



ALWAYS MOVING

A full range of machine protection systems to meet your needs.



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SUN YUAN
TECHNOLOGY INC.



Established in 1989, the company was renamed as SUN YUAN Technology Inc. in 1998. With over 20 years in design and manufacturing experience of machine covers, we have been dedicated to the design and manufacture of a wide range of machine protection systems. At SUN YUAN, we have an outstanding R&D and design team, enabling us to conduct research, design and planning for specific products. SUN YUAN's products' quality is rigorously controlled and fully satisfactory to all customers, both domestic and overseas.

We will constantly develop new covers with specific functions and types to meet customers' requirements. Through years of efforts in constant innovation, we have owned many patents in Taiwan, Europe, USA and Japan, etc.

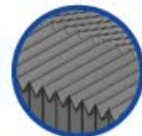
During the product development stage, we also enhance environmental protection concepts; therefore, we use environment-friendly materials requested by advanced countries. The use of high cost environment-protected materials prevents materials from causing pollution. SUN YUAN products are many manufactured by using the most advanced processes, and feature outstanding resistance to dusts, coolant and oil as well. In addition, SUN YUAN is capable of developing high speed, low noise and higher protection function covers to meet specific applications.

SUN YUAN protection systems are extensively applied for various industries, including machine manufacture, automotive manufacture, mining, construction, road working equipment, agriculture, food processing, printing, packaging and leisure equipment. We also offer specialized covers for protecting manufacturing applications in chemical, medical, optical and printed circuit board equipment.

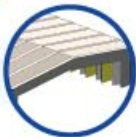
"Always Moving" is our commitment to customers. When you select SUN YUAN protection systems, you will get perfect protection for your precious equipment.

PRODUCTS LINEUP:

● Bellow covers



● Finned bellow covers



● Roller bellow covers



● Round bellow covers



● Apron covers



● Slideway wipers



● Machine brushes



FUTURE VISION:

CONSTANT PROGRESS:

Dedicated to new product development and constant innovation to keep pace with international technology.

FEEDBACK TO SOCIETY:

Cultivate talents. Promote education. Keep growing with society.

STEP FORWARD TO WORLDWIDE MARKETS:

Promote to overseas markets. Serve worldwide markets. Create a win-win situation.

COMPANY HISOTRY:

- 1989, Company was established
- 1998, Company was renamed Sun Yuan Technology Inc.
- 1999, Company moved to Daguan factory, Panchiao City
- 2004, Facility was enlarged and moved to Asian factory, Tu Cheng City, Taipei County
- 2005, Taichung branch company was set up
- 2006, Introduced rationalized production system
- 2007, Facility was enlarged and moved to Tu Cheng Industrial Park, Tu Cheng City, Taipei County
- 2009, Introduced ERP and set up Taichung R&D center



Taichung R&D center

GC :

The bellow covers include GC (bellow type covers), WGC (circular type covers) and FGC (finned bellow covers). The GC bellow type covers are designed with regular and irregular surface construction, which are primarily applied for protecting important precision transmission parts with less shavings and chips generation. Typical applications include linear guide ways or box ways. It may prevent guide ways from damaging by external force or pollution, and help to reduce drag force of parts movement. Other benefits are increasing machine life and reducing the possibility of machine down. The GC covers are manufactured from the highest quality PUR material. To adapt to various working environment conditions, we can offer various cover materials to choose from.

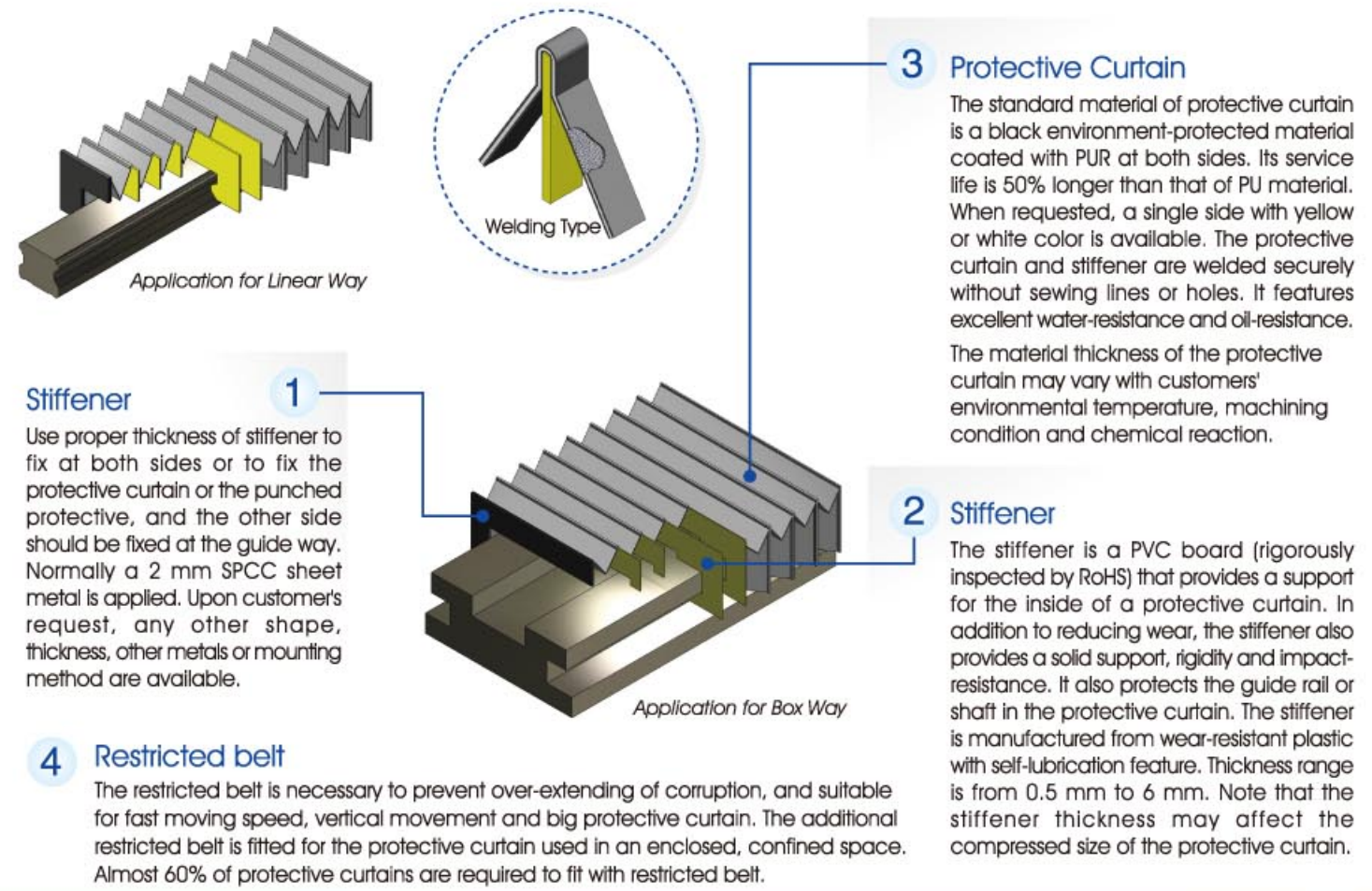
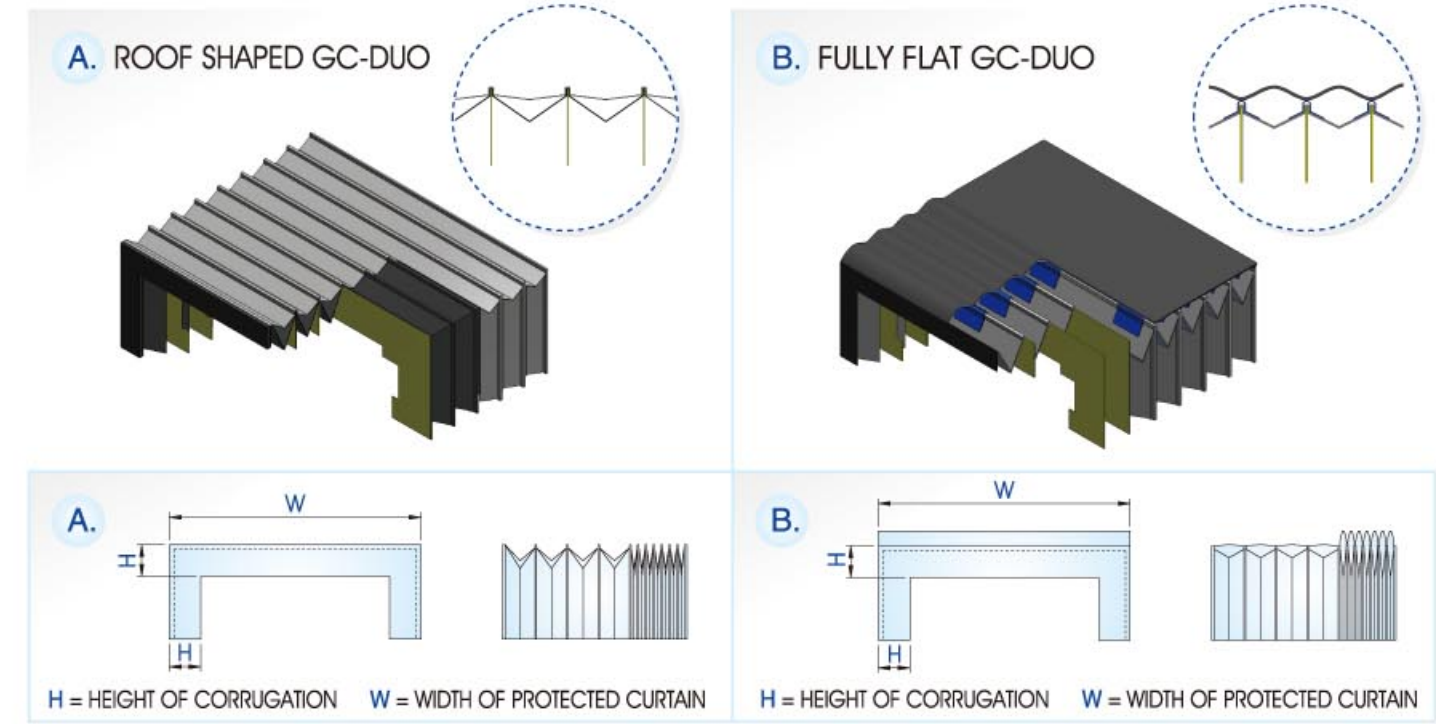
- The standard cover material is fabric weaving belt coated with PUR (polyurethane). In addition, Kevlar, Nomex and Neoprene are available to select from. The PUR environment-protected material integrates features of superior dust resistance, coolant resistance and oil resistance, excellent elasticity, chemical resistance and no dust generation. The series of cover is ideal for various applications, such as its high-temperature resistance capability makes it suitable for use on a laser cutting machine and welding machine. Also, the PUR is suitable for fiber-glass and Teflon coating.
- The standard PUR thickness on the cover has various thicknesses to choose from, including 0.21 mm, 0.26 mm, 0.34 mm, 0.65 mm, 0.8 mm. The standard PPB thickness is 0.65 mm.
- Each corrugation of cover is supported by a non-poisonous (RoHS) PVC stiffener that provides high dimensional stability when moving with guide ways. Various corrugation heights are available to suit different mounting conditions. The stiffener is a PVC material welded to cover, featuring no sewing lines/holes, beautiful appearance, high protection performance and long service life.
- Various shapes, dimensions, mounting methods, moving speeds and use conditions can be specified to meet specific requirements.
- Custom products. Easy to install.



