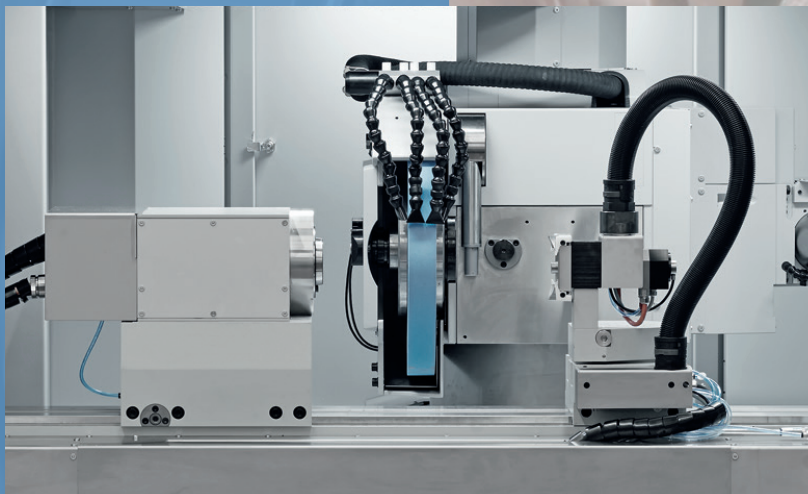


HARDINGE WORKHOLDING

Tooling for Grinding Machines



800-843-8801
WWW.HARDINGE.COM



A five minute EYE-OPENER to alternate gripping methods for grinding machines...

Are you utilizing your grinding machine to its full workholding job capacity? Centers, arbors, fixtures and magnetic chucks are just the tip of the iceberg.

Many shops are still doing second operation work when they could be finishing parts complete using an alternate workholding method.

Morse taper, B&S taper and Jarno taper grinding machines can be adapted to use collets, step chucks, pin step chucks, Sure-Grip® expanding collets, Dead-Length® collets, Dead-Length work stops, collet chucks, manual chucks, magnetic chucks, face plates and fixture plates. Hardinge manufactures collet sleeves or adapters to fit in the spindle of the workhead to accept a useful variety of gripping products, even for the older grinding machines that are as reliable now as they were 50 years ago!

Kellenberger®, a Hardinge Company, incorporates a combination A2-5 / MT5 workhead spindle nose in their line of grinding machines to allow the customer access to an array of stock 5C tooling for increased gripping options. **5C Spindle tooling** includes collets, step chucks, emergency collets, fixtures, face plates

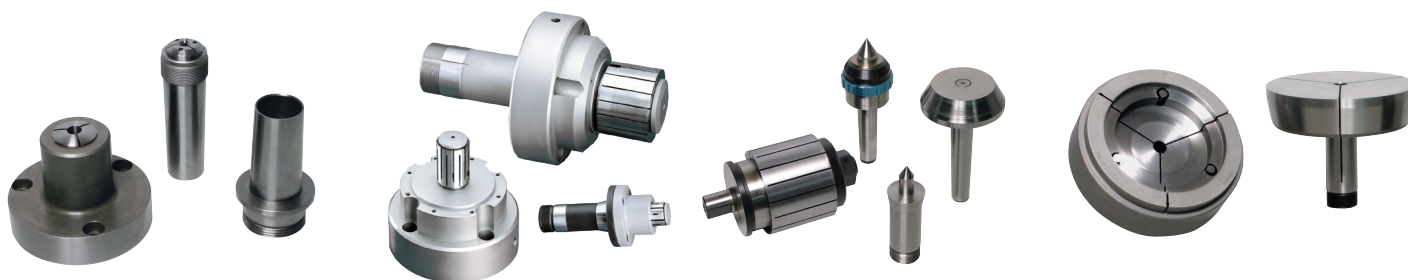
and the Sure-Grip Expanding Collet system.

The Hardinge **Sure-Grip Expanding Collet System** is extremely popular for OD grinding. The Sure-Grip expanding collet performs true parallel gripping with instant centering of the workpiece. Stock products are available to accommodate work from 1/8 inch to 4 inches in diameter. It is possible to access full grinding length of the workpiece unlike a fixture or chuck setup. The hardened and ground expanding collet head can be reground in place to the desired size for the best possible concentricity scenario to achieve zero TIR. Many jobs later, it can then be reground or recycled to accept a smaller ID workpiece for a different job setup. Different size expanding collet heads

fit on the same collet body, and are quick-change from the front without removing the collet body. The expanding collet has many advantages over a manual chuck or fixture setup. The setup time is decreased because of instant centering without individual clamping. The unit is smaller, lighter, mounts faster, and can achieve the highest accuracy possible. Collets are available in 1/64" increments with a range of +.015" to -.001" (+.38mm to -.025mm) from its specified size. Hardinge **Sure-Grip expanding arbors** can be used between centers instead of tapered arbors to achieve more contact area. Load a part on a second, spare arbor for quicker part changeover.



