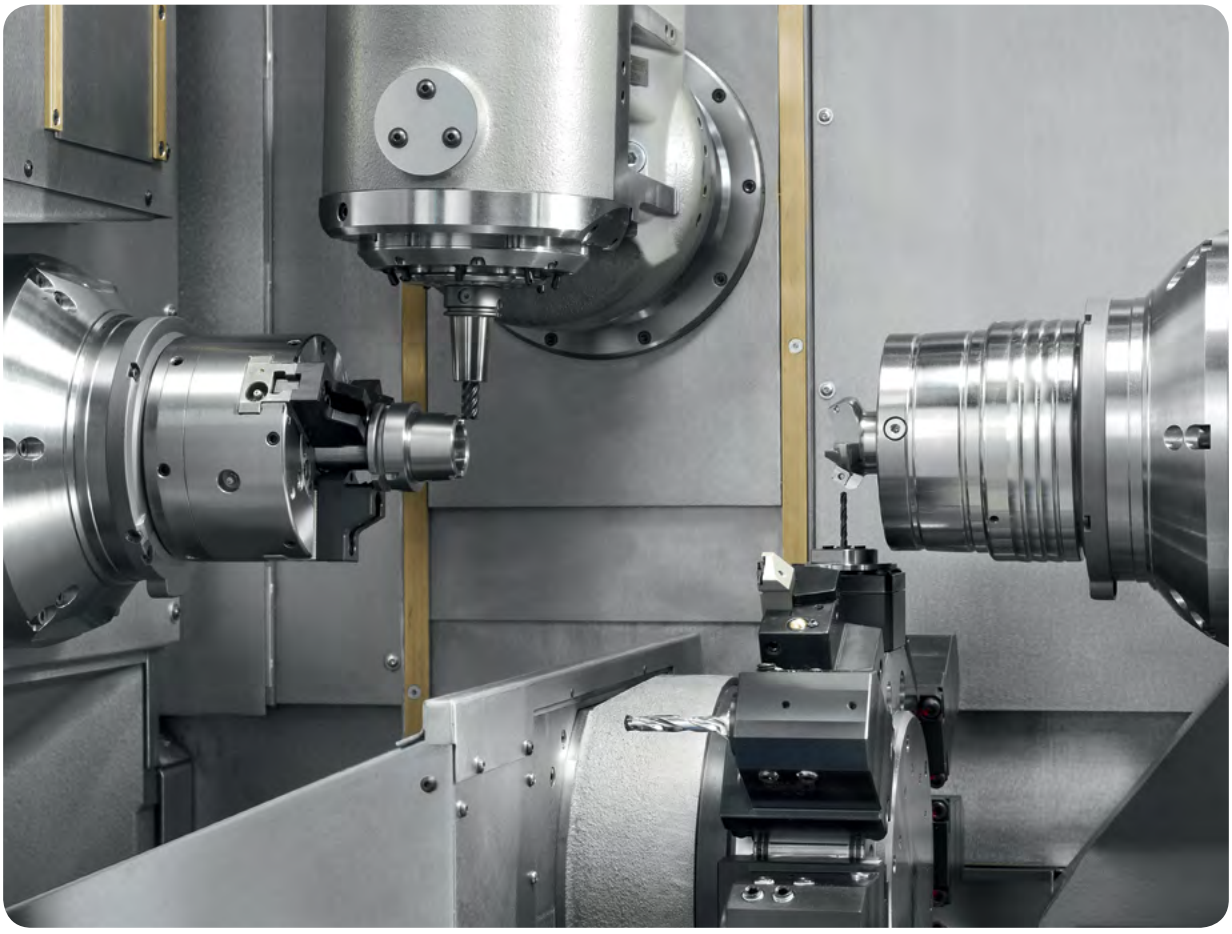
MACHINE PROTECTION

TELESCOPIC STEEL COVERS | MODULAR FACE SHIELDS | FLEX DOORS | BELLOWS | APRONS & ROLL-UP COVERS
WALK-ON COVERS | PIT COVERS | WIPER SYSTEMS | TELESCOPIC SPRINGS | CABLE CONDUITS | SERVICE & REPAIR



HENNIG®
global excellence in machine protection

www.hennigworldwide.com

HENNIG®

global **excellence** in machine protection

MAKING OUR CUSTOMERS SUCCESSFUL

Different machines and environments have varying protection requirements. We have options to cover your assets, no matter what your requirements are. With today's high-speed machines, protective covers must be able to keep up. We continuosly improve our products, maintaining economical and optimum solutions to the demands of modern manufacturing capabilities.

Team up with us to design, manufacture, and deliver protective covers that help you maintain a clean machine and working environment. We offer solutions for OEM engineers and end-users, with each design suited specificially for your application. And our services don't stop there. Our service & repair department can replace or repair all Hennig and non-Hennig brand covers, helping you maintain a safe environment.

CONTACT US

WORLD HEADQUARTERS

9900 North Alpine Road
Machesney Park, IL 61115
+1 815-636-9900
+1 888-436-6446 (toll free)
+1 815-636-9737 (fax)
info@hennig-inc.com

EUROPEAN HEADQUARTERS

Hennig GmbH
Überrheinerstr. 5
85551 Kirchheim, Germany
+49 89 96096-0
+49 89 96096-120 (fax)
info@hennig-gmbh.de

See pages 81-82 for a complete list of our worldwide locations / contact info

ISO 9001:2008
REGISTERED

TABLE OF CONTENTS

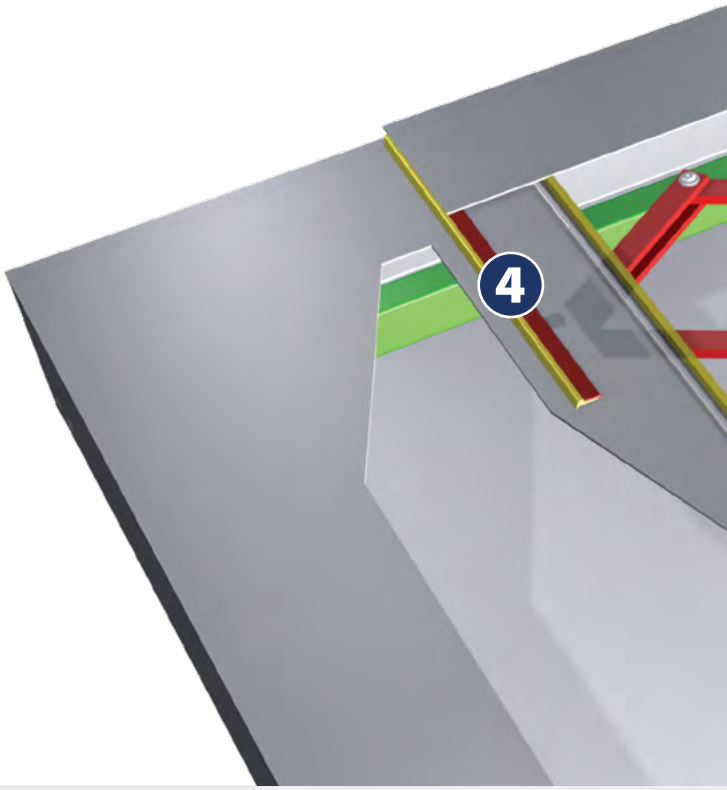
TELESCOPIC STEEL COVERS

The range of steel way covers manufactured by Hennig is unlimited. With over 65 years of experience in the industry, there is little that we haven't seen and built.

With manufacturing facilities located worldwide, we are knowledgeable of nearly every telescopic steel way cover application in the world. This experience also enables us to design and manufacture OEM or custom steel way covers for state of the art equipment, high speed machines, as well as unusual and unique applications.

- All forms are made from rolled commercial quality steel sheets
  - Standard gages 1.5 mm (16 gauge) to 3 mm (11 gauge)
  - Other gages available depending on the application
- Corrosion-resistant stainless steel can be used for extreme conditions
- Speeds from 20 to 150m/min can be attained
- Way wipers, guides, rollers and damping elements are interchangeable
- Coolant troughs (preventing coolant entering the boxes) can be included in the design of different models
- We offer service, repair, and reverse engineering for all Hennig and non-Hennig telescopic steel covers

See pages 11-12 Quote Worksheet.



features

1 STEEL
Commercial quality steel is used to withstand the abuses of the shop environment. Standard sheet thicknesses range from 1.5 mm (16 gauge) to 3 mm (11 gauge). Other gages available depending on the application.

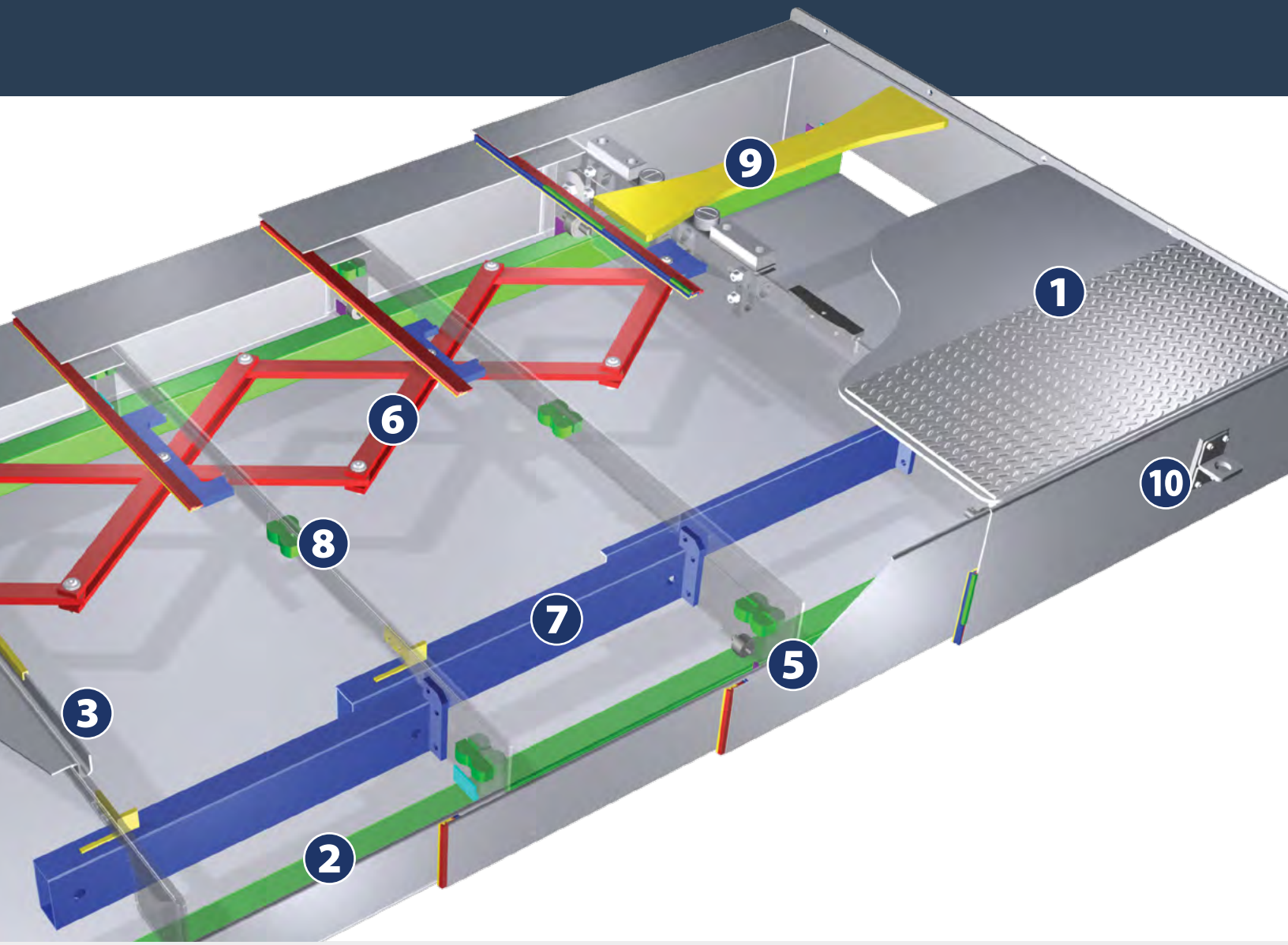
2 GUIDES
Brass or non-metallic guides can be used on the covers. Small and medium size covers can be supported with non-metallic, low friction guide shoes.

3 INTERLOCKING DESIGN
Wrap around construction ensures precise location of individual cover sections and automatically provides the necessary initial preload for the flexible wipers.

4 WIPER SYSTEMS
High endurance, insertable polyurethane wipers keep the cover clean and seal out chips, dust and coolants. See pages 9-10 for details.

5 SUPPORT ROLLERS
To ensure smooth, accurate operation, large covers can be provided with rollers. Ball bearing, needle bearing, and many other roller options are also available.

6 SCISSORS
Depending on speed and size of application, scissors can be used for a smooth operation.



options

7 HIGH SPEED MODULE
Perfect guidance for high speed covers up to 200 m/min (660 ft/min) and accelerations up to 2Gs over the entire traverse path. Ideal for linear motor machines.

8 DAMPING ELEMENTS (BUMPERS)
Bumpers are used based on machine speeds.

9 WEDGE DAMPENER (ME MODULE)
Used to soften impact on the boxes.
See page 7 for more information.

10 LIFTING LUGS
For ease of installation, lifting lugs can be provided.

not pictured

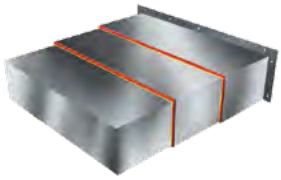
WAY EXTENSION BRACKETS
Extend from the machine ways to provide support for the cover while it is in a compressed position.

INSPECTION OPENINGS
For quick, easy inspections hinged or Plexiglas® panes may be specified.

SERVICE & REPAIR

We offer service and repair for all way covers (Hennig & non-Hennig brands) with a worldwide network of facilities.

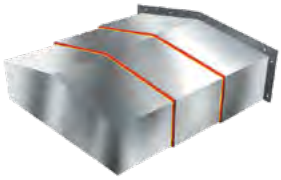
See page 77-78 for a full list of our service capabilities.
See page 13 for Repairs Request For Quote Worksheet.



FLAT (type AA)

The flat, u-shaped design represents the best economical solution for the protection of slideways. Available in horizontal or vertical format.

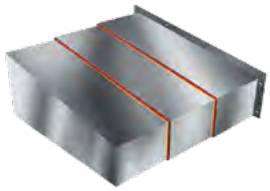
See page 11-12 for Quote Request Worksheet



PEAK (type BB)

The roof-shaped design deflects coolant and swarf on either side, depending on the angle of inclination. Additionally, the ridge provides higher rigidity and perfect guidance of the boxes. Available in horizontal or vertical format.

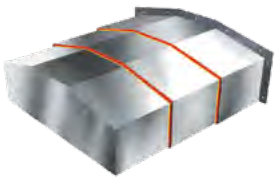
See page 11-12 for Quote Request Worksheet



SLANT (type CC)

The slope of this design ensures the diversion of coolant and swarf in one direction, depending on the angle of inclination. Available in horizontal or vertical format.

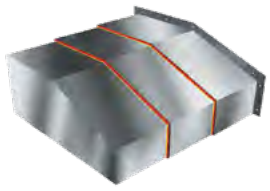
See page 11-12 for Quote Request Worksheet



HIP ROOF (type DD)

The flat-roof form is used for broad covers to provide maximum rigidity of the box surfaces. Available in horizontal or vertical format.

See page 11-12 for Quote Request Worksheet



FLAT/SLOPE (type EE)

The pent-roof design meets special geometric requirements and improves the draining of coolant and swarf, depending on the angle of inclination. The additional folded edge increases the rigidity of the boxes. Available in horizontal or vertical format.

See page 11-12 for Quote Request Worksheet

CROSS BEAM

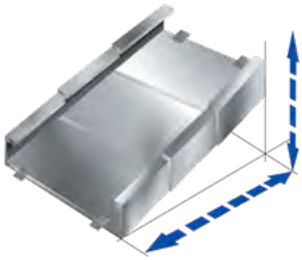
Cross-beam covers can be manufactured in the models above. For more than 3 boxes, however, it is necessary to provide an additional return at the top slideway to prevent the individual boxes from tilting or disengaging.

See page 11-12 for Quote Request Worksheet

VERTICAL SLIDING PLATE

In this type of cover, the individual plates slide in separate guide rails. Since these types of covers do not require slideways, they are particularly suited for the protection of column recesses. In the presence of swarf and coolant, the vertical sliding plate covers can only be mounted vertically. The guide rails are available in various materials to meet individual requirements.

See page 14 for Quote Request Worksheet



DUAL AXIS MOTION

Dual-Axis covers are typically moving behind the tables and under the spindle when space is limited. This design is limited to 3 boxes unless guide rails are used, and must be flat design for this style of cover.

See page 15-16 for Quote Request Worksheet

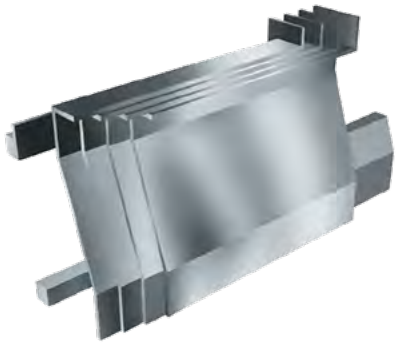
ALL SHAPES CAN BE CUSTOMIZED TO FIT YOUR APPLICATION

MODULAR FACE SHIELD (XYZ Module)

Hennig manufactures vertical-wall telescopic steel covers to deliver full protection of the X and Y-axes on horizontal spindle machining centers.

The precision ways and CNC feedback devices are completely protected against the hot chips and flood coolant that can potentially affect machine uptime and accuracy. Based on space availability, these covers can be designed with telescopic steel boxes, stainless steel, fabric, or aluminum extruded aprons, or bellows with steel plate protection (lamellas).

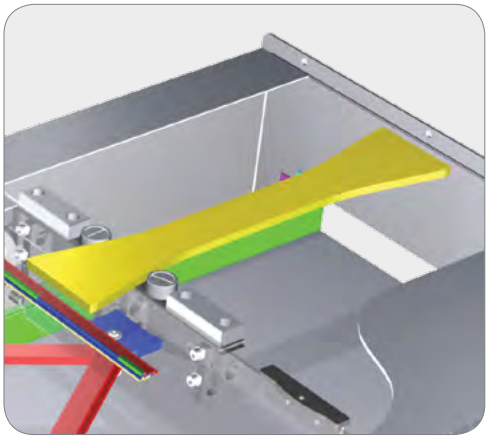
See page 43-44 for more details.



CUSTOM DESIGNS

FOR COMPLICATED SLIDEWAY FORMS

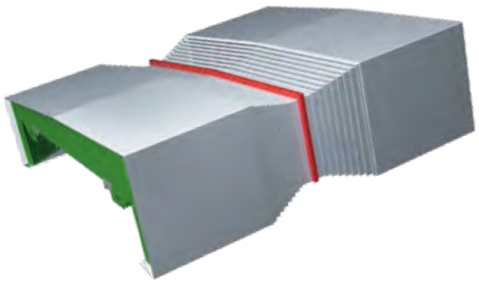
Different requirements and environmental conditions, complicated slideway forms, and less than ideal spacial conditions of special machines demand close cooperation between our design engineers and the machine tool manufacturers. Our engineers design your covers with knowhow, creativity and an attractive price-performance ratio.



ME MODULE

FOR HEAVY LOADS

High feed rates and accelerations are no longer excluded with large, heavy telescopic steel covers. The transport mechanism eliminates high limit stop forces and corresponding noises in all operational positions, moving smoothly when the covers are pulled apart as well as when they come together.
Test runs at speeds exceeding 328 feet per minute (100 meters per minute) and accelerations exceeding 2g were absolutely trouble-free. The system is not positively driven; as a result, it doesn't have to move the entire mass; the only boxes moved are the ones that are needed. The mechanically muffled units travel on guides which guarantee extremely high stability.



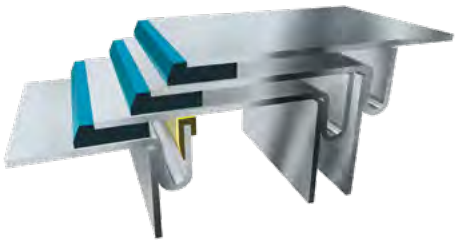
COUPLED TELESCOPIC STEEL COVER

FOR LONGER TRAVEL

By coupling a telescopic steel cover, a longer travel can be obtained. The box height above the ways, based on the same travel, is less with coupled telescopic steel covers than with one individual cover. The compressed length however is longer.

WATER-TIGHT TELESCOPIC STEEL COVERS

Our standard TSC designs are splash proof and suited for high traversing speeds. For high coolant applications, we offer water-tight covers using gutters to divert coolant.



integral gutter

The gutter is formed as an integral part of the rear panel of the individual boxes. This version can be manufactured in a cover width of up to approximately 2000 mm.

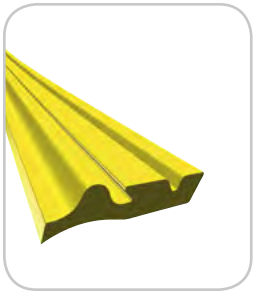
separate gutter

We can manufacture separate gutters for covers more than 2000 mm wide. In this design, a specially developed way wiper diverts the coolant along the inner side of the boxes. Due to its large cross-section, a separate gutter deflects the water optimally.

scheduled gullet

An attached water trough can be utilized with a variety of dimensions and is used mainly for large telescopic steel covers.

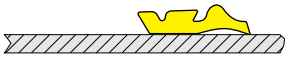
wiper lip | profile support | sheet metal box | damping material | profile support

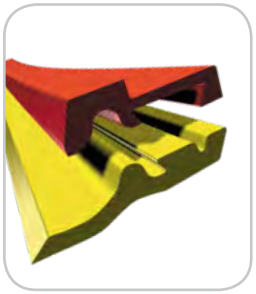


C SERIES

- Same design for all types of C wipers (except CL1)
- Highly wear-resistant polyurethane lips ensuring optimum resistance to water, coolants, chemicals and oil

See page 10 for variations and dimensions

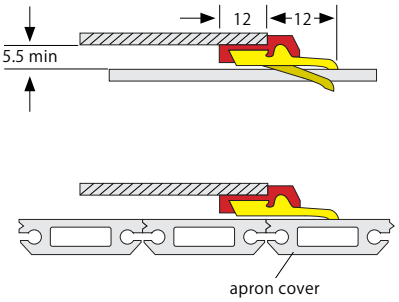


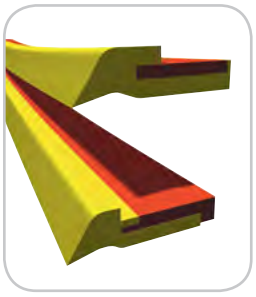


CL1

- Usable for large surfaces and aluminum apron systems for manifold applications
- Optimum wiping effect. Will wipe uneven surfaces up to 4 mm
- Highly durable and resistance against all common coolants
- Exchangeable and suitable for all profiles of series C2, 3, 5 and 6 (Illustration: CL1 with C2 profile)

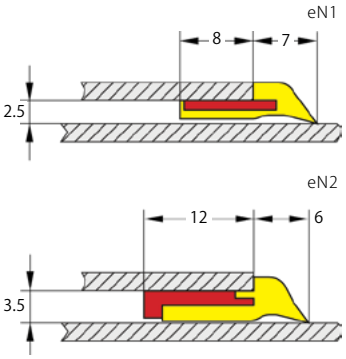
See page 43 for more information

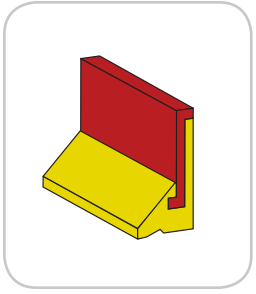




eN SERIES

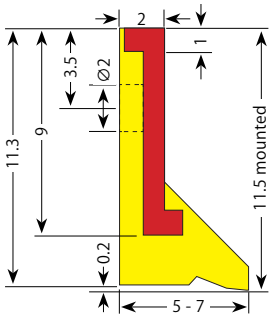
- Used on telescopic steel covers for slideways with small cross-sections
- Wiper lip vulcanized to a flat steel profile
- Highly wear-resistant polyurethane lip, resistant to oil, coolants and microbes
- Standard length: 500 mm

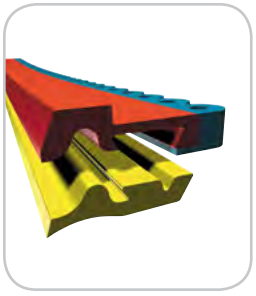




F (mini)

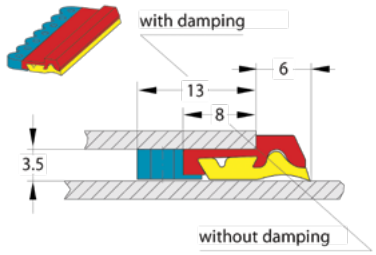
- Compact wiper with a height of only 11.5 mm
- Especially useful where space is limited, e.g. on extractors or slides
- The wiper lip is vulcanized on a steel profile
- Low priced wiper based on the proven SK-series
- Standard length: 500 mm

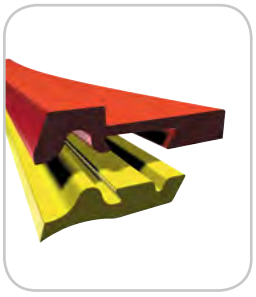




C2

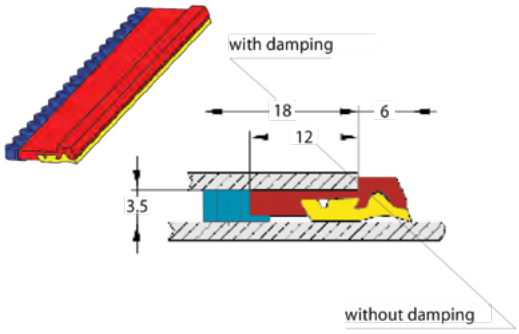
- Smallest wiper of the “C” series
- Replaceable wiper lips
- Very little space required (regarding the mounting height and depth)
- Also available with a rubber profile vulcanized on the profiled support, for optimum damping properties at high traverse speeds (illustration: C2 with damping)

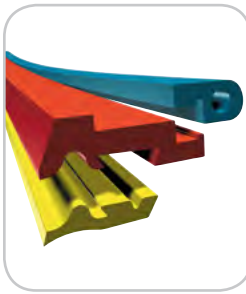




C3

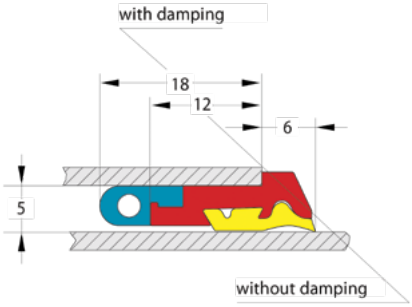
- Wider profile to ensure a better adhesion when spot-welding it to the box
- Replaceable wiper lips
- Very little space (mounting height) required
- Can be screwed onto the cover box
- Optimum rigidity of the cover box in the wiper area
- Available with and without damping (illustration to the right shows wiper with damping)
- Assembly dimension with damping 18mm





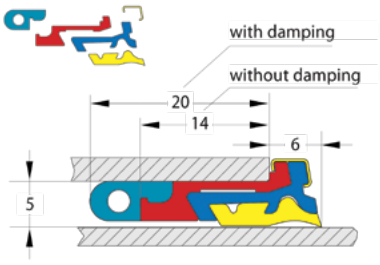
C5

- Designed for large covers
- Replaceable wiper lips
- A combination of C5 and C3 wipers is possible
- Optimum rigidity of the cover box in the wiper area
- Enlarged return gutter to ensure a rapid draining of the coolant
- Available with and without damping (illustration: C5 with damping)



C6

- Can be replaced directly on the machine without disassembling the cover
- Time saving and cost-effective
- Enlarged return gutter to ensure a rapid draining of the coolant
- Available with and without damping (illustration: C6 with damping)
- Replaceable profile (shown in blue) is fixed with spring clamps
- Solid profile support (shown in red) is welded with the box plate and remains on the cover



QUOTE REQUEST TELESCOPIC STEEL COVERS (NEW)

Please complete this form and email or fax to your desired location. See pages 81-82 for contact info.

