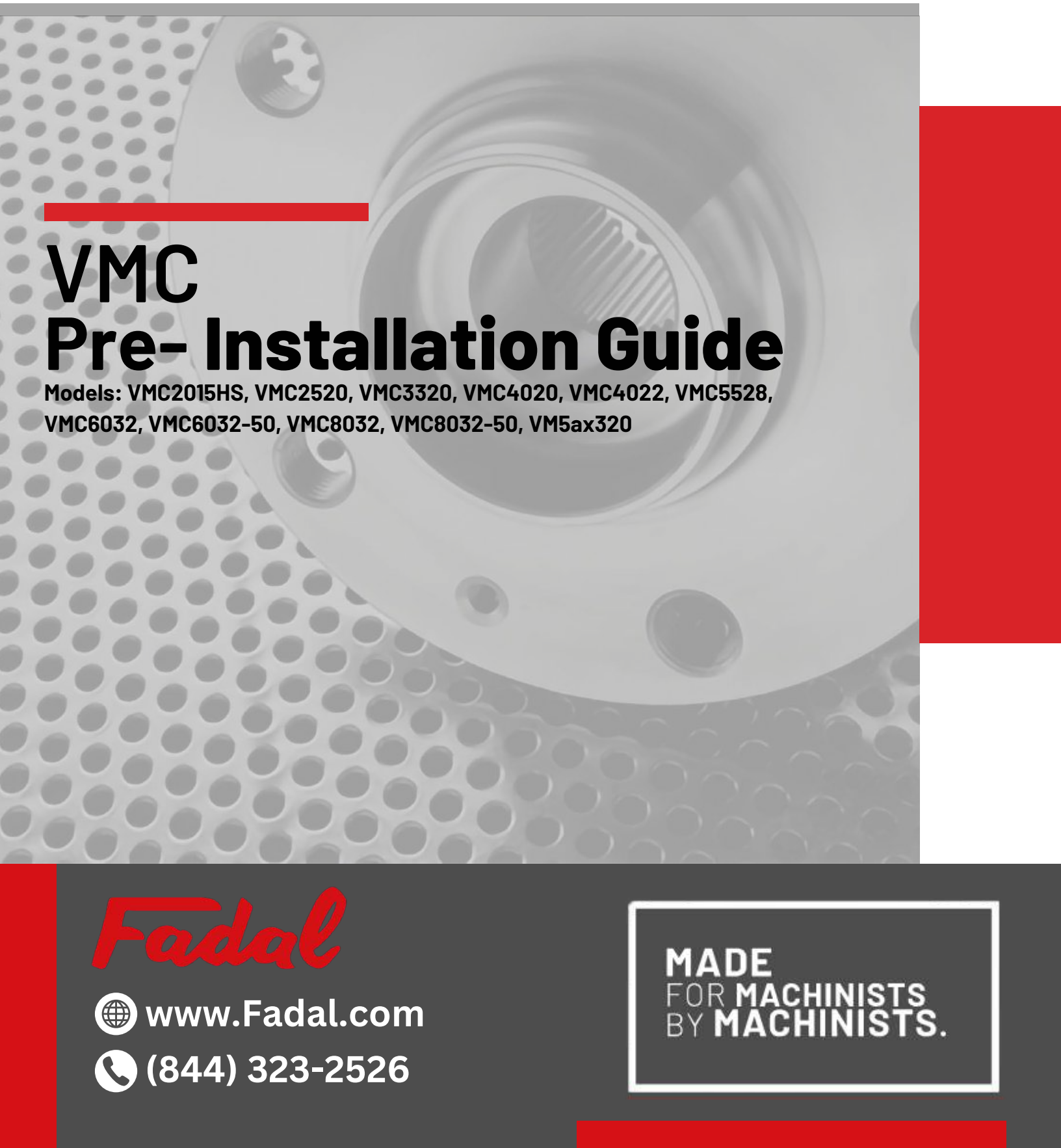




Fadal



VMC Pre-Installation Guide

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528,
VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320



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FOR MACHINISTS
BY MACHINISTS.**



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

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Rev 10/11/2024

1: Foundation



WARNING

The VMC **MUST** be placed on a surface that will support the combined weight of the machine, its options, any fixtures, any tooling, any Rotary Table, etc. Check the Specifications Table for the minimum weights of the various models.

1. It is strongly recommended that the machine be placed on an isolated concrete pad from 6 to 12 inches thick [200-300mm], depending on machine size and weight, to minimize developing cracks later.
2. Position the VMC over a single slab, and not over a crack in the concrete. As the casting weights inside the machine shift during operation, this will minimize dimensional inaccuracies during the machining process.
3. Be aware that the concrete pad is expected to be the full width of the machine to stabilize any shifting and movement of the complete pad.
4. The first rule of preparation before the machine arrives is to assure that the floor can support the weight and can allow the machine to move throughout its limits without lifting or sinking.
5. Inadequate floor preparation can lead to inaccurate parts, and mechanical issues with the machine.

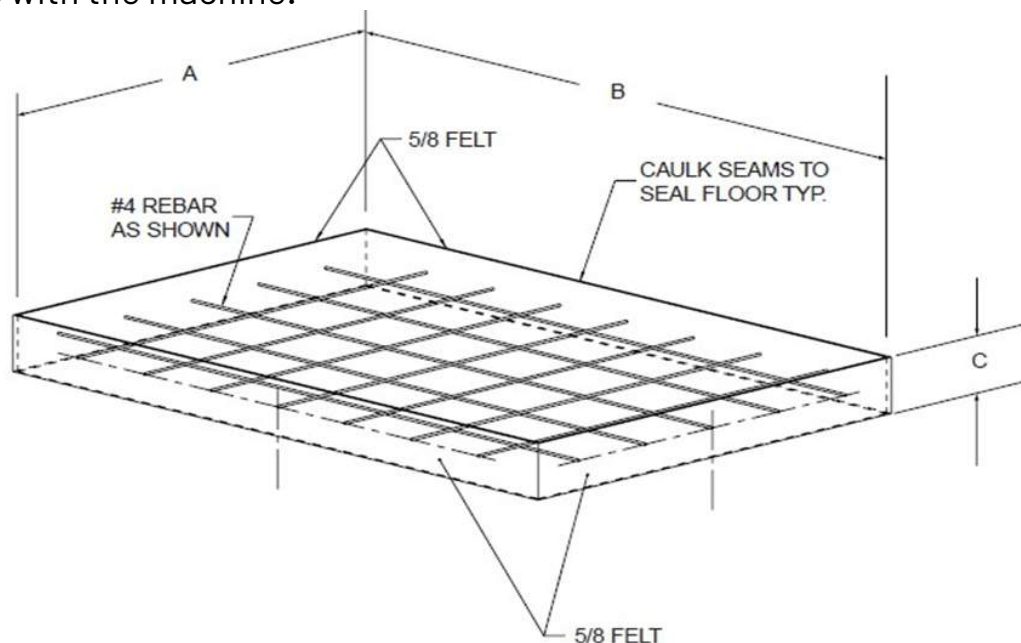


Figure 2-1 Typical Pad Construction



Pre-Installation Procedures

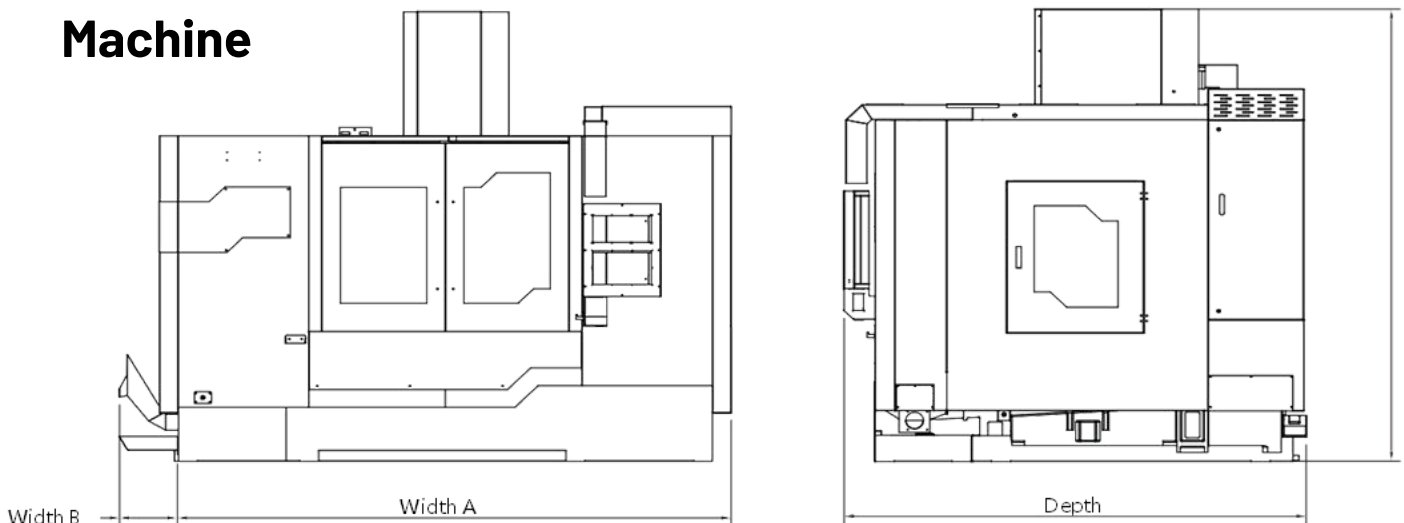
Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

MACHINE MODEL	MACHINE WEIGHT mm/in	PAD SIZE: A x B x C (Inch)	PAD SIZE: A x B x C (Metric)
VMC2015HS	3,000 / 6,614.	60" x 95" x 6"	152 x 241 x 15 cm
VMC2520	4,981 / 10,980.	96" x 100" x 8"	244 x 254 x 20 cm
VMC2520 (Ext-Z)	5,171 / 11,400.	96" x 100" x 8"	244 x 254 x 20 cm
VMC3320	5,140 / 11,330.	96" x 100" x 8"	244 x 254 x 20 cm
VMC3320 (Ext-Z)	5,353 / 11,800.	96" x 100" x 8"	244 x 254 x 20 cm
VMC4020	5,339 / 11,770	96" x 100" x 8"	244 x 254 x 20 cm
VMC4020 (Ext-Z)	5,534 / 12,200.	96" x 100" x 8"	244 x 254 x 20 cm
VMC4020-APC	7,380 / 16,270.	96" x 175" x 8"	244 x 445 x 20 cm
VMC4022	5,500 / 12,126.	96" x 100" x 8"	244 x 254 x 20 cm
VMC5528	9,500 / 20,944.	110" x 160" x 10"	280 x 407 x 25 cm
VMC6032	14,694 / 32,400.	133" x 173" x 12"	333 x 500 x 30 cm
VMC6032-50	16,693 / 36,800.	133" x 173" x 12"	333 x 500 x 30 cm
VMC8032	15,695 / 34,600.	133" x 173" x 12"	333 x 500 x 30 cm
VMC8032-50	17,509 / 38,600.	133" x 173" x 12"	333 x 500 x 30 cm
VM5ax320	7,400 / 16,315.	85" x 110" x 8"	216 x 280 x 20 cm

2: Selecting the Machine Location

1. Place the machine so that skylights or air vents are not directly overhead and place it where temperature changes will not impact the machine. In addition, do not place the machine in an area where the machine will be exposed to moisture, standing water, liquid, or rain.
2. Allow enough space behind the machine to fully open the rear cabinet doors. And still allow operators and service technicians to perform their tasks safely.
3. Ensure that there is adequate ceiling clearance for the topmost part of the machine when axis is up at its highest point. See chart below.

Machine





Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

Models		VMC2015HS	VMC2520	VMC3320	VMC4020	VMC4022
Width A	mm / in.	1,624 / 64.	2,566 / 101.	3,125 / 123.	3,125 / 123.	2,930 / 115.5
Width B Chip	mm / in.	1,270 / 50.	1,270 / 50.	1,270 / 50.	1,270 / 50.	e 48.
Depth	mm / in.	2,197 / 86.	2,440 / 96.	2,440 / 96.	2,440 / 96.	2,420 / 95.5
Depth Ele Doors Open	mm / in.	889 / 35.	889 / 35.	889 / 35.	889 / 35.	889 / 35.
Height Min	mm / in.	2,050 / 81	2,642 / 104.	2,642 / 104.	2,642 / 104.	2,350 / 92.5
Height Max Standard	mm / in.	2,480 / 98.	2,998 / 118.	2,998 / 118.	2,998 / 118.	2,750 / 108.5
Height Max Ex-Z	mm / in.	N/A	3252 / 128.	3,252 / 128.	3,252 / 128.	N/A
Weight Standard	kgs / lbs.	3,000 / 6,614.	4,981 / 10,980.	5,140 / 11,330.	5,339 / 11,770.	5,500 / 12,126.
Weight Ex-Z	kgs / lbs.	N/A	5,171 / 11,400.	5,353 / 11,800.	5,534 / 12,200.	N/A

Models		VMC5528	VMC6032	VMC6032-50	VMC8032	VMC8032-50
Width A	mm / in.	4,000 / 157.5	4,166 / 164.	4,166 / 164.	5,487 / 216.	5,487 / 216.
Width B	mm / in.	1,220 / 48.	1,448 / 57.	1,448 / 57.	1,448 / 57.	1,448 / 57.
Depth	mm / in.	2,750 / 108.5	3,048 / 120.	3,048 / 120.	3,048 / 120.	3,048 / 120.
Depth Ele Doors Open	mm / in.	889 / 35.	889 / 35.	889 / 35.	889 / 35.	889 / 35.
Height Min	mm / in.	2,850 / 112.5	3,353 / 132.	3,353 / 132.	3,353 / 132.	3,353 / 132.
Height Max	mm / in.	3,170 / 125.	3,556 / 140.	3,658 / 144.	3,556 / 140.	3,658 / 144.
Weight	kgs / lbs.	9,500 / 20,944.	14,694 / 32,400.	16,693 / 36,800.	15,695 / 34,600.	17,509 / 38,600.

