



GLOBAL EXCELLENCE FOR OVER 50 YEARS

IIII HENNIG®
global excellence in machine protection

PERFECT PROTECTION FOR MAN AND MACHINE

For over 50 years, Hennig has had one mission: to protect valuable machines and the people who operate them. That singular focus has resulted in a steady stream of innovations and breakthroughs in protective coverings and chip/coolant management systems, propelling Hennig into a leading role in the metalworking industry. State-of-the-art systems from Hennig

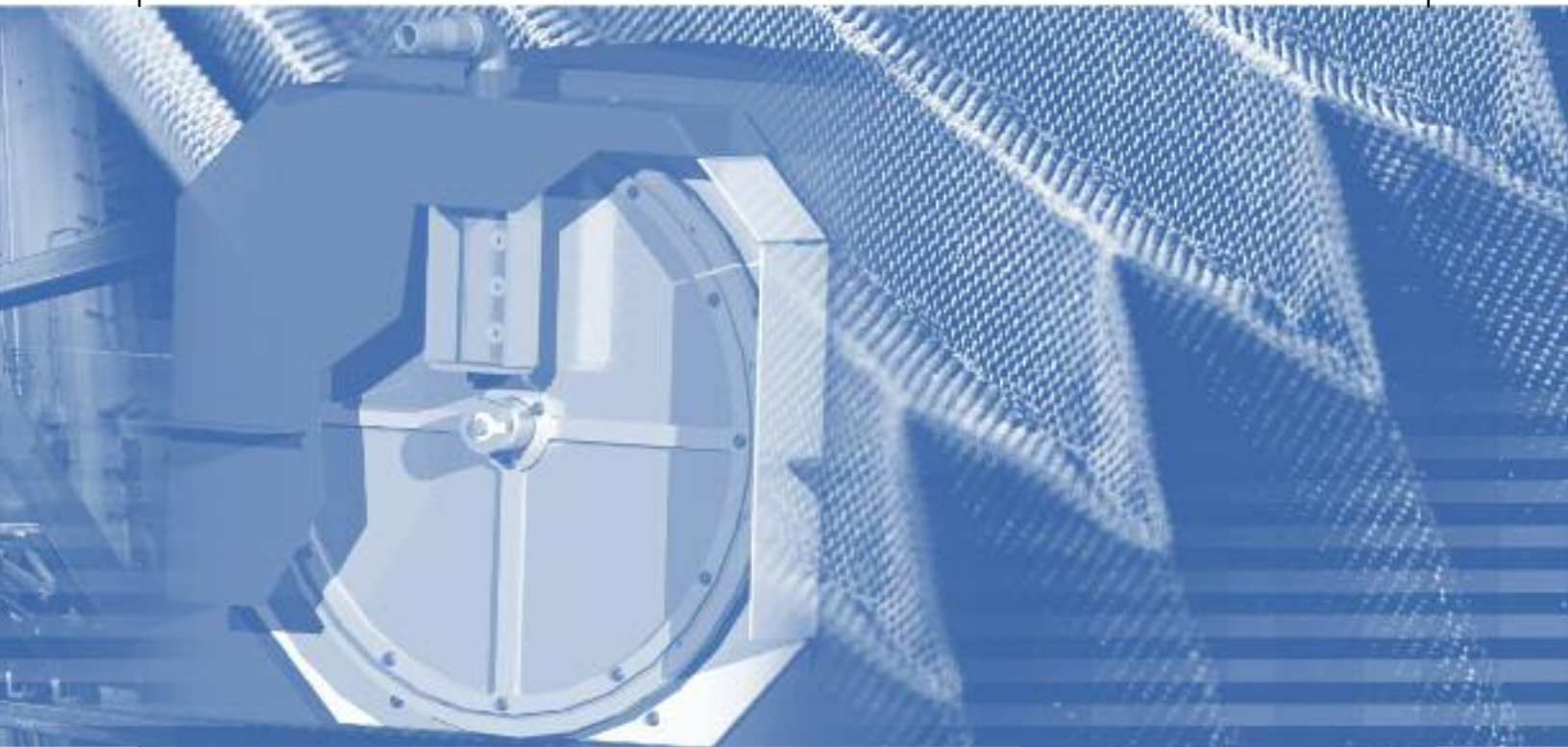
set the standard for safeguarding machines and components, improving the life of precision machines and accuracy of output. That is why many of the biggest names in metalworking around the world rely on Hennig to protect their machines, year after year.



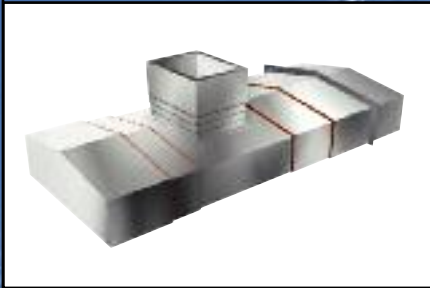
Hennig solutions can be custom-tailored to any machine, workspace, or performance requirement, so they perform precisely as needed to protect your machines. Our solutions are supported worldwide with a global sales and service network, which includes facilities and partnerships throughout the industrialized world for fast access to replacement parts and services. So when you work with Hennig, you get the technology you need to protect your machines and the infrastructure you need to protect your competitive position.

