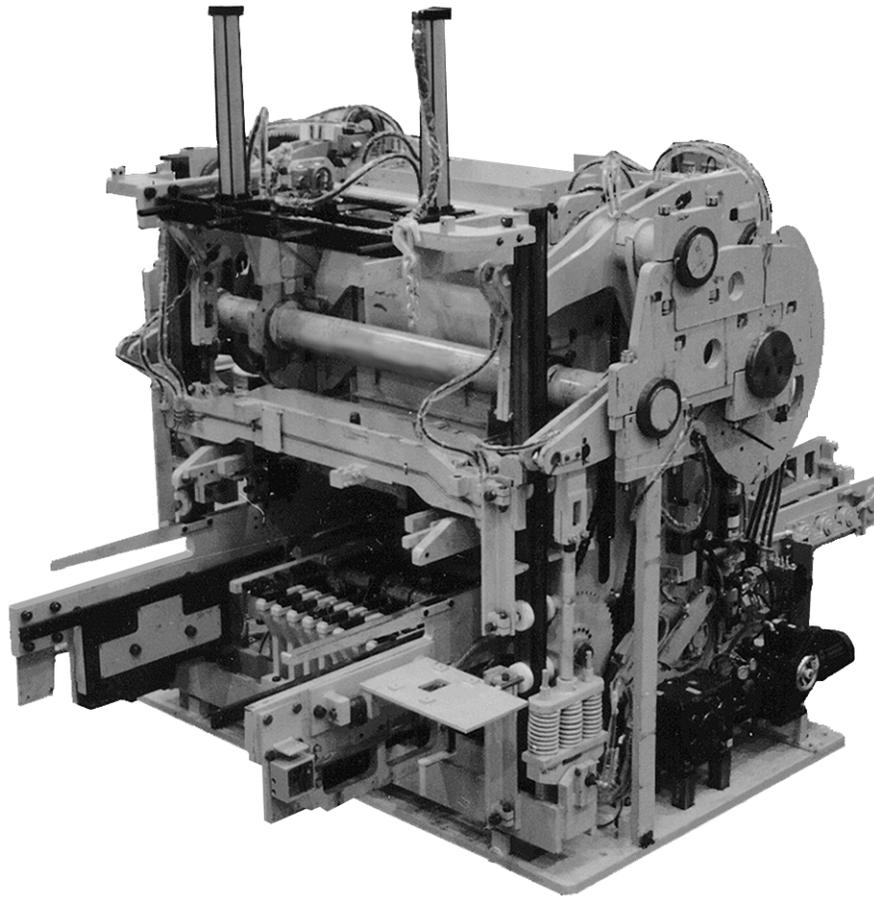


# **BESSER**

## **ULTRAPAC II**

**4 AT A TIME**



**Installation**

**466361F0501US**

**February 2005 • US\$250**

**BESSER World Headquarters**

801 Johnson St. • Alpena, Michigan, 49707 • U.S.A.  
Phone (989) 354-4111

# **BESSER**

COMPANY NAME: .....

SERIAL NUMBER: .....

ASSEMBLY NUMBER: .....

WIRING DIAGRAM NUMBER: .....

INSTALLATION DRAWING NUMBER: .....

# ULTRACAC II

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## SAFETY BULLETIN

This notice is issued to advise you that some previously accepted shop practices may not be keeping up with changing Federal and State Safety and Health Standards. Your current shop practices may not emphasize the need for proper precautions to insure safe operation and use of machines, tools, automatic loaders and allied equipment and/or warn against the use of certain solvents or other cleaning substances that are now considered unsafe or prohibited by law. Since many of your shop practices may not reflect current safety practices and procedures, particularly with regard to the safe operation of equipment, it is important that you review your practices to ensure compliance with Federal and State Safety and Health Standards.

### IMPORTANT

**The operation of any machine or power-operated device can be extremely hazardous unless proper safety precautions are strictly observed. Observe the following safety precautions:**

-  Always be sure proper guarding is in place for all pinch, catch, shear, crush and nip points.
-  Always make sure that all personnel are clear of the equipment before starting it.
-  Always be sure the equipment is properly grounded.
-  Always turn the main electrical panel off and lock it out in accordance with published lockout/tag-out procedures prior to making adjustments, repairs, and maintenance.
-  Always wear appropriate protective equipment like safety glasses, safety shoes, hearing protection and hard hats.
-  Always keep chemical and flammable material away from electrical or operating equipment.
-  Always maintain a safe work area that is free from slipping and tripping hazards.
-  Always be sure appropriate safety devices are used when providing maintenance and repairs to all equipment.
-  Never exceed the rated capacity of a machine or tool.
-  Never modify machinery in any way without prior written approval of the Besser Engineering Department.
-  Never operate equipment unless proper maintenance has been regularly performed.
-  Never operate any equipment if unusual or excessive noise or vibration occurs.
-  Never operate any equipment while any part of the body is in the proximity of potentially hazardous areas.
-  Never use any toxic flammable substance as a solvent cleaner.
-  Never allow the operation or repair of equipment by untrained personnel.
-  Never climb or stand on equipment when it is operational.

It is important that you review Federal and State Safety and Health Standards on a continual basis. All shop supervisors, maintenance personnel, machine operators, tool operators, and any other person involved in the setup, operation, maintenance, repair or adjustment of Besser-built equipment should read and understand this bulletin and Federal and State Safety and Health Standards on which this bulletin is based.