Hardinge 5C Spindle Tooling with Kellenberger spindle adapter.
Refer to brochure #2348 for complete 5C product details and specifications.



Spindle Sleeve Adapters

Sure-Grip Expanding Collet Systems,
Expanding Arbor & Centers

Step Chuck and Pin Step Chuck

Step chucks are handy devices for holding parts larger than the one-inch diameter 5C capacity. Job shops can purchase emergency step chucks and grind them to size, matching the spindle bearings of the machine to achieve the best TIR. Hardened and ground steel step chucks are ordered to size for specific applications. When comparing step chucks to manual jaw chucks, they offer faster part changeover considering the time involved in opening and closing the manual chuck with a wrench. A step chuck can be more economical given that a set of jaws typically costs more than an emergency step chuck. Repeatability and part roundness are more accurate on the step chuck. **Custom pin step chucks** have steel pins in the collet closer that are ground to a desired stop location for part length control.

Custom extra-depth step chucks are used to "swallow" a long workpiece for precision ID grinding providing a larger contact surface. This product is commonly used when the 3-to-1 ratio is exceeded. For example if you have a part that is one inch in diameter and it exceeds three inches in length, you would introduce chatter and runout using traditional gripping methods. If your part exceeds the 3-to-1 ratio, use an extra-depth step chuck to hold the part more rigidly.



Custom Collets for Grinding Machines

Hardinge provides workholding products for ID, OD, Universal, tool room, cutter & drill and jig grinding machines. Many products are **custom manufactured** for a specific application. Wheelhead collets and adapters, workhead spindle sleeve adapters, double-head, high-speed grinding, ID grip expanding, drill, and lens grinding collets are examples of products that Hardinge has designed and manufactured for the grinding industry.

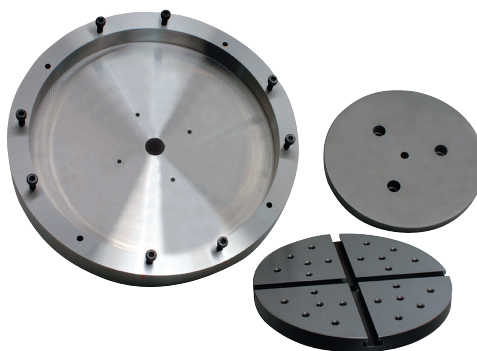
Custom fixtures are smart solutions for high production facilities running the same part 24/7. The fixture accepts the part in a fixed loading position, eliminating manual positioning and setup time that would occur using a magnetic chuck or jaw chuck. In high production situations, the accumulated time saved during loading of parts will substantially increase the parts output per hour. For small runs and job shop work, inexpensive **blank fixture plates** are available from 3- to 12- inch diameters. The clamping method is designed, machined and balanced by the job shop and is commonly used for odd shapes. **Universal faceplates** are perfect for holding nonferrous materials that cannot be held with a magnetic chuck. Small angle plates position in the four channels for clamping materials such as plastic, glass, ceramic, carbide and aluminum.



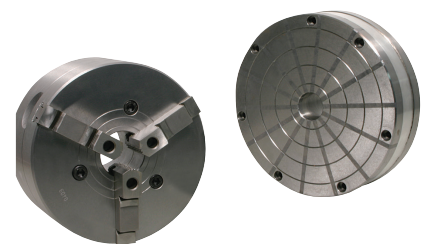
Hardinge is the world's largest manufacturer of 5C spindle tooling with a host of innovative solutions for ID and OD gripping. **Hardinge Indexers** provide automated part positioning for jig grinding. Multiple part set up can be achieved using **pneumatic collet blocks** for high production work.



