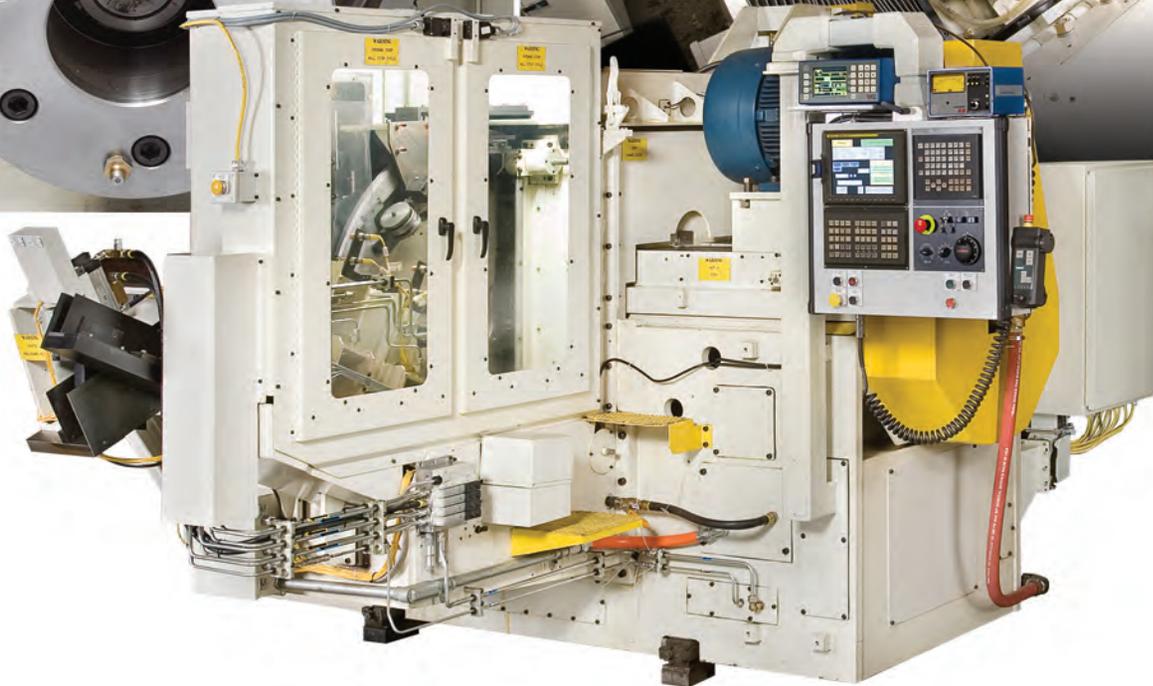
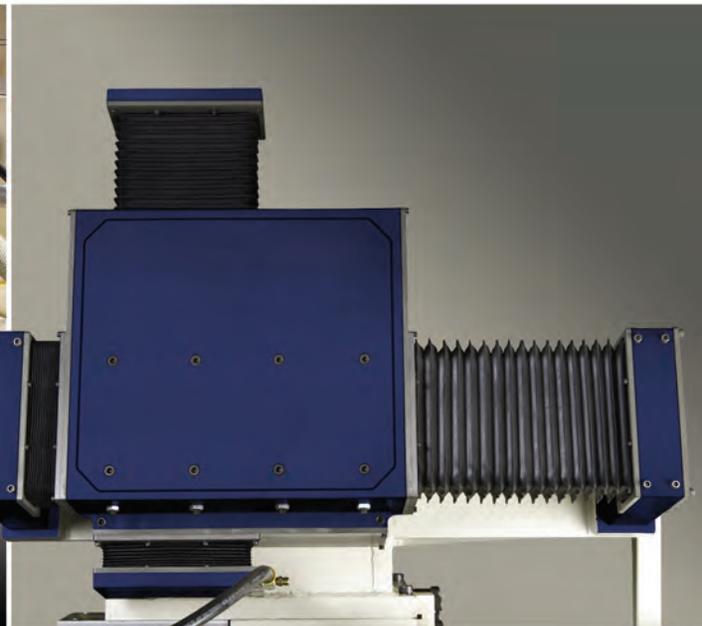
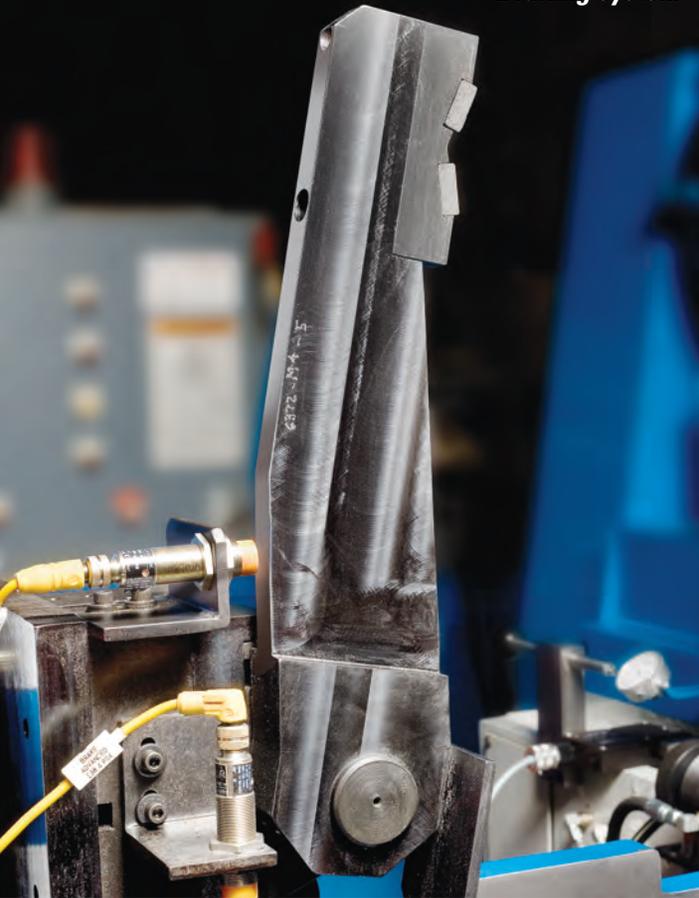




Your global resource for grinding solutions



Braking system



Specially-designed part fixturing



We design custom solutions for Gardner, Besly, Giustina and others.

