One team. 30 hands. 300 years of engineering experience.

Hardinge Inc. (Elmira, New York) has a talented group of workholding engineers with over 300 years of combined engineering experience. These hands (and intelligent minds) are ready to improve accuracies, reduce setup times, reduce costs, add flexibility to a machine, develop new workholding concepts and solve gripping problems.

There isn’t a shop worldwide that can say they’ve never had a problem gripping a part. “It’s an odd shape, it’s slipping, it’s too delicate, it’s getting scratched, there is not enough gripping surface, or it’s threaded.” The list goes on and on. Before sinking hours into experimenting and creating a pile of scrap metal, the logical, fail-safe move would be to put these frustrating gripping problems in the hands of experience, where the end result will be safe, accurate and reliable.

According to Hardinge, no job is too small or too big, whether you’re just starting up a job shop or you’re the senior engineer from Boeing Commercial Aircraft division — it’s people helping people. According to Matt Roberts, Engineering Manager at Hardinge Workholding, the 300 years of combined expertise revolves around manufacturing, mechanical, applications, programming, electrical and design engineering. Hardinge and their engineers hold several active patents for new and improved workholding products. As a company, Hardinge supports the Society of Manufacturing Engineer’s local chapter 24, with several of their engineers as members. SME Chapter 24 is active in promoting a skilled workforce in the Twin Tiers of New York and Pennsylvania. This chapter is a networking resource for the local members and other local manufacturing engineers and professionals. Joe LaRussa, SME Membership Director, states that SME members are exemplary individuals who are on the leading edge of manufacturing knowledge. “Our members of Elmira 24 are great examples of the 21st-century workforce, contributing daily to the success of their companies. Hardinge and SME both benefit from the synergies between our organizations,” says Joe.

Who is Hardinge?

When it comes to workholding, Hardinge is the world’s largest manufacturer of collets, feed fingers and pads. According to Matt, Hardinge offers over 40,000 standard products and has
completed over 200,000 custom product designs. Their roots go back to 1890 with the concept of the 5C collet. They provide workholding products to grip parts to be turned, milled, ground, welded, assembled or positioned in the small-to-medium parts machining industry. Hardinge is an ISO 9001:2008-certified company with name brands including Hardinge, Bridgeport, Kellenberger, Jones & Shipman, Hauser and Tschudin. Hardinge is well known for their SUPER-PRECISION® CNC lathes with collet-ready spindles and their ingenuity in precision workholding solutions. Hardinge recently received recognition for 50 years of membership in the Precision Machined Products Association. Michael B. Duffin, Executive Director of the PMPA, recently presented the award to representatives of Hardinge at a chapter meeting in Rochester NY. Duffin notes, “Hardinge is a respected member of our association with a reputation for high quality products and services. Representatives from Hardinge contribute greatly to our programs and committee activities.”

Custom Manufacturing

A significant percentage of Hardinge workholding products are custom manufactured for a specific application. 150,000 square feet of production facility (running three shifts) is dedicated to custom manufacturing. “We have knowledgeable people on the phones and out in the field supporting our customers with technical information and troubleshooting their problems,” says Mike Levanduski, Sales Director at Hardinge Workholding. “The majority of our sales and engineering employees have worked for Hardinge for over twenty-five years. You may think that you have an unusual gripping problem, but chances are, we’ve already designed a solution for it. Many customers have told us that they assumed that custom workholding products would be too expensive, or thought that they could make something in-house to solve their gripping problem. Later they realize that they’ve compromised the part quality and/or they’ve created a situation with added setup and changeover time. In the end, the customer will hand the problem over to Hardinge.” Compromising the quality of the gripping device and increasing the cost of the part could cost you an important customer. But these aren’t the only reasons for using a custom gripping device.

Reasons to consider custom workholding products:

1. **Increase precision and accuracy** of the workpiece by using special accuracy collets, by gripping closer to the spindle bearings, or by having more gripping contact on the part. Collets, expanding collets and step chucks by nature are self-centering and will position the part accurately in the spindle or spindle adapter.
2. **Increase production** by reducing job setup and changeover time, reducing operator handling and eliminating second operations.

