

GE FANUC 0i MC

INSTALLATION MANUAL



FADAL MACHINING CENTERS, LLC

Corporate Office..... phone (818) 407-1400 fax (818) 407-0020
Service / Parts..... phone (818) 727-2100 fax (818) 407-1004
Programming Support..... phone (818) 727-2100 fax (818) 407-0061

support@fadal.com
20701 Plummer Street, Chatsworth, California 91311 USA

The content of this manual has been reviewed for accuracy.

Differences may exist and we cannot guarantee that they are completely covered in this document.

The information in this document is reviewed regularly and any necessary changes will be incorporated in the next revision. We welcome any suggestions for improvement.

Material is subject to change without notice.

This manual is for the exclusive use of Fadal Customers and Distributors. The reproduction, transmission or use of this document or its contents is not permitted without the expressed written permission of Fadal Machining Centers. All rights, including rights created by patent grant or registration of a utility, model or design, are reserved.

© Copyright 2002 Fadal Machining Centers.

TABLE OF CONTENTS

TABLE OF CONTENTS	i
1.0 SPECIFICATIONS	1
1.1 2216/3016	2
1.1.1 FRONT VIEW	2
1.1.2 TOP VIEW	2
1.1.3 SIDE VIEW	3
1.1.4 BASE	3
1.1.5 TABLE	4
1.1.6 T SLOTS	4
1.1.7 SPECIFICATIONS	5
1.2 4020	6
1.2.1 FRONT VIEW	6
1.2.2 TOP VIEW	6
1.2.3 SIDE VIEW	7
1.2.4 BASE	7
1.2.5 TABLE	8
1.2.6 T-SLOTS	8
1.2.7 SPECIFICATIONS	9
1.3 8000 RPM SPINDLE CHARACTERISTICS	10
2.0 PRE-INSTALLATION	11
2.1 INSTALLATION PRECAUTIONS	12
2.2 FOUNDATION	12
2.3 SHIPPING DIMENSION	16
2.4 POSITIONING	16
2.5 AIR SUPPLY	17
2.6 ELECTRICAL GROUNDING	18
2.6.1 PRIMARY GROUNING	18
3.0 NSTALLATION	21
3.1 VMC LIFTING	22
3.1.1 CRANE LIFTING	22
3.1.2 FORKLIFT LIFTING	24
3.2 PLACING THE VMC	26
3.3 FRONT DOORS	26
3.4 UNPACKING	27
3.5 CONTROL PANEL	27
3.6 COOLANT TANK	28

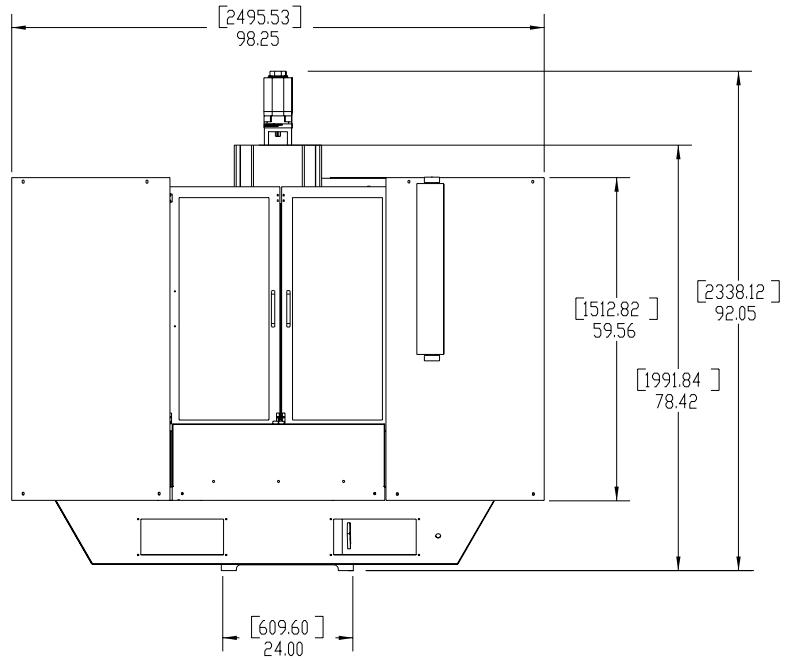
3.7 AIR SUPPLY28
3.8 POWER28
3.9 COUNTERWEIGHT29
3.10 SPINDLE HEAD SUPPORT29
3.11 LEVELING29
3.12 SPINDLE FAN DIRECTION31
3.13 DATC MAGAZINE DIRECTIONS31
3.14 DATC ARM DIRECTIONS32
INDEX 35