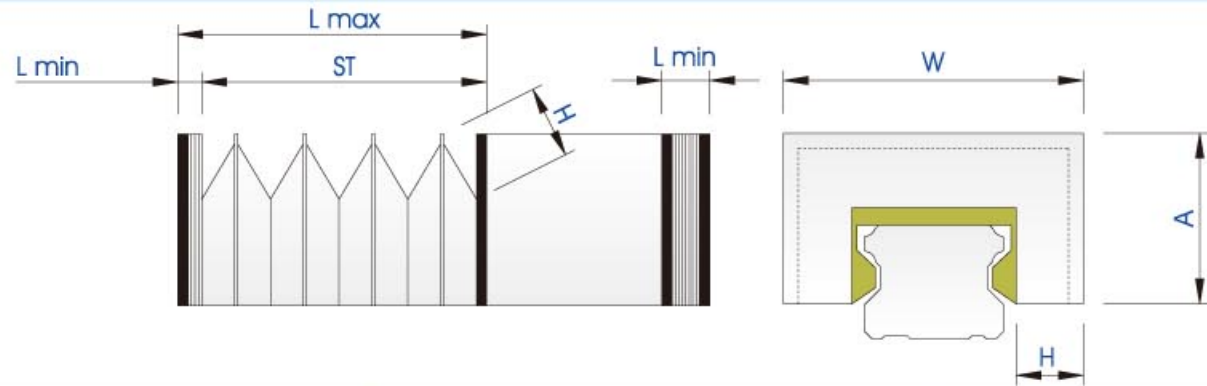
Modular system

GC-DUO (DOUBLE-LAYER PROTECTION)

The GC-DUO type cover is a high-efficiency protection device, designed with two-layer protective curtains. It is applicable for non-metal machining. The outstanding features of the GC-DUO series are micro-dust resistant, high strength, high loading capacity and high water exhaust.

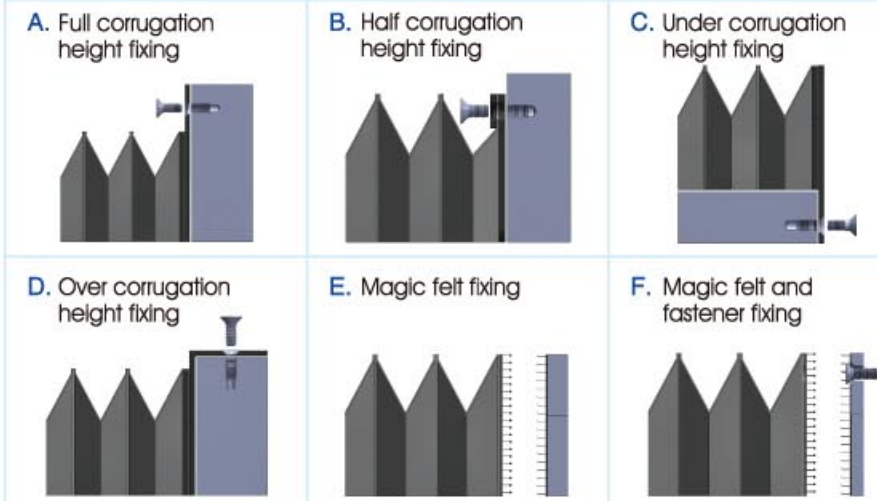


Dimensions

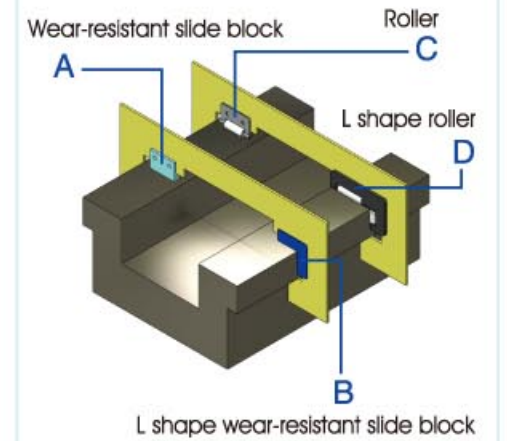


L max = MAX. EXTENDING LENGTH ST = MAX. STROKE - MIN. STROKE = WORKING STROKE W = WIDTH OF PROTECTIVE CURTAIN
 L min = MIN. COMPRESSION LENGTH H = HEIGHT OF CORRUGATION A = EXTERNAL HEIGHT

