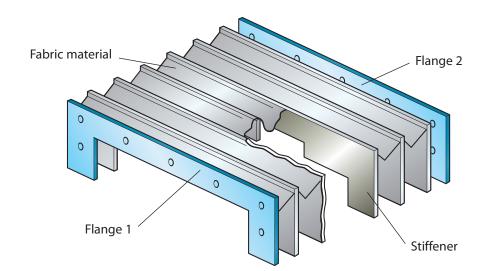
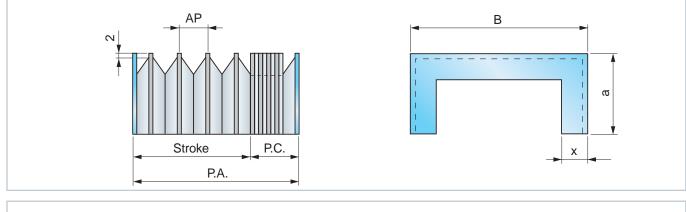
THERMIC-WELDED COVERS





- **P.A.** = Open length
- **P.C.** = Closed length
- Stroke = Open length closed length

Formula for calculating the CLOSED LENGTH

 $AP = Opening of 1 fold = x \cdot 2 - 8$ SM = Fabric thickness * SS = Stiffener thickness * SF = Flange thickness * $NP = Number of folds = \frac{P.A.}{AP} + 2$ $P. C.= (SM \cdot 8 + SS) \cdot NP + (SF \cdot 2)$

* See materials list on page 32.

This data sheet shows only one type of Thermic-Welded Cover that we manufacture.

Contact our engineering department for other types.

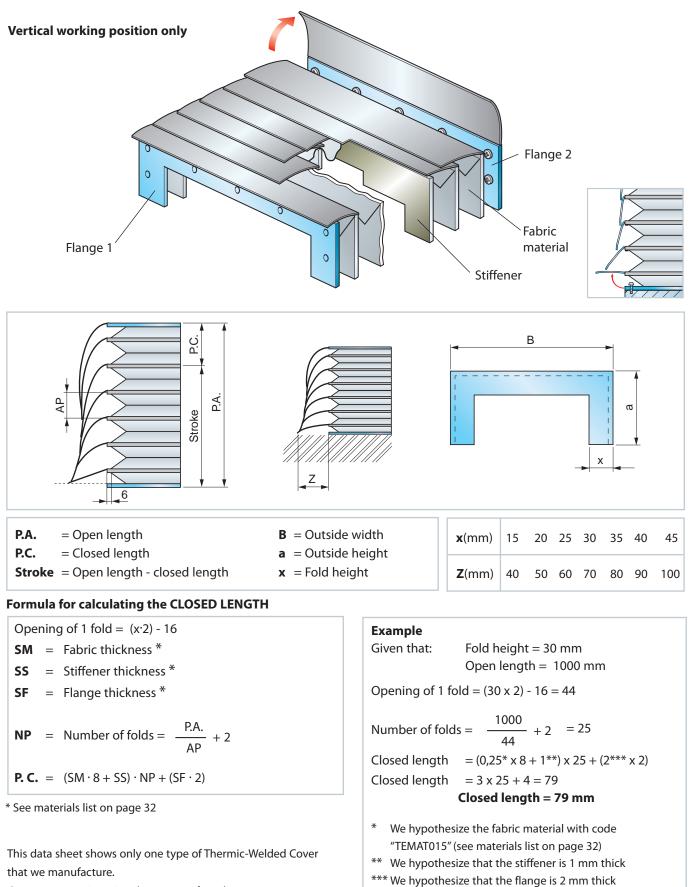
- **B** = Outside width
- **a** = Outside height
- **x** = Fold height

Example:

Fold height = 15 mm Given that: Open length = 1000 mm Opening of 1 fold = $15 \times 2 - 8 = 22$ $\frac{1000}{22} + 2 = 48$ Number of folds = Closed length $= (0,25* \times 8 + 1**) \times 48 + (2*** \times 2)$ **Closed length** $= 3 \times 48 + 4$ = 148 Closed length = 148 mm * We hypothesize the fabric material with code "TEMAT015" (see materials list on page 32) ** We hypothesize that the stiffener is 1 mm thick

