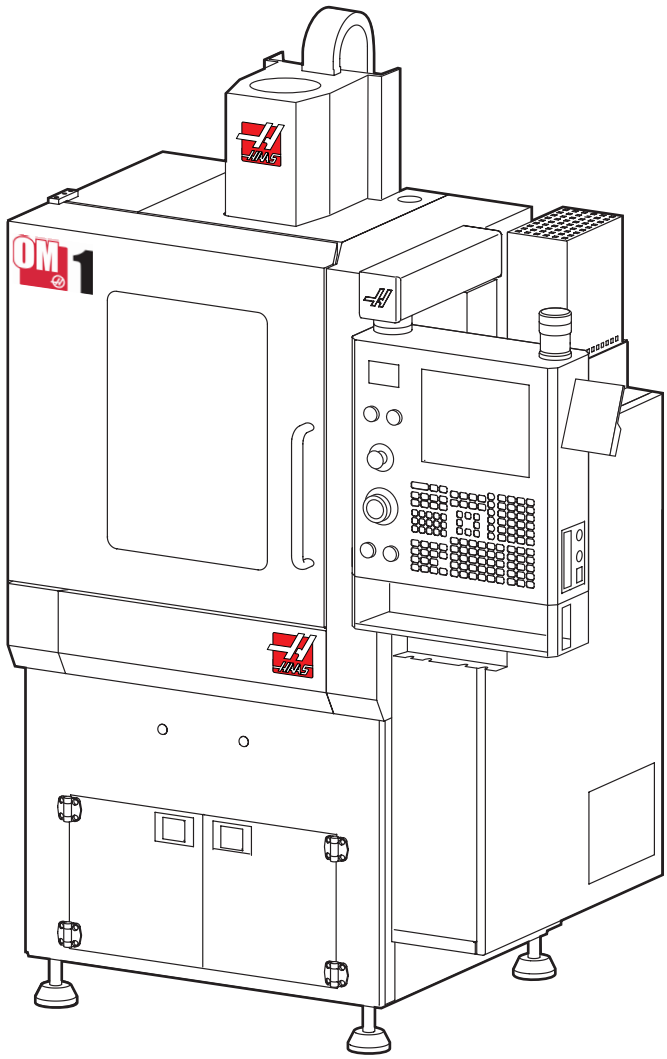
OFFICE MILL
OPERATOR'S ADDENDUM



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Installation

NOTE: Use these installation recommendations with those in the Vertical Mill Reference Manual. Information supplied here is given specifically for the Office Mill.

The following steps are necessary to install an Office Mill.

1. Unwrap the shipping material and lift the machine from the pallet.
2. Install the optional casters if they are included.
3. Move the Office Mill to where it will be operating.
4. Remove the shipping brackets.
4. Connect power and air.
5. Rough-Level the Office Mill.
6. Do a spindle sweep.
7. Run-in the spindle.

Lift The Machine

Refer to the Vertical Mill Reference Manual for information on machine lifting.

Install Casters (Optional)

Attach the casters to each side of the machine using the included socket head cap screws through the inside of the Office Mill base.

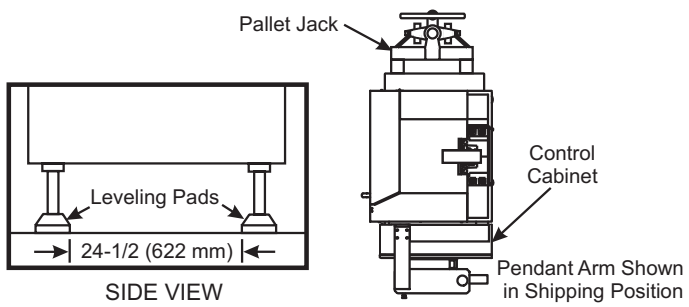
Move the Office Mill

Warning

The Office Mill has a high center of gravity. Move the machine slowly and carefully to prevent it from falling over.

Without an Optional Caster Kit

1. You will need a pallet jack that has at least 1500 lb capacity and forks that will fit in the space between the Office Mill's leveling pads (24.5", 622 mm).
2. Lift the Office Mill from the side opposite the control cabinet. Carefully move the Office Mill to its operating location and lower it onto the leveling pads.



Using the Optional Caster Kit

1. Raise the leveling screws high enough to remove the leveling pads. This lowers the Office Mill onto the wheels.
2. Carefully move the mill to its new position.
3. Put the leveling pads back under the leveling screws and raise the mill to a position where all its weight is off the wheels. Make sure the machine is level when this is complete.

Pendant Arm Position

Put the pendant arm into operating position when the machine is in place.

1. Remove the four screws from the pendant arm.
2. Swing the pendant arm 90° toward the front of the machine to the operating position.
3. Replace the pendant arm screws.