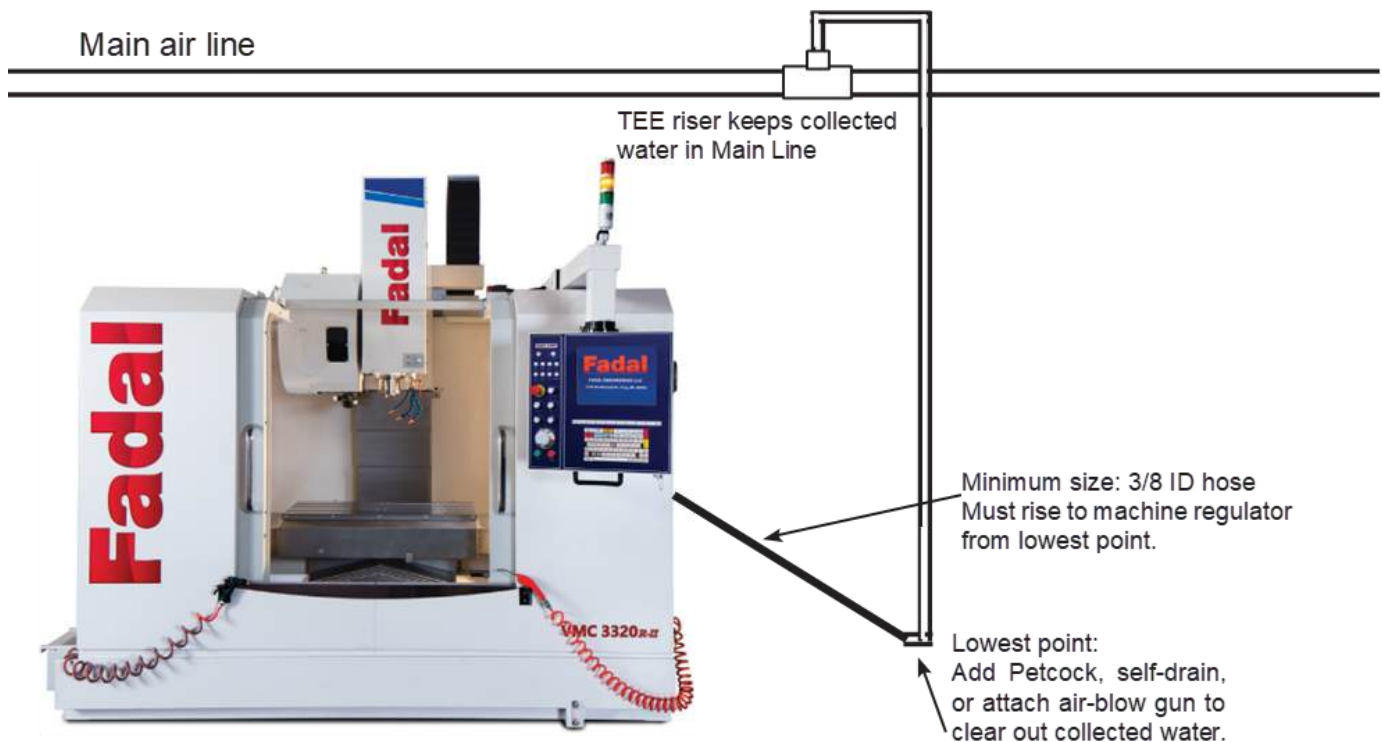
Models		VMC4020-APC	VM5ax320.		
Width A	mm / in.	4,395 / 173.	2,159 / 85.		
Width B	mm / in.	1,270 / 50.	1,270 / 50.		
Depth	mm / in.	2,440 / 96.	2,769 / 109.		
Depth Ele Doors Open	mm / in.	889 / 35.	889 / 35.		
Height Min	mm / in.	2,642 / 104.	2,642 / 104.		
Height Max	mm / in.	3,252 / 128.	3,100 / 122.		
Weight	kgs / lbs.	7,380 / 16,270.	7,400 / 16,315.		

3: Air Supply For Machine Operation

1. Before the machine regulator, MAXIMUM pressure should be 120 PSI [8 Bar] from building to the machine.
2. After machine regulator, MINIMUM pressure should be 90 PSI [6.2 Bar] and the MAXIMUM pressure should be 110 PSI [7.6 Bar].
3. The air supply must be clean, filtered, and absent of any moisture.
4. The volume of air required during the Tool Change process ranges from 15 SCFM for standard tool changers, to 20 SCFM for Dual Arm Tool Changers. The Tool Change process runs no longer than a few seconds at a time but requires adequate air volume to be available to complete the process.
5. When considering the main air supply line for a group of machines, consider the distance from the Air Compressor and the needs of the individual machines when selecting the pipe size. Pipe selection may include one of the following, but must follow local plumbing codes and restrictions: Galvanized pipe, Copper tubing, PVC tubing, or High Pressure Hose. Avoid using small bore quick disconnects, as they will restrict airflow supply.

3: Air Supply For Machine Operation (Continued)

6. By all means, insert a TEE riser in line to control condensation from entering the machine. The TEE riser should rise above the main line by 6 inches [150mm], then turn back down towards the machine, and at the bottom at the lowest point a petcock, manual drain, or a self-relieving water separator, or the operator's air-blowgun can be attached. First, this will disallow most moisture from entering the machine, and second allow any collected water to be removed.
7. Be certain that the line connecting air to the machine is 3/8 diameter minimum, and that it rises- up higher than the lowest point shown in the picture below.
8. A refrigerated Air Dryer can be installed on the Air system to inhibit water from reaching the machine.
9. Pipe selection may include one of the following, but must follow local plumbing codes and restrictions: Galvanized pipe, Copper tubing, PVC tubing, or High Pressure Hose. Avoid using small bore quick disconnects, as they will restrict airflow supply.



4: Electrical Grounding

1. The importance of proper grounding CANNOT be over-emphasized! Improper grounding can result in a wide range of difficult-to-diagnose problems in internal communications, positioning, unwanted signals, etc.
2. The grounding connector from the machine to the building shall be of copper. The material selected shall be resistant to any corrosive condition existing at the machine installation site or shall be suitably protected against corrosion.
3. Refer to National Electrical Code NEC1990 Article250 Section 81.
4. The grounding conductor shall be AWG-#8 [10mm²] or larger equipment ground conductor, and must be:
 - a) Solid or stranded wire.
 - b) Insulated, covered, or bare.
 - c) Installed in one continuous length without a splice or a joint.
5. Individually covered or insulated grounding conductors shall have a continuous outer finish that is ether green, or green with one or more yellow stripes.
6. AWG-#8 [10mm²] or larger equipment ground conductor and 3-phase power conductors must be contained within one of the following:
 - a) Rigid metal conduit or wireway
 - b) Intermediate metal conduit
 - c) Electrical metallic tubing
7. The ground connector shall be connected between the VMC's ground bus, and the approved ground bus contained within the voltage supply panel board or enclosure.
8. 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.



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

5: Supplemental Electrical Grounding

1. Refer to National Electrical Code NEC1990Article 250 Section91.
2. Supplementary grounding electrodes shall be permitted to augment the equipment grounding conductor; however, this is in addition to, and not in place of the sole equipment grounding conductor. 2
3. The supplemental grounding conductor shall be a AWG-#6 [16mm] or larger copper conductor in the form of a wire, and must be:
 - a) Solid or stranded
 - b) Insulated, covered, or bare.
 - c) Installed in one continuous length without a splice or a joint.
4. An AWG-#6 [16mm] or larger grounding conductor shall be run within one of the following:
 - a) Rigid metal conduit or wireway
 - b) Intermediate metal conduit
 - c) Electrical metallic tubing or cable armor
5. One end of the supplemental grounding conductor shall be attached to the VMC's ground bus. The other end shall be effectively bonded to a copper cold water pipe that is in direct con-tact with the earth for 10 feet [3M] or more. Be aware that if the cold water pipe or ground rod are located underneath a building or its parking lot, insufficient moisture may be in the ground to conduct any transient voltages to the earth.
6. Connections shall be made so that they are electrically continuous.



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

6: Checking Electrical Grounding Integrity

A. Specification

1. **MUST** conform to National Electrical Code [NEC].
2. Grounding wire **MUST** be a continuous wire AWG-#8 [10mm²] or larger between the VMC's ground bus and the building power distribution panel serving the VMC.
3. **MUST** be dedicated to a single VMC. The ground and phase conductors cannot be shared with any other equipment.
4. Ground rods and other supplemental grounding may be used in addition to the ground specified above, but not instead of it.

B. Inspection

1. The ground wire coming into the VMC and going to the building power distribution panel must be AWG-#8 or larger.
2. The ground wire must be connected to the VMC's ground bus bar in the cabinet, not to the screw terminal in the main disconnect switch.
3. The ground wire is to be a continuous wire from the VMC to the building power distribution panel serving the VMC.
4. The conduit or wireway **MUST NOT** be used as the grounding conductor wire. Ground rods and other supplemental grounding may be used in addition, but not instead of the grounding wire specified in step 3.
5. Fadal service technicians are not expected to inspect power distribution panels or building wiring. Refer to an appropriate electrical contractor.



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

6: Checking Electrical Grounding Integrity (Continued)

C. Verification

1. Measure the resistance of a length of wire of AWG-#16 or larger wire of sufficient length to connect the VMC ground bus bar to the building power distribution panel. Record the reading in ohms.
2. Attach the first end of the wire to the VMC ground bus bar in the cabinet. The other end will be used to measure transient AC and DC voltages at the building power distribution panel.
3. With voltmeter set to AC Volts, and with VMC powered ON, measure and record the AC voltage between the loose end of the wire and a mounting screw or other grounded enclosure of the building power distribution panel. Repeat with meter set to DC volts. AC and DC voltages can range from 0.00V to 0.01V.
4. Now power OFF the VMC, and repeat both tests of step 3, both AC and DC. AC and DC voltages can range from 0.00V to 0.005V with machine OFF. Set voltmeter to Ohms and measure resistance between the loose ground wire and the grounded power distribution enclosure. This resistance measurement should be less than twice the value recorded in step 1. Should there be a positive ground current from step 4, reverse the meter leads and average the two readings.

7: Electrical Service Connection

1. A qualified electrician must do electrical installation of machine.
2. If bringing the main power supply in through the bottom of the electrical cabinet is preferred. The following is the approximate distance from the floor to the bottom of each cabinet.

VMC2015HS	66cm / 26"
VMC2520	51cm / 20"
VMC3320	51cm / 20"
VMC4020	51cm / 20"
VMC4022	76cm / 30"

VMC5528	76cm / 30"
VMC6032	71cm / 28"
VMC8032	71cm / 28"
VM5ax320	76cm / 30"



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

7: Electrical Service Connection (Continued)

3. If bringing the main power supply in through the top of the electrical cabinet is preferred, a is provided. The knockout is located at the top, left, front corner of the electrical cabinet.
4. The total connected load should not exceed 75% of the panel rating, allowing for the VMC load. Refer to the Electrical Rating Plaque for full load current.
5. Note that the upper voltage limit for the control, or the Axis Amplifiers, or the Spindle controller is 235VAC, not 240VAC. If the incoming voltage is higher than 235VAC, please arrange for a step-down transformer with sufficient kVA to operate machine. The transformer is **NOT** Fadal supplied.
6. The absolute minimum allowable voltage is 208VAC and may be safely run between 208 and 235VAC. The preferred operating range is 210VAC - 230VAC. If the incoming voltage is 208VAC, it is recommended to install a buck-boost transformer to bring the incoming voltage closer to the middle of the acceptable range. Since voltages often fluctuate throughout the day, and if the voltage drops below 208VAC, erroneous alarms, or problems may occur. If the incoming voltage is below 208VAC, a buck-boost transformer MUST be installed to bring the voltage to within the allowable range. It cannot be expressed enough that for the proper operation of your machine, adequate voltage is a MUST.
7. If other CNC equipment, motor controllers, motors, or electric-discharge lighting [fluorescent, mercury vapor, metal-halide, high- or low-pressure sodium] are connected to the same panel, the connected load should not exceed 50% of the Service Panel's rated capacity.
8. Prior to the installation of the VMC, the panel should be measured for average and peak loads across the three phases.



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

8: Power Requirements

Machine Model	Voltage (VAC)	KVA	Amperage (Breaker Size Main Panel)
VMC2015HS	208 [MIN] - 235 [MAX]	15	40A
VMC2520 or /w ExZ	208 [MIN] - 235 [MAX]	23.5	70A
VMC3320 or /w ExZ	208 [MIN] - 235 [MAX]	23.5	70A
VMC4020 or /w ExZ	208 [MIN] - 235 [MAX]	23.5	70A
VMC4020 (VHT) or /w ExZ	208 [MIN] - 235 [MAX]	30	80A
VMC4020-APC	208 [MIN] - 235 [MAX]	25	70A
VMC4020-APC (VHT)	208 [MIN] - 235 [MAX]	30	80A
VMC4022	208 [MIN] - 235 [MAX]	25	70A
VMC5528	208 [MIN] - 235 [MAX]	45	120A
VMC6032	208 [MIN] - 235 [MAX]	45	120A
VMC6032 (VHT)	208 [MIN] - 235 [MAX]	50	140A
VMC6032-50	208 [MIN] - 235 [MAX]	55	150A
VMC8032	208 [MIN] - 235 [MAX]	45	120A
VMC8032 (VHT)	208 [MIN] - 235 [MAX]	50	140A
VMC8032-50	208 [MIN] - 235 [MAX]	55	150A
VM5ax320	208 [MIN] - 235 [MAX]	25	70A



WARNING

The VMC cannot be installed on a panel where the measured surge demand current exceeds the panel's supply amplitude.

Proper main power leads are equally important as a proper ground. A continuous lead from the machine main switch to the electrical panel is highly recommended. Electrical wire nuts should be avoided! See the chart below for matching the adequate wire gauge size to your machine model's amperage draw.



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

9: Wire Size Calculator

Amperes	250-300	4-ga.	2-ga.	2-ga.	1/0-ga.	1/0-ga.	1/0-ga.	2/0-ga.
	200-250	4-ga.	4-ga.	2-ga.	2-ga.	1/0-ga.	1/0-ga.	1/0-ga.
	150-200	6 or 4-ga.	4-ga.	4-ga.	2-ga.	2-ga.	1/0-ga.	1/0-ga.
	125-150	8-ga.	6 or 4-ga.	4-ga.	4-ga.	2-ga.	2-ga.	2-ga.
	105-125	8-ga.	8-ga.	6 or 4-ga.	4-ga.	4-ga.	4-ga.	2-ga.
	85-105	8-ga.	8-ga.	6 or 4-ga.	4-ga.	4-ga.	4-ga.	4-ga.
	65-85	10-ga.	8-ga.	8-ga.	6 or 4-ga.	4-ga.	4-ga.	4-ga.
	50-65	10-ga.	10-ga.	8-ga.	8-ga.	6 or 4-ga.	6 or 4-ga.	4-ga.
	35-50	10-ga.	10-ga.	10-ga.	8-ga.	8-ga.	8-ga.	6 or 4-ga.
	20-35	12-ga.	10-ga.	10-ga.	10-ga.	10-ga.	8-ga.	8-ga.
	0-20	12-ga.	12-ga.	12-ga.	12-ga.	10-ga.	10-ga.	10-ga.
		0-4 ft.	4-7 ft.	7-10 ft.	10-13 ft.	13-16 ft.	16-19 ft.	19-22
Length in feet								

Do Not Power On The Machine!

A qualified Fadal service technician must first confirm the proper voltage before powering up the machine.



