

|||| HENNIG®

PROTECT YOUR SUCCESS

BELLOWS

**COATED FABRIC | ROUND | HINGED LAMELLA | FIXED LAMELLA | RUBBER DISC
MOLDED RUBBER | MACHINE ROOF BELLOW COVERS**

Safe processes are profitable processes. We make our customers successful by protecting people and machines from the manufacturing environment and waste.

AT HENNIG, YOUR **SUCCESS** ALWAYS COMES FIRST.

Hennig Worldwide has been a global leader since 1950, specializing in chip and coolant management, machine protection, and facility safety. We work with a wide variety of manufacturers and other facilities worldwide, helping them create and maintain safe and efficient workplaces. Our commitment to excellence extends beyond our services—we actively contribute to local communities, create regional jobs, and support the global needs of machine tool customers.

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PROTECT YOUR SUCCESS

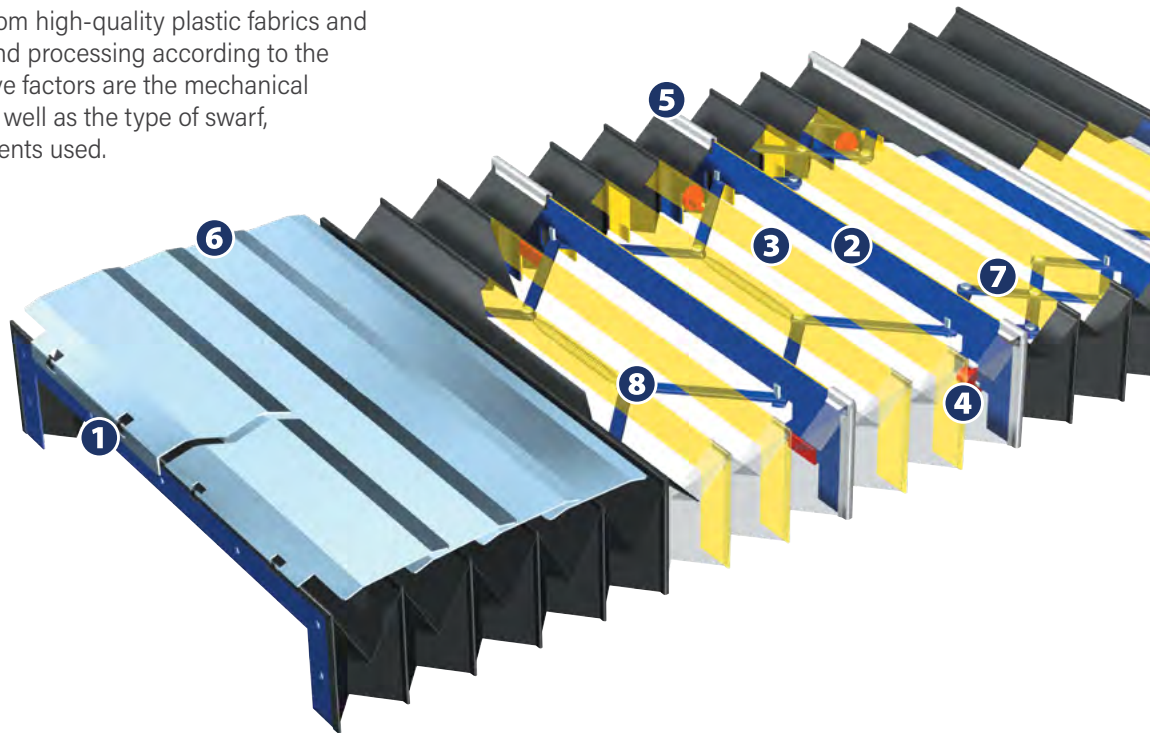
Designed to protect guideways and machine components and constructed using lightweight materials, bellow covers are ideal for fast travel applications. Their high compression ratio also makes accordion way covers ideal in limited space.

Our product range includes simple dust protection, sophisticated designs featuring extension systems and/or lamellas, as well as special designs for laser machines. To maintain our high quality standards, all materials used are checked and developed by our own R&D departments. Hennig offers excellent productivity and security for your machine.

OVERVIEW & OPTIONS

Our bellows are made exclusively from high-quality plastic fabrics and foils. We select the cover material and processing according to the design's ambient conditions. Decisive factors are the mechanical and thermal strain of the bellows as well as the type of swarf, chips, and aggressiveness of the agents used.

- Maximum functional reliability
- Tailor-made solutions
- Maximum durability
- Proven components
- Minimum service requirements
- Long-term supply of spare parts



OPTIONS

The dynamic properties of modern drives make heavy demands on all bellows. With Hennig, you can adapt every detail of the friction, extension, and durability properties of your bellows to your requirements.