HENNIG
www.hennigworldwide.com

COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date ____/____/_____

TECHNICAL DATA / EXISTING COVER DIMENSIONS

Quantity _____ ☐ Each ☐ Set

Number of Boxes _____

Cover Type _____

Mounting Configuration _____

Width of Cover _____

Height of Cover (HOC) _____

Height Over Ways (HOW) _____

Angle (α) _____

Height of Side (HOS) _____

Width of Top (WOT) _____

APPLICATION

Manufacturer ☐ Hennig ☐ Hennig Partner ☐ Other

Hennig or Partner Part # _____

OEM Part # _____

Cover Orientation (check one)

☐ Horizontal ☐ Vertical ☐ Cross Rail ☐ Slant Bed

☐ Column/Table ☐ Other _____

MACHINE TYPE

Make _____

Model _____

Axis ☐ X ☐ Y ☐ Z ☐ Other

Photos Available? ☐ Yes ☐ No

DWGs or Sketches available? ☐ Yes ☐ No

Operating Environment

☐ Dry ☐ Grinding ☐ Hot Chip

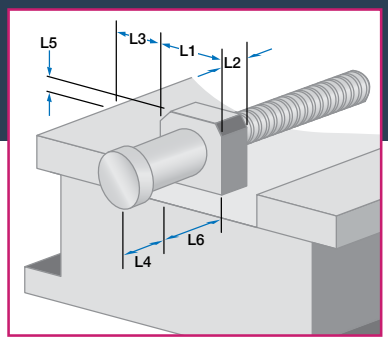
☐ Heavy Coolant ☐ Other _____

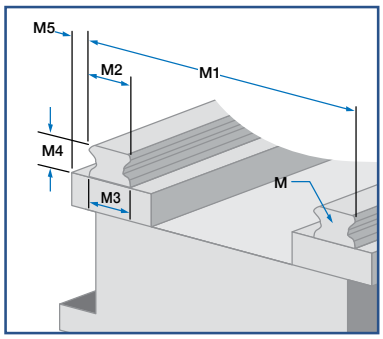
Operating Temperature Range _____

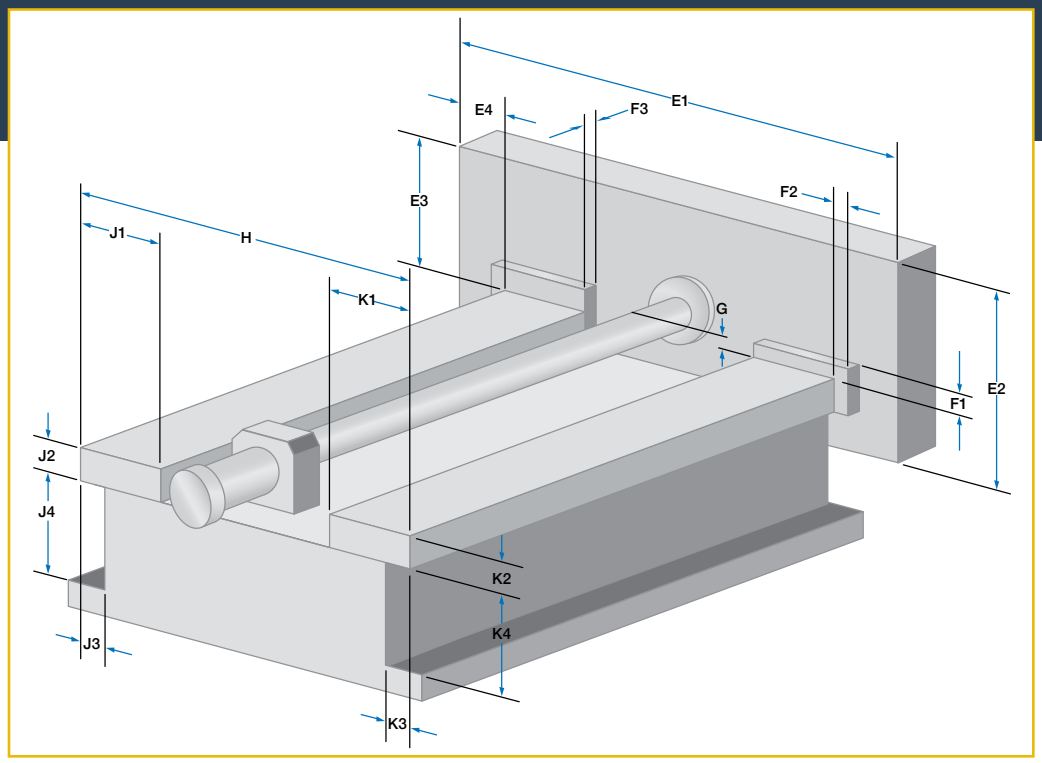
Maximum Travel Speed _____

DIMENSIONS

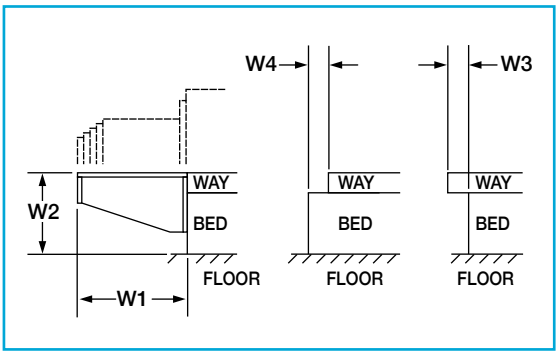
A	Extended length		K2	Individual height of way	
B	Compressed length		K3	Side of way to side of casting	
C	Travel		K4	Casting distance below way	
D1	End of way to table when compressed		L1	Width of drive mount	
D2	End of way to table at over travel		L2	Depth of drive mount	
E1	Table width		L3	Side of way to side of drive mount	
E2	Table height		L4	End of way to front of motor	
E3	Table height above way		L5	Drive mount height above way	
E4	Side of way to side of table		L6	End of way to drive mount	
F1	Way wiper height above way		M	Rail type	
F2	Side of way wipers to side of way		M1	Width over linear rails	
F3	Way wiper to table (depth)		M2	Rail width (top)	
G	Height of ball screw above way		M3	Rail width (bottom)	
H	Width over ways		M4	Rail height	
J1	Individual width of way		M5	Side of casting to side of rail	
J2	Individual height of way		W1	Way extension length	
J3	Side of way to side of casting		W2	Way height to floor	
J4	Casting distance below way		W3	Way to bed offset	
K1	Individual width of way		W4	Bed to way offset	



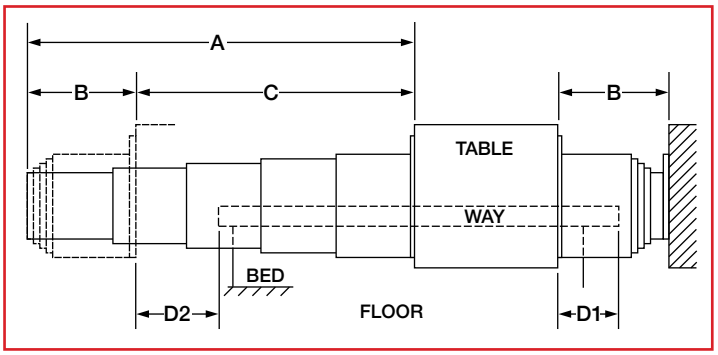




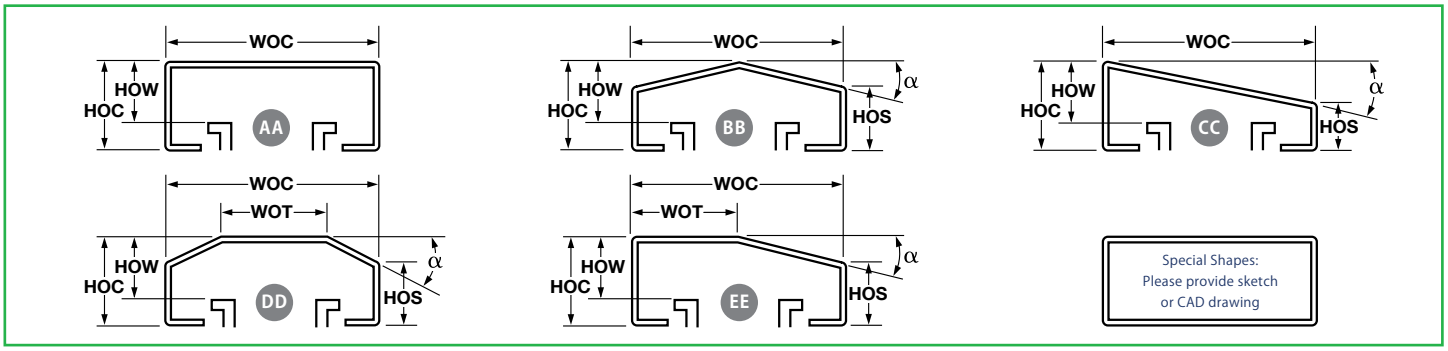
WAY EXTENSION BRACKETS



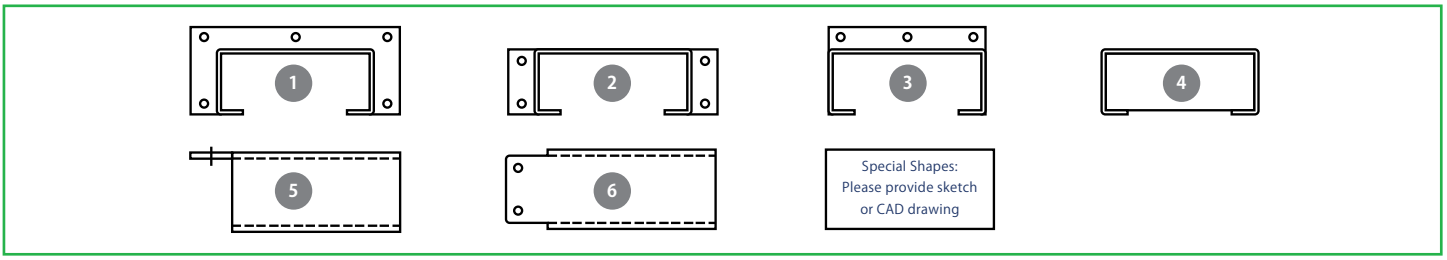
SIDE VIEW



COVER TYPES



MOUNTING CONFIGURATIONS



QUOTE REQUEST TELESCOPIC STEEL COVERS (REPAIR)

Please complete this form and email or fax to your desired location. See pages 81-82 for contact info.

HENNIG
www.hennigworldwide.com

COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date ____/____/_____

TECHNICAL DATA / EXISTING COVER DIMENSIONS

Quantity _____ Number of Boxes _____ Photos Available ☐ Yes ☐ No DWGs or Sketches Available ☐ Yes ☐ No

Width of Cover (WOC) _____ Height of Cover (HOC) _____ Height Over Ways (HOW) _____

Extended Length _____ Compressed Length _____ Travel _____

APPLICATION

Brand ☐ Hennig ☐ Enomoto ☐ Sermeto ☐ Cobsen ☐ Other _____

Hennig or Partner Part # _____ OEM Part # _____

Axis ☐ X ☐ Y ☐ Z ☐ Other _____ Maximum Travel Speed _____

Cover Orientation ☐ Horizontal ☐ Vertical ☐ Cross Rail ☐ Slant Bed ☐ Column / Table ☐ Other _____

Operating Environment of Cover ☐ Dry ☐ Grinding ☐ Hot Chip ☐ Heavy Coolant ☐ Other _____

Rollers ☐ Yes ☐ No Scissors ☐ Yes ☐ No

Machine Make _____ Machine Model _____

FOR A MORE ACCURATE QUOTE, PLEASE PROVIDE PICTURES OF THE DAMAGED WAY COVER.

NOTES _____

COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date _____/_____/_____

APPLICATION

Quantity _____

EXISTING COVER ☐ Yes ☐ No

Manufacturer ☐ Hennig ☐ Hennig Partner ☐ Other

Part # _____

OEM Part # _____

Machine Make _____

Machine Model _____

Photos Available? ☐ Yes ☐ No DWGs or Sketches available? ☐ Yes ☐ No

Operating Temperature Range _____

Maximum Travel Speed _____

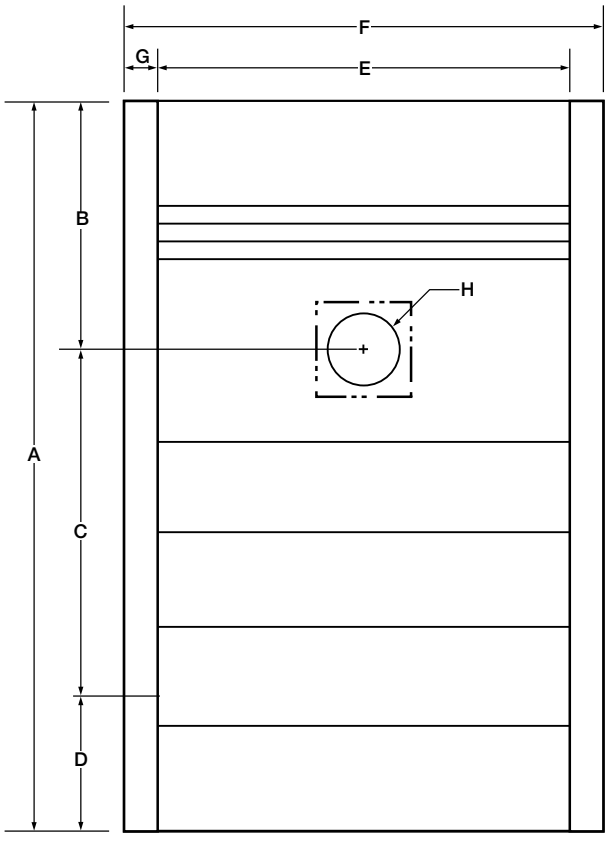
Movements/Day _____

DIMENSIONS

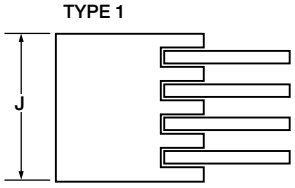
A	Overall length	_____
B	Top compressed	_____
B1	Number of top plates	_____
C	Travel	_____
D	Lower compressed	_____
D1	Number of lower plates	_____
E	Width	_____
F	Width with rails	_____
G	Rail width	_____
H	Diameter or rectangular opening	_____
I	Rail type ☐ Type 1 ☐ Type 2 ☐ Other	_____
J	Rail thickness	_____
K	Mounting hole pattern	_____
L	Scissor option	_____

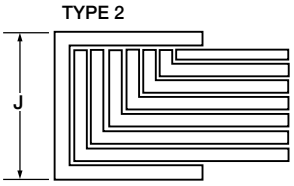
Top: ☐ none ☐ single ☐ double

Bottom: ☐ none ☐ single ☐ double



PLEASE INCLUDE ADDITIONAL SKETCHES OR CAD FILES IF AVAILABLE.





QUOTE REQUEST DUAL AXIS COVERS

Please complete this form and email or fax to your desired location. See pages 81-82 for contact info.

HENNIG
www.hennigworldwide.com

COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date ____/____/_____

APPLICATION

Quantity _____

EXISTING COVER ☐ Yes ☐ No

Manufacturer ☐ Hennig ☐ Hennig Partner ☐ Other

Part # _____

OEM Part # _____

Machine Make _____

Machine Model _____

Photos Available? ☐ Yes ☐ No **DWGs or Sketches available?** ☐ Yes ☐ No

Operating Temperature Range _____

Maximum Travel Speed _____

Movements/Day _____

DIMENSIONS

Cover extended _____

Cover compressed _____

A Max vertical extension of slide _____

B Vertical slide travel _____

C Min compressed vertical slide length _____

D Min compressed horizontal slide length _____

E Max horizontal extension of slide _____

F Horizontal slide travel _____

G Width of trough _____

H Cut-out around column width _____

J Extension beyond column depth _____

K Vertical Slide _____

L Width of cover _____

M Height of cover _____

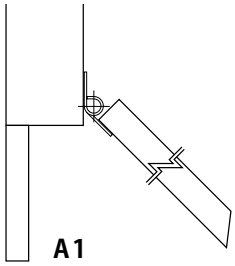
N Distance between guide bars _____

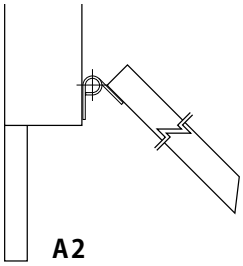
O Guide bar width _____

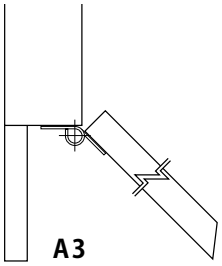
Mounting Option - Upper (see below) _____

Mounting Option - Lower (see below) _____

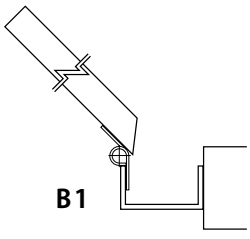
UPPER

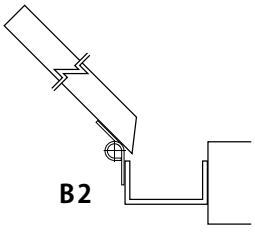


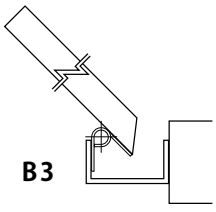


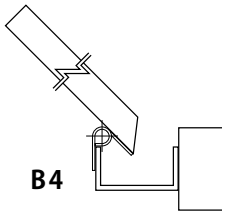


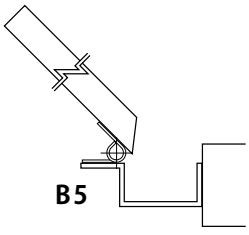
LOWER

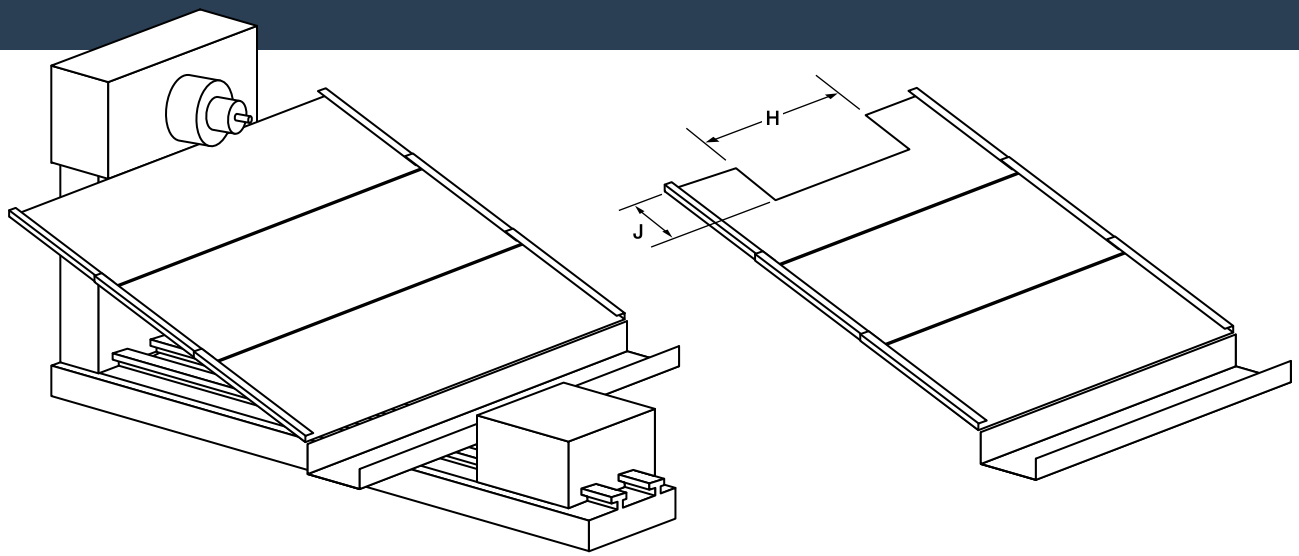


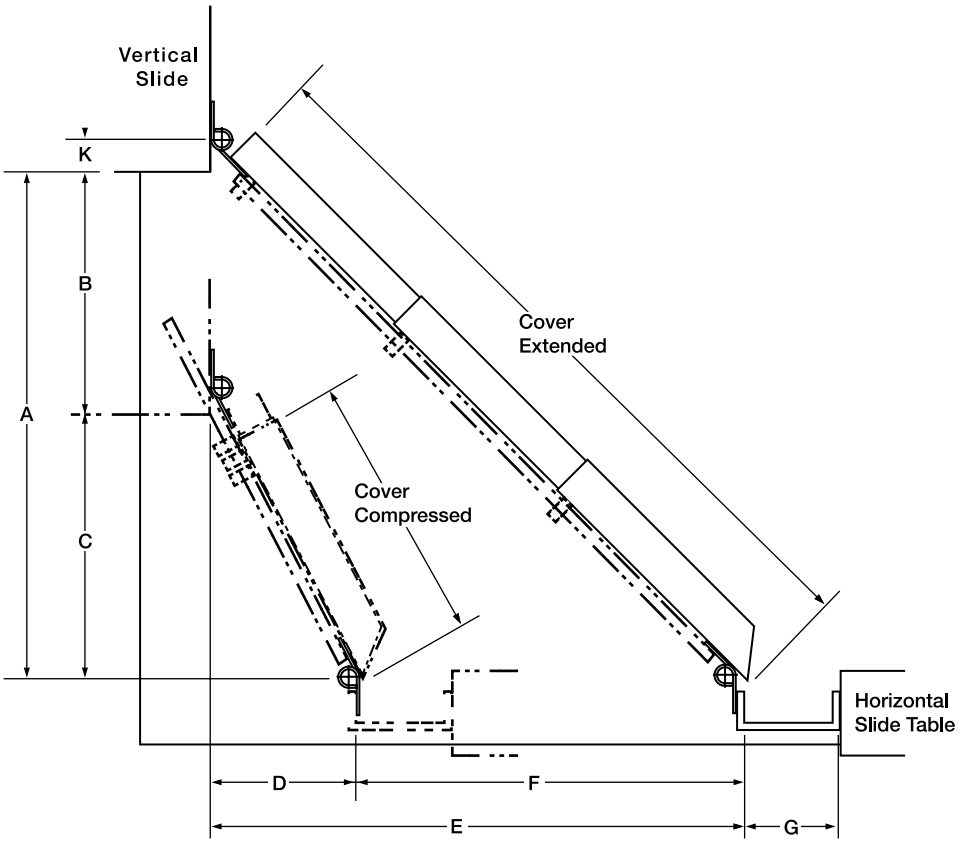


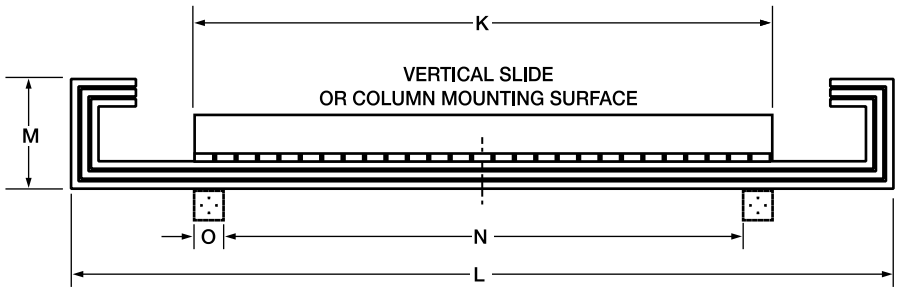







H
J


Vertical
Slide
K
B
A
C
Cover
Extended
Cover
Compressed
Horizontal
Slide Table
D
F
E
G


K
VERTICAL SLIDE
OR COLUMN MOUNTING SURFACE
M
O
N
L

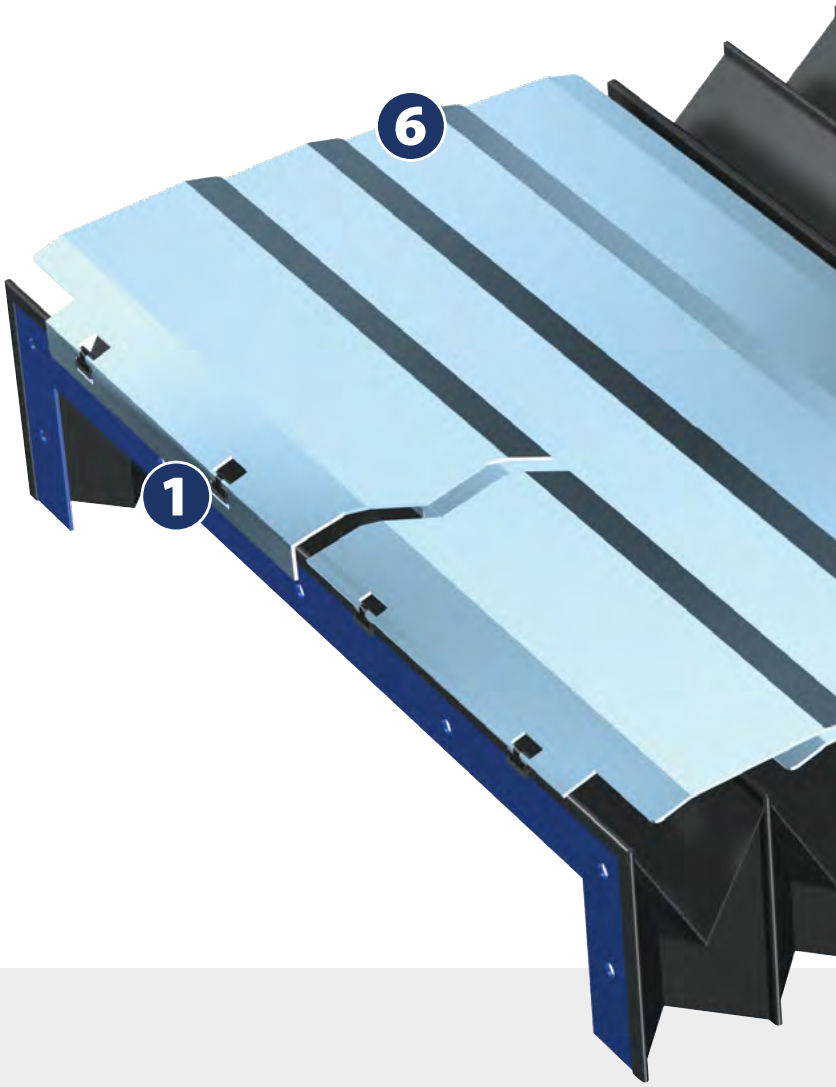
BELLOWS

We have designed and manufactured folded bellows for machine tools for more than 65 years. Our product range includes simple dust protection, sophisticated designs featuring extension systems and/or lamellas, as well as special designs for laser machines.

Our customers include nearly all renowned machine manufacturers. 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.

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

See pages 26 for Request For Quote Worksheet.



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

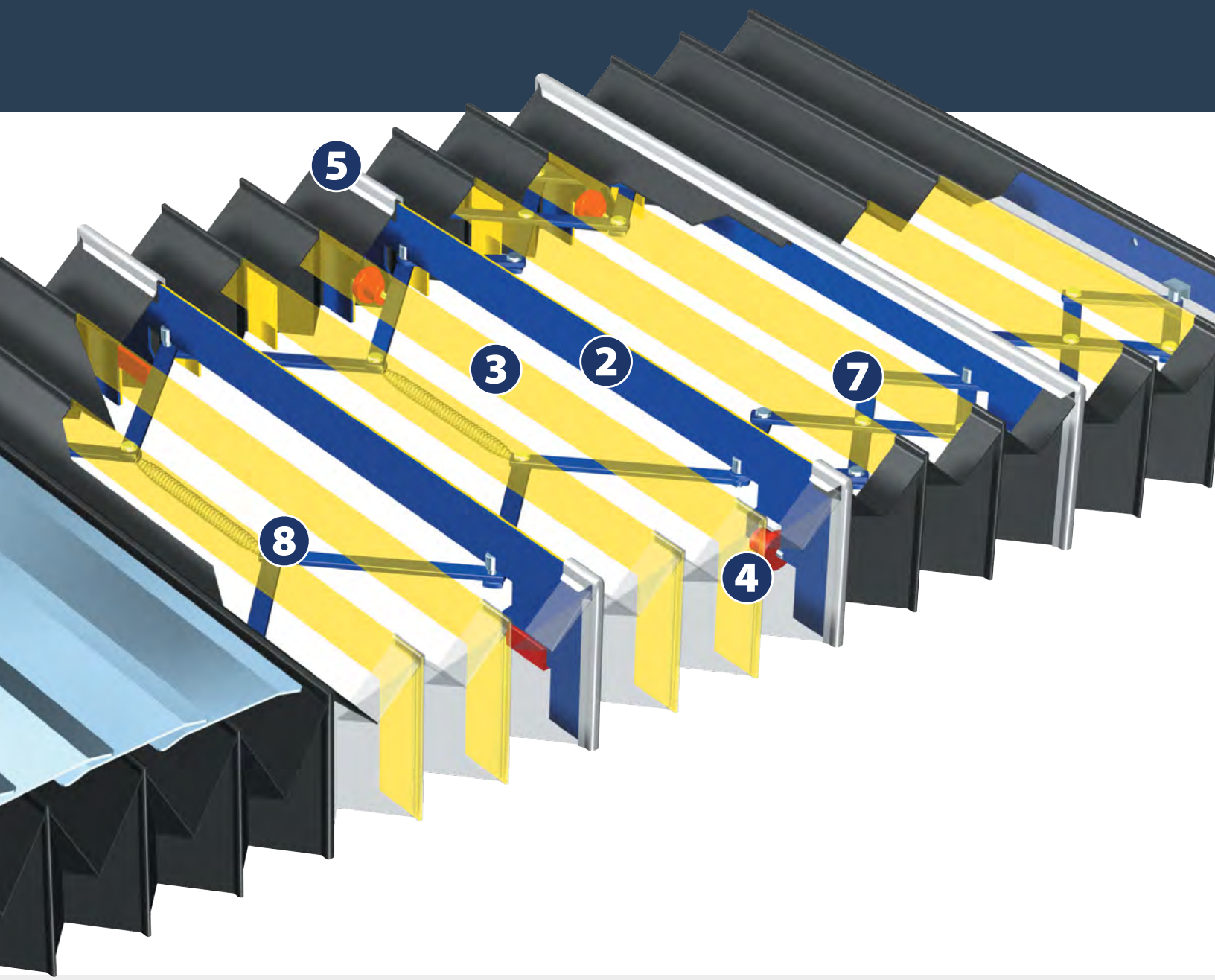
End frames, mostly made from steel or aluminum, connect the bellows with the machine. Hennig offers various fastening solutions for the adaptation to different bellows and machine interfaces.

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 the 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.

