

# BRIDGEPORT V1320

VERTICAL MACHINING CENTER



 **HARDINGE**<sup>®</sup>

***Bridgeport***<sup>®</sup>

# BRIDGEPORT V1320

## VERTICAL MACHINING CENTER

Manufactured to the highest industry standards, the Bridgeport V1320 is packed with features to meet and exceed the requirements of the demanding metal-cutting market.

### FEATURES

- Heidenhain TNC620 Control with 15" screen
- Coolant Chip Flush System
- 10,000 RPM Greased Direct Coupled Spindle with Chiller
- No. 40 Spindle
- Dual Contact Big-Plus® Spindle
- Fully Interlocked Machine Guarding
- ECO Friendly Centralized Grease Lubrication
- One Year Machine Warranty Parts and Labor
- One Year Control Warranty Parts and Labor
- Program and Data Protect Key
- Prep for 1000 PSI Through-Spindle Coolant (with rotary union)
- Automatic Power Off
- Retention Knobs
- Bright Dual Work Lights, and a Third Adjustable
- Inverter Drive ATC for Fast Recovery AIS System
- Thermal Compensation



### MACHINE OPTIONS

- 40 Position 40 Taper Tool Magazine
- 12,000 RPM Air/Oil Spindle option, 17 kW DDS
- 15,000 RPM Air/Oil Spindle option, 17 kW DDS
- Absolute Linear Encoder
- Ball Screw Nut Cooling
- Through Spindle Coolant
- 4th Rotary Axes Interface
- Probe Package OMI-2T + OMP- 40-2 + OTS
- ATC Auto Door
- Manual Chip Wash Gun
- 4th Axis Pre-wiring
- Three Color Stack Light
- Auto Central Grease System
- Cutter Air Blast
- Spare M-Codes (8 Sets)
- Chiller for Power Case
- Hand-Held Manual Pulse Generator
- OMP40-2+OMI-2T+OTS, Pre-Wiring Interface

# KEY FEATURES

## HEAVY DUTY LINEAR GUIDEWAYS,

Ball Screws and Axis Drives to provide superior machine accuracy and repeatability, the VI320 comes complete with oversized high-class 45mm double nut ballscrews on X & Z, and (2) 40mm ball screws on Y, fixed and pre-tensioned. Large 45mm high-quality linear guideways supported by 6 trucks on the X and Z Axis.

## POWERFUL SPINDLE MOTORS

Big Plus, 40 taper, 10,000-rpm Direct Drive spindle powered dual-wound Heidenhain spindle motor.

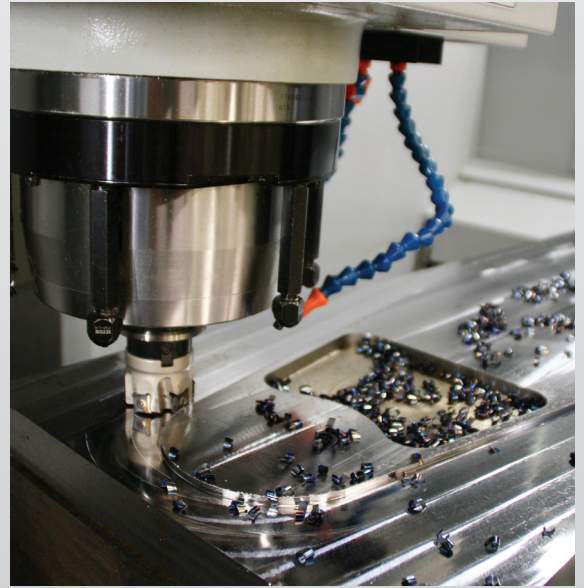
- 10/14/17 kW (Cont./30 min/10 min)
- 64/89/109 Nm (Cont./30 min/10 min)

Quad set of 70mm angular contact bearings and a 60mm rear taper roller bearing provide superior thermal stability, significant radial and axial stiffness and high accuracy.

900 kgf tool retention for aggressive cutting applications.