1. END FRAMES

End frames, mostly made from steel or aluminum, connect the bellows with the machine. Hennig offers various fastening solutions for the adaptation to different bellows and machine interfaces.

2. INTERMEDIATE FRAMES

Intermediate steel frames are used to connect the various elements, especially when extension limit systems are required. The intermediate frames are fastened to the bellows with a clamping rail. The intermediate frames can be guided by either plastic or brass rollers or gliders.

3. GUIDE FRAMES

The guide frames provide the bellows with necessary stability and enable a precise operation, even at high speeds. They are made from PVC and are directly welded to the cover. The shape of the frame is adapted by Hennig to the design required.

4. ROLLERS

Rollers are used in large and heavy bellows. They minimize friction and ensure excellent running properties.

5. COUPLING RAIL

Necessary for medium and large bellows with a high number of folds in order to connect the single bellow elements together. Connected inside and outside.

6. LAMELLAS

Fixed or hinged, stainless steel lamellas can be added to protect the bellows against hot, sharp-edged swarf, or mechanical strain.

7. SCISSORS

Scissors are used for high traversing speeds. This allows an even extension of all elements across the whole extension length. As a result, the folds are less strained and the durability of the bellows is prolonged.

8. HALF-SCISSORS

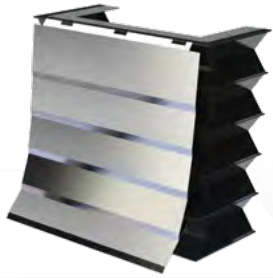
With half-scissors, the individual elements can be extended successively depending on the necessary extension length. Since the folds are not loaded up to the theoretically possible extension limit, it also has better durability.

DESIGN TYPES



COATED FABRIC

Maximum compression and flexibility in a wide range of materials for a wide range of environments. Industrial coated fabric bellows are great for dust protection, laser machines, and guideways that don't see a lot of chip loads. Coated fabric bellows can be assembled using the heat-sealed or the stitched method, and can be custom made in almost any shape including round bellows.



HINGED STEEL LAMELLAS

Do you need vertically mounted bellows? Without lamella overhang? In such a case, our bellows with hinged lamellas are the perfect solution for you. Each lamella is flexibly fixed to the PVC frame. Therefore, the lamellas can lie down flat on the machine enclosure at the bottom.



FIXED STEEL LAMELLAS

Hennig has developed lamella bellows to meet particularly tough requirements. This type fills the gap between telescopic steel covers and conventional bellows. The lamella bellows are based on our heat sealed or stitched designs. Each fold has its own guide frame which is secured to the cover material. Lamellas made from stainless steel protect the bellows against red hot, sharp-edged swarf and mechanical strain.



STITCHED

We make bellows with round, oval, or rectangular (with rounded off corners) cross-sections using a special sewing method. Support rings are used to meet special requirements and applications. Due to their robust design, these bellows have a long and reliable service life, even under extreme mechanical and dynamic strain. The temperature resistance of these bellows can be increased to approx. 400°C (752°F) when using an aluminized fabric.



MOLDED RUBBER / RUBBER DISK

Rubber bellows offer maximum protection against water, oil, chemicals, and high temperatures. Primarily used for protecting lead screws, shafts, and moving air cylinders, but can be custom molded to any shape for your application.

DESIGN TYPES



MACHINE ROOF BELLOW COVERS

A bellows system designed as a "ceiling" for your machining center. Use this system to protect your machine from dust and other light contaminants that cannot otherwise be protected against with your standard machine enclosure. Designed with double fold units for increased stroke, these bellows can be manufactured to your requirements. We plan the guidance of the roof bellow according to your circumstances, either by using existing guide systems, or designing a new system that fits your specifications.

ASSEMBLY OPTIONS



HEAT-SEALED

The optimum design for bellows is the heat-sealed version. The cover material and PVC guide frames are permanently joined. The connection of the bellows material and the guide frames ensures maximum loading capacity and absolute tightness against liquids such as cooling or grinding agents.

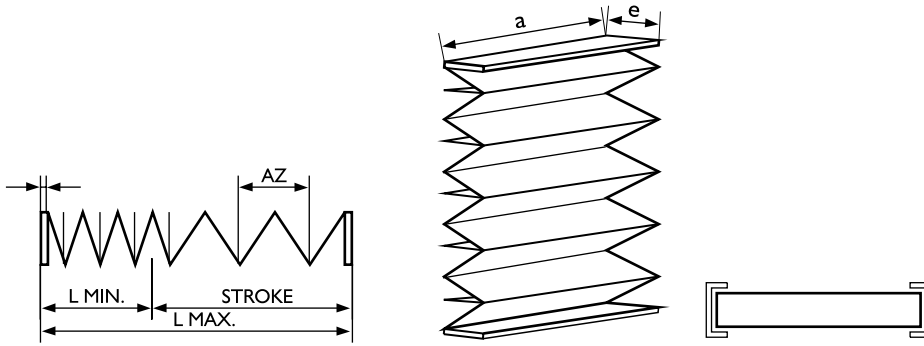


STITCHED

Due to their robust design, these bellows have a long and reliable service life, even under extreme mechanical and dynamic strain. The temperature resistance of these bellows can be increased to approx. 400°C (752°F) when using an aluminized fabric.