*** We hypothesize that the flange is 2 mm thick (see materials list on page 32)

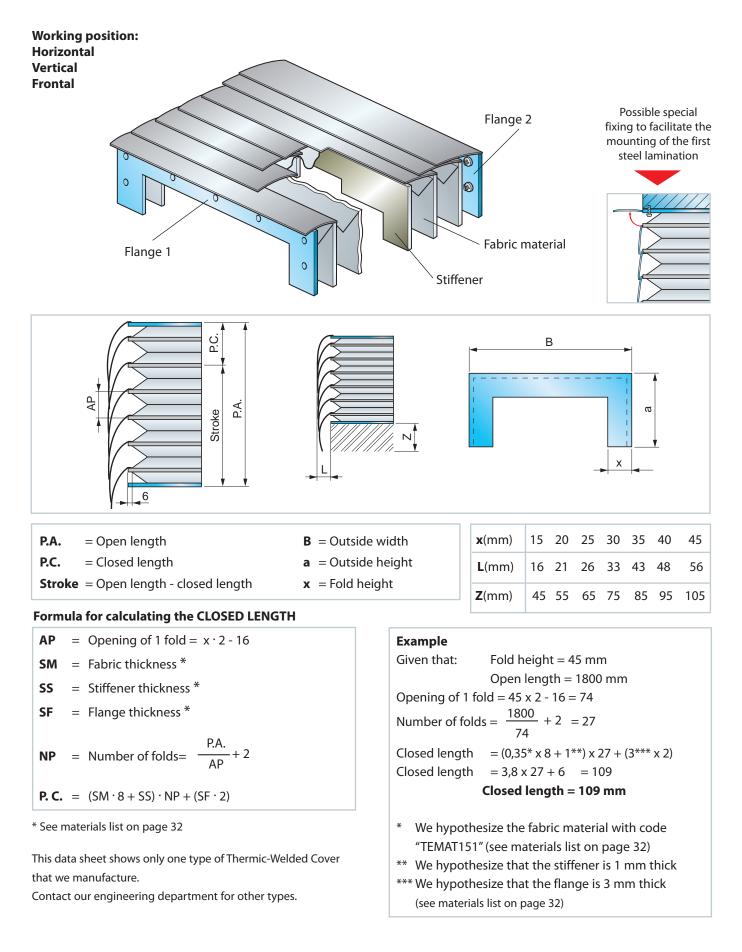
THERMIC-WELDED COVER WITH FLEXIBLE LAMINATIONS



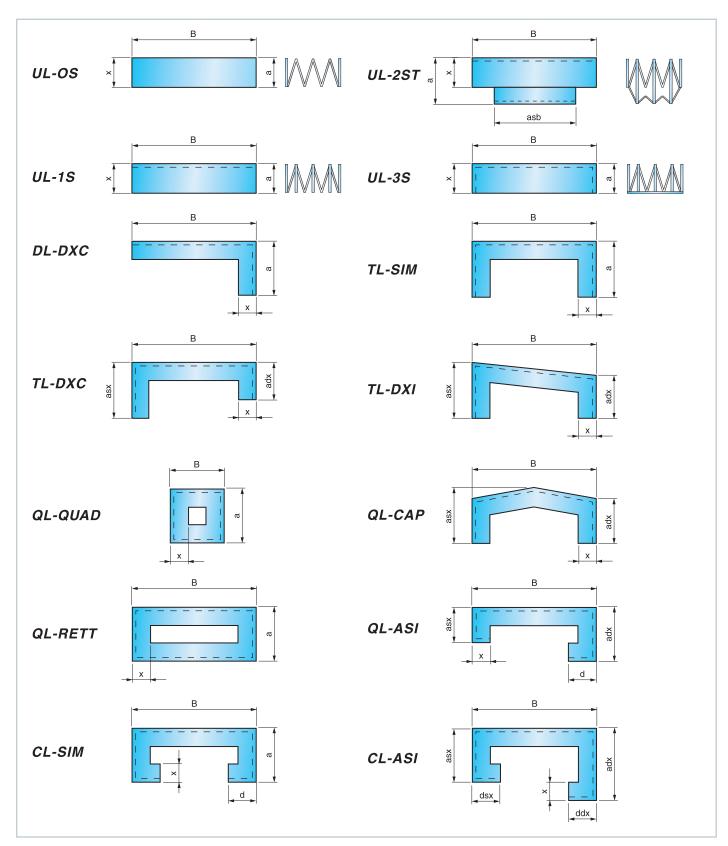
(see materials list on page 32)

Contact our engineering department for other types.

THERMIC-WELDED COVER WITH FIXED LAMINATIONS



Standard Shapes



NOTE: The above are only the standard shapes of Thermic-Welded Covers. Other shapes available upon request.