1.0

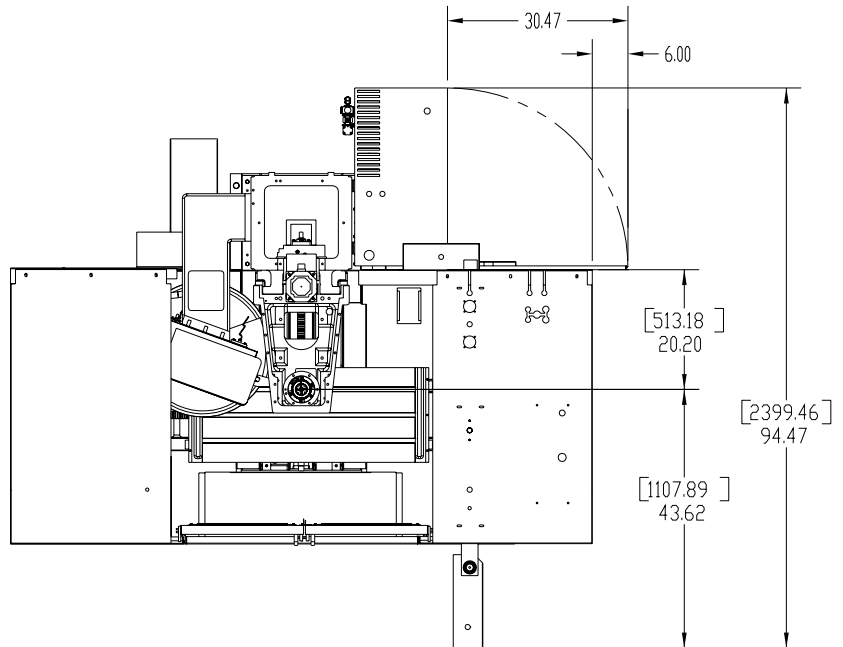
SPECIFICATIONS

1.1 2216/3016

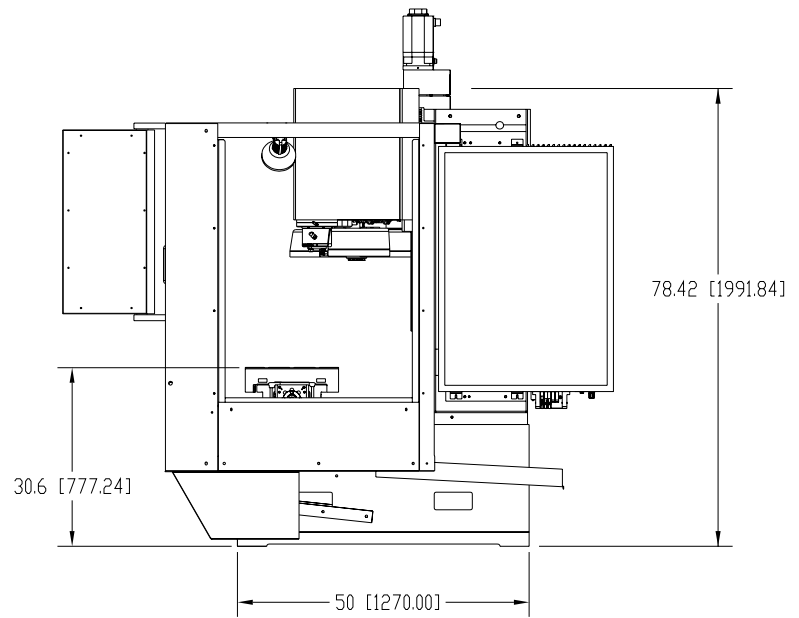
1.1.1 FRONT VIEW



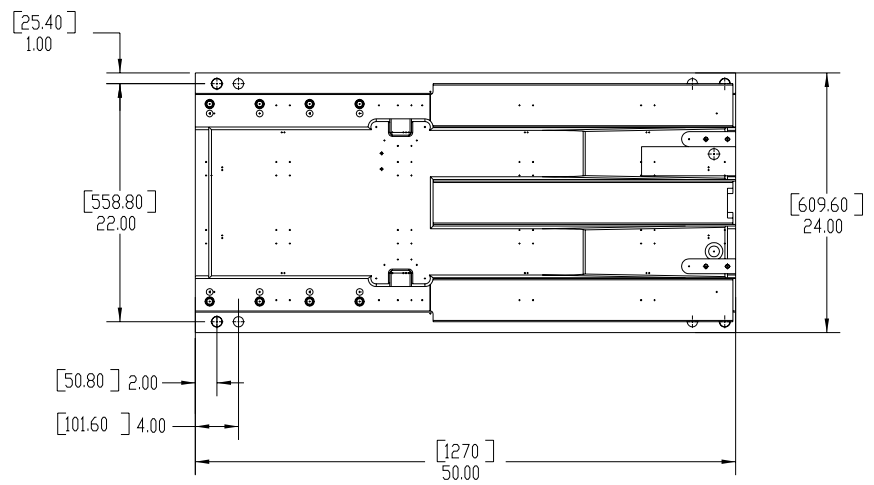
1.1.2 TOP VIEW



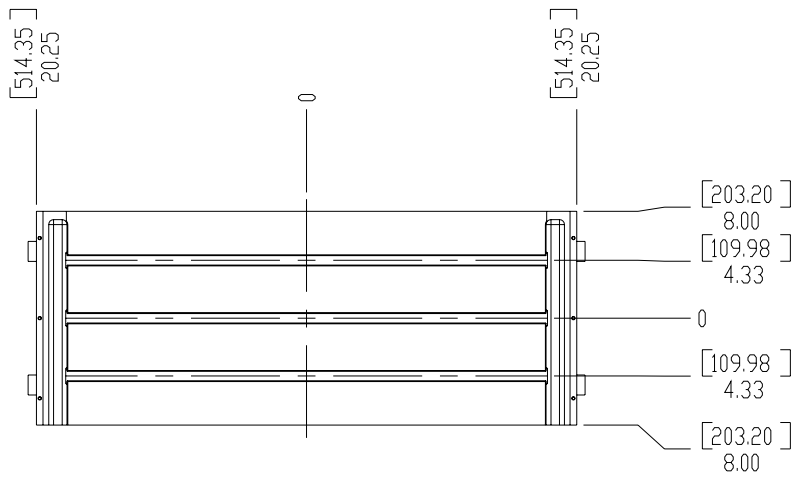
1.1.3 SIDE VIEW



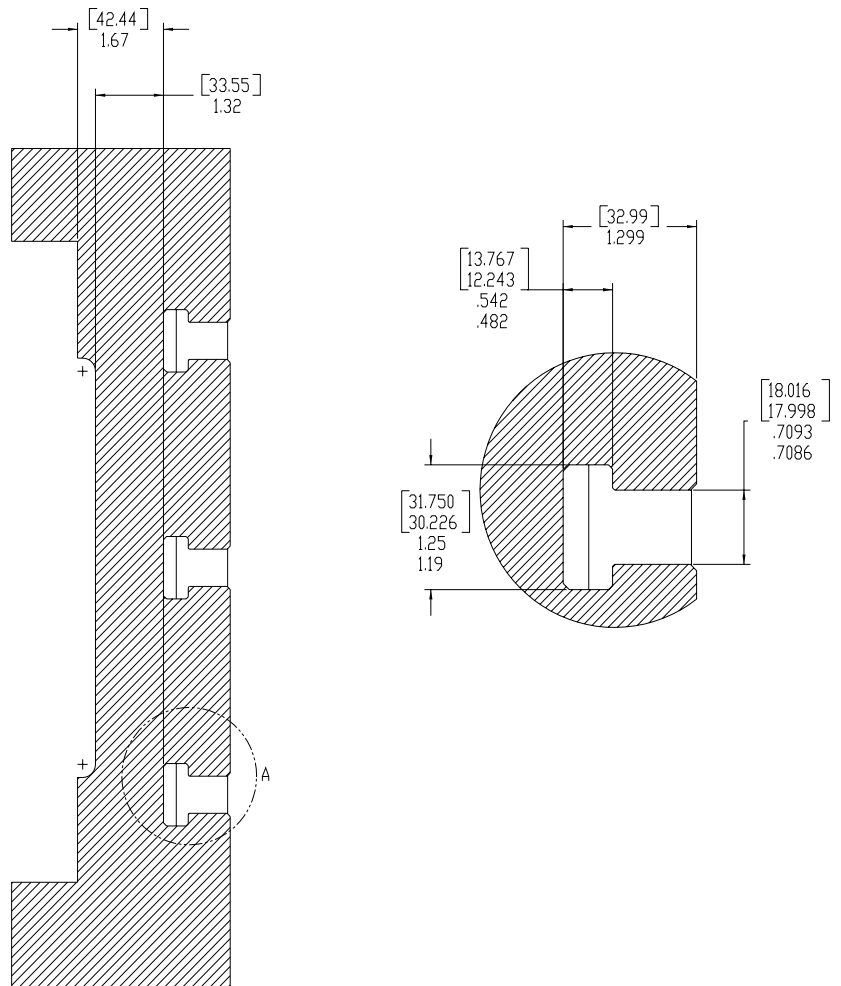
1.1.4 BASE



1.1.5 TABLE



1.1.6 T SLOTS



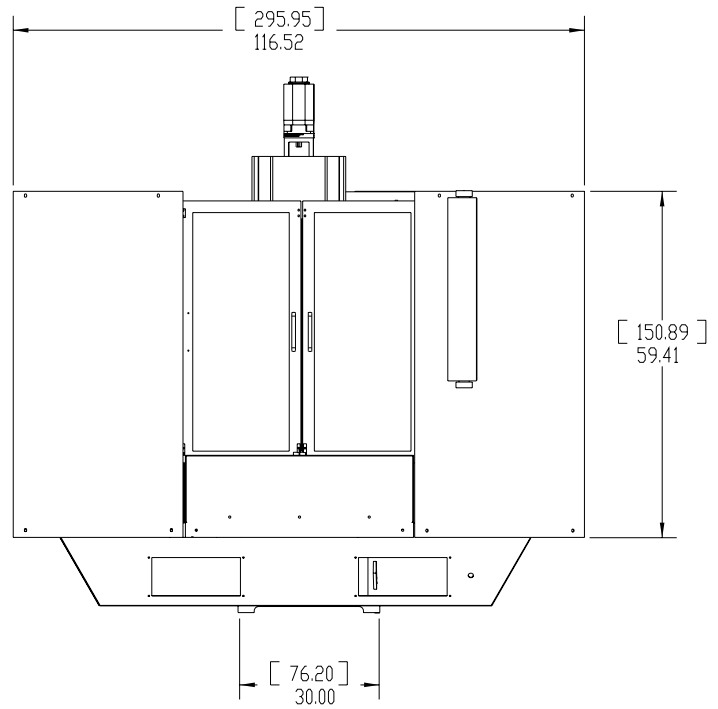
1.1.7 SPECIFICATIONS

2216/3016 SPECIFICATIONS	2216/3016 IMPERIAL	2216/3016 METRIC
General		
Floor to Table Surface	31"	787mm
Machine Weight	2216-8,300 lbs. 3016-8,550 lbs.	2216-3765kg 3016-3878 kg
Table		
Table Size	39" x 16"	750mm x 406mm
T-Slots (No. x Width x Span)	3 x .709" x 4.33"	3 x 18mm x 110mm
Cutting Feed Rate (X/Y/Z)	800 ipm max	20.32 mpm max
Rapid Feed Rate (X/Y/Z)	1000 ipm max	25.4m/min
Max. Weight on Table	2,006 lbs.	991 kg.
Ball Screw Size (X/Y/Z)	1.26" Dia. Dual Mounted	32mm Dia. Dual Mounted
Longitudinal (X Axis)	22" (2216) 30" (3016)	559mm (2216) 762mm (3016)
Latitudinal (Y axis)	16"	406.4mm
Vertical (Z Axis)	20" (28" Opt.)	508mm (711.2 mm Opt.)
Spindle Nose to Table	4"-24" (4"-32" Opt.)	102-610mm (102-813mm Opt.)
Spindle Center to Column Ways	16.1"	408.94mm
Accuracy		
Axis Positioning	± .0002"	± .0050mm
Axis Repeatability	± .0001"	± .0025mm
Spindle		
Power Transfer	Vector Drive (1:1)	
Spindle Speed	10-8000 RPM	
Spindle Orientation	Electromechanical	
Spindle Taper	40 Taper	
Tools		
ATC, Number of Tools	21	
ATC, Tool Selection	Random, Bi-directional	Random, Bi-directional
Max. Tool Diameter	3" (4.5" w/o adjacent tools)	76mm (114mm w/o adjacent tools)
Max. Tool Length	15"	381mm
Max. Tool Weight	15 lbs.	6.8 kg
Motor		
Spindle Drive Motor	AC, Vector Drive	
Horsepower	14.75HP 22.1HP *	11kW 17 kW *
Torque	38.7 ft.-lbs 77.5 ft.-lbs *	52.5N-m 105 N-m *
Opt. High Torque	14.75 HP/227 ft.-lbs *	11kW/308N-m *
Axis Drive Motor (X/Y)	AC, 1,730 lbs thrust	AC, 7700 kg thrust
Axis Drive Motor (Z)	AC, 3,260 lbs thrust	AC, 14500 kg thrust
Miscellaneous		
Air Pressure Reqs. (Momentary)	120 psi, 15 scfm	5.5-8.3 Bar 0.42 ³ /min
Power Reqs. (3-phase)	76 amps, 230 VAC	