Doorway Configuration

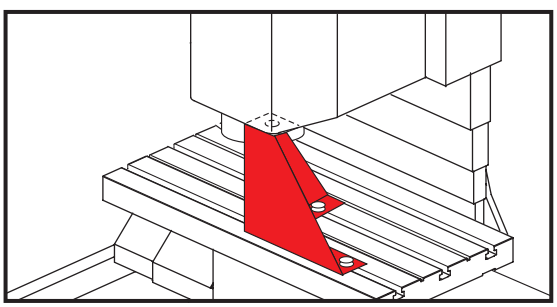
The Office Mill can fit through a standard 36" doorway if you follow these steps. Note that the Office Mill has two doors: a large door that swings and a smaller door that slides.

1. From the inside of the door, remove the two bolts that attach each handle.
2. Use tape to make sure the Mill door stays closed while moving the machine.
3. Remove the four screws from the pendant arm.
4. Rotate the the pendant arm 90° back into shipping position and replace the four screws.
5. When you are done moving the machine, put the pendant arm back into operating position and reinstall the door handles.

Remove the Shipping Brackets

There are three shipping brackets to remove.

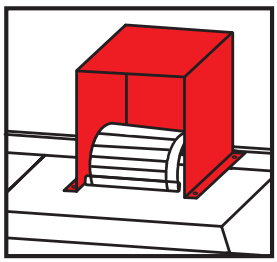
1. Remove the bolts that attach the shipping bracket to the spindle head.



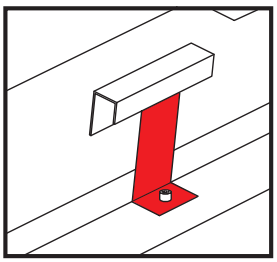
Spindle Head Shipping Bracket

2. Remove the four bolts that attach the cable carrier shipping bracket to the top of the Office Mill and remove the bracket.

3. Open the doors at the front of the machine base. Remove the bolt that attaches the coolant tank shipping bracket and remove the bracket. Reinstall the bolt.



Cable Carrier Shipping Bracket



Coolant Tank Shipping Bracket

Level the Office Mill

NOTE: Refer to the Vertical Mill Reference Manual for machine leveling instructions.

Only rough-leveling is necessary. Fine leveling will not affect the cutting performance of the mill and is not necessary.

Spindle Sweep

Make sure the machine is properly leveled for the spindle sweep adjustment to be accurate.

1. Place a .0005" indicator on a suitable holder, then place it on the spindle nose. Jog the Z-axis in the negative (-) direction far enough that you can adjust the indicator to sweep a 4" radius from the center of X and Y axes' travels. Slowly jog the Z-axis in the negative (-) direction to zero out the indicator.
2. Find a reference zero at the rear of the table. Sweep the three remaining points (left, front, and right) and record the readings.
3. Shim the spindle, if necessary, to correct the spindle sweep to specifications.
4. Recheck the sweep. It must be within .0005".

Connecting Electrical Power

Refer to local code requirements before wiring machines.

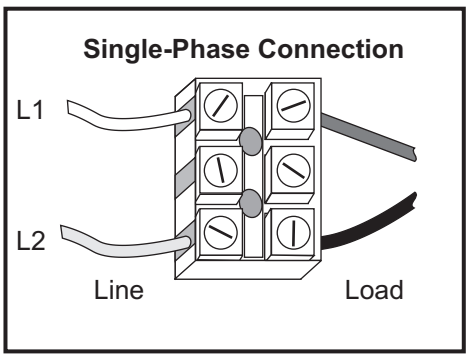
- The power source must be grounded.
- The allowable Frequency range is 47-63 Hz
- Line voltage must not fluctuate more than +/-5%
- Harmonic distortion must not exceed 10% of the total RMS voltage

Voltage Requirement:	200-250 VAC, 1PH
Power Supply:	30 AMP
Haas Circuit Breaker:	20 AMP

If the service line run from the electrical panel is less than 100' use 12 GA wire.
If the service line run from the electrical panel is more than 100' use 10 GA wire

The Office Mill runs on single-phase power. It has a transformer in the control that connects to voltage that can range from 195V to 254V.

1. Measure voltage at the main circuit breaker and connect the main power cable to the appropriate tap on the transformer (taps available are 195-213V, 214-225V, and 226-254V).
2. The mill has a power cord with a L6-20P plug that can be plugged directly into power using a L6-20R connector. This connector has 2 power pins and a ground pin; the ground pin must be wired into the building's ground system.



Connecting Air

CAUTION Make sure all pressure is removed from the air line before you connect or disconnect it. Pressurize the air line only when it is connected to the machine.

1. Refer to the procedure given in the Installation section of the Service manual to connect air to the Office Mill.
2. Set the incoming air pressure to between 75 and 150 psi. Set the air regulator on the machine to 60 psi (0.4 mPa).