## SAFETY SIGNS

<b>Sign</b>	<b>Description</b>	<b>Required</b>
1	All Panels .....	1
2	Mixer .....	4
3	Concrete Products Machine .....	1
	Depalleter .....	2
4	Mixer .....	2
5	Skiploader .....	4
6	Skiploader/Mixer Platforms .....	8
7	Skiploader/Mixer Platforms .....	8
8	Vertical: Pallet Transport System .....	2
	Horizontal: LSC-40A/LSC-100 .....	6
	Pallet Transport System .....	4
9	Besser-Matic .....	4
10	Besser-Matic .....	4
11	Skiploader .....	4
12	All Panels .....	1
13	Overhead Block Transfer .....	4
14	Block Pusher .....	2
	Pallet Transfer System .....	4
15	Concrete Products Machine.....	2
16	Conveyors .....	12
17	Cuber .....	8
18	Cuber .....	3
	Block Turnovers .....	2
	Slat Conveyors .....	2

**To order safety decals, contact your local Besser representative  
or the Besser Central Order Department.**

**Thank you!**



**1**

**Large: 113236F0409**  
High Voltage  
Width 4 1/2 inch  
Height 9 5/8 inch  
**Small: 113236F0204**  
High Voltage  
Width 2 inch  
Height 4 1/8 inch



**2**

**113237F0410**  
Mixer Blade Hazard  
Width 4 1/2 inch  
Height 10 1/4 inch



**3**

**Vertical: 113240F0307**  
Crush Hazard  
Width 3 1/2 inch  
Height 7 1/2 inch  
**Horizontal: 113239F0604**  
Crush Hazard  
Width 6 5/8 inch  
Height 4 inch



**4**

**114692F1006**  
Nip Points  
Width 5 3/4 inch  
Height 9 1/2 inch



**5**

**114688F0906**  
Crush Hazard  
Width 6 1/4 inch  
Height 9 1/2 inch



**6**

**114689F0804**  
Fall Hazard  
Width 4 1/2 inch  
Height 7 3/4 inch



**7**

**114690F0805**  
Falling Objects  
Width 4 3/4 inch  
Height 8 inch



**8**

**Vertical: 113244F0410**  
Crush Hazard  
Width 4 1/2 inch  
Height 10 inch  
**Horizontal: 113245F1005**  
Crush Hazard  
Width 10 inch  
Height 5 3/4 inch



**9**

**113242F0409**  
Crush Hazard  
Width 4 1/2 inch  
Height 9 5/8 inch



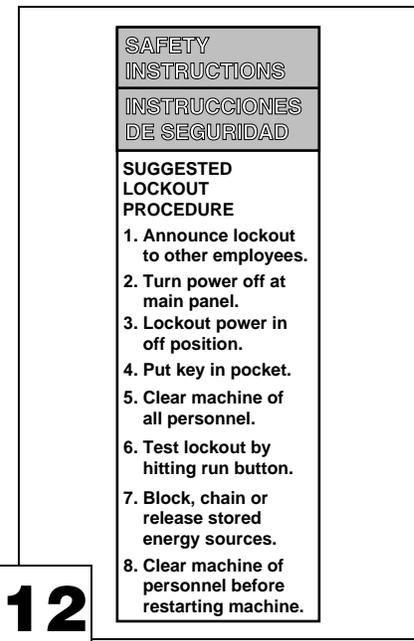
**10**

**113243F0410**  
Falling Objects  
Width 4 1/2 inch  
Height 10 inch



**11**

**114691F1006**  
Shear and Fall Hazards  
Width 5 3/4 inch  
Height 9 3/4 inch



**12**

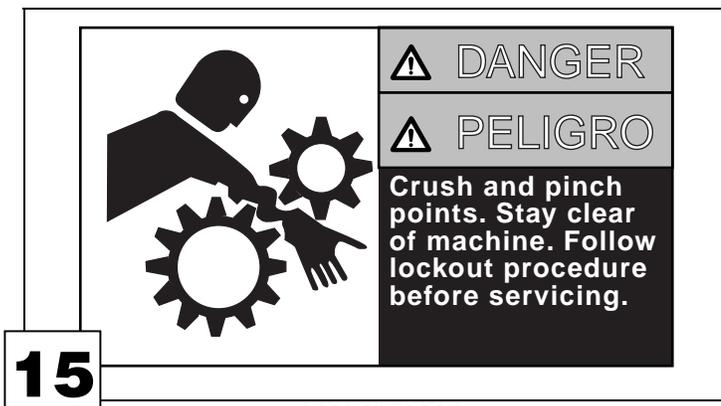
**113249F0410**  
Safety Instructions Decal –  
Suggested Lockout Procedure  
Width 4 inch  
Height 10 inch



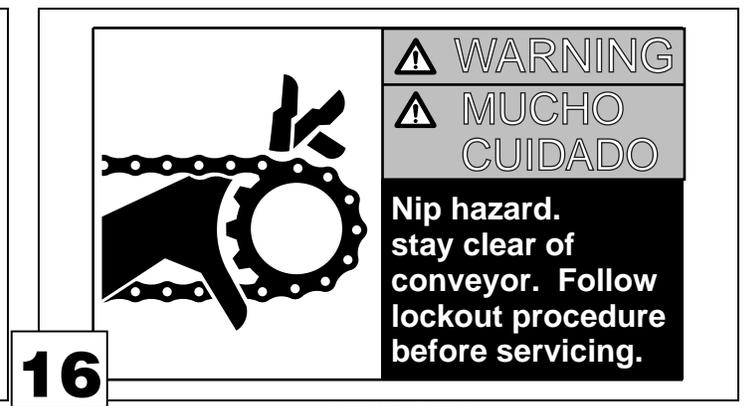
**113238F1005**  
Crush Hazard  
Width 10 inch  
Height 5 3/4 inch



**113248F1006**  
Crush Hazard  
Width 10 inch  
Height 6 inch



**113241F0605**  
Crush and Pinch Points  
Width 6 5/8 inch  
Height 4 inch



**113246F0704**  
Nip Hazard  
Width 7 inch  
Height 4 1/2 inch



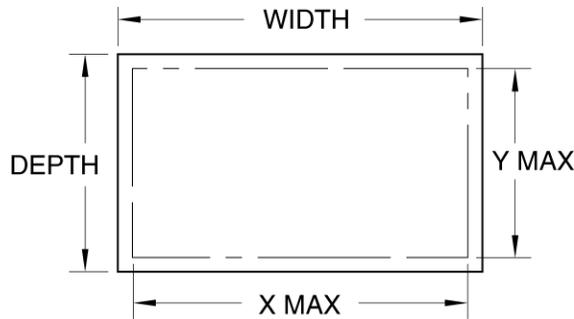
**113247F1006**  
Crush Hazard  
Width 10 inch  
Height 6 inch



**113250F1006**  
Crush and Pinch Hazard  
Width 10 inch  
Height 6 inch

# ULTRACAC II SPECIFICATIONS

- TOTAL WEIGHT:** 54,000 Lbs [24494 Kg]
- AIR LINE FITTING DIMENSIONS:** 3/4" [19mm] I.D.
- MINIMUM AIR PRESSURE:** 80 psi [5.5 bars]
- NOISE RATING:** 102 to 114 DBA
- MACHINE SPEED:** up to 9 cycles / minute
- PRODUCTION CAPACITY:** up to 2160 blocks / hour
- MINIMUM PRODUCT SIZE REQUIREMENT:** 2" high [51mm]
- MAXIMUM PRODUCT SIZE REQUIREMENT:** 12" high [304.8mm]
- PALLET REQUIREMENTS:**