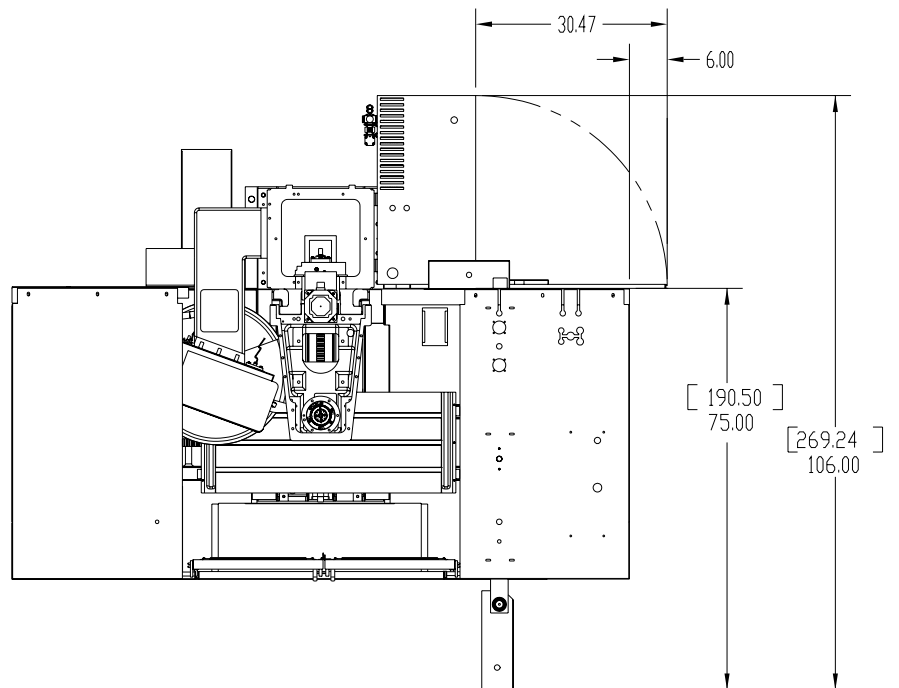
* - Peak

1.2 4020

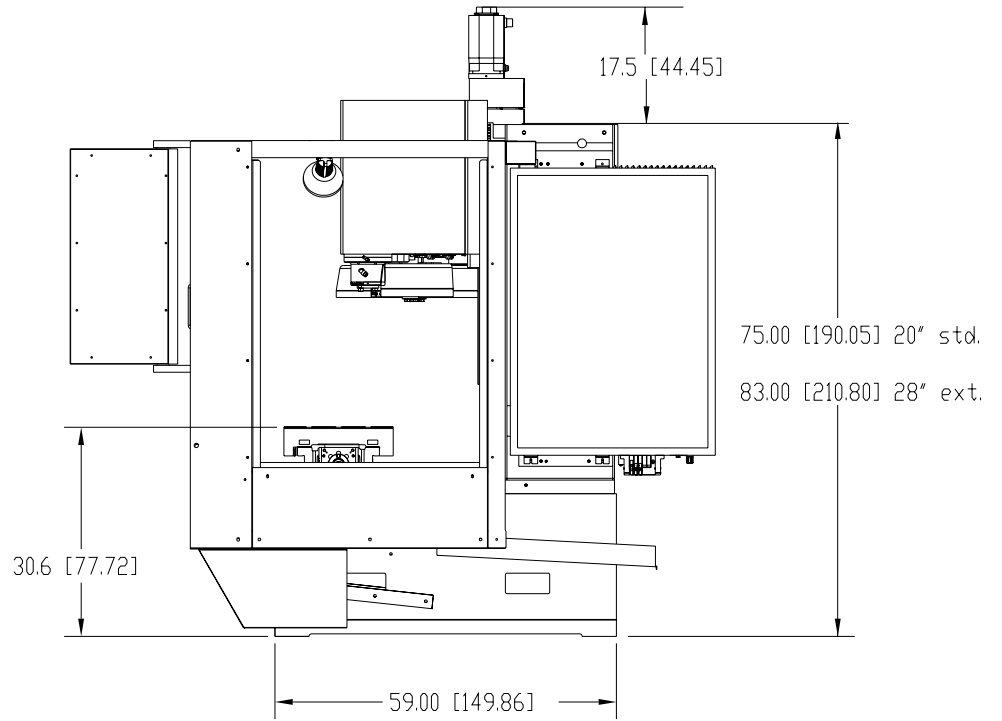
1.2.1 FRONT VIEW



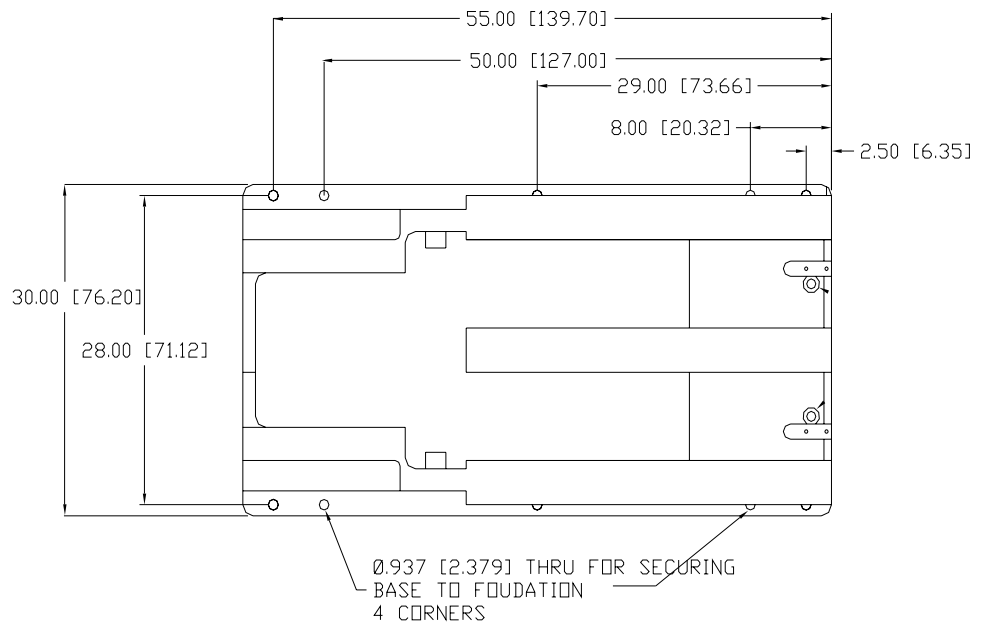
1.2.2 TOP VIEW



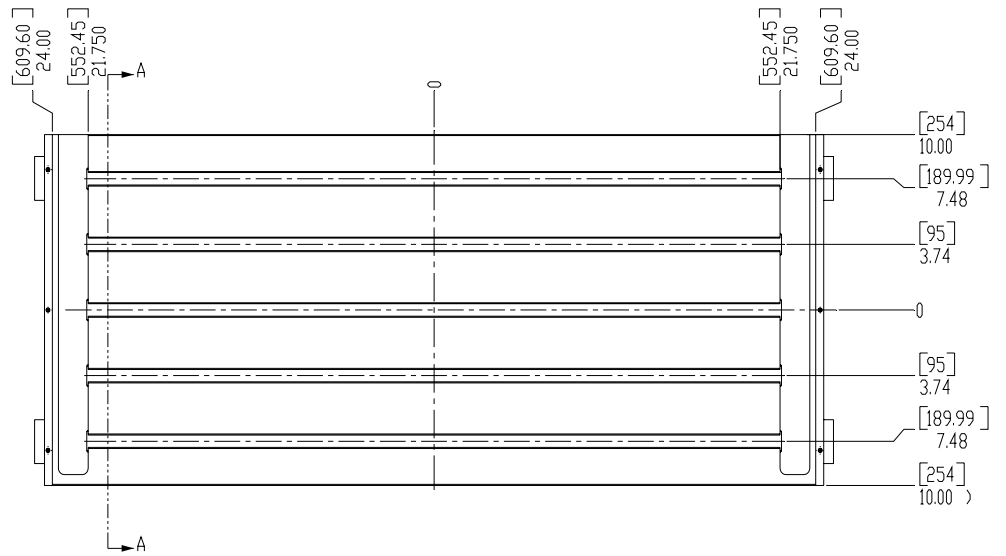
1.2.3 SIDE VIEW



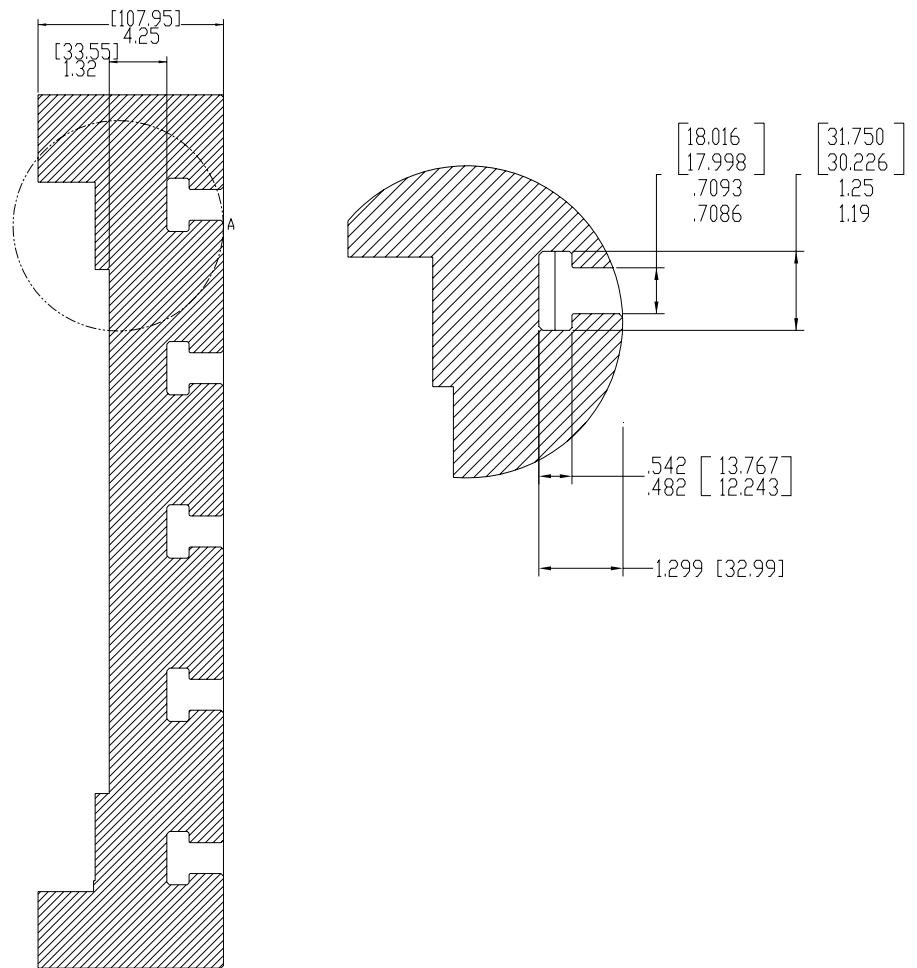
1.2.4 BASE



1.2.5 TABLE



1.2.6 T-SLOTS



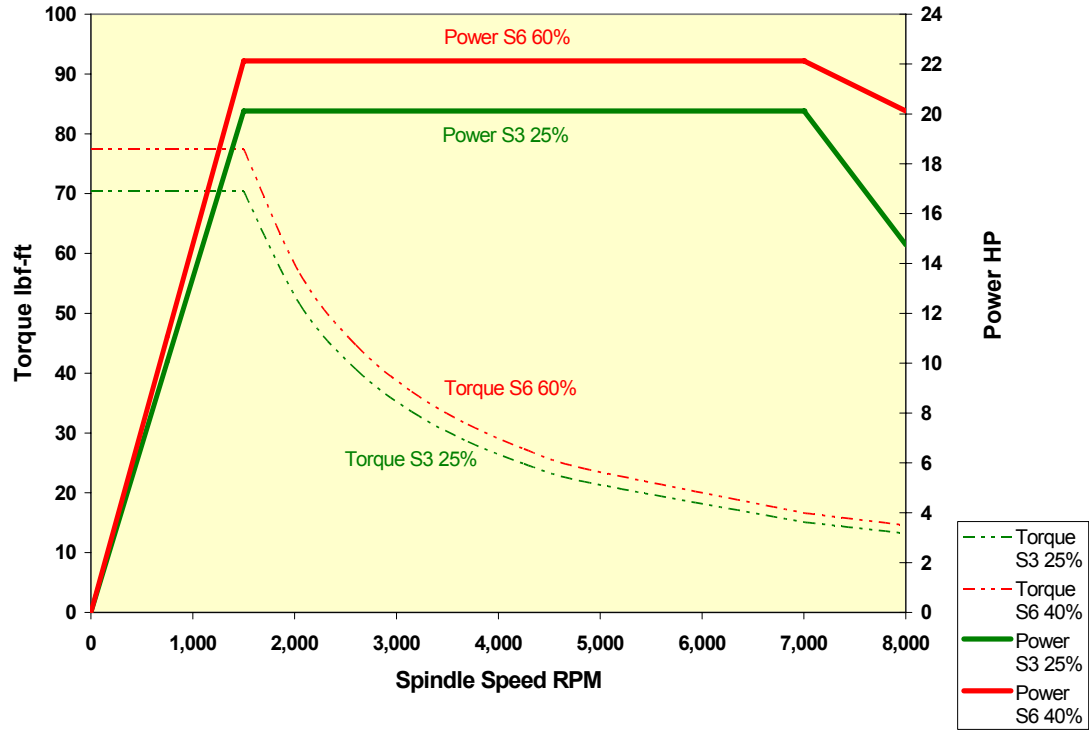
1.2.7 SPECIFICATIONS

4020 SPECIFICATIONS	4020 IMPERIAL	4020 METRIC
General		
Floor to Table Surface	32"	812.8mm
Machine Weight	11000 lbs.	4990 kg
Table		
Table Size	48" x 20"	1,219mm x 508mm
T-Slots (No. x Width x Span)	5 x .709" x 3.74"	5 x 18mm x 95mm
Cutting Feed Rate (X/Y/Z)	800 ipm max	20.32 mpm max
Rapid Feed Rate (X/Y/Z)	1000 ipm	25.4 mpm
Max. Weight on Table	3,641 lbs.	1,652 kg.
Ball Screw Size (X/Y/Z)	1.26" Dia. Dual Mounted	32mm Dia. Dual Mounted
Longitudinal (X Axis)	40"	1,016mm
Latitudinal (Y Axis)	20"	508mm
Vertical (Z Axis)	20" (28" Opt.)	508mm (711mm Opt.)