3. **Minimize expensive, bulky fixturing** that takes up valuable space. So much time is put into designing and manufacturing a complex fixture, with added time required to mount the fixture and locate the part. Similarly, jaw chucks can be replaced with lighter weight solutions.

4. **Add flexibility** to your machine. Custom collets are made to accept extruded bar stock shapes, and grip glass, plastics and other hard-to-grip materials. Hardinge can make collet adapters for spindles of all types of turning, milling and grinding machines. Set up for multiple-part machining without the hassle of expensive, complicated fixturing. Custom-designed feed fingers will accept a family of geometric bar stock sizes. Hardinge offers solutions to grip outside and inside diameters within the same family of spindle tooling.

5. **Solve problems** like crushing and distortion of delicate materials and thin walls, gripping on a thread, over-the-shoulder gripping of screws, and slipping during off-center machining and other heavy cutting forces.

6. **Save money.** A custom workholding piece may save you from purchasing an expensive attachment for your machine. For example Hardinge designed a pick-off collet assembly for a Euroturn 6/32 so that the owner wouldn’t have to purchase the ID pickoff attachment for the machine. The customer saved $40,000.

7. **Integrate automation** using gripping devices with extra spread, chamfered noses or spring ejection capability. Add a pick and place tool holder to your automatic tool changer to work on a pallet of parts without operator handling.

8. **Reduce the workload of your own engineering staff.** You may have the capabilities, but not the time.

**Full support for machine tool builders.**

Hardinge workholding products support most brands of turning, milling, grinding, assembly and production machines. “Partnerships and handshakes with machine tool builders have resulted in adding value to the machine to give the builder and the customer a competitive advantage, says Mike Levanduski. For example, we manufacture adaptive guide bushings for Citizen with under/over capacity that allow the use of non-ground bar stock that provides added-value to their machines.”

Hardinge rotary engineers have a hands-on approach with builders of vertical machining centers. They can develop custom fourth-axis rotary packages that include specific motors and cables to interface a rotary table via fourth-axis to make it easy to sell an appealing VMC/rotary package. “We have also developed a SUPER-PRECISION® direct-drive, dual-axis rotary
positioner for use on high-accuracy measuring equipment, says Rich Kesterke, rotary product engineer at Hardinge Workholding.” While Hardinge is moving forward with innovative solutions, they also support old machines that are now obsolete.

No industry left behind.

Hardinge workholding products grip parts that touch lives around the world, every day at home, at work, or on the road, involving almost every industry imaginable. The following key industries rely on Hardinge for their precision and expertise in custom gripping solutions:

- **Medical** – pharmaceutical, surgical equipment, implants, and micro-machining applications
- **Aerospace** – rivets, blind bolts, screws and control components
- **Defense** – weapons, munitions forming, crimping & assembly, and glass grinding & polishing
- **Energy** – components for solar-electric systems, wind turbines, hydroelectric turbines, and alternative energy vehicles
- **Telecom** – fiber optics, splitters, transformers, receivers, antennas, connectors
- **Transportation** – most metal and molded components
- **Electronics** – most metal and molded components
- **Assembly and Automation** – positioning, crimping, bending, pushing, loading, feeding, adapting

Examples of custom products can be viewed at the Hardinge image library at [www.hardinge.com/customwork](http://www.hardinge.com/customwork).

Customer requests keep the Hardinge workholding engineers on their toes for new and innovative workholding solutions. Now might be a good time to take a second look at any of your questionable gripping methods. Have you compromised part quality? Is there a different gripping method that could shave off setup, part location or cycle time? Would you like to expand the capability of your machine? Why not put Hardinge Workholding engineers to the test. Drawings and sample parts can be sent to Hardinge Inc., One Hardinge Drive, Elmira, New York 14902; emailed to orders@hardinge.com; faxed to 607-737-0090; or phone 800-843-8801. Hardinge Workholding was chosen as “The World’s Greatest” workholding manufacturer in 2011, as seen on ION television.
The Hardinge Group also includes Bridgeport, Kellenberger, Jones & Shipman, Hauser, and Tschudin brands. Founded over 120 years ago, Hardinge is a global leader in providing turning, milling, and grinding and workholding solutions to meet a wide array of market needs. The company’s common stock trades on NASDAQ under the symbol HDNG, and is headquartered in Elmira, New York.