**WIDTH & DEPTH** = Actual size of steel pallet.  
**XMAX & YMAX** = Maximum production area of steel pallet.

WIDTH	DEPTH	THICK.	X	Y	PALLET NO.
38.5" [978mm]	18.5" [470mm]	.375" [9.5mm]	37.5" [953mm]	17.625" [448mm]	453876
38.5" [978mm]	20.5" [521mm]	.375" [9.5mm]	37.5" [953mm]	19.500" [495mm]	463455
38.5" [978mm]	26.0" [9.5mm]	.375" [9.5mm]	37.5" [953mm]	25.000" [635mm]	446635

**THICKNESS TOLERANCE:** -0.010" [0.25mm] / +0.030" [0.76mm]

**Table A** PALLET REQUIREMENTS

**ULTRAPAC II ELECTRICAL DATA**

Plant Power Supply (Volts)	Total Horsepower (HP)	Total Kilowatts (Kw)	Control Panel Transformer (Volt-Amps)	Branch Circuit Distribution Switch (Amps)	Branch Circuit Fuse FRS-R (Amps)	Branch Circuit Feeder THHN	Branch Circuit Feeder Conduit	Short Circuit Interrupting Capacity (AIC)
220V-240V 50 Hz	66.625	49.8	2000	400	250	2.50 AWG 250MM <sup>2</sup>	2.0 IN. 51MM	200,000
220V-240V 60 Hz	64.125	47.9	2000	400	250	2.50 AWG 250MM <sup>2</sup>	2.0 IN. 51MM	200,000
380V 50 Hz	66.625	49.8	2000	200	175	2./0 AWG 67MM <sup>2</sup>	1.5 IN. 38MM	200,000
415V 50 Hz	66.625	49.8	2000	200	175	2./0 AWG 67MM <sup>2</sup>	1.5 IN. 38MM	200,000
440V-480V 50 Hz	66.625	49.8	2000	200	125	1 AWG 42.4MM <sup>2</sup>	1.25 IN. 32MM	200,000
440V-480V 60 Hz	64.125	47.9	2000	200	125	1 AWG 42.4MM <sup>2</sup>	1.25 IN. 32MM	200,000
575V 60 Hz	64.125	47.9	2000	100	100	3 AWG 26.7MM <sup>2</sup>	1.0 IN. 25MM	200,000

**Table B ULTRAPAC II ELECTRICAL DATA**

Please consult the table above to find the appropriate electrical data for your ULTRAPAC II. First, find your corresponding plant power supply in the first left column. You will then find the corresponding electrical data on the same row than your power plant supply.

**EX:** Your power plant supply is 460V at 60 Hz. According to the table, you will then get these values:

- PLANT POWER SUPPLY:** 460 Volts - 60 Hertz
- TOTAL HORSEPOWER:** 64.125
- TOTAL KILOWATTS:** 47.9
- CONTROL PANEL TRANSFORMER:** 2000 volt-amps
- BRANCH CIRCUIT DISTRIBUTION SWITCH:** 200 amp
- BRANCH CIRCUIT FUSE RECOMMENDED (FRS-R):** 125 amp
- BRANCH CIRCUIT FEEDER RECOMMENDED (THHN):** 1 AWG (42.4mm<sup>2</sup>)
- BRANCH CIRCUIT FEEDER CONDUIT RECOMMENDED:** 1.25 in.(32mm)
- SHORT CIRCUIT INTERRUPTING CAPACITY:** 200,000 AIC

**ULTRACAC II ELECTRICAL COMPONENTS**

DEVICE	HORSEPOWER	KILOWATTS
MAIN DRIVE	25	18.7
VIBRATOR-RIGHT	10	7.5
VIBRATOR-LEFT	10	7.5
AGITATOR	5	3.7
BLOCK MOVING BARS	5	3.7
BLOCK MOVING SPEED	0.125	0.1
HEAD VIBRATOR (RIGHT SIDE)	2.0	1.5
HEAD VIBRATOR (LEFT SIDE)	2.0	1.5
CLAM SHELL POWER UNIT	5.0 [7.5]	3.7 [5.6]
<b>TOTAL:</b>	<b>64.125 [66.625]</b>	<b>47.9 [49.8]</b>