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TELESCOPIC STEEL COVERS



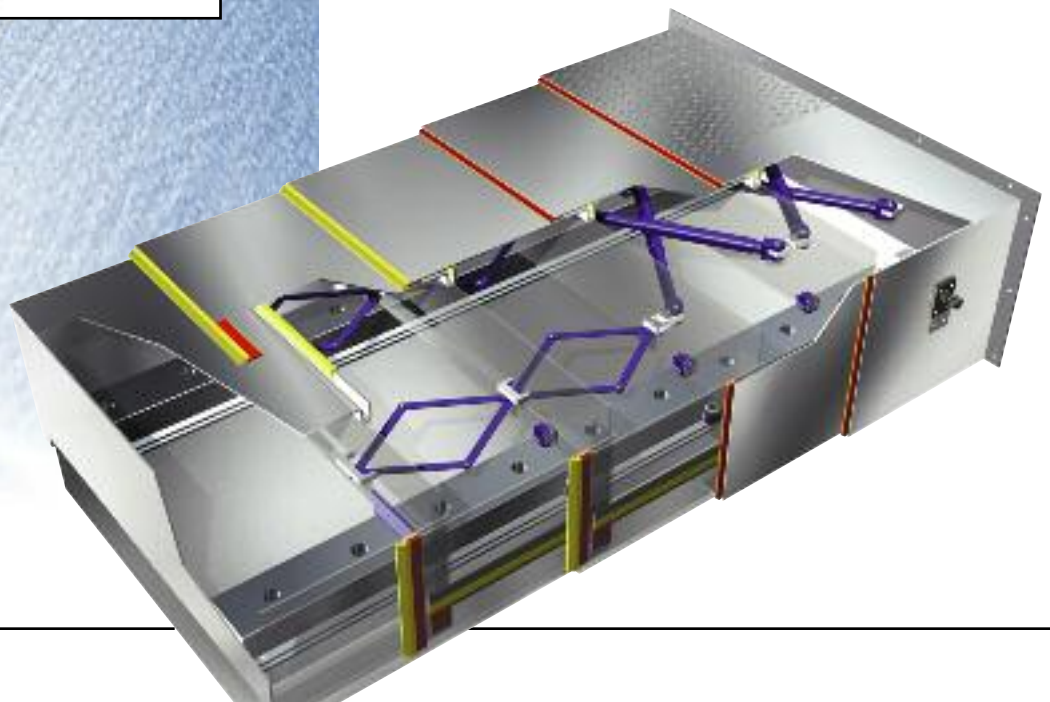
In the past 50 years, Hennig has produced more than a million telescopic steel covers to protect machine way surfaces, ball screws, servo motors, glass scales and other sensitive machine parts. These covers protect valuable machines while also protecting operators with user-friendly designs.

With every Hennig cover you get:

- Tailored technical solutions
- Functional reliability
- Durable design
- Tight fit

Sturdy Design

Hennig covers are made from rolled high-grade sheet steel at 1.5 mm to 3 mm thick. Corrosion-proof stainless steel can also be incorporated, allowing Hennig covers to protect machines under the most extreme conditions (for example, where aggressive coolant is used). Depending on cover features, speeds of up to 100 m/min can be attained by steel covers of all shapes. All wipers, guides, rollers and damping elements are interchangeable. Gutters can be included in all designs to prevent coolant from entering boxes.



Wipers

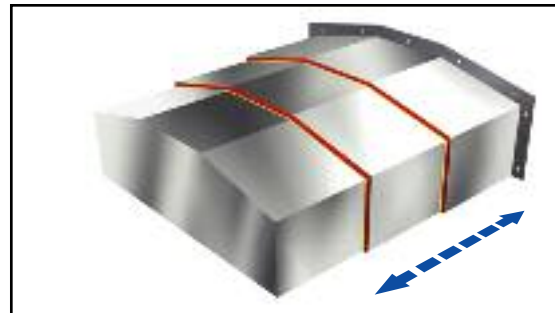
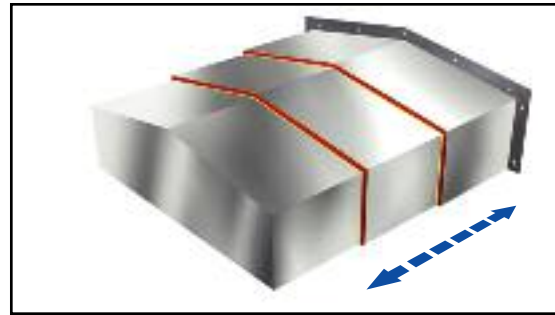
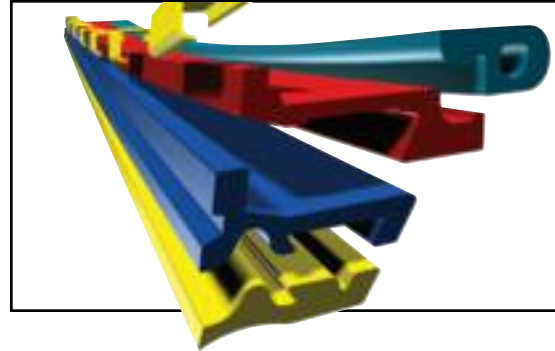
Hennig covers can include both employee-insertable and standard wipers that are designed to provide a tight seal with minimum wear. Wipers are available in a variety of shapes, sizes and profiles to fit your cover.

