

# Faculty Research Labs

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# (Makerspace)



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# Baileigh Manual Metal Lathe



## Description:

The Baileigh Manual Metal Lathe Model 3 is a precision-engineered lathe designed for detailed metalworking tasks. Built with a heavy-duty cast iron frame, it offers stability and low vibration during operations, ensuring consistent accuracy. The lathe includes a powerful motor, variable speed control, and a quick-change gearbox, making it adaptable for a wide range of machining tasks. Its professional-grade components make it suitable for machine shops and personal use.

## Uses:

- **Metal Turning:** The lathe excels at turning metal pieces, shaping them into cylindrical or conical forms.
- **Threading:** It can cut both internal and external threads in various metal types.
- **Facing:** The lathe can machine the ends of metal pieces to ensure smooth, flat surfaces.

## Capabilities:

- **Precision Machining:** The lathe is designed for tight tolerances, making it ideal for tasks that require fine detail and high accuracy.
- **Variable Speed Control:** The adjustable speed settings from 50 to 1,200 RPM allow for a variety of operations on different materials, ensuring versatility in both small and large projects.
- **Thread Cutting:** Capable of cutting various thread pitches, both in metric and imperial units, the lathe is well-suited for machining custom threads for bolts, pipes, and other threaded components.

# WAZER Desktop CNC Waterjet



## Description:

The WAZER Desktop CNC Waterjet Model 55 is a compact, precision waterjet cutting machine designed for small workshops, makerspaces, and educational settings. It uses high-pressure water mixed with abrasive materials to cut through a wide range of materials, including metals, plastics, ceramics, and glass. Despite its small footprint, the WAZER offers industrial-grade cutting capabilities, making it accessible to users who need a high-performance machine in a compact form.

## Uses:

- **Metal Cutting:** Capable of cutting through various metals such as aluminum, steel, brass, and titanium.
- **Custom Part Fabrication:** Ideal for creating custom machine parts, intricate designs, and prototypes.
- **Plastic, Glass, and Ceramic Cutting:** The waterjet is versatile enough to handle cutting non-metal materials without causing heat-induced deformation.
- **Educational Projects:** Widely used in educational settings for teaching CNC waterjet cutting principles.

## Capabilities:

- **Precision Cutting:** Delivers smooth and precise cuts with a tolerance of  $\pm 0.003$  inches, allowing for intricate designs and exact dimensions.
- **Wide Material Compatibility:** Cuts through a wide range of materials up to 1 inch thick, making it suitable for a variety of applications.

# JET 6"x 48" Belt and 12" Disc Finishing/ Machine



## Description:

The JET 6"x 48" Belt and 12" Disc Finishing/Grinding Machine Model 173 is a versatile tool for finishing, grinding, and sanding metal, wood, and other materials. It features a large, adjustable belt surface and a powerful disc grinder to tackle both heavy-duty grinding tasks and fine finishing work. With sturdy construction and a stable base, this machine ensures vibration-free operation for precise work.

## Uses:

- **Metal Grinding:** Ideal for removing material quickly, smoothing out welds, and shaping metal parts.
- **Wood Finishing:** Perfect for sanding down wood surfaces and edges for a smooth finish.
- **Deburring:** Removes burrs from machined parts to ensure clean edges.
- **Surface Preparation:** Prepares metal surfaces for painting or coating by creating a smooth, even texture.

## Capabilities:

- **Dual Grinding Surfaces:** Combines a large belt surface (6"x 48") for rapid material removal with a 12" disc for precise finishing and edge work.
- **Adjustable Belt Tilt:** The belt can be adjusted vertically and horizontally, making it suitable for a wide range of grinding tasks.
- **Powerful Motor:** Equipped with a 1 HP motor to handle tough materials with ease, ensuring smooth operation even during heavy use.