Spindle Nose to Table	4"-24" (4"-32" Opt.)	102-610mm (102-813mm Opt.)
Accuracy		
Axis Positioning	± .0002"	.0050mm
Axis Repeatability	± .0001"	.0025mm
Spindle		
Power Transfer	Vector Drive (1:)	
Spindle Speed	10-8000 rpm	
Spindle Orientation	Electromechanical	
Spindle Taper	No. 40	
Tool		
ATC, Number of Tools	21 (30 Opt.)	
ATC, Tool Selection	Random, Bi-directional	
Max. Tool Diameter	3" (6" w/o adjacent tools)	76mm (114mm w/o adjacent tools)
Max. Tool Length	15"	381mm
Max. Tool Weight	15 lbs.	6.8 kg
Motor		
Spindle Drive Motor	AC, Vector Drive	
Horsepower	17.75 HP 22.1 HP *	11kW 17kW *
Torque	39 ft-lbs , 78 ft-lbs *	52.5 Nm 105Nm *
High Torque Spindle (Opt)	15HP & 227ft-lbs *	12kW & 308N-m *
Axis Drive Motor (X/Y)	AC, 1730 lbs*. thrust	AC, 7700kg* thrust
Axis Drive Motor (Z)	AC, 3260 lbs.* thrust	AC, 14500 kg* thrust
Miscellaneous		
Air Pressure Reqs. (Momentary)	120 psi, 15 scfm	5.5-8.3 Bar 0.42 ³ /min
Power Reqs. (3-phase)	76A, 230 VAC	