COATED FABRIC BELLOWS

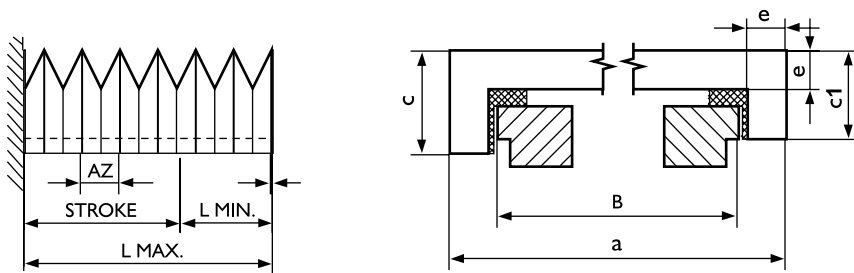
FLAT BELLOW



Fold Height (e)	Extensions Per Fold (AZ)
15	14
17	18
20	24
24	32
30	44
35	54
40	64
45	74

All dimensions in mm

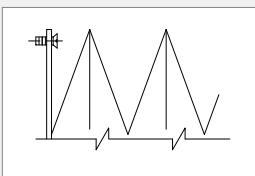
FOLDED BELLOW



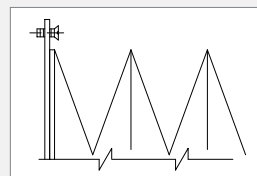
Fold Height (e)	Extensions Per Fold (AZ)
15	18
17	22
20	28
24	36
30	48
35	58
40	68
45	78

All dimensions in mm

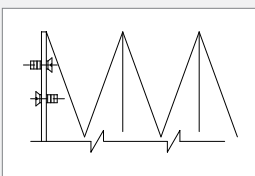
STANDARD MOUNTING OPTIONS (FLAT OR FOLDED)



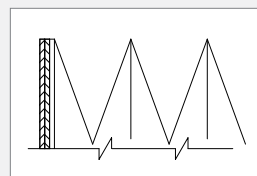
HALF FOLD
Limits extension of first fold for inside mounting.



EXTERNAL FLANGE
Allows for full extension of first fold with outside mounting above bellows.



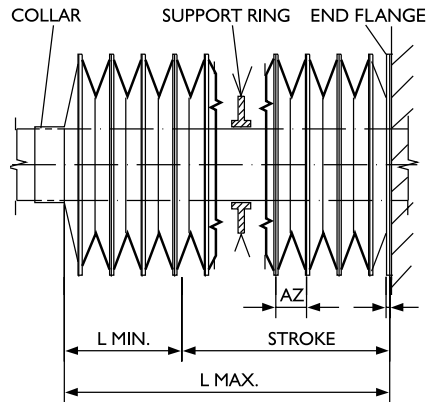
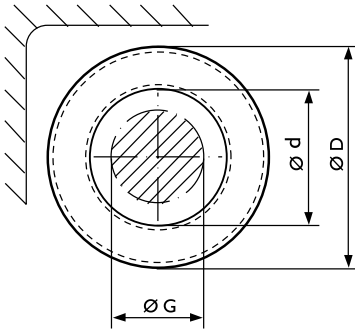
FULL FOLD
Allows for full extension of first fold for inside mounting.



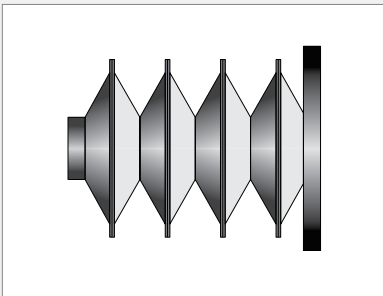
VELCRO
Supplied with adhesive backed velcro fastener for simple & quick inspection of machine components (dry applications).

ROUND BELLOWS

STITCHED ASSEMBLY

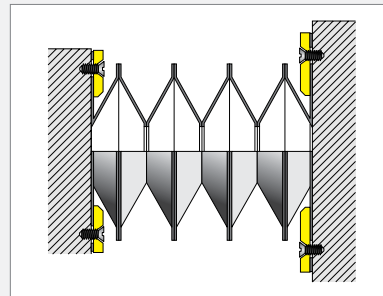


STANDARD MOUNTING OPTIONS



COLLAR

Different fixing devices are possible on either side.