Horizontal and Vertical Configurations

Hennig can custom design and manufacture horizontal box-type telescoping covers for any machine tool design. Horizontal covers provide effective, affordable protection from coolant, chips and swarf. A variety of standard designs with angled housings allow debris to be channeled away from the box to either side depending on machine configuration. Virtually any shape and size is available. Any horizontal box-type cover can also be produced in vertical or cross-rail configurations. Special design considerations, if any, will be addressed by Hennig engineers during the design phase.

Vertical Sliding Plate Covers

Vertical sliding plate covers include individual slats that slide in separate lateral guide rails. Since these types of covers do not require slideways, they are particularly well-suited to protecting column recesses. These covers are limited to vertical mounting in applications where coolant, chips and swarf are present. Guide rails are available in a variety of materials.



Dual-Axis Motion Covers

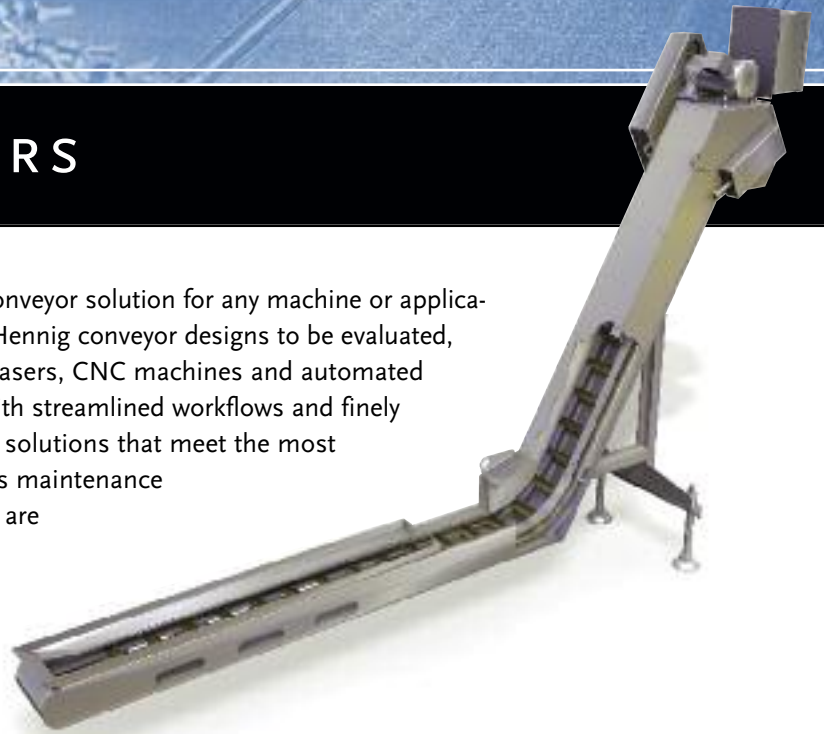
Dual-Axis covers, typically used on vertical milling machines, move behind tables and under spindles when space is limited. Dual-axis covers are limited to three boxes unless guide rails are used, and must be designed in a flat configuration.

Specials

Hennig engineers can provide solutions for complex slideways, watertight applications, unique coolant disposal requirements and virtually any other specialized need.

CHIP CONVEYORS

Hennig can design, build and deliver a chip conveyor solution for any machine or application. Our proprietary CAD technology allows Hennig conveyor designs to be evaluated, refined, and accurately built using precision lasers, CNC machines and automated welding equipment. This equipment, along with streamlined workflows and finely tuned assembly processes, delivers conveyor solutions that meet the most demanding environments while requiring less maintenance than competitive systems. Hennig conveyors are designed for fewer repairs, fewer delays, greater tool efficiency and industry-leading uptime.



ADVANCED DESIGN

Hennig chip conveyors are designed and built by experts who understand the unique needs of the machining industry.

- **A slip clutch safety mechanism** protects the conveyor if there's an over-accumulation of particles or if a foreign object prevents proper movement of the conveyor belt. Electronic overload protection is also available.



- **Heavy-duty direct drive motors** are equipped with overload protection.
- **Hinge plates and side plates** are made from heavy-duty steel for highest durability.
- **A removable cover plate** provides easy access to internal areas to simplify maintenance.
- **An adjustable take-up mechanism** allows belt tension to be adjusted without disassembling the conveyor.
- **Extra heavy-duty roller guides** withstand the rigors of constant use and ensure nearly maintenance-free operation.
- **Heavy-duty casters** can be affixed to some chip conveyors for easy transport.
- **Virtually any type of electrical control box** is supported.