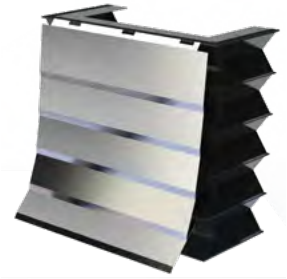
7 SCISSORS
Scissors are used for high traversing speeds. This allows an even extension of all elements across the whole extension length. As a result, the folds are less strained and the durability of the bellows is prolonged.

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.

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.

See page 21-22 for details. See page 26 for Quote Request Worksheet.



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.

See page 23 for details. See page 26 for Quote Request Worksheet.

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, or mechanical strain.

See page 24 for details. See page 26 for Quote Request Worksheet.

microFIN® MODULAR

Lightweight, interlocking steel fins connect modularly without requiring a folded bellow for support. Good for direct chip loads, red hot and sharp edged swarf, and high speed applications. With an extremely high compression of 2.4 mm per fin, the entire machine stroke can be significantly increased.

See page 28 for details.

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.

See page 22 for details. See page 26 for Quote Request Worksheet.

MOULDED 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.

See page 27 for details. See page 29-30 for Quote Request WorksheetS.

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 bellows roofing according to your circumstances, either by using existing guide systems, or designing a new system that fits your specifications.

See page 31 for details. See page 32 for Quote Request Worksheet.

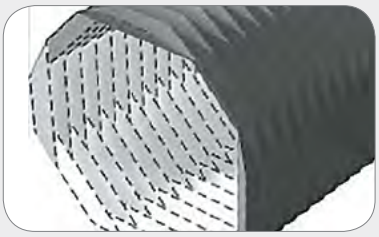
assembly options

HIGH FREQUENCY WELDED

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

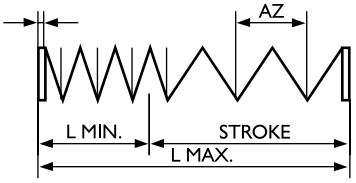
Due to their robust design, these bellows have a long and reliable service life, even under extreme mechanical and dynamic strain. The temperature resistance of these bellows can be increased to approx. 400 °C (752 °F) when using an aluminized fabric.

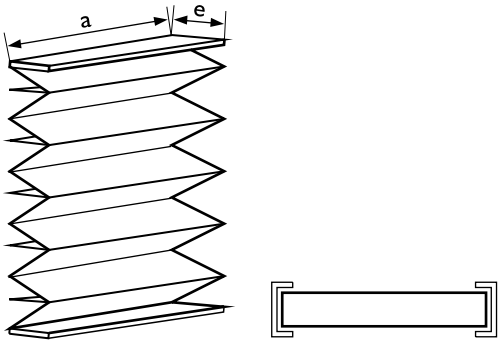


GLUED

These bellows consist of up to three foils glued together in sandwich construction. Due to the special gluing of materials, these bellows provide maximum protection, even against liquids.

FLAT BELLOW

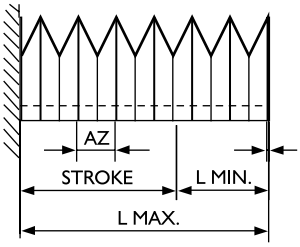


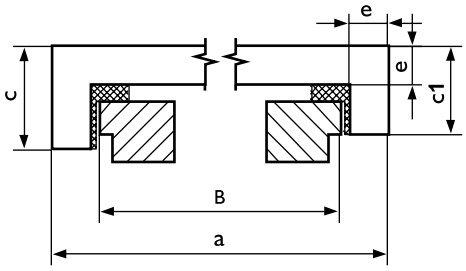


FLAT BELLOW	
FOLD HEIGHT (e)	EXTENSIONS PER FOLD (AZ)
15	14
17	18
20	24
24	32
30	44
35	54
40	64
45	74

All dimensions in mm

FOLDED BELLOW



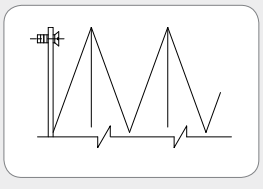


FOLDED BELLOW	
FOLD HEIGHT (e)	EXTENSIONS PER FOLD (AZ)
15	18
17	22
20	28
24	36
30	48
35	58
40	68
45	78

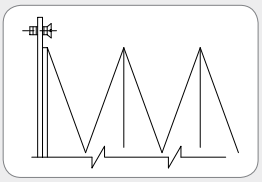
All dimensions in mm

See page 25 for table of materials & properties. See page 26 for Quote Request sheet.

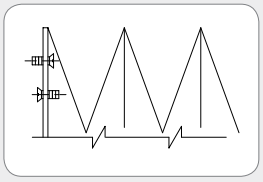
standard mounting options



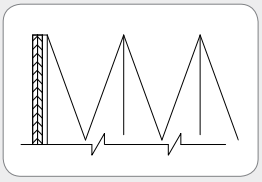
HALF FOLD
Limits extension of first fold for inside mounting



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

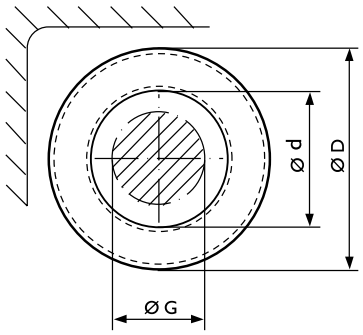


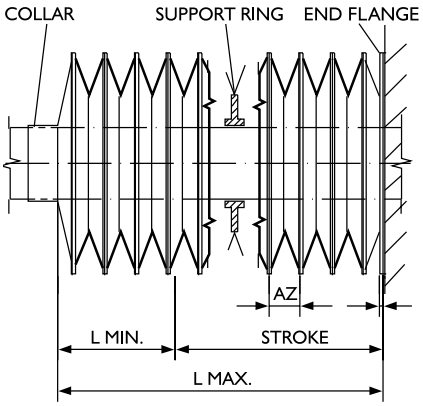
FULL FOLD
Allows for full extension of first fold for inside mounting



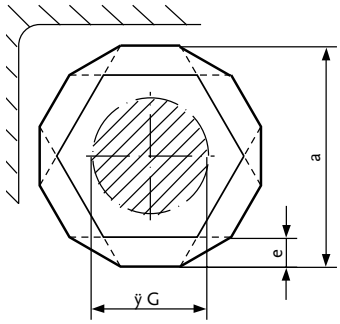
VELCRO
Supplied with adhesive backed velcro fastener for simple & quick inspection of machine components (dry applications).

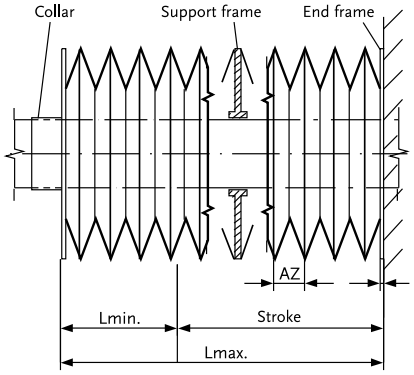
STITCHED ASSEMBLY





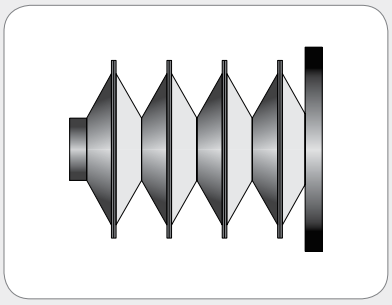
GLUED ASSEMBLY





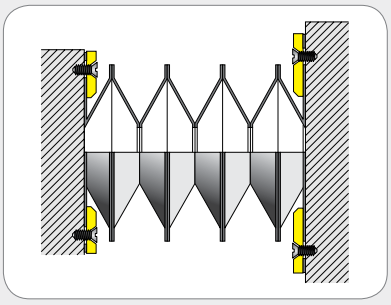
See page 25 for table of materials & properties. See page 26 for Quote Request sheet.

standard mounting options



COLLAR
(Type 1, Type 2)

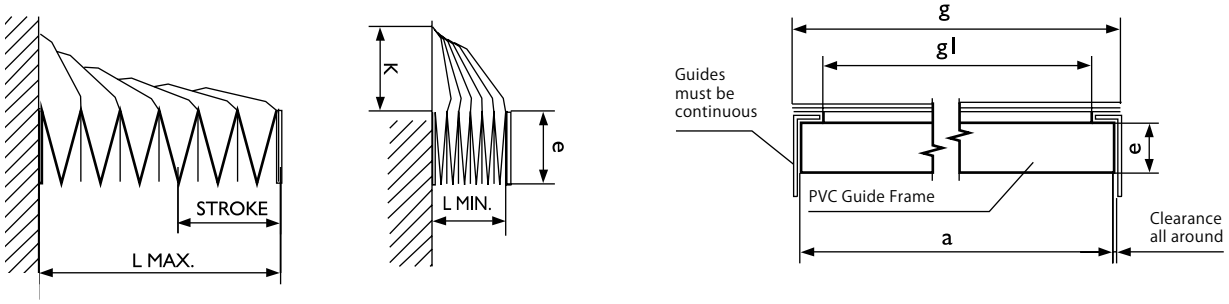
Different fixing devices are possible on either side.



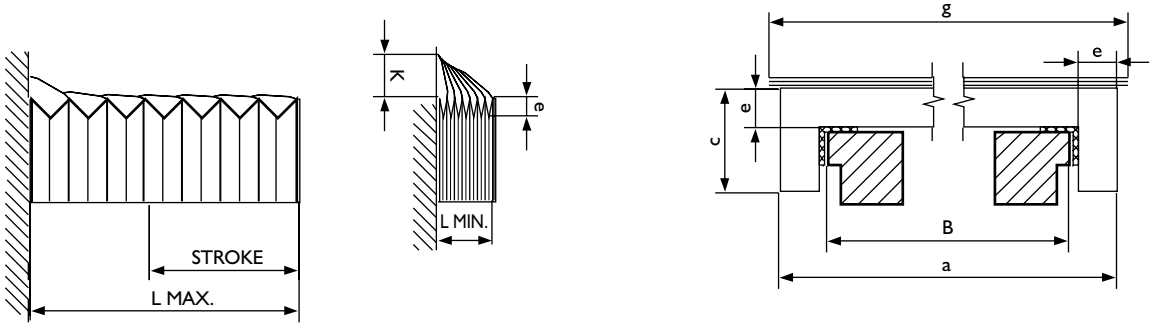
FLANGE

Different fixing devices are possible on either side.

FLAT BELLOW

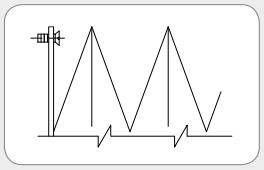


FOLDED BELLOW

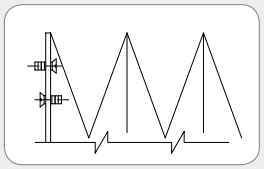


See page 25 for table of materials & properties. See page 26 for Quote Request sheet.

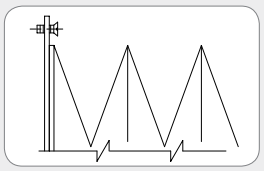
standard mounting options



HALF FOLD
Limits extension of first fold for inside mounting



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



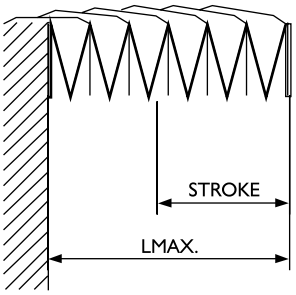
EXTERNAL FLANGE
Allows for full extension of first fold with outside mounting above bellows.

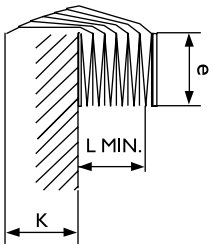
fold / lamella dimensions

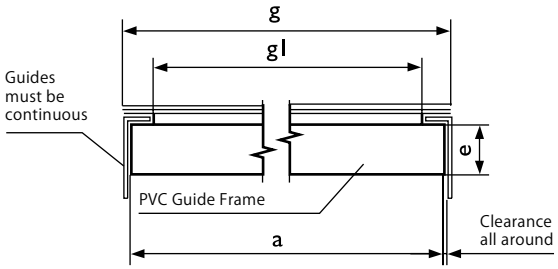
FOLD HEIGHT (e)	EXTENSIONS PER FOLD (AZ) Flat	Folded	WIDTH OF LAMELLAS (K)
24	30	36	67
30	42	48	82
35	52	58	87
40	62	68	97
45	72	72	107

All dimensions in mm

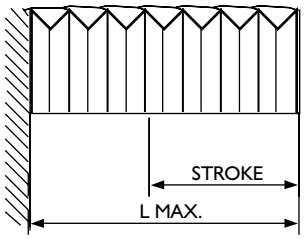
FLAT BELLOW

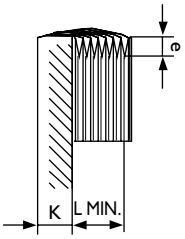


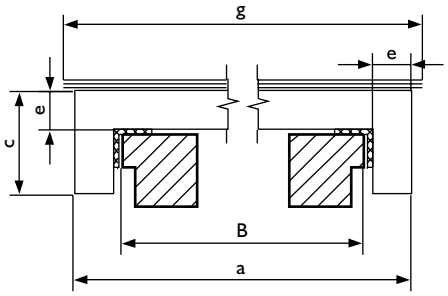




FOLDED BELLOW

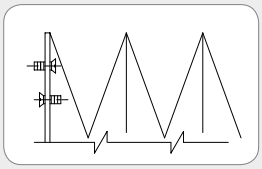




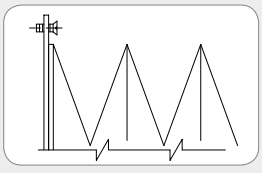


See page 25 for table of materials & properties. See page 26 for Quote Request sheet.

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	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

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		+	+	++	+	o	-	+
SP268	OZ-PUR	PUR	PUR	Polyester	0.22	Blk/Grey	x	x			+	+	o	o	o	-	++
SP271	PUR-Kevlar®	PUR	PUR	Kevlar®	0.36	Blk/Grey	x	x	x	x	++	++	++	+	+	+	+
SP205	OZ-23	PVC	PVC	Polyester	0.23	Black	x	x			+	+	o	-	-	-	++
SP206	OZ-35	PVC	PVC	Polyester	0.36	Black	x	x	x		+	+	+	o	o	-	+
SP208	Alum-Aramid	ALU	ALU	Nomex®	0.35	Silver	x	x		x	+	+	+	++	++	+	+
SP270	PUR/Teflon	PTFE	PUR	Polyester	0.30	Black	x	x	x		++	++	++	o	o	-	+
	Neoprene	NEP	NEP	Nylon	0.40	Black	x	x	x	x	++	++	++	++	o	-	o
	Hypalon	HYP	HYP	Nylon	0.40	Black	x	x	x	x	+	+	+	o	o	-	o
SP106	GN807	PUR	PUR	Polyester	1.00	Black	x	x	-	x	+	+	-	-	o	-	-
SP130	NA-784	TPU	TPU	Polyester	1.00	White	x	x	x	x	+	+	-	-	o	-	-

ST = Steel MS = Brass AL = Aluminum PUR = Polyurethane TPU = Thermoplastic polyurethane — **materials**

++ Excellent + Good o Suited under certain conditions - unsuitable — **characteristics**

* **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

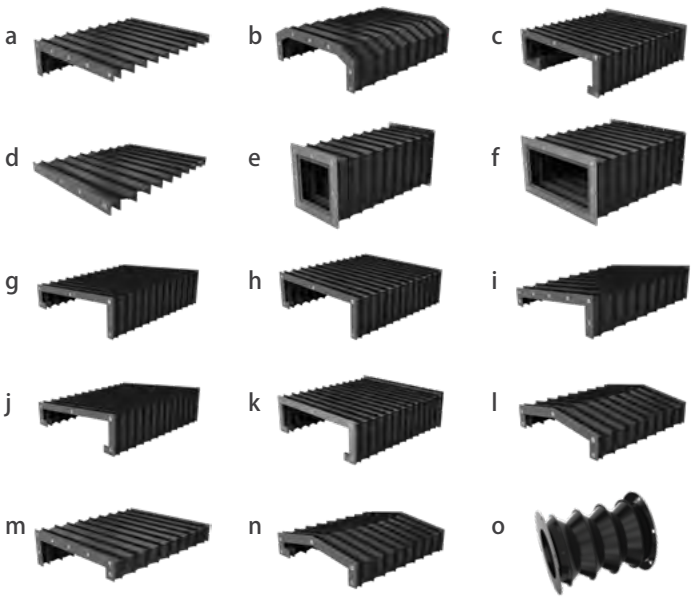
KEVLAR®
High strength, abrasion resistant, puncture resistant

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

TEFLON® POLYTETRAFLOURETHYLEN (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



COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date _____/_____/_____

TECHNICAL DATA

	Quantity	_____
S	Required stroke	_____
L	Compressed length (min)	_____
L	Extended length (max)	_____
e	Fold height	_____
a	Width of bellows	_____
c_1	Left-hand lateral height (outside)	_____
c_2	Right-hand lateral height (outside)	_____
h	Height of bellows above support	_____
l	Lower wrap-around	_____
v	Travel speed	_____ m/min
a	Acceleration	_____ m/s^2
B	Width of slideway	_____
g	Length of lamellas	_____
d	Inner diameter of bellows	_____
D	Outside diameter of bellows	_____
	Type of machine	_____
	Axis	X_____ Y_____ Z_____
	Number of strokes per day	_____
	Coolant, lubricants	_____
	Type of swarf	_____
	Ambient temperature	_____
	Linear type of slideway	_____

Photos Available ☐ Yes ☐ No

DWGs or Sketches Available ☐ Yes ☐ No

MATERIAL OF END FRAMES

☐ Steel ☐ Stainless Steel
☐ Aluminum ☐ PVC

MOUNTING OPTIONS

☐ Half Fold ☐ Full Fold ☐ Collar
☐ External Flange ☐ Velcro

MODE OF OPERATION

☐ Horizontal ☐ Vertical
☐ Cross-rail ☐ Other

CONDITIONS OF APPLICATION

☐ Chips ☐ Sparks
☐ Coolant ☐ Oil
☐ Dust ☐ Indoor
☐ Temperature ☐ Outdoor

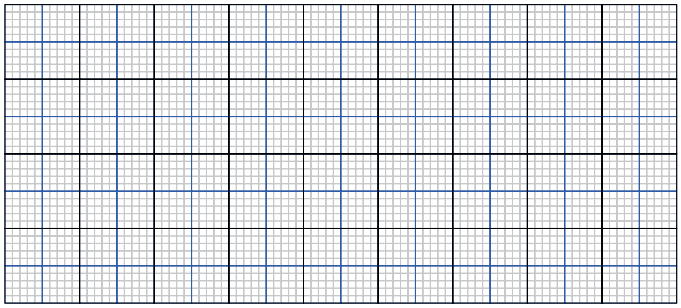
SHAPE

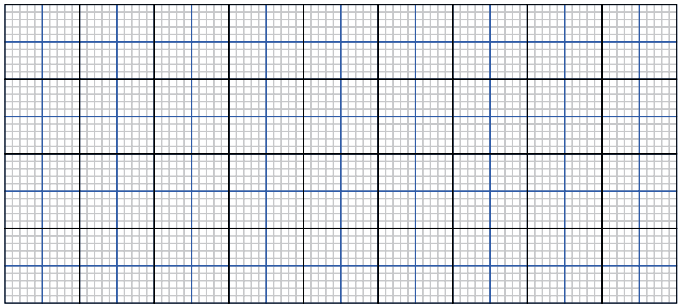
Circle one →

- or -

Use page 25 and write the corresponding letter here _____

ILLUSTRATIONS





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.

See page 29 for Quote Request Worksheet.

MOLDED RUBBER BELLOWS

Moulded bellows are primarily used for protecting lead screws, precisions 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.

See page 30 for Quote Request Worksheet.

table of materials

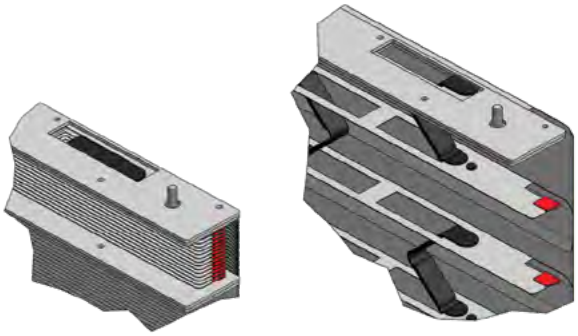
NO.	MATERIAL TYPE	THERMAL PROPERTIES °C min ------ max	HARDNESS RANGE SHORE A	MATERIAL RESISTANCE TO
01	NBR	-30 °C — +110 °C	40 — 75	Gasoline, Mineral Oil
02	FPM	-20 °C — +200 °C	40 — 75	Gasoline, Mineral Oil, Acids, Lyes, Water, Weathering & Ozone, Air Impermeability
03	CR	-35 °C — +100 °C	40 — 75	Weathering and Ozone
04	EPDM	-50 °C — +130 °C	40 — 75	Acids, Lyes, Water, Weathering and Ozone
05	VMQ	-65 °C — +200 °C	40 — 75	Weathering and Ozone, Steam

Survey of main elastomers. Further types on request.

- Exceptional compression ratio
- Excellent durability with high resistance to water, oil and dust
- Stainless steel fins
- Low noise and long durability life
- Cover shapes, dimensions, mounting types, moving speeds can be made according to your requirements

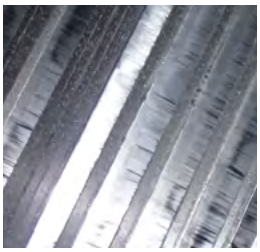
exceptional compression ratio

With its new designed geometry, microFIN feather elements interlock with the bellow elements. This enables the whole construction to achieve a compression of 2.4 mm per lamella. In comparison to regular bellows which have a relatively low compression rate, the whole machine stroke can be greatly increased.

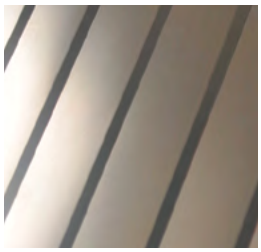


anti-scratch coating

With its unique coating at the bottom of each fin (lamella), scratching is prevented and the lifetime of the cover is In-creased significant (up to 70%). Additionally it increases the tightness against coolants and chips. Available for lamellas up to 1000 mm in width.



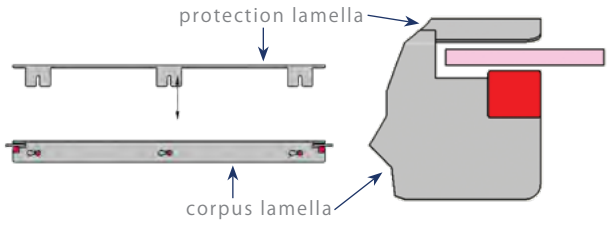
conventional



microFIN

modular construction

Each lamella is removable from the bellow system without disassembly of the whole cover system. This is achieved by a plug connection between corpus lamella and protection lamella. Damaged lamellas can be removed easily and economically.



sealing fabric option

Due to its modular construction, additional fabric can be added to the cover system. As a result, the cover gets 100% sealing against coolants without compromising the compression ratio.

COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date _____/_____/_____

APPLICATION

Quantity _____

Working Position ☐ Horizontal ☐ Vertical

Use of Bellow ☐ Outside ☐ Inside

Temperature Range _____

Work Cycles / min _____

Max Speed (m/min) _____

Working Hours / Day _____

Sliding Bearings ☐ Yes (Quantity_____) ☐ No

Air vents ☐ Yes ☐ No

EXPOSED TO	Inside	Outside	Permanently	Sporadically
☐ Water	○	○	○	○
☐ Dust	○	○	○	○
☐ Oil/Grease	○	○	○	○
☐ Acid	○	○	○	○
☐ Leaches	○	○	○	○
☐ Other	○	○	○	○

DIMENSIONS

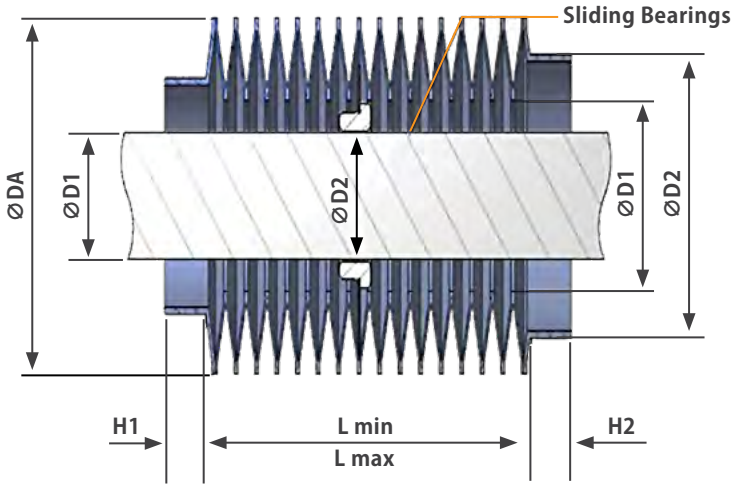
d _____ ØDi _____

L (max) _____ ØDA _____

L (min) _____ ØDA1 _____

H1 _____ ØD1 _____

H2 _____ ØD2 _____



MOUNTING OPTIONS

☐ Type A

☐ Type B

☐ Type C

☐ Type D

COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date _____/_____/_____

APPLICATION

Quantity _____

Material _____ (see page 27)

Working Position ☐ Horizontal ☐ Vertical

Use of Bellow ☐ Outside ☐ Inside

Temperature Range _____

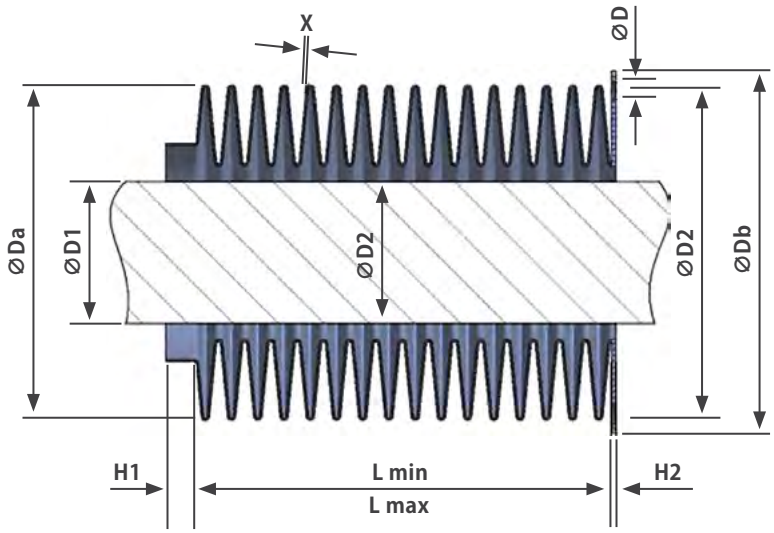
Max Speed (m/min) _____

EXPOSED TO	Inside	Outside	Permanently	Sporadically
☐ Water	○	○	○	○
☐ Dust	○	○	○	○
☐ Oil/Grease	○	○	○	○
☐ Acid	○	○	○	○
☐ Leaches	○	○	○	○
☐ Other	○	○	○	○

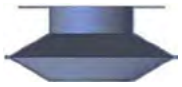
DIMENSIONS

Stem (shaft) Diameter _____ mm

L (max)	_____ mm	ØDa	_____ mm
L (min)	_____ mm	ØDb	_____ mm
X	_____ mm	ØD1	_____ mm
H1	_____ mm	ØD2	_____ mm
H2	_____ mm	ØDi	_____ mm



MOUNTING OPTIONS

☐ Type A 

☐ Type B 

☐ Type C 

☐ Type D 

BELLOWS | MACHINE ROOF BELLOW COVERS (ROOF PROTECT)

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 (up to 300 mm maximum)
- Speed up to 90 m/min
- Acceleration up to 1g
- 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, slide ways)
- 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 slide way or with a new customized slide way.

COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date _____/_____/_____

APPLICATION / ENVIRONMENT

Quantity _____

Protection For ☐ Dust/Particle Containment ☐ Noise Attenuation ☐ Other (provide description below)

_____

Mounting ☐ Existing rails (provide dimensions) _____ ☐ inch ☐ mm

☐ Hennig to supply rails

Machine Speed _____ **Acceleration** _____ (provide unit of measurement for each value)

Machine Width _____ **Machine Length** _____ ☐ inch ☐ mm

Notes _____

_____

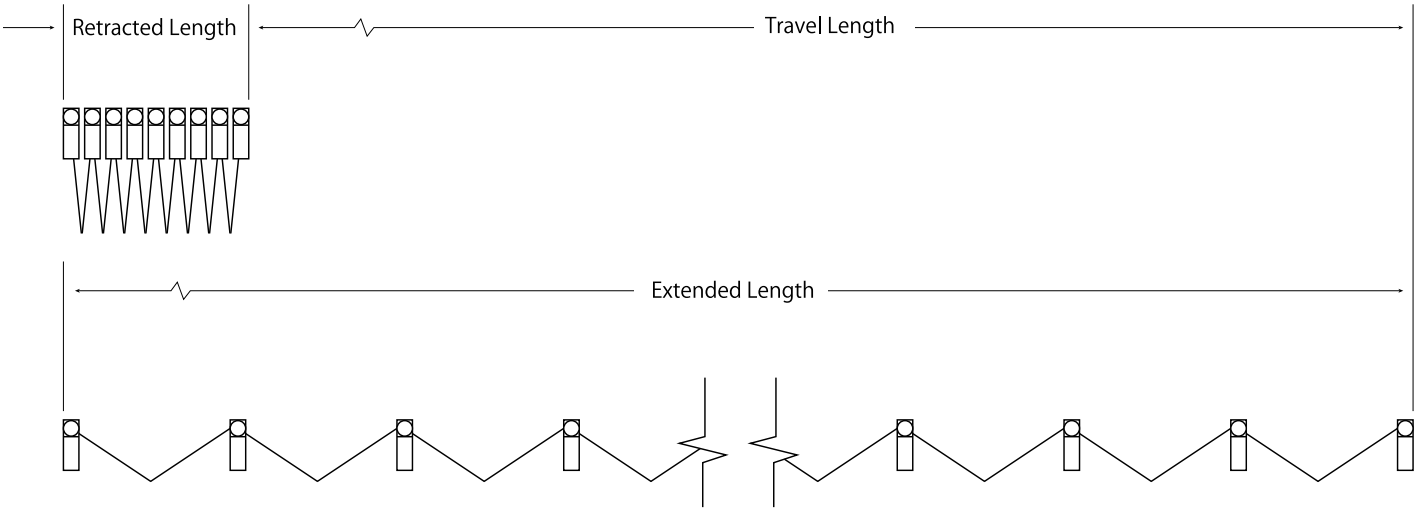
_____

_____

DIMENSIONS / TRAVEL

☐ inch ☐ mm

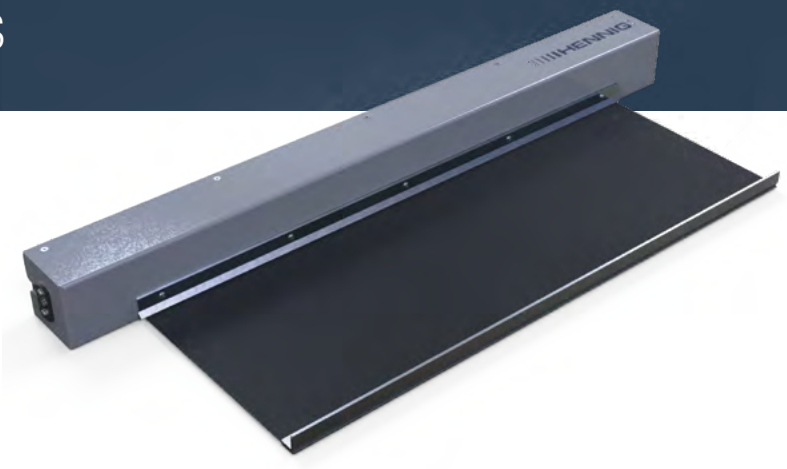
Extended Length _____ **Retracted Length** _____ **Travel Length** _____

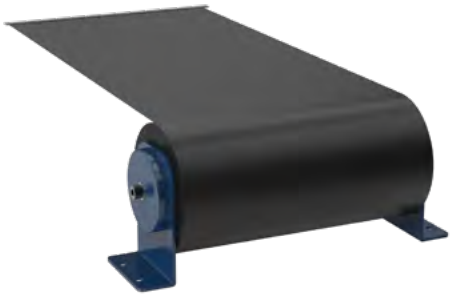


MATERIALS

Our apron covers are fitted in highly complex modular systems. They are not only functional and space saving but also optically very appealing. Our apron covers are custom designed for your application.

See page 41 for material technical details.
See page 42 for Quote Request Worksheet

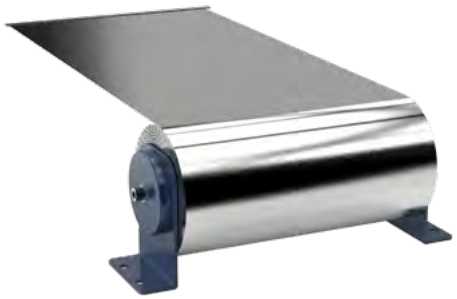




coated fabric

High-tensile polymide fabric coated with polyurethane

- Highly resistant to wear
- Tear-resistance of approx. 500 kg over a width of 5 cm
- Can be used at temperatures ranging between –40°C and +120°C
- Special cover bands coated with viton on one side, for contact temperatures up to 400°C
- Resistant against most universal oils, greases and coolants



stainless steel

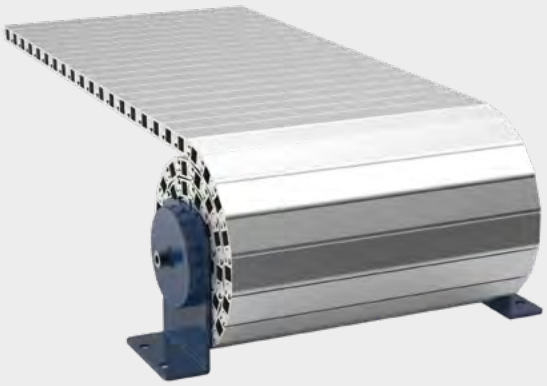
Durable, corrosion-resistant stainless steel sheets assembled in sections

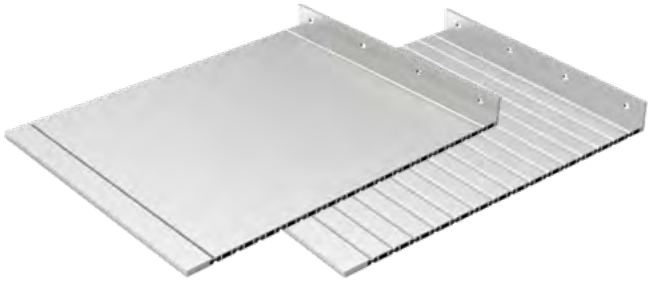
- Withstands high ambient temperatures
- Can be assembled in sections for easy replacement of damaged areas
- Completely resistant to penetration of contaminants (oils, coolant, swarf, chemicals, etc)
- Walk-on versions available using extruded aluminum tubing for support

ROLL-UP FEATURES

- Standard and custom designs based on your application
- High quality springs and ball bearing rollers with permanent lubrication
- Driven with a special spring which is mounted in a dust proof casing
- Maximum traverse speed of 80m/min
- Maximum stroke is directly dependent on the width of the cover
- Can be used in the open air under certain conditions

See page 42 for Quote Request Worksheet



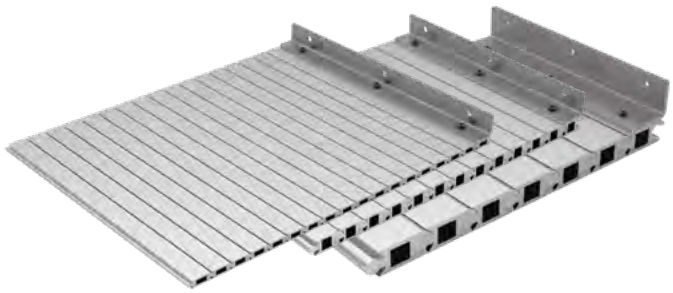


aluflex / gs20

Aluminum profiles with polyurethane hinges

- Aluflex: High flexibility in both directions (25 mm bend radius)
- GS20: When rolled out, creates a flush surface (ideal for wipers)
- Resistant to high temperatures
- Resistant to corrosion
- Special coatings available (eg, hard anodized)

See page 35-36 for details

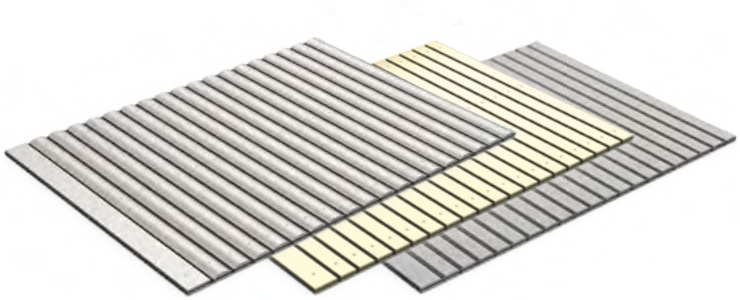


ags series (mini, I, II)

Anodized aluminum profiles & hinges

- Withstands high ambient temperatures
- High strain resistance even in long lengths
- Walk-on versions available (types I, II)

See page 37 for details



series 53

Polyurethane / aluminum coated polyester sheets with steel, brass, or aluminum lamellas

- Suited for extreme working conditions
- Sufficient protection against high volumes of swarf
- Highly resistant against oil, grease, coolants and hot swarf
- Small coil radius / space saving design

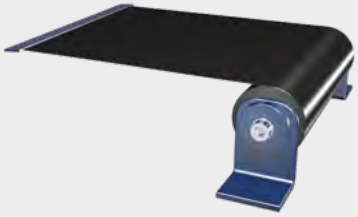
See page 38 for details

ROLL-UP OPTIONS

All apron materials are available as a roll-up, with an open reel design or with a canister housing.

CLOSED CANNISTER

Protective cannister housings can be provided to add protection to the roll-up covers gearing, spindle, and wound-up cover areas.



OPEN REEL

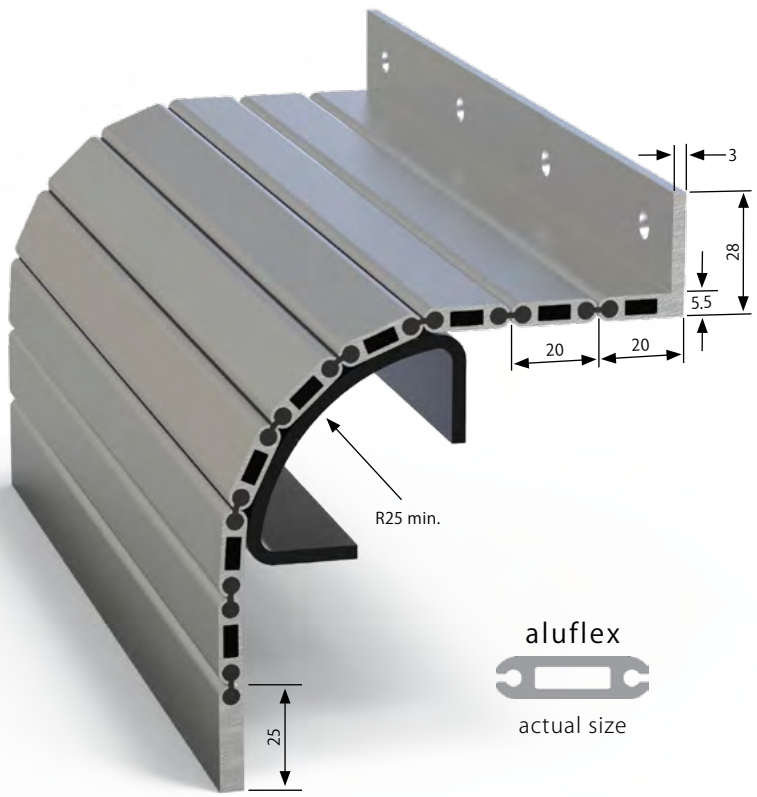
The standard option for roll-up aprons. Cost efficient and effective is most standard applications.

ALUFLEX

Highly flexible aluminum apron

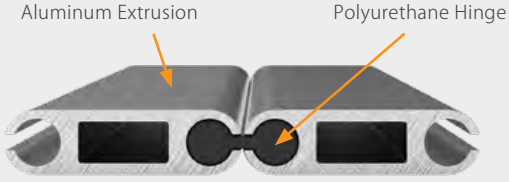
- Light, highly flexible hinge-type aluminum apron, particularly suited for the protection of machine parts which are not permanently exposed to hot chips
- Made of anodized aluminum precision profiles which are positively interlocked with polyurethane hinges (joints)
- The symmetric design of the aluminum profile enclosing the flexible hinges assures a high flexibility in both bending directions
- A simple but effective connection technique enables the users to easily assemble the aprons themselves. Profiles and hinges are available to lengthen existing aprons
- Splash-proof

See page 42 for Quote Request Worksheet



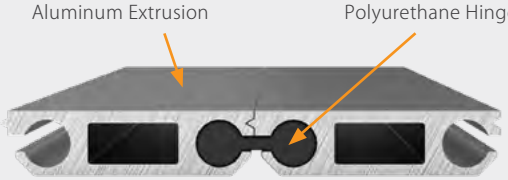
DESIGN FEATURES

aluflex



Symmetric design allows for high flexibility in both directions

gs20



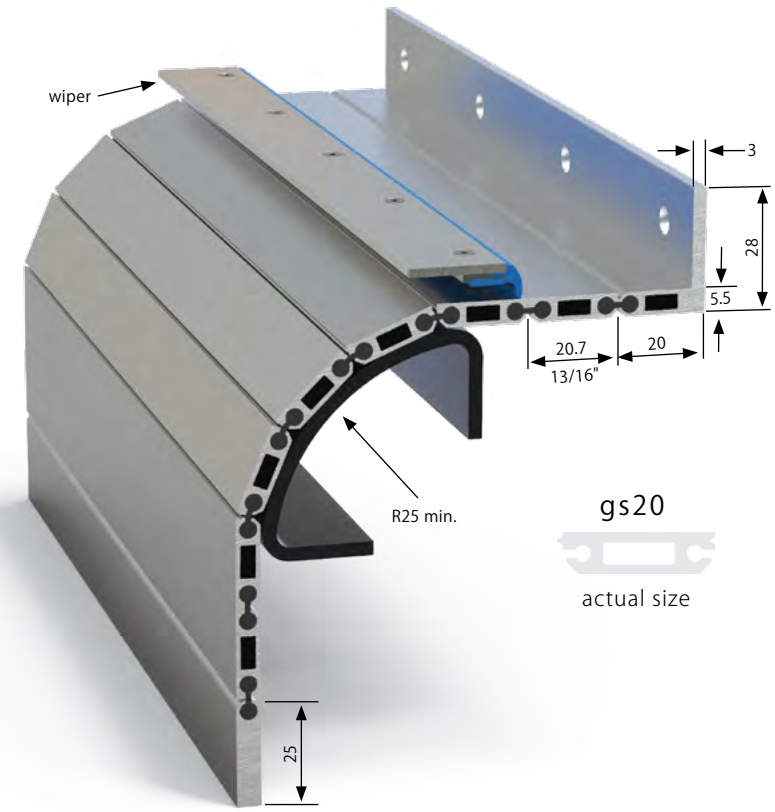
Locking design provides a flush surface suitable for wiper systems

GS20

Aluminum apron with a rigid interlock

- When rolled-out, creates flush surface which can be wiped clean using one of Hennig's wiper systems
- With the interlock, the polyurethane hinges are additionally protected
- High torsional stiffness
- Not recommended for horizontal deployment with simultaneous chip production
- Acceleration of 1.5 g and speed of 150 m/min are feasible
- Special coatings available (eg, hard anodized)

See page 42 for Quote Request Worksheet



hard anodized coating (GS20 only)

For demanding environmental conditions

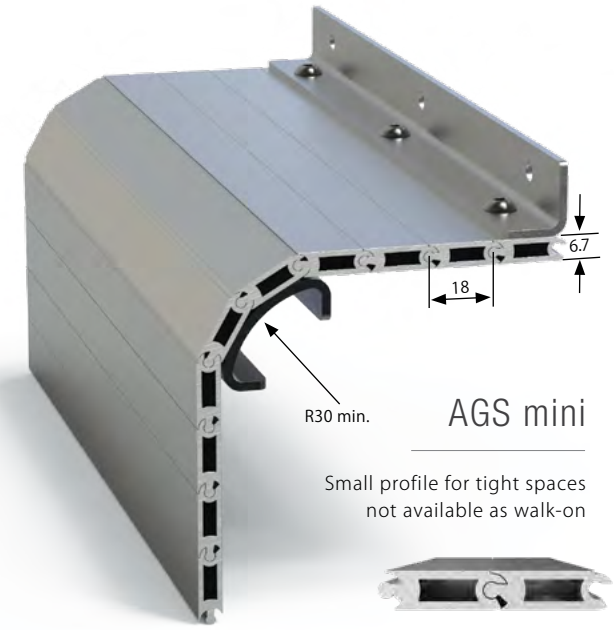
- the hard eloxal technique creates a hard, ceramic-like surface on the hard anodized aluminum profiles
- extra protection against corrosion, abrasion, and wear
- coating thickness of 50 microns
- protection against all kinds of chips and direct hits
- appropriate for all kinds of materials, i.e., grey cast iron, titanium

AGS MINI, I, II, III

Anodized aluminum profiles and hinges

- Precision profiles are perfectly interlocked.
- Stable and flexible protection when space is limited.
- Special hinges prevent coarse dirt from entering and allow self-cleaning during the movement.
- Withstands high ambient temperatures up to 500°C.
- Resistant to corrosion by using anodized aluminum.
- High strain resistance, even in long lengths.
- Especially suitable for roll-up mechanisms.
- Walk-on versions available for AGS I, II, III
- Interchangeability of individual profiles.
- Side guides not required.
- The AGS mini, AGS I, and AGS II differ in their profile cross sections and loading capacity.
- Standard version comes with protruding rivets - 2mm on each side. (AGS I and AGS II are available with protruding or flat head rivets.)

See page 42 for Quote Request Worksheet

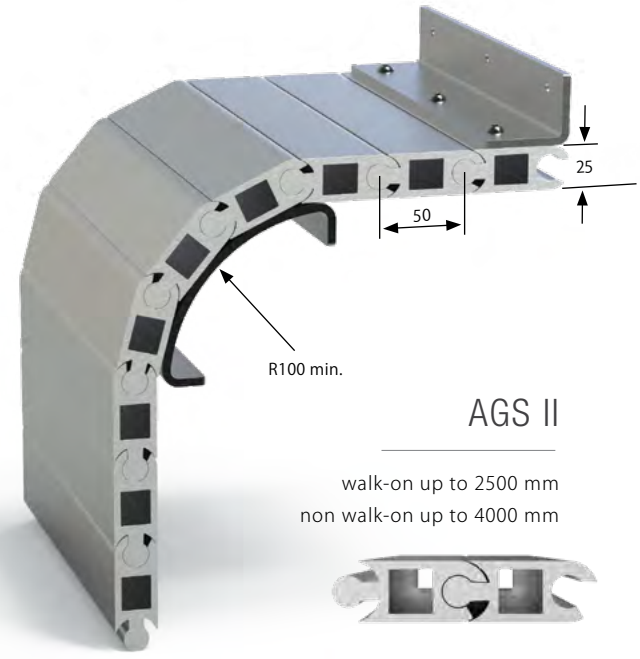


AGS mini

Small profile for tight spaces
not available as walk-on

AGS I

walk-on up to 1100 mm
non walk-on up to 3000 mm



AGS II

walk-on up to 2500 mm
non walk-on up to 4000 mm

SERIES 53 (1, 2, 4)

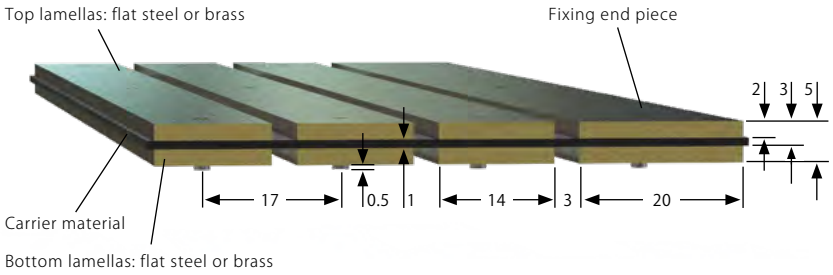
2 layer carrier material with metal lamellas

These apron covers are highly flexible and designed for optimum protection against swarf and falling work pieces, especially suited for extreme working conditions.

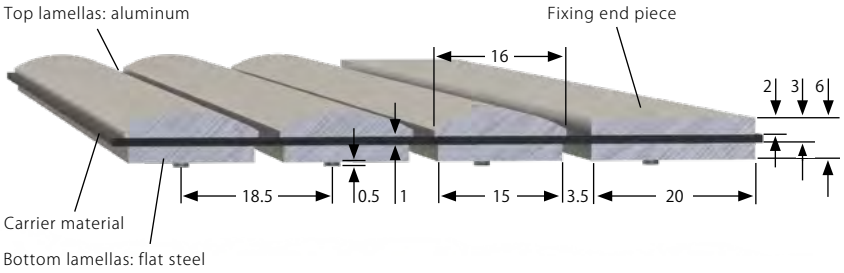
- Sufficient protection in case of high volumes of swarf (e.g. at lathe tool posts)
- Two-layer carrier material: PUR coated fabric at the bottom, aluminum-coated glass fiber fabric at the top (heat resistance)
- Reinforced on both sides with steel, brass or aluminum lamellas, this type of apron is a robust cover element
- Highly resistant against oil, grease, coolants and hot swarf (contact temperature of up to + 300°C)
- Splash-proof according to IP 54
- Small coil radius. Space saving.
- Fastening is possible alternatively with angles, hinges or other fittings

See page 42 for Quote Request Worksheet

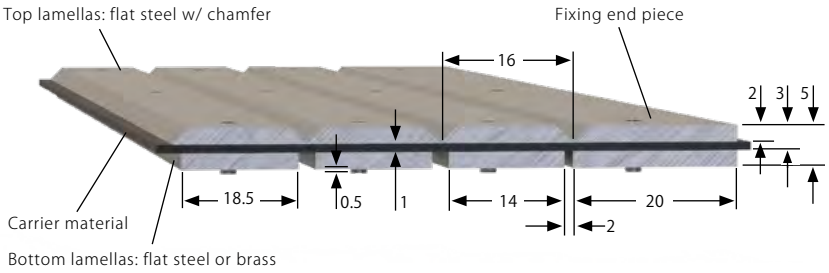
type 53-1



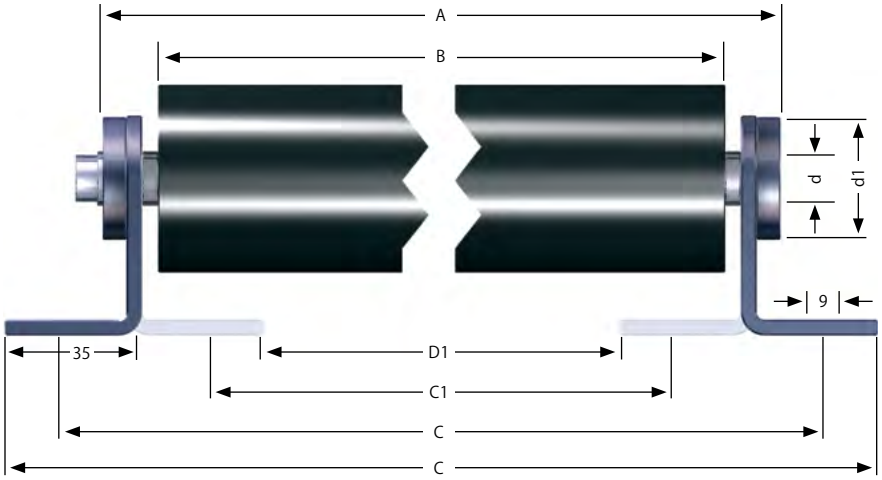
type 53-2

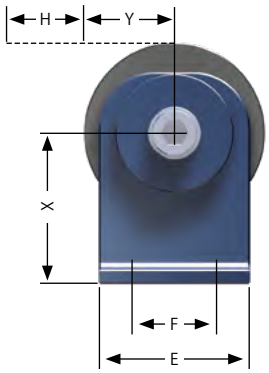


type 53-4



SERIES R-32, R-46, R-60





Model shown with coated fabric, but is available with any materials from pages 33-34.

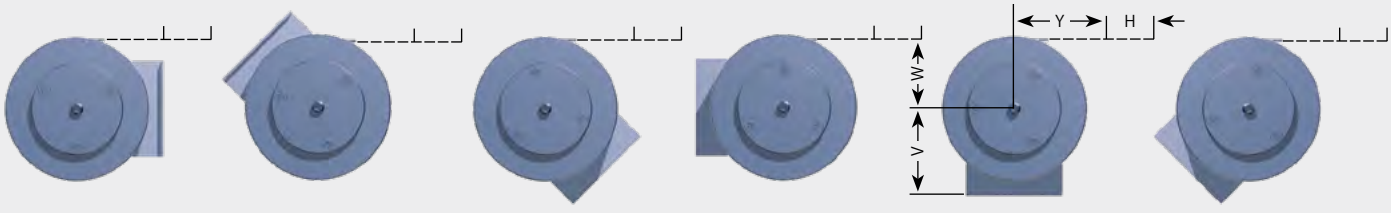
type	d1	d	E	F	X
R-32	32	12	40	20	40
R-46	46	20	50	30	50
R-60	60	30	60	40	60

A = B + 30 mm
B = Band width
C = Hole pattern: B + 55 mm
C1 = Hole pattern: B -15 mm
D = B + 80 mm
D1 = B - 40 mm center and bracket
d = Diameter of shaft
d1 = Diameter of tube
E = Width of lateral brackets
F = Hole pattern
H* = Stroke
X = Distance between shaft
Y* = Pre-travel
** to be indicated in the inquiry*

R-32	Band Width	≥ 100	≥ 150	≥ 200	≥ 250	≥ 300	≥ 350	≥ 400	≥ 450								
	Stroke H	100	300	400	500	600	750	850	950								
	Pre-load/windings	1	1	1	1.5	1.5	2	2.5	2.5								
R-46	Band Width		≥ 150	≥ 200	≥ 250	≥ 300	≥ 350	≥ 400	≥ 450	≥ 500	≥ 600	≥ 700	≥ 800	≥ 900	≥ 1000		
	Stroke H		200	400	600	750	875	1025	1150	1300	1500	1700	2000	2300	2600		
	Pre-load/windings		1.5	2	2.5	2.5	3	3.5	3.5	4	4	4.5	4.5	5	5		
R-60	Band Width			≥ 200	≥ 250	≥ 300	≥ 350	≥ 400	≥ 450	≥ 500	≥ 600	≥ 700	≥ 800	≥ 900	≥ 1000	≥ 1150	≥ 1300
	Stroke H			350	600	900	1050	1200	1350	1550	1750	2000	2325	2650	3000	3400	4000
	Pre-load/windings			2.5	3	3	3.5	4	4	4.5	4.5	5	5.5	5.5	6	7	8

All dimensions in mm

standard mounting options for R-2000, R-4000, R-6000 (see next page)



1 2 3 4 5 6

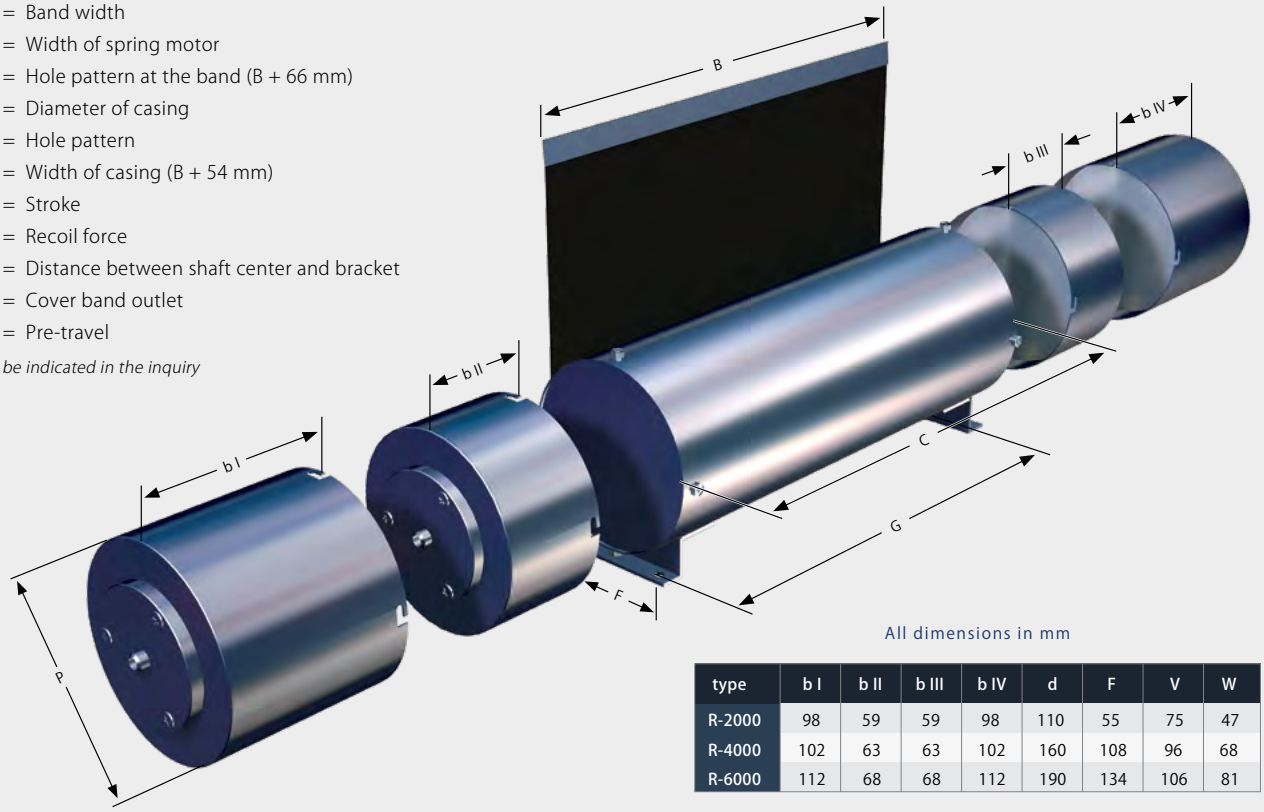
SERIES R-2000, R-4000, R-6000

CLOCK SPRING DESIGN

- The fastening brackets at the roll-up covers casing can be offset by 45° (see mounting options 1–6 on page 41)
- The number of springs depends on the recoil force or traverse speed
- No need to disassemble the cover when replacing the recoil motors (bayonet fixing)
- Width of cover band from 100 to 2000 mm (housing in cylindrical shape). Larger widths upon request (For larger cover band widths, unsupported versions are not recommended)
- Completely enclosed metal casing with wipers keeping the cover band clean
- Spring motor can be completely replaced if the spring breaks