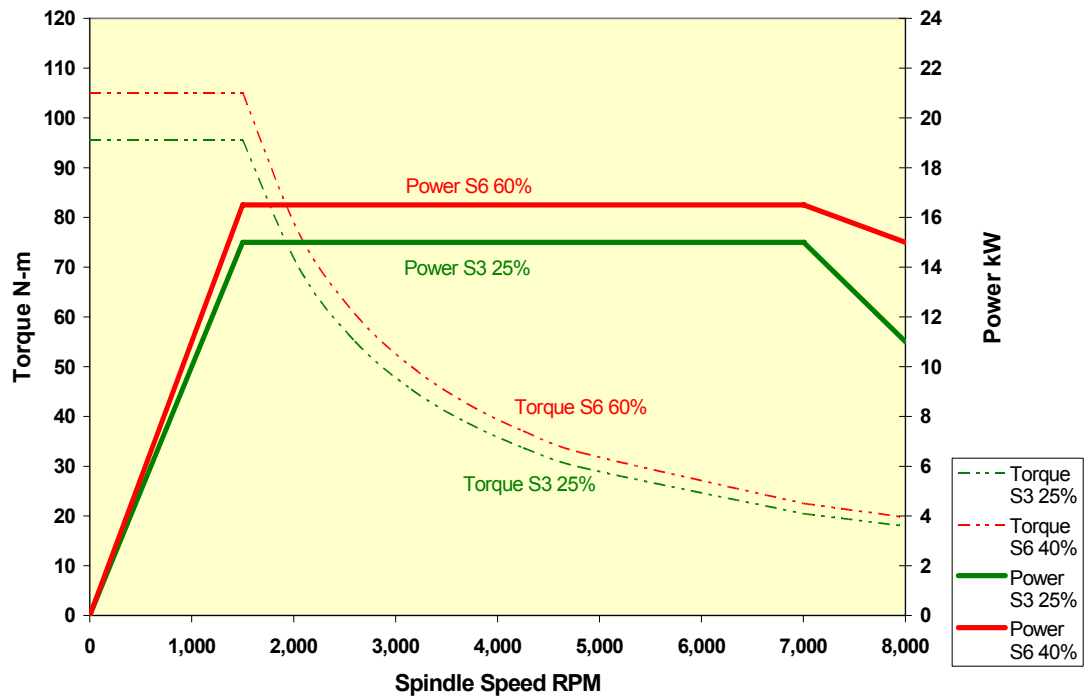
* - Peak

1.3 8000 RPM SPINDLE CHARACTERISTICS

Fanuc Oi-MC 8,000 RPM Spindle Characteristics (Imperial)



Fanuc Oi-MC 8,000 RPM Spindle Characteristics (Metric)



2.0

PRE-INSTALLATION

WARNING!

Read the entire Pre-Installation section first.

2.1 INSTALLATION PRECAUTIONS

To ensure the safe installation and operation of the VMC machine, note the following during installation:

1. Wiring must be by a certified electrician only.
2. To install the VMC, avoid the places where
 - the machine tool is exposed to the direct sunlight and/or near a heat source;
 - where the humidity is considerably fluctuating and/or high humidity;
 - where environment is to be especially dusty and/or to have a vaporous organic corrosive gas;
 - where there is a vibration source in the surroundings;
 - where ground is soft and weak..

2.2 FOUNDATION

WARNING!

The VMC must be placed on a surface that will support the combined weight of the VMC, options, fixtures, tooling, etc.

1. It is recommended that machine be placed on a isolated concrete pad. (See Figure 2-1:).

Table 2-1: Pad Dimentions

MACHINE	A	B	C
2216	7ft 9in	9ft 6in	8-12in
3016	7ft 9in	9ft 6in	8-12in
4020	8ft 7in	11ft	8-12in

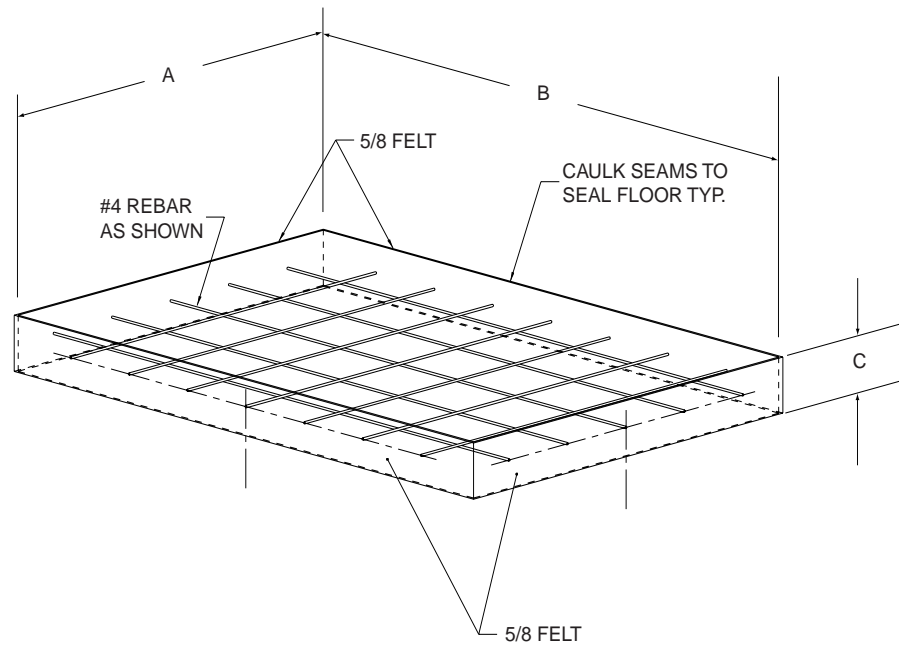


Figure 2-1: Typical Pad Construction

2. The VMC should be positioned on a single slab. Placing the VMC over an expansion joint may cause the VMC to shift when each individual slab moves.
3. The surface below the leveling pads should be free from cracks. Placing the VMC over a crack may cause the VMC to shift during use. *Inadequate flooring could result in mechanical degradation.*
4. Bolt the VMC directly to the pad through the .953" diameter holes that are provided in the base casting. The dimensions for the base mounting holes of all machines are in the VMC Specifications section at the beginning of this manual). Anchors are to be installed as shown below. For high performance machines, the machine must be bolted to achieve maximum performance.

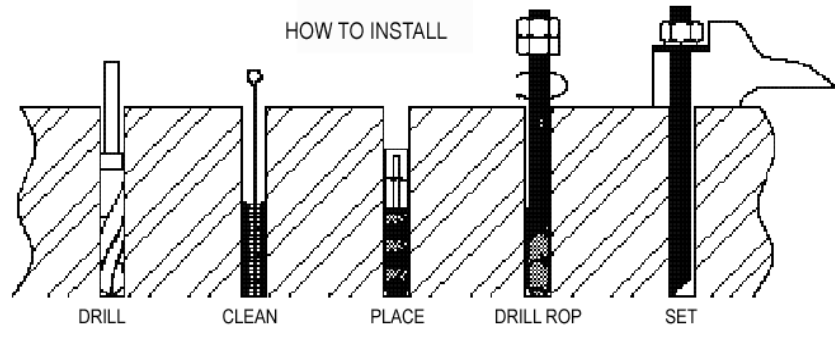
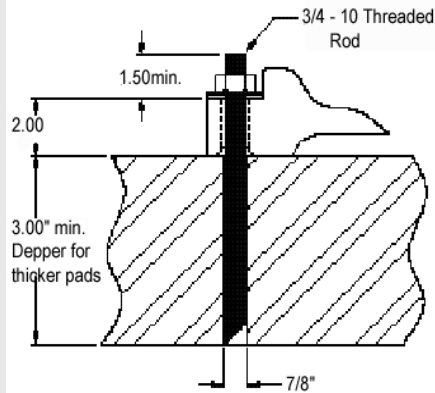


Figure 2-2: Anchor Stud Installation

Anchor stud installation:

1. Wear safety goggles.
2. Use 7/8 carbide tipped drill for the anchor you are using.
3. Use a rotary-hammer drill and drill the base material to depth.
4. Use proper eye and hearing protection while performing this step. Remove dust and rubble from the hole with compressed air and brush.
5. Insert capsule in the hole, either end first.
6. Select proper 1/2" SQ. drive socket and attach to sup-r-setter.
7. Jam nut on stud as per illustration.
8. Using a 1 1/8" socket insert the stud into the hole to break the capsule.
9. Under rotary power, push the stud to full depth, maintaining power for two or three seconds after the stud bottoms.

10. Promptly and carefully release the installation tool from the stud, leaving it undisturbed right through the prescribed curing time consistent with on-site temperature.
11. Install machine.
12. Level machine.
13. Add two flat washers, one lock washer and one nut per threaded rod.
14. Tighten nut, stop when washer gets flat, do not overtighten.
15. Recheck level.

Recommended curing time:

58°F to 68°F	30 MIN
50°F to 58°F	1 HR
41°F to 50°F	2 HRs
32°F to 41°F	4 HRs
23°F to 32°F	8 HRs
14°F to 23°F	24 HRs

Ground should be compacted to 90%. A layer of 3/4" (1" nominal) crushed rock can be applied at 6" thickness for added support.

For rebar in all pads, use #4 rebar 18" on center, three inches off the ground.

For vibration dampening, 5/8 or thicker felt on all sides is sufficient. If the customer wants to have a larger pad to support several machines, the pads should be 10-12" or thicker with # 4 rebar 18" on center three inches off the ground.

For stress lines in the concrete make sure they are such that they do not go under any of the machines. (If they do, this will eventually defeat the purpose of the pad.)

The top of the felt, if used, should be sealed with a caulking compound to prevent oils and coolants from penetrating the ground. (Compound must be resistant to oils and coolants of course). A recommended product is Volcum.

Concrete to use for the pad should be rated at least 3000 psi. It should also contain 3/4" (1" nominal) crushed rock. Curing time should be at least 7 days. The longer foundation is allowed to cure, the better. If accelerants are used to cure the concrete in less time, cracking is more likely to occur.