# 12 Gallon NXT Wet/Dry Vacuum



## Description:

The RIDGID 12 Gallon NXT Wet/Dry Vacuum Model 201 is a powerful and versatile cleaning tool for heavy-duty cleanup tasks. Featuring a 5.0 Peak Horsepower (HP) motor, this vacuum can handle both wet and dry debris, making it suitable for a wide range of applications. Its compact design, large carrying capacity, and robust performance make it perfect for workshops, construction sites, and general-purpose cleaning tasks.

## Uses:

- **Wet Debris Cleanup:** Designed for removing water, liquid spills, and other wet materials.
- **Dry Vacuuming:** Ideal for cleaning sawdust, metal shavings, and general workshop debris.
- **Blower Function:** Can convert into a blower for clearing leaves, dust, and other loose debris.

## Capabilities:

- **5.0 Peak HP Motor:** Provides strong suction power for both wet and dry materials.
- **12-Gallon Capacity:** Large container minimizes the need for frequent emptying, making it ideal for extended use.
- **Dual-Flex Hose:** The 7-foot hose features a Dual-Flex design, providing 180-degree mobility at both ends to reduce hose kinks and maintain suction power.

# DEWALT 15.4 lbs. Heavy Duty Work Stand



## Description:

The DEWALT Heavy Duty Work Stand Model 241 is a durable and portable support solution for cutting and assembly tasks. Designed to hold up to 1,000 pounds, this work stand is ideal for job sites, workshops, and home projects where stability and strength are needed. Its lightweight frame makes it easy to transport and set up, while its robust construction ensures reliable performance under heavy loads.

## Uses:

- **Support for Miter Saws:** Provides a stable base for mounting and using miter saws during cutting tasks.
- **Assembly Work:** Useful for assembling parts, framing projects, and other construction-related tasks.
- **Cutting Support:** Can be used as an auxiliary support for cutting long pieces of wood, metal, or other materials.

## Capabilities:

- **High Load Capacity:** Supports up to 1,000 pounds, making it suitable for heavy materials and machinery.
- **Lightweight Design:** Weighing only 15.4 pounds, the work stand is easy to carry and transport to various locations.
- **Durable Construction:** Made with high-quality steel, ensuring strength and long-lasting durability even in demanding environments.

# DEWALT 120V 12-Inch Dual Bevel Sliding Compound Miter Saw



## Description:

The DEWALT 12-Inch Dual Bevel Sliding Compound Miter Saw Model 260 is a high-performance tool for precision cutting in woodworking, carpentry, and construction projects. Equipped with a powerful 120V motor, the saw delivers accurate crosscuts, miters, bevel cuts, and compound cuts. The sliding feature allows for wider cutting capacity, making it perfect for larger materials such as lumber, molding, and framing pieces.

## Uses:

- **Precision Wood Cutting:** Designed for accurate crosscuts, miters, and bevels in wood materials.
- **Trim and Molding Work:** Ideal for cutting baseboards, crown molding, and window trim with clean, precise angles.
- **Framing and Lumber Cutting:** Can handle wide pieces of wood, making it useful for framing projects.
- **Metal Cutting:** Capable of cutting through light metals when equipped with the proper blade.

## Capabilities:

- **Dual Bevel Functionality:** Allows the saw head to tilt in both directions (left and right) for bevel cuts without having to reposition the material.
- **Sliding Mechanism:** Extends the cutting range, enabling the saw to cut wider pieces of material up to 14 inches wide.



# Husky 61 Inch 7-Drawer Mobile Workbench



## Description:

The Husky 61-Inch 7-Drawer Mobile Workbench Model 308 is a sturdy and spacious tool storage solution designed for workshops and garages. Built with heavy-duty steel, it features seven deep drawers for organizing tools, parts, and accessories, as well as a durable wooden work surface. With its lockable design and smooth-rolling caster wheels, it offers both security and mobility for a busy workspace.