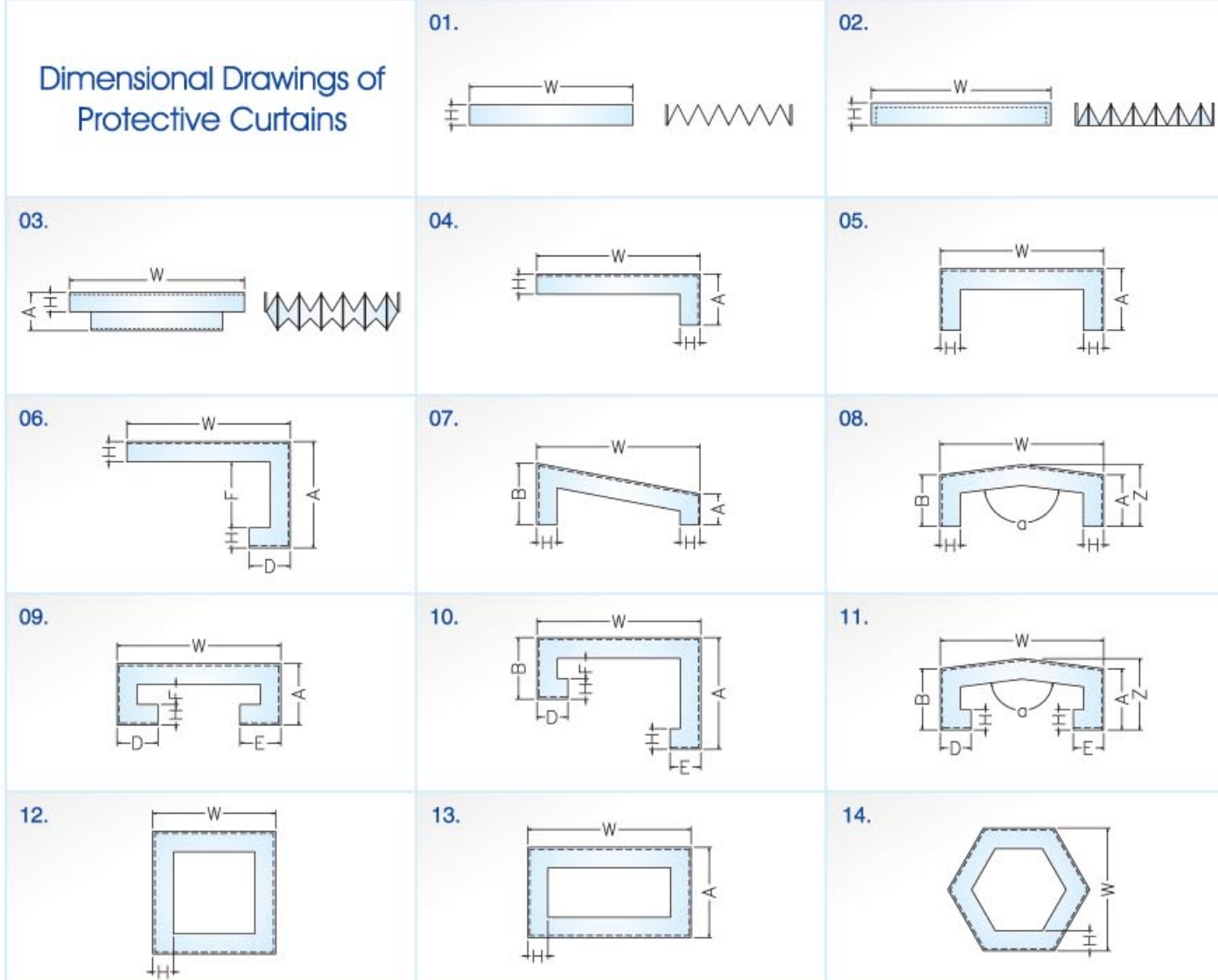
Fixing Types



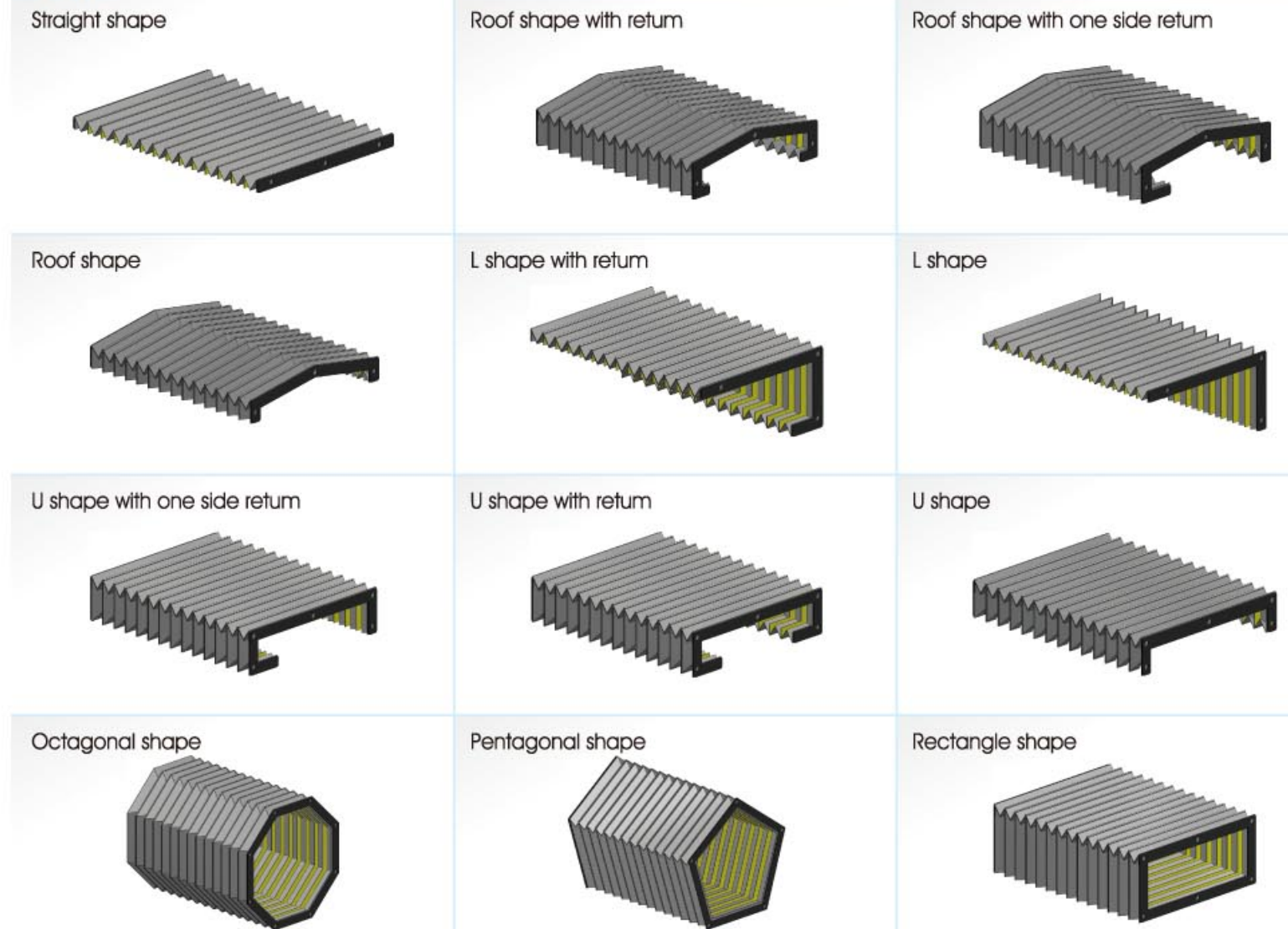
Slide Block Types



Dimensional Drawings of Protective Curtains



Product Shapes



WGC :

The WGC round bellows are primarily used for protecting lead screws, precision shafts, moving air cylinders, various round shafts and irregular-shape parts. Its outstanding features include resistance to water, oil, temperature and chemicals. This series of bellows, exhibits superior protection functions and is available to equip with a center ring that prevents friction between the bellow and the shaft. Various mounting types are offered to select from. Any other requirements can be made according to drawings. Various shapes can be made, such as square, elliptical and other shapes.

- Minimum inside diameter is 10 mm. Outside diameter and length can be made to meet customer's requirements.
- Standard material thickness includes 0.3 mm, 0.5 mm and 0.8 mm. Other material thicknesses are also available.
- Welding forming features high tensile strength, long service life and without expansion or deflection problem incase of over expanding.
- Available to equip with a center ring that prevents friction between the bellow and shaft. Also, additional venting hole is available upon request.
- Standard material provides PUR and Neoprene to choose from.



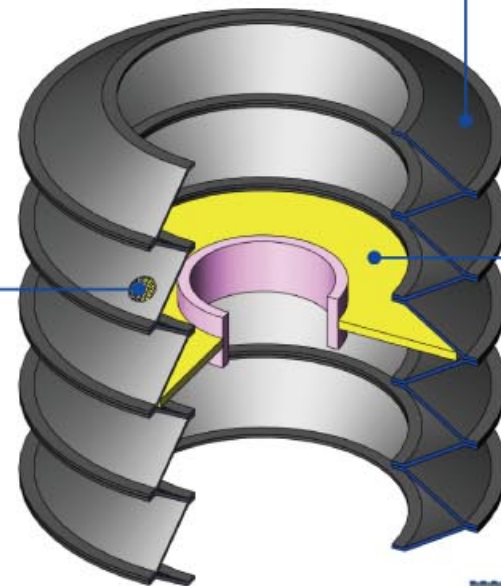
Patented

Sectional Drawing and Illustration of Product

Venting Hole

To avoid vacuum phenomenon in the bellow and in a space, a venting hole may be added. With this venting hole, the expansion or deflection problem can be minimized.

3



1 Protective Material

The standard material is PUR, featuring outstanding resistance to oil, temperature and chemicals.

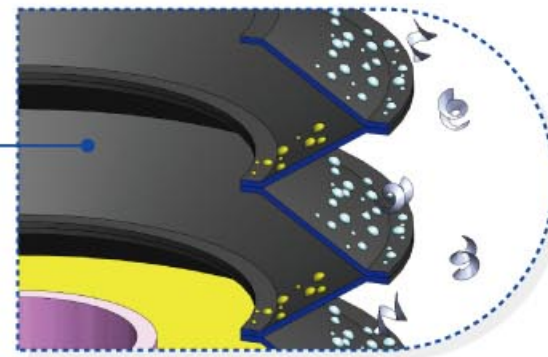
2 Center Ring

The center ring is manufactured from non-poisonous (RoHS) PVC material. The shape and size of the center ring can be made according to customer's requirements.

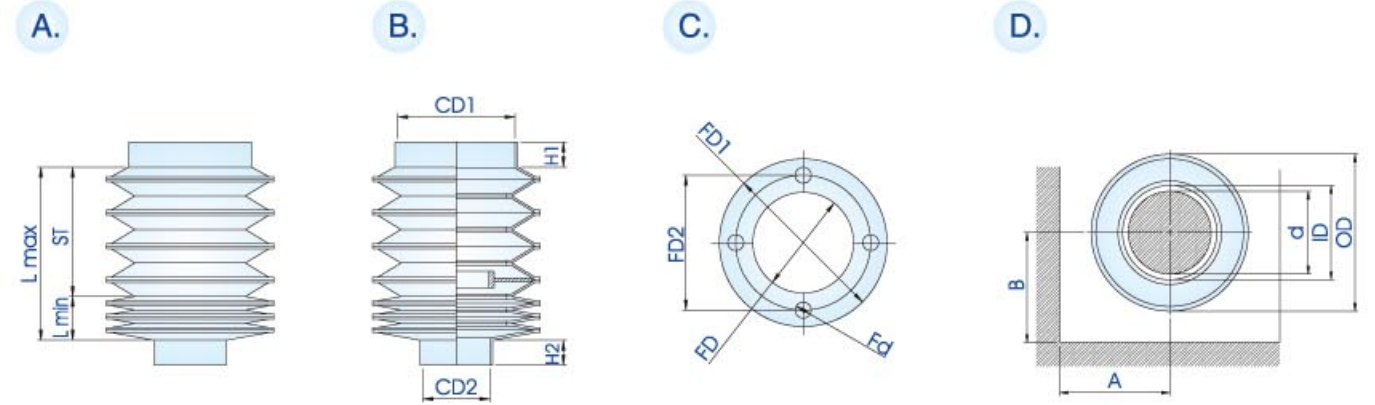
Protective Curtain 4

Forming by Welding

The forming method of the WGC round bellows are different than that of conventional bellows by continuous forming. Its strength and service life are over 5 times higher than conventional bellows on the market. In Addition, the WGC round bellows provide outstanding oil resistance, water resistance and shavings resistance.



Dimensions



L_{max} = MAX. EXTENDING LENGTH
L_{min} = MIN. COMPRESSION LENGTH
ST = MAX. EXTENDING COMPRESSION LENGTH - MIN. COMPRESSION LENGTH = TOTAL WORKING STROKE

CD1 = 1st CLAMPING RING OUTSIDE DIA.
CD2 = 2nd CLAMPING RING OUTSIDE DIA.
H1 = WIDTH OF 1st CLAMPING RING
H2 = WIDTH OF 2nd CLAMPING RING

FD = FLANGE INSIDE DIA.
FD1 = FLANGE OUTSIDE DIA.
FD2 = DISTANCE BETWEEN MOUNTING HOLES
Fd = MOUNTING HOLE DIA.

A = DISTANCE BETWEEN SHAFT CENTER TO CONFINED SURFACE
B = DISTANCE BETWEEN SHAFT CENTER TO CONFINED SURFACE
OD = BELLOW OUTSIDE DIA.
ID = BELLOW INSIDE DIA.
d = SHAFT DIA.