2.3 SHIPPING DIMENSION

Table 2-2: Shipping Dimensions

VMC	LENGTH	WIDTH	HEIGHT	WEIGHT	Z MTR DWN
2216	8ft 3in	6ft 5in	8ft 2in 8ft 8in ext column	9,100 lbs	6ft 8in 7ft 4in ext.
3016	8ft 3in	6ft 5in	8ft 2in 8ft 8in ext column	9,500 lbs	6ft 8in 7ft 4in ext.
4020	9ft 7in	7ft	8ft 3in 9ft 1in ext column	10,500lbs	6ft 8in 7ft 5in ext.

Table 2-3: Crated Dimensions

VMC	LENGTH	WIDTH	HEIGHT	WEIGHT
2216	9ft	7ft	8ft 7in	10,300 lbs est.
3016	9ft	7ft	8ft 7in	10,300 lbs est.
4020	10ft 5in	8ft	8ft 7in	11,800lbs est

2.4 POSITIONING

1. Ensure placement of the VMC so that skylights or air vents are NOT directly overhead. Do not expose the machine to direct sunlight, or any other heat source. Do not place the machine in an area that will expose the machine to moisture, standing water, liquid or rain.

2. Ensure there is an adequate room behind the VMC to fully open the rear cabinet door. Minimum clearance behind the machine is two feet (24"/60.96 cm.)

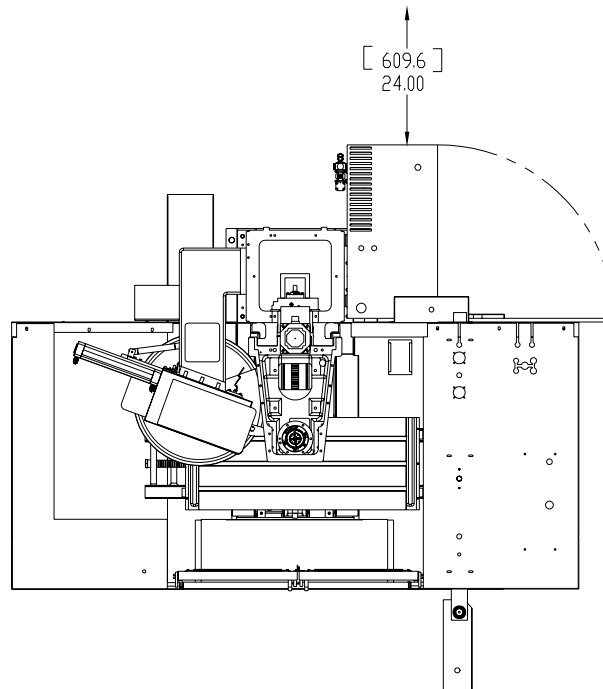


Figure 2-3: Clearance Behind the VMC

3. Ensure adequate ceiling clearance for the Z axis conduit with the Z axis in the Z+4.0" (10.16cm) position. VMCs with the Extended Travel option require an additional 8.0" (20.32cm) vertical clearance.

2.5 AIR SUPPLY

WARNING!

Air pressure required: 120 PSI before regulator, 80 PSI after regulator, 15 SCFM (standard cubic feed per minute) momentary.

1. From the main air supply line attach a 3/8" air supply line for the VMC. The distance from the air compressor and number of machines attached should be taken into consideration when determining the size of piping for the main air supply line.
2. Piping may consist of one or more of the following: galvanized pipe, PVC pipe or high pressure hose. Do not use quick disconnects; quick disconnects will restrict air flow.
3. A "T" riser should be used to connect the main air supply line with the air supply line to the VMC
4. To prevent moisture from entering the VMC's air system, attach a drain to the lowest point of the air supply line. The drain could be a self-relieving

moisture separator, a simple petcock, or a gate valve opened occasionally to release the water build-up. An air dryer is preferred where higher moisture levels exist.

5. To help prevent contaminants from entering the air system on the VMC, place a filter in-line on the main air supply line.

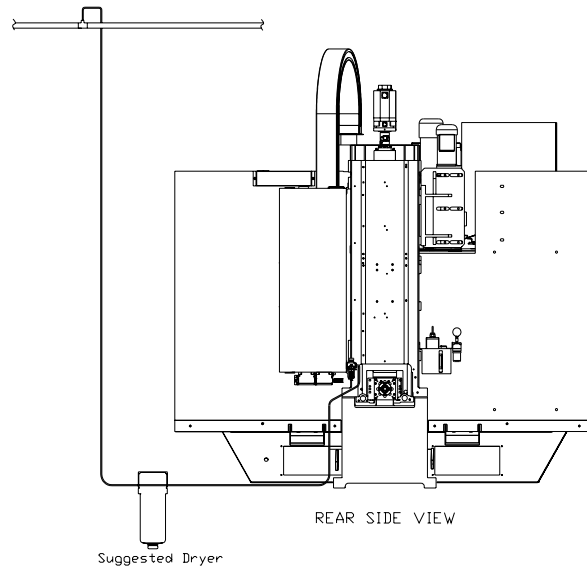


Figure 2-4: Attached Air Supply Line

2.6 ELECTRICAL GROUNDING

2.6.1 PRIMARY GROUNDING

WARNING!

The importance of proper grounding CAN NOT be over-emphasized! Improper grounding will result in a wide range of hard-to-diagnose problems in communications, positioning, spindle motion, etc.

1. The grounding conductor shall be of copper. The material selected shall be resistant to any corrosive condition existing at the installation or shall be suitably protected against corrosion.
2. The grounding conductor shall be a No. 8 AWG (10 mm²) or larger equipment ground conductor, and must be:
 - solid or stranded
 - insulated, covered, or bare
 - installed in one continuous length without a splice or joint.
3. Individually covered or insulated grounding conductors shall have a continuous outer finish that is either green, or green with one or more yellow stripes.

4. A No. 8 AWG (10 mm²) or larger equipment ground conductor and 3 phase conductors must be contained within one of the following:
 - rigid metal conduit
 - intermediate metal conduit
 - electrical metallic tubing
5. The ground conductor shall be connected between the VMC's ground bus and the approved ground bus contained within the voltage supply panel board or enclosure.
6. The VMC branch supply conduit, phase conductors and ground conductors must be dedicated to a single VMC. They cannot be used to supply any other loads.

3.0

INSTALLATION

WARNING!

Before beginning the machine installation and hook-up it is important to review the entire Installation section.

3.1 VMC LIFTING

3.1.1 CRANE LIFTING

WARNING!

The head of the VMC must be secured before lifting.

1. Remove the crate from around the machine.
2. Remove the bolts securing the machine to the shipping pallet.
3. Locate installed large eyebolts at the extreme front of the base of the machine. (Remove way cover if not removed.)

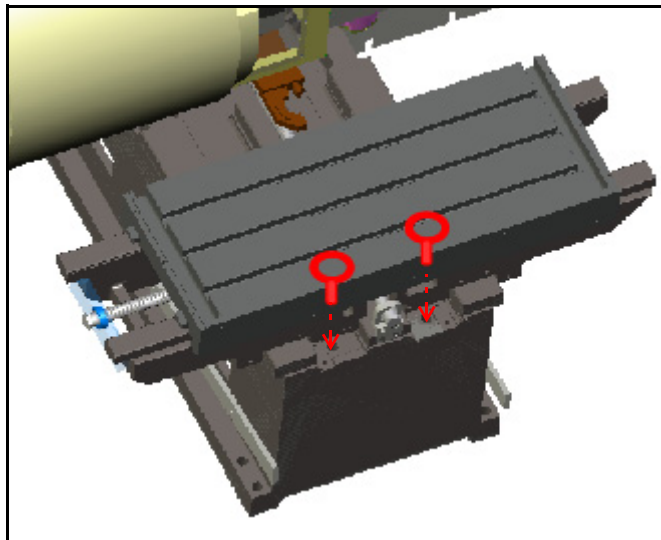


Figure 3-1: Eyebolts on the Base

4. For the next step, there are two different locations at the rear of the machine for lifting pins that will be used. A visual inspection of the machine will easily determine what the next step is.
5. There are holes on both sides of the column.

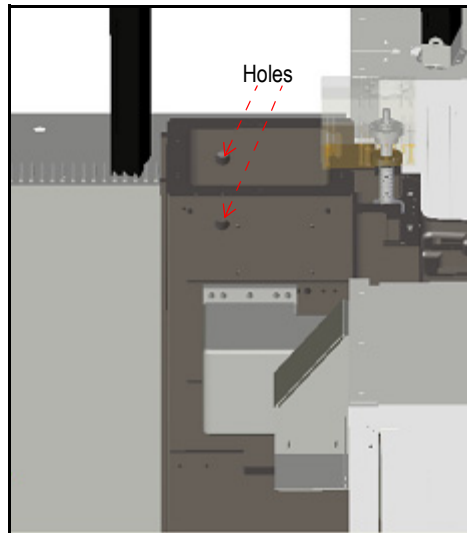


Figure 3-2: Holes on the column

6. Insert A $\text{Ø}1.25$ " (or $\text{Ø}31.71\text{mm}$ max.) x 36" (915mm min.) length steel bar (not provided) through the holes in the column.