B* = Band width
bx = Width of spring motor
C = Hole pattern at the band (B + 66 mm)
d = Diameter of casing
F = Hole pattern
G = Width of casing (B + 54 mm)
H* = Stroke
P = Recoil force
V = Distance between shaft center and bracket
W = Cover band outlet
Y* = Pre-travel

** to be indicated in the inquiry*



All dimensions in mm

type	b I	b II	b III	b IV	d	F	V	W
R-2000	98	59	59	98	110	55	75	47
R-4000	102	63	63	102	160	108	96	68
R-6000	112	68	68	112	190	134	106	81

series R-2000

max stroke 2000mm

type	Spring Motor	p* (N)
R-2000 / A	I + IV	200
R-2000 / B	II + IV	150
R-2000 / C	I + III	150
R-2000 / D	II + III	100
R-2000 / E	IV	100
R-2000 / F	I	100
R-2000 / G	III	50
R-2000 / H	II	50

series R-4000

max stroke 4000mm

type	Spring Motor	p* (N)
R-4000 / A	I + IV	160
R-4000 / B	II + IV	120
R-4000 / C	I + III	120
R-4000 / D	II + III	80
R-4000 / E	IV	80
R-4000 / F	I	80
R-4000 / G	III	50
R-4000 / H	II	50

series R-6000

max stroke 6000mm

type	Spring Motor	p* (N)
R-6000 / A	I + IV	300
R-6000 / B	II + IV	230
R-6000 / C	I + III	230
R-6000 / D	II + III	140
R-6000 / E	IV	140
R-6000 / F	I	140
R-6000 / G	III	70
R-6000 / H	II	70

ALUFLEX / GS20 / AGS SERIES

TYPE		ALUFLEX	GS20	AGS mini	AGS I	AGS II
MATERIAL	Profile/Hinge	AL/PUR	AL/PUR	AL/-	AL/-	AL/-
	Width x Thickness (mm)	20 x 5.5	20.7 x 5.5	22.4 x 6.7	34.9 x 13.8	68.3 x 25
TECHNICAL DATA	Return / Coil Radius (min)	25	25	30	42	100
	Net Weight (N/m²)	80	80	120	240	380
	Max. Intermittent Contact Temp. (°C)	150	350	500	500	500
	Max. Permanent Contact Temp. (°C)	120	120	200	500	500
PROPERTIES	Water Tightness (according to IP 54)	●	●	◐	◐	◐
	Resistance to emulsions	◐	◐	●	●	●
	Suited for chip production areas	○	●	○	○	○
	Resistance to corrosion	●	●	●	●	●

SERIES 53

TYPE		53-1	53-1	53-1	53-2	53-4	53-4
MATERIAL	Top (side of swarf)	ST 14x2	ST 14x2	MS 14x2	AL 16x3	ST 16x2	ST 16x2
	Bottom (side of slideway)	ST 14x2	MS 14x2	MS 14x2	ST 15x2	ST 14x2	MS 14x2
	Carrier (hinge) material	PUR/AL	PUR/AL	PUR/AL	PUR/AL	PUR/AL	PUR/AL
	Thickness (mm)	5.5	5.5	5.5	6.5	5.5	5.5
TECHNICAL DATA	Return Radius (min)	40	40	40	40	40	40
	Net Weight (N/m²)	280	280	280	290	300	300
	Max. Intermittent Contact Temp. (°C)	300	300	300	300	300	300
	Max. Permanent Contact Temp. (°C)	120	120	120	120	120	120
	Coil Radius ≥ R 25	25	25	25	25	25	25
PROPERTIES	Water Tightness (according to IP 54)	●	●	●	●	●	●
	Resistance to emulsions	◐	◐	◐	◐	◐	◐
	Suited for swarf production areas	●	●	●	○	●	●

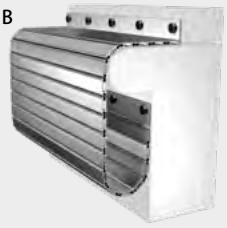
● Excellent ◐ Good ○ Suited under certain conditions ST=Steel MS=Brass AL=Aluminum PUR=Polyurethane

typical mounting configurations

(custom mounting devices and combinations available upon request)

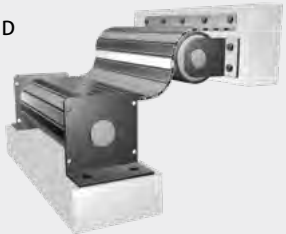
A

B



C

D



standard end pieces

(special and custom end pieces available upon request)

NORMAL BAR

STRAIGHT END

ANGLE BRACKET

COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date ____/____/_____

APPLICATION

Quantity _____

Apron Design ☐ Roll-Up ☐ Non Roll-Up

Apron Type ☐ Coated Fabric ☐ Stainless Steel ☐ Extruded Aluminum (○ *Aluflex* ○ *GS20* ○ *AGS mini* ○ *AGS I* ○ *AGS II*)

☐ Series 53 Metal Clad (○ *53-1 ST/ST* ○ *53-1 ST/MS* ○ *53-1 MS/MS* ○ *53-2 AL/ST* ○ *53-4 ST/ST* ○ *53-4 ST/MS*)

Cover exposed to what kind of elements ☐ Coolant ☐ Chips ☐ Hot Chips ☐ Outdoor Elements ☐ Other _____

Machine Make (if applicable) _____

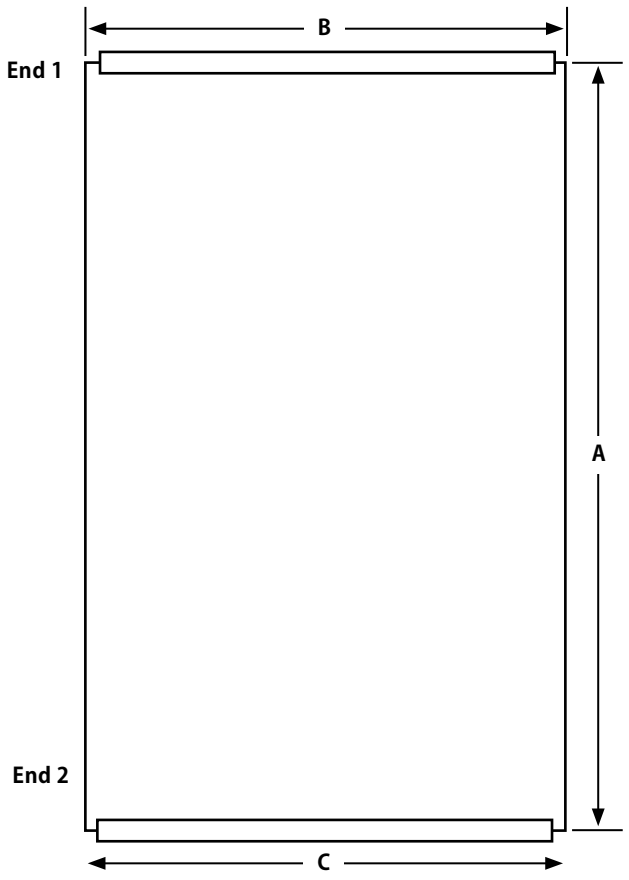
Machine Model (if applicable) _____ **Year** _____

DIMENSIONS

A Fully Extended Cover Length _____

B Cover Width _____

Length of Travel _____



non roll-up details

Reference page 41 for information

Mounting Configuration ☐ A ☐ B ☐ C ☐ D ☐ Other

Mounting Type (End 1) ☐ Normal Bar ☐ Straight ☐ Angle ☐ Custom

Mounting Type (End 2) ☐ Normal Bar ☐ Straight ☐ Angle ☐ Custom

roll-up details

C Maximum width allowable with mounting brackets / canister _____

Roll-Up Design ☐ Canister ☐ Open Reel

Mounting Type (End 1)*

Mounting Type (End 2) ☐ Normal Bar ☐ Straight ☐ Angle ☐ Custom

Include Mounting Brackets ☐ Yes ☐ No

** For roll-up covers, end 1 is the roll-up end.*

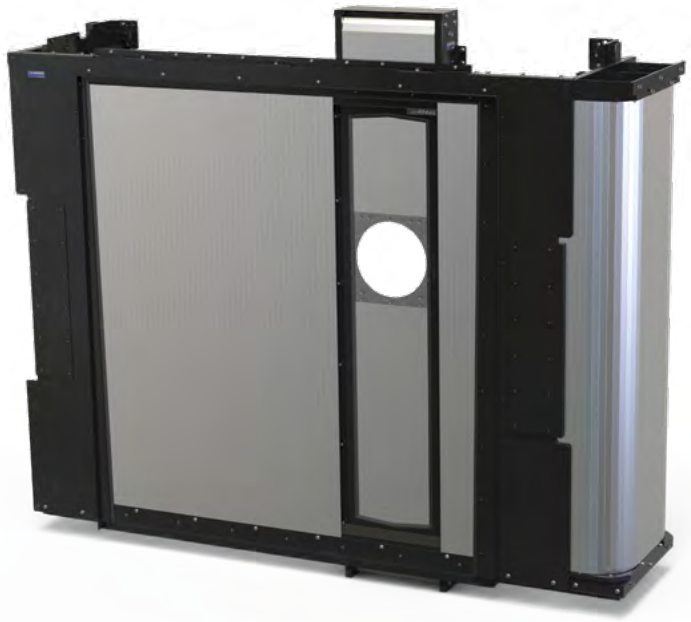
MULTI-AXIS PROTECTION

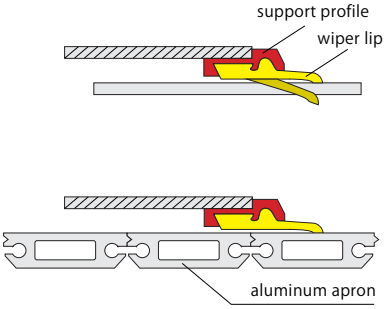
COMPLETE, ASSEMBLY-READY XYZ-MODULES

With our XYZ-modules, we present the most innovative solution for more flexibility and speed while protecting crucial components of your machine tool.

Hennig develops complete XYZ modules ready to be attached to the machine and offers any combinations regarding requirements, loads, application, aesthetic or costs to suit the customer. These XYZ-modules can be built in any combination with steel or aluminum aprons, steel-clad bellows with the proper elements such as scissors, high speed modules, etc.

The complete module with all required support units from our own development and manufacturer is individually put together to suit the customers requirements.

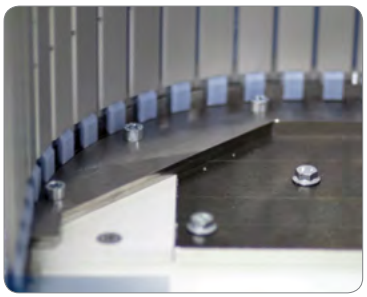




CL1 wiper systems

WIPERS IDEAL FOR XYZ MODULES

- Suitable for large areas, aluminum apron systems, and a variety of applications
- Optimum scrape performance. Smooths out unevenness of up to 3 mm with ease
- Perfect sealing guaranteed
- Highly reliable and resistant against all standard coolants
- Available in continuous lengths



guide systems

MECHANICAL GUIDE SYSTEM SPECIALLY DESIGNED FOR ALUMINUM APRONS

- The deflector or take-up system, depending on apron type, guides the apron in one or two directions.
- The available space on or inside the machine determines the shape of the apron guide, whether redirection into an available space, or rolled-up spirally, elliptically in any position, including overhead.
- The nearly wear free guide system is capable of high speeds up to 100m/min. (3936 inch/min.)
- Acceleration up to 1g.
- Extremely easy to slide and pull.

modular face shield features

- Assembly-friendly, using a compact building block design that allows replacement of individual components
- Resistant to damage from high dynamic forces
- Individually engineered to your specifications and space requirement
- CL wiper lip absorbs the vibrations of the aluminum apron up to 3 mm
- Configured to your specifications, combined with telescopic steel covers, aluminum aprons, lamella bellows, or flex protect covers.

Example:

X-axis: aluminum aprons
Y-axis: steel-clad bellows
Z-axis: telescopic steel covers

FLEX DOORS

SLIDING DOOR SYSTEMS

- Diverse application possibilities
- Different types of Aluminium profiles available
- Suitable for vertical and overhead application
- Smooth run thanks to guiding frames
- Automatic motorized opening and closing/ optional manual operation
- Opening speeds up to 80 m/min.
- Big strokes also with a small apron width

FLEX PROTECT SYSTEM

SPLASH AND DEBRIS PROTECTION FOR LARGE OPENINGS

- Movable aluminum panels connected by polyurethane hinges
- Polyurethane hinges are act as both flexible hinges and seals between the panels
- Panels are available in three widths:
  46 mm (single element)
  92 mm (double element)
  138 mm (triple element)
- Extension up to 6 meters per system
- Panel height up to 3 meters

WALK-ON COVERS & PIT COVERS

BECOME OSHA COMPLIANT

LOAD-BEARING SAFETY COVERS

You don't have to sacrifice safety for accessibility. Our walk-on covers offer a removable solution built to hold personnel, chip loads, heavy machinery, or contain hazardous chemicals. Work with us to design and build custom pit covers with the best materials and features for your specific application.

TYPICAL APPLICATIONS

- Open pits
- Way covers
- Chemical tanks
- Water treatment facilities
- Auto maintenance shops
- Concrete foundations

SAFETY STANDARDS

- OSHA compliant
- CE-conformity
- Staff protection
- According to machinery directive

See page 47 for material / technical details.
See page 48 for Quote Request Worksheet.

MATERIALS

STAINLESS STEEL

- Stainless steel surface with aluminum ribbed support
- Non-skid tape or paint

AGS I

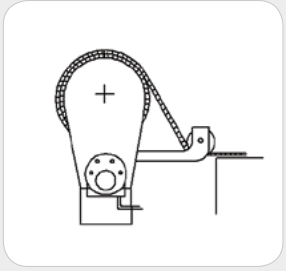
- Anodized aluminum profiles
- Non-skid tape

AGS II

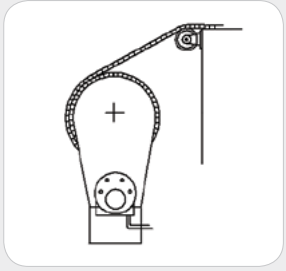
- Anodized aluminum profiles
- Non-skid tape

MOUNTING OPTIONS

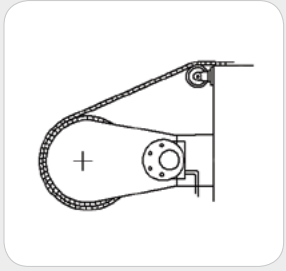
OVER WAY / COVER SURFACE



BELOW WAY / COVER SURFACE

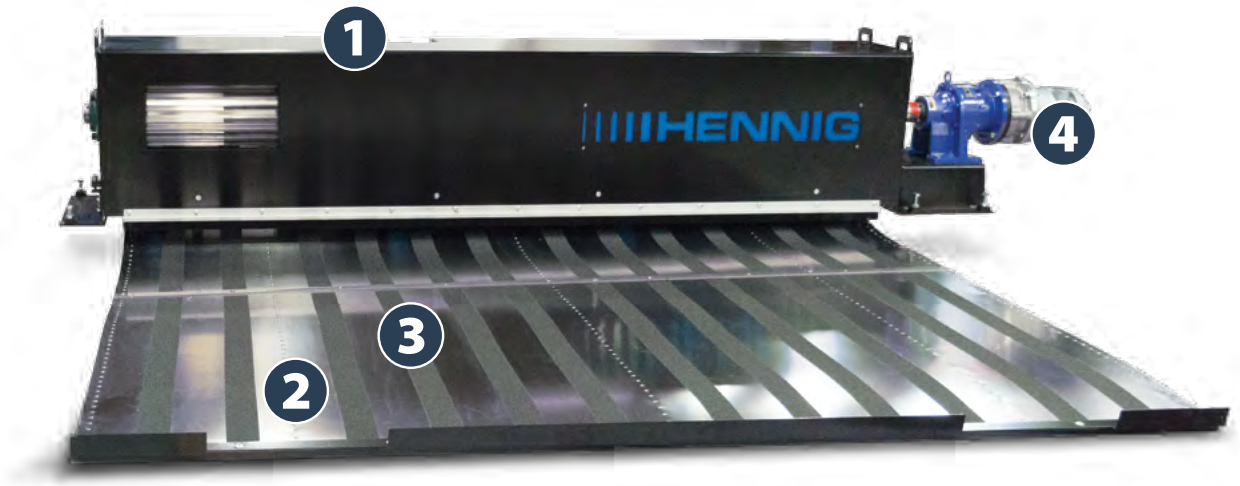


ANGLE / CUSTOM MOUNTING



STANDARD FEATURES

Below are some of the features that come standard with all of our walk-on covers and pit covers.
For additional features and options, call us to discuss additional solutions best suited for your application.



1 PROTECTIVE CANISTER

Protective canister housings can be provided to add protection to the roll-up covers gearing, spindle, and wound-up cover areas.

2 WALK-ON MATERIAL

We offer stainless steel and aluminum covers. Because we choose the material based on the environment it operates in, our walk-on covers are always optimized specifically for your application.

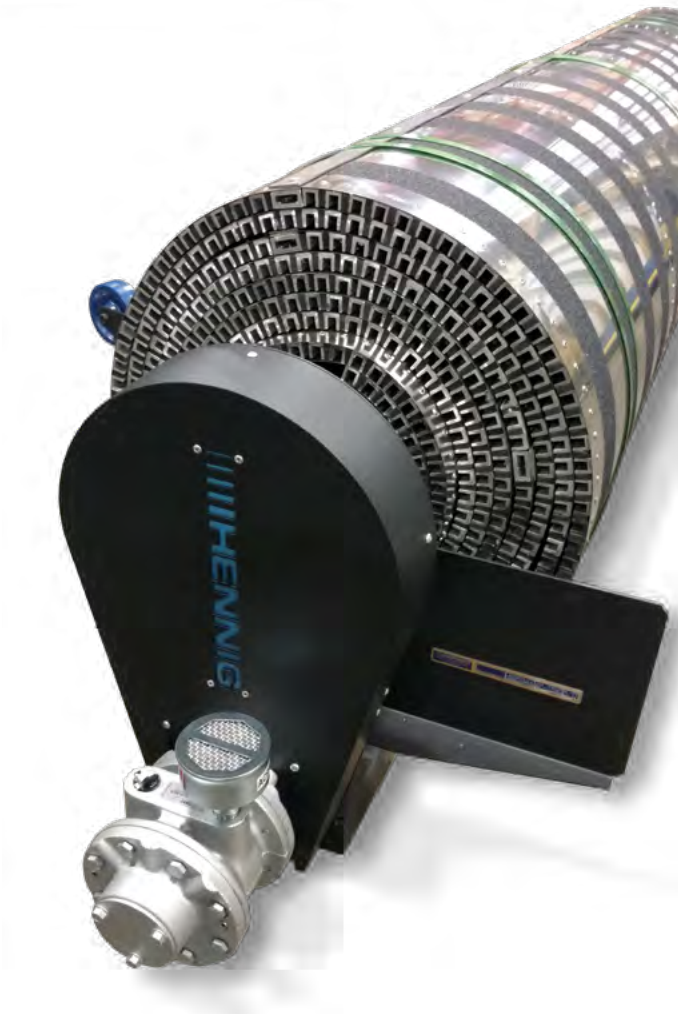
3 NON-SLIP SURFACE

A non-slip surface (skid tape or skid paint) is added so that personnel may walk across the covers surface with greater safety than walking across the covers slippery stainless steel or aluminum surface.

4 ACTUATION

Our walk-on covers are actuated one of four ways:

- Air motor (regulates tension on the cover)
- Electric motor
- High-tension spring
- No motor / passive (the cover is actuated by an existing component on the machine)



TECHNICAL DATA

LOAD CAPACITY IN KG PER 1000 MM LENGTH

TYPE	SPAN (mm)				WEIGHT (kg/m²)
	500	1000	1500	2000	
AGS I	1950	488	216	122	30.4
AGS II	4540	1147	504	284	31.9
AGS III	3250	815	370	168	31.1
S.S.	*	*	*	*	*

CASE SIZE (APPROX.)

TYPE	EXTRACT (mm)				
	1000	3000	5000	10,000	20,000
AGS I	400	480	540	660	850
AGS II	500	600	680	850	1100
AGS III	450	510	600	740	940
S.S.	*	*	*	*	*

TYPE		S.S.	AGS I	AGS II
MATERIAL	Profile	SS/AL	AL	AL
	Width x Thickness (mm)	*	34.9 x 13.8	68.3 x 25
TECHNICAL DATA	Return / Coil Radius (min)	*	42	100
	Net Weight (N/m²)	*	240	380
	Max. Intermittent Contact Temp. (°C)	*	500	500
	Max. Permanent Contact Temp. (°C)	*	500	500
PROPERTIES	Water Tightness (according to IP 54)	●	◐	◐
	Resistance to emulsions	●	●	●
	Suited for chip production areas	●	○	○
	Resistance to corrosion	●	●	●

* to be determined by application

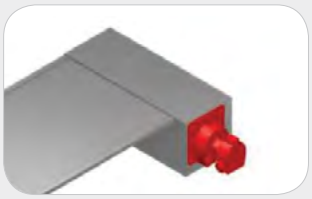
DRIVE SYSTEMS

SPRING MOTOR

- spring with an endless spring deflection
- constant torque
- no need of compressed air

AIR MOTOR

- spring with an endless spring deflection
- constant torque
- works with compressed air

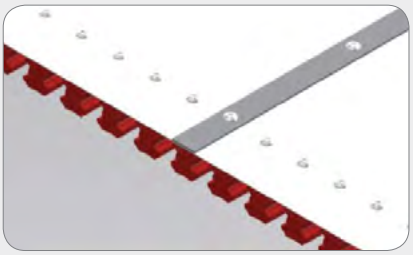


ELECTRIC MOTOR

- for driving in and out

GUIDE SYSTEMS

END CAP GLIDERS



ROLLERS

COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date _____/_____/_____

APPLICATION & ROLL-UP MATERIAL

Quantity _____

Machine Make _____

Machine Model _____ Year _____

Length of Machine Travel _____

Apron Type ☐ Extruded Aluminum (○ *AGS I* ○ *AGS II* ○ *AGS III*) ☐ Stainless Steel

Include air filter, lubricator, and regulator ☐ Yes ☐ No

Non-slip surface ☐ Yes ☐ No

DIMENSIONS

A Unsupported span _____

B Width of area covered _____

C Cover Width _____

D Extended cover length _____

E Height (if applicable)

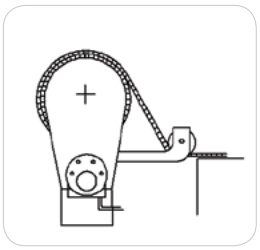
Side of take-up drive ☐ Left ☐ Right

Include mounting brackets ☐ Yes ☐ No

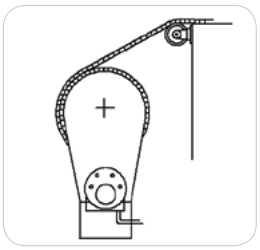
Open reel ☐

Canister ☐

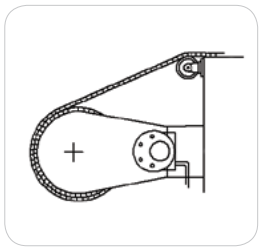
Mounting Type



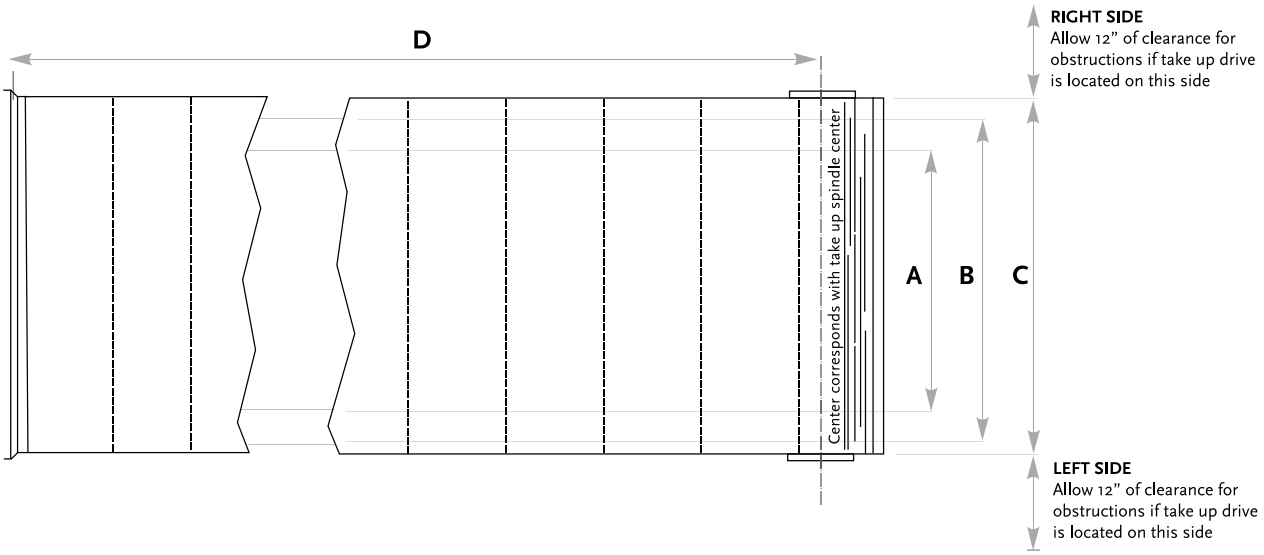
☐ above way/outside pit

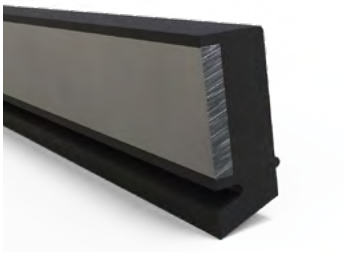


☐ below way/inside pit



☐ Angular/Custom

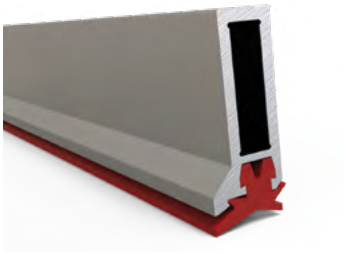




MOLDED WIPERS

- Over 20 standard designs for a variety of applications
- NBR and Viton wiper lips with steel, aluminum, or no insert (depending on wiper type)
- Custom molds and special materials available depending on your application

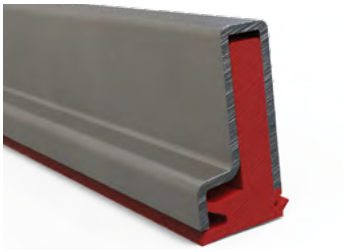
See pages 51-58 for details



ALUMINUM ENCASED WIPERS

- Polyurethane 85 shore A wiper lip with aluminum carrier
- Low weight
- Low coefficient of friction

See pages 59 for details



STAINLESS STEEL ENCASED WIPERS

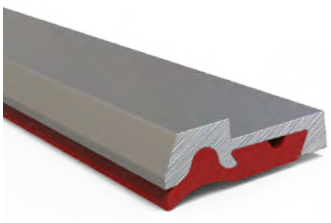
- Polyurethane wiper lip with stainless steel carrier
- Sealing on backside to prevent coolant flow
- High mechanical load capacity

See pages 60 for details

CYLINDER WIPERS

- Ideal for piston rods in hydraulic and pneumatic applications
- Standard materials are NBR and FPM (shore hardness 83A)
- Special sizes, materials, and colors available upon request

See pages 61-64 for details



TELESCOPING COVER & APRON COVER WIPERS

- Polyurethane wiper lip with steel carrier
- Designed with a low profile specifically for telescopic steel covers and apron covers
- Replaceable wiper lips

See pages 9-10 for details

The huge field of applications in the machine tool sector has, over the years, created an increasing number of unique, specialized wipers as well as a large number of sealing solutions. Whether you require resistance to abrasion, oils, coolant, acids, or low coefficient and friction on guideways, we have wipers and sealant systems for any of your requirements.