Mounting Types



A Type

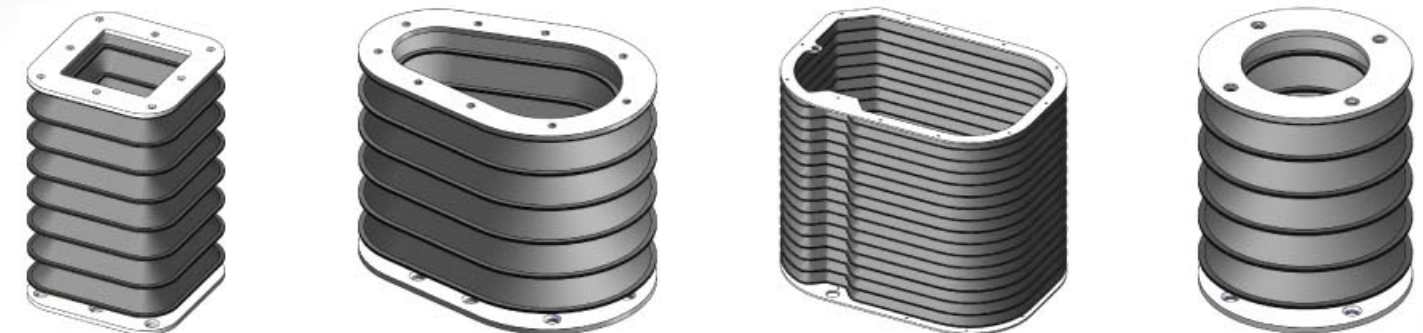
B Type

C Type

D Type

E Type

Product Shapes



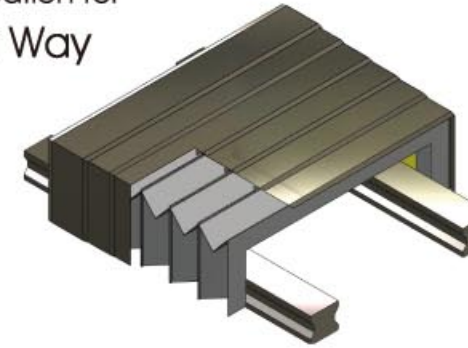


FGC :

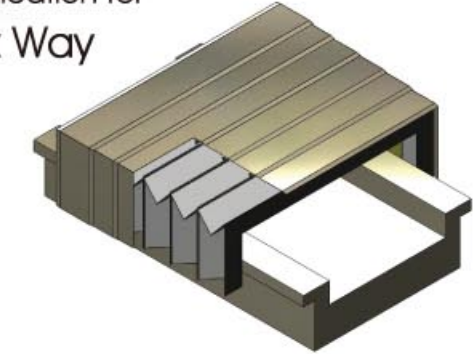
The finned below covers are suitable for large amounts of high-temperature shavings, extra large travel and insufficient space for mounting metal sheet guard. Applicable machines include horizontal machining centers, traveling column machining centers and various CNC machining centers. The corrugation top is equipped with stainless steel or aluminum alloy sheet for surface protection to prevent high temperature from damaging the cover while ensuring superior protection effect.

- Choice of protective metal sheet: stainless steel with thickness 0.3 mm and 0.4 mm (SUS301) and 0.6 mm (SUS304). Aluminum alloy with thickness 1 mm (6063).
- The protective curtain is manufactured from PUR environment-friendly material, featuring high durability, water-resistance, oil-resistance and dust-resistance.
- Allows for moving speed up to 120 m/min. (1G). Low noise and long life service life.
- Cover shapes, dimensions, mounting types, moving speeds can be made according to customer's requirements.
- Customized product. Easy to install. Modular system is available.
- Suitable for mounting on any axis and high-speed traveling of machine tools, such as lathes and milling machines, etc.

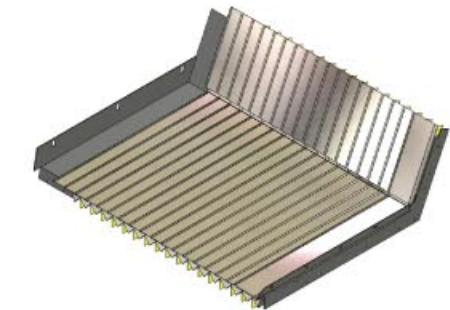
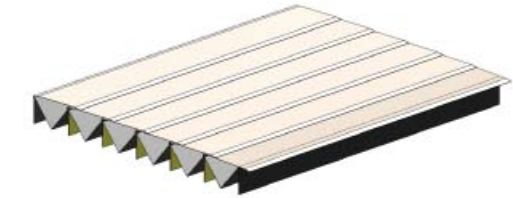
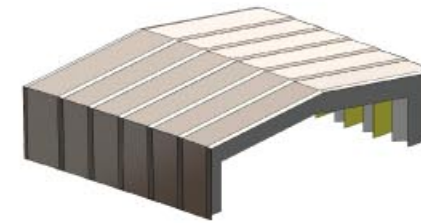
Application for
Liner Way



Application for
Box Way



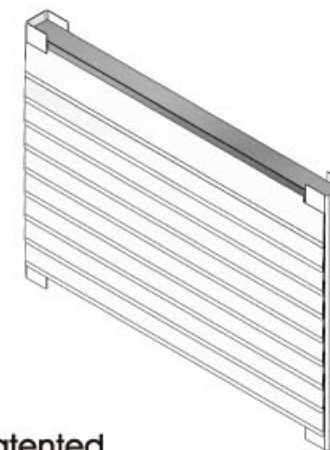
Product Shapes



Suitable for use on CNC machining centers, horizontal machining centers, traveling column machining centers, double-column machining centers, 5-axis machining centers, CNC lathes and CNC grinding machines, etc.

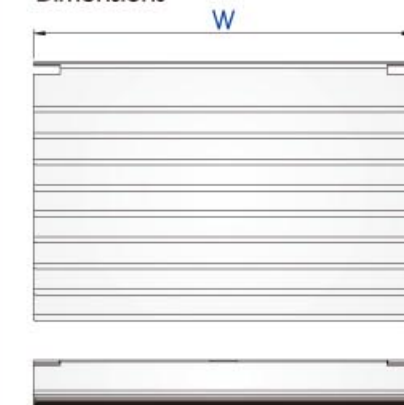
Light Weight Series

For some confined spaces for which it is difficult to install the FGC series, but high temperature shavings shall be protected, then the light weight covers are recommended.



Patented

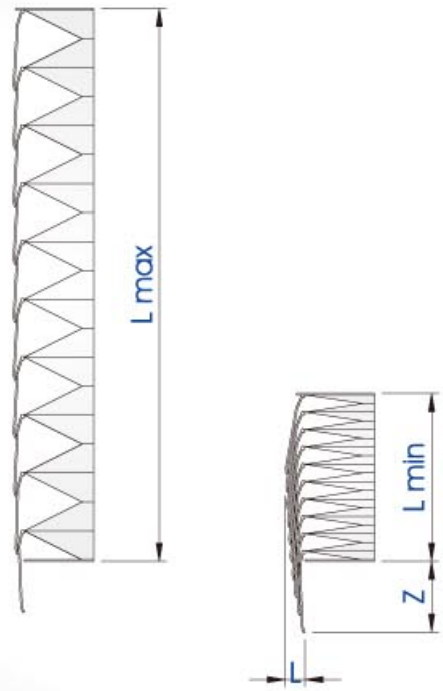
Dimensions



- L_{max} = MAX. EXTENDING LENGTH
- L_{min} = MIN. COMPRESSION LENGTH
- ST = MAX. EXTENDING LENGTH - MIN. COMPRESSION LENGTH = TOTAL WORKING STROKE
- Z = EXTENDING LENGTH OF PROTECTIVE SHEET METAL
- W = EXTERNAL WIDTH

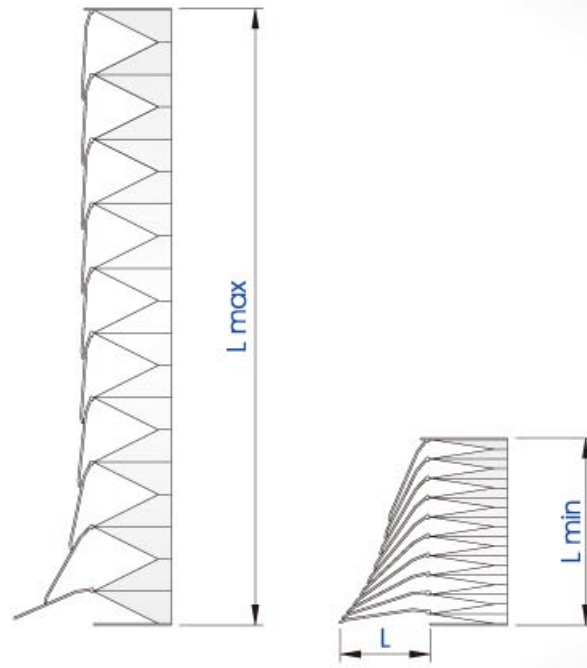


Dimensions of Non-lifting Types



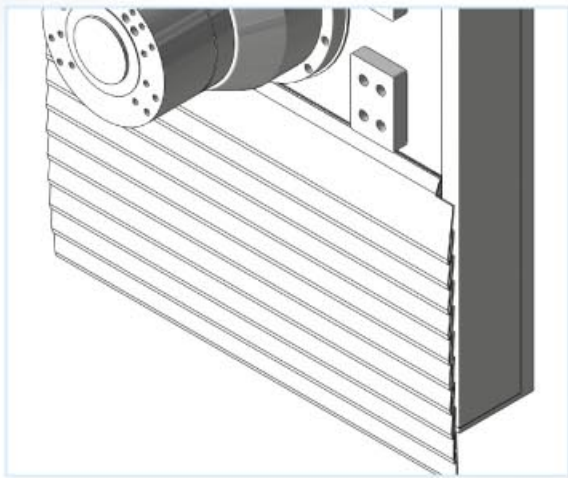
L_{max} = MAX. EXTENDING LENGTH
 L_{min} = MIN. COMPRESSION LENGTH
 ST = MAX. EXTENDING LENGTH - MIN. COMPRESSION LENGTH = TOTAL WORKING STROKE

Dimensions of Lifting Types



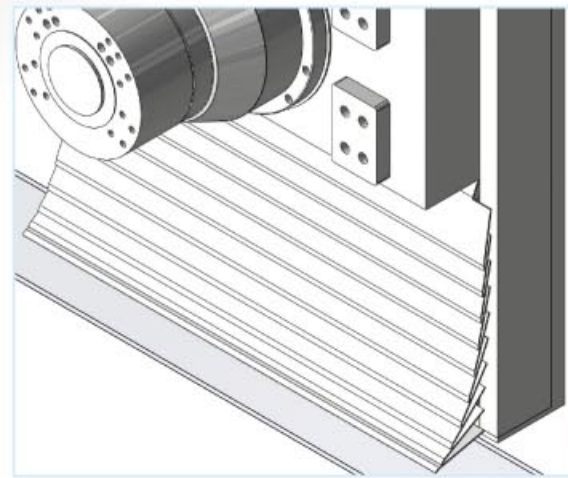
Z = EXTENDING SIZE OF PROTECTIVE SHEET METAL
 L = ACCUMULATED THICKNESS OF PROTECTIVE METAL SHEET
 A = HEIGHT OF PROTECTIVE CURTAIN
 H = HEIGHT OF CORRUGATION
 W = WIDTH OF PROTECTIVE CURTAIN

Illustrative Figure of Non-lifting Type



For a sufficient space, the non-lifting type is recommended. This type of bellow cover can be mounted vertically, horizontally or at an angular position.

