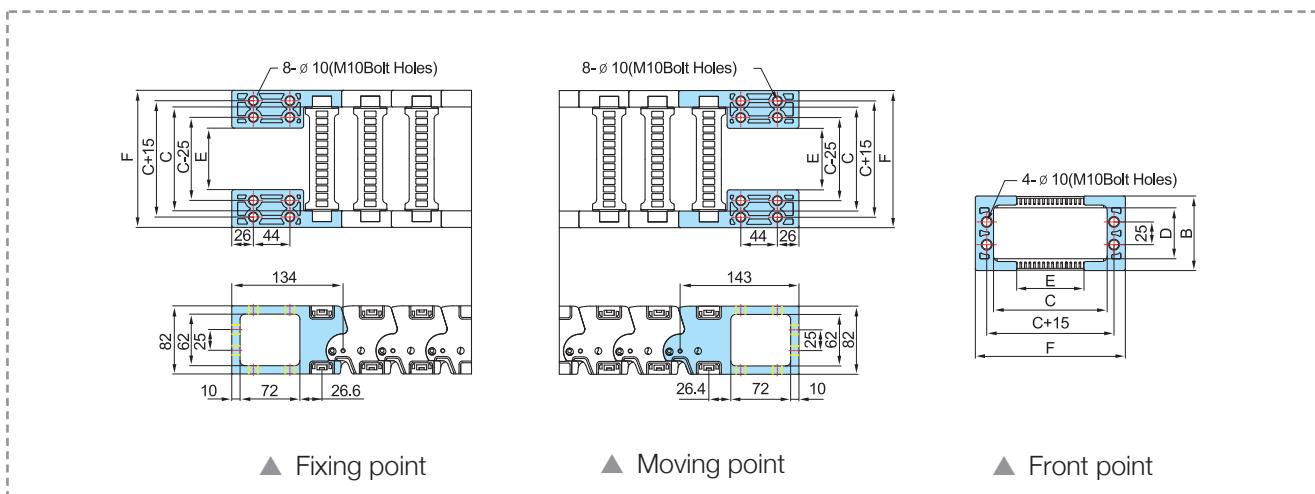


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 060CR.075	115		75			3.56
nsb 060CR.100	140		100			3.66
nsb 060CR.125	165		125			3.97
nsb 060CR.150	190		150			4.16
nsb 060CR.175	215		175		125, 140, 190, 220	4.33
nsb 060CR.200	240		200		270, 390	4.64
nsb 060CR.250	290		250			5.06
nsb 060CR.300	340		300			5.48
nsb 060CR.350	390		350			6.09
nsb 060CR.400	440		400			6.66

▲ 특수 프레임 적용 가능. (C:190,240)

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

## FREE END BRACKET



Chain Type	F	B	C	D	E	Hole Type
nsb 060CR.075	115		75		24	
nsb 060CR.100	140		100		49	
nsb 060CR.125	165		125		74	
nsb 060CR.150	190		150		99	
nsb 060CR.175	215		175		124	
nsb 060CR.200	240		200		149	M10 Bolt Holes
nsb 060CR.250	290		250		199	
nsb 060CR.300	340		300		249	
nsb 060CR.350	390		350		299	
nsb 060CR.400	440		400		349	

▲ 특수 프레임 적용 가능. (C:190,240)

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



2014 NEW PRODUCT

**Unity Systems®**

PREPARE  
(준비중)

Clean Room Type **nsb 060CR**

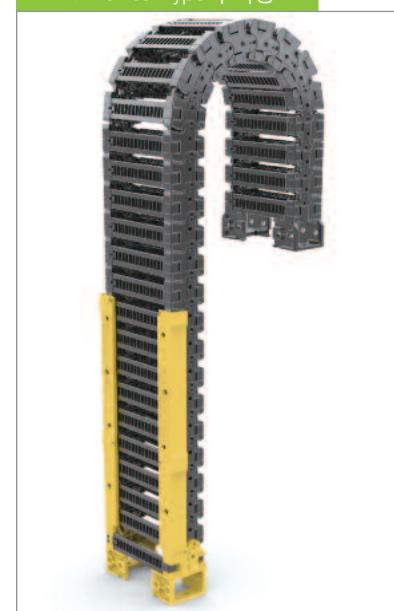
This type of bracket is to protect deflection of chain which will support the weight of certain section start from bracket, also will protect the damage of chain.

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

▼ Horizon Type 수평형



▼ Vertical Type 수직형

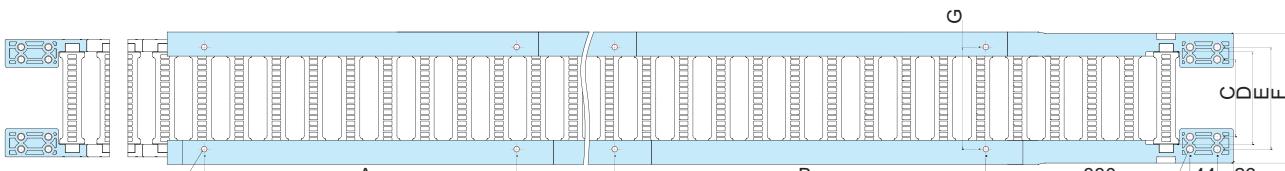
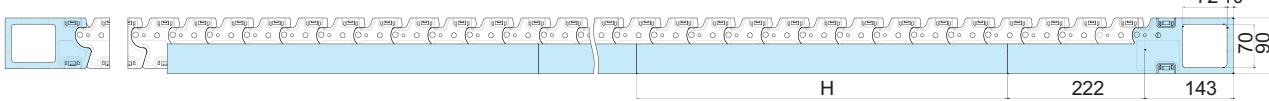