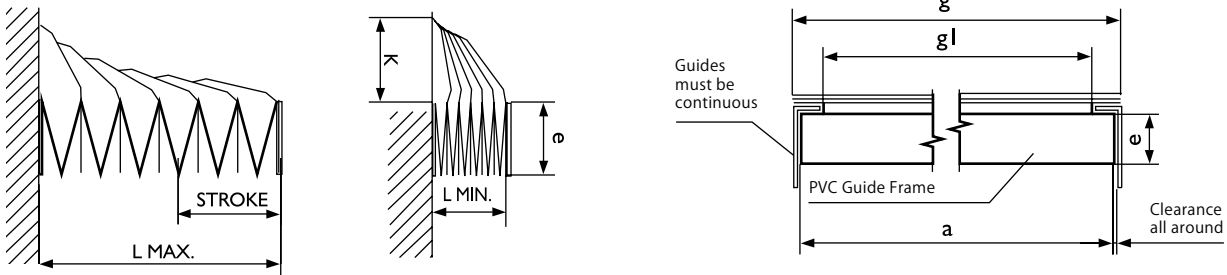


FLANGE

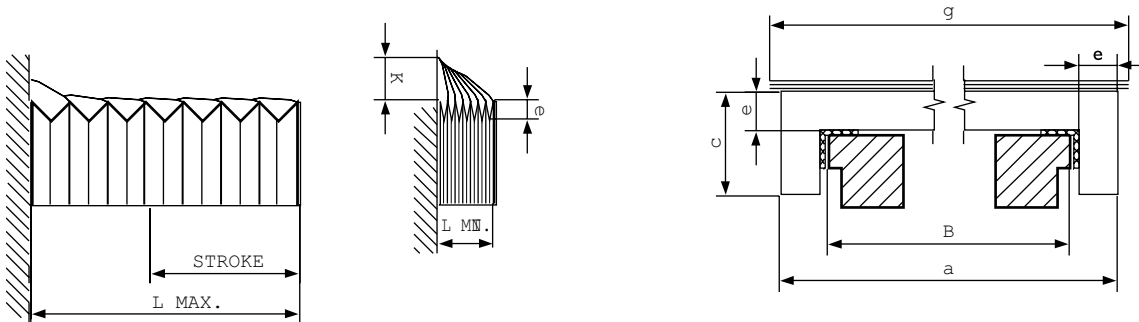
Different fixing devices are possible on either side.

HINGED LAMELLA BELLOWS

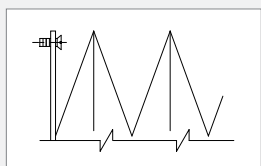
FLAT BELLOW



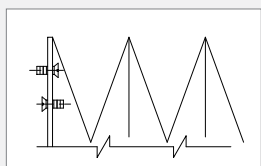
FOLDED BELLOW



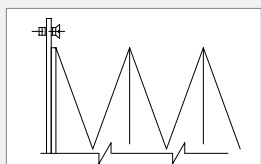
STANDARD MOUNTING OPTIONS



HALF FOLD
Limits extension of first fold for inside mounting.



FULL FOLD
Allows for full extension of first fold for inside mounting.



EXTERNAL FLANGE
Allows for full extension of first fold with outside mounting above bellows.

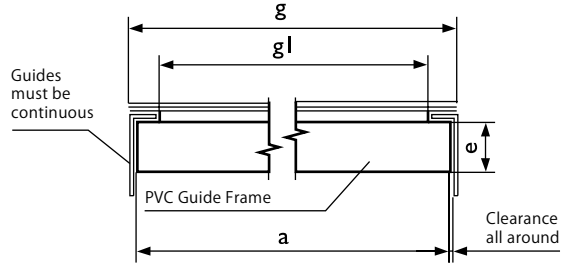
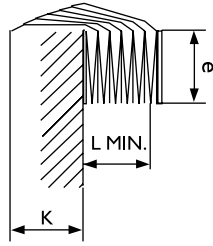
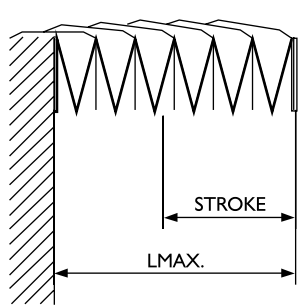
FOLD / LAMELLA DIMENSIONS

Fold Height (e)	Extensions Per Fold (AZ) Flat	Extensions Per Fold (AZ) Folded	Width of Lamellas (K)
24	30	36	67
30	42	48	82
35	52	58	87
40	62	68	97
45	72	72	107