Custom-designed part guide for gantry loader



Custom slides to assist in automation





The GCH group of companies

Serving some of the most respected companies throughout the world for more than 40 years



Gardner SDG6-800

SDG5-30 and SDG6-42 also available.

For part diameters from 150 mm to 600 mm, up to 250 mm wide.

Customer relationships are our most valuable asset. Through attention to detail, and a complete understanding of our clients' needs, the GCH group of companies has grown to include specialized services for complete support of grinding systems, component parts, training, in-field service and asset management. This includes:

GCH Machinery

Customized grinding solutions that utilize the most advanced technologies available

GCH Tool Group

Precision spindle exchange and component remanufacturing for most machine tools

CNC Link

Machine tool service support and technical training

GCH Asset Management

Certified appraisals and purchasing of capital resources

Our ability to control the design and manufacturing at every level ensures that the highest quality standards are always met. This allows us to deliver the best possible products and services to our customers worldwide.

DOUBLE DISC GRINDERS

Servo ball screw conversion for double disc



GCH Machinery

Customized grinding solutions



Various models and sizes available with servo feed conversions including angle head, plain cylindrical and universal grinders.

GCH Machinery's expertise in grinding systems spans more than 40 years. Our ability to individualize grinding solutions to meet the exact needs for each application is what sets us apart. We examine your requirements and part prints, fully understand the specifications and tolerances that must be held, and develop unique systems for each customer. Few companies can give you this kind of customization.

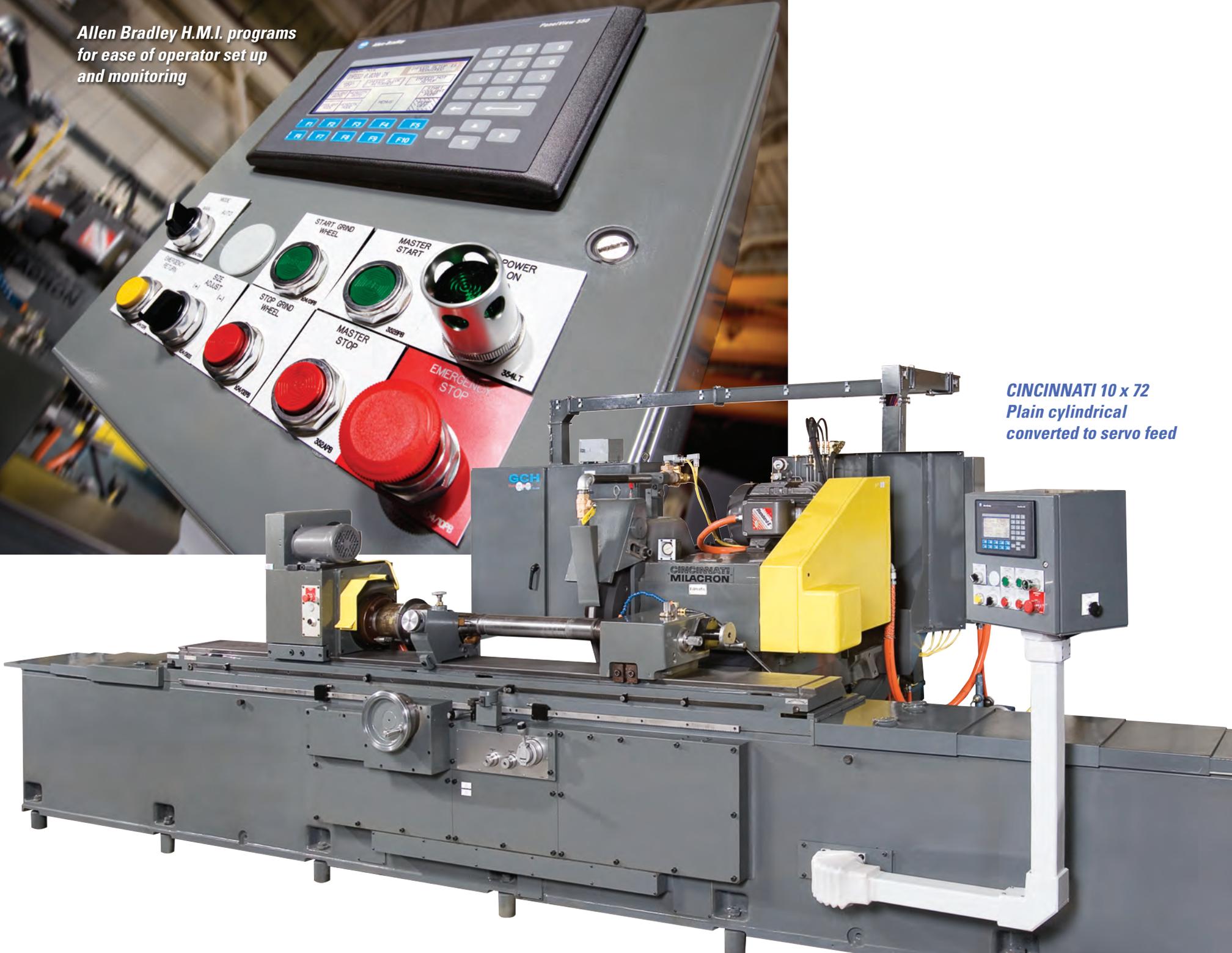
GCH's massive inventory of more than 1,500 machines are from every manufacturer – Heald, Gardner, Landis, and Cincinnati, to name a few. Many are ready to ship immediately in their present condition or with minimal work. Our web site showcases our large inventory (www.gchmachinery.com) and is continually updated to include our newest acquisitions.

When we upgrade a machine, we incorporate all new precision components – bearings, ball screws, servos, electronics, motion controls, gauges, custom tooling, automation and fixtures – to provide the latest technology and quality being offered today. The end result is a high-precision machine or grinding cell that has been custom tailored to your exact requirements, fully supported by our GCH Machinery technical staff.