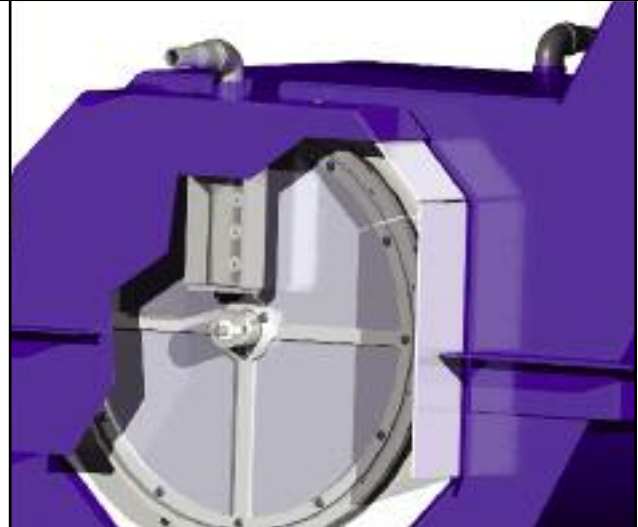
CUSTOM CONFIGURATIONS

Hennig can customize a solution according to number of conveyors, type and volume of chips being conveyed, and work area layout. Regardless of configuration, all Hennig conveyor solutions bring the same benefits to the shop floor:

- Chips are removed without interrupting production
- Hot chips are removed from the machine bed, reducing heat build-up
- Cutting area accidents are reduced
- Chips and coolant are separated automatically

CHIP DISC FILTRATION (CDF) SYSTEMS

Simpler is better, especially when it comes to coolant filtration, where simple solutions are easier to use and less expensive to maintain. That's the premise behind Hennig's innovative Chip Disc Filtration (CDF) technology. This technology was invented, designed and patented by Hennig for applications as fine as 25 microns. It combines durable, stainless steel coolant filtration media in a simple yet rugged design, providing an affordable and effective alternative to traditional drum filtration.

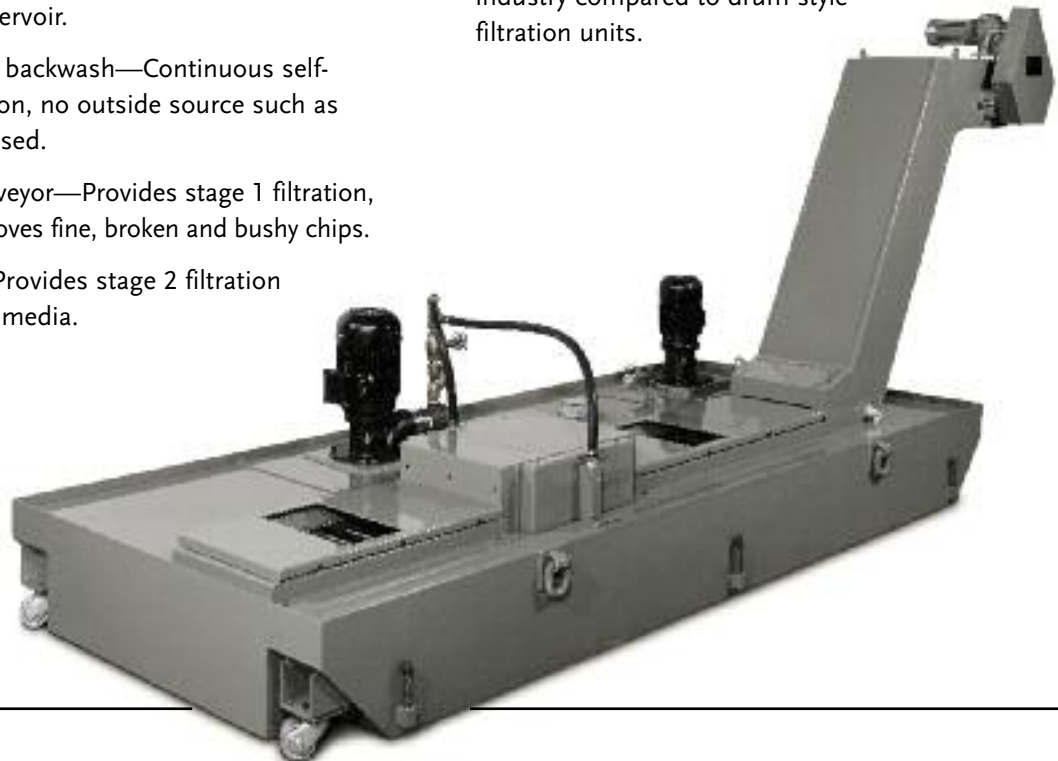


PATENTED DESIGN

The Hennig CDF system includes a hinged conveyor belt that transports chips and acts as the first stage of filtration. Disc filters with permanent media provide the second filtration stage. A coolant tank, low and high pressure pumps, float switches, oil skimmers and controls complete the configuration. Scraper-type conveyors are also available.

- Innovative, patented disc filtration—Filters a wide variety of materials, both in water- and oil-based coolants, provides a direct path for coolant to flow into the reservoir.
- Efficient coolant backwash—Continuous self-cleaning operation, no outside source such as steam or air is used.
- Hinged belt conveyor—Provides stage 1 filtration, catches and removes fine, broken and bushy chips.
- Rotating disc—Provides stage 2 filtration with permanent media.