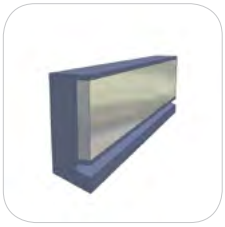
- wide range of stock wipers
- any custom shapes according to your requirements
- excellent durability
- various material choices for resistance to oils, greases, coolants, chips, and high temperatures

Type	Design						Mount position		Recommended Use				Technical Data													
	Standard length ex stock	Profiled form ex works	Minimum quantities, profiled (pieces)	Moulding cost	Standard lengths with holes	Customer-profiled	Vertical (to wiping surface)	Horizontal (to wiping surface)	Prototype/samples	Series	On pallet changers	On telescopic steel covers	Material of support profile	Material of wiper lip	Recommended pre-load (mm)	Replaceable wiper lip	Lip for 90° angles	Joint at the fastening surface	Two-way wiper lip	Resistance to permanently high temperatures	Resistance to short-term high temperatures	Resistance to abrasion	Resistance to tear propagation	Resistance to acids, alkaline solutions, petrol	Resistance to oil, coolants, water	Microbial protection
AB (I, III, V)	530 1000 2000	●	--	--	★	◔	●	○	●	●	◐	○	CrNi	PU	0.5-1	x	x	x	--	90	130	●	●	◔	●	◔
AL (1, 3)	1000	--	--	--	★	●	●	○	●	●	○	○	AL	PU	0.5-1	x	--	x	x	80	130	●	●	◔	●	◐
eN (1, 2)	500		--	--	--	◐	●	●	●	◔	◐	◔	St	NBR	0.5-1	--	--	--	--	80	130	●	●	◔	●	◔
eN (1-8x2, 1-20x2)	500	◐	--	--	★	◔	◐	●	●	◔	◐	○	St	NBR	0.5-1	--	--	--	--	100	130	●	●	◔	●	◔
F mini	500		--	--	★		●	○	●	◔	○	○	St	SK	0.5-1	--	--	x	--	100	130	◔	◔	◔	●	◔
SK	--	●	50	x	--	○	●	○	★	●	●	◐	St	SK	0.5-1	x	x	x	--	100	115	◔	◔	◔	●	◔
CL1	--	◐	--	--	--	◐	○	●	★	●	◐	◔	St	PU	3-4	x	--	--	--	100	130	●	●	◔	◔	◔

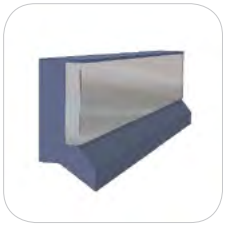
See page 9 -10 for C-Series details

● Excellent ◐ Good ◔ Suited under certain conditions ○ Unsuitable

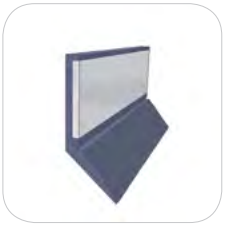
- A new generation of wipers - custom molded per your requirements
- NBR and Viton wiper lips with steel, aluminum, or no insert (depending on wiper type)
- Excellent resistance to abrasion, chemicals, coolants, mineral oils, and acids
- Low sliding friction
- Over 20 standard designs for a variety of applications
- Custom molds and special materials available depending on your application



HEMW A page 52

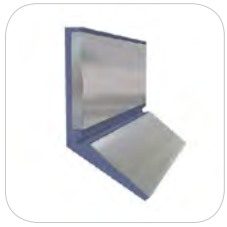


HEMW B page 52



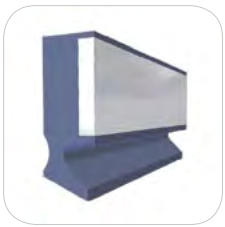
HEMW C page 53

HEMW CS page 53

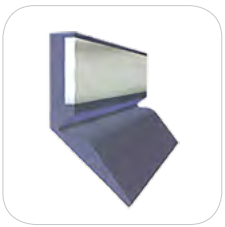


HEMW D page 53

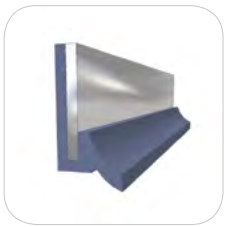
HEMW E page 54



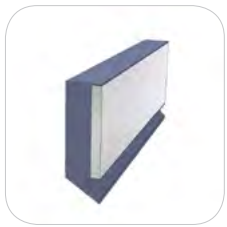
HEMW F page 54



HEMW G page 54

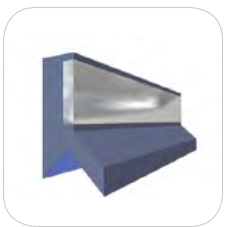


HEMW H page 54

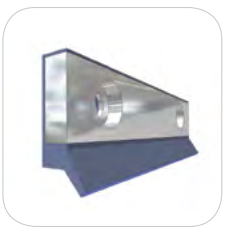


HEMW L page 55

HEMW R page 55



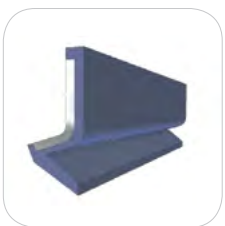
HEMW V page 55



HEMW K page 55

HEMW P page 56

HEMW S page 56

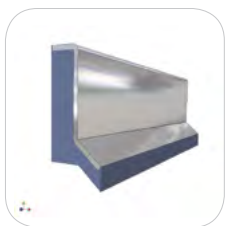


HEMW N page 56

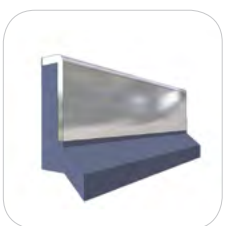
HEMW U 1-2 page 56

HEMW U 3-4 page 57

HEMW U 5-6 page 57



HEMW U 7-8 page 57



HEMW U 9-10 page 57

HEMW U 11-12 page 58

HEMW X 1-2 page 58

HEMW X 3-4 page 58

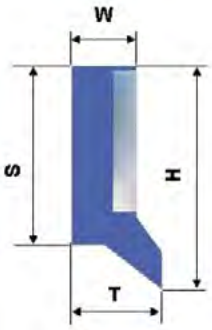
SK page 58

HEMW A

type	H	T	Length	Material
HEMW A1	14	6.5	500	NBR
HEMW A2	14	6.5	500	Viton
HEMW A3	18	6.5	500	NBR
HEMW A4	18	6.5	500	Viton
HEMW A5	25	6.5	500	NBR
HEMW A6	25	6.5	500	Viton
HEMW A7	14	5	500	NBR
HEMW A8	14	5	500	Viton
HEMW A9	18	5	500	NBR
HEMW A10	18	5	500	Viton
HEMW A11	25	5	500	NBR
HEMW A12	25	5	500	Viton

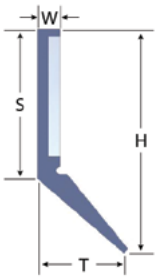
HEMW B

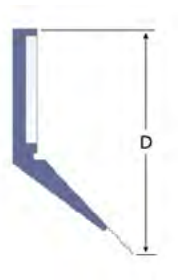
type	H	S	W	T	Length	Material
HEMW B 1	9.5	7.5	2.5	5	560	NBR
HEMW B 1 L	9.5	7.5	2.5	5	1000	NBR
HEMW B 2	9.5	7.5	2.5	5	560	Viton
HEMW B 2 L	9.5	7.5	2.5	5	1000	Viton
HEMW B 3	15	11.5	5	7	560	NBR
HEMW B 3 L	15	11.5	5	7	1000	NBR
HEMW B 4	15	11.5	5	7	560	Viton
HEMW B 4 L	15	11.5	5	7	1000	Viton
HEMW B 5	18	15	5	9	560	NBR
HEMW B 5 L	18	15	5	9	1000	NBR
HEMW B 6	18	15	5	9	560	Viton
HEMW B 6 L	18	15	5	9	1000	Viton
HEMW B 7	21	17.5	5	7	560	NBR
HEMW B 7 L	21	17.5	5	7	1000	NBR
HEMW B 8	21	17.5	5	7	560	Viton
HEMW B 8 L	21	17.5	5	7	1000	Viton
HEMW B 9	25	21	11	11	560	NBR
HEMW B 9 L	25	21	11	11	1000	NBR
HEMW B 10	25	21	11	11	560	Viton
HEMW B 10 L	25	21	11	11	1000	Viton
HEMW B 11	26	23	5	7	560	NBR
HEMW B 11 L	26	23	5	7	1000	NBR
HEMW B 12	26	23	5	7	560	Viton
HEMW B 12 L	26	23	5	7	1000	Viton
HEMW B 13	30	27	5	7	560	NBR
HEMW B 14	31	27	5	7	560	Viton
HEMW B 15	31	28	5	7	560	NBR
HEMW B 15 L	31	28	5	7	1000	NBR
HEMW B 16	31	28	5	7	560	VITON
HEMW B 16 L	31	28	5	7	1000	VITON
HEMW B 17	36	33	5	7	560	NBR
HEMW B 18	36	33	5	7	560	VITON
HEMW B 19	39	36	5	7	560	NBR
HEMW B 20	39	36	5	7	560	Viton



HEMW C

type	Protection	H	S	W	T	D	Length	Material
HEMW C 1	Spring Steel	25	15.5	3	12	29	800	NBR
HEMW C 2	Spring Steel	25	15.5	3	12	29	800	Viton
HEMW C 3	-	25	15.5	3	12	-	800	NBR
HEMW C 4	-	25	15.5	3	12	-	800	Viton
HEMW C 5	Spring Steel	30	20.5	3	12	34	800	NBR
HEMW C 5 L	Spring Steel	30	20.5	3	12	34	1000	NBR
HEMW C 6	Spring Steel	30	20.5	3	12	34	800	Viton
HEMW C 6 L	Spring Steel	30	20.5	3	12	34	1000	Viton
HEMW C 7	-	30	20.5	3	12	-	800	NBR
HEMW C 7 L	-	30	20.5	3	12	-	1000	NBR
HEMW C 8	-	30	20.5	3	12	-	800	Viton
HEMW C 8 L	-	30	20.5	3	12	-	1000	Viton
HEMW C 9	Spring Steel	35	25.5	3	12	39	800	NBR
HEMW C 10	Spring Steel	35	25.5	3	12	39	800	Viton
HEMW C 11	-	35	25.5	3	12	-	800	NBR
HEMW C 12	-	35	25.5	3	12	-	800	Viton

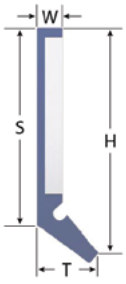


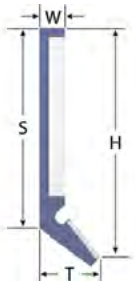


w/ steel spring

HEMW CS

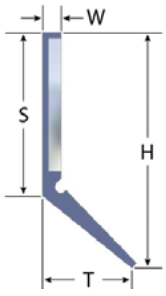
type	Protection	H	S	W	T	Length	Material
HEMW CS 1	Spring Steel	27	22.7	3	7.3	800	NBR
HEMW CS 2	Spring Steel	27	22.7	3	7.3	800	Viton
HEMW CS 3	-	27	22.7	3	7.3	800	NBR
HEMW CS 4	-	27	22.7	3	7.3	800	Viton
HEMW CS 5	Spring Steel	27	22.7	3	7.3	1500	NBR
HEMW CS 6	Spring Steel	27	22.7	3	7.3	1500	Viton
HEMW CS 7	-	27	22.7	3	7.3	1500	NBR
HEMW CS 8	-	27	22.7	3	7.3	1500	Viton





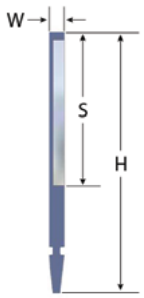
HEMW D

type	Protection	H	S	W	T	Length	Material
HEMW D 1	Spring Steel	39	27	3	15	800	NBR
HEMW D 2	Spring Steel	39	27	3	15	800	Viton
HEMW D 3	-	39	27	3	15	800	NBR
HEMW D 4	-	39	27	3	15	800	Viton
HEMW D 5	Spring Steel	32	20	3	15	800	NBR
HEMW D 6	Spring Steel	32	20	3	15	800	Viton
HEMW D 7	-	32	20	3	15	800	NBR
HEMW D 8	-	32	20	3	15	800	Viton
HEMW D 9	Spring Steel	45	27	3	21.5	800	NBR
HEMW D 10	Spring Steel	45	27	3	21.5	800	Viton
HEMW D 11	-	45	27	3	21.5	800	NBR
HEMW D 12	-	45	27	3	21.5	800	Viton



HEMW E

type	H	W	S	Length	Material
HEMW E 1	25	2	17.3	600	NBR
HEMW E 2	25	2	17.3	600	Viton
HEMW E 3	34	2	19.3	600	NBR
HEMW E 4	34	2	19.3	600	Viton



Swinging stripping lip

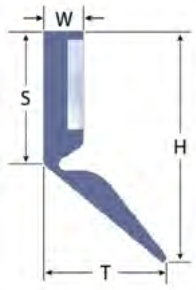
Classic design with steel support

HEMW F

type	H	T	Length	Material
HEMW F 1	22	10.5	1000	NBR
HEMW F 2	22	10.5	1000	Viton
HEMW F 3	28	10.5	1000	NBR
HEMW F 4	28	10.5	1000	Viton
HEMW F 5	40	10.5	1000	NBR
HEMW F 6	40	10.5	1000	Viton

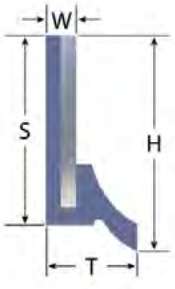
HEMW G

type	H	S	W	T	Length	Material
HEMW G 1	30	17	5	15.5	500	NBR
HEMW G 2	40	17	5	15.5	500	Viton
HEMW G 3	40	27	5	15.5	500	NBR
HEMW G 4	40	27	5	15.5	500	Viton



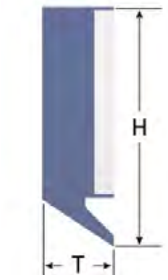
HEMW H

type	H	S	W	T	Length	Material
HEMW H 1	12.5	11	2	6	500	NBR
HEMW H 2	12.5	11	2	6	500	Viton



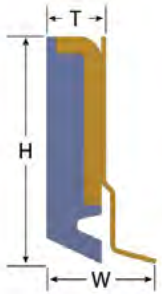
HEMW L

type	H	T	Length	Material
HEMW L 1	18.5	6.5	1000	NBR
HEMW L 2	18.5	6.5	1000	Viton
HEMW L 3	22	6.5	1000	NBR
HEMW L 4	22	6.5	1000	Viton
HEMW L 5	26	6.5	1000	NBR
HEMW L 6	26	6.5	1000	Viton



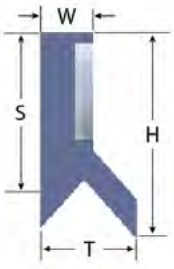
HEMW R

type	H	T	W	Length	Material
HEMW R 1	18	6.5	12	300	NBR
HEMW R 2	18	6.5	12	300	Viton
HEMW R 3	34	6.5	12	300	NBR
HEMW R 4	34	6.5	12	300	Viton



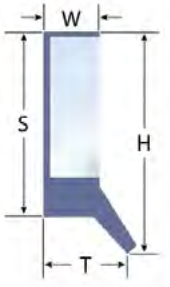
HEMW V

type	H	S	W	T	Length	Material
HEMW V 1	21	20	6	11	560	NBR
HEMW V 2	21	20	6	11	560	Viton
HEMW V 3	26	25	6	11	560	NBR
HEMW V 4	26	25	6	11	560	Viton
HEMW V 5	26	25	6	11	1000	NBR
HEMW V 6	26	25	6	11	1000	Viton



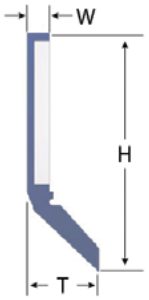
HEMW K

type	H	S	W	T	Length	Material
HEMW K 1	18	15	4.5	7.5	500	NBR
HEMW K 2	18	15	4.5	7.5	500	Viton
HEMW K 3	25	22	4.5	7.5	500	NBR
HEMW K 4	25	22	4.5	7.5	500	Viton



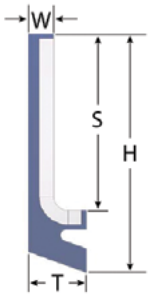
HEMW P

type	H	W	T	Length	Material
HEMW P 1	30	3	9.5	1000	NBR
HEMW P 2	30	3	9.5	1000	Viton



HEMW S

type	H	S	W	T	Length	Material
HEMW S 1	18	11.5	2.6	6	300	NBR
HEMW S 2	18	11.5	2.6	6	300	Viton
HEMW S 3	25	18.5	2.6	6	300	NBR
HEMW S 4	25	18.5	2.6	6	300	Viton
HEMW S 5	30	23.5	2.6	6	300	NBR
HEMW S 6	30	23.5	2.6	6	300	Viton
HEMW S 7	40	33.5	2.6	6	300	NBR
HEMW S 8	40	33.5	2.6	6	300	Viton



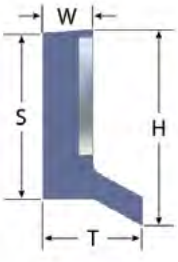
HEMW N

type	H	E	W	T	Length	Material
HEMW N 1	26	10	3	9	500	NBR
HEMW N 2	26	10	3	9	500	Viton
HEMW N 3	26	10	3	9	1000	NBR
HEMW N 4	26	10	3	9	1000	Viton

HEMW U 1/2

type	H	S	W	T	Length	Material
HEMW U 1	25.4	22	6.35	12.7	560	NBR
HEMW U 2	25.4	22	6.35	12.7	560	Viton

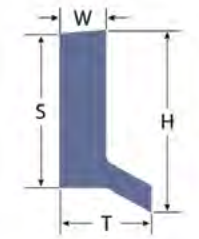
Classic design with steel support



HEMW U 3/4

type	H	S	W	T	Length	Material
HEMW U 3	25.4	22	6.35	12.7	560	NBR
HEMW U 4	25.4	22	6.35	12.7	560	Viton

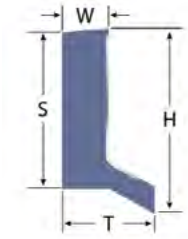
Flexible design without steel support



HEMW U 5/6

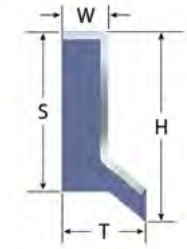
type	H	S	W	T	Length	Material
HEMW U 5	25.4	22	6.35	12.7	560	NBR
HEMW U 6	25.4	22	6.35	12.7	560	Viton

Flexible design with spring steel strip



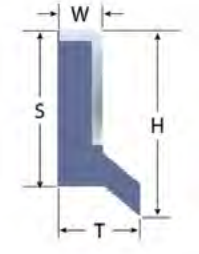
HEMW U 7/8

type	H	S	W	T	Length	Material
HEMW U 7	25	21	6	11	560	NBR
HEMW U 8	25	21	6	11	560	Viton



HEMW U 9/10

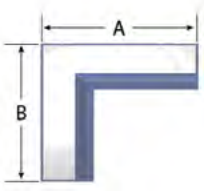
type	H	S	W	T	Length	Material
HEMW U 9	25	21	6	11	560	NBR
HEMW U 10	25	21	6	11	560	Viton



HEMW U 11/12

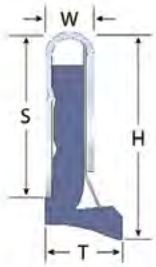
type	H	S	W	T	A	B	Material
HEMW U 11	25.4	22	6.35	12.7	76.2	76.2	NBR
HEMW U 12	25.4	22	6.35	12.7	76.2	76.2	Viton

elbow



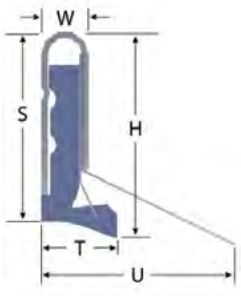
HEMW X 1/2

type	H	S	W	T	Length	Material
HEMW X 1	27.5	21.5	6	10	500	NBR
HEMW X 2	27.5	21.5	6	10	500	Viton



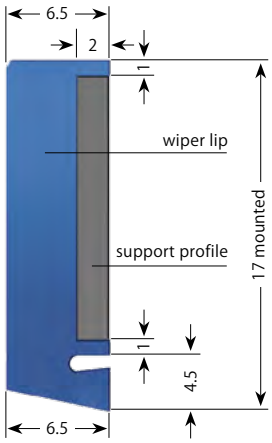
HEMW X 3/4

type	H	S	W	T	U	Length	Material
HEMW X 3	27.5	21.5	6	10	25.2	500	NBR
HEMW X 4	27.5	21.5	6	10	25.2	500	Viton



SK

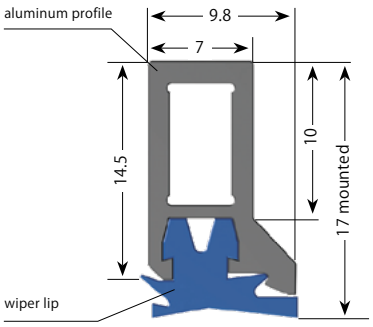
- High moulding accuracy ensures excellent wiping results.
- The wipers consist of synthetic rubber vulcanized on a steel plate.
- Lip materials: NBR, silicone and NBR, silicone and Viton.
- Support profile materials: Steel (also galvanized), high-grade steel or aluminum.
- Permanent temperature resistance 100°C, momentarily 135°C.
- Resistant to mineral oil, coolants, and micro-organisms.
- High dimensional accuracy.
- Good resistance to abrasion.
- Little deformation by compression.



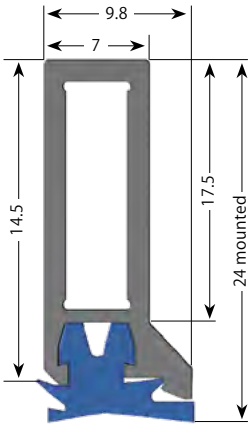
AL

- Particularly suitable in case of high volumes of coolants and swarf.
- Easy to cut and process, these wipers are ideal for service and repair.
- Anodized aluminum precision profile with integrated lip protection against hot swarf.
- Replaceable lip.
- The two-way wiper system prevents the penetration of swarf and coolant.
- Fastening with hexagon socket screws according to DIN 912, oval head or button head socket screw.
- The 90° connecting pieces ensure the connection of the wiper sides.

AL 1



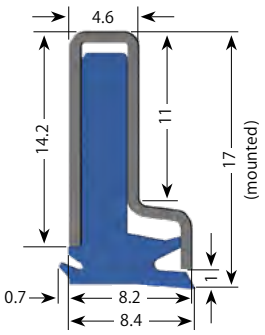
AL 3



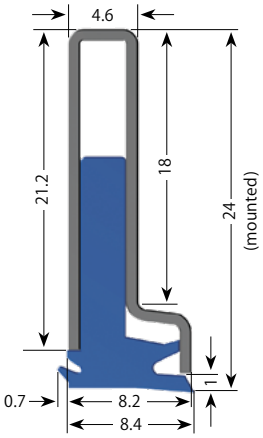
AB (I, III, V)

- For use in metal-cutting machines with large volumes of chips and coolants.
- Standard lengths can be profiled by the customer for service and repairs.
- Factory-profiled forms ensure an excellent wiping performance.
- Stainless steel support profiles ensure high mechanical stability under permanent load.
- With elastic, highly abrasion-proof polyurethane wiper lips. Permanent temperature resistance 90°C.
- Partly resistant to acids, leaches, and gasoline.
- Easy to replace.
- The miter joints of the wiper casing are welded.
- 90° wiper lip with a 45° chamfer molded in one piece.
- Protected against hot chips and mechanical damage.
- Standard lengths available in stock (mm): **AB I, AB III** - 530/1000/2000, **AB V** - 1000
- Can be profiled to nearly any designs according to drawing or sketch.
- Mounting holes included upon request.

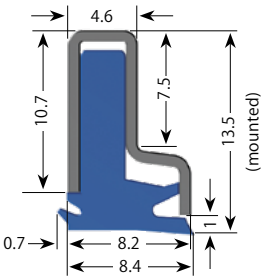
AB I



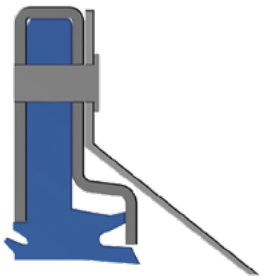
AB III



AB V



series AB with pre-wiper



features

- For wiping out dirt, foreign particles, chips, moisture, etc. from piston rods in hydraulic and pneumatic applications
- Used to avoid contamination of hydraulic fluid
- Standard materials are NBR and FPM
- Special materials, colors, and sizes available upon request

resistant to

- Air, water, mineral based hydraulic fluids
- Oils and greases with mineral oil base
- Polyglycol-water emulsions and water-oil emulsions
- Temperature up to 230°C (FPM)

SCW (A,B)

- Steel case fixes the shape & position of the wiper lip
- Design enables a secure press fit assembly into an open housing
- Single acting wiper keeps out foreign particles from the hydraulic system

See page 62 for details

ECW (A,B)

- Designed to wipe dirt and particles while leaving an oil film on the piston rod
- Used with rod seals to avoid hydrodynamic pressure or pressure relieving bore between seal and wiper
- Double-acting wiper with two different wiper lips

See page 63 for details

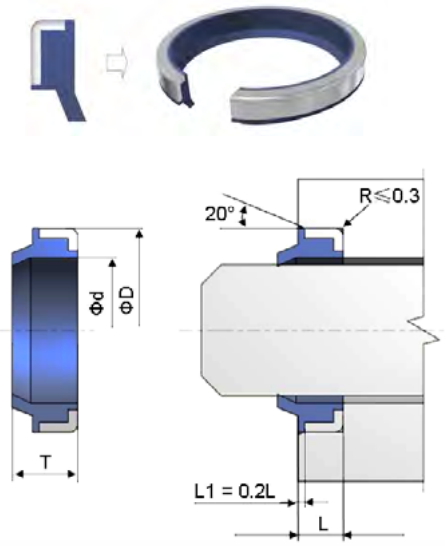
CCW A

- Steel-enforced wiper equipped with Capilub® self-lubrication unit
- The oil storage moistens the piston surface to reduce corrosion and increase wiper life
- Double-acting wiper prevents leaking of internal liquids, and avoids intrusion of external liquids and particles

See page 64 for technical details

SCW A

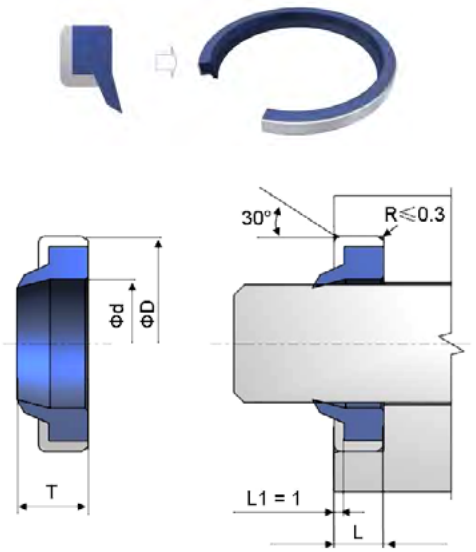
TYPE	PART #	d	D	L	T	MATERIAL
SCW A 1	TW-1032272	10	16	3	4.5	NBR
SCW A 2	TW-1032273	10	16	3	4.5	FPM
SCW A 3	TW-1032274	12	20	4	6	NBR
SCW A 4	TW-1032275	12	20	4	6	FPM
SCW A 5	TW-1032276	14	22	3	4	NBR
SCW A 6	TW-1032277	14	22	3	4	FPM
SCW A 7	TW-1032278	15	25	5	8	NBR
SCW A 8	TW-1032279	15	25	5	8	FPM
SCW A 9	TW-1032280	16	22	3	4	NBR
SCW A 10	TW-1032281	16	22	3	4	FPM
SCW A 11	TW-1032282	18	26	7	10	NBR
SCW A 12	TW-1032283	18	26	7	10	FPM
SCW A 13	TW-1032284	20	30	4	6	NBR
SCW A 14	TW-1032285	20	30	4	6	FPM
SCW A 15	TW-1032286	22	28	5	9	NBR



DIAMETER RANGE 10 - 120 mm
TEMPERATURE RANGE -30°C to +110°C (NBR), -10°C to +200° C (FPM)
SPEED 1 m/s

SCW B

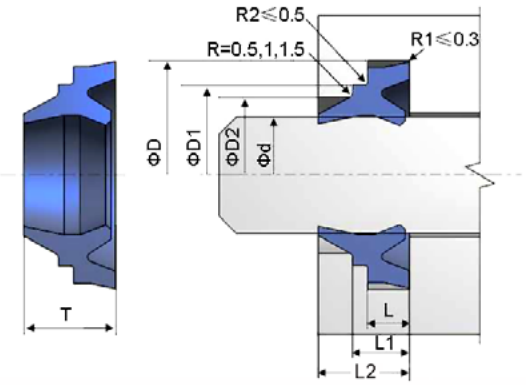
TYPE	PART #	d	D	L	T	MATERIAL
SCW B 1	TW-1035343	6.3	16	5	7	NBR
SCW B 2	TW-1035344	6.3	16	5	7	FPM
SCW B 3	TW-1035345	7.1	17	5	7	NBR
SCW B 4	TW-1035346	7.1	17	5	7	FPM
SCW B 5	TW-1035347	8	18	5	7	NBR
SCW B 6	TW-1035348	8	18	5	7	FPM
SCW B 7	TW-1035349	9	19	5	7	NBR
SCW B 8	TW-1035350	9	19	5	7	FPM
SCW B 9	TW-1035351	10	20	5	7	NBR
SCW B 10	TW-1035352	10	20	5	7	FPM
SCW B 11	TW-1035353	11.2	21	5	7	NBR
SCW B 12	TW-1035354	11.2	21	5	7	FPM
SCW B 13	TW-1035355	12.5	23	5	7	NBR
SCW B 14	TW-1035356	12.5	23	5	7	FPM
SCW B 15	TW-1035357	14	24	5	7	NBR