### GUIDE CHANNEL TYPE END BRACKET

(Dimensions in mm)

▼ Moving point (FEB동일)

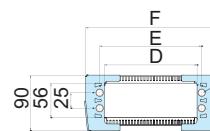
▼ Fixing point



M8 접시머리볼트

M10 육각구멍볼트

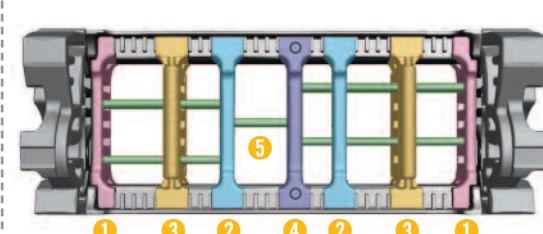
► Front point



Chain Type	C FEB fix hole(inner)	D Frame length dimension	E FEB width	F FEB width	G GC hole width	GC TYPE	H GC length	B GC fixing hole	A GC hole dimension
nsb 060CR.075	50	75	90	139	90				
nsb 060CR.100	75	100	115	164	115				
nsb 060CR.125	100	125	140	189	140	GC600	600	601	505
nsb 060CR.150	125	150	165	214	165				
nsb 060CR.175	150	175	190	239	190				
nsb 060CR.200	175	200	215	264	215				
nsb 060CR.250	225	250	265	314	265				
nsb 060CR.300	275	300	315	364	315	GC800	800	801	705
nsb 060CR.350	325	350	365	414	365				
nsb 060CR.400	375	400	415	464	415				

## Clean Room Type nsb 060CR

### DIVIDERS

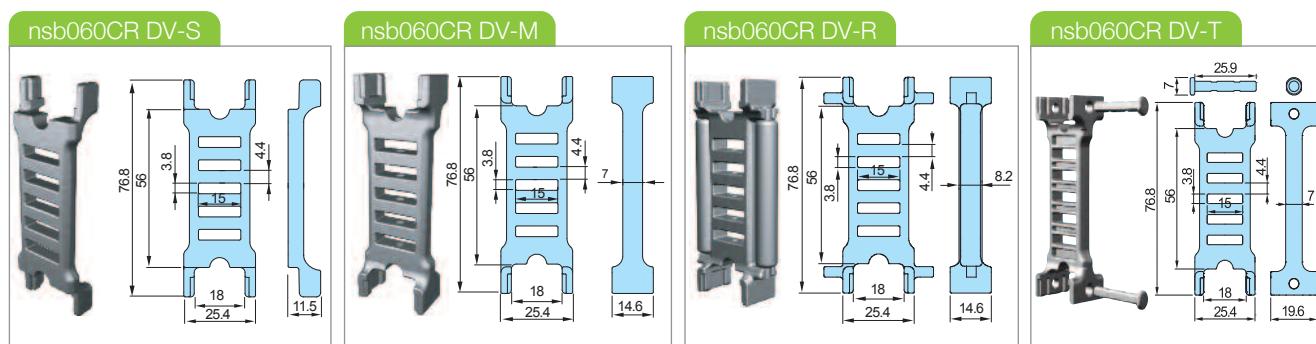


- ① DV-S (측면전용디바이더)
- ② DV-M (핀결합용디바이더)
- ③ DV-R (롤러결합용디바이더)
- ④ DV-T
- ⑤ Separator (SP)

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

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

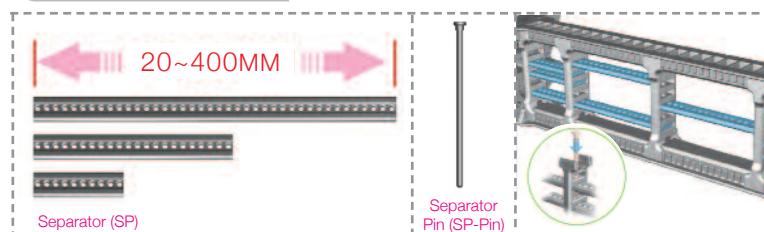
또한 케이블을 체인내 2단이상 입선시 반드시 세퍼레이터를 디바이더에 결합하여 사용해야 케이블의 꼬임방지와 피복손상을 방지할 수 있습니다.



▶ Assemble divider every Four links. / 4링크마다 결합

▶ DV-T : Frame 250~400 적용(상하 프레임을 연결)

