

**CENTERLESS GRINDER MACHINIST
(Time-Based)**

APPENDIX A

O*NET CODE 51-4033.00

This training outline represents minimum standards for work processes and related instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom instruction.

WORK PROCESSES

	Approximate Hours
A. Workplace Orientation	200
1. Demonstrate knowledge of workplace procedures, policies, etc.	
2. Describe workplace structure, workflow, and relation of trade to workflow.	
3. Practice working safely around machines and throughout shopfloor.	
4. Demonstrate knowledge of workplace safety plans, proper lifting and moving procedures.	
B. Grinding Fundamentals	800
1. Describe grinding process.	
2. Demonstrate basic knowledge of primary machining equipment, For example: MONZA, Cincinnati, PALMARY centerless grinders.	
3. Work with a variety of hand tools, including but not limited to: box wrenches, crescent wrenches, pliers, screwdrivers, allen wrenches, scales, micrometers.	
4. Change abrasive wheels using proper rigging techniques.	
5. Dispose of spent abrasive wheels per employer protocols.	
6. Reinstall proper abrasive wheels.	
7. "Dress" and "True" replacement abrasive wheels; use machinists stethoscope, arbors, lubricants (e.g., Never-Seez).	
8. Change regulating wheels as needed.	

C. Grinder Operations

3000

1. Set up all components/elements of grinder, including but not limited to: angle of inclination, truing angle, diamond offset, and wheel settings in preparation for production runs.
2. Set up all feed equipment, e.g., entry/exit guides, raw material for machining.
3. Produce first pieces for inspection; troubleshoot when necessary; correct errors to ensure specifications are correct.
4. Perform production runs on all types of grinders, manual and automated.
5. Utilize Computer Numerical Control (CNC) programming while operating CNC centerless grinders, such as a Tactic 8.
6. Continuously check parts for traceability, quality, defects, etc., using profilometers, go/no-go gauges, etc.
7. Collaborate with quality assurance auditors.
8. Troubleshoot grinders to eliminate/reduce material defects to acceptable tolerances.
9. Complete production runs; inventory and recordkeeping when appropriate.
10. Perform all required Preventive Maintenance (PM).
11. Perform basic machine repair.
12. Monitor, handle, dispose of manufacturing byproducts, e.g., swarf.

Approximate Total Hours 4000

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to <https://dol.ny.gov/public-work-and-prevailing-wage>

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APPENDIX B

RELATED INSTRUCTION

Safety/Health/Environment

1. General Workplace Safety
2. First Aid & CPR (minimum 6.5 hours every 3 years)
3. Sexual Harassment Prevention Training – must comply with Section 201-g of the Labor Law
4. Personal Protective Equipment (PPE)
5. Right-to-Know/Safety Data Sheets (SDS)
6. Lock-Out/Tag-Out (LO/TO)

Trade Theory and Science

1. Basic Trade Math, especially decimal system
2. Blueprint Reading
3. Basic Physics
4. Basic Geometry
5. Geometric Dimensioning & Tolerancing (GD&T)
6. Basic Rigging Techniques
7. Abrasives
8. Dressing and Truing
9. Grinding
10. Machine Operation
11. Computer Numerical Control (CNC) Machining
12. Coolants and Lubricants
13. Statistical Process Control (SPC)
14. Metrology & Measuring Instruments
15. Machine Adjustment, Maintenance, and Repair

Other courses as necessary

A Minimum of 144 Hours of Related Instruction is Required for Each Apprentice for Each Year.

Appendix B topics are approved by New York State Education Department.