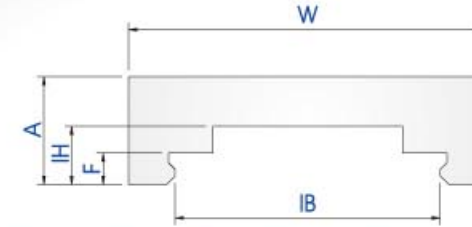
Illustrative Figure of Lifting Type



For a confined space, the lifting type is recommended. This type of bellow cover can be mounted vertically, horizontally or at an angular position <math>< 15^\circ</math>.

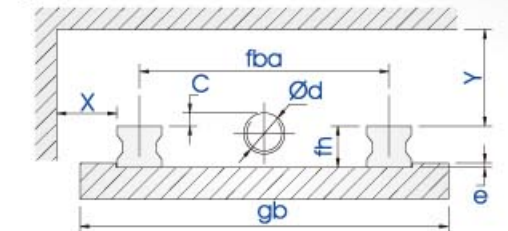
Application for Linear Way

Protective Curtain



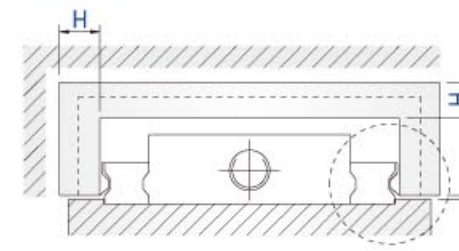
W = EXTERNAL WIDTH
 A = EXTERNAL HEIGHT
 IH = INTERNAL HEIGHT
 IB = INTERNAL WIDTH
 L_{max} = MAX. EXTENDING LENGTH
 L_{min} = MIN. COMPRESSION LENGTH
 ST = TOTAL WORKING STROKE

Mounting Space



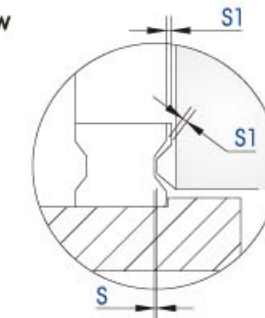
fba = DISTANCE BETWEEN LINEAR WAY CENTERS
 fh = HEIGHT OF LINEAR WAY
 C = DISTANCE BETWEEN SCREW TOP AND WAY SURFACE
 e = HEIGHT DIFFERENCE
 gb = WIDTH OF BASE
 X = MOUNTING SPACE
 Y = MOUNTING SPACE
 $\varnothing d$ = SCREW OUTSIDE DIA.

Linear Guide Way



H = HEIGHT OF LAYFLAT
 S = GAP

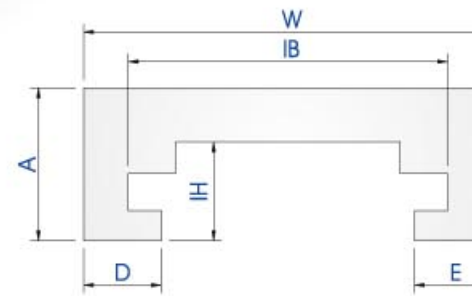
Enlarged View



S = GAP
 $S1$ = GAP

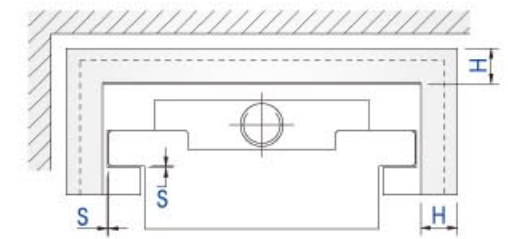
Application for Box Way

Protective Curtain



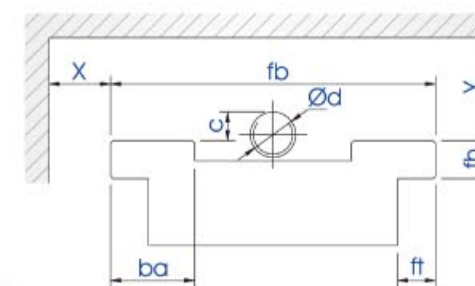
W = EXTERNAL WIDTH
 A = EXTERNAL HEIGHT
 IH = INTERNAL HEIGHT
 IB = INTERNAL WIDTH
 D = BASE FOOT WIDTH
 E = BASE FOOT WIDTH
 L_{max} = MAX. EXTENDING LENGTH
 L_{min} = MIN. COMPRESSION LENGTH
 ST = TOTAL WORKING STROKE

Mounting Space



H = HEIGHT OF CORRUGATION
 S = GAP

Box Way



fh = HEIGHT OF BOX WAY
 fb = WIDTH OF BOX WAY
 $\varnothing d$ = SCREW OUTSIDE DIA.
 X = MOUNTING SPACE
 Y = MOUNTING SPACE
 ba = WIDTH OF SLIDING FACE
 ft = WIDTH OF SLIDEWAY SUPPORT
 C = DISTANCE BETWEEN SCREW TOP AND WAY SURFACE

ROLLER COVERS

RE Series

The roller covers are normally applied for a confined space that is difficult to mount with a bellow type of finned bellow type cover. The series is also ideal for single surface protection. It provides various protective curtain materials to suit a wide variety of machine constructions and working environments. The RE series roller covers comes with or without metal sheet to suit various mounting conditions. The roller covers integrate many features, such as easy to install, small space occupation, beautiful appearance, low noise, dust resistance, water resistance, oil resistance, chips resistance and temperature resistance. Extending times may reach up to 1,000,000 times, and allows for rapid traverse up to 60 m/min. Various mounting types are available to choose from. It is applicable for slideway protection, machine tools, woodworking machines, special purpose machines, semi-conductor equipment and automation equipment. Cover shapes and sizes can be made according to customer's requirements.

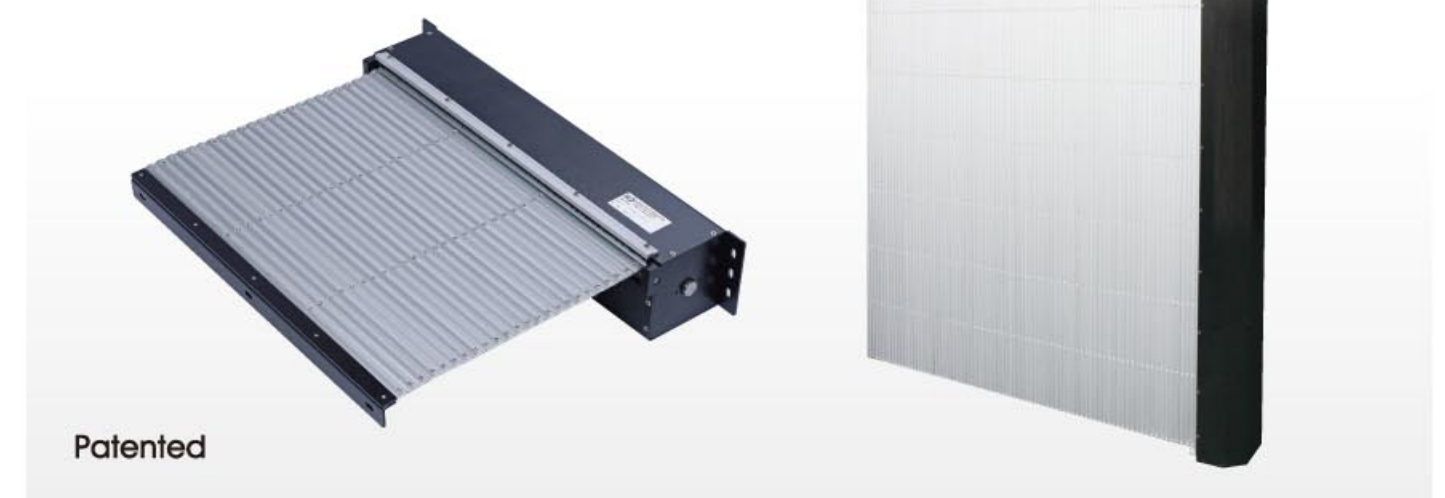
- The protective curtain is manufactured from PUR environment-protected material with single or double-layer coating. Material thickness is 0.65 mm and 0.8 mm.
- Low noise, dust-resistant, water-resistant and oil-resistant.
- Customized product. Easy to install.
- Modular system is also available.



ALUMINUM ALLOY APRON ROLLER COVERS

ARE Series

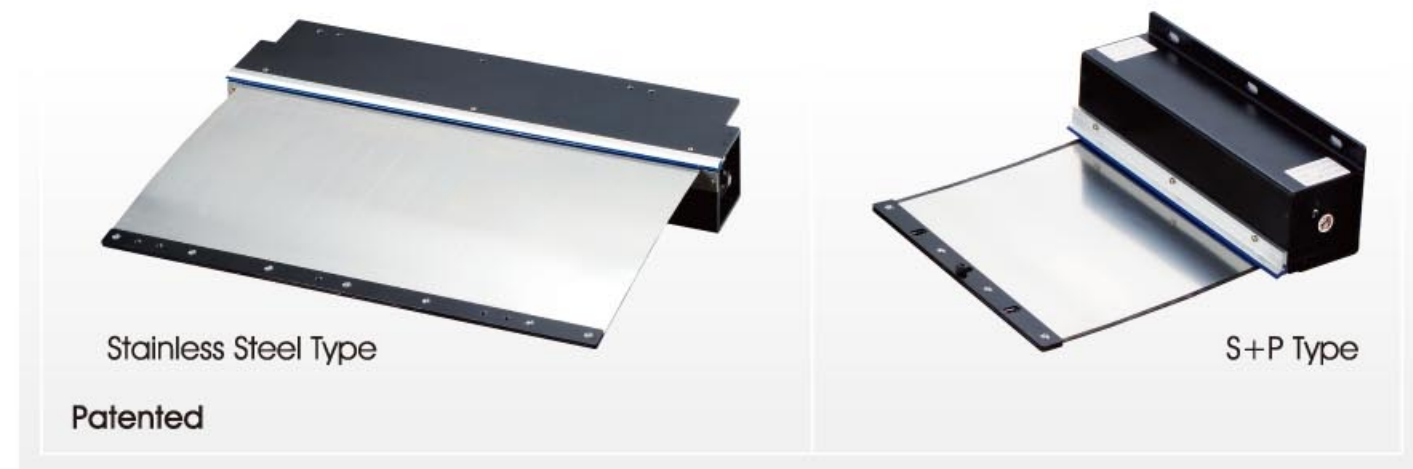
- The protective curtain is manufactured from aluminum alloy (6063)+double-layer of PUR protective curtain.
- Low noise, dust-resistant, water-resistant, oil-resistant and high-temperature-resistant, chips resistant.
- Customized product. Easy to install.
- Modular system is available.