Spindle

30K, ISO20 Spindle Features

- 5HP (3.7 KW) peak power, 3HP (2.2KW) continuous duty spindle power.
- Spindle speed range of 0-30,000 rpm, infinitely variable.
- Precision (ABEC 7) angular contact bearings, grease lubricated.
- Automatic tool changing system, featuring ISO20 tooling, without drive slots. ER16 collet chucks with precision collets are recommended.
- Rigid tapping standard for 30K spindle: limitations based upon horsepower and absence of drive dogs.
- Spindle Orientation is included with the 30K spindle option and intended for use with the Visual Quick Code Probing System. This Spindle Orientation option should not be used for high accuracy indexing.

Spindle Operating Guidelines

- Check the pullstud torque before the pullstud is loaded into the spindle.
- Roughing operations should use 3/8" diameter or smaller tools.
- Roughing operations should be at 10,000 rpm or higher.
- Roughing depth of cut should be 20% or less of tool diameter.
- Roughing width of cut should be 25% or less of tool diameter.
- Finishing operations require appropriate “G” code. The program must provide enough data points and arcs for the desired path, using ultra-fine (0.00005" or smaller) tolerance limits in the CAD/CAM process.
- All tools should be as short as possible.
- All tools must be balanced to G2.5 at 30,000 rpm.

CAUTION Heavy tool weights should be distributed evenly in the tool changer. This means heavy tools should be located across from one another, not next to each other. Ensure adequate clearance between tools in the tool changer.

Spindle General Precautions and Safety

- The 30K option is for high rpm/low torque applications.
- Do not operate the spindle at any time without a tool holder in the spindle taper.
- Use only specified ISO20 tooling without drive slots.
- Use only tooling that has been balanced as an assembly (G1.0 or better, per ANSI S2.19/ISO 1940). Tooling should be re-balanced every time the tool is changed or moved in the tool holder.
- The Maximum collet size is 3/8".
- Tool lengths should be under 10 times the diameter from the gauge line with tooling above 1/4" diameter.
- Maximum tap size is 1/4-20 x 1/4" depth in aluminum, 10-32 x 1/4" depth in steel.
- Run the Daily Warm-Up program before running the spindle.
- Use only ER16 collet type toolholders.

Spindle Run-in

You must run the spindle run-in program before any machining use (especially when the machine is first installed or transported). The spindle can overheat and fail if it is not run-in.

Make sure a balanced ISO20 toolholder is in the spindle, then run program #O02025 (SPINDLE RUN-IN). The program will take approximately six hours to complete.

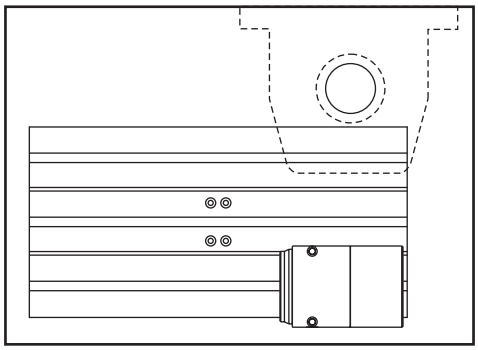
Spindle Warm-Up Programs

Program #O02024 20 MIN SPINDLE WARM-UP is supplied with the machine. It slowly increases spindle speed over 20 minutes to distribute spindle lubricant and thermally stabilize the spindle. You must run this program prior to machine use if the machine has been off or idle for more than two hours. The machine control shows a reminder each day to warm up the spindle.

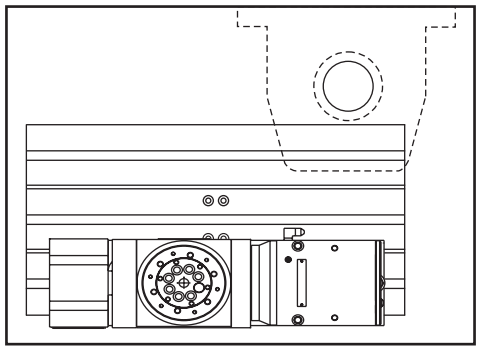
Operation

Work Envelope with Rotary Products

You can use HA5C indexers with AC-25 or AC-125 air collet closers, or an HRT110 or TR110 rotary table with your Office Mill. Rotary products have a full range of travel only when mounted in the mill table front T-Slot. Also, the TR110 rotary table may only be mounted with the length of the unit parallel to the X-axis of the mill.



Office Mill with HRT110 Rotary Table



Office Mill with TR110 Rotary Table

The rotary table can be mounted in other T-slots or in other orientations (HRT); however, check clearances and cable routing before running a part. The rotary table and workpiece may collide with tooling or the interior of the machine.

Maintenance

General

Refer to the maintenance section of the Mill Operator's Manual for maintenance procedures.

Tool Changer

Lubricate the extractor flanges of the tool changer every month. Use a synthetic grease wth an NLGI grade of 1.5 or 2.