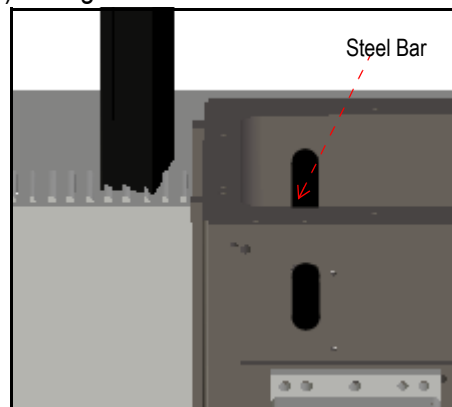


Figure 3-3: Steel Bar

WARNING!

Do not use shorter length of the steel bar than specified above.

7. A sling or chain can now be slipped around the bar on the outside of both sides of the column and placed in the hook of the hoist.

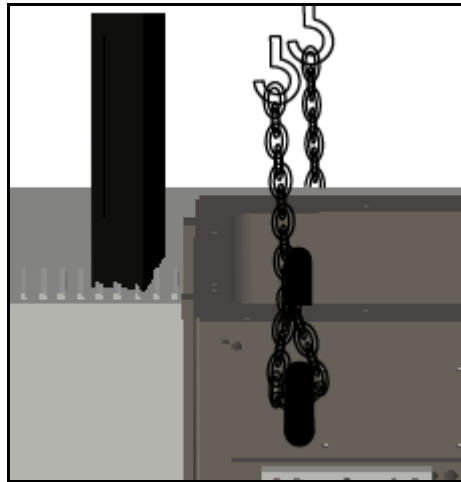


Figure 3-4: Chain Around the Steel Bar

8. Now machine can be lifted by crane.

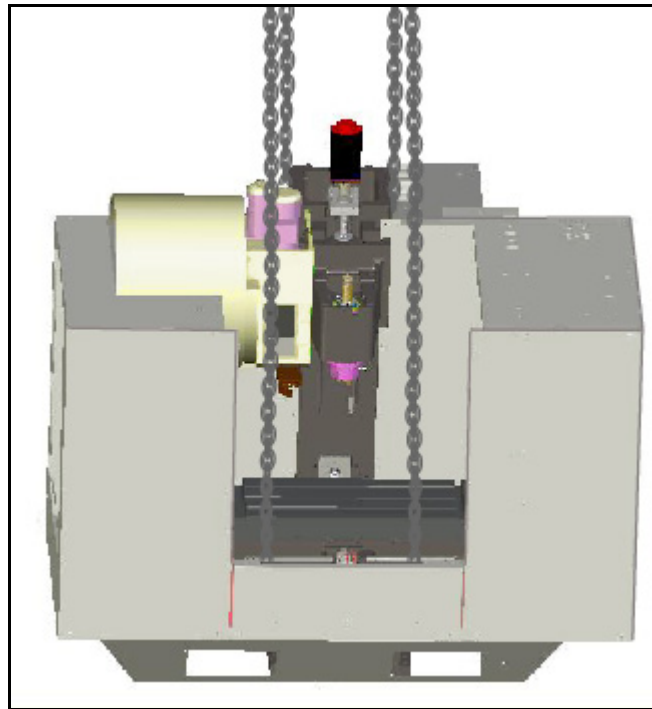


Figure 3-5: Lifted Machine

3.1.2 FORKLIFT LIFTING

WARNING!

The head and the counterweight must be secured before lifting the VMC.

1. Remove the crate from around the machine.
2. Remove the bolts securing the machine to the shipping pallet.

3. Use two lifting steel bars for each machine: part # SHP-0125, 4x2x1/4 - 72" (102mmX51mmX6.4mm-1829mm) or part # SHP-0126, 4x2x1/4 - 60" (102mmX51mmX6.4mm-1525mm).
4. Place two bars through two holes on the side of the base.

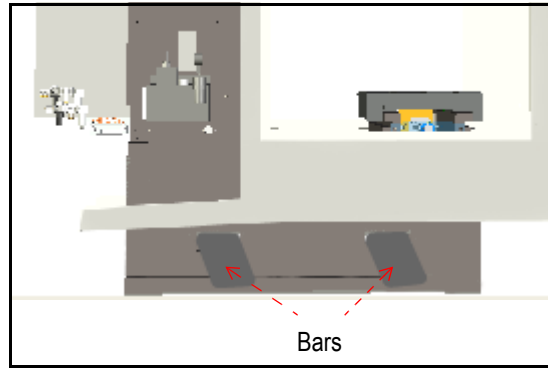


Figure 3-6: Bars Through the Holes of the Base

5. To lift and move crated machines look for stencil marked places.
6. Now machine can be lifted by forklift.



Figure 3-7: Lifted machine.

3.2 PLACING THE VMC

1. Place the leveling pads (countersink side up) under the leveling bolts. Be sure leveling bolts go into countersink on leveling pads.
2. Leveling bolts go into countersink on leveling pads.

NOTE

Use leveling pad for placing the machine. (Any other pad may cause damage to the machine.)

3. Remove the fork lift bars or the eye bolts and the steel bar from the column.
4. At this point the VMC is ready for power and air connections.
5. Remove the crate and/or protective material from around the VMC.

3.3 FRONT DOORS

The front doors are secured with strap tie for protection. (Except CE.) Cut the tie to be able to open the doors.

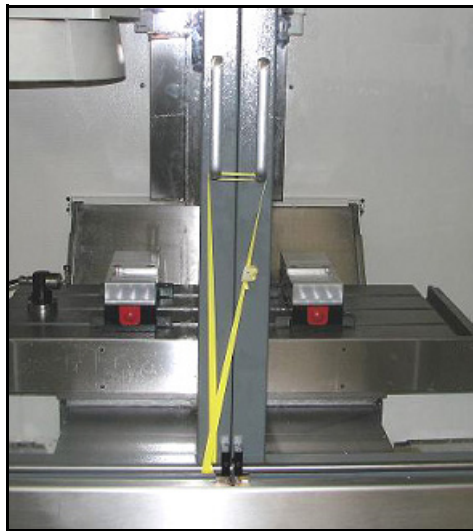


Figure 3-8: Front Doors

CE Door Locks

Unlock the CE front doors with small screwdriver:

1. Release the screw.
2. Turn to override door lock.

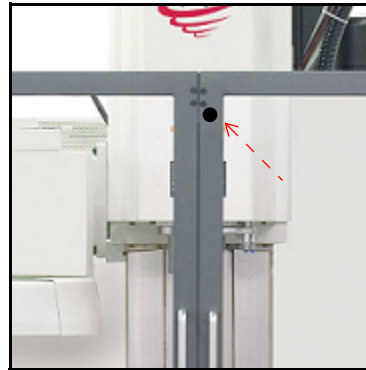


Figure 3-9: CE Door Locks

3. Re-install cap of the front door frame.

3.4 UNPACKING

Tools Required

Hammer, 15/16" socket or wrench and knife.

Unload the boxes from the inside and/or around the VMC. Place these boxes around the machine. Open the boxes to get familiar with materials.

3.5 CONTROL PANEL

VMC's control is secured with the strap and foam for protection.



Figure 3-10: Secured pendant

3.6 COOLANT TANK

Coolant tank is placed and installed on the back side of the machine close to the column

3.7 AIR SUPPLY

WARNING!

AIR PRESSURE REQUIRED: 120 psi before regulator, 80 psi after regulator, 15 scfm (standard cubic feet per minute) momentary.

1. Connect air supply to the VMC.
2. Check for max. 120 psi line pressure and adjust the regulator on the VMC for 80-90 psi pressure if necessary.
3. Check for air leaks at the fitting and around the air regulator.



Figure 3-11: Air Supply Regulator

4. It is important that the air compressor maintains the 120 PSI line pressure. This assures the VMC a constant 80 PSI at regulator.

3.8 POWER

Power connection must be performed by certified electrician only. Machine has to be connected with 230 VAC.

WARNING!

If voltage input is higher than 230 volt, stepdown transformer must be used to reduce voltage up to required level.

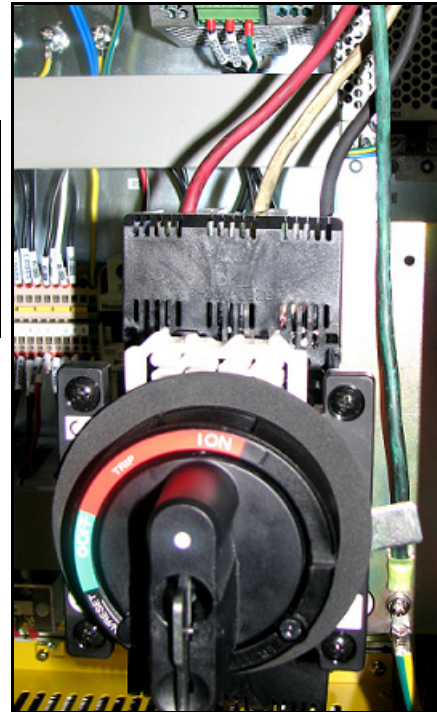


Figure 3-12: Power connection

In order to complete the next section, power must be connected to the machine.