- Stainless steel screen—Rated at an industry-standard 40 microns, with finer filtration levels also available.
- Long-life media—Stainless steel media strength handles momentary or continuous heavy chip loads, which can be a problem with nylon mesh, drum-type filters.
- Low inlet height—External filtration discs allow for the lowest inlet height in the industry compared to drum-style filtration units.

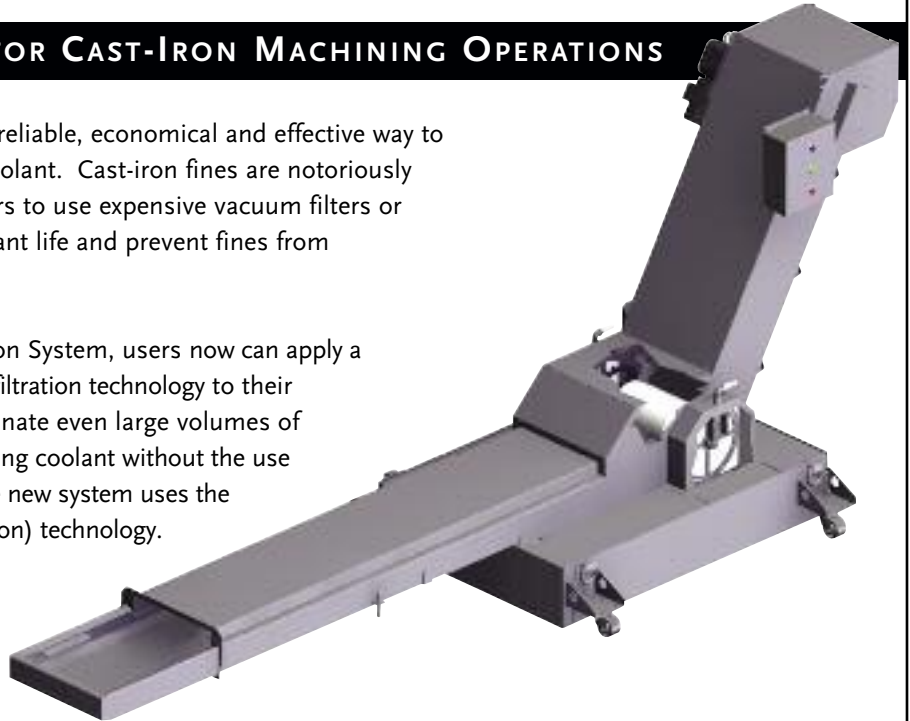


HENNIG CAST-IRON CDF FILTRATION

ECONOMICAL FILTRATION FOR CAST-IRON MACHINING OPERATIONS

Until now, there's simply never been a reliable, economical and effective way to filter cast-iron chips and 'fines' from coolant. Cast-iron fines are notoriously hard to remove, requiring manufacturers to use expensive vacuum filters or replaceable media to try to extend coolant life and prevent fines from recirculating back to the machine.

With the Hennig Cast-Iron CDF Filtration System, users now can apply a proven, self-cleaning, permanent-media filtration technology to their cast-iron machining operations to eliminate even large volumes of cast-iron chips and fines from recirculating coolant without the use of disposable filter media. Better yet, the new system uses the patented Hennig CDF (Chip Disc Filtration) technology.



HERE'S HOW IT WORKS, IN THREE EASY STAGES.

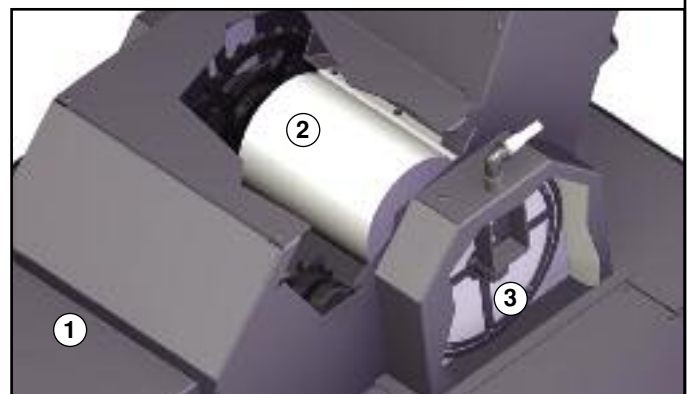
Stage 1: Dirty coolant flows into the conveyor trough where large chips and particles settle out and are removed by the scraper belt, which continuously transports the material up the conveyor incline and dumps them in the chip hopper.

Stage 2: Smaller particles in solution are collected by a rotating magnetic drum, which indexes against a stainless steel blade that scrapes the particles off the drum. Once enough particles have collected to form a heavy sludge, the sludge drops onto the dry chip conveyor incline to be dragged along with the larger chips and fines, into the chip hopper.

Stage 3: Smaller particles that escape the magnetic field of the drum naturally migrate with the coolant flow toward Hennig's disc filter media, which uses a micronic weave stainless steel mesh screen to intercept particles as small as 25 microns. As this filtration disc rotates past the 12:00 position, a continuous backwash spray of clean coolant blasts the particles that have been collected on the disc towards the rotating magnetic drum, where they magnetically adhere and are scraped off as sludge.