**NOTE:** Numbers in parenthesis refer to a power plant supply of 50 Hz instead of 60 Hz.

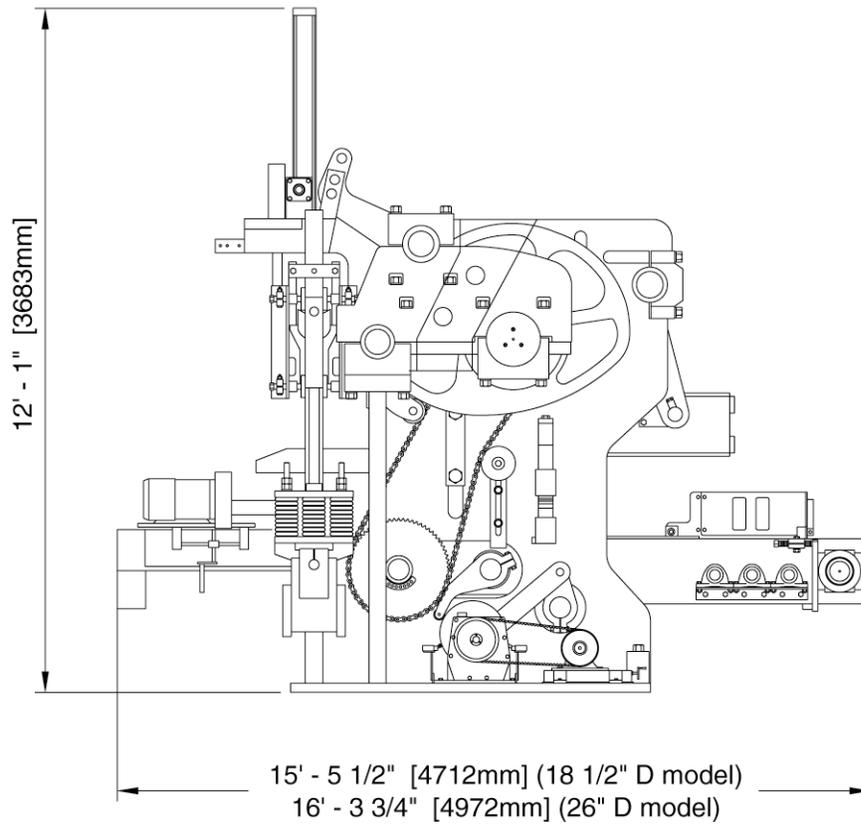
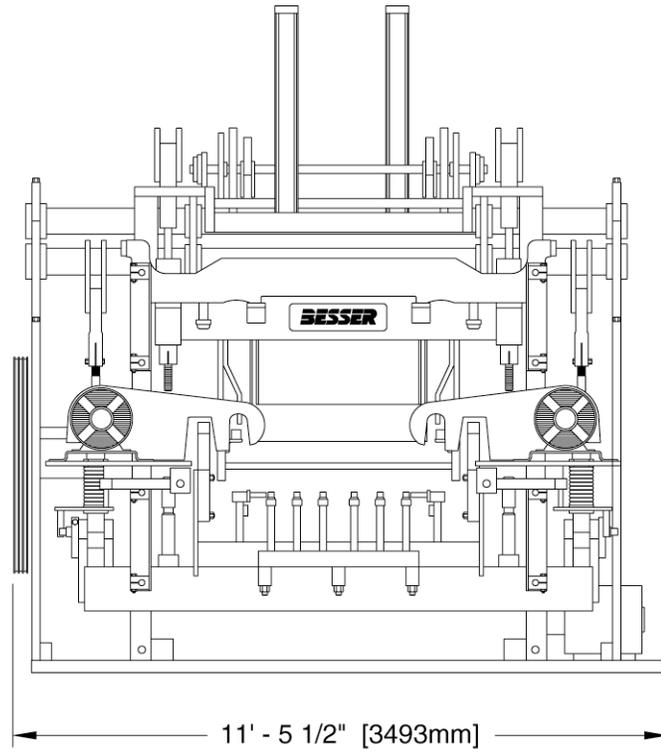
**Table C ELECTRICAL COMPONENTS**

**SUMMARY OF ACOUSTICS**

Files #	+	MEM #	Frq.	Condition	Distance	Overall		<550Hz		>550Hz	
						C	A	C	A	C	A
1.	+	1/21	5 kHz	Start of cycle	0.5m	112	111	109	100	110	110
2.	+	2/22	5 kHz	End of cycle	0.5m	116	114	112	105	113	114
3.	+	3/23	5 kHz	Start of cycle	0.5m						
4.	+	4/24	1 kHz	End of cycle	0.5m						
5.	+	5/25	5 kHz	Start of cycle	1.0m	111	108	108	98	107	107
6.	+	6/26	5 kHz	End of cycle	1.0m	114	111	112	103	110	110
7.	+	7/27	1 kHz	Start of cycle	1.0m						
8.	+	8/28	1 kHz	End of cycle	1.0m						
9.	+	9/29	5 kHz	Start of cycle	2.0m	110	106	108	96	105	105
10.	+	10/30	5 kHz	End of cycle	2.0m	110	109	109	99	108	108
11.	+	11/31	1 kHz	Start of cycle	2.0m						
12.	+	12/32	1 kHz	End of cycle	2.0m						
13.	+	13/33	5 kHz	Start of cycle/ no pallet	0.5m	113	112	108	103	112	112
14.	+	14/34	5 kHz	End of cycle/ no pallet	0.5m	110	108	107	102	106	106
15.	+	15/35	1 kHz	Start of cycle/ no pallet	0.5m						
16.	+	16/36	1 kHz	End of cycle/ no pallet	0.5m						

**Table D SUMMARY OF ACOUSTIC**

**OVERALL DIMENSIONS:**





# PREPARATION

The ULTRAPAC II stands on a base plate that is fixed on beams. Those beams are fortified in a concrete slab and this platform must be placed in the floor. Use this section with the *Foundation drawing* and the *Installation drawing* to prepare the location and to install the ULTRAPAC II. This section is not a replacement of the two drawings listed above; it is presented here for complementary information.

## PREPARING THE LOCATION OF THE ULTRAPAC II

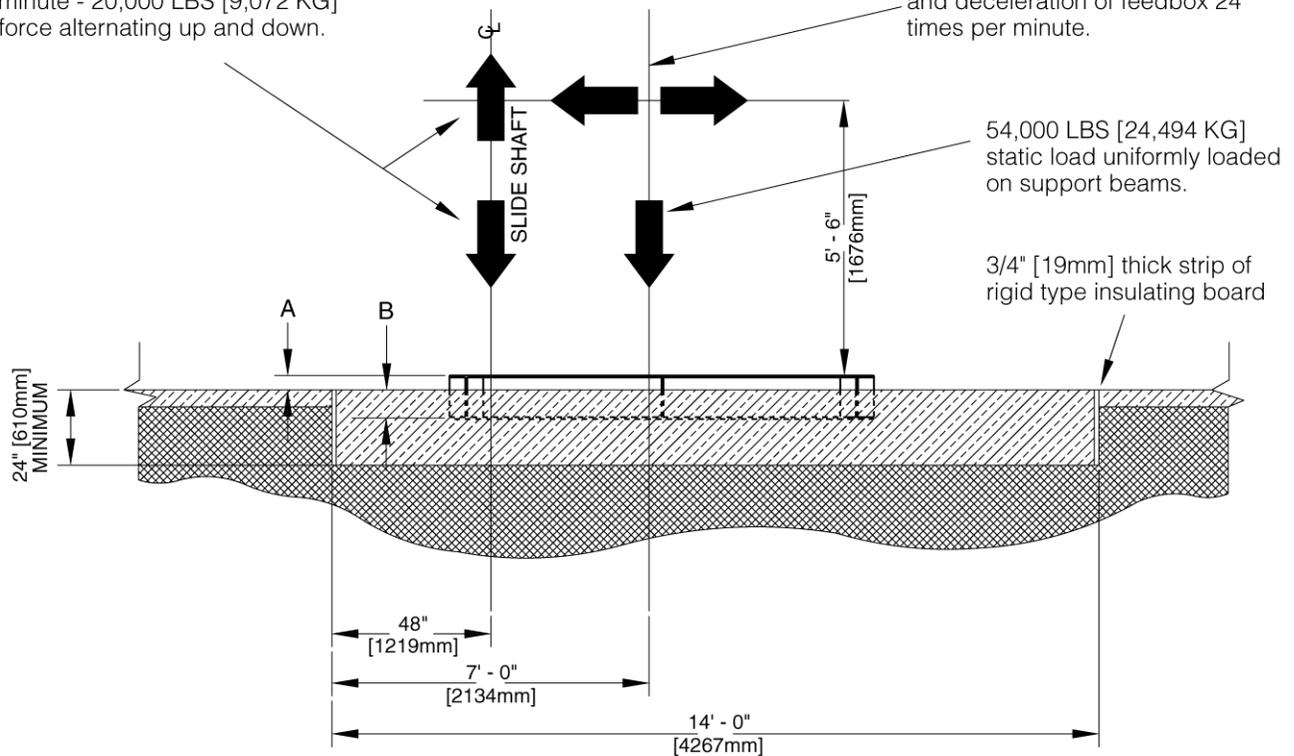
1. The framework should be prepared according to specifications presented in figure 1.1, 1.2 and 1.3.
2. The 13' x 14' [3962mm x 4267mm] framework must be surrounded by a 3/4" [19mm] thick strip of rigid type insulating board around ULTRAPAC II concrete base to isolate vibration.