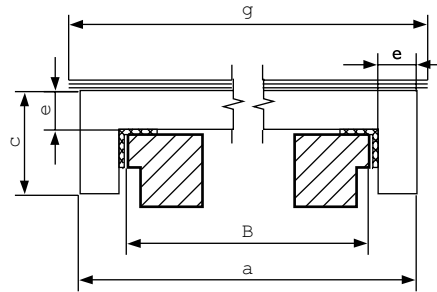
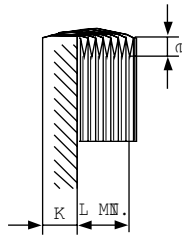
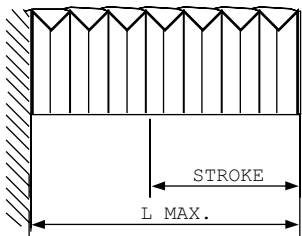
All dimensions in mm

FIXED LAMELLA BELLOWS

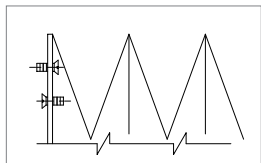
FLAT BELLOW



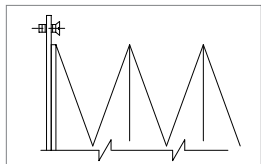
FOLDED BELLOW



STANDARD MOUNTING OPTIONS



FULL FOLD
Allows for full extension of first fold for inside mounting.



EXTERNAL FLANGE
Allows for full extension of first fold with outside mounting above bellows.

FOLD / LAMELLA DIMENSIONS

Fold Height (e)	Extensions Per Fold (AZ) Flat	Extensions Per Fold (AZ) Folded	Width of Lamellas (K)
24	27	33	61
30	39	45	76
35	49	55	81
40	59	65	91
45	69	75	101

All dimensions in mm

MATERIALS & SHAPES (FABRIC/LAMELLA BELLOWS)

Our bellows are made exclusively from high-quality plastic fabrics and foils. We select the cover material and processing according to the design ambient conditions. Decisive factors are the mechanical and thermal strain of the bellows as well as the type of swarf and aggressiveness of the agents used. Exact details of the used materials may be gathered from the table of materials.

	Specification Number	Exterior Coating	Interior Coating	Carrier	Thickness (mm)	Color	* Heat Sealed	* Stitched	* Lamella	* Round Stitched	Resistant to Wear	Resistant against oil, greases, & coolants	Surface Stability	Resistant against swarf, welding splatter, forging scales	Self-extinguishing	Flame-resistant	Ratio between extension and compression
	SP122	OZ-PUR	PUR	PUR	Polyester	0.35	Black	x	x	x	●	●	●	●	○	○	●
	SP268	OZ-PUR	PUR	PUR	Polyester	0.22	Black/Grey	x	x		●	●	○	○	○	○	●
	SP271	PUR-Kevlar	PUR	PUR	Kevlar	0.36	Black/Grey	x	x	x	●	●	●	●	●	●	●
	SP205	OZ-23	PVC	PVC	Polyester	0.23	Black	x	x		●	●	○	○	○	○	●
	SP206	OZ-35	PVC	PVC	Polyester	0.36	Black	x	x	x	●	●	●	○	○	○	●
	SP208	Alum-Aramid	ALU	ALU	Nomex	0.35	Black	x	x	x	●	●	●	●	●	●	●
	SP270	PURT/Teflon	PTFE	PUR	Polyester	0.30	Black	x	x	x	●	●	●	○	○	○	●
		Neoprene	NEP	NEP	Nylon	0.40	Black	x	x	x	●	●	●	●	○	○	○
		Hypalon	HYP	HYP	Nylon	0.40	Black	x	x	x	●	●	●	○	○	○	○
	SP106	GN807	PUR	PUR	Polyester	1.00	Black	x	x	-	●	●	○	○	○	○	○
	SP130	NA-784	TPU	TPU	Polyester	1.00	White	x	x	x	●	●	○	○	○	○	○

Materials: PUR = Polyurethane PVC = Polyvinyl chloride ALU = Aluminum PTFE = Polytetrafluoroethylene NEP = Neoprene HYP = Hypalon TPU = Thermoplastic Polyurethane

Characteristics: ● Excellent ● Good ○ Suited under certain conditions ○ unsuitable

*Assembly Options

COMMONLY USED MATERIALS

POLYURETHANE (PUR)

Temperature resistance up to 120°C

ALUMINIZED

Aluminum-coated Nomex®. Temperature resistance up to 400°C (only for stitched version)

NOMEX®

Flame-resistant material, suitable for laser applications

KEVLAR®

High strength, abrasion resistant, puncture resistant

POLYVINYLCHLORIDE (PVC)