Thermic-Welded Cover materials

Fabric		Description	1	Thickness	Heat resistance			Primary
material	Visible	Fabric	Internal	(mm)	Momentary	Conti	nuous	resistance
code	side	insert	side		contact °C	min. °C	max. °C	characteristics
TEMAT 091	PVC	Fiberglass	PVC	0,44	+300	-30	+ 80	Fabric suitable for minor welding splatter. Also appropriate around acids. Self-extinguishing .
TEMAT 106	Ptfe	Polyester	Polyurethane	0,30	+200	-30	+120	Excellent resistance to oils and chemical products. No adhesive surface. Low friction coefficient. Excellent chemical inertia. Excellent resistance to abrasion and bending strength. Mainly used in grinding machines.
TEMAT 015	Polyurethane	Polyester	Polyurethane	0,25	+200	-30	+ 90	Excellent resistance to petroleum products,
TEMAT 151	Polyurethane	Polyester	Polyurethane	0,35	+200	-30	+ 90	oils and heavy abrasion. Excellent bending strength.
TEMAT 164	Polyurethane	Kevlar*	Polyurethane	0,35	+350	-30	+180	Excellent resistance to petroleum products, oils and heavy abrasion. Excellent bending strength. Excellent mechanical strength. Kevlar also has excellent shear strength. Normally used when there is heavy mechanical stress, a large amount of sharp shavings, and at high temperatures.
TEMAT 165	Polyurethane	Nomex*	Polyurethane	0,36	+300	-30	+130	Excellent resistance to petroleum products, oils and heavy abrasion. Excellent bending strength. Excellent mechanical strength. Good resistance to minor welding splatter or hot material. Widely used in laser cutting machines. Self-extinguishing .
TEMAT 169	Polyurethane	Panox*/Kevlar	Polyurethane	0,33	+300	-30	+130	Excellent resistance to petroleum products, oils and heavy abrasion . Excellent bending strength. Excellent mechanical strength. Good resistance to minor welding splatter or hot material. It may be considered as the best fabric on the market for use in laser cutting machines. Self-extinguishing.
TEMAT 017	PVC	Polyester	PVC	0,36	+100	-30	+ 70	Mainly used around heavy ambient dust, minor splatters of coolant and oil.
TEMAT 020	PVC	Polyester	PVC	0,25	+100	-30	+ 70	Also suitable for use around acids.

Stiffener materials

Stiffener material code	Description	Thickness (mm)	Notes
PVC 05	PVC	0,50 **	Outside width (B) up to 300 mm
PVC 10	PVC	1,00	Outside width (B) from 301 up to 700 mm
PVC 15	PVC	1,50	Outside width (B) from 701 up to 1500 mm

Flange materials

Flange material code	Description	Thickness (mm)				
AL	Aluminum	2,0 - 3,0				
AC	Steel	2,0 - 3,0 - 4,0				
PVC	PVC	2,0 - 3,0				

Lamination materials

Lamination material code	Description	Primary applications For use around welding splatter, small and medium-sized hot shavings. Especially suitable for use around continuous sparks. Appropriate where lightweight materials are necessary.			
AL	Aluminum (Baked Enamel Finish)				
INOX		In work environments with large shavings. Especially suitable for use around acids.			

* Kevlar and Nomex are registered Dupont trademarks ** NOT recommended for Thermic-Welded Covers with laminations.

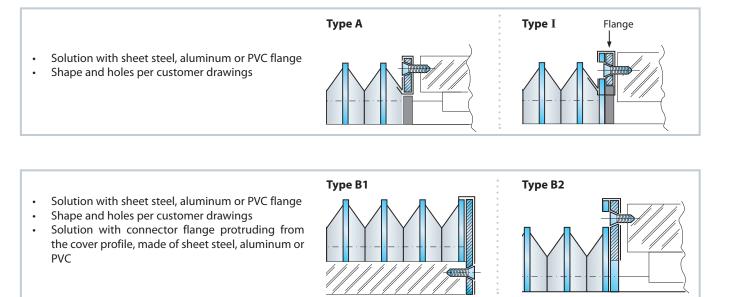
Contact our engineering department for other materials and applications.

Flange Fastening Systems

Solution with sheet steel flange

Threaded flange holes

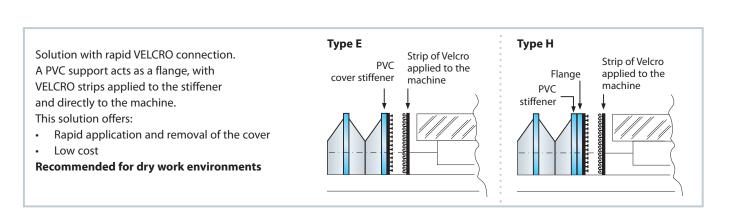
Shape and holes per customer drawings



Type C

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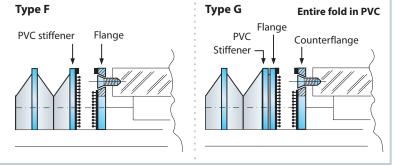
•



Solution with STRONG HOLD rapid connection. A PVC support and flange act as a flange, to which the STRONG HOLD rapid connection is applied. The flange is made of sheet steel, aluminum or PVC, shape and holes per customer drawings. This solution offers:

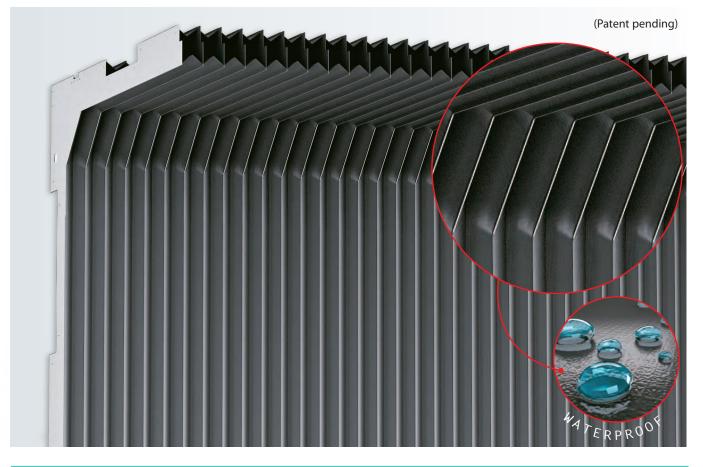
- Rapid application and removal of the cover
- Foam gasket strip provides a tight seal around the connection