STAINLESS STEEL ROLLER COVERS

SRE Series

- The protective curtain is manufactured from stainless steel (SUS301). Material thickness is 0.15 mm and (S+P) stainless steel 0.1 mm + PUR 0.34 mm.
- Low noise, dust-resistant, water-resistant, and oil-resistant.
- Customized product. Easy to install.
- Modular system is available.



TEFLON ROLLER COVERS

PRE Series

- The protective curtain is coated with Teflon® (NOTE 1) at both sides. Material thickness is 0.35 mm.
- Outstanding corrosion-resistance, self-lubrication and excellent atmosphere aging resistance.
- Low noise, dust-resistant, water-resistant, oil-resistant, temperature-resistant, anti-electrostatic, and chemical resistant.
- Customized product. Easy to install.
- Modular system is available.



NOTE 1: The Teflon® is a fluorine composite paint, which is registered by DuPont Inc.

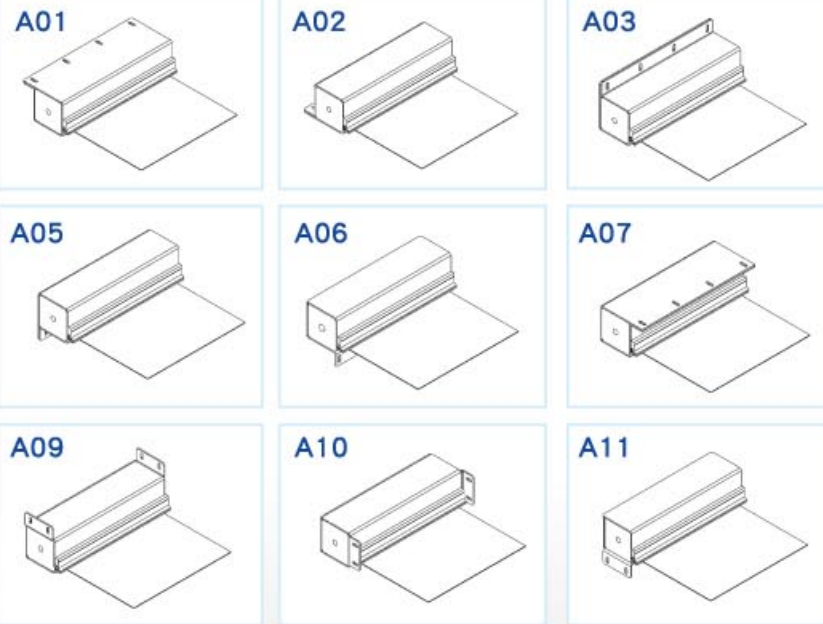
Without Sheet Metal



With Sheet Metal Frame

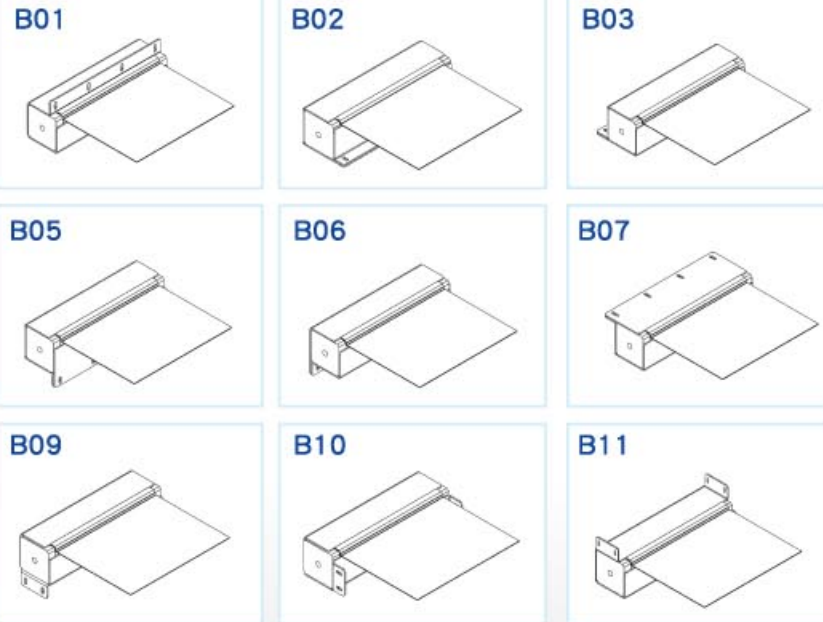
A Types

Protective curtain is located under sheet metal.



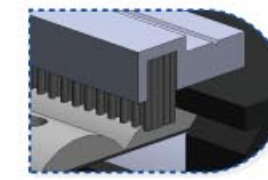
B Types

Protective curtain is located above sheet metal.

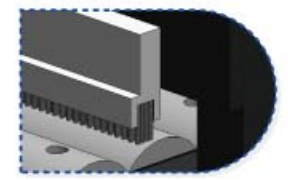


Brushes and Wiper Mounting Types

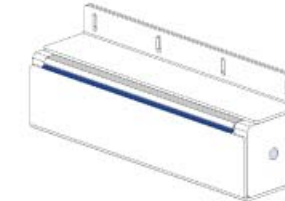
A Type-ARE



B Type-ARE

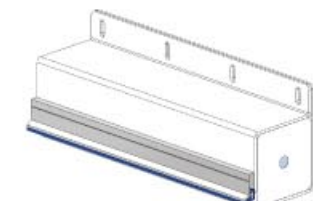


A Type-RE/SRE/PRE

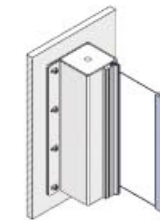


Contact face between wiper and protective curtain is at front side.

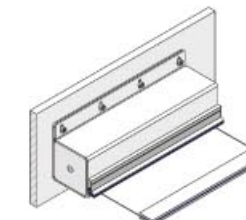
B Type-RE/SRE/PRE



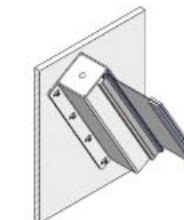
Mounting Positions



Vertical



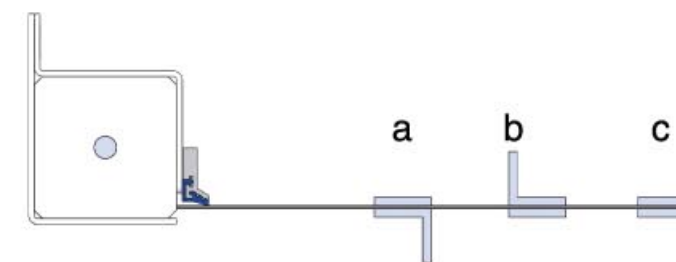
Horizontal



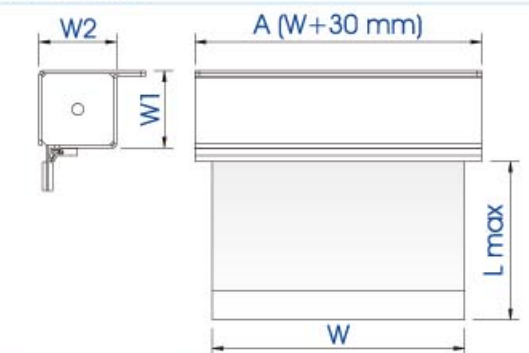
Tilting

The body can be fixed at the free end or the fixed end. Also, a roller shaft is available for different installation and application.

Types of Pulling Levers



Dimensions

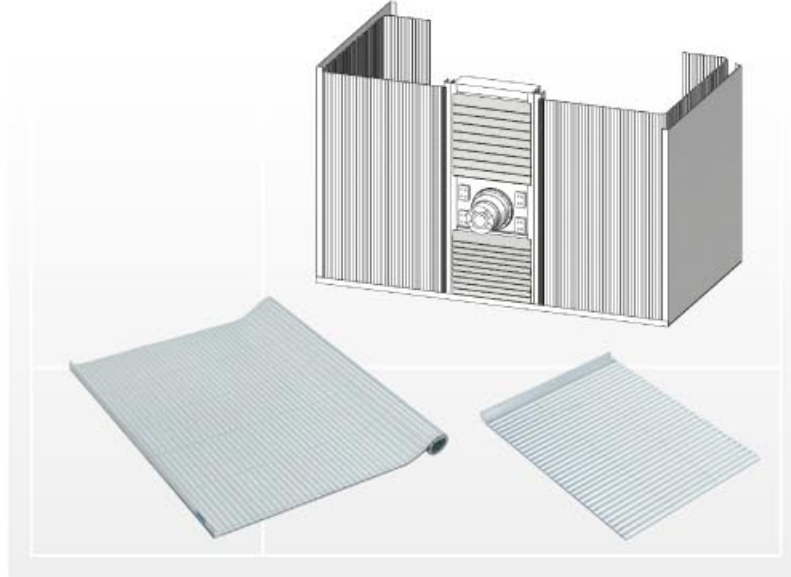


W1 = BODY SIZE
W2 = BODY SIZE
A = BODY WIDTH (W+30)
W = WIDTH OF PROTECTIVE CURTAIN
W = WIDTH OF PROTECTIVE CURTAIN

LAC :

The aluminum alloy apron covers are primarily used to protect mechanisms in a confined mounting space in which a sheet metal cover is difficult to install, or in a working area of insufficient minimal stroke with intensive pollution such as large amount of chips. This series of apron features light weight, high rigidity and allows for rapid traverse. It can be used together with rollers to achieve a modular system.

- A three-layer construction design including aluminum alloy, PUR protective curtain and aluminum alloy. Features integrated are oil resistance, water resistance, dust resistance and chemical resistance.
- The aluminum is anodic oxidation treated to avoid damage by coolant and hot shavings and chips.
- Mounting types provide sheet metal and "L" shaped aluminum to choose from.
- High strength ensures no breakage or deformation even with long strokes or heavy loads.
- Available to equip with the guide roller or the guide block with easy installation.
- Maximum width is 3,000 mm. Length is not limited. Minimum curvature radius is 20 mm.