DIAMETER RANGE 6.3 - 300 mm
TEMPERATURE RANGE -30°C to +110°C (NBR), -10°C to +200° C (FPM)
SPEED 1 m/s

ECW A

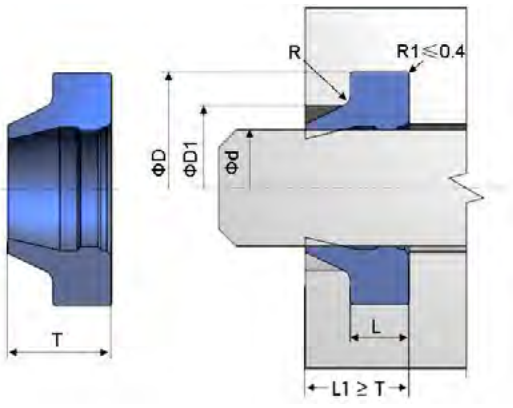
TYPE	PART #	d	D	T	D1	D2	L	L1	L2	MATERIAL
ECW A 1	TW-1033745	10	18	8	16	13.5	4	6	8	NBR
ECW A 2	TW-1033746	10	18	8	16	13.5	4	6	8	FPM
ECW A 3	TW-1033747	12	20	8	18	15.5	4	6	8	NBR
ECW A 4	TW-1033748	12	20	8	18	15.5	4	6	8	FPM
ECW A 5	TW-1033749	14	22	8	20	17.5	4	6	8	NBR
ECW A 6	TW-1033750	14	22	8	20	17.5	4	6	8	FPM
ECW A 7	TW-1033751	15	23	8	21	18.5	4	6	8	NBR
ECW A 8	TW-1033752	15	23	8	21	18.5	4	6	8	FPM
ECW A 9	TW-1033753	16	24	8	22	19.5	4	6	8	NBR
ECW A 10	TW-1033754	16	24	8	22	19.5	4	6	8	FPM
ECW A 11	TW-1033755	18	26	8	24	21.5	4	6	8	NBR
ECW A 12	TW-1033756	18	26	8	24	21.5	4	6	8	FPM
ECW A 13	TW-1033757	20	28	8	26	23.5	4	6	8	NBR
ECW A 14	TW-1033758	20	28	8	26	23.5	4	6	8	FPM
ECW A 15	TW-1033759	22	30	8	28	25.5	4	6	8	NBR



DIAMETER RANGE 10 - 1000 mm
TEMPERATURE RANGE -30°C to +110°C (NBR), -10°C to +200° C (FPM)
SPEED 1 m/s

ECW B

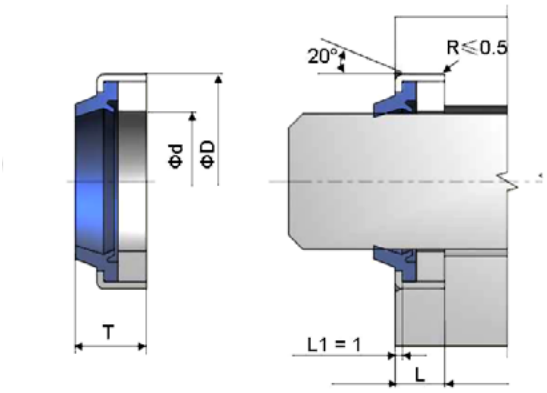
TYPE	PART #	d	D	L	T	D1	R	MATERIAL
ECW B 1	TW-1033485	16	24.6	5.3	7	19	1	NBR
ECW B 2	TW-1033486	16	24.6	5.3	7	19	1	FPM
ECW B 3	TW-1033487	20	28.6	5.3	7	23	1	NBR
ECW B 4	TW-1033488	20	28.6	5.3	7	23	1	FPM
ECW B 5	TW-1033489	24	32.6	5.3	7	27	1	NBR
ECW B 6	TW-1033490	24	32.6	5.3	7	27	1	FPM
ECW B 7	TW-1033491	25	33.6	5.3	7	28	1	NBR
ECW B 8	TW-1033492	25	33.6	5.3	7	28	1	FPM
ECW B 9	TW-1033493	28	36.6	5.3	7	31	1	NBR
ECW B 10	TW-1033494	28	36.6	5.3	7	31	1	FPM
ECW B 11	TW-1033495	30	38.6	5.3	7	33	1	NBR
ECW B 12	TW-1033496	30	38.6	5.3	7	33	1	FPM
ECW B 13	TW-1033497	32	40.6	5.3	7	35	1	NBR
ECW B 14	TW-1033498	32	40.6	5.3	7	35	1	FPM
ECW B 15	TW-1033499	35	43.6	5.3	7	38	1	NBR



DIAMETER RANGE 16 - 70 mm
TEMPERATURE RANGE -30°C to +110°C (NBR), -10°C to +200° C (FPM)
SPEED 2 m/s

CCW A

TYPE	PART #	d	D	L	T	MATERIAL
CCW A 1	TW-1033557	80	90	7	10	NBR
CCW A 2	TW-1033558	80	90	7	10	FPM
CCW A 3	TW-1033559	85	95	7	10	NBR
CCW A 4	TW-1033560	85	95	7	10	FPM
CCW A 5	TW-1033561	90	100	7	10	NBR
CCW A 6	TW-1033562	90	100	7	10	FPM
CCW A 7	TW-1033563	95	105	7	10	NBR
CCW A 8	TW-1033564	95	105	7	10	FPM
CCW A 9	TW-1033565	100	110	7	10	NBR
CCW A 10	TW-1033566	100	110	7	10	FPM
CCW A 11	TW-1033567	100	115	8	10	NBR
CCW A 12	TW-1033568	100	115	8	10	FPM
CCW A 13	TW-1033569	105	115	7	10	NBR
CCW A 14	TW-1033570	105	115	7	10	FPM
CCW A 15	TW-1033571	110	120	7	10	NBR



STABILASTIC TELESCOPING SPRINGS

STABILASTIC telescopic springs ensure the protection of ballscrews, threads and guide columns against dirt, swarf and mechanical damage.

- All forms are made from rolled commercial quality steel sheets from 1.5 mm (16 gauge) to 3 mm (11 gauge) thick.
- Telescopic springs made of hardened high-grade spring steel ensure an excellent protection against dirt, swarf and mechanical damage even when fully extended.
- Minimum overlap (of the individual windings) of 40%.
- A special manufacturing method and optimal resilience ensure an easy compression and extension. Horizontal springs have a minimal sag and vertically used springs only a slight lateral deviation.
- Winding-on types are available up to the size 54/1120/120.
- Easy assembly by pushing the springs over the machine parts.

See page 72 for Quote Request Worksheet

ASSEMBLY AND MAINTENANCE

Regular flanges and collars are sufficient for the location of the spring ends. The minimum diameter of the take-up collar D3 must not be smaller than indicated. If the inside diameter of the take-up collar D3 is too small, or if the outside diameter of the centering flange D4 is too large, the spring will have a tendency to jam.

For horizontal applications, we recommend to install the Stabilastic springs with the large diameter nearest to the swarf accumulation area and for vertical applications, with the large diameter at the top. The maximum deflection in horizontal installations will be approx. 2 – 3% of the maximum mounting length.

Our Telescoping Steel Springs are available in a variety of sizes designed to meet your specific application. This selection guide includes a list of the current range of springs offered by HENNIG.

If your application is not covered by this inventory listing, please complete the RFQ form and HENNIG will prepare a proposal for your specific application. Please contact your HENNIG Customer Service Rep for price and delivery.

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
15	100	20	11	22	60	100
15	120	20	11	22	90	120
15	150	20	11	25	110	150
15	200	20	11	28	160	200
15	300	20	11	30	260	300
20	100	20	16	31	60	100
20	150	20	16	34	110	150
20	200	20	16	36	160	200
20	250	20	16	40	210	250
20	300	20	16	41	260	300
20	250	30	16	36	210	250
20	300	30	16	39	260	300
20	350	30	16	42	310	350
20	400	30	16	45	360	400
20	400	40	16	38	360	400
20	450	40	16	41	410	450
20	500	40	16	48	460	500
25	100	20	21	35	60	100
25	150	20	21	38	110	150
25	200	20	21	41	160	200
25	250	20	21	44	210	250
25	300	20	21	47	260	300
25	300	30	21	43	240	300
25	350	30	21	46	290	350
25	400	30	21	49	340	400
25	450	40	21	48	390	450
25	450	40	21	48	370	450
25	500	40	21	51	420	500
25	450	50	21	40	390	450
25	500	50	21	42	440	500
25	550	50	21	43	490	550
25	600	50	21	44	540	600
25	650	50	21	45	590	650
25	750	50	21	47	690	750
25	900	50	21	57	840	900
30	150	30	26	39	90	150
30	200	30	26	42	140	200
30	250	30	26	44	190	250
30	300	30	26	46	240	300
30	350	30	26	49	290	350
30	400	30	26	52	340	400
30	450	30	26	53	390	450
30	450	40	26	53	370	450
30	500	40	26	56	440	500
30	550	40	26	58	490	550

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
30	600	40	26	60	540	600
30	650	40	26	62	590	650
30	700	40	26	64	640	700
30	150	50	26	40	90	150
30	250	50	26	43	190	250
30	350	50	26	46	290	350
30	450	50	26	48	390	450
30	550	50	26	50	490	550
30	650	50	26	55	590	650
30	750	50	26	59	690	750
30	650	60	26	52	590	650
30	750	60	26	57	690	750
30	900	60	26	59	840	900
30	1000	60	26	62	940	1000
35	100	20	31	46	60	100
35	100	30	31	44	60	100
35	150	30	31	48	90	150
35	200	30	31	50	140	200
35	250	30	31	52	190	250
35	300	30	31	55	240	300
35	350	30	31	61	290	350
35	400	30	31	63	340	400
35	300	40	31	48	240	300
35	350	40	31	50	290	350
35	400	40	31	54	340	400
35	450	40	31	58	390	450
35	500	40	31	60	440	500
35	550	40	31	62	490	550
35	350	50	31	52	290	350
35	400	50	31	54	340	400
35	450	50	31	54	390	450
35	500	50	31	56	440	500
35	550	50	31	58	490	550
35	650	50	31	61	590	650
35	750	50	31	65	690	750
40	150	30	36	51	90	150
40	250	30	36	56	190	250
40	350	30	36	60	290	350
40	450	30	36	65	390	450
40	350	40	36	62	290	350
40	400	40	36	63	340	400
40	450	40	36	65	390	450
40	500	40	36	66	440	500
40	550	40	36	68	490	550
40	350	50	36	55	250	350

STABILASTIC TELESCOPING SPRINGS

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
40	450	50	36	59	350	450
40	550	50	36	61	450	550
40	650	50	36	66	550	650
40	750	50	36	69	650	750
40	850	50	36	71	750	850
40	350	60	36	55	230	350
40	450	60	36	55	330	450
40	550	60	36	58	430	550
40	650	60	36	62	530	650
40	750	60	36	66	630	750
40	900	60	36	70	780	900
40	650	75	36	63	500	650
40	750	75	36	66	600	750
40	900	75	36	72	750	900
40	1100	75	36	78	950	1100
40	1300	75	36	84	1150	1300
40	1500	75	36	87	na	1500
40	1000	100	36	69	800	1000
40	1200	100	36	71	1000	1200
40	1300	100	36	75	1100	1300
40	1400	100	36	76	1200	1400
40	150	100	36	79	1300	1500
40	1600	100	36	81	1400	1600
40	1800	100	36	82	1600	1800
40	1800	120	36	83	1560	1800
40	2000	120	36	86	1760	2000
40	2200	120	36	91	na	2200
45	150	30	41	56	90	150
45	250	30	41	62	190	250
45	350	30	41	65	290	350
45	400	30	41	66	340	400
45	350	40	41	67	290	350
45	400	40	41	68	340	400
45	450	40	41	69	390	450
45	500	40	41	71	na	500
45	450	50	41	67	350	450
45	550	50	41	68	450	550
45	650	50	41	72	550	650
45	350	60	41	63	230	350
45	450	60	41	64	330	450
45	550	60	41	65	430	550
45	650	60	41	70	530	650
45	700	60	41	70	630	700
45	650	75	41	68	500	650
45	750	75	41	76	600	750
45	900	75	41	78	750	900
45	1100	75	41	84	950	1100
45	1200	75	41	86	1150	1200
45	1300	75	41	89	na	1300
45	1000	100	41	71	800	1000
45	1200	100	41	75	1000	1200
45	1300	100	41	79	1100	1300
45	1400	100	41	81	1200	1400
45	1500	100	41	84	1300	1500

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
45	1600	100	41	87	1400	1600
45	1800	100	41	87	na	1800
45	1800	120	41	90	1560	1800
45	2000	120	41	91	1760	2000
45	2200	120	41	100	na	2200
50	150	30	46	63	90	150
50	250	30	46	68	190	250
50	350	30	46	68	290	350
50	250	50	46	62	150	250
50	350	50	46	66	250	350
50	450	50	46	70	350	450
50	550	50	46	73	450	550
50	650	50	46	76	550	650
50	350	60	46	67	230	350
50	450	60	46	66	330	450
50	550	60	46	68	430	550
50	650	60	46	73	530	650
50	750	60	46	76	630	750
50	900	60	46	82	780	900
50	750	75	46	78	600	750
50	900	75	46	84	750	900
50	1100	75	46	90	950	1100
50	1200	75	46	94	1050	1200
50	1100	100	46	77	900	1100
50	1300	100	46	80	1100	1300
50	1500	100	46	87	1300	1500
50	1600	100	46	92	1400	1600
50	1700	100	46	93	na	1700
50	1800	100	46	94	na	1800
50	1700	120	46	91	1460	1700
50	1900	120	46	97	1660	1900
50	2100	120	46	102	1860	2100
50	2300	120	46	105	na	2300
50	2500	120	46	111	na	2500
50	2800	120	46	119	na	2800
50	2500	150	46	117	2200	2500
50	2800	150	46	119	2500	2800
50	3000	150	46	124	na	3000
50	3000	180	46	123	2640	3000
50	3250	180	46	130	na	3250
50	3250	200	46	128	2850	3250
50	3500	200	46	134	na	3500
55	150	30	51	68	90	150
55	250	30	51	73	190	250
55	300	40	51	71	220	300
55	450	40	51	76	370	450
55	250	50	51	66	150	250
55	350	50	51	71	250	350
55	450	50	51	74	350	450
55	550	50	51	77	450	550
55	650	50	51	80	450	650
55	550	60	51	75	430	550
55	650	60	51	79	530	650
55	750	60	51	83	630	750

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
55	800	60	51	86	680	800
55	900	60	51	89	780	900
55	1000	60	51	92	na	1000
55	600	75	51	86	450	600
55	750	75	51	83	600	750
55	900	75	51	89	750	900
55	1100	75	51	94	950	1100
55	1100	100	51	88	900	1100
55	1300	100	51	89	1100	1300
55	1500	100	51	94	1300	1500
55	1800	100	51	102	na	1800
55	1300	120	51	86	1060	1300
55	1500	120	51	94	1260	1500
55	1700	120	51	96	1460	1700
55	1900	120	51	103	1660	1900
55	2100	120	51	106	1860	2100
55	2300	120	51	110	2060	2300
55	2500	120	51	117	na	2500
55	2800	120	51	119	na	2800
55	2500	150	51	121	2200	2500
55	2800	150	51	122	2500	2800
55	3000	150	51	126	na	3000
55	3500	150	51	130	na	3500
55	2800	180	51	116	2500	2800
55	3000	180	51	127	2640	3000
55	3250	180	51	130	na	3250
55	3500	180	51	132	na	3500
60	150	30	56	73	90	150
60	250	30	56	78	190	250
60	250	50	56	72	150	250
60	350	50	56	78	250	350
60	450	50	56	82	350	450
60	550	50	56	86	450	550
60	450	60	56	78	430	450
60	550	60	56	81	430	550
60	650	60	56	85	530	650
60	750	60	56	89	630	750
60	800	60	56	96	680	800
60	900	60	56	97	na	900
60	750	75	56	89	600	750
60	900	75	56	95	750	900
60	1100	75	56	102	950	1100
60	1300	75	56	104	1150	1300
60	900	100	56	85	700	900
60	1100	100	56	90	900	1100
60	1300	100	56	94	1100	1300
60	1500	100	56	101	1300	1500
60	1800	100	56	109	na	1800
60	1700	120	56	101	1460	1700
60	1900	120	56	104	1660	1900
60	2100	120	56	112	1860	2100
60	2300	120	56	114	2060	2300
60	2500	120	56	119	na	2500
60	2800	120	56	127	na	2800

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
60	2500	150	56	118	2300	2500
60	2800	150	56	123	2500	2800
60	3000	150	56	129	na	3000
60	3500	150	56	140	na	3500
60	3000	180	56	128	2640	3000
60	3250	180	56	132	na	3250
60	3250	200	56	132	2850	3250
60	3500	200	56	139	na	3500
65	100	30	61	76	90	100
65	150	30	61	78	90	150
65	250	30	61	85	190	250
65	250	50	61	76	150	250
65	350	50	61	83	250	350
65	450	50	61	88	350	450
65	550	50	61	92	450	550
65	500	60	61	86	380	500
65	550	60	61	88	430	550
65	650	60	61	92	530	650
65	700	60	61	94	580	700
65	750	60	61	96	630	750
65	800	60	61	98	680	800
65	850	60	61	100	730	850
65	900	60	61	104	780	900
65	750	75	61	93	600	750
65	800	75	61	96	650	800
65	900	75	61	99	750	900
65	1100	75	61	107	900	1100
65	1300	75	61	111	1100	1300
65	1500	75	61	115	na	1500
65	1000	100	61	91	800	1000
65	1100	100	61	95	900	1100
65	1300	100	61	100	1100	1300
65	1500	100	61	109	1300	1500
65	1700	100	61	114	na	1700
65	1800	100	61	120	na	1800
65	1500	120	61	102	1260	1500
65	1700	120	61	106	1460	1700
65	1900	120	61	109	1660	1900
65	2100	120	61	113	1860	2100
65	2300	120	61	118	2060	2300
65	2500	120	61	128	na	2500
65	2800	120	61	132	na	2800
65	3000	120	61	130	na	3000
65	2400	150	61	121	2100	2400
65	2800	150	61	133	2500	2800
65	3000	150	61	139	na	3000
65	3000	180	61	136	2640	3000
65	3250	180	61	146	na	3250
65	3250	200	61	140	2850	3250
65	3500	200	61	148	na	3500
70	150	30	66	85	90	150
70	250	30	66	93	190	250
70	350	30	66	99	290	350
70	250	50	66	84	150	250

STABILASTIC TELESCOPING SPRINGS

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
70	350	50	66	89	250	350
70	450	50	66	94	350	450
70	550	50	66	98	450	550
70	650	50	66	100	na	650
70	550	60	66	94	430	550
70	650	60	66	97	530	650
70	750	60	66	103	630	750
70	900	60	66	113	800	900
70	500	75	66	94	350	500
70	600	75	66	94	450	600
70	700	75	66	98	550	700
70	800	75	66	100	650	800
70	900	75	66	106	750	900
70	1100	75	66	113	900	1100
70	700	100	66	90	700	700
70	900	100	66	98	900	900
70	1100	100	66	102	900	1100
70	1300	100	66	107	1100	1300
70	1500	100	66	115	1300	1500
70	1800	100	66	124	na	1800
70	1500	120	66	112	1260	1500
70	1800	120	66	118	1560	1800
70	2000	120	66	125	1760	2000
70	2200	120	66	130	1960	2200
70	2400	120	66	138	na	2400
70	2600	120	66	143	na	2600
70	2800	120	66	147	na	2800
70	3000	120	66	147	na	3000
70	2000	150	66	129	1700	2000
70	2400	150	66	135	2100	2400
70	2800	150	66	139	na	2800
70	3000	150	66	149	na	3000
70	2800	180	66	138	2440	2800
70	3000	180	66	141	na	3000
70	3250	180	66	153	na	3250
70	3250	200	66	144	2850	3250
70	3500	200	66	155	na	3500
75	150	30	71	92	90	150
75	250	30	71	99	190	250
75	250	50	71	89	150	250
75	350	50	71	94	250	350
75	450	50	71	101	350	450
75	500	50	71	105	400	500
75	550	60	71	100	430	550
75	650	60	71	103	530	650
75	750	60	71	109	630	750
75	650	75	71	99	500	650
75	750	75	71	104	600	750
75	900	75	71	111	750	900
75	1000	75	71	120	850	1000
75	1100	75	71	125	950	1100
75	900	100	71	102	na	900
75	1100	100	71	108	900	1100
75	1200	100	71	112	1000	1200

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
75	1300	100	71	114	1100	1300
75	1500	100	71	120	1300	1500
75	1700	100	71	126	1500	1700
75	1800	100	71	128	1600	1800
75	2000	100	71	133	na	2000
75	2200	100	71	139	na	2200
75	1500	120	71	115	1260	1500
75	1800	120	71	125	1560	1800
75	2000	120	71	128	1760	2000
75	2200	120	71	132	na	2200
75	2400	120	71	141	na	2400
75	2600	120	71	143	na	2600
75	2800	120	71	149	na	2800
75	2000	150	71	135	1700	2000
75	2400	150	71	141	2100	2400
75	2600	150	71	144	na	2600
75	2800	150	71	145	na	2800
75	3000	150	71	153	na	3000
75	2800	180	71	143	2440	2800
75	3000	180	71	148	na	3000
75	3250	180	71	156	na	3250
75	3250	200	71	148	2850	3250
75	3500	200	71	158	na	3500
80	150	30	76	98	90	150
80	250	30	76	105	190	250
80	250	50	76	96	150	250
80	350	50	76	104	250	350
80	450	50	76	111	350	450
80	550	50	76	114	450	550
80	450	60	76	102	330	450
80	550	60	76	106	430	550
80	650	60	76	110	530	650
80	750	60	76	115	630	750
80	550	75	76	99	400	550
80	650	75	76	105	500	650
80	750	75	76	109	600	750
80	900	75	76	120	750	900
80	1000	75	76	123	850	1000
80	1200	75	76	128	na	1200
80	900	100	76	108	700	900
80	1100	100	76	114	900	1100
80	1300	100	76	120	1100	1300
80	1500	100	76	126	1300	1500
80	1800	100	76	134	na	1800
80	1300	120	76	116	1060	1300
80	1500	120	76	121	1260	1500
80	1800	120	76	129	1560	1800
80	2000	120	76	134	na	2000
80	2200	120	76	137	na	2200
80	2400	120	76	144	na	2400
80	2800	120	76	147	na	2800
80	2000	150	76	139	1700	2000
80	2200	150	76	142	1900	2200
80	2400	150	76	152	2100	2400

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
80	2600	150	76	148	2300	2600
80	2800	150	76	152	na	2800
80	3000	150	76	159	na	3000
80	2800	180	76	127	2440	2800
80	3000	180	76	154	na	3000
80	3250	180	76	161	na	3250
80	3000	200	76	154	2600	3000
80	3250	200	76	160	na	3250
80	3500	200	76	163	na	3500
85	150	30	81	103	90	150
85	250	30	81	110	190	250
85	250	50	81	104	150	250
85	350	50	81	110	250	350
85	450	50	81	116	350	450
85	550	50	81	119	450	550
85	450	60	81	107	330	450
85	550	60	81	111	430	550
85	650	60	81	115	530	650
85	550	75	81	108	400	550
85	650	75	81	109	500	650
85	750	75	81	114	600	750
85	900	75	81	125	750	900
85	900	100	81	113	700	900
85	1100	100	81	119	900	1100
85	1300	100	81	125	1100	1300
85	1500	100	81	127	1300	1500
85	1300	120	81	120	1060	1300
85	1500	120	81	126	1260	1500
85	1800	120	81	133	1560	1800
85	2000	120	81	138	na	2000
85	2000	150	81	144	1700	2000
85	2200	150	81	147	1900	2200
85	2400	150	81	152	2100	2400
85	2600	150	81	153	na	2600
85	2800	150	81	157	na	2800
85	3000	150	81	164	na	3000
85	2800	180	81	153	2440	2800
85	3000	180	81	159	na	3000
85	3250	180	81	166	na	3250
85	3000	200	81	159	2600	3000
85	3250	200	81	165	na	3250
85	3500	200	81	168	na	3500
90	150	30	86	110	90	150
90	250	50	86	116	190	250
90	150	50	86	112	50	150
90	250	50	86	116	150	250
90	350	50	86	121	250	350
90	450	50	86	125	350	450
90	350	60	86	112	230	350
90	450	60	86	114	330	450
90	450	75	86	114	300	450
90	550	75	86	119	400	550
90	650	75	86	124	500	650
90	750	75	86	128	600	750

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
90	900	75	86	133	750	900
90	750	100	86	116	550	750
90	900	100	86	123	700	900
90	1100	100	86	127	900	1100
90	1300	100	86	132	1100	1300
90	1500	100	86	144	1300	1500
90	1300	120	86	127	1060	1300
90	1500	120	86	131	1260	1500
90	1800	120	86	138	na	1800
90	2000	120	86	150	na	2000
90	1800	150	86	144	1500	1800
90	2000	150	86	150	1700	2000
90	2300	150	86	154	na	2300
90	2600	150	86	159	na	2600
90	2800	150	86	162	na	2800
90	3000	150	86	166	na	3000
90	2600	180	86	152	2240	2600
90	2800	180	86	158	na	2800
90	3000	180	86	164	na	3000
90	2600	200	86	155	na	2600
90	3000	200	86	162	na	3000
90	3250	200	86	166	na	3250
90	3500	200	86	170	na	3500
90	3700	200	86	173	na	3700
90	4000	200	86	180	na	4000
90	4200	200	86	185	na	4200
90	4500	200	86	194	na	4500
100	250	60	96	121	130	250
100	350	60	96	126	230	350
100	350	75	96	119	200	350
100	450	75	96	124	300	450
100	600	75	96	129	450	600
100	800	75	96	138	650	800
100	800	100	96	126	600	800
100	1000	100	96	134	800	1000
100	1200	100	96	137	1000	1200
100	1500	100	96	140	1300	1500
100	1100	120	96	130	860	1100
100	1300	120	96	135	1060	1300
100	1500	120	96	144	na	1500
100	1800	120	96	148	na	1800
100	1500	150	96	147	1200	1500
100	1800	150	96	153	1500	1800
100	2000	150	96	157	1700	2000
100	2500	150	96	164	na	2500
100	2800	150	96	172	na	2800
100	3000	150	96	186	na	3000
100	2500	180	96	162	2140	2500
100	2800	180	96	168	na	2800
100	3000	180	96	174	na	3000
100	2800	200	96	169	na	2800
100	3000	200	96	188	na	3000
110	250	50	106	130	na	250
110	250	60	106	131	130	250

STABILASTIC TELESCOPING SPRINGS

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
110	350	60	106	135	230	350
110	450	60	106	139	330	450
110	350	75	106	130	200	350
110	450	75	106	135	300	450
110	600	75	106	141	450	600
110	800	75	106	154	650	800
110	650	100	106	131	450	650
110	750	100	106	134	560	750
110	900	100	106	139	700	900
110	1100	120	106	141	860	1100
110	1300	120	106	145	1060	1300
110	1500	120	106	155	1260	1500
110	1500	150	106	155	1200	1500
110	1800	150	106	159	1500	1800
110	2000	150	106	165	na	2000
110	2000	180	106	159	1640	2000
110	2200	180	106	165	1840	2200
110	2400	180	106	170	na	2400
110	2400	200	106	163	2000	2400
110	2600	200	106	166	na	2600
110	2800	200	106	172	na	2800
110	3000	200	106	176	na	3000
110	3500	200	106	189	na	3500
120	250	50	116	140	na	250
120	350	50	116	143	na	350
120	250	60	116	141	130	250
120	350	60	116	145	230	350
120	450	60	116	150	330	450
120	350	75	116	141	200	350
120	450	75	116	145	300	450
120	600	75	116	152	450	600
120	650	100	116	141	450	650
120	750	100	116	145	550	750
120	900	100	116	150	700	900
120	900	120	116	148	660	900
120	1100	120	116	152	860	1100
120	1300	120	116	159	na	1300
120	1500	120	116	162	na	1500
120	1300	150	116	159	1000	1300
120	1500	150	116	163	1200	1500
120	1800	150	116	169	na	1800
120	2000	150	116	177	na	2000
120	1600	180	116	180	1240	1600
120	1800	180	116	180	1440	1800
120	2000	180	116	180	1640	2000
120	2200	180	116	180	na	2200
120	2200	200	116	166	1800	2200
120	2400	200	116	170	na	2400
120	2600	200	116	174	na	2600
130	155	50	126	145	na	155
130	170	50	126	150	na	170
130	250	60	126	152	na	250
130	350	60	126	156	na	350
130	450	60	126	158	na	450

Part Number						
D1 (min)	L (max)	L - Band Width (min)	d (max)	D2 (max)	Horizontal Travel	Vertical Travel
130	250	75	126	146	na	250
130	350	75	126	150	na	350
130	450	75	126	156	na	450
130	650	100	126	157	na	650
130	800	100	126	164	na	800
130	600	120	126	158	360	600
130	800	120	126	162	560	800
130	1000	120	126	164	760	1000
130	1100	120	126	166	na	1100
130	900	150	126	163	500	900
130	1300	150	126	172	1000	1300
130	1500	150	126	176	1200	1500
130	1800	150	126	185	na	1800
130	1650	180	126	171	1650	1650
130	2000	200	126	180	2000	2000
140	250	60	136	162	190	250
140	250	75	136	159	150	250
140	350	75	136	161	250	350
140	450	75	136	165	350	450
140	600	75	136	167	na	600
140	350	100	136	154	250	350
140	450	100	136	162	350	450
140	600	100	136	172	na	600
140	700	120	136	173	460	700
140	1000	120	136	192	na	1000
140	1000	150	136	182	700	1000
140	1300	150	136	187	1000	1300
140	1500	150	136	192	na	1500
140	1900	200	136	185	1500	1900
140	2000	200	136	193	na	2000
140	2400	200	136	204	na	2400
150	350	60	146	172	na	350
150	450	75	146	188	na	450
150	500	75	146	190	na	500
150	600	75	146	194	na	600
150	750	150	146	180	na	750
150	850	150	146	182	na	850
150	1100	150	146	190	na	1100
150	1300	150	146	197	na	1300
160	250	60	156	178	na	250
160	250	75	156	179	na	250
160	450	75	156	183	na	450
160	450	100	156	182	na	450
160	650	120	156	192	na	650
160	750	120	156	193	na	750
160	800	150	156	198	na	800
160	950	150	156	201	na	950
160	1000	150	156	202	na	1000
160	1200	150	156	204	na	1200
160	1200	200	156	193	na	1200
160	1300	200	156	200	na	1300
160	1400	200	156	212	na	1400
160	2000	200	156	222	na	2000

COMPANY *(complete address)*

_____

_____

_____

_____

Name _____

Title _____

E-mail _____

Phone _____ Fax _____ Date _____/_____/_____

TECHNICAL DATA

D1 INSIDE spring diameter _____

D4 OUTSIDE flange diameter (D1 - 0.40") _____

D2 OUTSIDE spring diameter _____

D3 INSIDE flange (D2 + 0.80") _____

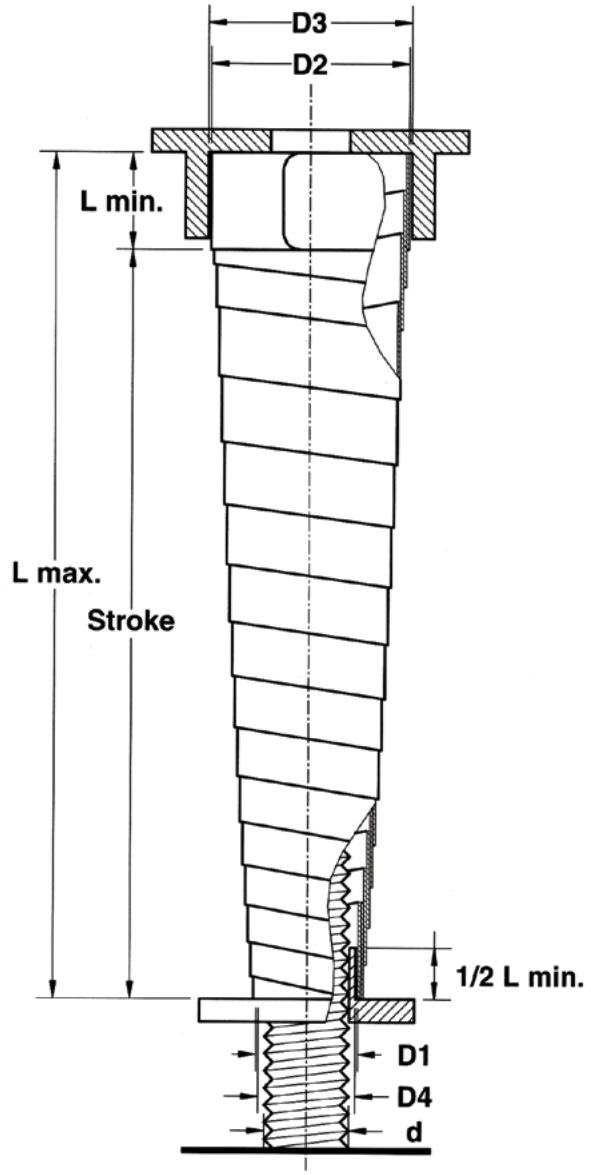
d Maximum screw/rod diameter _____

L (max) Fully extended spring length _____

L (min) Fully compressed spring length _____

Stroke Maximum spring travel _____

Orientation ☐ Horizontal ☐ Vertical



NOTE:

Flanged collars are not a part of the standard spring assembly, but can be ordered from Hennig. Flanged collars MUST allow the spring to rotate during operation. Consult your Hennig Customer Service Rep for the proper flanged collar size and pricing.