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

10: Machine Specifications

SPECIFICATIONS	VMC2015HS30/40	VMC2520	VMC3320	VMC4020	VMC4022
Travel X-axis (in.)	20"	25.5"	33"	40"	40"
Travel Y-axis (in.)	15"	20"	20"	20"	22"
Travel Z-axis (in.)	15.7"	20" / 30" *	20" / 30" *	20" / 30" *	22"
Table Size (in.)	25.6" x 15"	31.5" x 17.75"	39.37" x 17.7"	47.25" x 19.7"	43.3" x 21.6"
Max. Weight on Table (lbs.)	440	990	1,100	1,320	1700
Spindle Nose to Table (in.)	5.9"- 21.6"	5"- 25" / 5"- 35"	5"- 25" / 5"- 35"	5"- 25" / 5"- 35" *	5.9"- 27.5"
Spindle Center to Column (in.)	16.9"	21"	21.25"	21.25"	22.5"
T-slots and Dimensions (in.)	(3) .710" x 3.94" x1.25"	(3) .709" x 4.33" x1.25"	(3) .709" x 4.33" x1.25"	(3) .709" x 4.33" x1.25"	(5) .709" x 3.937"
Way Construction	Cross Roller Guideway	Cross Roller Guideway	Cross Roller Guideway	Box Guideway	Cross Roller Guideway
Cutting Feed Rate (ipm.)	590	590	590	590	590
Rapid Travel Rate X/Y/Z (ipm.)	1,890 / 1,890 / 1,890	1,410 / 1,410 / 1,187	1,410 / 1,410 / 1,187	1,000 / 1,000 / 1,000	1400/ 1400 / 1400
Axis Drive Motor X, Y & Z (hp.)	1.8	2.3	2.3	2.3	2.3
Ballscrew Size (mm.)	32mm	40mm	40mm	40mm	40mm
Accuracy Positioning - JIS B6338 (in.)	.0002"	.0002"	.0002"	.0002"	.0002"
Accuracy Repeatability - JIS B6338 (in.)	.0001"	.0001"	.0001"	.0001"	.0001"
Spindle Power Transfer	Direct Drive	2-Speed Hi/Low Belt	2-Speed Hi/Low Belt	2-Speed Hi/Low Belt	Direct Drive
Spindle Speed (RPM)	30T12K/15K* 20K*	10K / 15K*	10K / 15K*	10K / 15K*	10K / 15K*
Spindle Taper	BT30, CAT-40 / BT-40*	CAT-40 / BT-40*	CAT-40 / BT-40*	CAT-40 / BT-40*	CAT-40 / BT-40*
Spindle Motor (Horsepower hp / Torque ft-lbs.) Peak	12k 10 hp / 60 ft-lbs. 15k*/20k*/24k*	22.5 hp / 220 ft-lbs.	22.5 hp / 220 ft-lbs. 30 hp / 270 ft-lbs.*	22.5 hp / 220 ft-lbs. 30 hp / 270 ft-lbs.*	22 hp / 75 ft-lbs.
Spindle Chiller	Standard	Standard	Standard	Standard	Standard
Spindle Orientation	Standard	Standard	Standard	Standard	Standard
ATC type / ATC tool selection	Dual Arm / Random	Dual Arm / Random	Dual Arm / Random	Dual Arm / Random	Dual Arm / Random
Number of Tools	20	24	24 / 30* / 40*	24 / 30* / 40*	30 / 40*
Max Tool Diameter (in.)	4"	4.9"	4.9"	4.9"	4.9"
W/O Adjacent Tool (in.)	2.4"	3.1"	3.1"	3.1"	3.1"
Max. Tool Length (in.)	7.9"	13.5"	13.5"	13.5"	13.5"
Max Tool Weight (lbs.)	6.6	15	15	15	15
Coolant Tank	Standard	3-Stage Chip Filtration	3-Stage Chip Filtration	3-Stage Chip Filtration	3-Stage Chip Filtration
Coolant Pump	Multi-Stage	Multi-Stage	Multi-Stage	Multi-Stage	Multi-Stage
Air Pressure Required (PSI / SCFM)	90 PSI / 20 SCFM	90 PSI / 20 SCFM	90 PSI / 20 SCFM	90 PSI / 20 SCFM	90 PSI / 20 SCFM
Min Power Requirement at 208v to 230v max (KVA)	15	25	25	25	25
Machine Dimensions L x W x H (in.)	64" x 94" x 94"	101" x 95" x 104"	123" x 96" x 104"	123" x 96" x 104"	N/A
Dim. w/ Optional Chip Conveyor (in.)	-	141" x 96" x 104"	161" x 96" x 104"	161" x 96" x 104"	128.5" x 95.5 x 108.5"
Machine Weight (lbs.)	6,660	10,978	11,330	11,770	12,126

All specifications are subject to change without notice.

*Optional



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

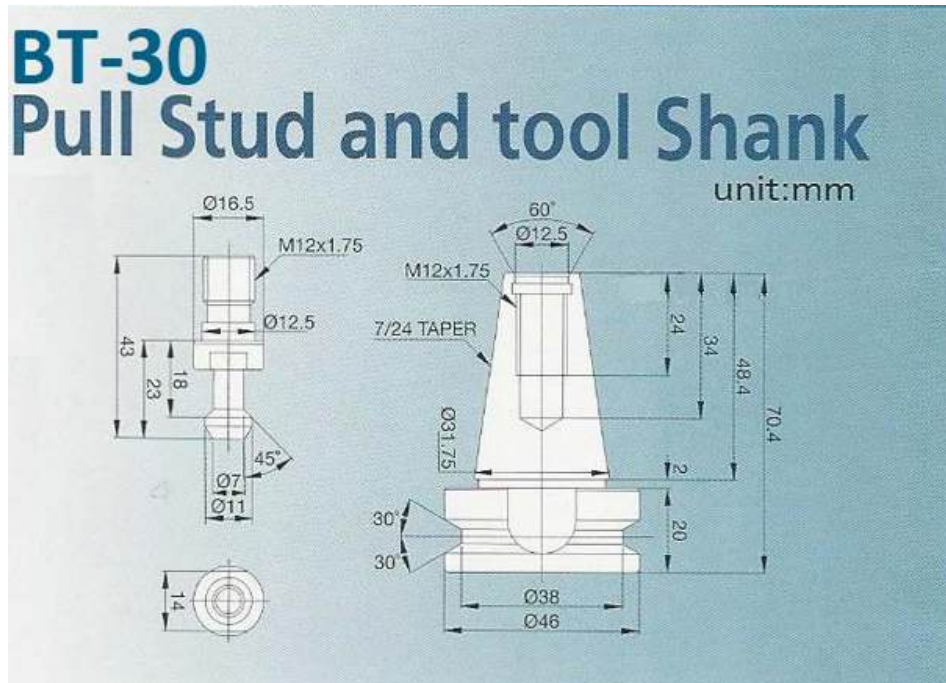
10: Machine Specifications (Continued)

SPECIFICATIONS	VMC5528	VMC6032-40	VMC6032-50	VMC8032-40	VMC8032-50
Travel X-axis (in.)	55"	60"	60"	80"	80"
Travel Y-axis (in.)	28"	32"	32"	32"	32"
Travel Z-axis (in.)	27"	30"	30"	30"	30"
Table Size (in.)	59"x27.56"	61"x30"	61"x30"	81.5" x 30"	81.5" x 30"
Max. Weight on Table (lbs.)	3,100	4,400	4,400	4,840	4,840
Spindle Nose to Table (in.)	5.9"- 29.5"	5"- 35" / 13"- 43" *	5"- 35" / 13"- 43"	5"- 35"	5"- 35"
Spindle Center to Column (in.)	28.5"	30.2"	30.2"	34.375"	34.375"
T-slots and Dimensions (in.)	(6) .709" x 3.937"	(5) .709" x 5.5" x 1.25"	(5) .709" x 5.5" x 1.25"	(5) .709" x 5.5" x 1.25"	(5) .709" x 5.5" x 1.25"
Way Construction	Cross Roller Guideway	Box Guideway	Box Guideway	Box Guideway	Box Guideway
Cutting Feed Rate (ipm.)	590	590	590	590	590
Rapid Travel Rate X/Y/Z (ipm.)	1,000 / 1,000 / 1,000	787 / 787 / 590	787 / 787 / 590	787 / 787 / 590	787 / 787 / 590
Axis Drive Motor X, Y & Z (hp.)	2.3	4.4	4.4	4.4	4.4
Ballscrew Size(mm.)	40mm	50mm	50mm	50mm	50mm
Accuracy Positioning - JIS B6338 (in.)	.0002"	.0003"	.0003"	.0003"	.0003"
Accuracy Repeatability - JIS B6338 (in.)	.0001"	.00015"	.00015"	.00015"	.00015"
Spindle Power Transfer	Direct Drive	2-Speed Hi/Low Belt	2-Speed Geared	2-Speed Hi/Low Belt	2-Speed Geared
Spindle Speed (RPM)	10K / 15K*	10K / 15K*	6K	10K / 15K*	6K
Spindle Taper	CAT-40 / BT-40*	CAT-40 / BT-40*	CAT50* / BT-50*	CAT-40 / BT-40*	CAT-50* / BT-50*
Spindle Motor (Horsepower hp / Torque ft-lbs.) Peak	24.5 hp 90 ft-lbs.	22.5 hp / 220 ft-lbs. 30 hp / 270 ft-lbs.	45 hp / 410 ft-lbs.	22.5 hp / 220 ft-lbs. 30 hp / 270 ft-lbs.*	45 hp / 410 ft-lbs.
Spindle Chiller	Standard	Standard	Standard	Standard	Standard
Spindle Orientation	Standard	Standard	Standard	Standard	Standard
ATC type / ATC tool selection	Dual Arm / Random	Dual Arm / Random	Dual Arm / Random	Dual Arm / Random	Dual Arm / Random
Number of Tools	30 / 40*	24 / 30* / 40*	32 / 40*	24 / 30* / 40*	32 / 40*
Max Tool Diameter(in.)	4.9"	4.9"	5.0"	4.9"	5.0"
W/O Adjacent Tool (in.)	3.1"	3.1"	3.1"	3.1"	3.1"
Max. Tool Length (in.)	13.5"	13.8"	13.8"	13.8"	13.8"
Max Tool Weight (lbs.)	15	15	35	15	35
Coolant Tank	3-Stage Chip Filtration	3-Stage Chip Filtration	3-Stage Chip Filtration	3-Stage Chip Filtration	3-Stage Chip Filtration
Coolant Pump	Multi-Stage	Multi-Stage	Multi-Stage	Multi-Stage	Multi-Stage
Air Pressure Required (PSI / SCFM)	90 PSI / 20 SCFM	90 PSI / 20 SCFM	90 PSI / 20 SCFM	90 PSI / 20 SCFM	90 PSI / 20 SCFM
Min Power Requirement at 208v to 230v max (KVA)	40	45	55	45	55
Machine Dimensions L x W x H (in.)	N/A	164" x 120" x 132"	164" x 120" x 132"	216" x 120" x 132"	216" x 120" x 132"
Dim. w/ Optional Chip Conveyor (in.)	170" x 109" x 125"	216" x 120" x 132"	216" x 120" x 132"	272" x 120" x 132"	272" x 120" x 132"
Machine Weight (lbs.)	19,850	32,400	36,600	34,600	38,600

All specifications are subject to change without notice.