As a result, only ultra-clean coolant is allowed to flow through the screens in the third stage to the clean coolant reservoir, where it is recirculated back to the machine tool or used in the unit's self-cleaning spray cycle.

The end result of this simple, 1-2-3 process is the first truly cost-efficient system for effectively removing cast-iron chips and fines from coolant. End users now can take considerable cost out of their cast-iron machining processes, and improve workpiece quality, with a unit that will pay for itself in a just a matter of months.



BELLOWS

At Hennig we've designed and manufactured everything from simple dust protection and material handling bellows to sophisticated extension systems, lamella systems, and specially designed bellows for laser machines and other applications. Hennig bellows are made from the highest quality materials, which is one reason why virtually every renowned machine manufac-

turer in the world comes to Hennig for machine protection solutions. Hennig bellows provide:

- Tailored fit
- Highest reliability
- Maximum durability
- Proven components
- Minimum service requirements
- Worldwide access to spare parts

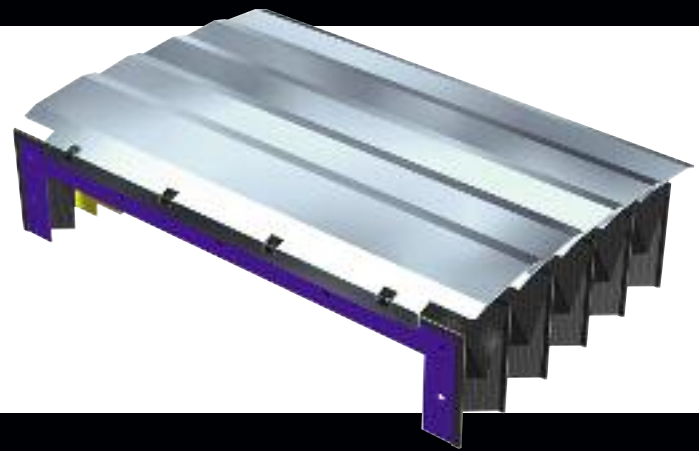
HEAT-SEALED BELLOWS

In a heat-sealed bellows, the cover material and guide frames are permanently joined to ensure maximum loading capacity while achieving an absolute seal against coolant/grinding fluids, dust, dirt, solvents, grease and other contaminants. Bellows are made with round, oval or rectangular 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. 752°F (400°C) when using an aluminized fabric.



LAMELLA BELLOWS

For particularly challenging requirements, Hennig offers lamella bellows based on heat-sealed or stitched designs. Each fold has its own guide frame which is sealed to the cover material. Cover lamellas are made from stainless steel or aluminum to protect against hot, sharp chips or mechanical strain. A variety of configurations meet specialized needs, providing an alternative that fills the gap between telescopic steel covers and conventional folded bellows.



SPECIALS

High-speed machines place heavy demands on bellows. Hennig engineers can provide custom solutions that meet your exact performance requirements.

FLEX-PROTECT SYSTEM

Flex-Protect aluminum lamella systems protect machining centers against oil, coolants, chips and dust. A worldwide sales and service network ensures fast completion of orders and fast delivery of spares, and keeps repair services close to customer sites.



Modular Design

- Movable aluminum lamellas are connected by polyurethane hinges
- Reliable sealing protects against oil, chips, coolants and splash
- Polyurethane hinges function both as hinges and as covers between lamellas
- Assembly is quick and easy—end lamellas are screwed onto the adjacent machine part



MACHINE ENCLOSURES

Hennig can design and manufacture virtually any type of enclosure system for your machine tools, manufacturing cells, and transfer line installations (both new and retool). Hennig enclosures are designed to protect operators from potential harm while protecting valuable machinery from the manufacturing environment. One popular design is the modular, single- or double-panel type enclosure, which is fully adaptable to individual requirements, and provides easy access to the machine or manufacturing cell for repair or maintenance. No matter what kind of enclosure you need, you can get full design and consulting services from Hennig, as well as complete on-site installation assistance.



ENCLOSURES FOR POWER GENERATORS

Hennig Enclosure Systems are designed and built to meet today's demanding installation requirements and to provide reliable protection for your power generation equipment. Hennig's goal is to provide you the standby power you need without the accompanying noise.

We stand out by offering the basics: great quality product, great price, fast lead time and on-time service.

Hennig Enclosure Systems Features

Hennig Enclosure Systems fully understands that enclosure applications can range from the very simple to the very complex in design. Our team can work with you to provide you with an enclosure that meets your exact specifications.

We pride ourselves in providing enclosures with a wide range of materials, sound attenuation, weather resistance, and auxiliary components that satisfy your specific requirements. The Hennig team can offer you a completely custom enclosure design with almost any option. We can also provide you with an enclosure equipped with any of standard and/or optional features required for your unique application.



FUEL TANKS FOR POWER GENERATORS



We manufacture 5 types of UL-approved tanks:

- Secondary Containment Tanks
- Open Top Dikes
- Closed Top Dike
- Free standing Day Tanks
- Sub-base Day Tanks

All tanks can be manufactured up to 45" in height and 150" in width. The primary tank is built with heavy 7-gauge formed material for strength and durability, while the secondary tank is made of formed 11-gauge reinforced with 7-gauge channels. All tanks are designed to hold up to a 2.5 mega-watt unit without costly and heavy beams. This allows us to keep the overall height down. Tanks come standard with a minimum 110% containment area.