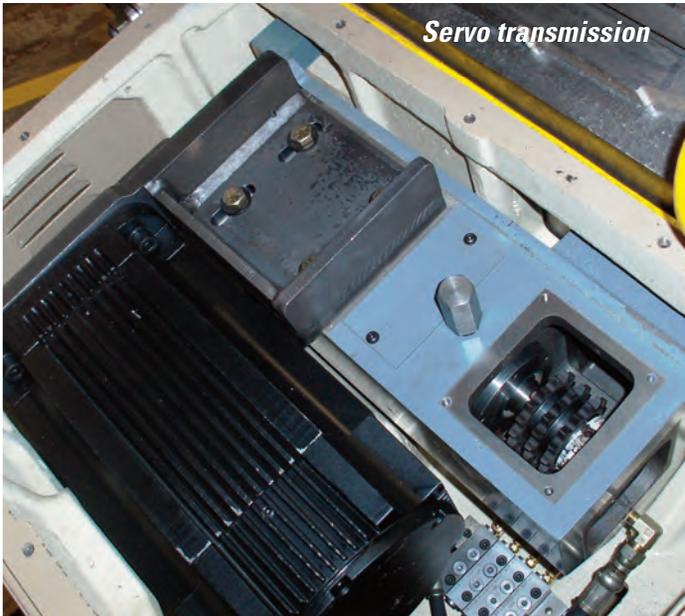
CYLINDRICAL GRINDERS: PLAIN, ANGLE HEAD AND UNIVERSAL
LANDIS • NORTON • WARNER & SWASEY • CINCINNATI

*Allen Bradley H.M.I. programs
for ease of operator set up
and monitoring*



CINCINNATI 10 x 72
*Plain cylindrical
converted to servo feed*

Application Engineering: Concept to required result – Mechanical and Electrical





Models 161, 261 and 361 also available with servo feed conversions.

ROTARY SURFACE GRINDERS

GCH application engineers, mechanical engineers and control engineers provide complete design and application assistance for each system being processed. Having this technical help up front provides our customers with the best application and a guarantee prior to completion that their process will be met.

We determine in advance what components will be designed and used for each application. This includes speed, feed, wheel type, mechanical deflection, grinding pressure, bearing deflection, required motion, lubrication, hydraulics, coolant, spindle RPM, tooling, part touching details and high wearing components. We also consider the desired level of automation, gauges, balancing, motor size and conditions within the plant. All of these items are reviewed to maximize the end result. Our approach then follows a similar process:

- Examine the part prints and discuss tolerances, surface finishes and critical dimensions
- Discuss the volume of parts and how many machines will be needed to achieve the desired production
- Determine whether loading will be done manually or automatically



- Develop a gauging strategy
- Our tool designers, mechanical engineers and electrical engineers design the entire system from the ground up to exceed OEM quality standards
- A custom machine or cell is built, adhering to these specs, to ensure long-term, repeatable production

Maintaining customer part geometry is our most important goal.



New high-precision mechanical components

The outstanding performance that GCH machines achieve is due mostly to the new design for mechanical slides and spindles.

Starting from the base, your machine begins a new transformation:

All slides are precision fit and verified for flatness, parallelism, perpendicularity and straightness. If a slide is being scraped and flaked, our craftsmen are required to adhere to .0003" per foot on straightness, flatness and perpendicularity and provide lubrication areas of 12-16 pockets per square inch.

We also incorporate complete friction free slides by THK, INA and Schneeberger. All slides are guaranteed to the highest degree of accuracy, normally .001 mm or better depending on the application.

New dressing designs are used. This includes point-to-point, CNC, linear interpolation, circular interpolation, radius, diamond roll, crush or zip.

Servo motors and precision ball screws are adapted in order to provide the highest degree of accuracy and repeatability.

GCH designs are often interchangeable and can be adapted to existing grinders in your plant. GCH spindles are evaluated for each application. Bearings are selected based upon tolerance requirements. Speeds are selected based upon specific grinding wheel grades and required results.

