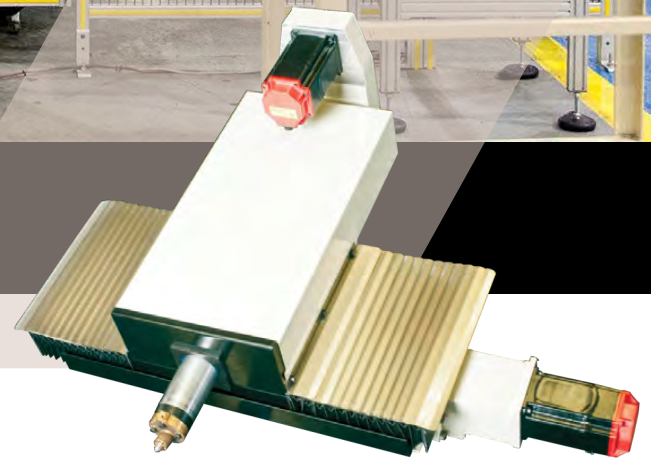
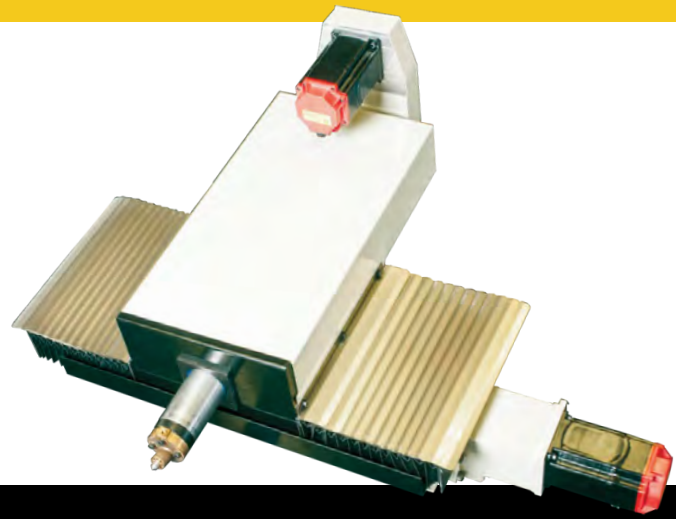


# Centerless Grinding for Pros



Insider tips on the successful  
operation, maintenance and  
repair of your centerless grinders

# The 7 Principles for Successful Centerless Grinding



Despite the critical role it plays in metalworking, centerless grinding is often only faintly understood. Common misperceptions can have a material impact on your part quality and overall productivity. To demystify the process, here are seven basic principles related to centerless grinders.

## Deceptive simplicity combined with peerless precision.

- Centerless grinding works thanks to a few basic principles of physics. The workpiece is held in place by the pressure of the rotating grinding wheel and the regulating wheel. The difference in the two wheels' rotating speeds determines the speed of the removal rate.

1

## Where machining ends, centerless grinding begins.

- Centerless grinders address the limitations of machining related to dimensions, materials and surface finishes. If the part diameter is too small for turning or its center can't be mounted, centerless grinding can achieve the necessary roundness.

2







## Choosy grinders choose the right wheel.

- It's critical to select the grinding wheel that works well for both the material being ground and the type of finish desired. Wheels are available with different diameters, thicknesses, grit sizes and grains.

3

## Getting the right angle.

- The proper roundness and tolerance of a workpiece depend on the angles at which the wheels contact the part. Uneven wear, tapering and reduced wheel life can result if the angle of the regulating wheel is too acute.

4

## Cool it for the best results.

- Coolant maintains temperature in the grinding process, which regulates part size, surface finish and part temperature.

5





## Different feeding methods for different jobs.

For parts like gear shafts that have complex shapes, in-feed grinding is the usual choice. For parts with the same diameter, through-feed grinding is normally used.