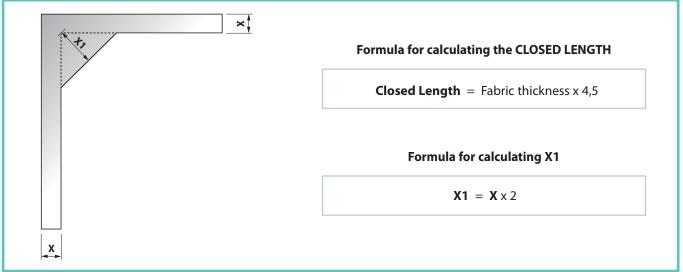
Recommended for wet work environments



EVER-CLEAN Thermic-welded Cover

- The **construction of the corner** is the main feature of this thermic-welded bellow.
- The bellow is guaranteed to be **free from chips and sludge**, there are no creases in the fabric which obstruct the chip conveyor.
- The **closed length** of the bellow is **smaller** than traditional thermic-welded bellows due to the absence of folds of fabric in the corners.
- The range of geometry possible for manufacture has increased.
- **Structural rigidity** has increased in applications where only one bellow must cover the crossbar and roof of the machinery.





For this type of bellow consult our technical office.

X-Y LM SHIELD Thermic-welded Cover with Laminations

- The X Y LM SHIELD composed of thermic-welded bellows with steel laminations, represents the cheapest solution for protecting the working area in horizontal spindle machining centers where there is a large production of hot shavings. This system consists of No. 2 horizontal bellows and No. 2 vertical bellows, protected by movable stainless steel plates guaranteeing a very functional product for Quality/Price.
- Accelerations up to 1 G
- Speeds up 120 m/min.
- The thermic-welded protection bellows are largely used on every kind of machine tool. They are frequently used in machining centers and chip-removing machines. In order to protect the bellow exposed to hot shavings, a shielding made by metal elements, called "plates" will be necessary. The steel laminations are fixed by special clamps keeping the plates adherent and loaded one on the other to prevent contaminants and shavings from entering.



MULTI-STEEL

Thermic-welded Cover with Laminations

- Thermic-welded bellows with laminations on many sides are the ideal solution for **complete protection of the roof and crossbar** in multi-shaft working centres.
- The corners are closed and steel inox laminations applied with a **perfect 90° fold** in merit of the elastic deformation of the material and a special geometry.
- More than two sides can be covered and with different angles.



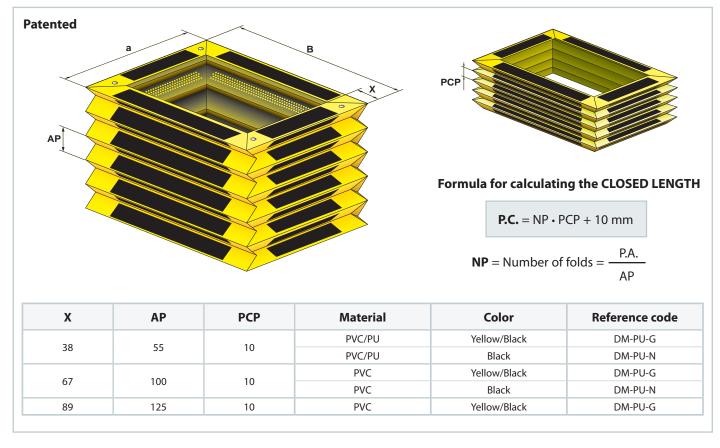
For this type of bellow consult our technical office.

BELLOWS FOR HOISTING PLATFORM

- Prevention of impediment of the hoist pantograph
- Protection from dust, dirt or foreign particles

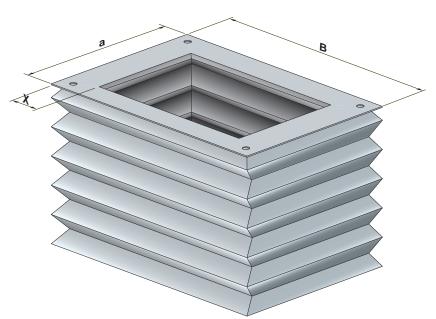


Bellows DuratiteTM



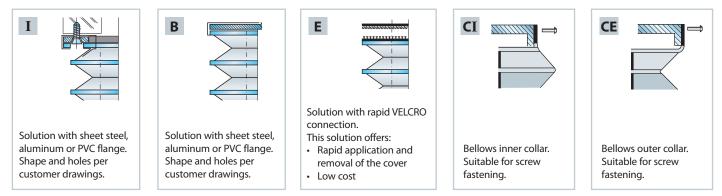
BELLOWS FOR HOISTING PLATFORM

Thermic-welded Bellows Type QL-RETT



• All calculation formulas are shown on page 28.