***Auto servo gauge height positioner
(Patent pending)***

***BLANCHARD Servo feed
conversion***





ALL
BLANCHARD
SIZES
AVAILABLE

11-16

11-20

18-30

18-36

20-36

22-42

26-48

32-60

36-66

42-84

54-100

60-120

72-120

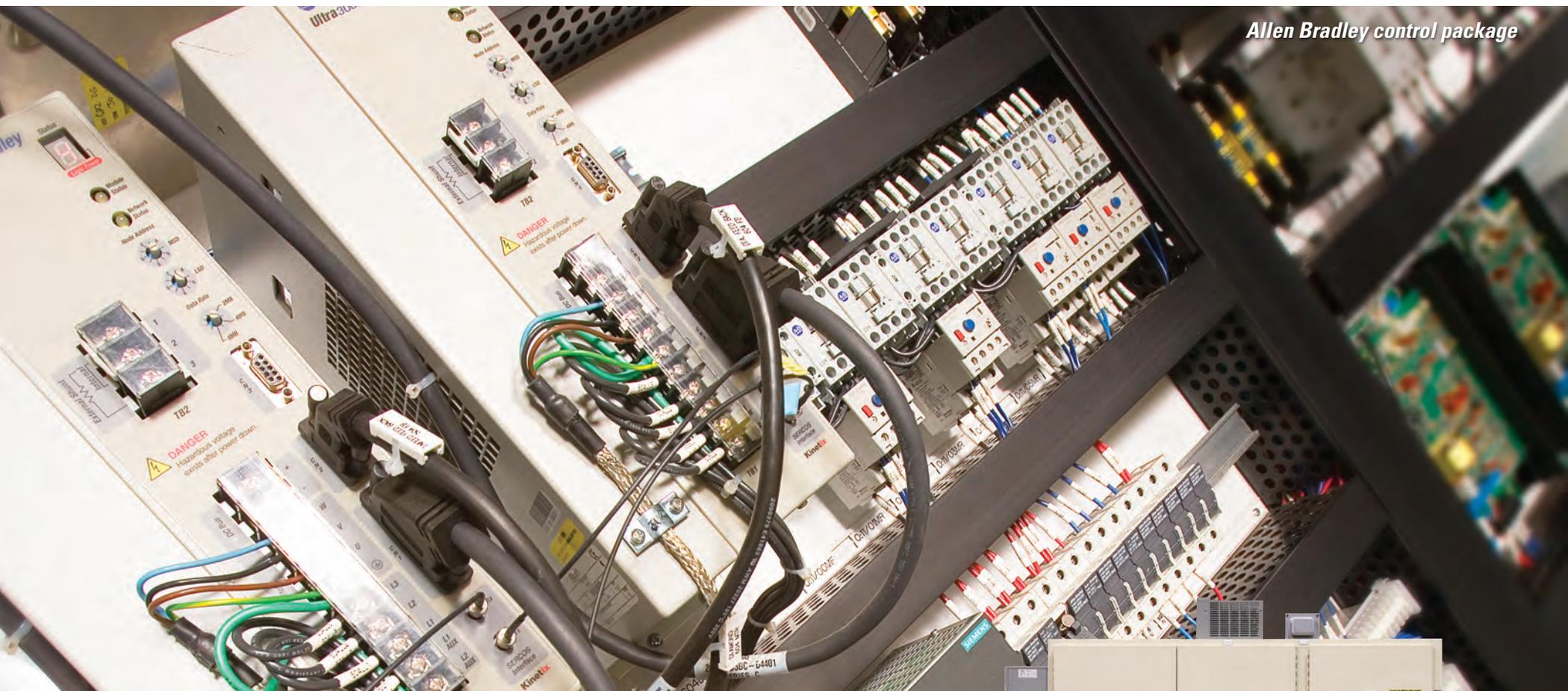
72-144

BLANCHARD 22D-42

This customized machine for aerospace is only one example of our industry-specific applications.

ROTARY SURFACE GRINDERS: VERTICAL AND HORIZONTAL

Allen Bradley control package



ALLEN BRADLEY • FANUC • OMRON • SIEMENS • MITSUBISHI • NUM

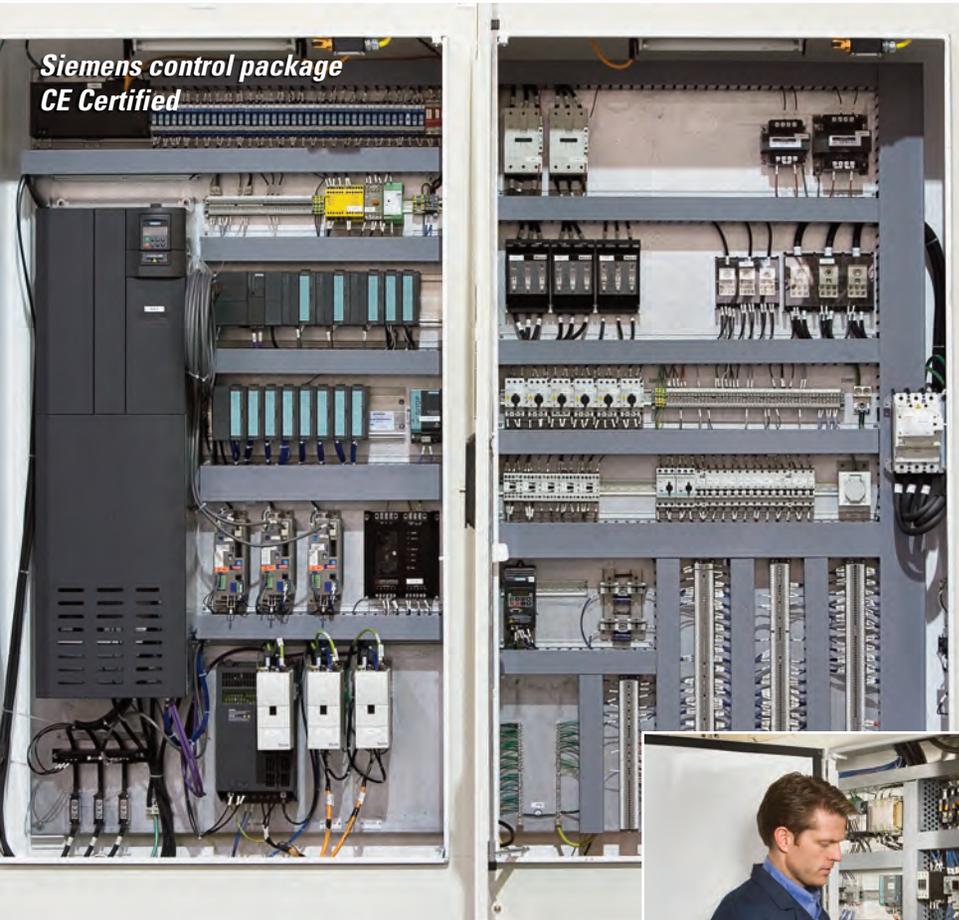
Certified

GOST

*Certified to all local,
regional and international
standards*



Custom-designed electric/electronic control systems



Full electrical documentation is provided, including:

- **Electrical schematics**
- **Hydraulic schematics**
- **Lubrication schematics**
- **Pneumatic schematics**
- **Complete BOM**



GCH electrical and controls engineers design your system to operate at optimum capability while strictly adhering to all factory and global specifications. We utilize off-the-shelf components so you can easily find replacement parts no matter where you are in the world. Servo motors and VFDs are sized according to the required speeds, feeds and repeatability. Our mechanical engineers work closely with our controls engineers to provide the best mechanical motion of your servos.

Electrical schematics and all controls, hydraulic, lubrication and pneumatic information is provided well in advance. This eliminates confusion and enables a smooth transition at installation.

Each panel is laid out and meticulously built to optimize your space requirements and provide easy flow of space. Wire ways are used to keep your panel neat. We adhere to the highest standards on our controls. New motors and pulleys are vibration tested and certified to rigid, certified specifications.

Field wiring is run in duct ways to keep the machine clean and free from clutter. All switches are mounted in easy access areas with control tags properly identifying all electrical connections.

Swivel control consoles make it easier for the operator to set up the machine, load parts and grind. Easy-to-follow machine diagnostics are custom-built into each screen. Custom screens are designed, for CNC or PLC, making it easy and intuitive for your operators. Custom software programs are included. When practical, we use open-architecture systems. Easy-to-follow instructions are also provided for in-house training.



Our new open-architecture design of your control screen shortens the learning curve for your operators.