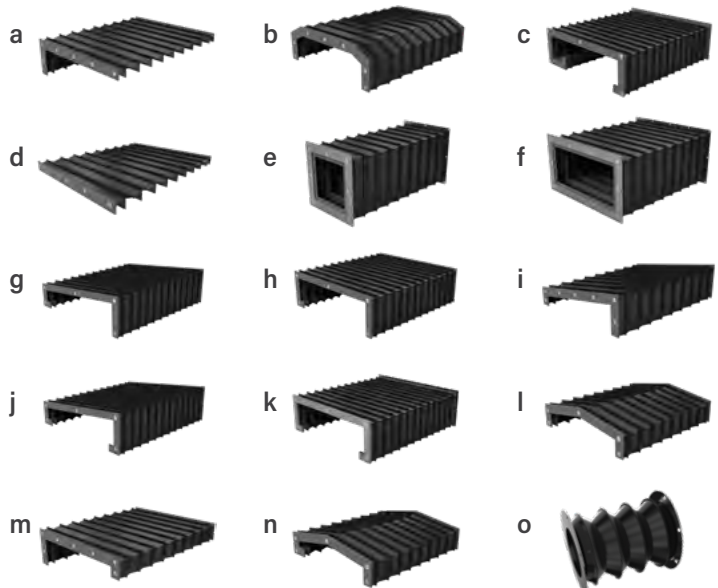
Material does not continue burning if ignited (self-extinguishing)

TEFLON® POLYTETRAFLUORETHYLEN (PTFE)

Anti-adhesive, high-chemical and thermal resilience, dirt and water-repelling, corrosion-proof

COMMON SHAPES

All shapes can be customized to suit your application



RUBBER DISC/MOLDED RUBBER BELLOWS

RUBBER DISC BELLOWS

Our rubber disk bellows are of high grade and always the best choice for industrial purposes. This bellow can be made without a mold cost and are an economical solution for lower quantities.

Rubber disk bellows have a good extension/compression ratio, and the variety of standard and custom shapes and mounting options make it ideal for special applications.



MOLDED RUBBER BELLOWS

Molded bellows are primarily used for protecting lead screws, precision shafts, moving air cylinders, various round shafts and irregular-shaped parts. Its outstanding features include resistance to water, oil, temperature, and chemicals. Various bellow shapes and mounting options are available, including custom setups for special applications.



TABLE OF MATERIALS

No.	Material Type	Thermal Properties °C min — max	Hardness Range Shore A	Material Resistance To
01	NBR	-30 — +110	40 — 75	Gasoline, Mineral Oil
02	FPM	-20 — +200	40 — 75	Gasoline, Mineral Oil, Acids, Lyes, Water, Weathering & Ozone, Air Impermeability
03	CR	-35 — +100	40 — 75	Weathering & Ozone
04	EPDM	-50 — +130	40 — 75	Acids, Lyes, Water, Weathering & Ozone
05	VMQ	-65 — +200	40 — 75	Weathering & Ozone, Steam

MACHINE ROOF BELLOW COVERS

The lightweight, movable folding roof cover can be custom designed for any size and most guidance systems. Engineered with a double fold unit for increased stroke, our machine roof covers can be manufactured to any dimensions to suit your application, helping to protect against dust, particles, and other debris from escaping or entering the roof of the machine tool.

ADVANTAGES

- Carbon fiber processing (aerospace)
- Sound insulation
- Environment protection
- Health protection

TECHNICAL DETAILS

- 2 ply, rigid polyester (PET) sheets with polyurethane (TPU) coating on both sides (1 mm thick)
- Temp. resistance -20°C (-4°F) to 100°C (212°F)
- Width up to max. 8000 mm
- L max if necessary up to max. 24.000 mm
- Standard fold depth 125 mm (up to 300 mm maximum)
- Speed up to 90 m/min
- Acceleration up to 1 g
- Transverse beams made of aluminum hollow profile
- White, translucent fold material provides an optimum brightness in the working area
- Slide way systems depending on requirements (rollers, gliders, slideways)
- Motorized version for opening and closing
- Individual folding segments are replaceable
- Decoupling option for crane loading and unloading
- Material for special applications available upon request



SLIDEWAYS

We plan the machine roof bellow cover specifically according to your requirements. The implementation of this system can be done with the existing slideway or with a new customized slide way.



QUOTE REQUEST (FABRIC/LAMELLA BELLOWS)

Please complete this form and email to info@hennig-inc.com.