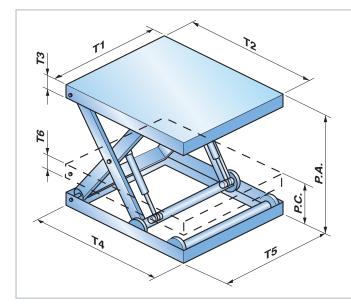
Systems for fastening Bellows for Lift Tables



EXAMPLES OF APPLICATION:

Closing of upright doors

Protection of level changing in assembly lines of the manufacturing industry Base protection of medical equipment



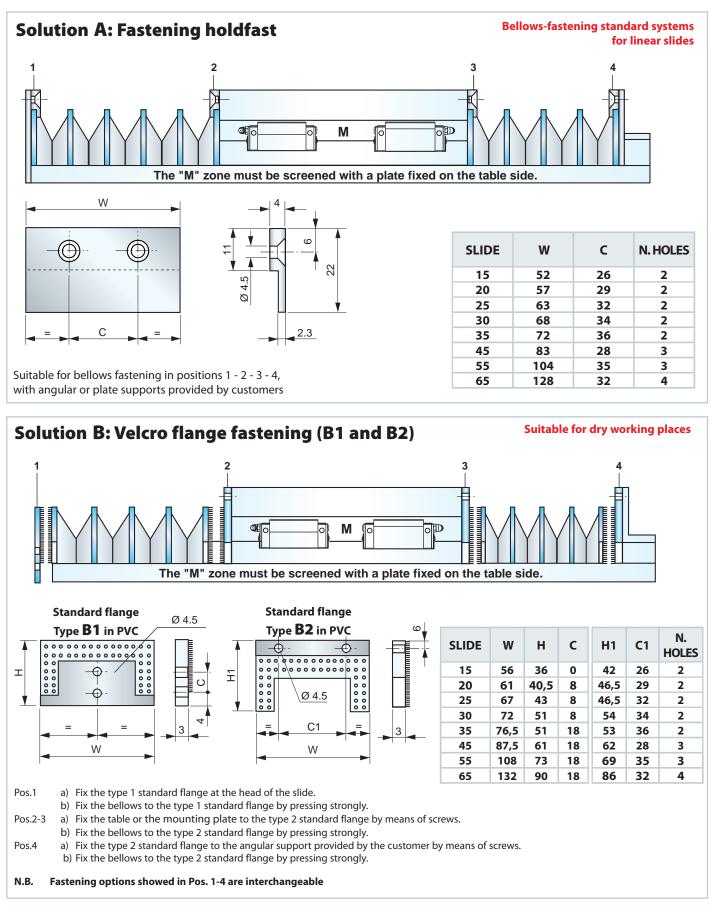
Closing of storehouse rooms and interspaces

Questionnaire for hoisting platforms BELLOWS: **a** = mm **B** = mm **X** = mm Questionnaire for HOISTING PLATFORMS: T1 = mm **T2** =mm **T4** = mm **T5** = mm NP = mm Upper side fastening 🛛 I 🗅 B ΞE ΠΟ Lower side fastening \Box I 🗅 B ΠE ΠCΙ CE CE

NOTE: The data fields and/or tables marked by 👔 are the least ones to be filled in order to give you a quotation. Please send an e-mail to info@pei.eu or a fax to +39 051 6464840.

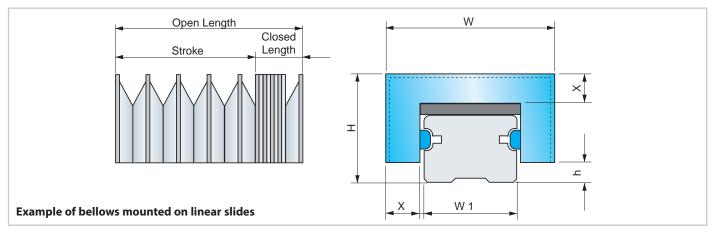


Thermic-Welded Covers Standard Systems for Linear Slides



This technical card represents the standard systems used for the fastening of bellows for linear slides we can provide. For different sizes, please contact our technical department.

Thermic-Welded Covers for Linear Slides



List of Standard Material

Type of material	Stiffener	Fabric material	Closed length for 1000 mm of open length
S1	PVC 0,50	PVC + Polyester + PVC 0,25 (TEMAT020)	90
P1	PVC 0,50	Polyurethane + Polyester + Polyurethane 0,25 (TEMAT015)	90
LX	PVC 1,00	Polyurethane Panox/Kevlar + Polyurethane 0,33 (TEMAT169)	150

Standard Thermic-Welded Covers Size

Slide nominal value W1	Ply height X	Bellow width W	Total height H	Slide deviation h
15	19	56	36	5
20	19	61	40,5	5
25	19	67	43	7,5
30	19	72	51	8
35	19	76,5	51	9
45	19	87,5	61	10
55	25	108	73	15
65	32	132	90	15

Example of the identification code of a Thermic-Welded Cover for Linear Slides complete with flange

Slide manufacturer	ТНК		
Slide model	HSR		
Slide nominal value (W1)	35		
Open length (stroke + closed length)	1500		
Type of material	P1		
Flange fixing system	A-A (see page 41)		

NOTE: For the W1 slide over size 65, please contact our Technical Dept.