## SPACIOUS WORKROOM

- 1.320 mm (52 Zoll) in the X axis
- 630 mm (24,8 Zoll) in the Y axis
- 680 mm (26,7 Zoll) in the Z axis



## DUAL Y AXIS BALLSCREWS

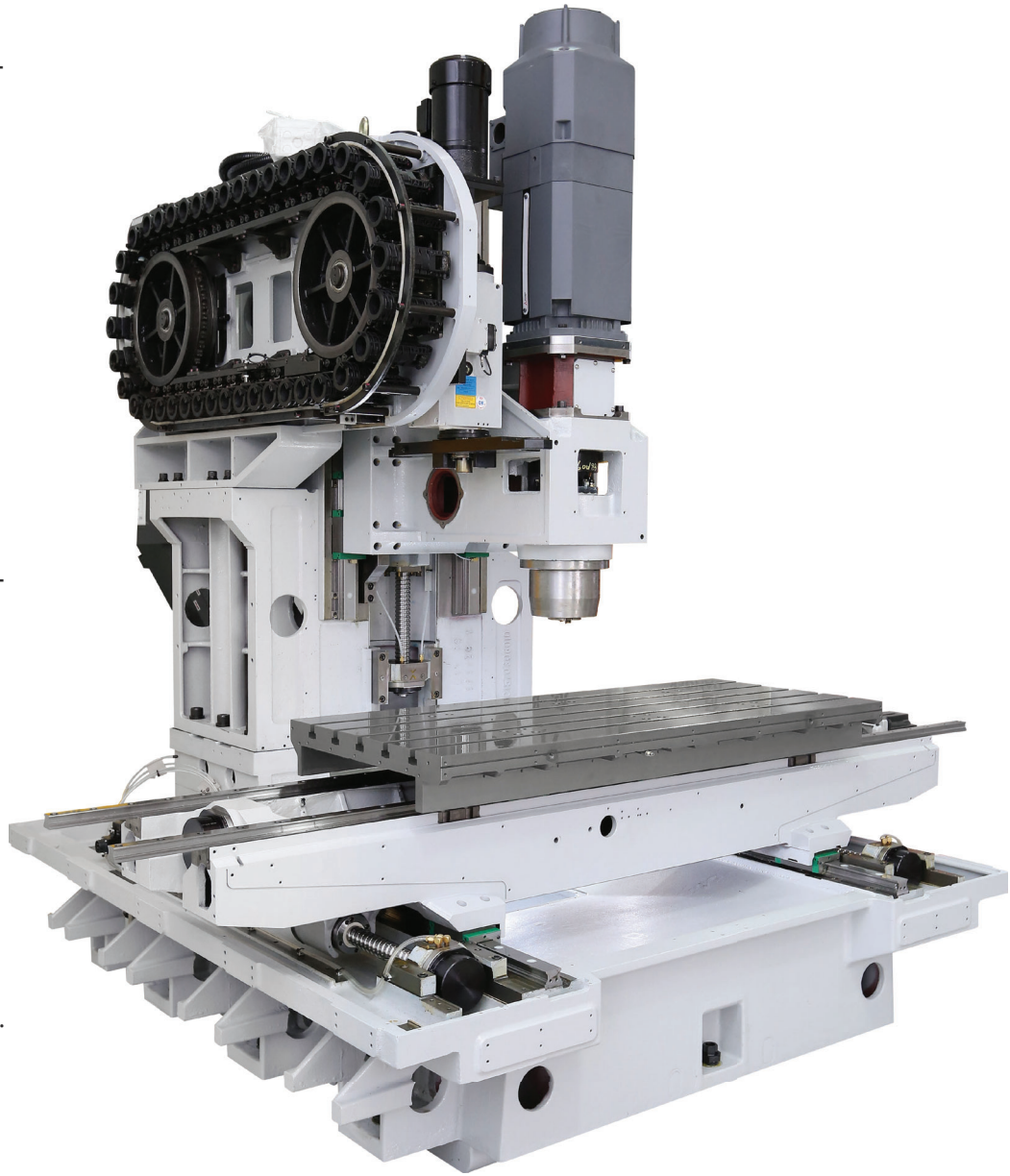
- Driven at the Center of Gravity Effect
- Improved Surface Quality
- Outstanding Acceleration
- Reduction of Vibration
- Improved Roundness
- Longer Tool Life



# MACHINE CONSTRUCTION

## MACHINE STRUCTURE

- The ATC mount is designed to properly support the ATC's weight by putting the force directly into the column for superior stability, rigidity and minimized vibration to the cutting zone.
- The Z & Y-axis utilizes 45mm Ball Guides. The Z-axis features three trucks per guideway and the Y-axis, two trucks per guideway. The X-axis features two 35mm ball-guides with three trucks per guideway.
- This heavy duty guideway system ensures a very stiff, rigid and durable machine providing years of low maintenance, high accuracy and superior surface finishes.
- Robust class fixed pre-tensioned, double-nut ballscrews are featured in the X, Y and Z Axes. 45mm x 16mm in X, dual 40mm x 16mm in Y and 45mm x 12mm in Z.
- Each axis features five bearing supports per ballscrew. Three bearings/set at motor side and two bearings/set at ball screw end side.