COMPANY

Company Name _____
Company Address _____

Name _____
Title _____
E-mail _____
Phone _____ Fax _____

APPLICATION INFO

Quantity _____
Travel Speed _____ m/min
Acceleration _____ m/s²
Width of Slideway _____
Type of Machine _____
of Strokes/Day _____
Coolants/Lubricants _____
Type of Swarf _____
Ambient Temperature _____
Linear Type of Slideway _____

Conditions of Application
 Chips Sparks Dust Temperature
 Coolant Oil Indoor Outdoor
 Other _____

Mode of Operation
 Horizontal Vertical Cross-rail Other _____

Axis X Y Z

Photos Available Yes No **DWGs or Sketches** Yes No

TECHNICAL DATA

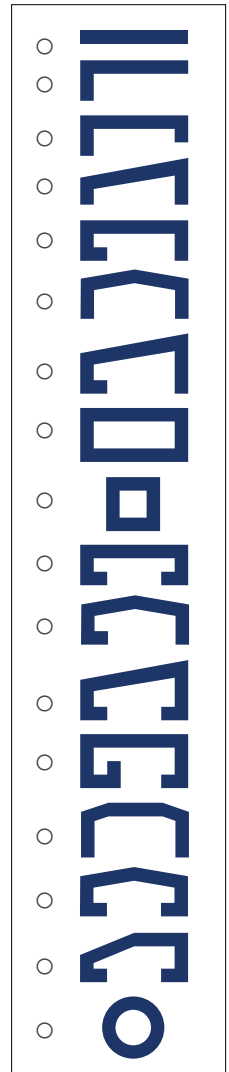
Unit of Measurement inches millimeters

S Required stroke _____
L Compressed length (min) _____
L Compressed length (max) _____
e Fold height _____
a Width of bellows _____
c1 Left-hand lateral height (outside) _____
c2 Right-hand lateral height (outside) _____
h Height of bellows above support _____
l Lower wrap-around _____
B Width of slideway _____
g Length of lamellas _____
d Inner diameter _____
D Outer diameter _____

Material of End Frames
 Steel Stainless Steel
 Aluminum PVC

Mounting Options
 Half fold Full Fold
 Collar Velcro
 External Flange

Shape
Choose one _____
-or-
Use page 11 and write the corresponding letter here _____



QUOTE REQUEST (RUBBER DISC BELLOWS)

Please complete this form and email to info@hennig-inc.com.

COMPANY

Company Name _____
 Company Address _____

Name _____
 Title _____
 E-mail _____
 Phone _____ Fax _____

APPLICATION INFO

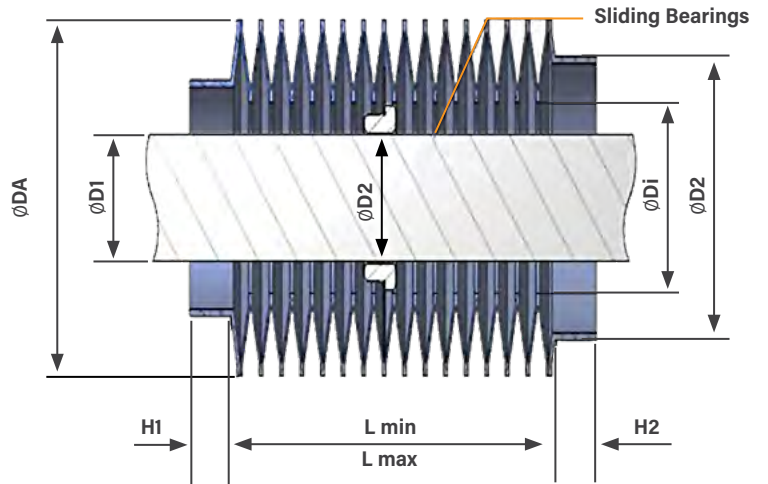
Quantity _____
 Working Position Horizontal Vertical
 Use of Bellow Inside Outside
 Temperature Range _____
 Work Cycles/min _____
 Max Speed (m/min) _____
 Working Hours/day _____
 Sliding Bearings Yes (Qty _____) No
 Air Vents Yes No

Exposed To	Inside	Outside	Permanently	Sporadically
<input type="checkbox"/> Water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Dust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Oil/Grease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Acid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Leaches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

DIMENSIONS

Unit of Measurement inches millimeters

d _____ D1 _____
 L (max) _____ DA _____
 L (min) _____ DA1 _____
 H1 _____ D1 _____
 H2 _____ D2 _____



MOUNTING OPTIONS



QUOTE REQUEST (MOLDED RUBBER BELLOWS)

Please complete this form and email to info@hennig-inc.com.