## Uses:

- **Tool Storage:** Ideal for storing and organizing hand tools, power tools, and accessories.
- **Workbench Surface:** Provides a durable work surface for assembly, repair, and maintenance tasks.
- **Mobile Workspace:** Can be easily moved around the shop or garage, bringing tools and workspace to wherever it's needed.
- **Heavy Equipment Storage:** The drawers are reinforced to hold heavy items, such as hammers, wrenches, drills, and more.

## Capabilities:

- **7 Drawers:** Provides ample storage space with seven heavy-duty, ball-bearing drawer slides that allow for smooth opening and closing, even when loaded with heavy tools.
- **61-Inch Work Surface:** Offers a large, solid wood top that can be used for various tasks, from repairs to assembly.

# 24-Inch Heavy Duty 2-Speed Direct Drive Tilt Drum Fan



## Description:

The 24-Inch Heavy Duty 2-Speed Direct Drive Tilt Drum Fan Model 344 is designed for powerful air circulation in large spaces such as workshops, garages, warehouses, and industrial sites. Featuring a durable metal drum and direct drive motor, this fan delivers high airflow at two speed settings, making it perfect for cooling, drying, or ventilating areas quickly.

## Uses:

- **Cooling Large Spaces:** Provides air circulation for cooling down hot environments in workshops or warehouses.
- **Drying:** Can be used to dry floors, walls, and equipment after cleaning or in wet conditions.
- **Ventilation:** Useful for ventilating dusty or stuffy work areas, ensuring better air quality and comfort.

## Capabilities:

- **Two Speed Settings:** Offers both high and low speed options, allowing users to control the airflow based on their needs.
- **Adjustable Tilt:** The fan head can tilt up or down, directing airflow exactly where it's needed.
- **Direct Drive Motor:** Provides powerful airflow directly from the motor, ensuring efficient and consistent performance.

# Jet Floor Standing Drill Press



## Description:

The **Jet Floor Standing Drill Press Model 355** is a precision tool designed for drilling through metal, wood, plastics, and other materials with high accuracy. Built with a robust cast-iron head and base, it delivers consistent and powerful performance for professional and industrial applications. Its adjustable spindle speeds, large worktable, and deep drilling capacity make it suitable for a variety of tasks in machine shops, workshops, and manufacturing environments.

## Uses:

- **Precision Drilling:** Ideal for creating accurate and repeatable holes in a range of materials, including metal and wood.
- **Metalworking:** Commonly used for drilling metal plates, frames, and pipes in fabrication shops.
- **Woodworking:** Perfect for drilling precise holes in wood for carpentry, joinery, and furniture-making.

## Capabilities:

- **Powerful Motor:** Equipped with a strong motor that delivers enough torque for drilling through tough materials with ease.
- **Variable Speed Control:** The drill press allows for multiple spindle speed settings, enabling precise control based on material type and hole diameter.
- **Large Work Table:** The spacious worktable is adjustable for height and tilt, providing flexibility when working on different sized materials and angled holes.

# Jet Shear Brake and Roll Machine SBR-40M



## Description:

The **Jet SBR-40M Shear Brake and Roll Machine Model 379** is a versatile 3-in-1 machine designed for shearing, bending, and rolling sheet metal. This combination tool is ideal for fabrication shops, metalworking projects, and workshops, allowing users to perform multiple sheet metal operations on a single machine. With its robust construction and precise functionality, it handles a range of material thicknesses for custom metal fabrication work.

## Uses:

- **Metal Shearing:** Cuts sheet metal into precise dimensions, ideal for fabrication, HVAC, and general metalworking tasks.
- **Metal Bending:** Bends sheet metal into a variety of shapes, including angles and curves, for custom fabrication projects.
- **Rolling Metal:** Can roll sheet metal into cylindrical shapes, making it perfect for creating metal tubes and curved components.

## Capabilities:

- **3-in-1 Design:** Combines a shear, brake, and roll machine into one unit, saving space and improving efficiency in metalworking tasks.
- **Shearing Capacity:** Can cut sheet metal up to a specified thickness (usually up to 20-gauge mild steel or 16-gauge aluminum), providing clean and straight cuts.