ROLL-UP & FLEXIBLE APRON COVERS

Hennig Roll-up Covers provide machine protection in minimal space. With Hennig you get the widest variety of roll-up covers including fabric open reel, canister type using stainless steel, fabric, AGS, and Aluflex aluminum extrusions. Any length and width are available. Walk-on capable versions are also available.

These simple, affordable roll-up covers are designed to endure constant use while keeping dust, lubricants and other contaminants away from the machine's interior.

- High-quality springs and end caps with permanent lubrication for high operational safety
- Driven with a special spring mounted in a dust-proof case
- Max. traverse speed of 80 m/min.

Hennig's Flexible apron covers protect machine way surfaces and vital machine components from a variety of contaminants. These simple, space-saving designs are constructed with anodized aluminum extrusions.



ALUFLEX

This light, highly flexible, hinge-type aluminum apron is ideally suited to protecting machine parts that are not permanently exposed to hot chips.

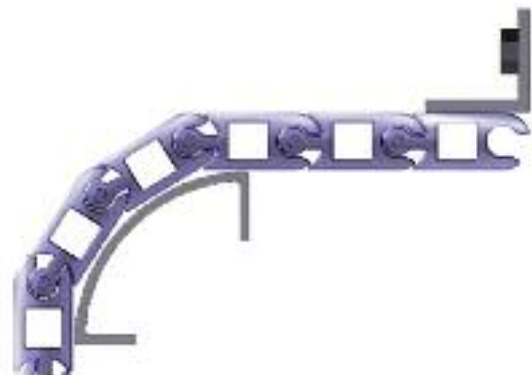
- Anodized aluminum construction features precision profiles that are positively interlocked with polyurethane hinges
- Symmetrical design of the aluminum profile encloses the flexible hinges for high flexibility in both bending directions
- Small distance between the profiles, so hinges are less likely to be damaged by chips



AGS MINI, AGS-I AND AGS-II

These space-saving link-type covers provide stable, flexible protection for applications where space is limited.

- Anodized aluminum construction with positively interlocked precision profiles resist corrosion.
- Special self cleaning hinges prevent coarse dirt from entering.
- Durable design supports high ambient temperatures and high strain, even in long lengths



WIPER SYSTEMS

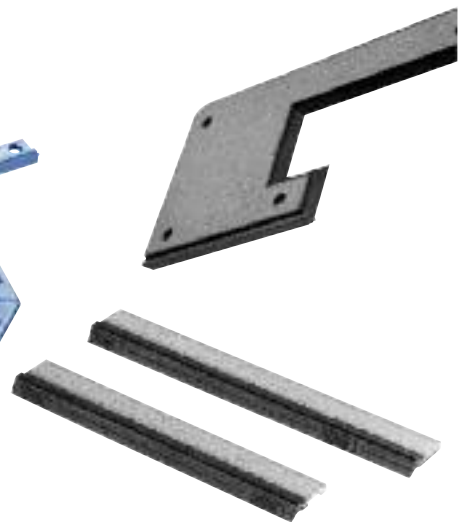
Keeping way surfaces clean is a basic part of protecting valuable machines. That's why Hennig offers a diverse line of way wipers that have been field-tested and proven effective, even after extensive exposure to hot chips and heavy chip volumes. Hennig wipers are interchangeable and can be replaced directly on the machine without major disassembly. Multiple sizes and shapes are available, so you can profile and replace wipers in the shop or contract with Hennig engineers to provide a factory-perfect fit for optimum wiper performance.

Series AB: Designed for metal-cutting machines with high volumes of chips and coolant.

Series SK: Molded wipers. Made of synthetic rubber vulcanized on a 2 mm steel plate for excellent wiping results.

Series eN: Used on telescopic steel covers as replacement or when space is limited. Particularly well-suited to way surfaces with small cross-sections.

Series F (mini): Compact profile with a height of only 11.5 mm, especially useful where space is limited, such as in extractors or slides.