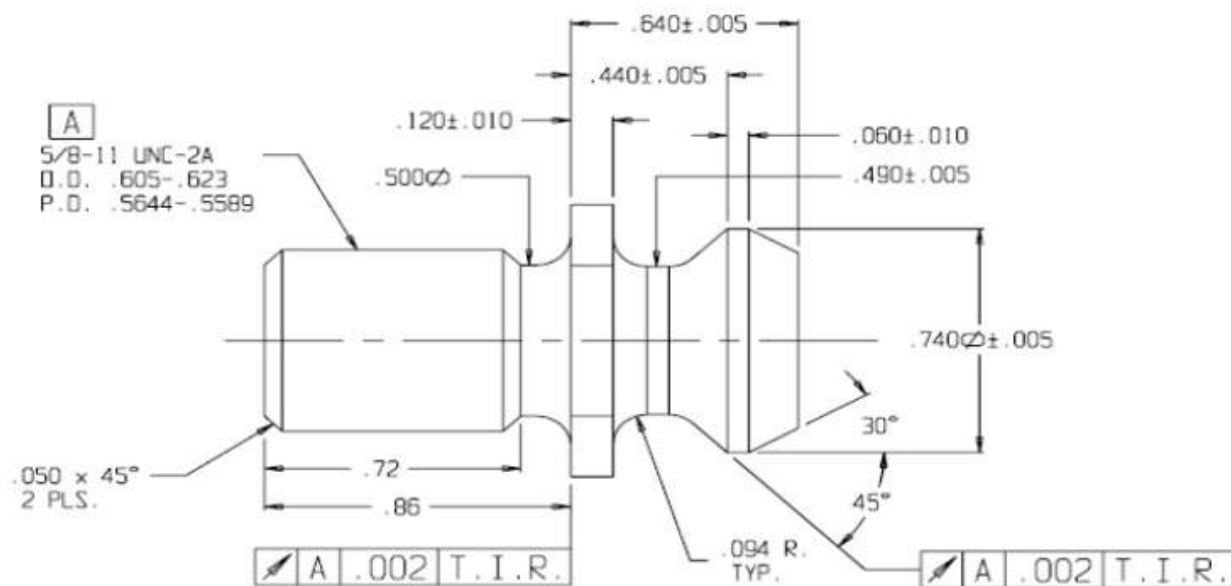
*Optional

11: Machine Pull Studs



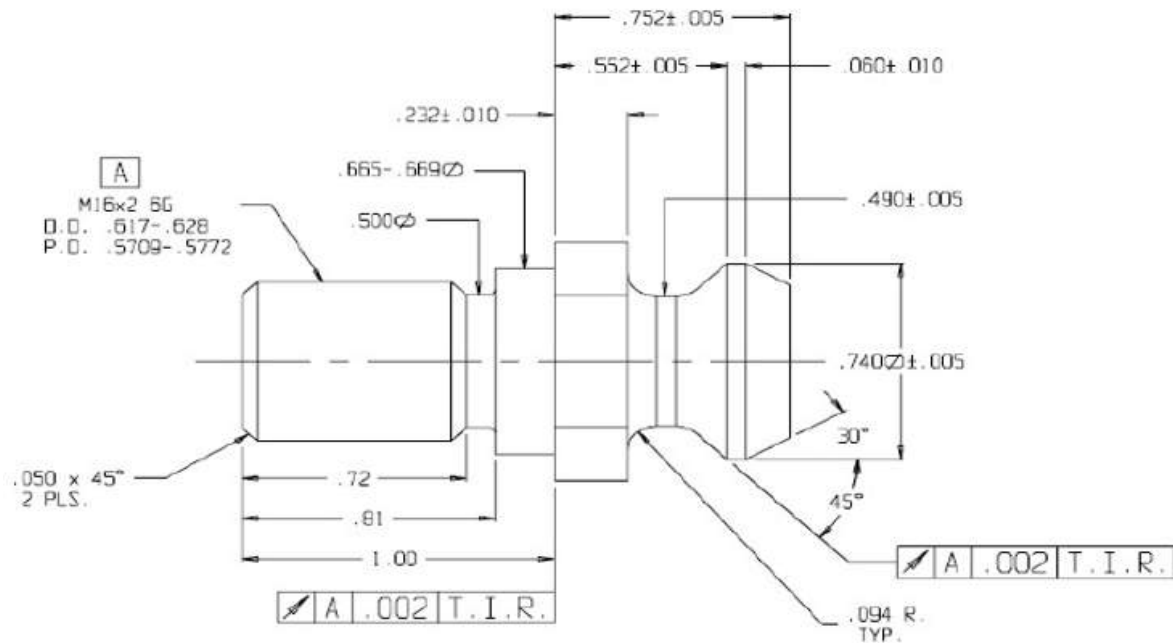
For Models: VMC2015HS

40 TAPER CAT PULL STUD - [Non-Coolant Thru] TOL-02050



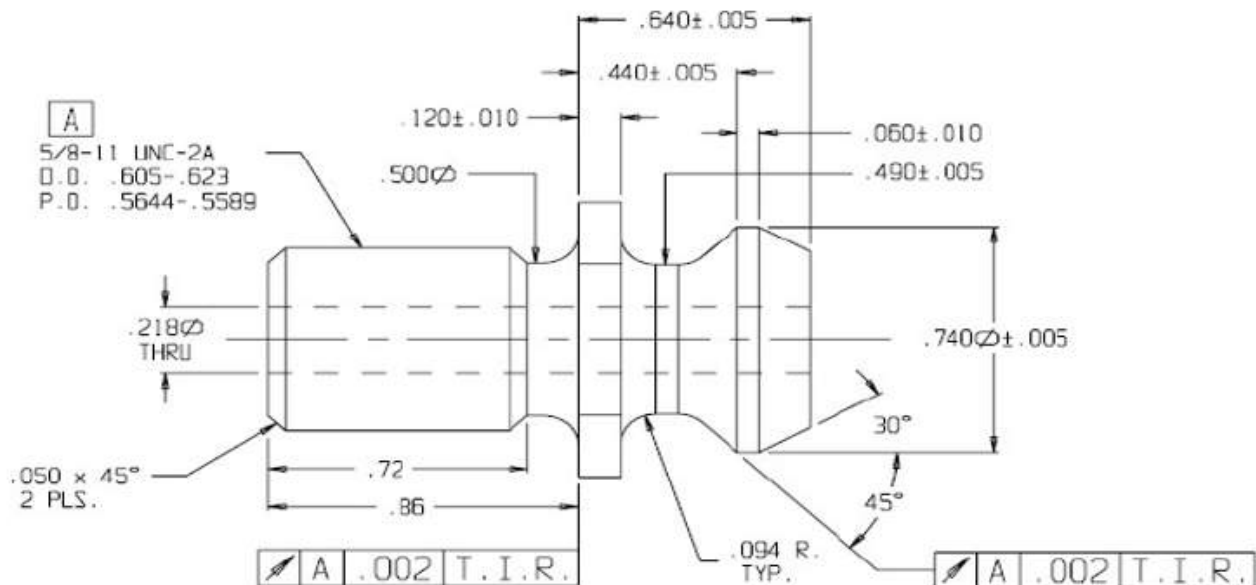
11: Machine Pull Studs (Continued)

40 TAPER BT PULL STUD - [Non-Coolant Thru] TOL-02051



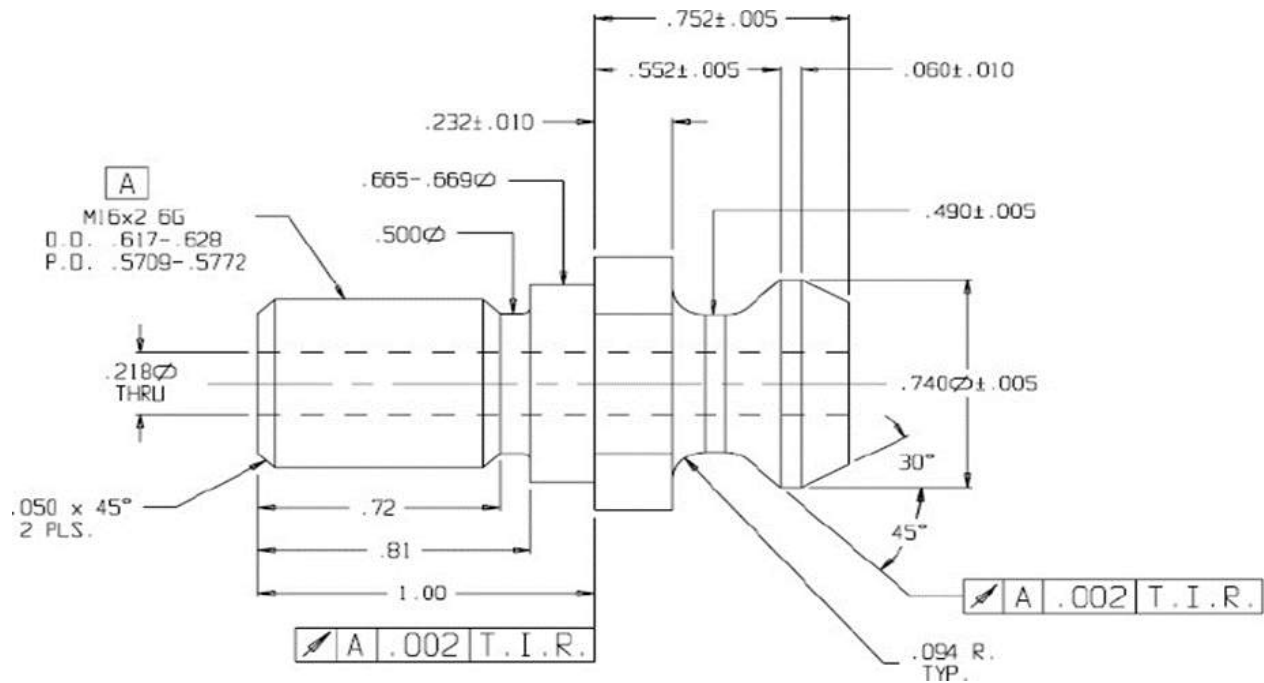
For Models: VMC2015HS-40, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC8032.

40 TAPER CAT PULL STUD- [Coolant Thru] TOL-02052



11: Machine Pull Studs (Continued)

40 TAPER BT PULL STUD - [Coolant Thru] TOL-02053





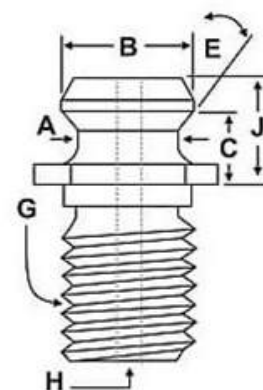
Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

11: Machine Pull Studs (Continued)

For Models: VMC2520, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC8032.

50 TAPER BT PULL STUD



RETENTION KNOB (SOLID)

CAT

Neck Dia. A	0.82 (20.8 MM)
Length C	0.706 (17.9 MM)
O-Ring	NO
Flange Thick	0.204 (5.2 MM)
Knob Socket 1/2" drive	RKW-50

Note

ANSI STD NO PILOT

Head Dia. B	1.14 (29 MM)
Angle E°	45
Length to Head J	1 (25.4 MM)
Pilot	N
Max Torque ft/lbs	110

RETENTION KNOB (COOLANT THRU)

CAT

Neck Dia. A	0.82 (20.8 MM)
Length C	0.706 (17.9 MM)
O-Ring	NO
Flange Thick	0.2 (5.1 MM)
Knob Socket 1/2" drive	RKW-50

Note

ANSI STD NO PILOT

Head Dia. B	1.14 (29 MM)
Angle E°	45
Length to Head J	1 (25.4 MM)
Pilot	N
Max Torque ft/lbs	110

RETENTION KNOB (SOLID)

BT

Neck Dia. A	0.669 (17 MM)
Length C	1.377 (35 MM)
O-Ring	NO
Flange Thick	0.394 (10 MM)
Knob Socket 1/2" drive	RKW-50M

Note

P50T I 45° PILOT

Head Dia. B	0.905 (23 MM)
Angle E°	45
Length to Head J	1.771 (45 MM)
Pilot	Y
Max Torque ft/lbs	110

RETENTION KNOBS (COOLANT THRU)

BT

Neck Dia. A	0.669 (17 MM)
Length C	1.377 (35 MM)
O-Ring	NO
Flange Thick	0.394 (10 MM)
Knob Socket 1/2" drive	RKW-50M

Note

P50T I 45° PILOT

Head Dia. B	0.905 (23 MM)
Angle E°	45
Length to Head J	1.771 (45 MM)
Pilot	Y
Max Torque ft/lbs	110



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

12: Machine Table T-Slots

TEE SLOT DIMENSIONS VMC - 2015HS

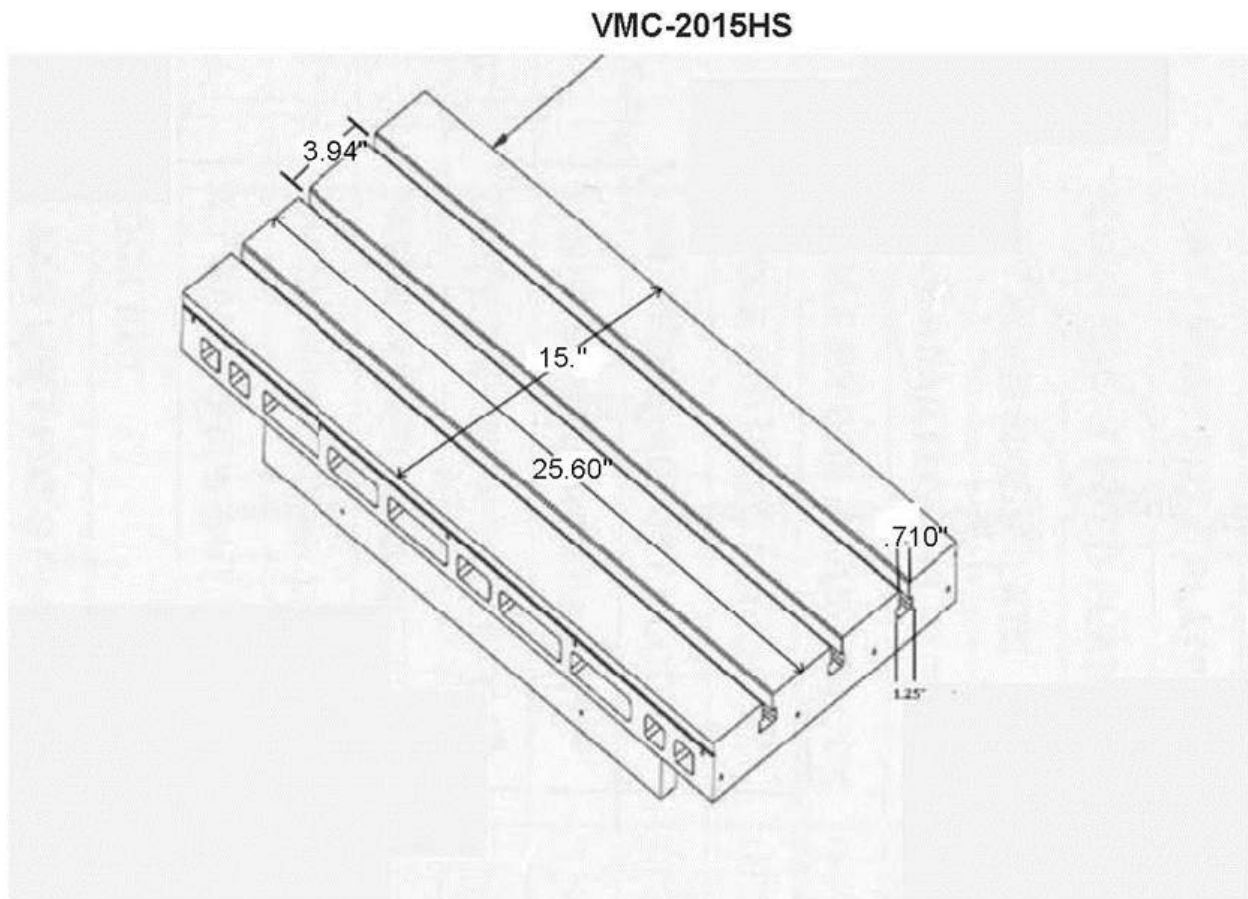
Spacing = 3.94" (Center to Center)

Throat = .710"

Key Slot = 1.250"

Number of T-Slots = 3

Table Length = 25.60" Table Width = 15."





Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

12: Machine Table T-Slots (Continued)

TEE SLOT DIMENSIONS VMC-2520

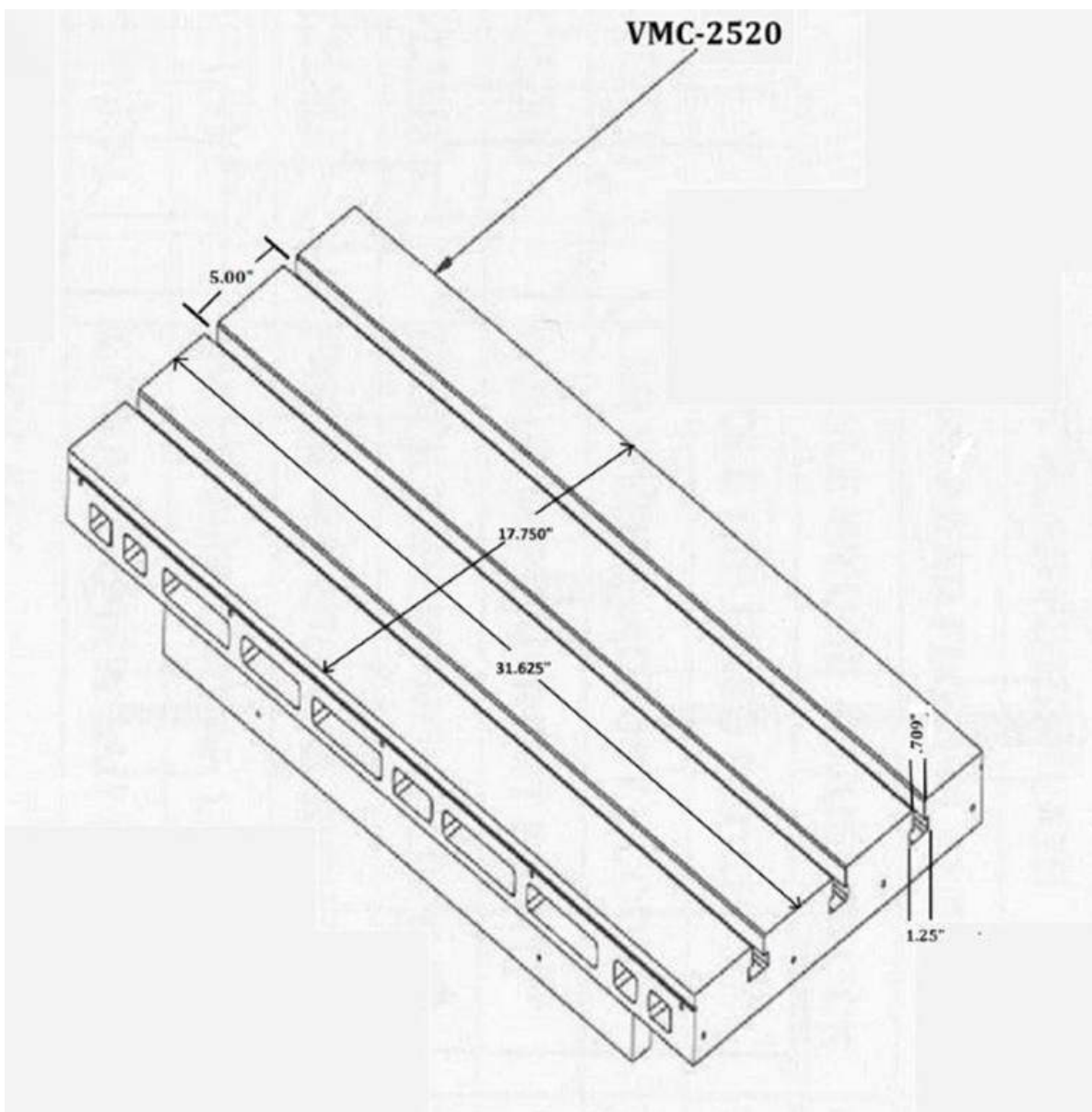
Spacing = 5.00" (Center to Center)

Throat = .709"

Key Slot = 1.250"

Number of T-Slots = 3

Table Length = 31 5/8" Table Width = 17 3/4"





Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

12: Machine Table T-Slots (Continued)

TEE SLOT DIMENSIONS VMC-3320

Spacing = 5.00" (Center to Center)

Throat = .709"

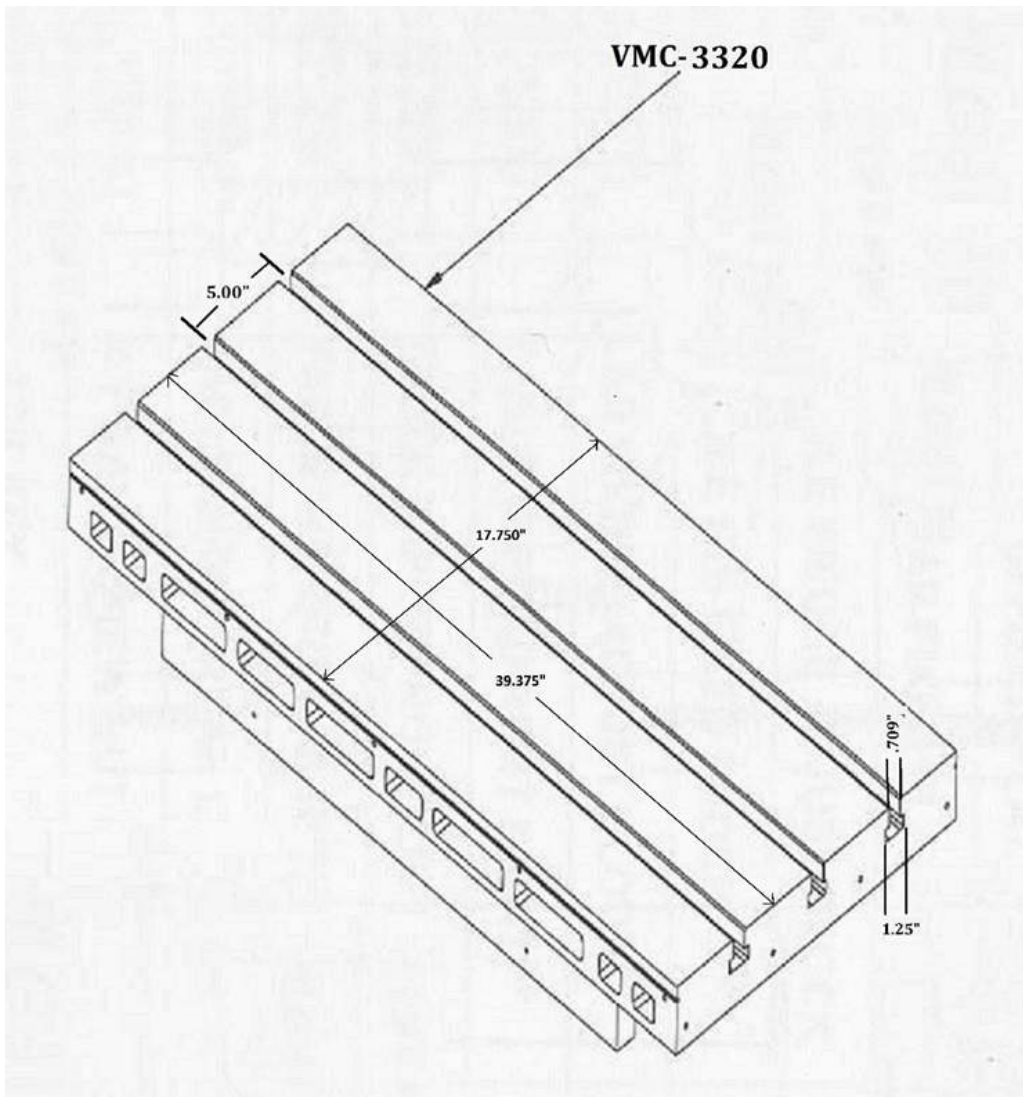
Key Slot = 1.250"

Number of T-Slots = 3

Table Length = 39 3/8" Table Width = 17 3/4"

Clearance from table back edge to Z-Axis way Cover at Y-Axis limit position = 1 1/8" *

*Extended Column





Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

12: Machine Table T-Slots (Continued)

TEE SLOT DIMENSIONS VMC-4020

Spacing = 3.75" (Center to Center)

Throat = .709"

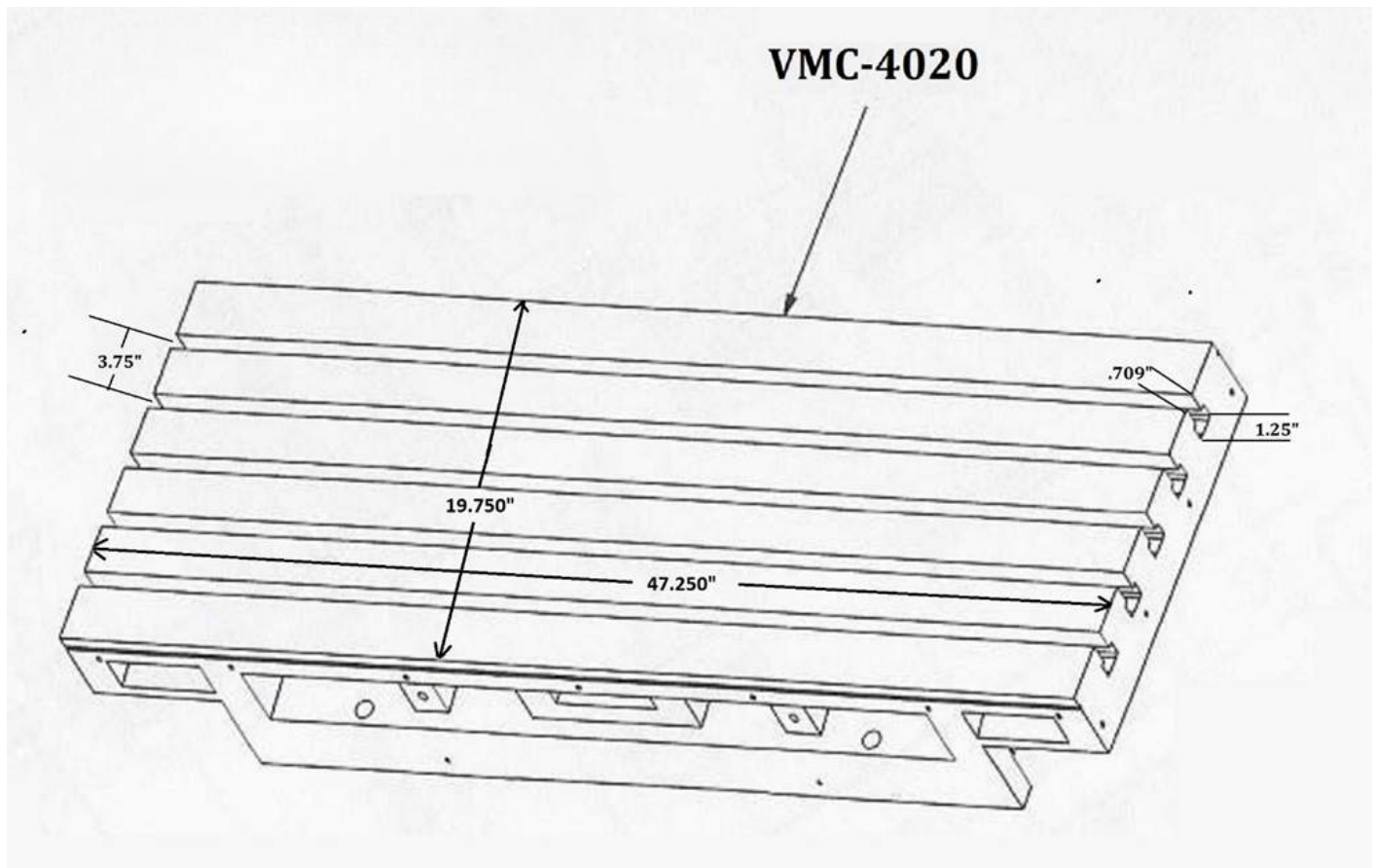
Key Slot = 1.250"

Number of T-Slots = 5

Table Length = 47 1/4" Table Width = 19 3/4"

Clearance from table back side edge to Z-axis way cover at Y-axis limit = 3/8" *

*Extended Column





Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

12: Machine Table T-Slots (Continued)

TEE SLOT DIMENSIONS VMC-4022

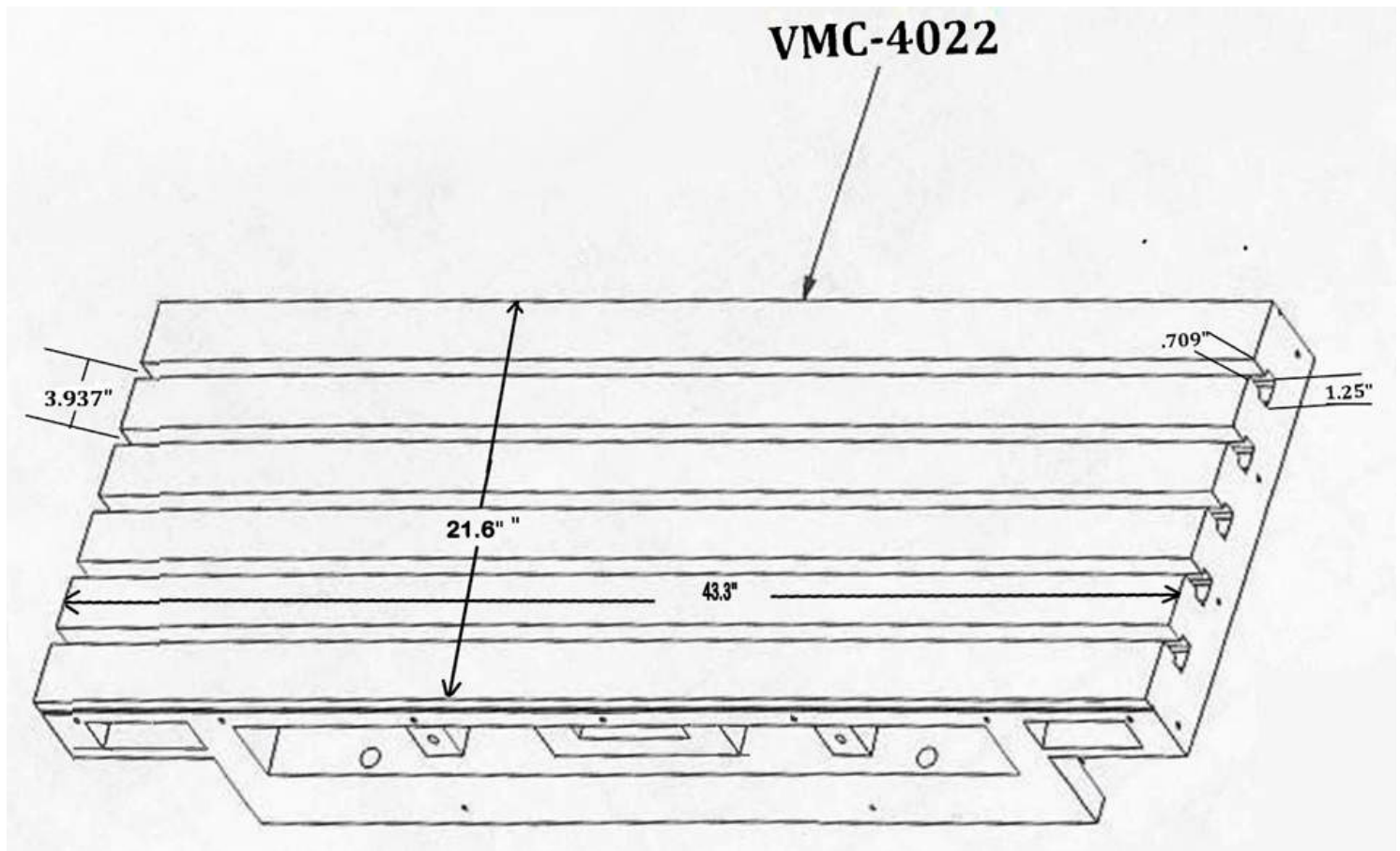
Spacing = 3.937" (Center to Center)

Throat = .709"

Key Slot = 1.250"

Number of T-Slots = 5

Table Length = 43.30" Table Width = 21.60"





Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

12: Machine Table T-Slots (Continued)