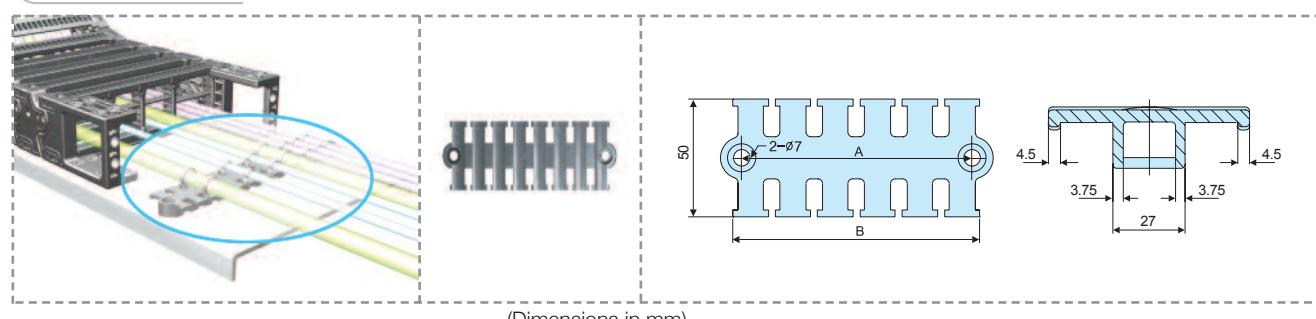
### SEPARATORS



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

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

### TIE WRAP



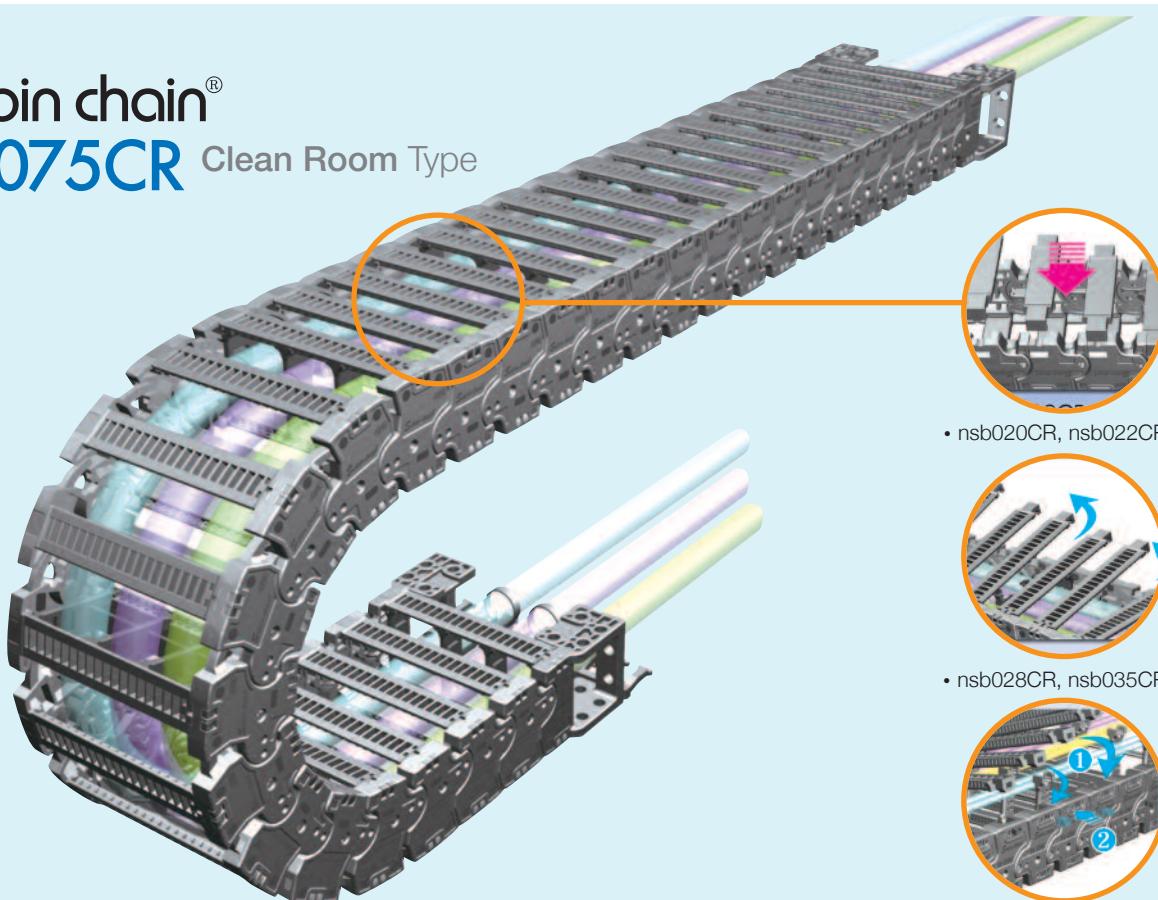
The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation. There are two types in the tie wrap; Attached & Unattached to the bracket.

Tie Wrap은 Sabin Chain 의 **브라켓을 기준으로 설치**함으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 **단선되는 경우를 방지**할 수 있다. Sabin Chain의 Tiewrap은 **브라켓부분과 근접해서 사용할 수 있는 사양**과 **브라켓에 결합해서 사용할 수 있는 사양**으로 구분되어 사용할 수 있다.