## MACHINE BASE

- Robust "C-frame" fixed column design from the popular XR machine family.
- Strategically ribbed base, column, and spindle carrier for increased rigidity and stiffness during demanding machining applications.
- For improved overall stiffness and rigidity, there are 25 hand scraped locations of column and base joint.



# CONTROL FEATURES

## HEIDENHAIN TNC640 HSCI CONTROLLER

- 383 mm TD-FT Color Flat Panel Display with Soft Keys
- Program Memory Solid State Disk (Minimum 2IGB)
- Interpolation
  - Straight Line in 4 Axes
  - Helix: combination of Circular and linear Motion
  - Circle in 2 Axes
- 0.5ms Block Processing Time
- Data Interfaces
- Heidenhain Conversational Programming as per ISO
- Tool Compensation
- Several Tool Tables with Any Number of Tools
- Cutting Data Tables
- Constant Contouring Speed
- Parallel Operation – create programs with graphic support while another program is running
- Contour Elements – line segment, chamfer, circular arc, circle center, circle radius, tangentially connecting circular arc and corner rounding
- Contour approach and departure
- FK Free Contour Programming
- Program Jumps
- Fixed Cycles
- Coordinate Transformations
- Q parameters
- Programming Aids
- Actual Position Capture
- Verification Graphics
- Program Run Graphics
- Machining Run Time
- Returning to the Contour
- Datum Tables
- Pallet Tables
- Touch Probe Cycles
- Preset Table



*Conversational programming features offered on the CNC control is the CNC control builder's standard product, which may not fully support all machine functions. It is recommended the end user reference the control system documentation, or contact the control manufacturer, for further details of use or customization.*