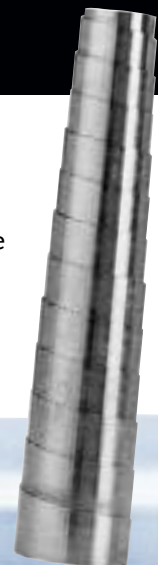


TELESCOPIC SPRINGS

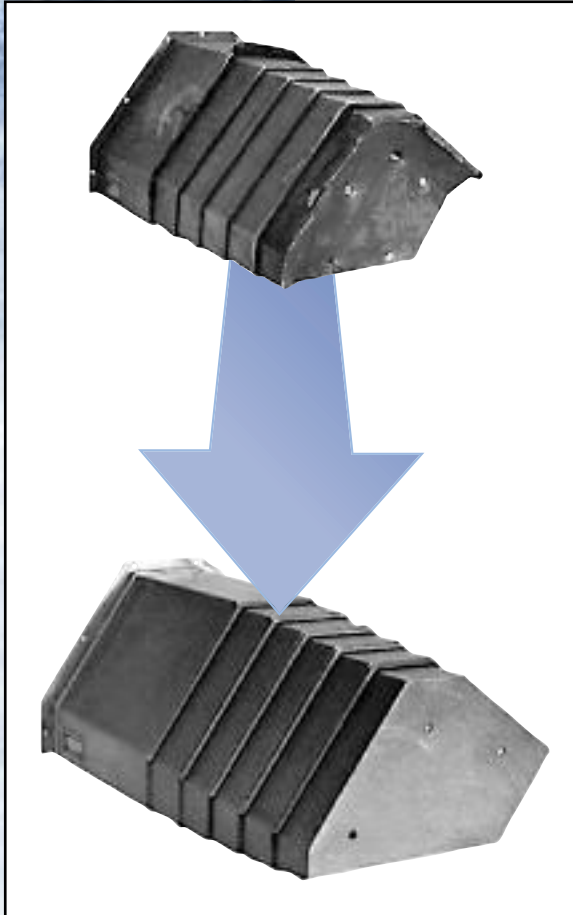
Spiral telescoping springs protect ball screws, threads and guide columns against dirt, chips and mechanical damage. Made of hardened, high-grade alloy steel, these durable springs provide maximum machine protection whether fully or partially extended.

- Minimum overlap of 40% for complete protection of high-precision ball screws

- Easy compression and extension
- Minimal horizontal sag
- Minimal vertical lateral deviation
- Winding-on types available up to the size 54/1120/120
- Easy assembly



SERVICES



Repair & Refurbishing 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.

- On-site way cover 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
- 90-day warranty on parts and labor

CONTRACT MANUFACTURING SERVICES



You design it, we'll build it with our in-house laser and water-jet cutting machines, welding, bending, powder-coat painting, and CNC machining capabilities. At Hennig we provide full sheet-metal fabrication services for system designs that you provide. High quality components can be produced to virtually any specification. All industry materials are available, and we can also cut your material. Of course, full-service design and engineering expertise is available from Hennig engineers as needed.

SERVICE CENTERS



Service Where You Need It

Hennig has 6 way cover repair facilities located throughout North America to serve our customers. Call our Service and Repair Department in Machesney Park for the service facility best suited for your repair requirements. Or contact the nearest facility from the list below.

Midwest

Hennig, Inc.

North American Headquarters
9900 North Alpine Road
Machesney Park, Illinois 61115
P: 815-636-9900
F: 815-637-1390
Email: info@hennig.ame.com

Southwest

Hennig - Oklahoma Repair Center

900395 S. 3420 Road
Chandler, Oklahoma 74834
P: 405-258-6702
F: 405-258-9971
Email: oklahoma@hennig.ame.com

East

Hennig - Cincinnati Repair Center

11431 Williamson Road
Blue Ash, Ohio 45241
P: 513-247-0838
F: 513-247-0840
Email: cincinnati@hennig.ame.com

North

Hennig - Detroit Repair Center

11879 Brookfield Road
Livonia, Michigan 48150
P: 734-523-8274
F: 734-523-8263
Email: livonia@hennig.ame.com

Mexico

Hennig - Mexico City Repair Center / GADEN, s.a. de c.v.

Silca No. 4
Col. Vista Hermosa
C.P. 54080
Tlanepantla de Baz, Estado de Mexico, Mexico
P: (55) 53 18 41 46
F: (55) 53 19 32 83
Email: Gadensadecv@aol.com

Hennig - Mexico Saltillo Repair Center / GADEN, s.a. de c.v.

Calle Primera No. 1037
Col. Ministro Nazario Ortiz Garza.
C.P. 25100
Saltillo, Coahuila, Mexico
P: (52) 844 180 02 94
F: (52) 844 180 02 95
Email: Gadensadecv@aol.com



(HSC) - Telescopic Steel Covers
Chip Conveyors
Chip Disc Filtration (CDF) Systems
Folded Bellows
Flex-Protect Systems
Machine Enclosures
Power Generator Enclosures
Roll-up & Flexible Apron Covers
Wiper Systems
Stabilastic Telescopic Springs
Stabiflex Cable Conduits
XYZ-Modules
Customer Specific Designs

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Cobsen-Hennig, Boituva, Brazil

Sur Hennig, Bangalore, India

Enomoto, Gifu, Japan

Gaden-Hennig, Mexico City, Mexico

Osung Mechatronics Co., Masan, South Korea

Sermeto EI, Creuzier le Neuf, France

Service Centers:

Machesney Park, Illinois

Chandler, Oklahoma

Cincinnati, Ohio

Livonia, Michigan

Mexico City, Mexico

Saltillo, Mexico

Global Excellence in Machine Protection

For 50 years, Hennig, has been designing and producing custom machine protection and chip / coolant management products for state-of-the-art machine tools. Hennig products are reliable, durable, and perfectly tailored to protect against corrosion, debris and common workplace contaminants. There's no better way to protect your investment on the shop floor.

Innovative Products and Services

AME, Hennig's sister company, provides innovative and precision engineered components, machines and services. To learn more about AME and our innovative approach to precision machining, please call 815-962-6076 or visit www.ame.com.



www.hennigworldwide.com

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