Min ● ● ● ● ● Max

## Sabin chain® nsb 075CR Clean Room Type



• nsb020CR, nsb022CR •

• nsb028CR, nsb035CR •

• nsb045CR, nsb060CR, nsb075CR •

### MATERIAL

#### Chain material:

CPS-amide UL94-HB

#### Low Noise:

TUV Test 30 dB (DIN EN61672-1)

#### Low Mote:

IPA Test VDI 2083 CLASS 1

DIN EN 14644-1 ISO CLASS 3

#### Speed :

15m/sec

#### Temperature :

-30°C ~ +130°C

#### Other installation Length:

Vertical curve above, Unsupported= max 6.0m

Vertical curve below, Unsupported= max 100m

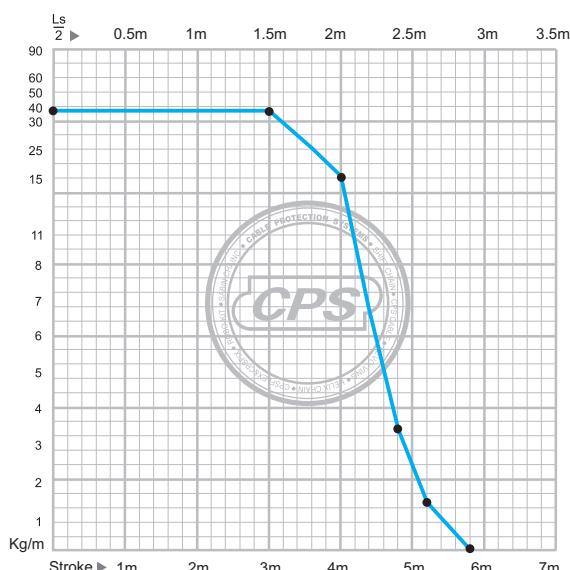
Side Mounted, Unsupported= max 3.0m

#### Applications

Applied to clean room for LCD/PDP and Semiconductor production Line requested Dust Regulation CLASS10, furthermore to Automation Machine Tool and Industrial Machinery needed high speed operation.

CLASS 10 이내의 분진규제가 적용되는 반도체라인, 저소음을 요구하는 사업장, 고속을 요구하는 자동화 공작기계 및 산업기 계등에 적용.

#### Load diagrams self-supporting length

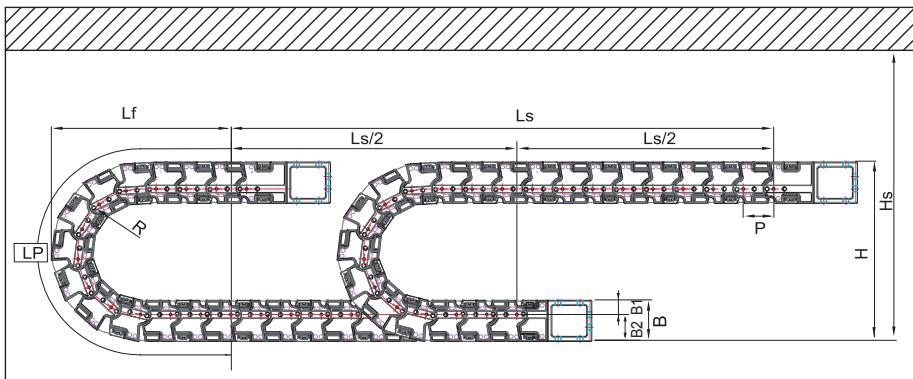


#### Calculation of the chain length

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

## Clean Room Type nsb 075CR

### LAYOUT OF THE CHAIN



(Dimensions in mm)

Bending radius R	180	200	250	300	350	400	500
Lp	1,147	1,210	1,367	1,524	1,681	1,838	2,152
Lf	515	535	585	635	685	735	835
H	504	544	644	744	844	944	1,144

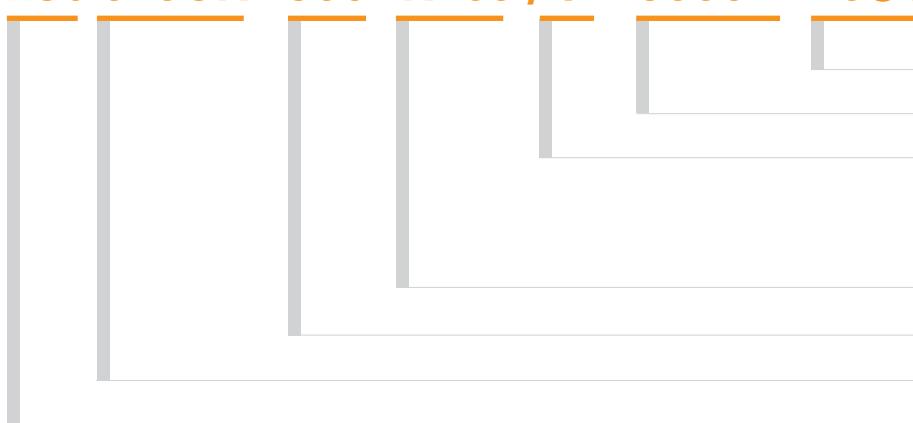
**Ls:** Stroke  
**Lp:** Loop Length  
**Lf:** Loop Projection  
**Hs:** Safe Space

### nsb 075CR Type

Pitch P: 75mm  
 Height B: 108mm  
 Height H: 2R+44mm  
 $Hs \geq H+40mm$   
 B1: 36mm B2: 72mm

### ORDERING (주문방법)

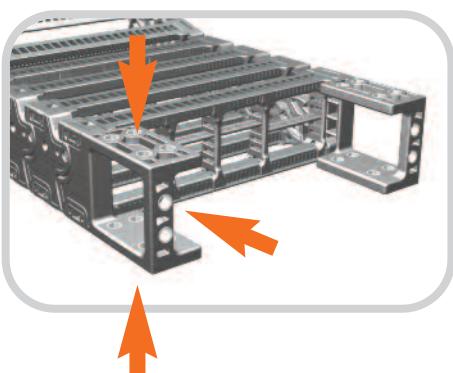
#### nsb 075CR. 300. R200 / F -3000L: 10ST