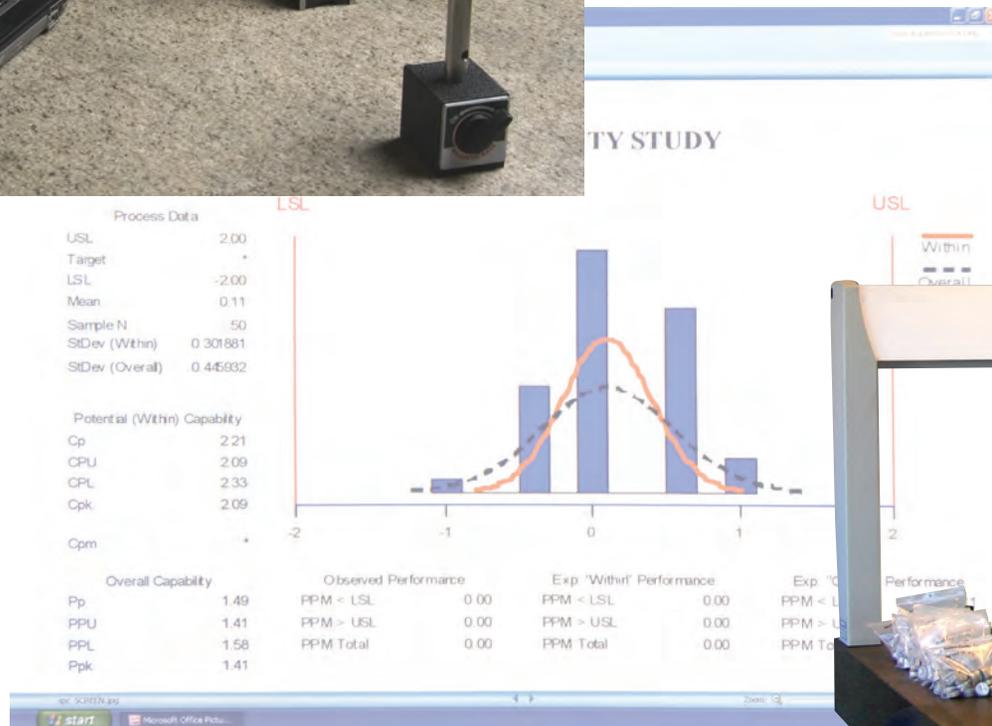
FANUC 21i CNC control package

Quality that's designed in



Your part quality is dependent on your machine quality. To maintain geometric tolerances over extended use we adhere to the international SPC, CPK and CM/CMK quality standards.

Individual components are also matched, tested and certified. New motors and pulleys are vibration tested and certified to rigid, certified specifications. When you purchase a grinding system from GCH Machinery, we guarantee that you will meet all SPC specs in writing, and prove it during your runoff prior to taking delivery.





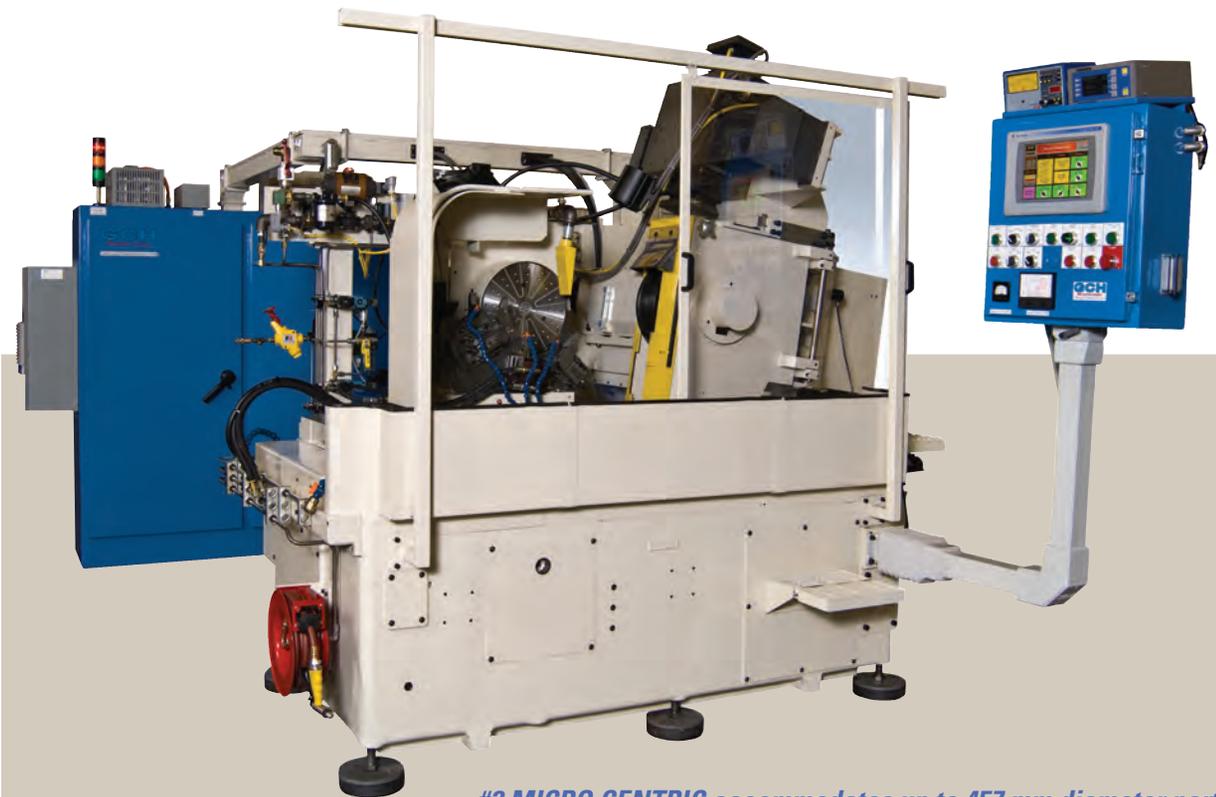
Counterweights provide longevity for the feed system



New-design grinding wheel spindle with heavy-duty 127 mm wide wheel capacity



Servo compensation on the cross slide provides 0.001 mm dressing accuracy



#2 MICRO CENTRIC accommodates up to 457 mm diameter parts (#1 MICRO CENTRIC also available with similar features) Shoe or chuck style



In-process gauging uses auto-compensating feedback in a closed loop system to determine true zero. Post-process gauging data can also be used to recognize "trends" and make system adjustments as needed.