# SPECIFICATIONS

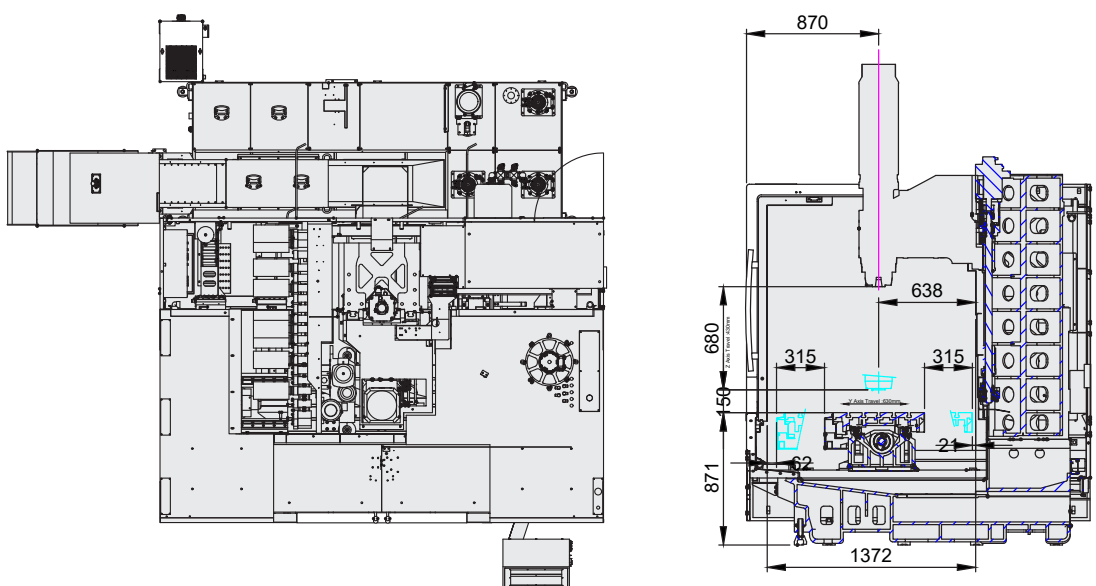
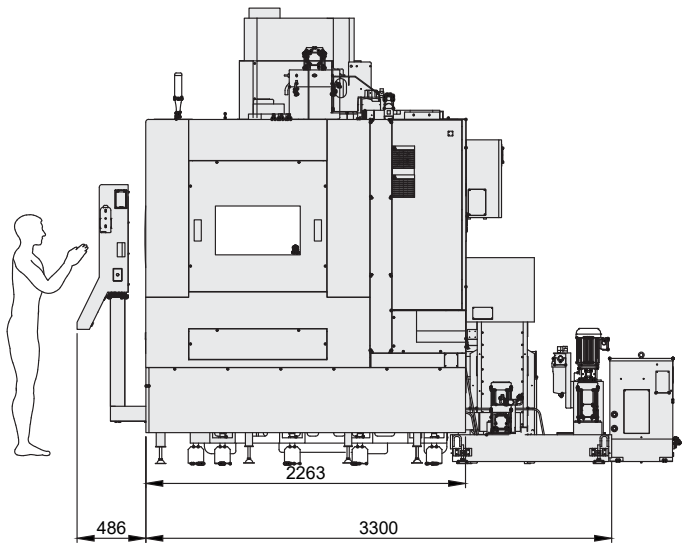
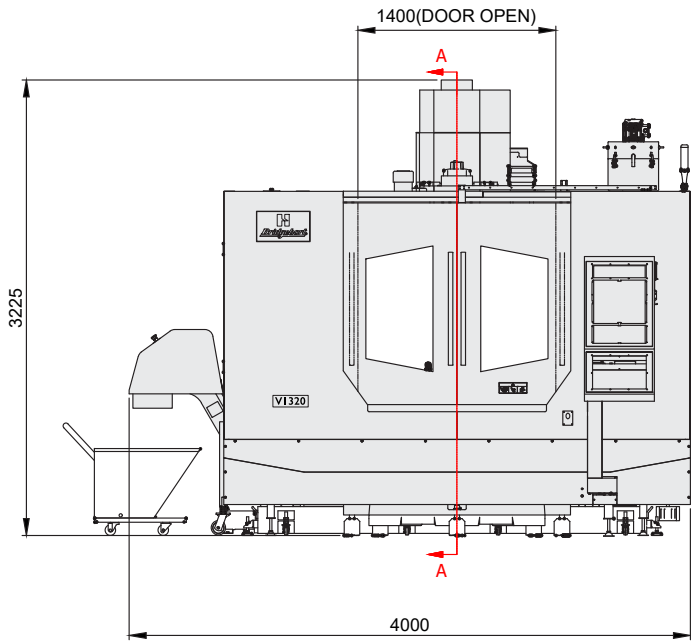
| Axis Travel                                 |  |
|---|--|
| Table (X axis)                              | 51.96 in (1,320mm)   |
| Saddle (Y axis)                             | 24.80 in (630mm)   |
| Head (Z axis)                               | 26.77 in (680mm)   |
| Positioning                                 |  |
| Auto Mode (X and Y axes)                    | 1,692 in/min (43 m/min)  |
| Auto Mode (Z axis)                          | 1,417 in/min (36 m/min)  |
| Manual Mode (X,Y and Z axes)                | 0-157 in/min (4 m/min)   |
| Feedrate Range (X and Y axes)               | 0.1-787 in/min to<br>0.1-630 in/min (16 m/min)                 |
| Feedrate Range (Z axis)                     | 0.1-787 in/min to<br>0.1-630 in/min (16 m/min)                 |
| Acceleration x/y/z                          | 236/197/156 in/s <sup>2</sup><br>(.6/.5/.4 m/ s <sup>2</sup> ) |
| Minimum Increment                           | 0.00004 in   |
| Ball Screw Diameter and Pitch (X axis)      | 1.77" x .630" (45 x 16 mm)                                     |
| Ball Screw Diameter and Pitch (Dual Y axis) | 1.57" x .630" (40 x 16 mm)                                     |
| Ball Screw Diameter and Pitch (Z Axis)      | 1.77" x .472" (45 x 12 mm)                                     |
| Axes Thrust Max (X/Y)                       | 6283 N   |
| Axes Thrust Max (Z)                         | 19477 N  |
| Spindle                                     |  |
| Spindle Speed Range                         | 10,000 RPM   |
| Spindle Motor HP Rating (1/6 H) Heidenhain  | 23 hp (17 kW) @ base speed<br>of 1500 RPM                      |
| Spindle Torque 12,000 RPM (1/6 H)           | 80 ft-lbs (109 Nm)   |
| Tool Holder                                 | CT40 or BT40   |
| Spindle Taper                               | Face & Taper 40  |
| Spindle to Table Distance                   | 5.9 - 32.6 in (150 – 830 mm)                                   |
| Worktable                                   |  |
| Working Surface                             | 55.12 X 23.6 in (1,400 x 600mm)                                |
| Table Load                                  | 2,200 lbs (1,000kg)  |
| Number of T-Slots                           | 5  |
| T-Slot Size                                 | .708" (18 mm)  |
| Control                                     |  |
| Heidenhain                                  | iTNC 620 HSCI  |
| 4th Axis Preparation                        | Option   |