6

## Adaptability is the key.

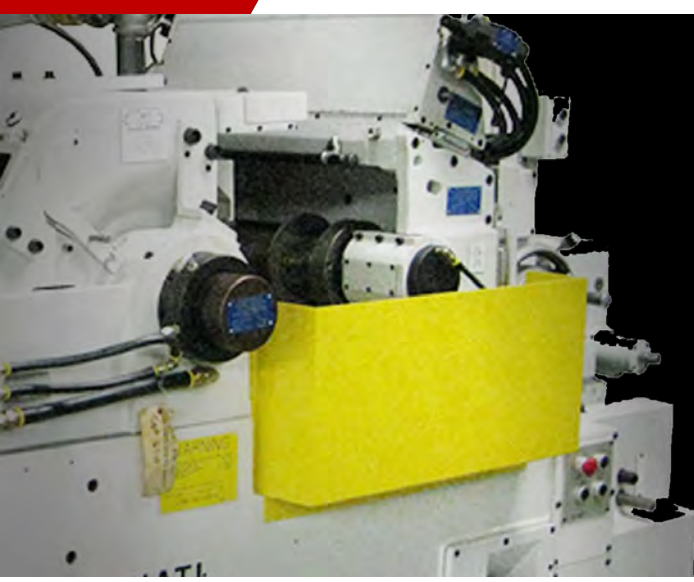
Some centerless grinding machines have been around for decades. But that doesn't mean they're headed for the scrap heap. New technologies allow older centerless grinders to adapt to today's production demands. Upgrades allow these machines to perform better than new.

7





# The Optimal Schedule for Preventive Maintenance



A good preventive maintenance plan for your centerless grinder helps avoid potential injuries, costly remedial action and lost production time.

We've compiled all the required centerless grinder maintenance tasks into an easy-to-follow schedule, designed to keep your centerless grinder running problem-free for many years.

## Every Shift

- Check oil level in hydraulic power unit and lubrication unit.
- Check way lubrication level.

## Daily

- Clean all exposed surface of motors, panel, power unit, grinding wheel head, regulating wheel head and all other parts mounted on the machine, including slide surfaces.
- Run the centerless grinder and check all functions.
- Check for any abnormal noise, oil leakage or heating of motors.
- Lubricate all moving parts as per recommended lubricating oil chart.



## Weekly

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- Check oil level of power pack and lubrication unit, regulating wheel head, etc.
- Clean centerless grinding machine coolant settling in the tray/dump area.
- Clean and tighten all exposed wire, cable conduit and connectors.
- Check wheel head and work head belts for tension and wear.
- Check coolant concentration levels.

## Monthly

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- Clean the coolant tank.

## Every Six Months

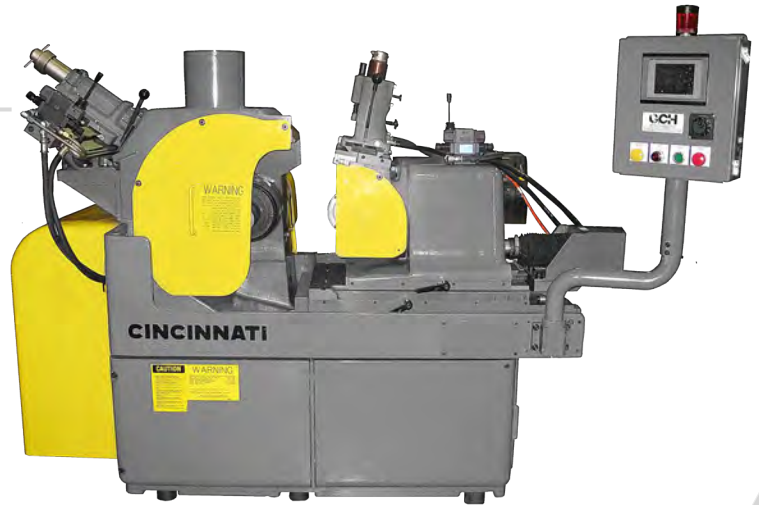
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- Change oil in power unit and lubrication unit.
- Replace filters in hydraulic power unit
- Visually inspect ways to make sure lubricant is being properly delivered.
- Tighten spindle belts.
- Replace pressure line filter cartridge.
- Clean power unit and lubrication oil strainer.
- Tighten all connections on centerless grinder motor, contractor, LS, PB, terminals and fuses.
- Check I/P and O/P volts on transformer and fuse ratings.
- Check motor current and set MCB to motor full load current.
- Check leveling and level the m/c with spirit level.
- Check earthing and earth-to-neutral voltage.
- Check deflections and end thrust of both the grinding wheel and regulating wheel spindles.
- Check temperature of wheel head oil after 30 min. running.