3. The length, width and thickness of the foundation specified in figures 1.1 and 1.2 represent minimum dimensions. The ULTRAPAC II foundation can be increased in length, width or thickness to accommodate existing soil conditions.

**NOTE:** The concrete foundation dimensions should never be less than the dimensions specified.

Intermittent vibrating impulses 50% of operating time - 2800 times per minute - 20,000 LBS [9,072 KG] force alternating up and down.

6600 LBS [29,994 KG] Alternating forces resulting from acceleration and deceleration of feedbox 24 times per minute.



54,000 LBS [24,494 KG] static load uniformly loaded on support beams.

3/4" [19mm] thick strip of rigid type insulating board

 CONCRETE

 SOIL

A = Height of the I-beam above floor level  
B = Height of the I-beam below floor level  
NOTE: Refer to table 1.3

Figure 1.1 SIDE ELEVATION

4. Cut the I-beams to proper length (see table 1.3).
5. Weld the I-beams together.

**NOTE:** 3/4" [19mm] reinforced steel bars should be welded to the I-beams going in various directions to give added support and anchorage to the machine. It should be sufficient to maintain beams in place while concrete is being poured.

6. Place the beams at the desired height. For recommended beam size relative to the desired distance between the base plate and the floor, consult table 1.3 below.

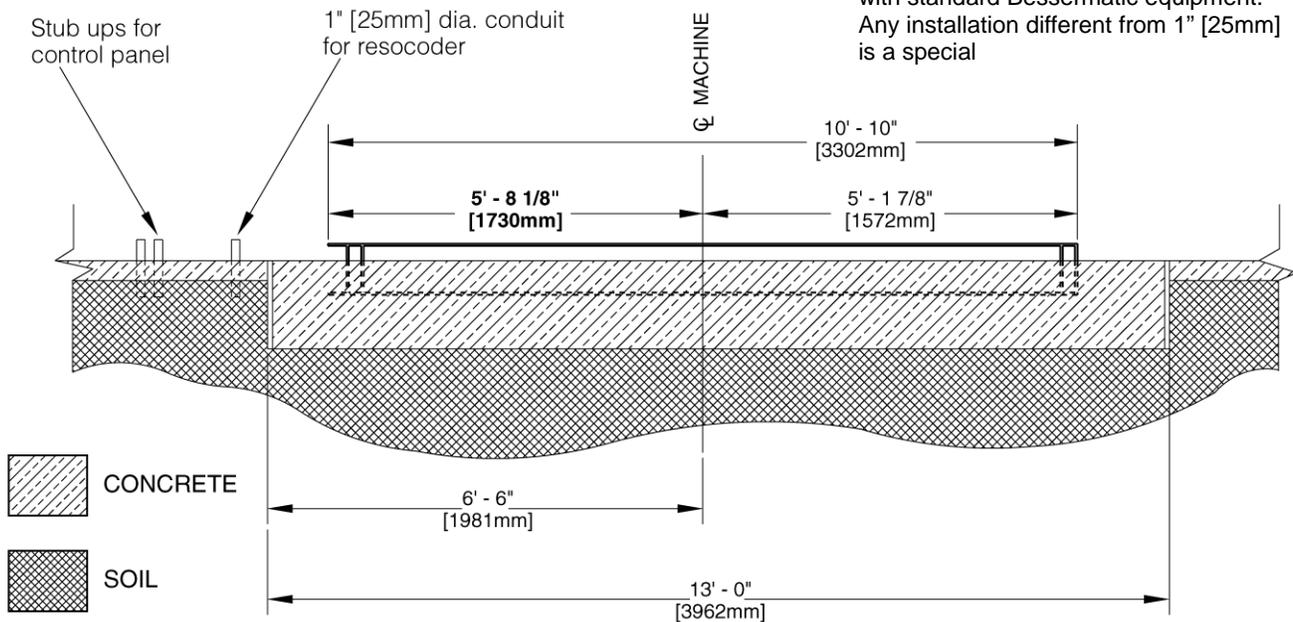
**IMPORTANT:** The centerline of the machine is not the same as the center of the concrete slab. The centerline of the block machine is offset to one side of the foundation (see figure 1.2).