Questionnaire for Thermic-Welded Covers for Linear Slides

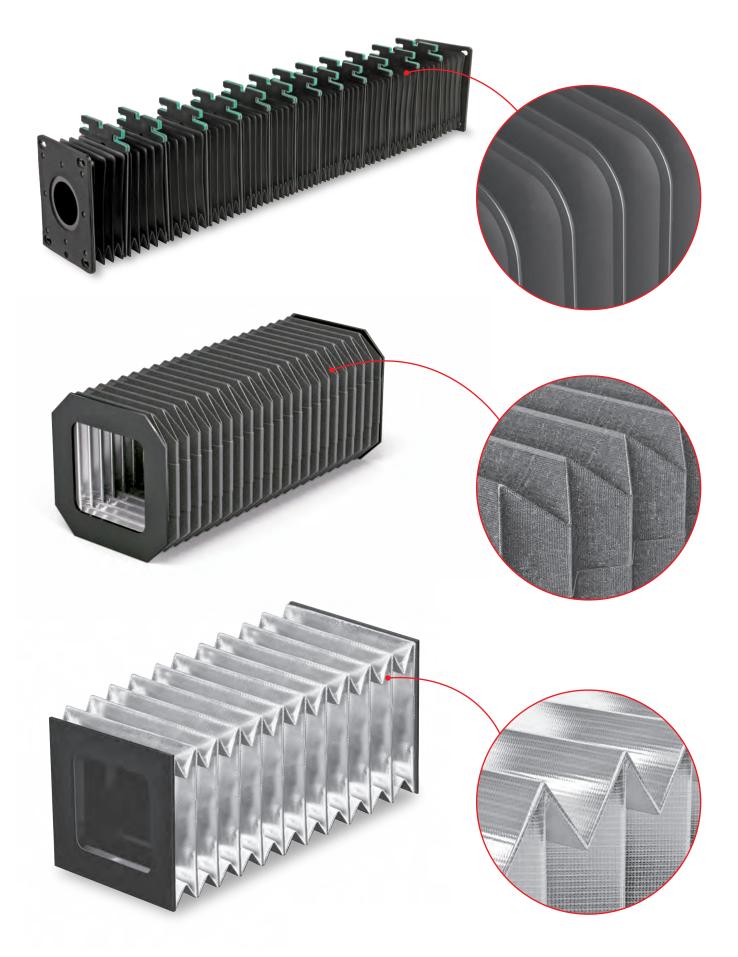
Slide Manufacturer						
Slide Model	•••••					
Slide Nominal Value	e (W1)	1 5	2 0	🖵 25	3 0	
		3 5	4 5	🖵 55	G 65	
Open length (Stroke + Closed length)mm						
Fabric type	🛛 S1		P1	LX		
Fastening system on guide top	Solution A with clampsSolution B1 with flange in PVC					
Fastening systemImage: Solution A with clampsto tableImage: Solution B2 with flange in PVC						

	Company name
•	Phone:
	E-mail:
	Quantity:
	Annual demand:
	Date:
	Notes:

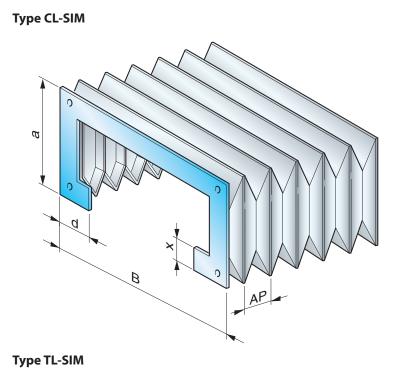
NOTE: The data fields and/or tables marked by are the least ones to be filled in order to give you a quotation. Please send an e-mail to info@pei.eu or a fax to +39 051 6464840.

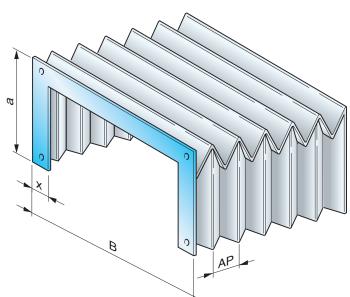
FLAT COVERS

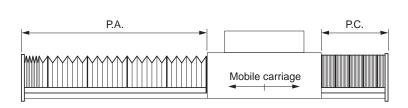
BELLOWS FOR LASER AND PLASMA MACHINES



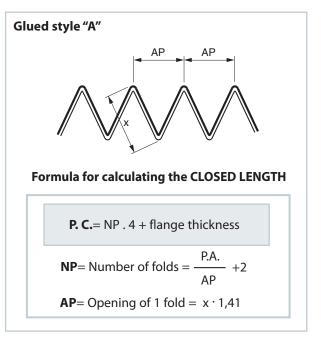
FLAT COVERS GLUED AND SEWN

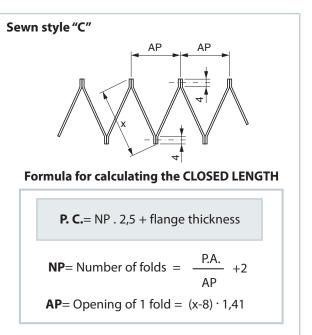






Contact our engineering department for this type of cover.