## Annually

- Open all induction motors and check, clean and grease bearings. Replace worn-out parts.
- Check complete lubrication system on centerless grinding machine and clean all lubrication pipes and points.



## Best Practices

- Consult your machine manual for additional tips.
- Keep a maintenance log to track your efforts and ensure accountability.
- File documentation for your machine, including a parts list, blueprints, and operation manual, where operators can easily access them.
- Maintain an appropriate spare parts inventory.
- Make sure to replenish parts as they are used.
- Handle expensive components with care.





# A Spare Parts Plan that Saves Time and Money



A formal spare parts plan for your centerless grinding machines can save money and reduce downtime. Follow this easy-to-achieve solution to create a plan that meets your needs.

## Identify the centerless grinding machines that are causing problems in your facility.

- Pull the maintenance report for each troublemaker to quantify downtime.



1

## Log all your machinery on a spreadsheet.

- Prioritize machines by their impact on product shipment. How long can a machine be down before it jeopardizes shipping of finished product? Is there a buffer between the critical machine and the next operation? If so, how long is that buffer?

2

## Decide which parts you need to purchase and whether they need to be in stock.

- This time-consuming task can be streamlined by grading potential spare parts as A, B or C, as defined below.

3





## “A” Parts



## “B” Parts



## “C” Parts



These are parts that can be sourced locally, meaning purchased at a local supply store. If it takes an hour or less to drive to the store and back, you don't need to keep these parts on your shelf.

These are parts the machine supplier keeps on the shelf and that can be delivered in 24 hours. If a 24-hour delivery is acceptable, these parts don't need to be on your shelf.

These are items that are normally part specific to your machine or product, or items that your supplier does not stock. They have long lead times, and sometimes can take months to build. These are the parts you want to keep in stock.



## Check with Your Supplier

Some suppliers may be willing to let you keep “high-turn” spares on your shelf and charge you only as you use them. Others may be willing to stock high-turn items on their shelves, enabling you to get them within 24 hours.

## The Bottom Line

Know which parts you use and understand what you absolutely have to have on your shelf to avoid downtime, then make a plan.





## When is it Time to Contact GCH Tool?

When you find that your machinery isn't as productive as it was or needs to be or new project requirements are beyond your existing equipment's capabilities, it's time to contact GCH Tool.

GCH Tool has been serving the grinding industry for more than 50 years and is well equipped to manage all your centerless grinding machine needs. We're specialists in centerless grinding, with years of experience servicing the top brands, including:

• Cincinnati Milacron • Landis • Bryant • Koyo • Micron • Gold Crown • Van Norman

GCH Tool carries more than 10,000 new grinder parts, including more than 350 standard off-the-shelf grinder component assemblies.

Beyond providing you with top-quality centerless grinding machine parts and components, GCH Tool can assist you with:



- Grinder component upgrade packages and grinding machine upgrades
- Grinder accessories that enhance productivity
- Grinder tooling
- Replacement, servicing or maintenance of electronics
- Grinder spindles
- Spindle repair



**Contact GCH Tool for your centerless grinding needs.**