7. Place concrete to make base. We recommend a minimum 4000 psi (275 bar) concrete.

DISTANCE FROM FLOOR TO BOTTOM OF BASE PLATE DIMENSION (A) INCHES & [mm]	HEIGHT OF BEAM IN CONCRETE DIMENSION (B) INCHES & [mm]	WIDTH OF BEAM DIMENSION (C) INCHES & [mm]	SIZE AND WEIGHT OF BEAM RECOMMENDED INCHES & LBS/FT	SIZE AND WEIGHT OF BEAM IN CONCRETE mm & Kg/m
1 [25]	11 [279]	5 [127]	S12 @ 31.8 #/FT	S305 @ 47.3 Kg/m
2 [51]	10 [254]	5 [127]	S12 @ 31.8 #/FT	S305 @ 47.3 Kg/m
3 [76]	9 [229]	5 [127]	S12 @ 31.8 #/FT	S305 @ 47.3 Kg/m
4 [102]	8 [203]	5 [127]	S12 @ 31.8 #/FT	S305 @ 47.3 Kg/m
5 [127]	10 [254]	5.5 [140]	S15 @ 42.9 #/FT	S381 @ 63.8 Kg/m
6 [152]	9 [229]	5.5 [140]	S15 @ 42.9 #/FT	S381 @ 63.8 Kg/m
7 [178]	8 [203]	5.5 [140]	S15 @ 42.9 #/FT	S381 @ 63.8 Kg/m
8 [203]	10 [254]	6 [152]	S18 @ 54.7 #/FT	S457 @ 81.4 Kg/m
9 [229]	9 [229]	6 [152]	S18 @ 54.7 #/FT	S457 @ 81.4 Kg/m
10 [254]	8 [203]	6 [152]	S18 @ 54.7 #/FT	S457 @ 81.4 Kg/m

**Table 1.3**

NOTE: Dimension "A"=1" [25mm] for use with standard Bessermatic equipment. Any installation different from 1" [25mm] is a special



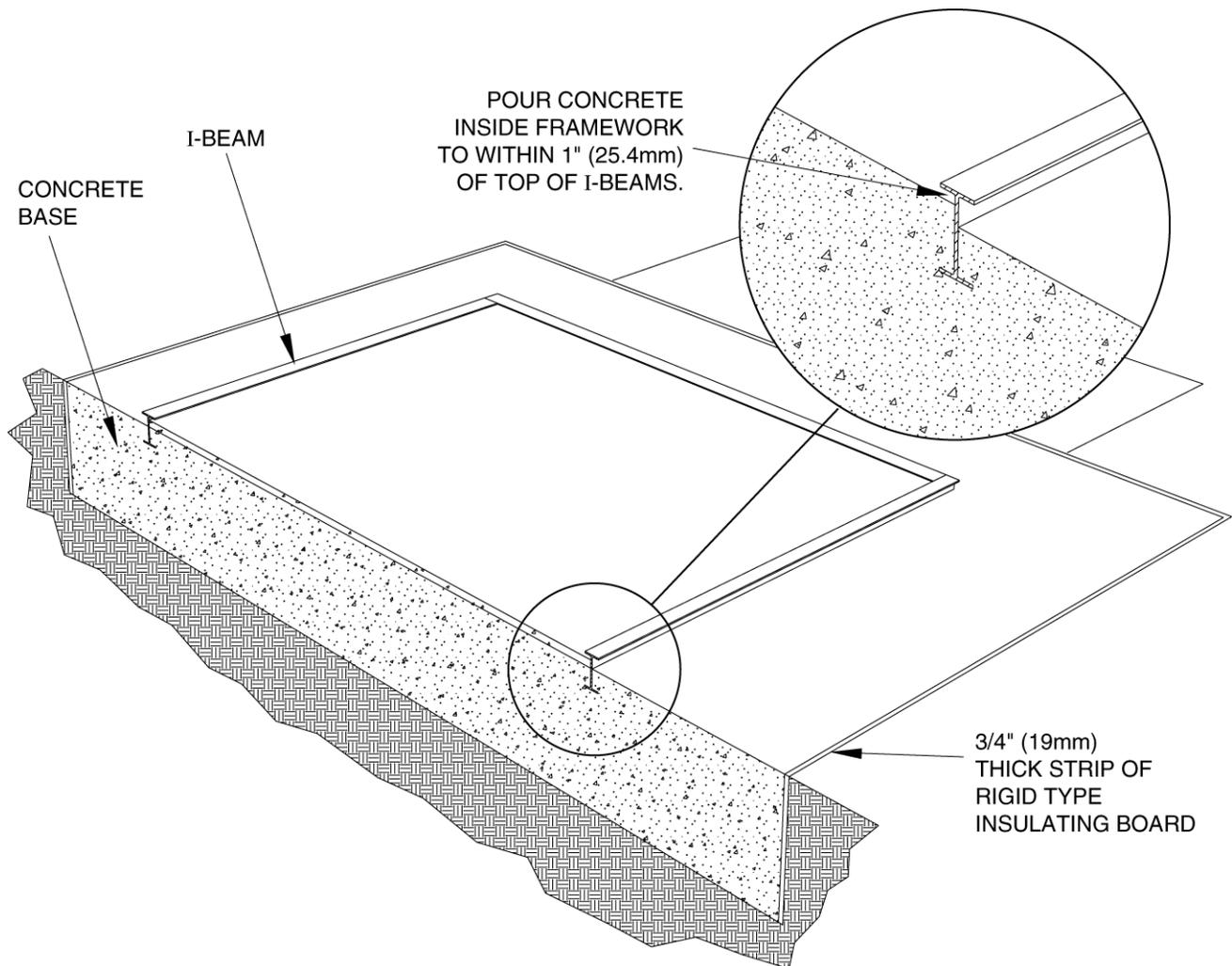
**Figure 1.2 FRONT ELEVATION.**

8. The electrical panel can be installed on any side of the machine but is usually installed on the opposite side of unloader (see figure 1.4). It can also be installed in any location to accommodate specific plant layout.

**NOTE:** To comply with articles 110-9 and 110-10 of the national electrical code, American customers shall supply a branch circuit protective device to feed this control. The protective device shall have a short circuit interrupting rating of no less than the available short circuit current. Failure to do so could result in a rupture of the protective device while attempting to clear a fault. Besser Company recommends the use of protective devices with interrupting ratings of no less than 200,000 AMPS RMS symmetrical. See the electrical data chart on drawing #439096 for

recommended protection. [As for customers outside the US, please check with your country's electrical codes and make sure you comply with all laws concerning electrical devices.]

9. A conduit for electrical panel can be installed as shown on figure 1.4.
10. A conduit for the resocoder must also be installed as shown on figure 1.4.
11. The Graphic Control Station has to be connected to the electrical panel. Run conduit from electrical panel to display control station. The conduit wire length can not be greater than 45 linear feet [13.7 meters]. The location is shown on the plant layout drawing.