GCH servo rock feed system delivers position accuracy of 0.001mm (patent pending)



CNC dressing solutions



SBS balancer



ALL
TYPES OF
CENTERLESS
INCLUDING:

2 OM

3 EA

220-8

VIKING

230-10

325-12

3-500 TWIN GRIP

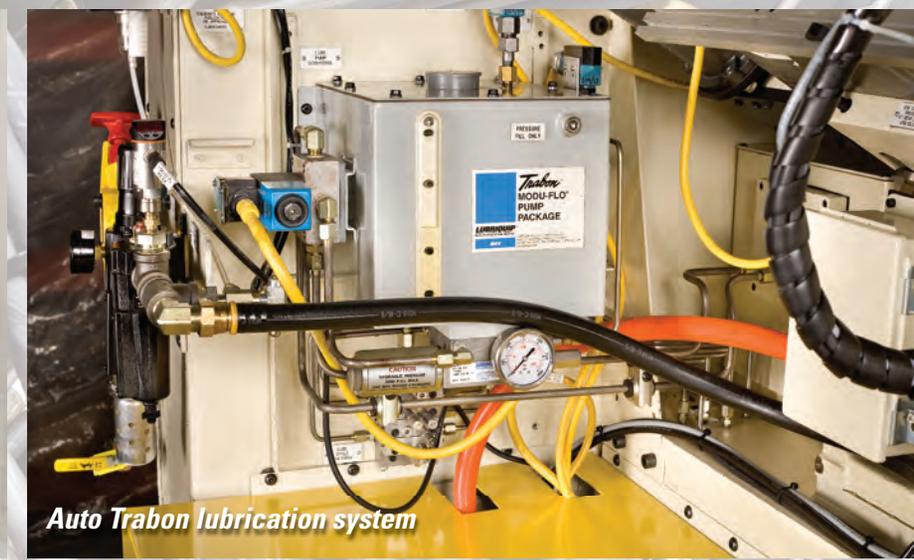
340-20 TWIN GRIP

350-20 RK TWIN GRIP

475-20 TWIN GRIP



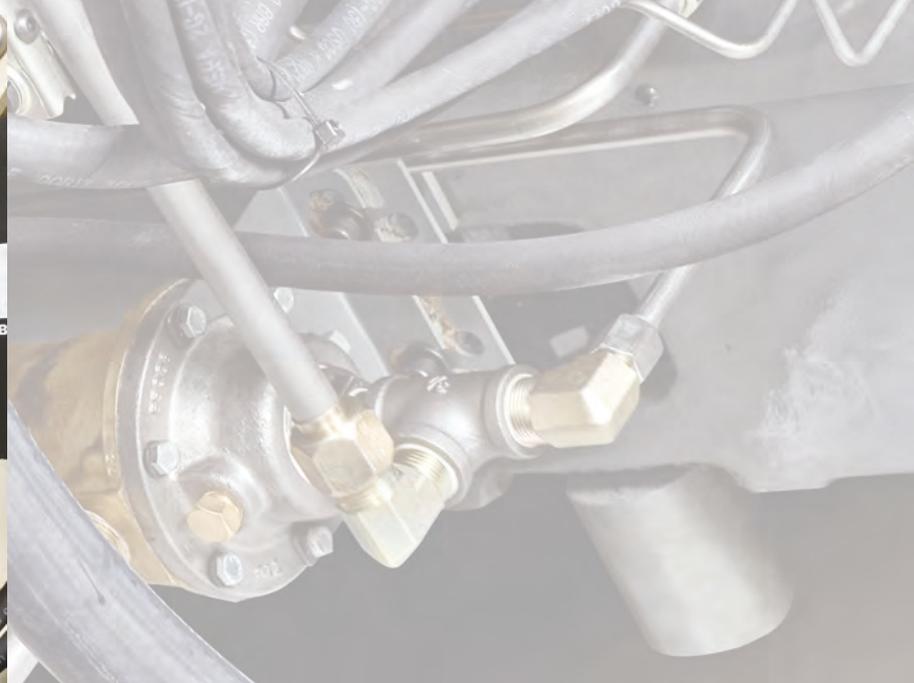
Constant surface footage



Auto Trabon lubrication system



Wheel guard lifter



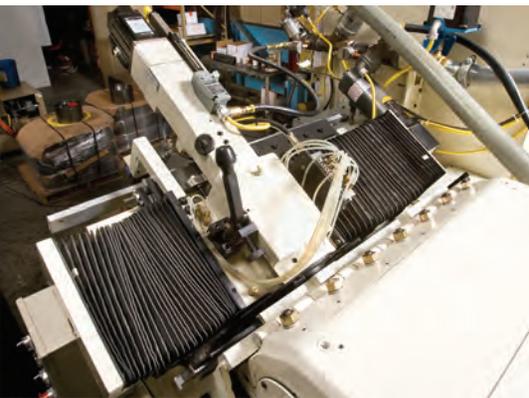
Our attention to detail makes the difference



Servo in-feed system



Dresser, servo and ball screw conversion



CNC dresser



Pneumatic system

No detail is too small when it comes to the quality of your grinding system. Lubrication is performed automatically by computer-controlled timed systems and diagnostically checked. Coolant management systems regulate temperature, cleanliness and flow. It's all designed to eliminate downtime and reduce operator maintenance wherever possible.

Paying close attention to your system and how it will be used has resulted in many customized solutions that make your life easier. Custom-designed hood lifters are one unique example of a safety feature that allows easy access to areas underneath heavy hoods and protects the operator from accidents. We have also developed special guarding, mist collectors and enclosures to help keep your floor dry and the environment as clean as possible.

It's this attention to detail that sets GCH apart.



We use all new components when we assemble your grinding system.

CINCINNATI 475-20

CENTERLESS GRINDERS

Continued support long after the sale



New documentation is provided with your machine

GCH personnel perform the installation and setup in your factory. Our process technicians will re-qualify your machine on your shop floor to what was guaranteed at runoff.