3.9 COUNTERWEIGHT

There are two (2) rods pushed through the column wall and counterweight to pin counterweight. These rods secure counterweight during shipping and/or moving process. They are located on the side of the column. These rods must be removed.



Figure 3-13: Counterweight rods

3.10 SPINDLE HEAD SUPPORT

VMC spindle head is supported with iron column bracket bolted into T-slot of the table.

Detach column bracket from spindle head.

3.11 LEVELING

Leveling is an important first step in setting up the VMC. All calibration and squareness performed on the assembly line is done with the machine leveled. It is important to follow the sequence below precisely to ensure proper results.

Tools Required

Precision Level, such as the Starrett 12", P/N 199Z

WARNING!

Verify that the scale reads the same when rotated 180 degrees. If using a flashlight to see the bubble, do not place the flashlight on the level, as it will warm the bubble and give an incorrect reading.

1. The VMC should be positioned on one solid concrete slab (see section 2.0 PRE-INSTALLATION). Do not straddle any cracks or seams.
2. Center the leveling pads (4 (four) leveling pads are required for 2216 and 3016 VMC models) under the leveling screws.

NOTE

Use leveling pad SHP-0002 (PLC-0063 with the Conveyor option) for placing the machine. Quantity of the leveling pads depends on the VMC model.

- Level the VMC as close as possible to the leveling pads. The leveling screws should be extended as little as possible to reduce vibration through the sheet metal.

NOTE

Make sure that machines with the chip conveyor option are raised high enough so that the chip conveyor tank fits under the sheet metal of the VMC.

- Verify the Cold Start indicators, then cold start the VMC.
- Clean the level with alcohol.
- Jog the Y axis to the Y+ limit.
- Remove the back way-cover if not removed.
- Clean the outer base ways with alcohol.
- Place the level on the right hand way of the base with the small bubble towards the column. Take an accurate reading.

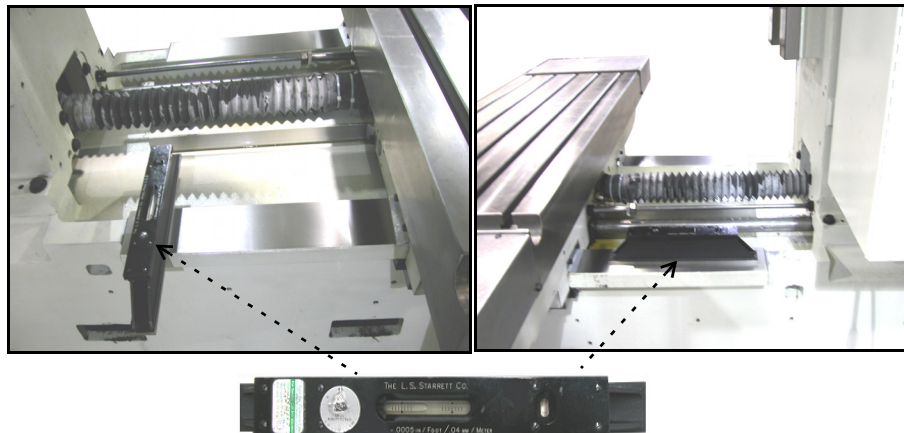


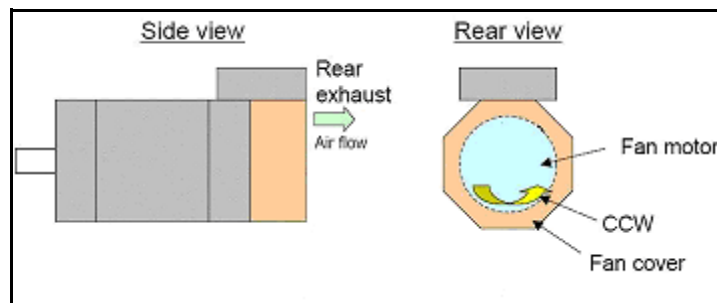
Figure 3-14: Leveling

- Now put the level on the left hand way of the base with the level pointing in the same direction as on the right hand way.
- Using the outer four (4) leveling pads, adjust the leveling screws on the machine until the left hand way and the right hand way are level and even.

12. Allow approximately three minutes before adjusting the level to ensure that the level is at the same temperature as the machine. Adjust the base using the leveling screws. Adjust the screws until the bubble is at the center of the large leveling gauge. Use care to avoid shining the flashlight onto the bubble or otherwise adding heat to the bubble fluid which will distort the results.
13. The level will have a front to back bubble and a side to side bubble. Level the machine from front to back first and then from side to side. When adjusting the side to side, adjust both leveling screws of one side only.
14. Verify the spindle tram and, if necessary, adjust by slightly changing *only* the two front leveling screws.
15. Re install way covers

3.12 SPINDLE FAN DIRECTION

Check the spindle fan motor for the correct rotation viewed from the rear side of motor. The spindle fan should rotate in CCW direction when viewed from rear side of spindle motor. Please correct the phase on terminal box of spindle motor if it is required. One can swap wires 01A18 and 01B18 of 850CR1 to change the fan direction.**



WARNING!

** Physically check the rotation of the spindle motor fan. If one uses a hand or piece of paper to feel the air flow from the rear side of spindle motor to check the fan rotation, it might cause wrong result which can result in the spindle fan and motor being damaged.

** Don't try to change the phase of spindle fan from main power supply because that might cause something else to run in the wrong direction.

3.13 DATC MAGAZINE DIRECTIONS

1. Press RESET button on the MDI panel.
2. Press JOG button on the operator panel.
3. Press DRUM FWD button on the operator panel and magazine should rotate clockwise direction (1, 2, 3) when viewed from the operator's

position. If the direction is wrong, go to step 5. If it is correct, go to step 8 and it is done.

4. Press DRUM REV button on the operator panel and magazine should rotate counterclockwise direction (1, 24, 23, 22) when viewed from the operator's position. If the direction is wrong, go to step 5. If it is correct, go to step 8 and it is done.
5. Power off the machine, and change the phase from the junction box (Located on the top of the machine and please see the following picture) of DATC.
6. Please swap the wire V2 and W2 according to WRG-0140(E01) from the terminals of the junction box.
7. Power on the machine and go to step 1 and check the phase again to make verify that the rotation is in the right direction.
8. Checking is complete and DATC direction of magazine is correct.

WARNING!

Don't try to change the phase (direction) of DATC magazine from main power supply because that might cause something else to run in the wrong direction.

3.14 DATC ARM DIRECTIONS

1. Press RESET button on the MDI panel and close the front door.
2. Press MDI button on the operator panel.
3. Run M6Txx command in the MDI mode to change tool.
4. If the DATC arm is running at Counterclockwise Direction when viewed from top of the spindle, that is correct and goes to step 8. Otherwise, please go to step 5 to correct the wiring.
5. Power off the machine, and change the phase from the junction box (Located on the top of the machine and please see the following picture) of DATC.
6. Please swap the wire V1 and W1 according to WRG-0140(E01) from the terminals of the junction box.
7. Power on the machine and go to step 1 and check the phase again to make verify that it rotates in the right direction.
8. Checking is finish and DATC direction of arm is correct.

WARNING!

Don't try to change the phase (direction) of DATC arm from main power supply because that might cause something else to run in the wrong direction.

INDEX

0-9

2216/3016 2

4020 6

8000 RPM SPINDLE CHARACTERISTICS 10

A

AIR SUPPLY 17

AIR SUPPLY 28

B

BASE 3

BASE 7

C

CONTROL PANEL 27

COOLANT TANK 28

COUNTERWEIGHT 29

CRANE LIFTING 22

D

DATC ARM DIRECTIONS 32

DATC MAGAZINE DIRECTIONS 31

E

ELECTRICAL GROUNDING 18

F

FORKLIFT LIFTING 24

FOUNDATION 12

FRONT DOORS 26

FRONT VIEW 2

FRONT VIEW 6

I

INSTALLATION PRECAUTIONS 12

L

LEVELING 29

I

INSTALLATION 21

P

PLACING THE VMC 26
POSITIONING 16
POWER 28
PRE-INSTALLATION 11
PRIMARY GROUNDING 18

S

SHIPPING DIMENSION 16
SIDE VIEW 3
SIDE VIEW 7
SPECIFICATIONS 1
SPECIFICATIONS 5
SPECIFICATIONS 9
SPINDLE FAN DIRECTION 31
SPINDLE HEAD SUPPORT 29

T

T SLOTS 4
TABLE 4
TABLE 8
TOP VIEW 2
TOP VIEW 6
T-SLOTS 8

U

UNPACKING 27

V

VMC LIFTING 22