**Figure 1.3** 3-D VIEW

**NOTE:** Refer to table 1.3 for "C" value.

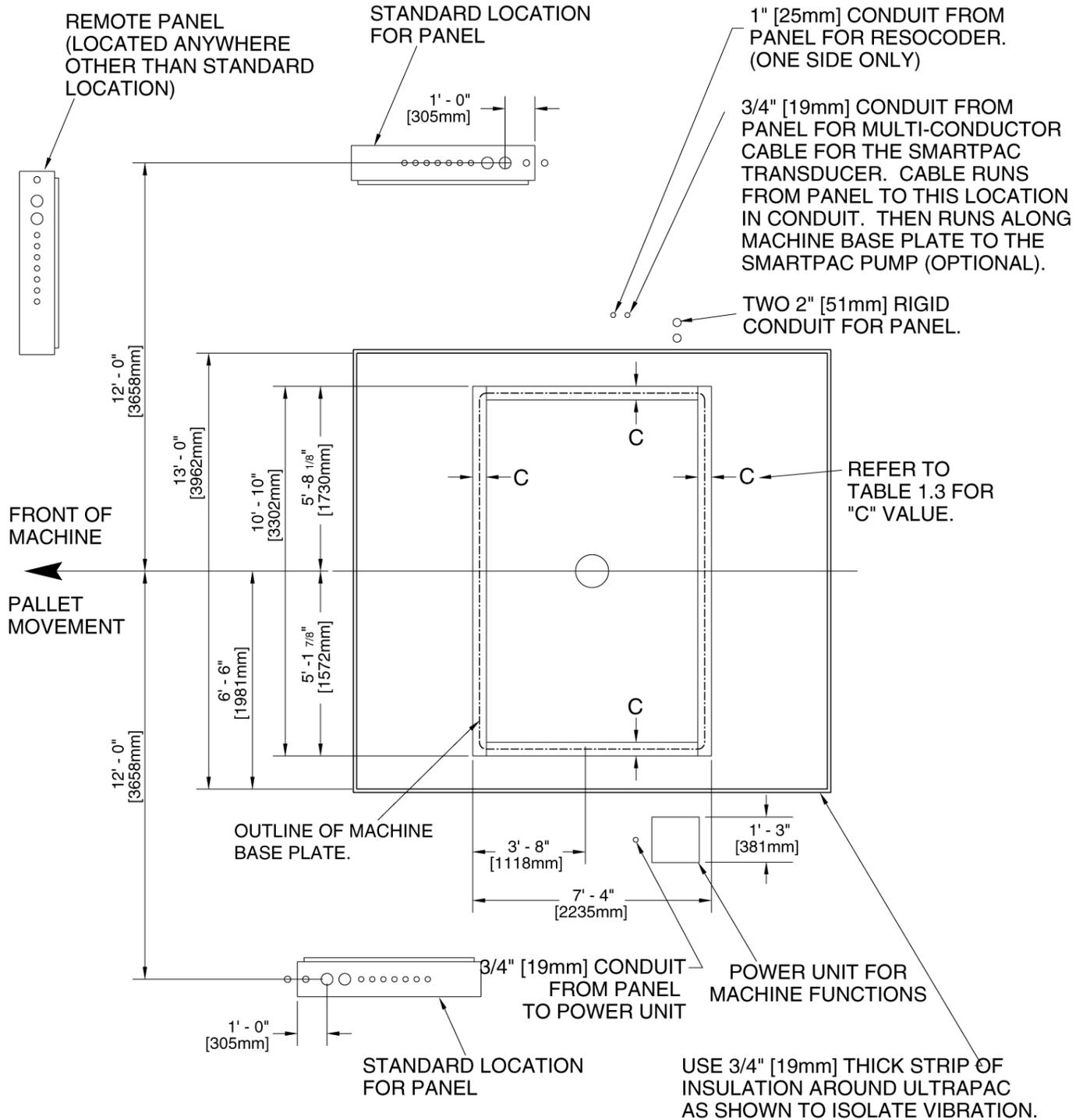


Figure 1.4 TOP VIEW

12. Once the frame is properly located and leveled, pour concrete inside within 1" [25.4mm] of top of I-beam to allow for machine grouting. Do not pour the concrete up to the top of the beams. This also includes the area of concrete between the I-beams. Refer to figure 1.3.