The documentation you will receive with your grinding system is far beyond what most companies provide. All appropriate documents are supplied to you in both electronic and printed form, and include:

- CE, GOST or other certifications
- Step-by-step setup instructions
- Safety features and standards
- All electrical schematics and BOM
 - Hydraulic schematics
 - Lubrication schematics
 - Pneumatic schematics
- All mechanical assemblies that have been added and BOM
- Required maintenance
- Recommended spare parts list
- 2-year extended warranties on all parts
- Floor plans
- Layouts
- Software programs



Training/programming classes can be held at a GCH facility or on-site at your plant. Classroom training as well as hands-on training at your machine will quickly make your operators proficient.

*FANUC H.M.I.
custom-designed
control screen*



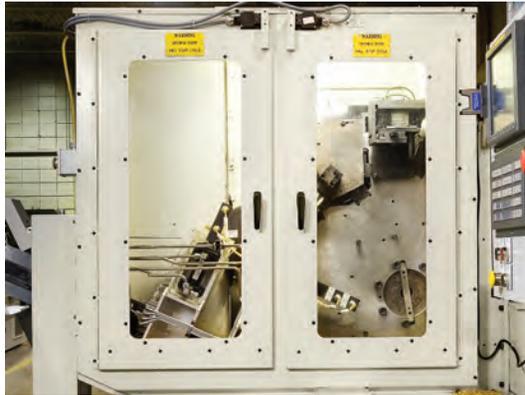
*Custom-designed fixturing
and part touching details*



Unload station, part separator



Custom-designed hood closure



SDG6-42, Plunge-feed CNC conversion

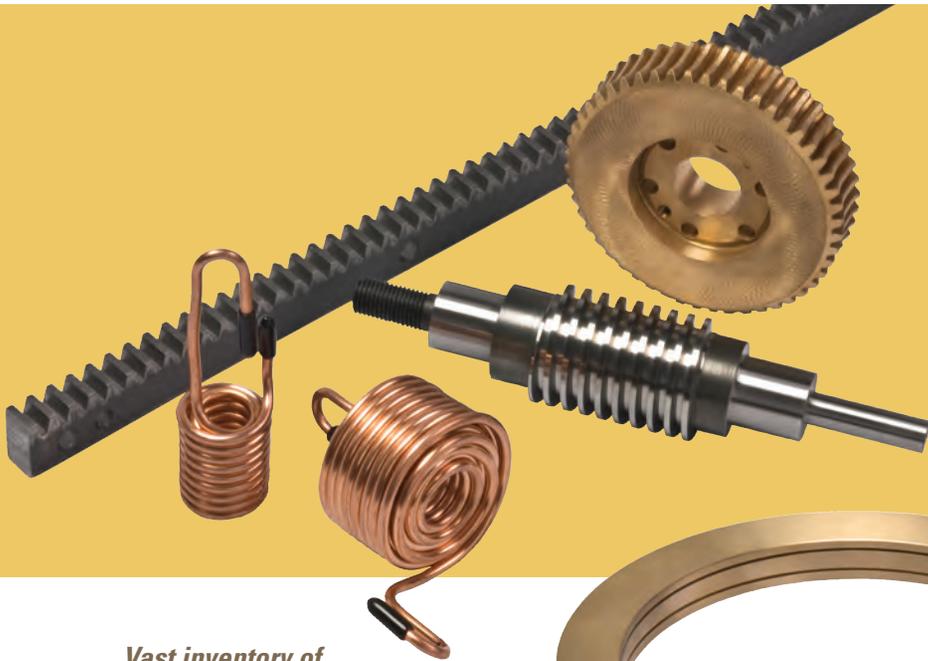
**DOUBLE DISC GRINDERS
SDG2 • SDG3 • SDG5 • SDG6**

*Mechanical
crash protector
disengaging
clutch*





*Expert craftsmanship for
mechanical assembly*



*Vast inventory of
new individual parts*

- *Centerless*
- *Cylindrical*
- *Disc*
- *Internal*
- *Surface*
and more...



CINCINNATI MILACRON

HEALD

BRYANT

LANDIS

NORTON

GARDNER

BESLY

BLANCHARD

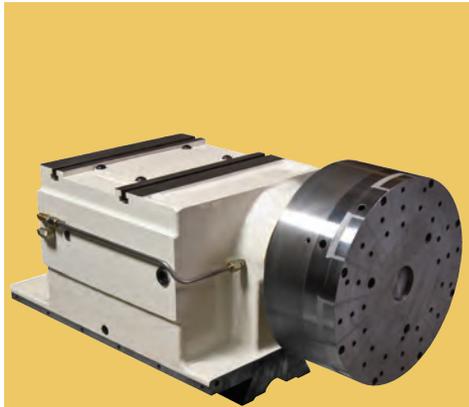
AND MANY MORE...



Quality replacement parts and components for all types of machine tools



Servo feed slide component conversion



Precision Micro Centric work head spindle

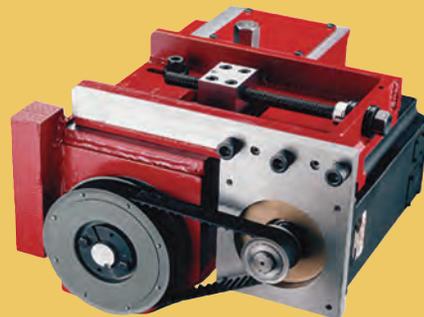
Originally created to ensure product quality of the many sub-components used by GCH Machinery, GCH Tool Group's operations have expanded today to support the entire machine tool market with complete assemblies, spindles, and other critical performance parts. Many may be purchased outright or are available for immediate replacement through our exchange program.

Our tremendous archive of original design specs allows us to refurbish parts to today's standards from just about every machine tool manufacturer. We design and build specialized assemblies to replace existing components for machine upgrades. Motion control packages, feeding systems, loading systems, coolant systems, and electrical packages are part of the daily bread and butter. Many are designed to simply "bolt on" to enhance performance and machine capability. Plus, all components come with the complete documentation and warranties you've come to expect from GCH.

Not sure what the problem is? We can also troubleshoot on your own factory floor. Trained personnel can evaluate your machine on-site and make recommendations to increase performance.