TEE SLOT DIMENSIONS VMC-5528

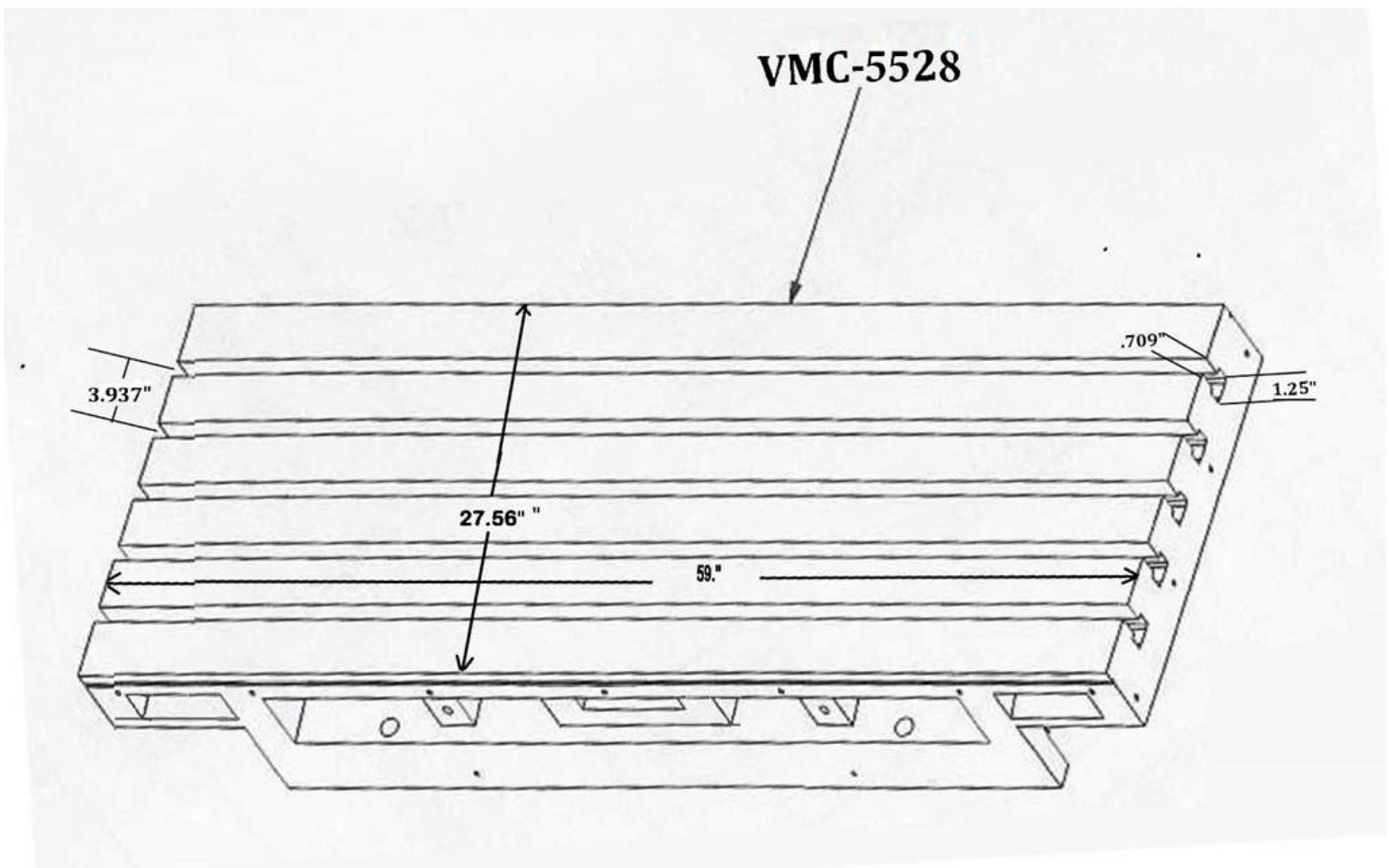
Spacing = 3.937" (Center to Center)

Throat = .709"

Key Slot = 1.250"

Number of T-Slots = 6

Table Length = 59." Table Width = 27.56"





Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

12: Machine Table T-Slots (Continued)

TEE SLOT DIMENSIONS VMC-6032

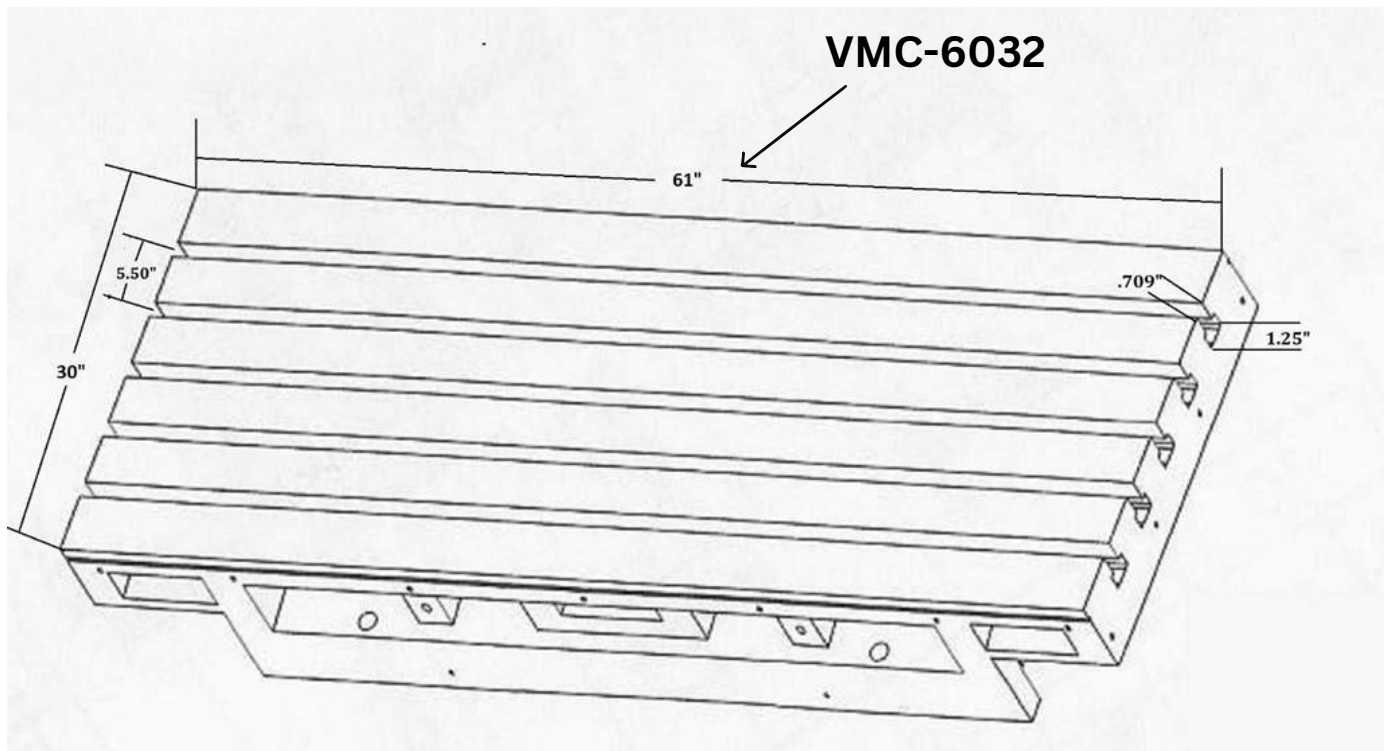
Spacing = 5.50" (Center to Center)

Throat = .709"

Key Slot = 1.250"

Number of T-Slots = 5

Table Length = 61" Table Width = 30"





Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

12: Machine Table T-Slots (Continued)

TEE SLOT DIMENSIONS VMC-8032

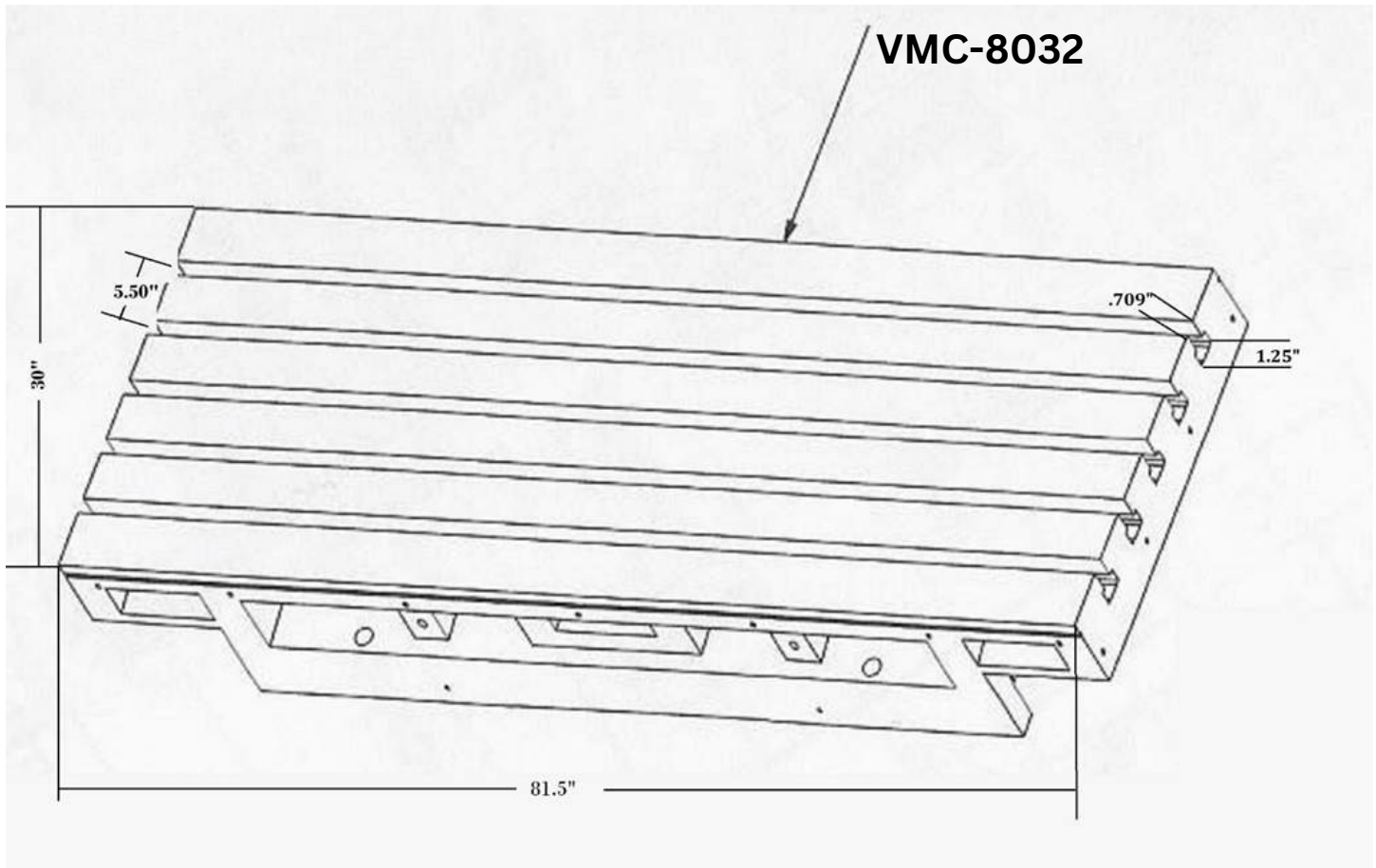
Spacing = 5.50" (Center to Center)

Throat = .709"

Key Slot = 1.250"

Number of T-Slots = 5

Table Length = 81.50" Table Width = 30"





Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

13: Machine Lubricants

Due to the Machine options and features. Here is the recommended lubricant for the machines and machine maintenance thru out the year.

Oil and Lube Points	Procedures	Cycle of Life	Oil or Grease Grade	Exxon Mobil	Shell	Chevron Texaco	Castrol
Waylube Pump	Fill tank to full line .	Refill as needed.	ISO V68	Vactra 2	Tonna 68V	Waylube D	Magna BD68
Spindle Chiller	Fill tank to full line on cap stem.	1 year or 2100 hours	ISO VG6-VG32	DTE 24	Tellus 32	Rando Oil HD32	Hyspin VG32
Hi / Low Idler & Actuators	Fill reservoir and cylinders as needed.	Refill as needed.	Hydraulic 32	DTE 24	Tellus 32	Rando Oil HD32	Hyspin VG32
Air Oil Spindle Pump	Fill tank to full line .	Refill as needed.	ISO-32	Mobil DTE 732	N/A	N/A	N/A
Rotary Table	Sight glass should show a minimum of half full.	1 year or 2100 hours	ISO V68	Mobilgear 626	Omala 68	Meropa 68	Tribol 1066/150
DATC Gear Box	Sight glass should show a minimum of half full.	1 year or 2100 hours	ISO VG150-220	Mobilgear 600 xp220	Omala S2 GX220	Meropa 220	ISolube 220
Air Regulator Oiler	Fill tank to full line.	Refill as needed.	ISO VG32	DTE 24	Tellus 32	Rando Oil HD32	Hyspin VG32
DATC Arm Thumb	2 pumps with grease gun.	Bi-annually	Water-Resistant Grease	N/A	N/A	N/A	N/A
DATC Bucket Rail	Spray Grease on Rails.	1 year or 2100 hours	Lithium Grease Spray	N/A	N/A	N/A	N/A
Counter Balance Chain	Spray grease on chains.	Bi-annually	Chain Lubricant Spray	N/A	N/A	N/A	N/A
Counter Balance Rail	Spray grease on rail.	Bi-annually	Chain Lubricant Spray	N/A	N/A	N/A	N/A
Way Covers	If not running coolant. Wipe with way oil.	Weekly	ISO V68	Vactra 2	Tonna 68V	Waylube D	Magna BD68
Tool in/ out Hyd Reservoir	Fill tank to full line.	Refill as needed.	ISO VG32	DTE 24	Tellus 32	Rando Oil HD32	Hyspin VG32



