MACTECH
PORTABLE MILL

OPERATING MANUAL
& PARTS LIST

SERIAL NO. _____

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SAFETY INSTRUCTIONS

- Wear protective clothing, including safety glasses and steel toe boots.
- **DO NOT** allow loose clothing or long hair near machine operations.
- Keep work site and machine clean. Use brush to remove chips. **DO NOT** use hands or air hose.
- Ensure adequate clearance around pipe before mounting milling machine.
- Support machining surface for total machine weight.
- **DO NOT** rush the job. Read this manual and understand the operating procedure before attempting any cutting operation. Call our toll free number (1-800-328-1488) if any problems arise.
- Before connecting the hoses to the machine, be sure the following components are tightly secured: slide, tool bits, motor mount, and vertical feed support angle bracket.
- Be sure the mill is completely secured to the work surface *before* starting the machine.
- During actual machine operation, **DO NOT** touch or rest your hand on or near any moving parts or sharp edges.
- Disconnect air hose or hydraulic power source **BEFORE** dismounting lathe from pipe.
- **NEVER MOVE MACHINE WHILE CONNECTED TO AIR OR HYDRAULIC SUPPLY. ALWAYS** turn off control valve and disconnect hoses **BEFORE** attempting to move the machine.

INTRODUCTION

General Description

Mactech Portable Mills are designed to make on-site, close tolerance machining cost effective. Our mills can be clamped, bolted, or magnetically attached directly onto the workpiece and mounted in any direction. Infinitely variable power feed is available on the vertical feed slide assembly.

MACHINE SPECIFICATIONS

Capabilities & Functions

Capabilities

- Drilling
- Chamfering
- Boring
- Tapping
- Surface machining

Functions

Mactech Heavy Duty Portable Mill are used to perform gamma plug installation, stud removal, thermoweld installation, and numerous other milling jobs.

The milling machine can machine steel and various alloys, stainless steel, aluminum, copper-nickel, nickel-copper-iron, and bronze.

Tooling

High speed tool steel bits, drill bits and milling bits or different sizes are available for most machining operations. Mactech stocks many standard tool bit configurations.

Frame Components

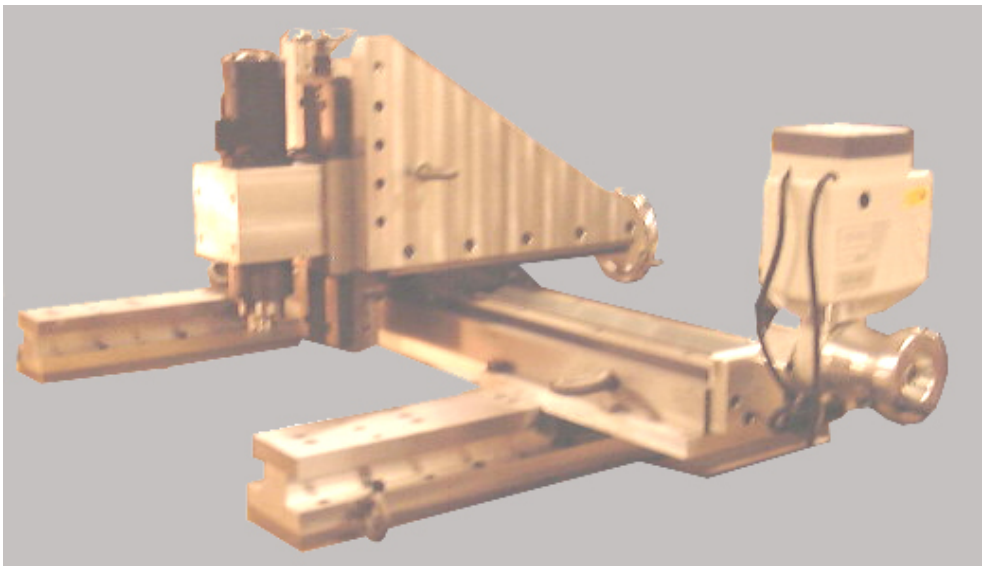
The milling head assembly feeds vertically along the cast iron feed support angle bracket into the work piece. The vertical slide assembly is attached to X and Y travel slide which enable for precise alignment or horizontal feed for surface machining. The side support rails only one setup.

Travel Slides

The slides are made of cast iron, comprised of ways and saddles with adjustable gibs, and full length feed screws.