Ref.	Description	Dim.	Туре	Style
P.A.	Open length			
P.C.	Closed length			
Stroke	(P.A P.C.)			
a	Outside height			
₿ B	Outside width			
x	Fold height			
l d	Return dimension			
A P	Fold opening			
INP	Number of folds			

NOTE: The data fields and/or tables marked by 🕽 are the least ones to be filled in order to give you a quotation. Please send an e-mail to info@pei.eu or a fax to +39 051 6464840.

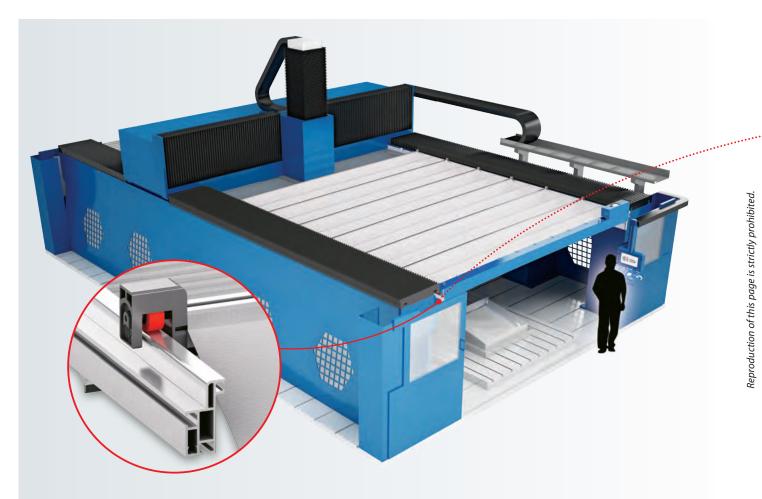
WAVE SKY Bellows for Overhead Protection for Portal Milling Machines

• WAVE SKY is a bellow that limits the escape of fumes, dust and chips from the workstation area.

WAVE SKY bellow reduces the suction force created during working: carbon fibres, composite materials and vaporised cooling lubricant.

The special translucent fabric guarantees ample light in the work area.

The motorised version makes for a quick opening and closing of the overhead apparatus.



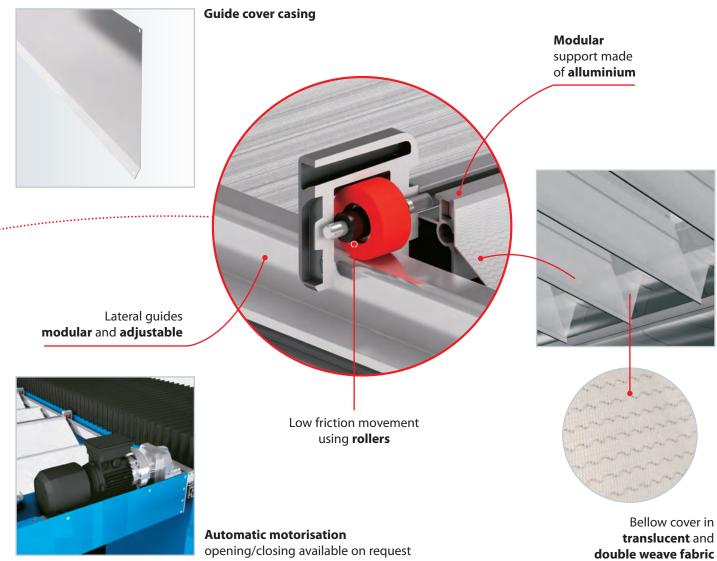
TECHNICAL SPECIFICATIONS

- ✔ MAX SPEED: 90 mt/min.
- ✔ MAX ACCELERATION: 1g
- ✔ MAX WIDTH BETWEEN GUIDES: 8.000 mm
- ✔ MAXIMUM STROKE: 25.000 mm
- ✓ STANDARD FOLD HEIGHT: 200 / 250 / 300 mm

EXAMPLE OF APPLICATION



WAVE SKY Bellows for Overhead Protection for Portal Milling Machines



TEMAT 154

	Descri	ption of ma	terials	5	Heat resistance		
Code	Visible side	Fabric insert	Hidden side	Thickness	Momentary contact °C	Continuous °C	Primary resistance characteristics
TEMAT154	Polyurethane	Polyester	Polyurethane	0,9	+130	-30 +90	Excellent resistance to petrol based products, oils and strong abrasion. The textile insert is made of a special fabric with high rigidity in the diagonal weave plus an aesthetically pleasing appearance. It is normally used in environments where there are large quantities of chips. TRANSLUCENT and ANTI-STATIC