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

New Sabin Chain

### BRACKET TYPE (브라켓타입)



#### FEB (Free End Bracket)

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

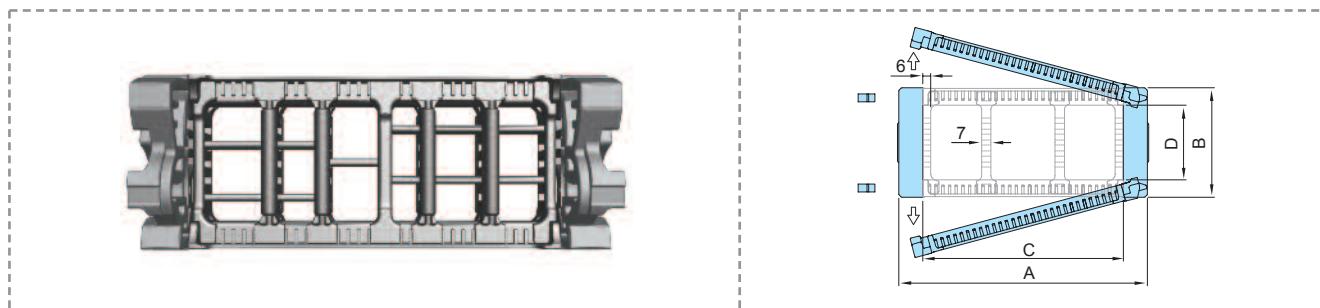
체인을 고정하는 끝부분으로 기존 Easy End Bracket과 Normal End Bracket을 하나로 통합한 방식으로 취부의 효율성을 높임.

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



## Clean Room Type nsb 075CR

### CHAIN CROSS SECTION

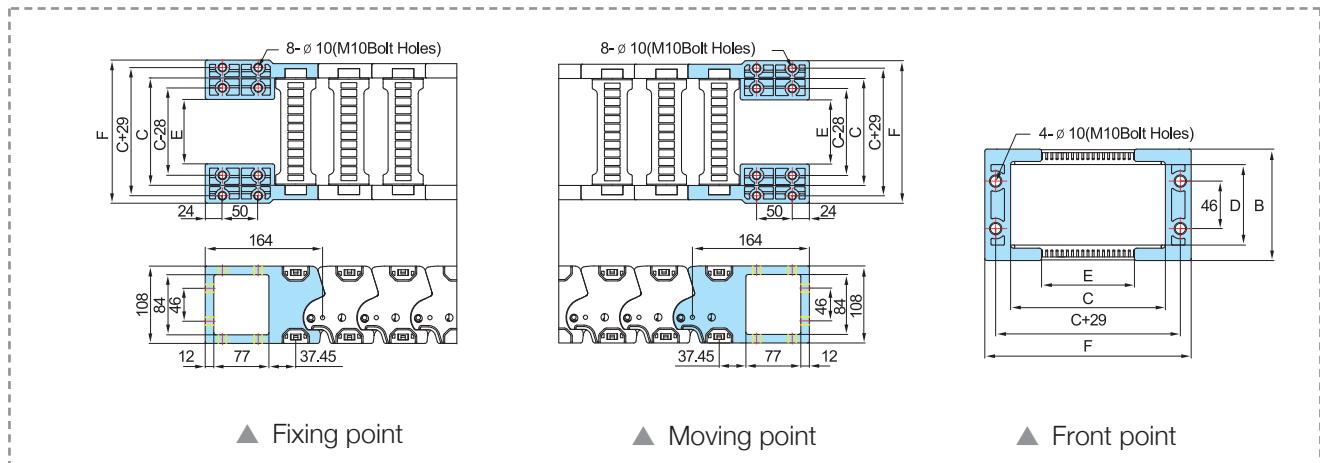


Chain Type	A	B	C	D	Bending Radius(R)	Weight in kg/m
nsb 075CR.075	115		75			5.37
nsb 075CR.100	140		100			5.57
nsb 075CR.125	165		125			5.82
nsb 075CR.150	190		150			6.01
nsb 075CR.175	215		175			6.26
nsb 075CR.200	240		200			6.68
nsb 075CR.250	290		250		180, 200, 250, 300	7.22
nsb 075CR.300	340		300		350, 400, 500	7.94
nsb 075CR.350	390		350			8.67
nsb 075CR.400	440		400			9.43
nsb 075CR.450	490		450			10.01
nsb 075CR.500	540		500			10.41
nsb 075CR.550	590		550			11.88
nsb 075CR.600	640		600			12.17

▲ 특수 프레임 적용 가능. (C:115,240,290)

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

### FREE END BRACKET



▲ Fixing point

▲ Moving point

▲ Front point

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

▲ 특수 프레임 적용 가능. (C:115,240,290)

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

2014 NEW PRODUCT

**Unity Systems®**PREPARE  
(준비중)

Clean Room Type nsb 075CR

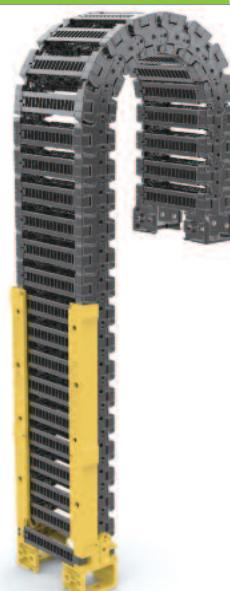
This type of bracket is to protect deflection of chain which will support the weight of certain section start from bracket, also will protect the damage of chain.