Drive Assembly

- In-Line Air Drive (97 RPM max), also includes air caddy.
- Hydraulic drive (137 RPM max).



MACHINE SET-UP

Read **SAFETY INSTRUCTIONS** on page 2.

Assembly Procedure

Clear worksite of all obstructions and clean area.

Assemble aluminum base components (if needed) and install on working surface (see below).

Installation on Curved Surface (In-Line Pipe):

1. Attach aluminum saddle to steel base by wrapping chains around pipe.
   Note: Have partner hold base while connecting chains around pipe.
2. Square and level base to pipe surface (if necessary).
3. Attach cast iron vertical support bracket and slide to the steel base.
4. Square and level base (if necessary).

Installation on Flat Surface:

1. Attach vertical support bracket to steel base and/or flat surface (bolt, tack weld, clamp, or magnetically attach).
2. Square and level base.

Installing Motor

CAUTION! Control Valve must be turned *OFF* before installation of motor.

1. Insert motor so that keyed shaft aligns with the quill keyway. Tighten motor mount screws.
2. With control valve off, connect hoses to power supply/air supply. Test run motor to check speed.

MACHINE OPERATION

Read **SAFETY INSTRUCTIONS** on Page 2.

Note: The hand crank should offer some resistance while turning. If it is too loose or tight, the jam nuts may be slightly adjusted. Do not allow "slop" in the slides.

Drilling and Sawing Holes

1. Follow Set-Up procedures. Attach air or hydraulic supply to the motor while control valve is OFF. Insert drill chuck into quill and secure. Insert center drill bit, regular drill bit, spade bit or hole saw into chuck and secure. Open control valve slowly to check function and speed.

2. Use control valve to control cutting speed. To avoid chatter, do not allow saddles to extend beyond supporting slides. If chatter vibration occurs, reduce speed. If tool bit(s) chip or become dull, replace them. Use coolant when possible.

   CAUTION! **The cutting operation is continuous until terminated by the operator.** To stop machine during cutting, back bit away from material, then close control valve. This will reduce tool pressure and potential gouging.

3. Close control valve to stop motor. Disconnect hoses. Back tool to FULL OUT POSITION.

Boring Holes

Follow above procedures, with following exception: Replace drill chuck with boring bar and bit. If desired, use dial indicator for precise hole alignment.

Chamfering Holes

Follow above procedures, with following exception: Replace drill chuck with boring bar and angled chamfering tool. If desired use dial indicator for precise hole alignment. Step cut to desired depth and chamfer.

Tapping Holes

Follow above procedure, with following exception: Replace drill bit with tapping bit. Use dial indicator for precise hole alignment.

Facing Flat Surfaces (longitudinal and cross slides required)

1. Follow drilling set-up procedures, but replace drill chuck with facing mill or fly cutter and bit. Open control valve slowly to check function and speed.

2. Turn crank on vertical slide to bring bit down to surface. To avoid chatter, do not allow saddles to extend beyond supporting slides.

3. Use control valve to control cutting speed. If chatter or vibration occurs, reduce speed. If tool bit(s) chip or become dull, replace them. Use coolant when possible.

   CAUTION! **The cutting operation is continuous until terminated by the operator.** To stop machining process during cutting, back bit away from material, then close control valve. This will reduce tool pressure and potential gouging.

4. Close control valve to stop motor. Disconnect hoses. Back tool to FULL OUT POSITION.

Milling Flat Surfaces (longitudinal and cross slides required)

Follow above procedures, with following exception: Replace cutter with tool shank holder and end mill or another appropriate tool.

Operation Completion

Close control valve. Disconnect air or hydraulic supply. To remove portable mill follow set-up directions in reverse.

Machine Maintenance

Prevent corrosion by cleaning machine exterior with a solvent, then apply rust inhibitors and store in a dry area. Grease internal gears regularly, depending on use.

NOTE: Mactech recommends sending the machine to our service facility after every 250 machining hours for inspection and tune-up (nominal fee applies).

• RECORD OF MACHINING					
Date	**Hours**	**Date**	**Hours**	**Date**	**Hours**
TOTAL		**TOTAL**		**TOTAL**	

Parts Information

Use the attached parts diagrams to order replacement parts. When ordering parts please include the following information: type of machine, serial number, contact person, phone/fax number, shipping address, date of purchase, and payment information.