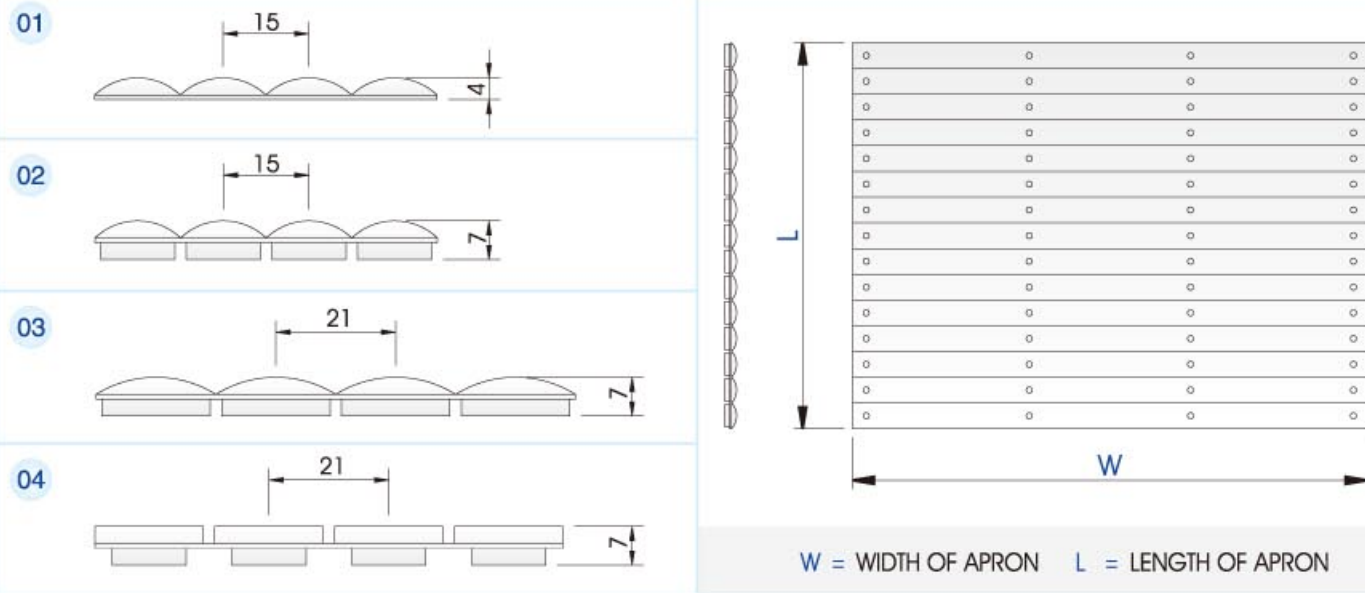


AA:

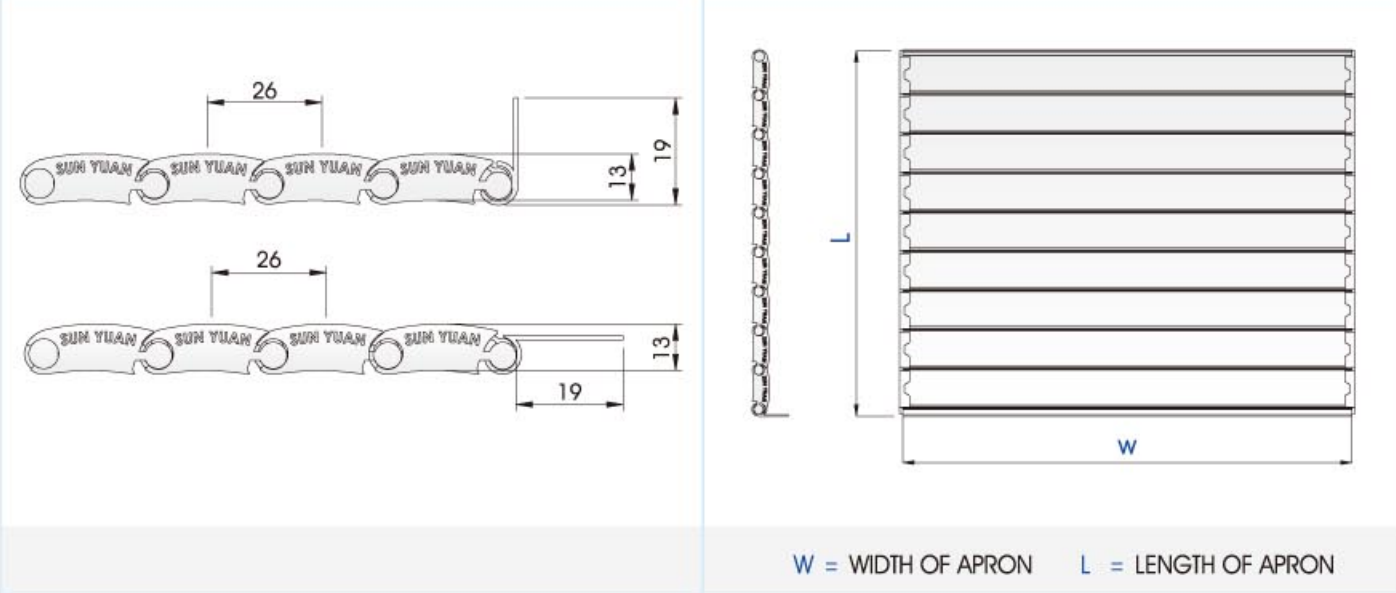
- Consisting of hollow aluminum pieces, the apron cover avoids damage caused by large amount of chips.
- The aluminum is anode treated to avoid damage by coolant.
- High strength ensures no breakage or deformation even with long strokes or heavy loads.
- Available to equip with the guide roller or the guide block with easy installation.
- Maximum width is 3,000 mm. Length is not limited. Minimum curvature radius is 20 mm.



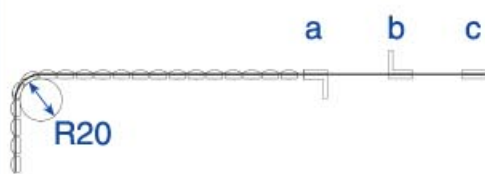
Three-layer Combination



Dimensions



Mounting Types of Pulling Lever



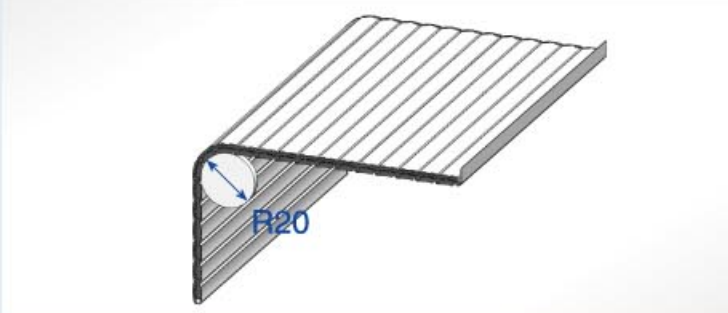
Other pulling levers are available.

Various Use Conditions

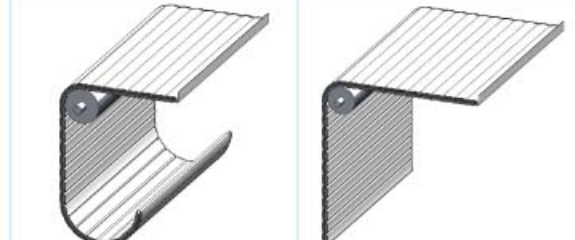


a Fixed at free end b Free falling deflection c Rolling type

Curvature Radius



Mounting Types



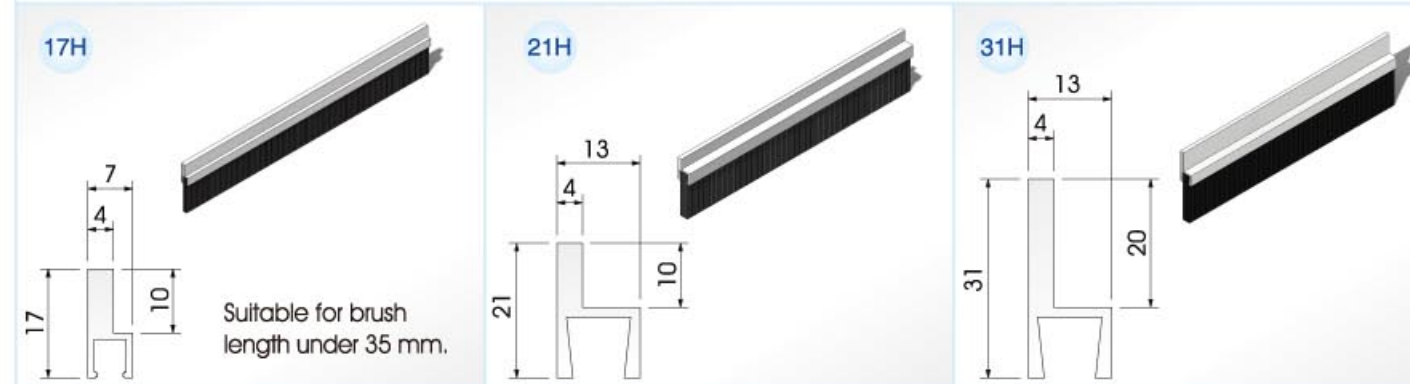
a Fixed at free end b Free falling deflection

AH :

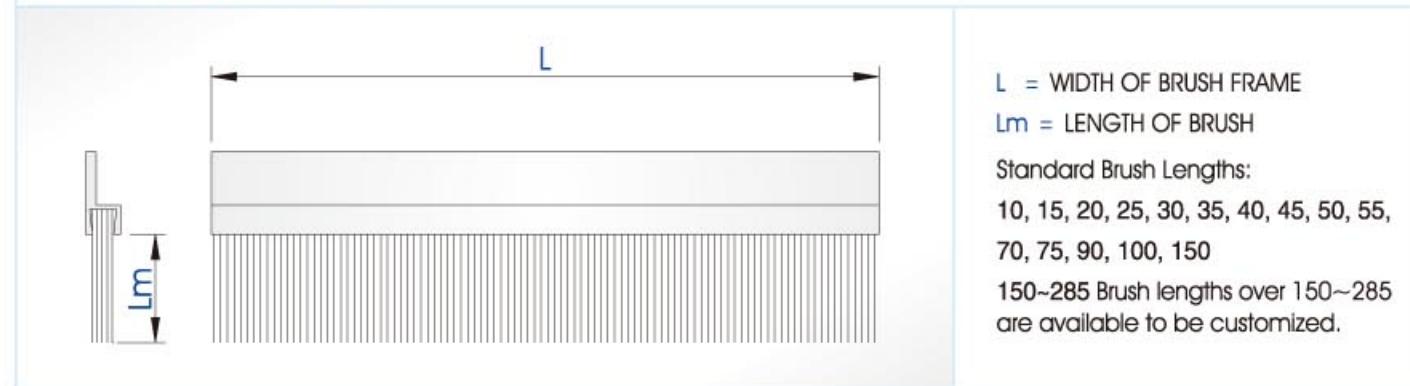
- Brush material is Nylon 66 or Nylon 612 (anti-static electricity)
- The fixed aluminum bracket is available to use 17, 21 or 31 height of aluminum frame.
- High density brushes provide high efficiency dust-and-chip removing performance.