New Micro Centric precision grinding wheel spindle



Centerless servo drive transmission



Double disc grinder servo and ball screw feed system

Quality products



***Precision hand scraping
of new hydrostatic
bearings.***

It takes a real commitment to quality to remanufacture components to the level we insist on. We use only new parts to remanufacture an assembly – never used or reconditioned. These are just a few of the ways we make sure you are getting the very best components possible:

- Flaking and scraping techniques that achieve better-than-new tolerances.
- Rokide Chromium Oxide in rod form Ceramic coatings on spindle journals. This unique process ensures the highest cohesive bonding of the hard-coated journal. It is then finish ground to 0.00005" accuracy with diamond abrasives.
- Filmatic hydrodynamic bearings deliver the highest precision available. A controlled thin film of hydraulic oil provides smooth, frictionless rotation with high accuracy. It's so good, we warrant it for two years of production use.

Before any component is ready for use, it must pass rigorous testing at our facility. A minimum of six hours under normal conditions (temperature and speed) determines if a moving part is ready for certification. Only then will we make it available as a GCH assembly, along with a warranty that often exceeds the original.



*Hydrostatic slide assembly
Certified to a lift of 0.0005"*



*Precision grinding ID wheel
spindle test stand assures
components meet required
specifications*

*Precision regulating
wheel head spindle test
stand guarantees quality
workmanship*



*Precision grinding
spindle test stand*



GCH Tool Group's vast inventory of new individual replacement parts and components



New precision pulleys



New precision feed gears



New spindle seals



New adjustable arms



New worm gears

Replacement parts are ready and available



***Gardner and Besly
double disc precision
grinding wheel spindles***

All types of precision spindles on exchange

When you need a quick replacement part, GCH Tool Group inventories more than \$4.5 million in new and remanufactured components. More than 60,000 discreet part numbers line our shelves with over 3,400 assemblies ready-to-ship.

Our Exchange Program reduces downtime by exchanging worn out spindles or other precision components with ones that have been manufactured to original specifications. Thousands of spindles are in stock for virtually every kind of machine – turning, milling, grinding – you name it. Dressers and slides are also available for exchange. This program dramatically cuts downtime and is a lifesaver for maintenance engineers who need quick support.

We ship replacement parts to every corner of the world. For immediate assistance, call **+1 586-777-6250**.



***Heald Red Head precision
grinding wheel spindles***



***Precision ball screws and
nuts for many types of machinery***



GCH-designed heavy-duty work rest

CNC Link Your source for service, operator and maintenance training



CNC Link is the newest addition to the GCH family. It serves as our service arm for in-field service, machine evaluation, operator and maintenance training.

A staff of more than 18 highly skilled service technicians are ready when you need them. We service turning, boring, milling and grinding machines of every vintage. Our in-plant diagnosis can assess your situation, make recommendations, and complete repairs, often in the same visit. Service contracts are also available for individual machines or complete lines.

The depth of experience and technical know-how at CNC Link is the best in the industry. Maintenance classes provide a solid understanding of your equipment from beginner to advanced personnel. Classes are scheduled around client needs in your plant or in our own facility. Whether you have 1 person or 10 to enroll, the benefits of training with CNC Link will pay for itself several times over.



*Many hard-to-find
electronic components
are in stock*





Hands-on training



Classroom training



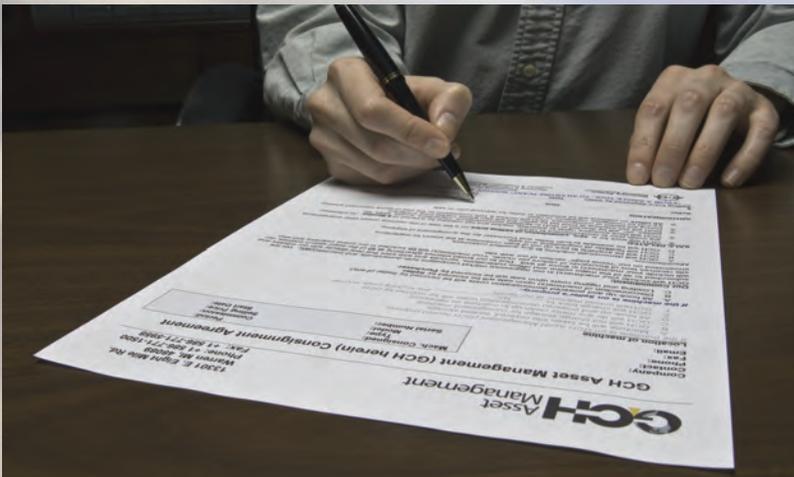
The logistics of selling your capital equipment, whether it's a single machine or an entire plant, can be overwhelming. GCH Asset Management services have been helping companies turn their surplus assets into cash for many years. Our global resources and machine tool knowledge will help you gain the most from your investment in the shortest amount of time.

Many different options are available, including:

- auctions
- internet web sales
- consignment sales
- liquidations
- on-line auctions
- direct cash purchases



Our AMEA certified appraisers will help you determine the fair market value. We then prepare all advertising/marketing materials and distribute via email. A worldwide database of over 250,000 clients helps us liquidate your assets quickly. GCH will handle all the transactions, discreetly and professionally, providing you with working capital while freeing up valuable floor space.



AUCTIONS • INTERNET WEB SALES • CONSIGNMENT SALES • LIQUIDATIONS • ON-LINE AUCTIONS • DIRECT CASH PURCHASES



*GCH can help you liquidate your assets,
one machine or an entire plant.*

- All manufacturing industries
- All machine types





The GCH group of companies offer you a global, turnkey approach to appraising, buying, selling, upgrading and maintaining your machine tools, grinding systems in particular. These multi-faceted services put us in a unique position in the marketplace, and greatly benefit the clients we serve. We'd like to invite you to join the ranks of our highly satisfied customers.

GCH Machinery

Customized grinding solutions supplied around the world

13301 E. Eight Mile Road
Warren, MI 48089-3238
Phone: 586.771.1500
Fax: 586.771.5958
www.gchmachinery.com

GCH Asset Management

International management of your capital equipment, appraisals, sales and liquidations

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CNC Link

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www.cnclink.net