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

14: Shipping Dimensions

Machine Model #	Machine (Length x Depth x Height)		Weight
<i>All Machines ship w/ Z Motor Removed...</i> <i>*NOTE: Additional 8" w/ Z axis motor installed.</i>	VMC2015HS to VMC5528 Machines to ship with a Conestoga air ride trailer Only!	VMC6032 to VMC8032-50 Machines to ship with a low-boy air ride trailer Only!	
VMC2015HS	83" x 72" x 88" w/out Pallet	92" x 91" x 96" w/ Pallet	7,000 lbs.
VMC2015HS-40	83" x 72" x 88" (w/out Pallet	92" x 91" x 96" w/ Pallet	7,200 lbs.
VMC2520	86" x 96" x 90" w/out Pallet	92" x 102" x 97" w/ Pallet	11,600 lbs.
VMC2520 Ext. Z	86" x 96" x 99" w/out Pallet	92" x 102" x 107" w/ Pallet	12,500 lbs.
VMC3320	114" x 93" x 90" w/out Pallet	123" x 93" x 97" w/ Pallet	12,500 lbs.
VMC 3320 Ext Z	114" x 93" x 99" w/out Pallet	123" x 93" x 107" w/ Pallet	13,500 lbs.
VMC4020	114" x 93" x 90" w/out Pallet	123" x 93" x 97" w/ Pallet	13,000 lbs.
VMC4020 Ext. Z	114" x 93" x 99" w/out Pallet	123" x 93" x 107" w/ Pallet	13,500 lbs.
VMC4020-APC	114" x 93" x 99" w/out Pallet	123" x 93" x 107" w/ Pallet	13,000 lbs.
VMC4020-APC Pallet Changer (ONLY)	79" x 64" x 46" w/out Pallet	79" x 64" x 52" w/Pallet	3,500 lbs.
VMC4022	96" x 86" x 93" w/out Pallet	99" x 90" x 98" w/ Pallet	12,126 lbs.
VMC5528	114" x 93" x 99" w/out Pallet	150" x 90" x 99" w/ Pallet	19,850 lbs.
VMC5528 Tool changer (ONLY)		38" x 52" x 52" w/Pallet	650 lbs.
VMC6032	167" x 120" x 136" w/out Pallet	180" x 133" x 144" w/ Pallet	35,275 lbs.
6032 Coolant Tank	167" x 42" x 14" w/out Pallet		450 lbs.
6032 Chip Trough	178" x 22.5" x 27" w/out Pallet		450 lbs.
VMC6032-50	167" x 120" x 136" w/out Pallet	180" x 133" x 144" w/ Pallet	37,683 lbs.
6032-50 Coolant Tank	167" x 42" x 14" w/out Pallet		450 lbs.
6032-50 Chip Trough	178" x 22.5" x 27" w/out Pallet		450 lbs.
VMC8032	219" x 120" x 136" w/out Pallet	224" x 138" x 144" w/ Pallet	37,480 lbs.
8032 Coolant Tank	219" x 42" x 14" w/out Pallet		450 lbs.
8032 Chip Trough	225" x 22.5" x 27" w/out Pallet		450 lbs.
VMC8032-50	224" x 120" x 144" w/ Pallet (	224" x 138" x 144" w/ Pallet	39,500 lbs.
8032-50 Coolant Tank	219" x 42" x 14" w/out Pallet		450 lbs.
8032-50 Chip Trough	225" x 22.5" x 27" w/out Pallet		450 lbs.
VM5ax320	100" x 121" x 122" w/ Pallet		16,316 lbs.



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

14: Shipping Dimensions (Continued)

Chip Conveyor Dimensions

Machine Model #	(Length x Depth x Height)	Weight
VMC2015HS	91" x 59" x 36" w/out Pallet	600 lbs.
VMC2520	140" x 23" x 64" w/out Pallet	574 lbs.
VMC3320	160" x 23" x 64" w/out Pallet	620 lbs.
VMC4020	160" x 23" x 64" w/out Pallet	620 lbs.
VMC4022	140" x 24" x 64" w/out Pallet	620 lbs.
VMC5528	160" x 30" x 64" w/out Pallet	620 lbs.
VMC6032/6032-50	225" x 22.5" x 64" w/out Pallet	1,120 lbs.
VMC8032/8032-50	225" x 22.5" x 64" w/out Pallet	1,120 lbs.
VM5ax320	140" x 22.5" x 64" w/out Pallet	850 lbs.

Additional Accessories

Type of Accessory	(Length x Depth x Height)	Weight
Polar Jet Unit	39.5" x 28" x 44.5" w/out Pallet	500 lbs.

All specifications are subject to change without notice.



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

14: Machine Lubricants

Due to the Machine options and features. Here is the recommended lubricant for the machines and machine maintenance thru out the year.

Oil and Lube Points	Procedures	Cycle of Life	Oil or Grease Grade	Exxon Mobil	Shell	Chevron Texaco	Castrol
Waylube Pump	Fill tank to full line .	Refill as needed.	ISO V68	Vactra 2	Tonna 68V	Waylube D	Magna BD68
Spindle Chiller	Fill tank to full line on cap stem.	1 year or 2100 hours	ISO VG6-VG32	DTE 24	Tellus 32	Rando Oil HD32	Hyspin VG32
Hi / Low Idler & Actuators	Fill reservoir and cylinders as needed.	Refill as needed.	Hydraulic 32	DTE 24	Tellus 32	Rando Oil HD32	Hyspin VG32
Air Oil Spindle Pump	Fill tank to full line .	Refill as needed.	ISO-32	Mobil DTE 732	N/A	N/A	N/A
Rotary Table	Sight glass should show a minimum of half full.	1 year or 2100 hours	ISO V68	Mobilgear 626	Omala 68	Meropa 68	Tribol 1066/150
DATC Gear Box	Sight glass should show a minimum of half full.	1 year or 2100 hours	ISO VG150-220	Mobilgear 600 xp220	Omala S2 GX220	Meropa 220	ISolube 220
Air Regulator Oiler	Fill tank to full line.	Refill as needed.	ISO VG32	DTE 24	Tellus 32	Rando Oil HD32	Hyspin VG32
DATC Arm Thumb	2 pumps with grease gun.	Bi-annually	Water-Resistant Grease	N/A	N/A	N/A	N/A
DATC Bucket Rail	Spray Grease on Rails.	1 year or 2100 hours	Lithium Grease Spray	N/A	N/A	N/A	N/A
Counter Balance Chain	Spray grease on chains.	Bi-annually	Chain Lubricant Spray	N/A	N/A	N/A	N/A
Counter Balance Rail	Spray grease on rail.	Bi-annually	Chain Lubricant Spray	N/A	N/A	N/A	N/A
Way Covers	If not running coolant. Wipe with way oil.	Weekly	ISO V68	Vactra 2	Tonna 68V	Waylube D	Magna BD68
Tool in/ out Hyd Reservoir	Fill tank to full line.	Refill as needed.	ISO VG32	DTE 24	Tellus 32	Rando Oil HD32	Hyspin VG32

15: Machine Lifting and Moving Instructions



Before Beginning the Machine Lifting and Moving it is **IMPORTANT** to Review the Entire Lifting and Moving Instructions.

This is a controlled document under master and revision control. You may print and use copies of this procedure as required. You are responsible for using the latest revision. Refer to the master document index, the controlled document location or contact your document coordinator to verify use of latest revision.

- Pictures in this section are for reference only and do not necessary depict the latest revision.



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

15: Machine Lifting and Moving Instructions (Continued)

VMC Estimated Weight

VMC	WEIGHT
2015HS	7,200 lbs 3,266 kgs
2520	11,400 lbs 5,171 kgs
3320	11,800 lbs 5,353 kgs
4020	12,500 bs 5,670 kgs
4022	12,500 lbs 5,670 kgs
5528	21,000 lbs 9,526 kgs)
6032/50	36,800 lbs 16,693 kgs
8032/50	38,800 lbs 17,600 kgs



Lifting Label

No Lifting Label

15: Machine Lifting and Moving Instructions (Continued)

Crane Lifting

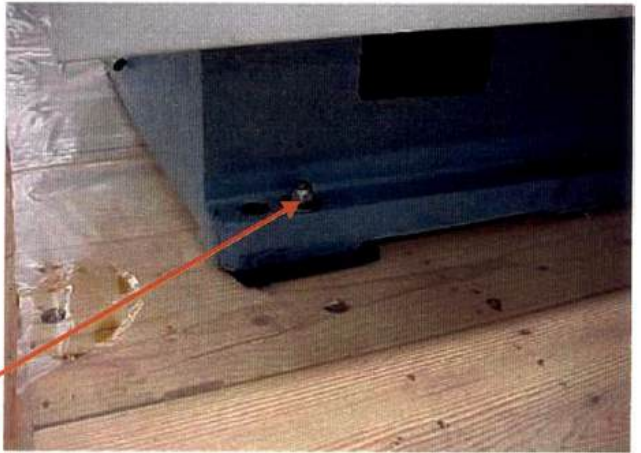


WARNING!

Do Not Stand Near Machine When it has Been Lifted by Crane.

Observe all Safety Procedures When Moving or Lifting Machine.

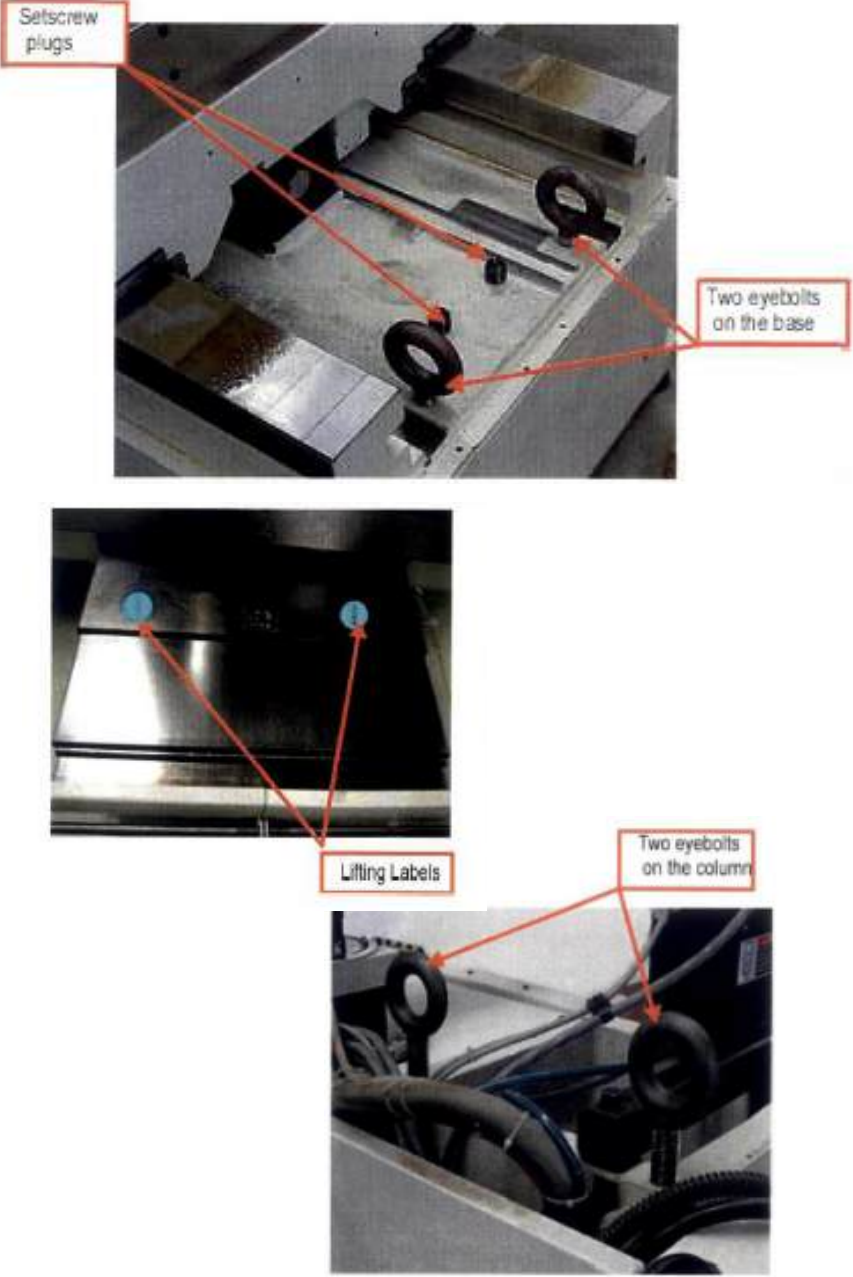
Preparation of the VMC for Lifting and Moving Crane Lifting

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

15: Machine lifting and Moving Instructions (Continued)

Preparation of the VMC for Lifting and Moving

Crane Lifting

Procedure	Reference
1. Locate installed large eyebolts - Two at the extreme front of the base of the machine. (Remove way cover if not removed.) - Two at the rear top of the column the machine. NOTE: After moving the machine the two setscrew plugs (supplied) have to be re-installed.	 The reference column contains three photographs with red arrows pointing to specific lifting points on the machine. The top photograph shows the front of the machine base with two large eyebolts and two setscrew plugs. The middle photograph shows the rear top of the machine column with two large eyebolts and two lifting labels. The bottom photograph shows a close-up of the two large eyebolts on the machine column.



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

15: Machine Lifting and Moving Instructions (Continued)

Preparation of the VMC for Lifting and Moving

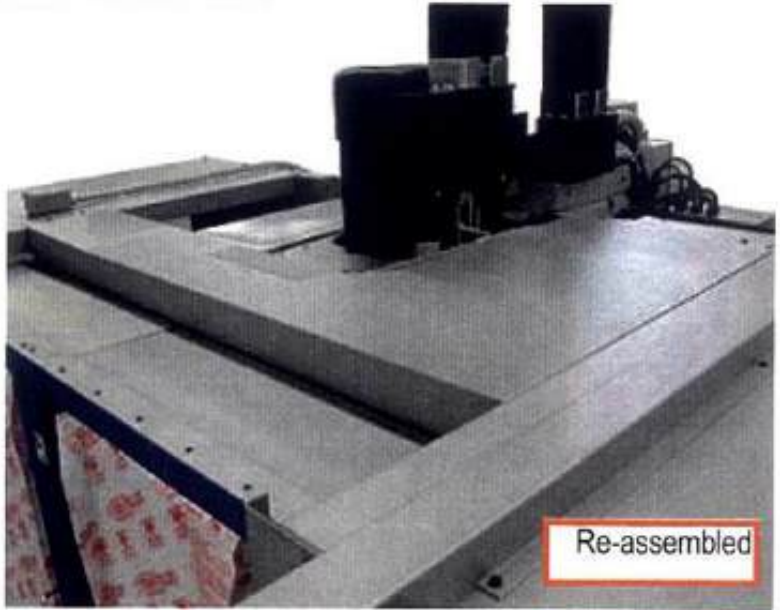
Crane Lifting

Procedure	Reference
2. The slings can now be attached to the eyebolts and up into the hook of the hoist. 3. Arrange the Chains or Lifting Straps to not contact sheet metal components, and lift machine slowly. 4. Now machine can be lifted by crane.	

15: Machine Lifting and Moving Instructions (Continued)

Preparation of the VMC for Lifting and Moving

Crane Lifting

Procedure	Reference
1. The top cover (option) is shipped disassembled and needs to be re-assembled after machine is placed as shown on the picture.	 The image shows the top cover of the machine disassembled into two main parts, one of which is propped up by a white block. A red-bordered label with the text "Disassembled" is overlaid on the bottom left of the image.  The image shows the top cover of the machine fully re-assembled onto the main machine body. A red-bordered label with the text "Re-assembled" is overlaid on the bottom right of the image.