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

▼ Horizon Type 수평형



▼ Vertical Type 수직형



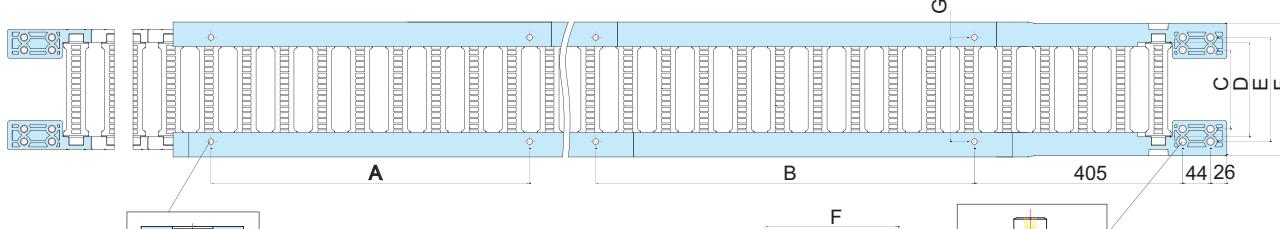
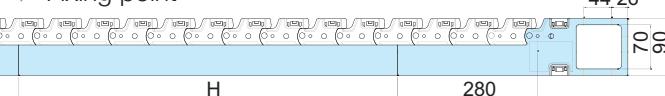
### GUIDE CHANNEL TYPE END BRACKET

(Dimensions in mm)

▼ Moving point (FEB동일)



▼ Fixing point



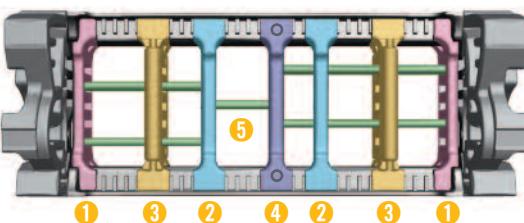
► Front point

Chain Type	C FEB fix hole(inner)	D Frame length dimension	E FEB width	F FEB width	G GC hole width	GC TYPE	H GC length	B GC fixing hole	A GC hole dimension
nsb 075CR.075	47	75	104	139	90	GC600	600	601	505
nsb 075CR.100	72	100	129	164	115				
nsb 075CR.125	97	125	154	189	140				
nsb 075CR.150	122	150	179	214	165				
nsb 075CR.175	147	175	204	239	190				
nsb 075CR.200	172	200	229	264	215				
nsb 075CR.250	222	250	279	314	265				
nsb 075CR.300	272	300	329	364	315				
nsb 075CR.350	322	350	379	414	365				
nsb 075CR.400	372	400	429	464	415				
nsb 075CR.450	422	450	479	514	465	GC800	800	801	705
nsb 075CR.500	472	500	529	564	515				
nsb 075CR.550	522	550	579	614	565				
nsb 075CR.600	572	600	629	664	615				



## Clean Room Type nsb 075CR

### DIVIDERS

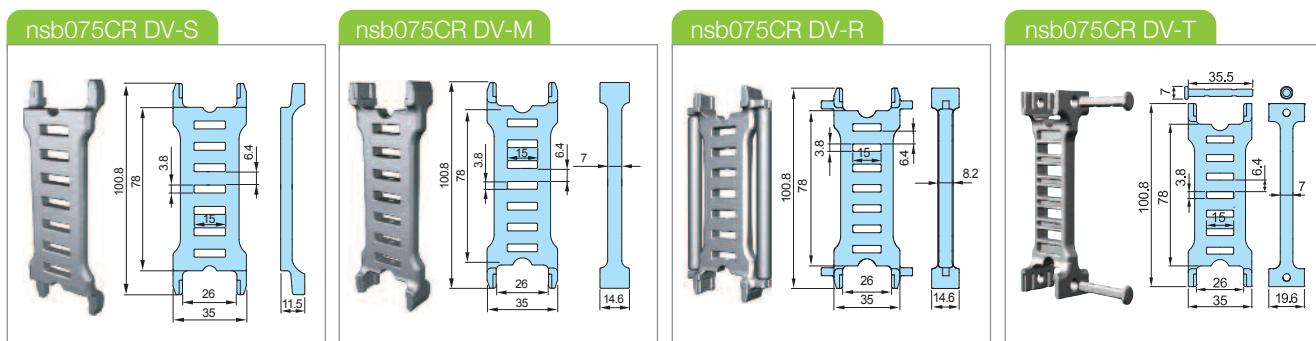


- ① DV-S (측면전용디바이더)
- ② DV-M (핀결합용디바이더)
- ③ DV-R (롤러결합용디바이더)
- ④ DV-T
- ⑤ Separator (SP)

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

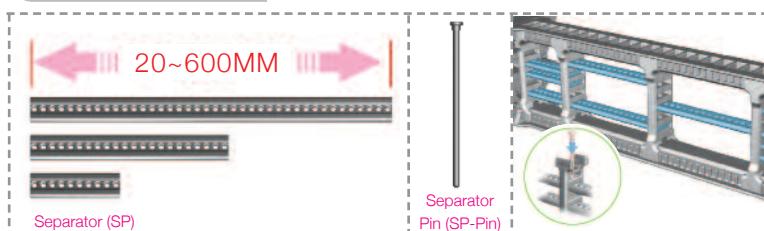
디바이더(세로분리대)와 세퍼레이터(가로분리대)는 체인내에 많은 케이블들이 입선될 시 케이블들을 서로 분리하여 케이블상호간의 마찰로 인한 **피복손상** 및 **단선을 방지하는 역할**을 하며 케이블과 10%이상의 여유공간을 확보해야합니다.