| Automatic Tool Changer                               |   |
|--|---|
| Type of Tool Shank                                   | BT40 or CT40 Taper                            |
| Magazine Capacity                                    | 30 Tools (optional 40)                        |
| Tool Select by Shortest Path and Random Select       | Bi-Directional                                |
| Maximum Tool Diameter (adjacent pockets)             | 2.95 in (75 mm)                               |
| Maximum Tool Diameter (without adjacent pockets)     | 5.9 in (150 mm)                               |
| Maximum Tool Length                                  | 11.81 in (300 mm)                             |
| Maximum Tool Weight                                  | 15.0 lbs (7kg)                                |
| Random Tool Change Time (chip-to-chip) ISO 10791-9   | 4.6 Seconds                                   |
| Coolant and Chip Management                          |   |
| Swarf Removal  | Chip Conveyor                                 |
| Cutter Air Blast                                     | Optional                                      |
| Coolant Tank Capacity                                | 114 US Gallons (430L)                         |
| Wash Down  | Standard                                      |
| Wash Gun   | Option  |
| Accuracy   |   |
| Positioning  | Ap .0004 in (.010 mm)                         |
| Repeatability  | Ru .0002 in (.005mm)                          |
| Machine Size   |   |
| Machine Height                                       | 125 in (3,165 mm)                             |
| Machine Floor Space (chip conveyor not included)     | 130 x 89 in<br>(3,300 x 2,265 mm)             |
| Mass of Machine                                      | 19,400 lbs (8,800kg)                          |
| Service Requirements (Mitsubishi)                    |   |
| Electrical Supply (input)                            |   |
| Structure  | Balanced 3-phase                              |
| Cycles   | 50/60 Hz                                      |
| Power  | 83 FLA  |
| Voltage  | 208 – 230 Volts                               |
| Note: Other Voltages Require an External Transformer |   |
| Compressed Air (pressure flow)                       | 87 psi/4.9 cfm (5.5 kg/cm <sup>2</sup> )      |
| Coolant Tank Capacity                                | 114 Gallons (430L)                            |
| Nozzle Coolant                                       | 34.3 Gal/min (130 L/min)                      |
| Shipping Size  | 114 x 92 x 98 in<br>(2,900 x 2,315 x 2,475mm) |
| Shipping Weight (approx)                             | 23,760 lbs (10,800) kg                        |