15: Machine Lifting and Moving Instructions (Continued)

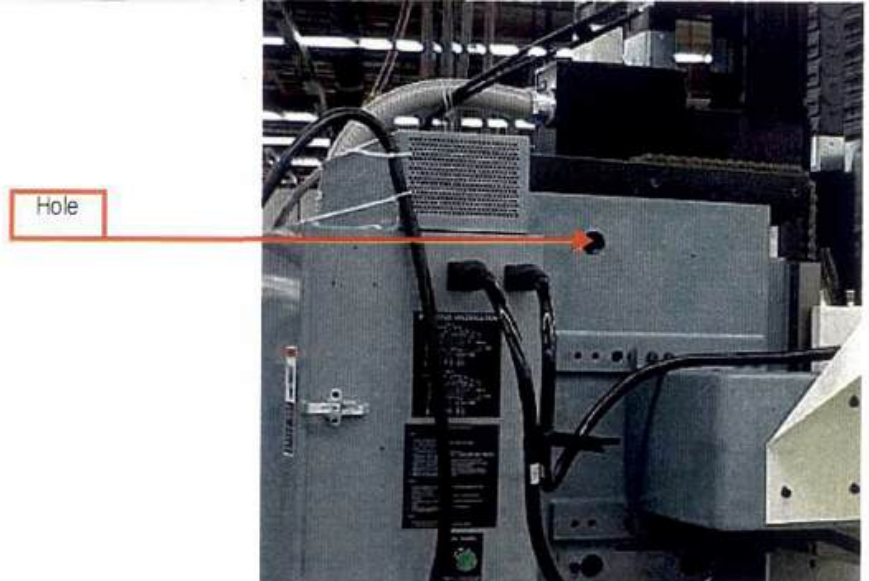
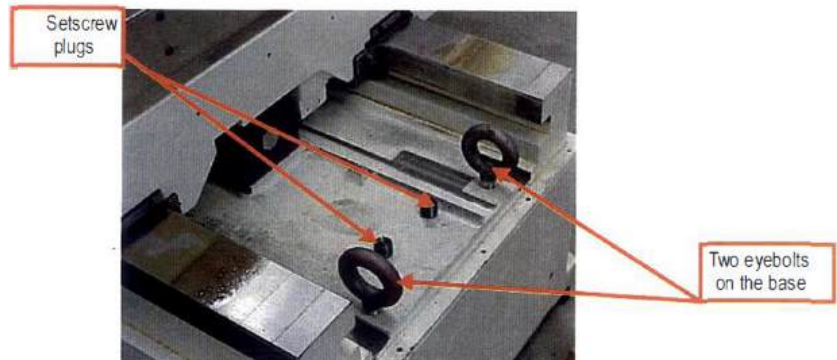
Preparation of the VMC for Lifting and Moving

Crane Lifting

Procedure

2. Locate installed two large eyebolts at the extreme front of the base of the machine. (Remove way cover if not removed.)
3. 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.
4. There are holes on both sides of the column.

Reference



15: Machine Lifting and Moving Instructions (Continued)

Preparation of the VMC for Lifting and Moving

Crane Lifting

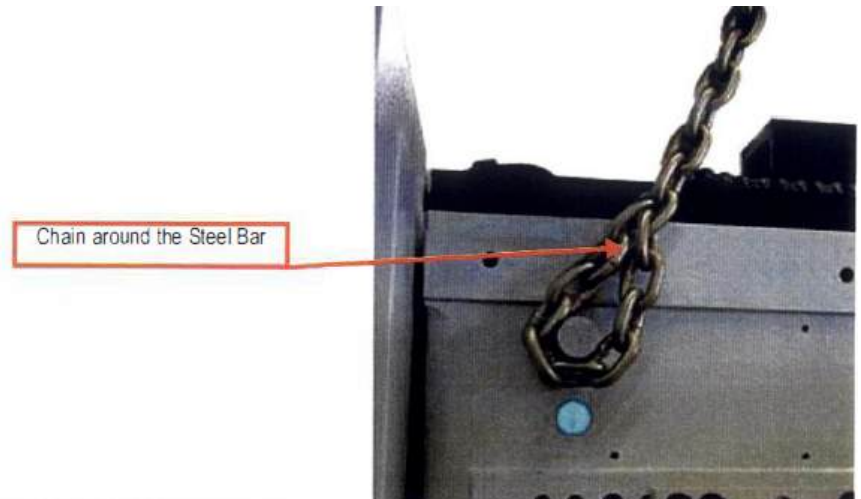
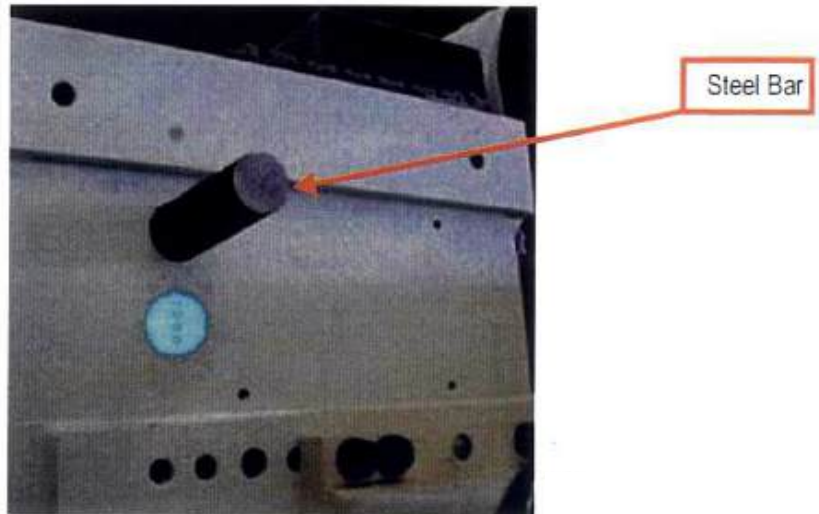
Procedure

5. Insert A 01.25" (or 031.71 mm max.) x 36" (915mm min.) length steel bar (not provided) through the holes in the column.

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

6. 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.

Reference





Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

15: Machine Lifting and Moving Instructions (Continued)

Preparation of the VMC for Lifting and Moving

Crane Lifting

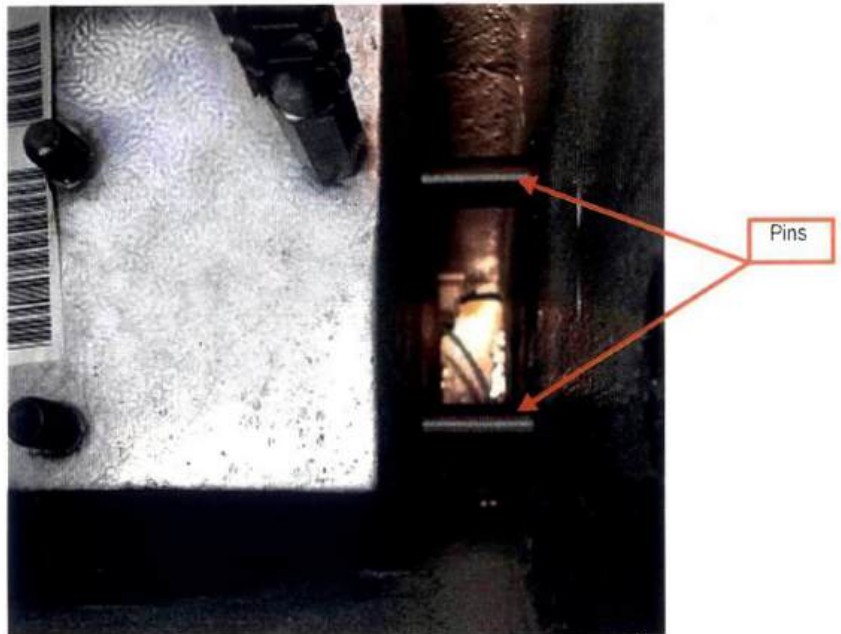
Procedure

NOTE: On the high performance models, pins are already in the counterweight when shipped from the factory that can be used for lifting the machine. Looking in the top of the column they are easily seen on all models.

7. Slide the counterweight all the way forward and slip the sling around both pins and up into the hook of the hoist.

8. Now machine can be lifted by crane.

Reference



15: Machine Lifting and Moving Instructions (Continued)

Forklift Lifting



WARNING!

Do not stand near machine when it has been lifted by forklift.

Observe all safety procedures when moving or lifting machine.

Preparation of the VMC for Lifting and Moving Forklift Lifting

Procedure	Reference
ALL VMC MODELS: 1. Use first two steps at the beginning of the "Lifting and/or Moving Instructions. 2. Use two lifting steel bars for each machine: , $\varnothing 2 \frac{1}{4} \times 72"$ ($\varnothing 51\text{mm} \times 1829\text{mm}$) $\varnothing 2 \frac{1}{4} - 60"$ ($\varnothing 51\text{mm} \times 1525\text{mm}$). 3. Place two bars through two holes on the side of the base.	



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

15: Machine Lifting and Moving Instructions (Continued)

Preparation of the VMC for Lifting and Moving

Forklift Lifting

Procedure

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

Reference



15: Machine Lifting and Moving Instructions (Continued)

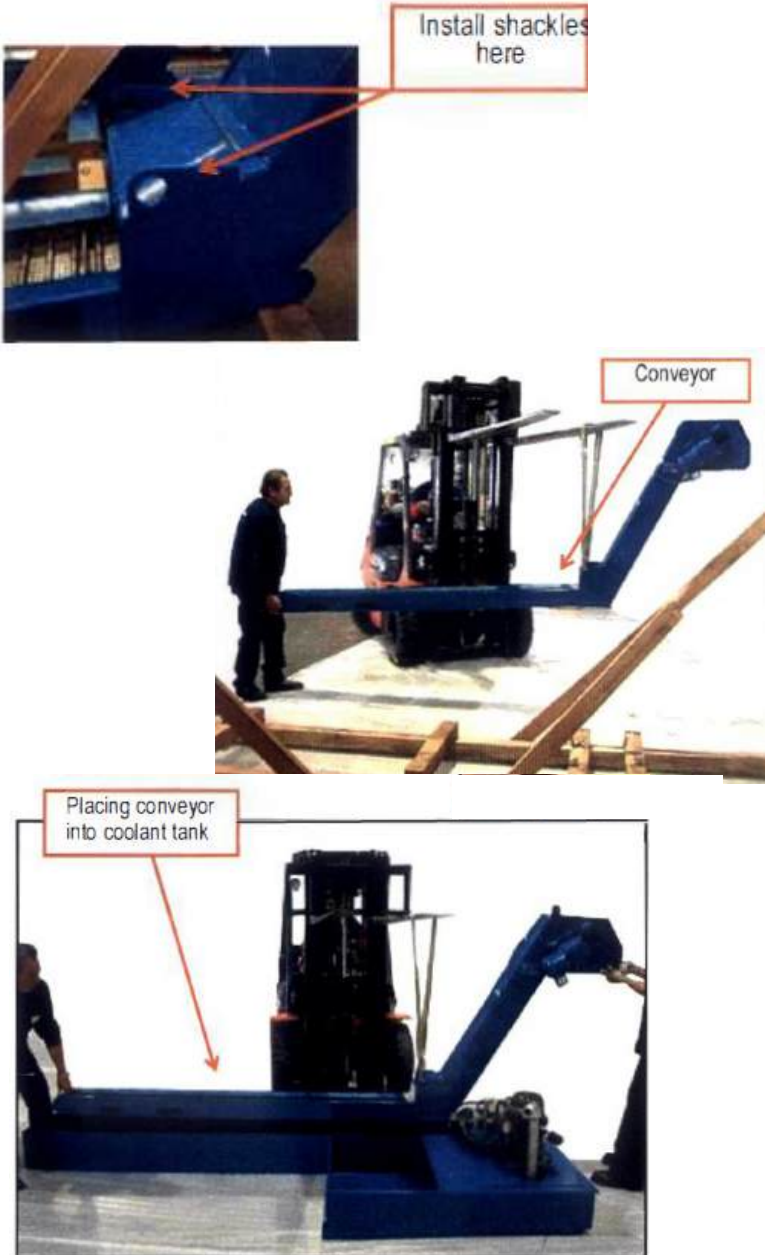
Coolant Tank and Chip Conveyor

Preparation of the Coolant Tank and Chip Conveyor for Lifting and Moving

Procedure	Reference
1. Slowly lift (forklift or crane) the coolant tank and place it close to the machine. 2. Slowly lift (forklift or crane) the chip conveyor and place it close to the coolant tank.	

15: Machine Lifting and Moving Instructions (Continued) Coolant Tank and Chip Conveyor

Preparation of the Coolant Tank and Chip Conveyor for Lifting and Moving

Procedure	Reference
3. Remove the bolts securing the chip conveyor to the shipping wooden frame. 4. Install two chain shackles with pins or bolts 1 inch min. diameter. 5. Slide the sling through two chain shackles and lift conveyor slowly with the forklift (crane) holding one side for balance. 6. Slowly place conveyor into the coolant tank and slide under the machine.	 The reference column contains three photographs illustrating the steps in the procedure: - The top photograph shows a close-up of the blue chip conveyor with two red arrows pointing to specific locations. A text box above the arrows says "Install shackles here". - The middle photograph shows a forklift lifting the blue chip conveyor. A text box with an arrow pointing to the conveyor says "Conveyor". - The bottom photograph shows the blue chip conveyor being lowered into a large metal tank. A text box with an arrow pointing to the conveyor says "Placing conveyor into coolant tank".



Pre-Installation Procedures

Models: VMC2015HS, VMC2520, VMC3320, VMC4020, VMC4022, VMC5528, VMC6032, VMC6032-50, VMC8032, VMC8032-50, VM5ax320

16: Fadal Coolant Tank Capacities: 2024

Note: All Capacities (Gallons/Liters) are Approximate and Represent 80% of the Total Capacity.

Machine Model	Front Tank Capacity Approximately Gallons (gal) Liters (L)	Side Tank Capacity Approximately Gallons (gal) Liters (L)	Back Tank Capacity Approximately Gallons (gal) Liters (L)	Total Capacity Approximately Gallons (gal) Liters (L)
2015HS			40 gal 151 L	40 gal 151 L
2520 Without Chip Conveyor (Chip Baskets)	23 gal 87 L	30 gal 114 L		53 gal 201 L
2520 With Chip Conveyor	30 gal 114 L	37 gal 140 L		67 gal 254 L
3320/4020 Without Chip Conveyor (Chip Baskets)	31 gal 117 L	41 gal 155 L		72 gal 272 L
3320/4020 With Chip Conveyor	39 gal 148 L	52 gal 196 L		91 gal 344 L
4022	40 gal 151 L	47 gal 177 L		87 gal 328 L
5528	65 gal 246 L	74 gal 280 L		139 gal 526 L
6032 40T/50T With Chip Conveyor	103 gal 403 L	174 gal 662 L		277 gal 1,025 L
8032 40T/50T With Chip Conveyor	137 gal 518 L	174 gal 662 L		311 gal 1,180 L