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



▶ Assemble divider every Four links. / 4링크마다 결합

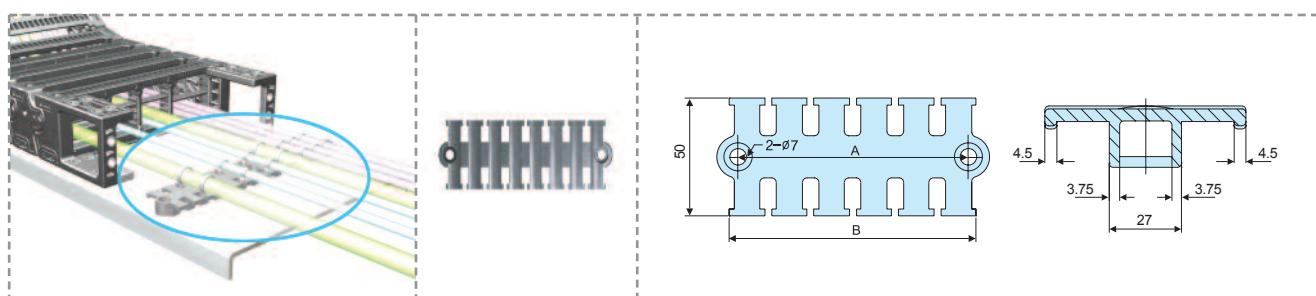
### SEPARATORS



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

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

### TIE WRAP



(Dimensions in mm)

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

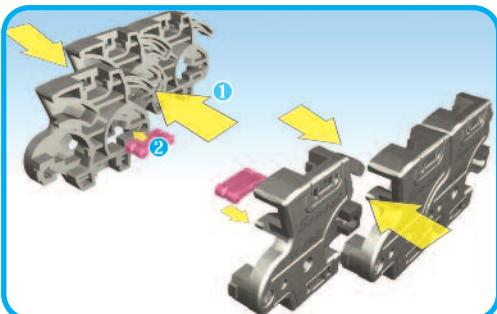
The Tie Wrap separated from the Sabin Chain bracket, when installed properly, protects the inserted cables from becoming entangled and twisted during operation. There are two types in the tie wrap; Attached & Unattached to the bracket.

Tie Wrap은 Sabin Chain 의 **브라켓을 기준으로 설치함**으로써 체인의 움직임으로 인해 체인내의 케이블이나 호스가 당겨져 **단선되는 경우를 방지**할 수 있다. Sabin Chain의 Tiewrap은 **브라켓부분과 근접해서 사용할 수 있는 사양**과 **브라켓에 결합해서 사용할 수 있는 사양**으로 구분되어 사용할 수 있다.

## ASSEMBLY PROCEDURE / CLEAN ROOM Type

The assembly process of CR-Type of New Sabin Chain is like below and you must use rubber hammer with careful combination of Divider and Separator.

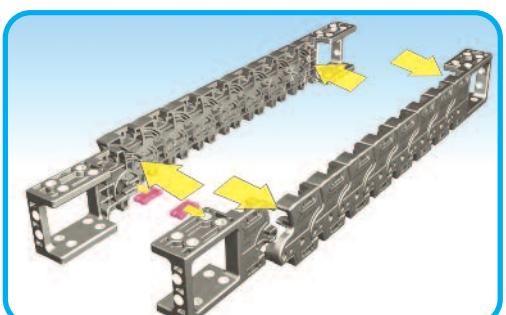
New Sabin Chain의 CR-Type의 조립순서는 아래와 같이 진행하며 케이블의 입선수량에 따라 디바이더와 세퍼레이터의 조합을 유의하면서 반드시 고무망치를 사용하여 조립합니다.



### 1.

Connect each side band as many as you need, then insert holding pin to connecting groove.

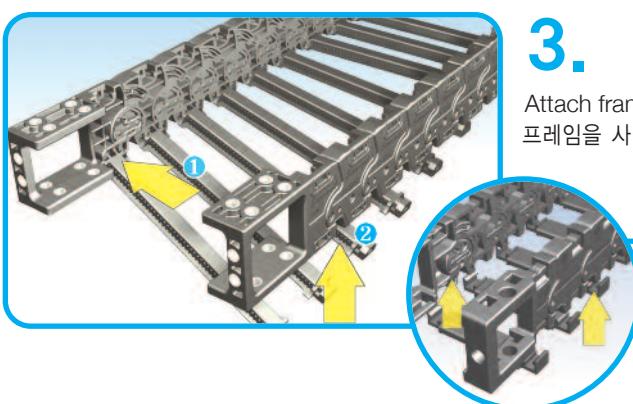
사이드밴드를 원하는 길이만큼 연결(1)하고 훌딩핀을 사이드밴드 연결홈에 끼워서 고정(2).



### 2.

Assemble the end brackets on both ends with holding pin.