COMPANY

Company Name _____
 Company Address _____

Name _____
 Title _____
 E-mail _____
 Phone _____ Fax _____

APPLICATION INFO

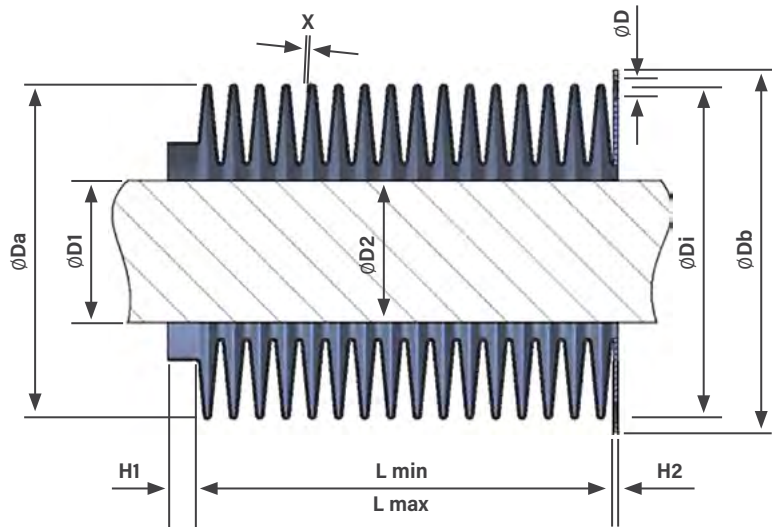
Quantity _____
 Material _____
 Working Position Horizontal Vertical
 Use of Bellow Inside Outside
 Temperature Range _____
 Work Cycles/min _____
 Max Speed (m/min) _____

Exposed To	Inside	Outside	Permanently	Sporadically
<input type="checkbox"/> Water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Dust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Oil/Grease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Acid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Leaches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

DIMENSIONS

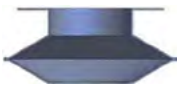
Unit of Measurement inches millimeters

Stem (Shaft) Diameter _____
 L (max) _____ Da _____
 L (min) _____ Db _____
 X _____ D1 _____
 H1 _____ D2 _____
 H2 _____ Di _____



MOUNTING OPTIONS

Type A



Type B



Type B



Type D



QUOTE REQUEST (MACHINE ROOF BELLOWS)

Please complete this form and email to info@hennig-inc.com.

COMPANY

Company Name _____
Company Address _____

Name _____
Title _____
E-mail _____
Phone _____ Fax _____

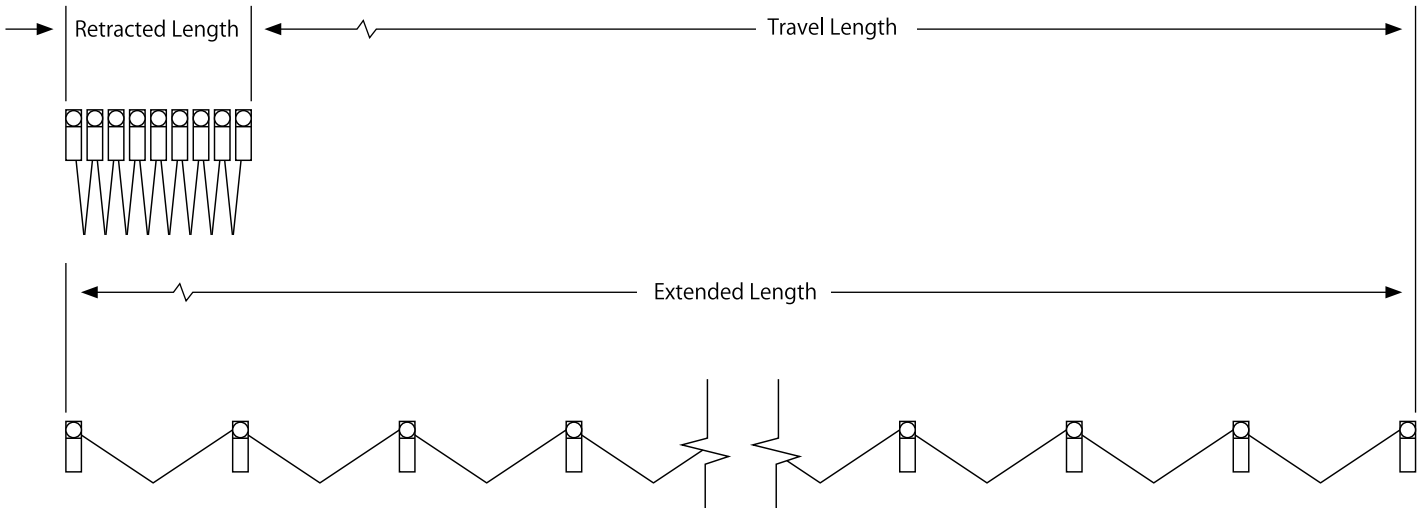
APPLICATION INFO

Quantity _____
Protection for Dust/Particle Containment Noise Attenuation Other _____
Mounting Existing Rails (Provide Dimensions) _____ inch mm
 Hennig to supply rails
Machine Speed _____ Acceleration _____ (Provide unit of measurement for each)
Machine Width _____ Machine Length _____ inch mm
Additional Info _____

DIMENSIONS & TRAVEL

Unit of Measurement inches millimeters

Extended Length _____ Retracted Length _____ Travel Length _____



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