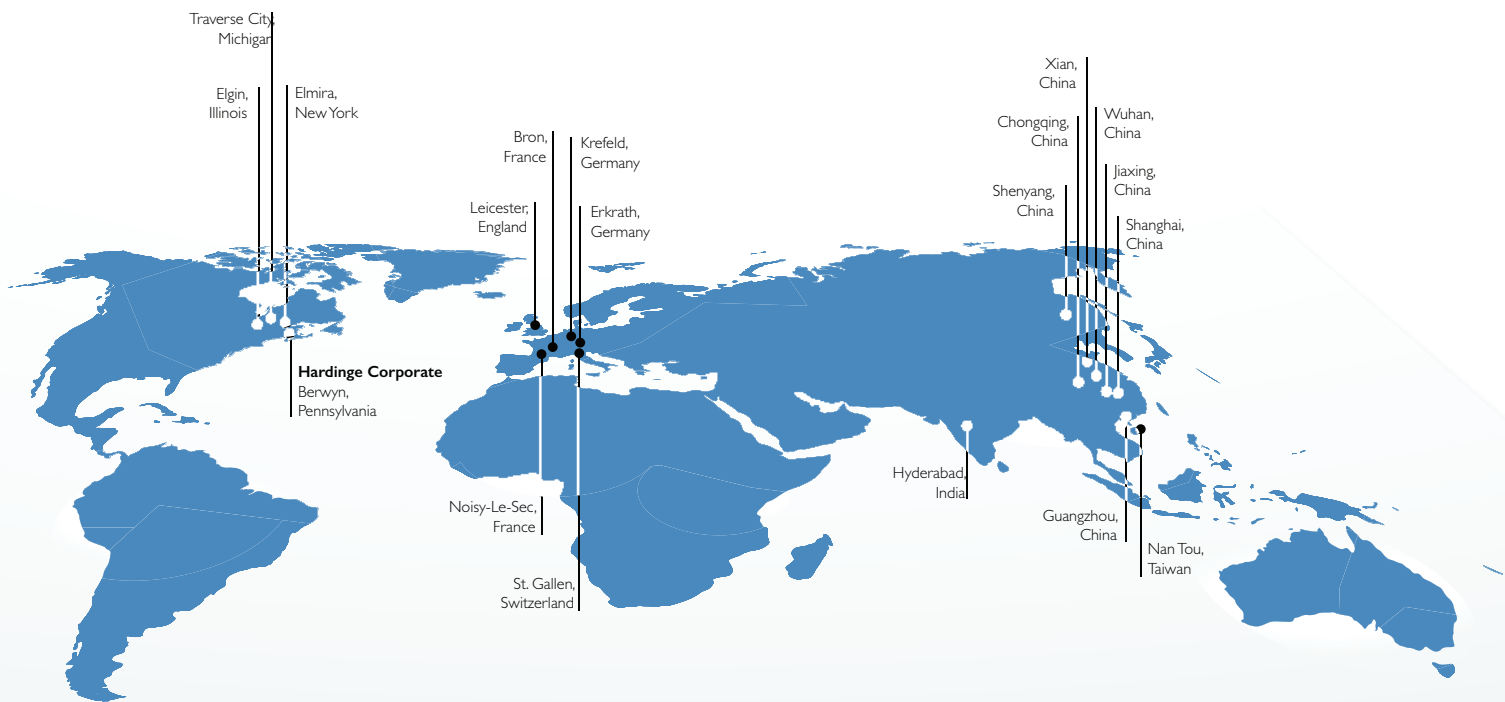
Extra-Depth Step chuck



Custom Fixture, Face and Fixture Plates



Manual Jaw Chuck and Magnetic Chuck



HARDINGE COMPANIES WORLDWIDE

Hardinge is a leading international provider of advanced metal-cutting solutions. We provide a full spectrum of highly reliable CNC turning, milling, and grinding machines as well as technologically advanced workholding accessories.

The diverse products we offer enable us to support a variety of market applications in industries including aerospace, agricultural, automotive, construction, consumer products, defense, energy, medical, technology, transportation and more.

We've developed a strong global presence with manufacturing operations in North America, Europe, and Asia. Hardinge applies its engineering and applications expertise to provide your company with the right machine tool solution and support every time.

AMERICAS

Hardinge Corporate
1235 Westlakes Drive
Suite 410
Berwyn, PA 19312

Hardinge
One Hardinge Drive
Elmira, NY 14903
P. 800-843-8801
E. info@hardinge.com
www.hardinge.com

Hardinge
1524 Davis Road
Elgin, IL 60123
P. 800.843.880

ASIA

China
Hardinge Machine
(Shanghai) Co. Ltd.
1388 East Kangqiao Road
Pudong, Shanghai 201319
P. 0086 21 3810 8686

Taiwan
Hardinge Taiwan Precision Machinery Limited
4 Tzu Chiang 3rd Road
Nan Tou City 540
Taiwan
P. 886 49 2260 536
E. cs@hardinge.com.tw

EUROPE

Germany
Hardinge GmbH
Fichtenhain A 13c
47807 Krefeld
P. 49 2151 49649 10
E. info@hardinge-gmbh.de

Switzerland
L. Kellenberger & Co. AG
Heiligkreuzstrasse 28
CH 9008 St. Gallen
Switzerland
P. 41 71 2429111
E. info@kellenberger.net

United Kingdom
Jones & Shipman
Hardinge Ltd.
Murray Field Road
Leicester LE3 1UW
P. 44 116 201 3000
E. info@jonesshipman.com

All specifications subject to change without notice.
All marks indicated by ® and ™ are trademarks of
their respective owners. #2373A • Litho in USA
©Hardinge Inc. 2018 • May 2018



800-843-8801 • info@hardinge.com • parts@hardinge.com • service@hardinge.com

WWW.HARDINGE.COM • WWW.SHOPHARDINGE.COM