사이드밴드 양쪽 끝부분에 브라켓을 연결하고 훌딩핀으로 결합하여 고정.

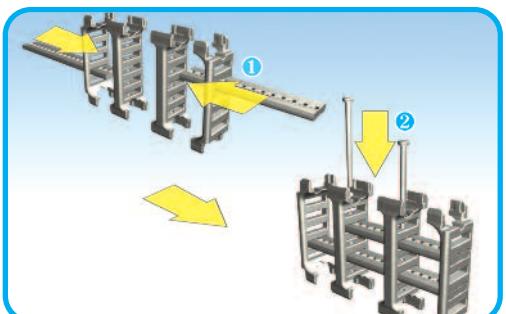


### 3.

Attach frames to one side groove on the frames, then the other side.

프레임을 사이드밴드 측면 홈에 끼우고(1) 다른측면의 사이드밴드홈에 결합(2).

- For nsb020CR and nsb022CR, they are not Hinge Type for method to connect frames, but Hook Type on both sides.  
nsb020, 022CR의 경우 프레임고정방식이 Hinge Type이 아닌 양측 Hook 고정방식.



### 4.

For nsb045, 060 and 075, connect the pin of separator in hole of divider after inserting separator in hole of divider.

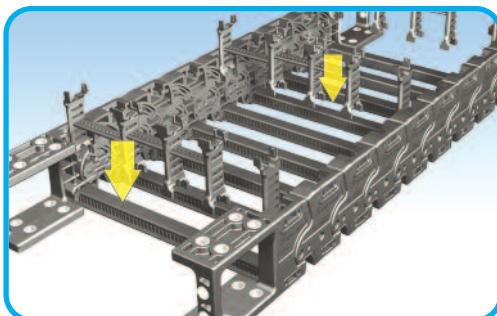
For nsb028 and nsb035, separator fixing pins are not used.

For nsb020 and nsb022, separators are not used.

디바이더를 종류별로 구분하여 미리 절단된 세퍼레이터를 디바이더 홈에 결합시킨 후 세퍼레이터 고정핀을 디바이더 홈에 결합 (nsb045, 060, 075). 028, 035 Type은 세퍼레이터 고정핀 사용안함. 020, 022 Type은 세퍼레이터 사용안함.

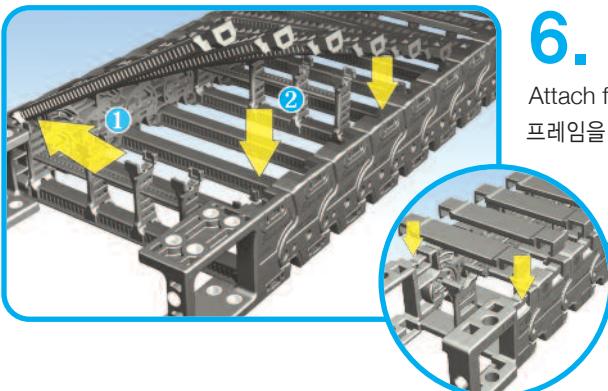


## ASSEMBLY PROCEDURE / CLEAN ROOM Type



5.

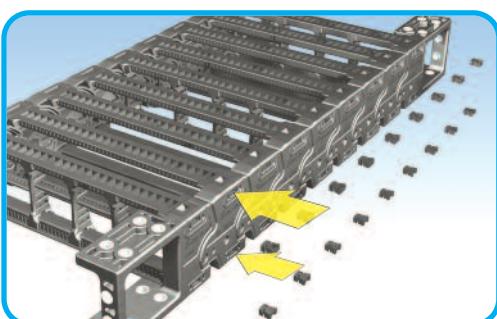
Fix the separator and divider patterns to the bottom-side frames as needed.  
세퍼레이터가 결합된 디바이더를 하측프레임에 결합.



6.

Attach frames to one side groove on the frames, then the other side.  
프레임을 사이드밴드 측면 흄에 끼우고(1) 다른측면의 사이드밴드흄에 결합(2).

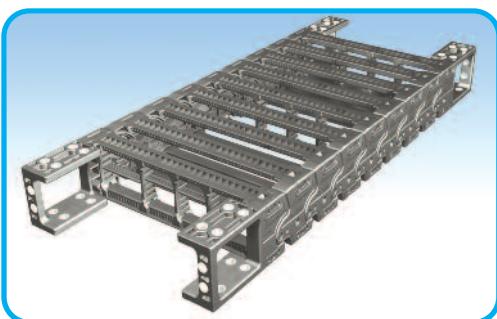
For nsb020CR and nsb022CR, they are not Hinge Type for method to connect frames, but Hook Type on both sides.  
nsb020, 022CR의 경우 프레임 결합방식이 Hinge Type이 아닌 양측 Hook 결합 방식.



7.

Insert frame pins to secure the frames and complete carrier.  
(nsb045, 060, 075 are applied with frame pin, and nsb028, 035 are Hinge Type or Hook Type without frame pin.)

결합된 프레임과 사이드밴드의 측면의 흄에 프레임 고정핀으로 결합.  
(프레임 고정핀은 nsb045, 060, 075 Type에 적용되며 028, 035 Type의 경우 동일한 Hinge Type이나 프레임 고정핀없이 Hook 고정방식)



8.

Complete to assemble New Sabin CR-Type, Sabin Chain.  
New Sabin Chain CR-Type 조립완료.