NOTE:

The spring should be mounted so that chips and coolant flow from the largest diameter towards the smallest diameter.

STABIFLEX CABLE CONDUITS

STABIFLEX cable conduits are moving cable carriers which have proved successful in a wide range of applications in machine tools and machining centers. The main feature of this closed cable carrier is that through the fitting of a steel band to one of the four sides the flexible conduit can only bend in the one direction where the steel band is situated. In all other directions of movement the conduit remains stable.

STABIFLEX cable conduits are resistant against all coolants and lubricants normally used in the machine tool industry.
Two qualities are available depending on the traverse speed:

QUALITY G

Featuring a steel band fixed with special glue for speeds of $v \leqq 50$ m/min.

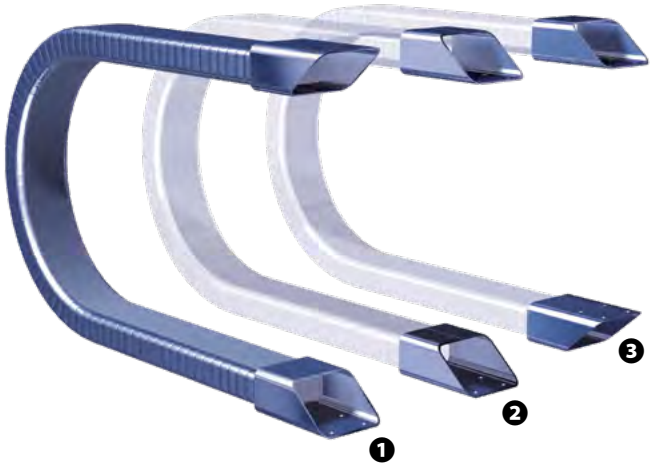
QUALITY K

Featuring a synthetic band fixed with special glue for speeds of $v \geqq 50$ m/min.

If no traverse speed is indicated, we automatically choose the G quality.

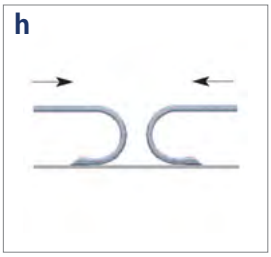
- To obtain the shortest possible length, it is recommended to have the fixed connection at the midpoint of the stroke.
- When choosing the required type of STABIFLEX, an allowance of at least 10% per cable should be considered.
- Made of zinc plated sheet steel.
- To determine the bending radius (KR), multiply the outer diameter of the cables to be installed by a factor of 8 to 10. However, the minimum bending radius indicated by the cable manufacturers is the main criterion.
- Mounting flanges are welded on both ends of the cable conduit.
- In accordance with safety regulations, electrical continuity is maintained between the flanges and the metal conduit. The cables are loosely guided in the STABIFLEX and fastened at the moving and fixed end.
- To ensure long-term functioning, it is necessary to guide the STABIFLEX in support angles or in a channel the length of which should be approx. 1/2 stroke.
- Max. length of the individual types of Stabiflex is 6.5 m, longer lengths can be flanged together.

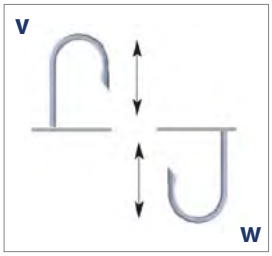
FLANGE ARRANGEMENTS

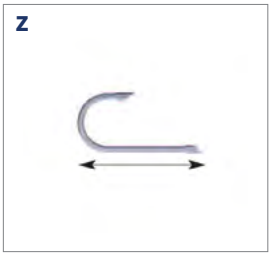


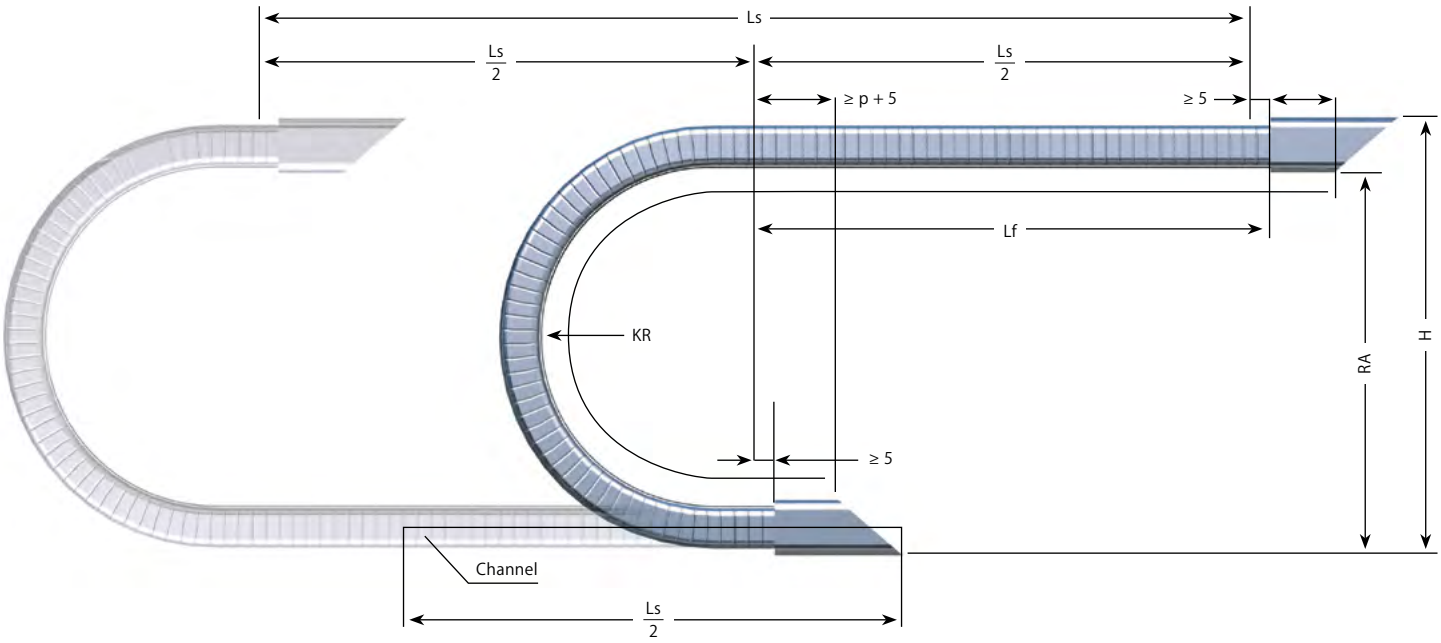
functioning

- h horizontal
- v vertical standing
- w vertical suspended
- z cross beam - top view







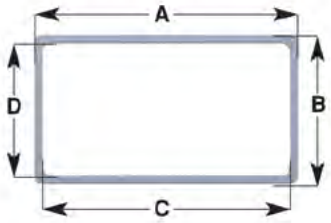


L = Ls/2 + 4KR + 50 (mm) *
L = Ls/2 + π KR Ls + 2p + 10 (mm) **

* Approximate value

** Formula used to calculate the precise length (rounded off to 10 mm)

hose cross section

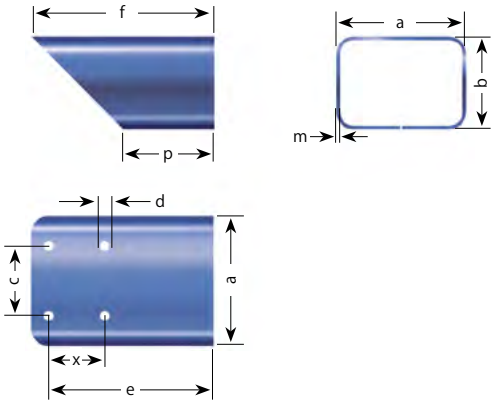


legend

A x B = STABIFLEX - outside cross-section
C x D = STABIFLEX - inside cross-section
Lf = Unsupported length
L = STABIFLEX length
Ls = Travel
KR = Bending radius (Tolerance -20%)
H = Mounting height
p = Depth of conduit fitted in the flange
RA = Minimum height of support

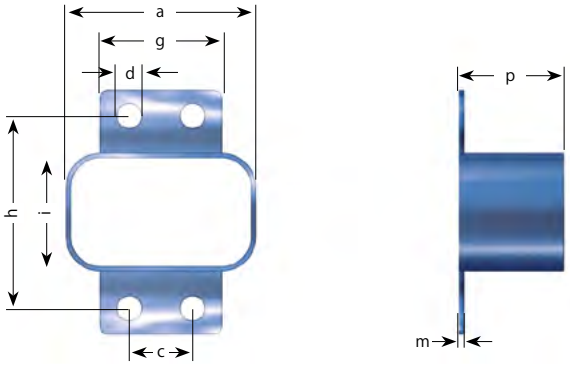
Stabiflex Type	A	B	C	D	p	KR** +0° -20°	RA (Includes pre-load)	H	Lfmax	Ls without support	Ls with support	Weight hose kg/m	Weight flanges kg/Paar
0.0	30	20	26	16	25	55	120	144	1000	2000	4000	~ 0.6	~ 0.1
						720	160	194					
1.0	50	30	43	23	30	110	235	269	1500	3000	6000	~1.25	~ 0.2
						165	345	379					
1.1	50	50	45	45	50	110	240	294	2000	4000	8000	~ 1.7	~ 0.3
						110	240	290					
2.0	80	45	73	38	45	220	460	510	2000	4000	8000	~ 2.25	~ 0.5
						275	570	620					
2.1	85	60	80	55	65	165	350	415	2500	5000	10.000	~ 2.4	~ 0.6
2.2	95	50	90	45	60	130	280	335	2000	4000	8000	~ 2.9	~ 0.6
						155	335	400					
3.0	110	60	102	52	60	250	525	590	2500	5000	10.000	~ 3.6	~ 1.0
						330	685	750					
3.1	115	80	109	74	80	220	465	550	2500	5000	10.000	~ 3.8	~ 1.2
4.0	170	80	162	72	80	205	435	520	2500	5000	10.000	~ 5.6	~1.7
4.1	175	110	167	102	80	285	600	717	2500	5000	10.000	~ 5.8	~ 3.9

STANDARD FLANGES



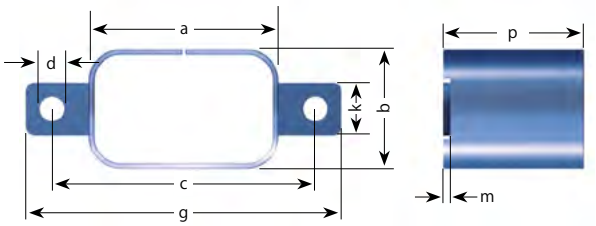
Type	a	b	c	d	e	f	p	m	x
0.0	34	24	13	6	40	50	25	1.5	–
1.0	54	34	22	7	45	60	30	1.5	–
1.1	54	54	20	7	75	100	50	1.5	–
2.0	85	50	50	7	67.5	90	45	2	–
2.1	90	65	50	7	117.5	130	65	2	40
2.2	100	55	50	7	110	120	60	2	40
3.0	115	65	70	9	90	120	60	2	–
3.1	120	85	80	9	142.5	165	80	2	40
4.0	175	85	100	9	120	160	80	2	–
4.1	182	117	140	9	157.5	195	80	3	40

FACE FLANGE TYPE A



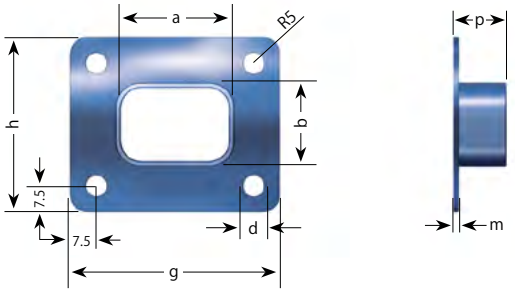
Type	a	b	c	d	g	h	i	p	m
1.0	54	34	18	7	35	70	55	30	1.5
2.0	85	50	45	7	65	85	70	45	2
3.0	115	65	60	9	80	110	90	60	2
4.0	175	85	95	9	120	130	110	80	2

FACE FLANGE TYPE B



Type	a	b	c	d	g	k	p	m
1.0	54	34	75	7	90	15	30	1.5
2.0	85	50	105	7	120	30	45	2
3.0	115	65	140	9	160	35	60	2
4.0	175	85	200	9	220	40	80	2

FACE FLANGE TYPE C



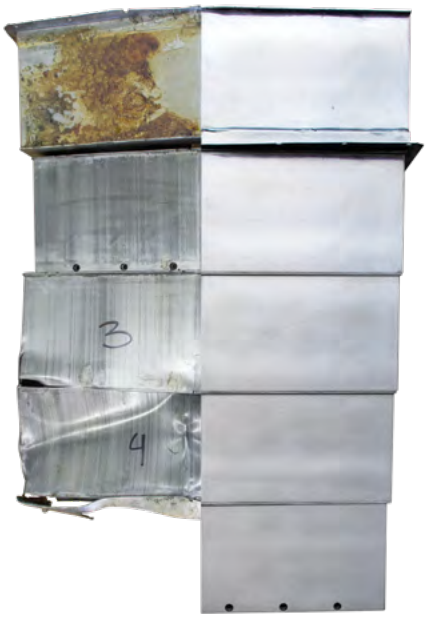
Type	a	b	d	g	h	p	m
0.0	34	24	6	60	50	25	1.5
1.1	54	54	7	85	85	50	1.5
2.1	90	65	7	120	95	65	2
2.2	100	55	7	130	85	60	2
3.1	120	85	9	150	115	80	2
4.1	182	117	9	210	145	80	3

WE KNOW HOW EXPENSIVE DOWNTIME CAN BE

That's why we offer quick, responsive, service for the following products:

- Telescopic Steel Covers (see next page for details)
- Bellow Covers
- Aprons & Roll Ups
- Modular Face Shield Systems
- Wiper Systems
- Walk-On Pit Covers

We provide repairs and replacement parts for all the products we sell. With our experienced technicians, it doesn't matter who manufactured the original product, the end result absolutely must meet Hennig standards for quality and safety before we will consider it finished.



LEFT SIDE
before Hennig repair

RIGHT SIDE
after Hennig repair

our scope of services

- Preventative and Predictive Maintenance Training
- Way cover diagnostics and troubleshooting (see next page)
- On-Site repairs of waycovers of any make on the market
- Logistics services for minimum downtime
- Extensive replacement spare parts inventory
- Conveyor systems spare parts

service & repair centers worldwide

We have 17 service centers located throughout the world, enabling us to provide fast, localized service no matter where you are. Below is a snapshot of our service & repair locations.

For more details and contact info, see pages 81-82.

TELESCOPING STEEL COVER SERVICES

At Hennig we service everything we sell. Our repair and refurbishment facilities are located in regions worldwide, so you get fast, localized service from experts who speak your language and deeply understand the systems you're using.

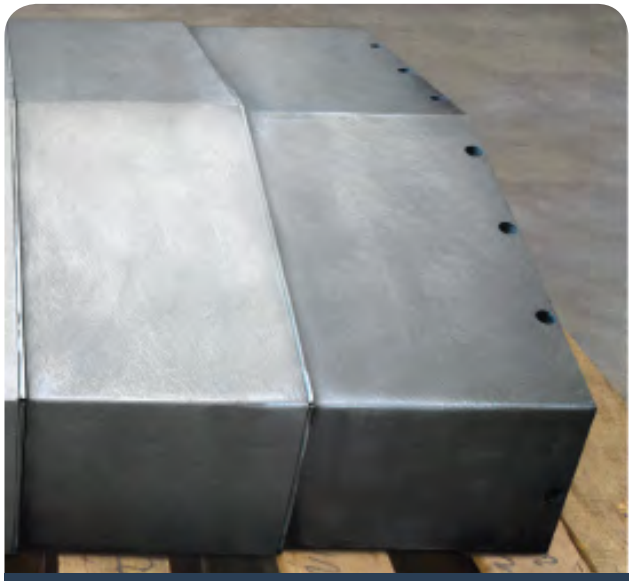
We have the resources to keep your systems running - and running right - so you minimize downtime and get the greatest possible return from your machine investment.

---

services offered

- Repairs for all Hennig and non-Hennig way covers
- Same-day turn-around on diagnosis and repair estimates
- Reverse engineering of existing way covers
- Fast, local access to spare parts and supplies
- Customer training for in-house way cover repair
- Service and repair of Hennig Chip Conveyors
- Preventive maintenance service contracts available
- Service initiated within 48 hours in most locations
- On-site services available
- 90-day warranty on parts and labor

↑ Before Hennig Repair



↑ After Hennig Repair

PRODUCT IDENTIFICATION TAGS

To order spare parts or complete component groups, or to clearly identify a product for repair or re-manufacture, please reference the numbers found on the product identification tag.

reference numbers:

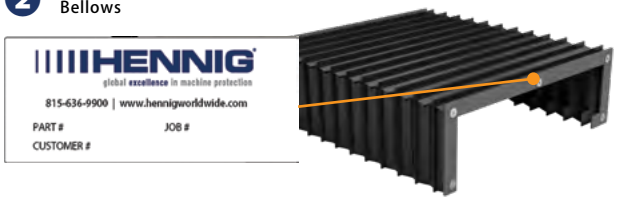
- Commision / Sales number
- Calculation or Drawing number
- Delivery Date
- Customer-specific Reference / Order number

Having these details on hand will enable us to quickly provide you with a quotation for spare parts, repair or a replacement delivery.

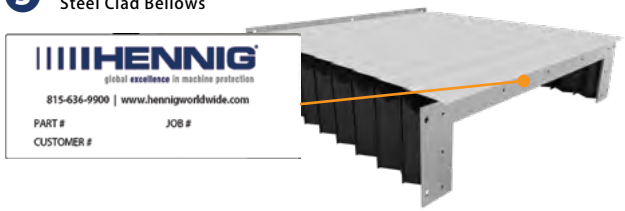
PRODUCT	TAG TYPE / LOCATION ● orange dot represents typical tag location
1 **Telescopic Steel Covers**	Metal tag on the large external box
2 **Bellows**	Adhesive label on the connecting face (typically in the middle of the bellow fold or on the PVC stiffeners)
3 **Steel Clad Bellows**	Adhesive label on the connecting face (typically in the middle of the bellow fold or on the PVC stiffeners)
4 **Apron Covers**	Metal tag on the joining face (typically on the top)
5 **Roll-Up Covers**	Metal tag on canister or bearing bracket
6 **Walk-On Pit Covers**	Metal tag on canister or bearing bracket
7 **Telescopic Springs**	Adhesive decal on large end of the spring
8 **Cable Carriers**	Stamped onto the joining flange
9 **Modular Face Shields**	Metal tag on frame
10 **Wiper Systems**	Laser marking

1 Telescopic Steel Covers

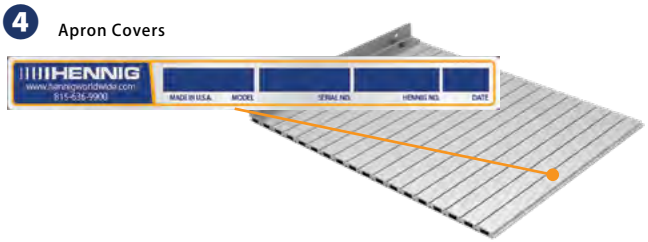
2 Bellows



3 Steel Clad Bellows



4 Apron Covers

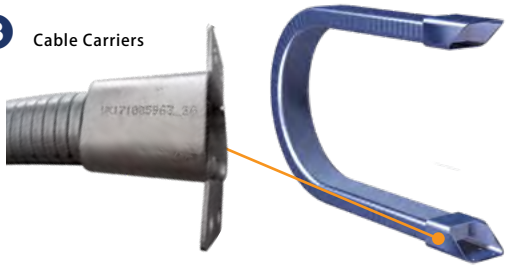


5 Roll-Up Covers

6 Walk-On Pit Covers

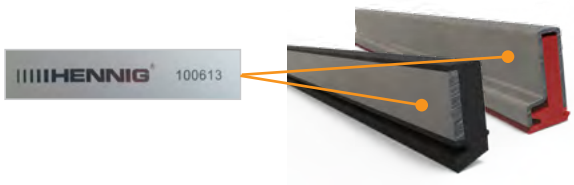
7 Telescopic Springs

8 Cable Carriers



9 Modular Face Shields

10 Wiper Systems



HENNIG WORLDWIDE

1 Hennig, Inc. Global Headquarters
9900 North Alpine Road
Machesney Park, IL 61115
P: + 1 815-636-9900
F: + 1 815-636-9737
info@hennig-inc.com

2 Hennig, Inc. Oklahoma Service Center
900395 S. 3420 Road
Chandler, OK 74834
P: + 1 405-258-6702
F: + 1 405-258-9971
info@hennig-inc.com

3 Hennig, Inc. Michigan Service Center
11879 Brookfield Road
Livonia, MI 48150
P: + 1 734-523-8274
F: + 1 855-427-1549
info@hennig-inc.com

4 Hennig, Inc. Ohio Service Center
11431 Williamson Road
Blue Ash, OH 45241
P: + 1 513-247-0838
F: + 1 513-247-0840
info@hennig-inc.com

5 Hennig, Inc. N. Carolina Service Center
8916 Pioneer Avenue, Suite C, Dock 14
Charlotte NC 28273
P: + 1 704-588-7200
F: + 1 704-588-7200
info@hennig-inc.com

6 Hennig, Inc. California Service Center
11690 Pacific Avenue
Fontana, CA 92337
P: + 1 909-420-5796
info@hennig-inc.com

7 Hennig / Gaden, S.A. de C.V.
Calzada Abastos Nº 235
Col. Santa María
Torreón Coahuila, C.P. 27020
P: + 1 (871) 268 2449
F: + 1 (871) 268 2449
ventas@grupogaden.com

8 Hennig / Gaden, S.A. de C.V.
Calle Primera Nº 1037
Col. Ministro Nazario Ortiz
Saltillo, Coahuila, C.P. 25100
P: + 1 (844) 180 0294
F: + 1 (844) 180 029
ventas@grupogaden.com

9 Hennig / Gaden, S.A. de C.V.
Silca Nº 4, Col. Vista Hermosa
Tlalnepantla, Mexico, C.P. 54080
P: + 52 (55) 5318 4146
F: + 52 (55) 5319 32
ventas@grupogaden.com

10 Cobsen Ltda.
R. Benedito Mazulquim, 425
18550-000 Boituva CEP, Brazil
P: + 55 15 3263-4042
F: + 55 15 3263-4070
cobsen@cobsen.com.br

11 Hennig GmbH European Headquarters
Überrheinerstrasse 5
D-85551 Kirchheim, Germany
P: + 49 89 96096-0
F: + 49 89 96096-120
info@hennig-gmbh.de

12 Hennig CZ s.r.o.
Klánovická 334
250 82 Úvaly, CZ
P: + 420 2810 91631
F: + 420 2810 91625
info@hennig-cz.com

13 Hennig France (formerly Sermeto)
Les Rebrillons
03300 Creuzier-le-Neuf
P: + 33 470 58 4740
F: + 33 470 58 0022
contact@hennig-france.com

14 Hennig U.K. Ltd.
Unit 6, Challenge Close
Coventry CV1 5JG
P: + 44 24 76555690
F: + 44 24 76256591
sales@henniguk.com

15 B & S Industrieel Onderhoud
Zirkoonstraat 7, 7554 TT Hengelo (Ov.)
Postbus 69, 7550 AB Hengelo (Ov.), NL
P: + 31 74 8510600
F: + 31 74 8510605
megen@bs.nl

16 Euro-Renaex Sistemas S.L.
P° Ubarburu 76, Pab.34 - Pol.27
20014 San Sebastian, Spain
P: + 34 943 472225
F: + 34 943 458254
info@ersistemas.com

17 Svenska Maskinkomponenter AB
Brunnsäkersvägen 9
64593 Strängnäs, Sweden
P: + 46 8 53470770
F: + 46 8 53470775
info@svemako.se

18 Lubrication Equipment Pty. Ltd.
6, Liebenberg Road
1451 Alrode, Johannesburg, ZA
P: + 27 11 8645785
F: + 27 11 8648231
sales@lubrequip.co.za

19 Thodacon Machine Tool Protection Co. Ltd.
Lu-ou Road No.43
Hudai Industrial Park, Bin District
Wuxi 214161 Jiangsu Province, China
P: + 86 510 8329 1518
F: + 86 510 8329 1598
sales@thodacon.cn

20 Osung Mechatronics Co. Ltd.
Gyungnam Masan-city
Jinbuk-myun Shincon-li 413-2
South Korea
P: + 82 55 271 1821
F: + 82 55 271 1820
osgijeon@naver.com

21 Enomoto
5-10 Sohara Koa-Cho
Kakamigahara-Shi, Japan
P: + 81 583 832178
F: + 81 583 897435
kashida@enomotoweb.com

MAKING OUR CUSTOMERS SUCCESSFUL

For over 65 years, Hennig Worldwide has been defining Excellence in Machine Protection, creating regional jobs, serving their local communities, and supporting the global needs of machine tool customers.

Specializing in chip management, machine protection, facility safety, and generator enclosures, Hennig products optimize production and keep your facility clean and safe.

MACHINE PROTECTION

Telescopic Steel Covers

Modular Face Shields (XYZ Shields)

Bellows

Aprons & Roll Up Covers

Walk-On Covers

Wiper Systems

Telescopic Springs

Cable Conduits

CHIP SOLUTIONS

Chip Conveyors

Chip Disc Filtration (CDF)

Coolant Tanks

Turnkey Chip Management

Conveyor Networks

ENCLOSURES & FACILITY SAFETY

GENSET Enclosures

Machine Enclosures

Platforms and Stairs

Guarding and Fencing

3D Printer Enclosures

Additive Manufacturing Enclosures

Walk-On Pit Covers

Scissor Lift Bellows

Machine Roof Bellow Covers

Special Fabrications

ISO 9001:2008
REGISTERED

Data Subject To Change MP 0618 Printed in the USA

HENNIG®
global excellence in machine protection

www.hennigworldwide.com