MATERIALS FOR SPECIAL APPLICATIONS

	Descrip	otion of mat	erials	S	Heat resistance		
Code	Visible side	Fabric insert	Hidden side	Thicknes	Momentary contact °C	Continuous °C	Primary resistance characteristics
TEMAT180	CPT**	Polyester	-	1,6	+1200	-25 +300	CERAMIX has an excellent abrasion resistance and excellent shear strength. CERAMIX shows excellent resistance to mineral oils and hot temperatures. The two-ply fabric insert gives an high transverse rigidity and a very attractive appearance. In WAVE-SKY only CERAMIX is used in the bellow folds close to the working area, when large quantities of ALUMINUM hot and shearing shavings are produced, in cases of high speed chip-removing dry work environments. ANTISTATIC-PROOF and SELF-EXTINGUISHING.
TEMAT170	Polyurethane	Polyester	Fabric	1,6	200	-30 +90	Excellent resistance to petroleum products, oils and heavy abrasion. The two-ply fabric insert gives a very high transverse rigidity and an attractive appearance. Normally used around large quantities of shavings. We recommend the constant use of coolant. SELF-EXTINGUISHING FABRIC.

** Ceramic Polymer Technology

www.pei.eu.

WAVE SKY LIGHT Overhead Protective Cover

• **WAVE SKY LIGHT** is a version of Wave Sky suitable for applications where despite long strokes a small closed length is required. Stability and durability are the same as for the traditional Wave Sky. The translucent fabric is suitable not only for machine tools, but also for other applications.

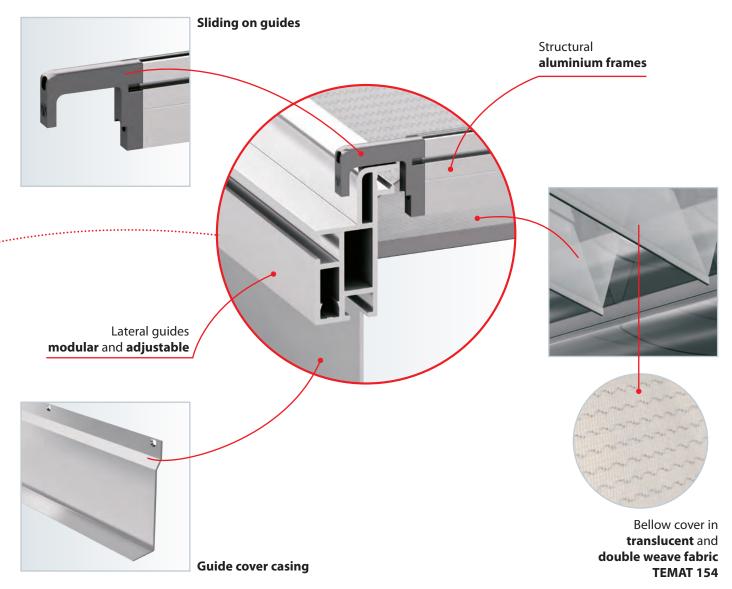


TECHNICAL SPECIFICATIONS

- ✔ MAX SPEED: 60 mt/min.
- ✔ MAX ACCELERATION: 1g
- ✓ MAX WIDTH BETWEEN GUIDES: 2.000 mm
- ✔ MAXIMUM STROKE: 8.000 mm
- ✓ STANDARD FOLD HEIGHT: 150 mm

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WAVE SKY LIGHT Overhead Protective Cover



Code	Description of materials			s	Heat resistance		
	Visible side	Fabric insert	Hidden side	Thicknes	Momentary contact °C	Continuous °C	Primary resistance characteristics
TEMAT154	Polyurethane	Polyester	Polyurethane	0,9	+130	-30 +90	Excellent resistance to petrol based products, oils and strong abrasion. The textile insert is made of a special fabric with high rigidity in the diagonal weave plus an aesthetically pleasing appearance. It is normally used in environments where there are large quantities of chips. TRANSLUCENT and ANTI-STATIC

Description of materials Heat resistance Thickness Code Primary resistance characteristics Visible Fabric Hidden Momentary Continuous °C contact °C side insert side CERAMIX has an excellent abrasion resistance and excellent shear strength. CERAMIX shows excellent resistance to mineral oils and hot temperatures. The two-ply fabric insert gives an high transverse rigidity and a very attractive appearance. In WAVE-SKY only CERAMIX is used in the bellow folds close to the working area, when large quantities of ALUMINUM hot and shearing shavings are produced, in cases of high speed chip-removing dry work environments. ANTISTATIC-PROOF and SELF-EXTINGUISHING. TEMAT180 CPT** Polyester 1,6 +1200 -25 +300 Excellent resistance to petroleum products, oils and heavy abrasion. The two-ply fabric insert gives a very high transverse rigidity and an attractive appearance. Normally used around large quantities of shavings. We recommend the constant use of coolant. SELF-EXTINGUISHING FABRIC. TEMAT170 Polyurethane Polyester -30 +90 Fabric 1,6 200 ** Ceramic Polymer Technology

MATERIALS FOR SPECIAL APPLICATIONS

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