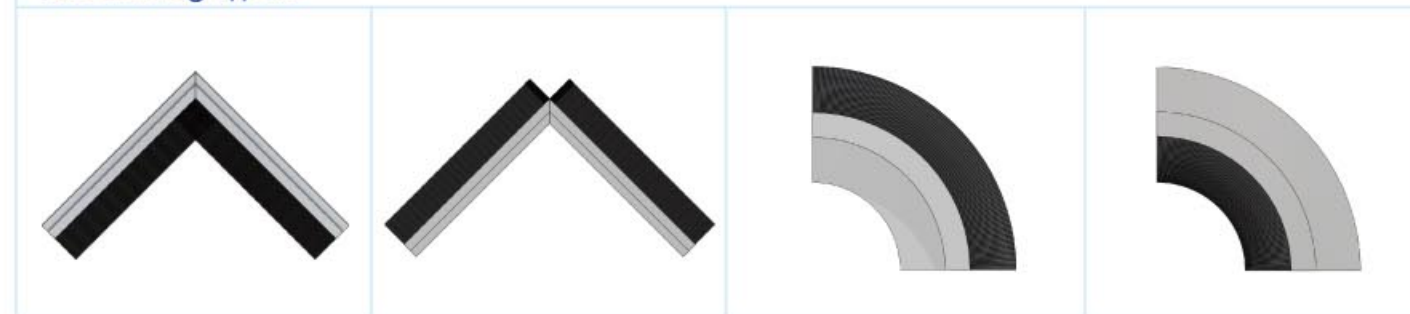
Aluminum Frame Assembly and Sizes



Customized Brush Sizes



Assembling Types



SY:

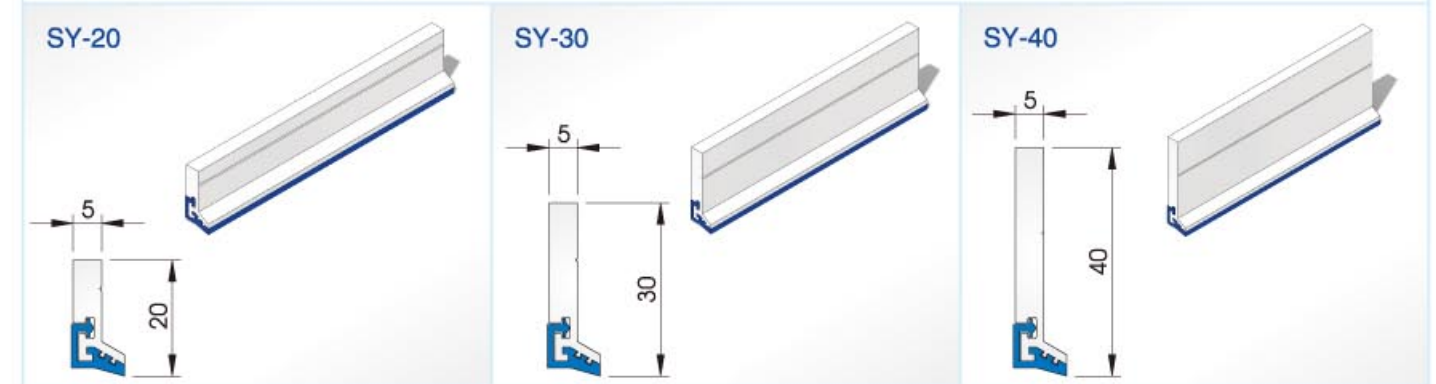
The wiper series is suitable for mounting on slideways or any moving surfaces, providing cleaning function and preventing foreign objects from entering to damage the slideways or moving surfaces. The wiper is fixed by an aluminum alloy frame, which can be assembled by sections for convenience. Outstanding features integrated are dust resistance, oil resistance, chemical resistance, wear resistance as well as long service life.

Various wiper materials can be selected, such as:

- 1) PU material featuring wear-resistance and high pressure resistance.
- 2) NBR (Nitrile Butadiene Rubber). This material has superior oil resistance, water resistance, solvent resistance, high pressure oil resistance. It also features superior compression resistance, wear resistance and elongation capacity.
- 3) FPM (Fluoro Carbon Rubber). A material that is capable of resisting high temperature up to 250°C. It resists most oil and solvents, especially for all acids, fatty alkyl, perfumed alkyl and vegetable oils.



Wiper Assembly and Sizes



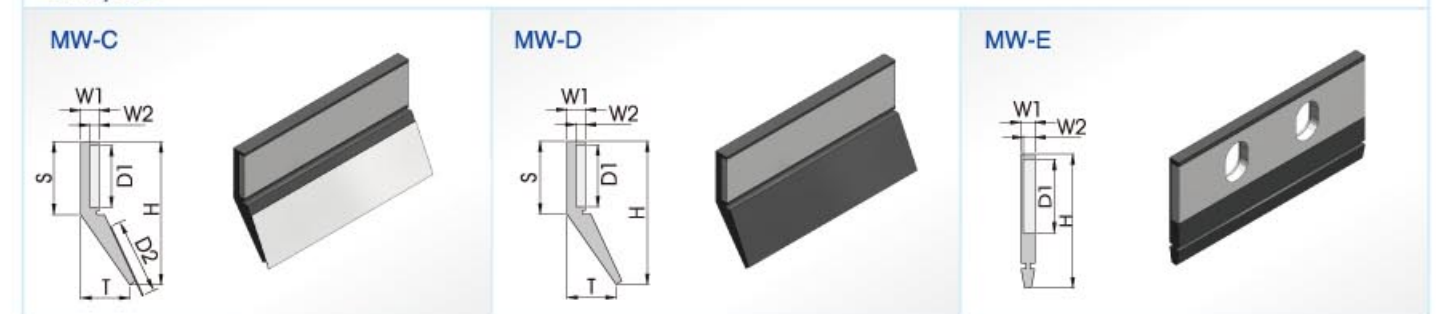
MW: ONE-PIECE FORMED WIPERS

The rubber strip of the new MW series is manufactured from NBR (Nitrile Butadiene Rubber), featuring outstanding oil resistance, heat resistance, physical and mechanical properties. FPM (Fluoro Carbon Rubber) material is also available, and features high strength and high wear resistance.

The fixing part is one-piece formed by SPCC frame with high efficiency mounting and long service life. The wipers are applicable for mounting on slide way or moving surface for cleaning purpose. Outstanding features include dust resistance, oil resistance, coolant resistance and wear resistance. Sizes and shapes can be made to meet customer's requirements.



Shapes



Dimensional Table

MW-C		Unit: mm						
Model	Size	W1	W2	D1	D2	S	H	T
MW-C1	3	1.8	9.5	16	15.5	25	12	
MW-C5	3	1.8	16	16	20.5	30	12	

MW-D		Unit: mm					
Model	Size	W1	W2	D1	S	H	T
MW-E1	3	1.8	22	27	39	15	

MW-E		Unit: mm			
Model	Size	W1	W2	D1	H
MW-E1	2	1.8	16.7	25	
MW-E5	2	1.8	18.7	34	

■ Suitable □ Not Suitable

Product No.	Description	Applicable Product Types	Thickness	Width	Colors	Oil Resistance	Water Resistance	Anti-Tearing	RoHS	Applicable Temp. Range (°C)
GT06	PUR	Bellow cover	0.21 mm	1500 mm	Black	■	■	■	■	Continuous heat-resist 30°~60° Instant heat-resist 30°~140°
GT34	PUR	Bellow cover	0.26 mm	1500 mm	Black	■	■	■	■	Melting point 130°~150°
GT06	PUR	Bellow cover	0.35 mm	1500 mm	Black	■	■	■	■	Melting point 130°~150°
GT16	PUR	Bellow cover	0.35 mm	1500 mm	Black	■	■	■	■	Melting point 130°~150°
FT010	PUR	Roller cover	0.80 mm	1470 mm	Black	■	■	■	■	Melting point 130°~150°
FT011	PUR	Bellow cover	0.65 mm	1370 mm	Black	■	■	■	■	Melting point 125°~130°
FT004	Fiber-glass Teflon cloth	Bellow cover	0.35 mm	1500 mm	Black	■	■	□	■	Continuous heat-resist 260° Instant heat-resist 300°
GT24	Oxidized fiber cloth	Bellow cover	0.80 mm	1400 mm	Grey/Black	□	■	■	■	1200°
GT10	PPB cloth	Bellow cover	0.65 mm	2100 mm	Grey	□	■	■	■	Melting point 125°~130°
GT09	NP	Bellow cover	0.25 mm	1200 mm	Black	■	■	■	■	Instant heat resist 260°
K01	Kevlar	Bellow cover	0.3 mm	990 mm	Yellow/Black	□	□	■	■	Instant heat resist 400°



Patented Countries	Patent No.	Patent Description
Japan	3154758	Construction of bellow cover assembly
Japan	3123591	Construction of bellow cover assembly
Germany	Nr.20.2004 05 447.7	Improvement for bellow cover construction
Germany	Nr.20311 498.1	Improvement for bellow cover assembly
Taiwan	165143	Improvement for construction of single-piece jointing type bellow cover
Taiwan	181619	Improvement for chips and guard construction for heavy-duty lathe
Taiwan	M362729	Improvement for bellow cover construction
Taiwan	M360103	Improvement for winding type cover construction
Taiwan	M241152	Improvement for finned bellow cover jointed with plate
Taiwan	M296755	Improvement for bellow cover construction
Taiwan	M255098	Improvement for chip guard construction
Taiwan	M265155	Improvement for bellow cover construction
Taiwan	M271646	Improvement for bellow cover construction
Taiwan	M296756	Improvement for bellow cover construction