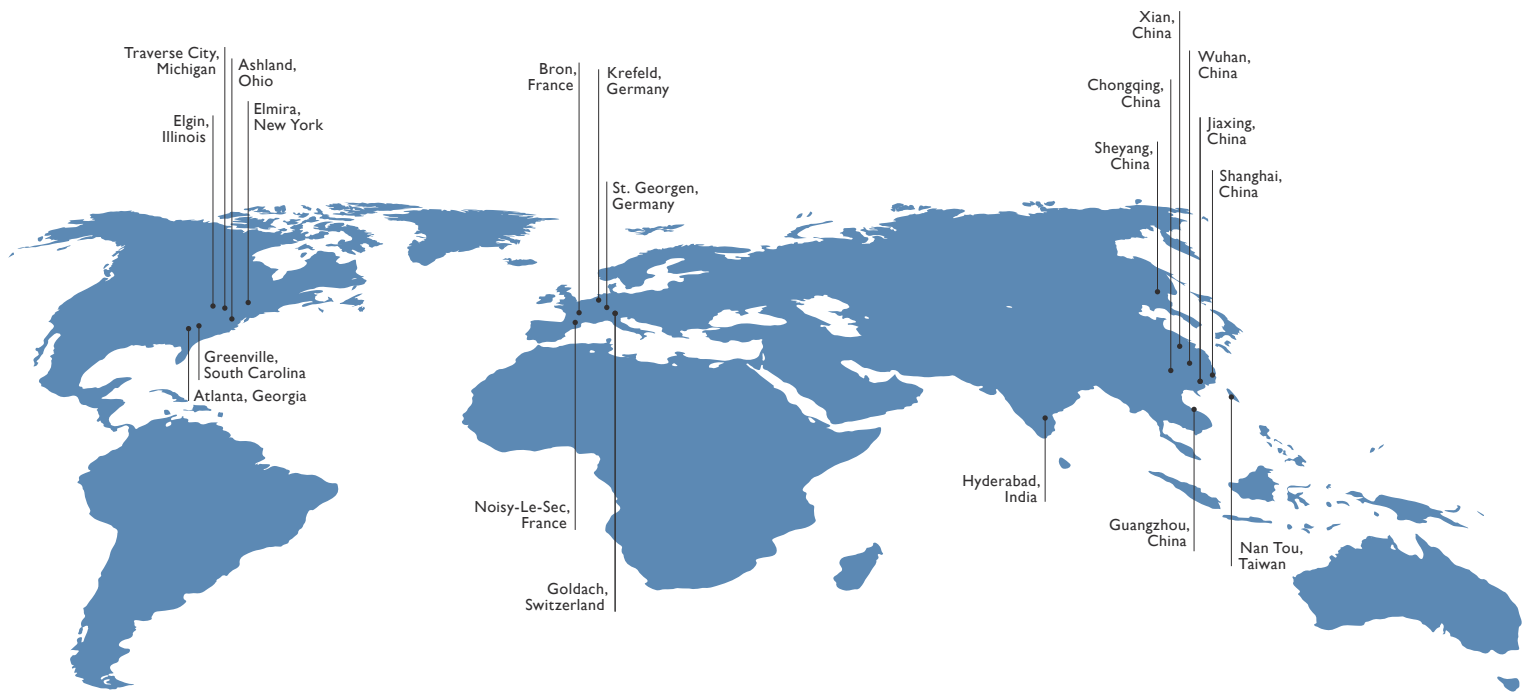
To maintain the accuracy of this machine, we recommend that the machine is sited on a flat area free from cracks and expansion joints. The composition of the floor and sub-structure should be of suitable construction to bear the weight of this machine. Any friable areas should be using accepted building construction techniques (to code).

Once a suitable foundation is in place, we recommend that the machine is rigidly bolted to the floor using the bed fixing/jacking positions to prevent movement or vibration.

# FLOOR PLAN



# HARDINGE WORLDWIDE



Hardinge is a leading international provider of advanced metal-cutting solutions. We provide a full spectrum of highly reliable CNC turning, milling, grinding, and honing 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

**GEORGIA**  
Hardinge Corporate  
79 W Paces Ferry Rd, 2F  
Atlanta, GA 30305  
P. +800.843.8801

**ILLINOIS**  
Hardinge  
1755 Britannia Dr  
Unit 1A  
Elgin, IL 60124  
P. +800.843.8801

**MICHIGAN**  
Forkardt  
2155 Traversefield Dr  
Traverse City, MI 49686  
P. +800.544.3823  
E. tcsales@forkardt.com

**NEW YORK**  
Hardinge  
1 Hardinge Drive  
Elmira, NY 14903  
P. +800.843.8801  
E. info@hardinge.com

**OHIO**  
Ohio Tool Works  
1374 Enterprise Parkway (TR 743)  
Ashland, OH 44805  
P. +419.281.3700  
E. sales@ohiotoolworks.com

## EUROPE

**SCHWEIZ**  
Hardinge Kellenberger AG  
Thannackerstrasse 22  
CH-9403 Goldach  
P. +41 71 2429111  
E. info@kellenberger.net

**DEUTSCHLAND**  
Hardinge GmbH  
Fichtenhain A 13c  
47807 Krefeld  
P. +49 2151 496490  
E. info@hardinge-gmbh.de

J.G. Weisser Söhne GmbH  
Johann-Georg-Weisser-Straße 1  
78112 St. Georgen  
P. +49 7724 881-0  
E. info@weisser-web.com

**FRANKREICH**  
Jones & Shipman SARL  
8 Allee des Ginkgos  
BP 112-69672  
Bron Cedex, France  
P. +33 472 812660

## ASIA

**CHINA**  
Hardinge Machine  
(Shanghai) Co. Ltd.  
1388 East Kangqiao Road  
Pudong, Shanghai 201319  
P. +86 21 3810 8686

**TAIWAN**  
Hardinge Machine Tools  
B.V., Taiwan Branch  
No.11,Tzu Li 3rd Rd.,  
Nantou City, 540 Taiwan  
P. +886 49 2260 536  
E. cs@hardinge.com.tw