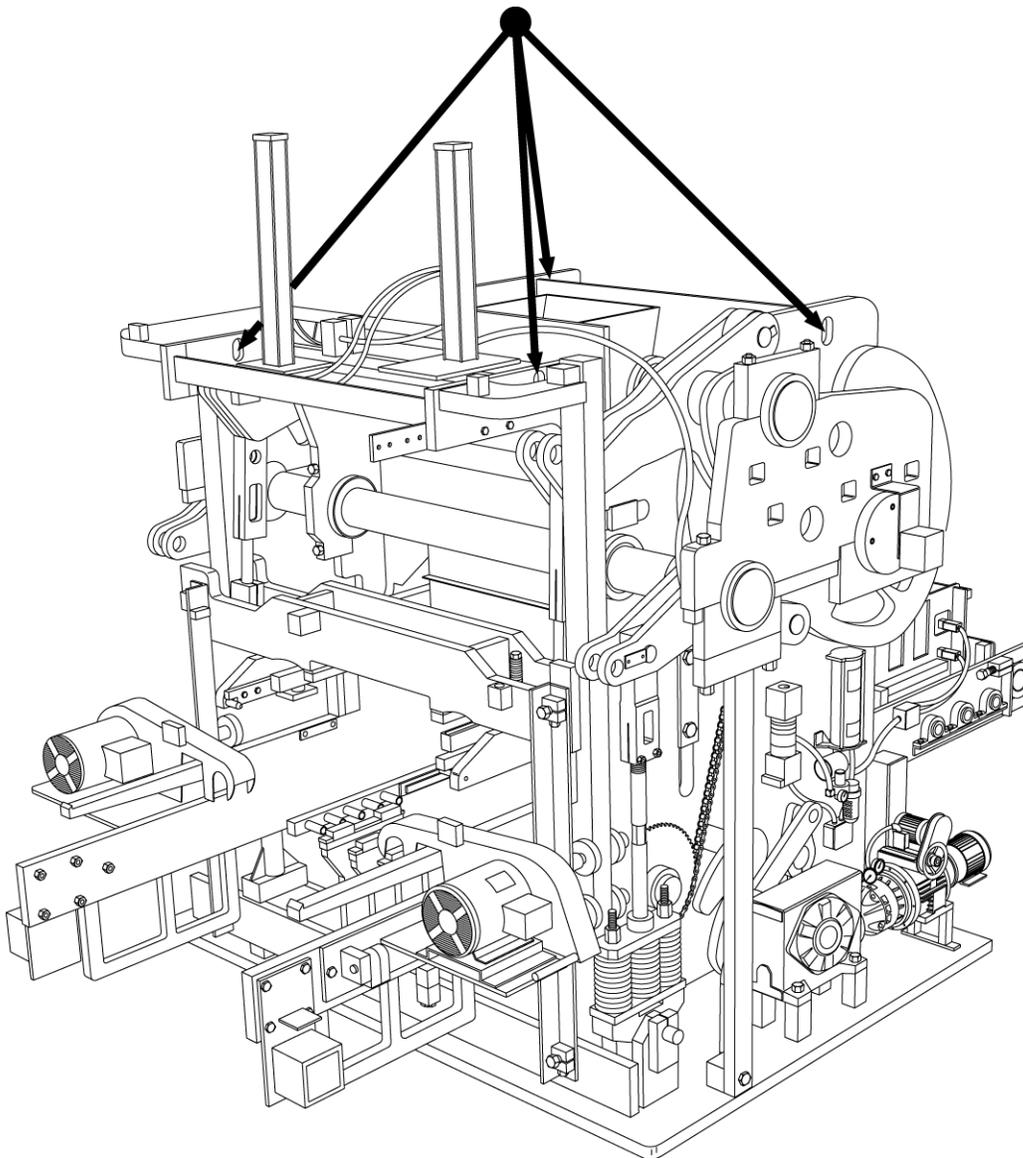
**NOTE:** The top of the I-beams needs to be level (within 1/64" [0.4mm]) around the elevation given on the installation prints. For optimum equipment performance, these steel frames need to be level and at the proper elevation.

## MACHINE HANDLING

The figure below shows where the machine should be hooked for handling.

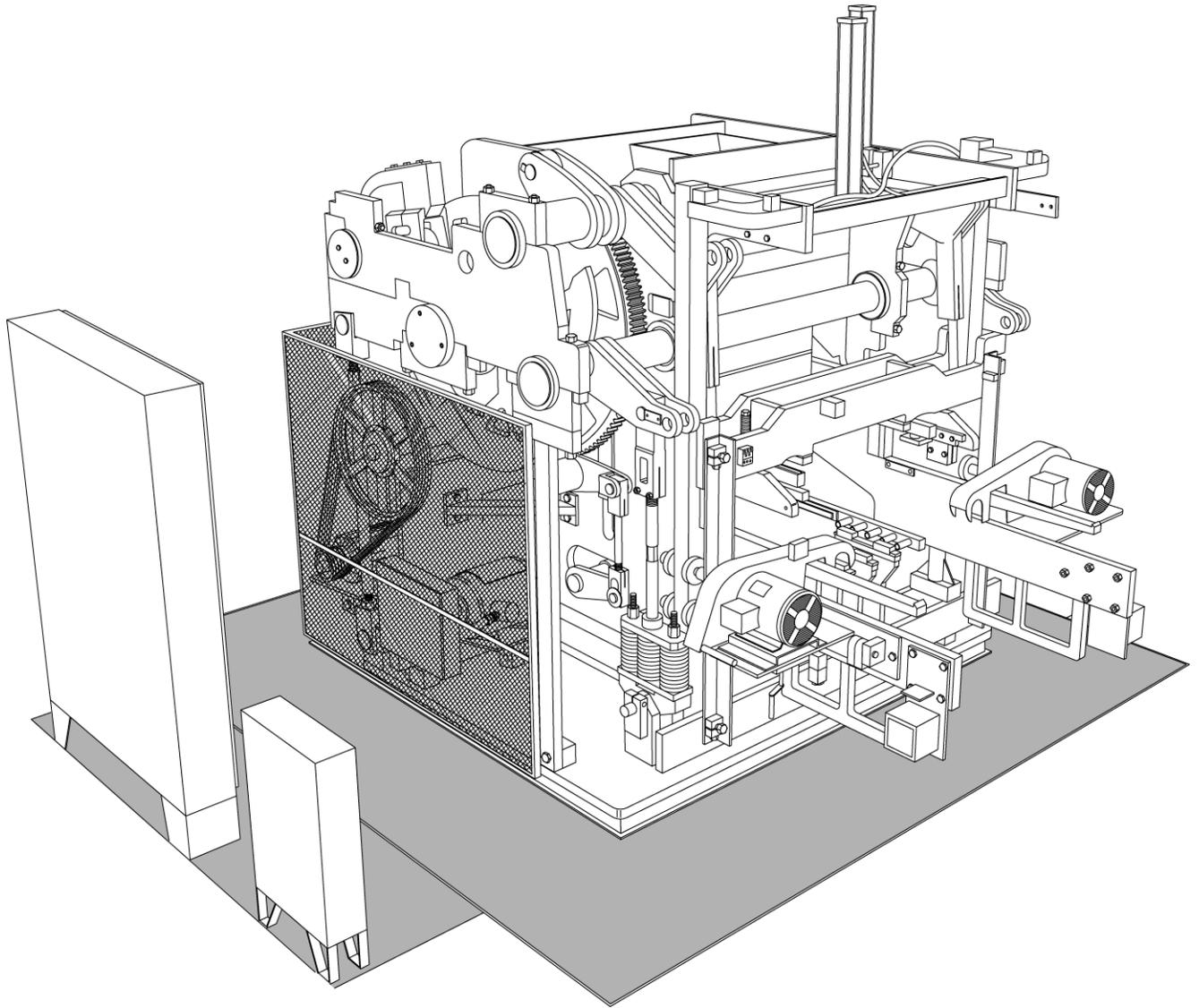


**WARNING:** The Ultracac is very heavy! Inappropriate handling of this piece of equipment could lead to serious injuries! Always use professional riggers.



**Figure 1.5** MACHINE HANDLING

# INSTALLATION



**Figure 1.6** TYPICAL ULTRAPAC II INSTALLATION

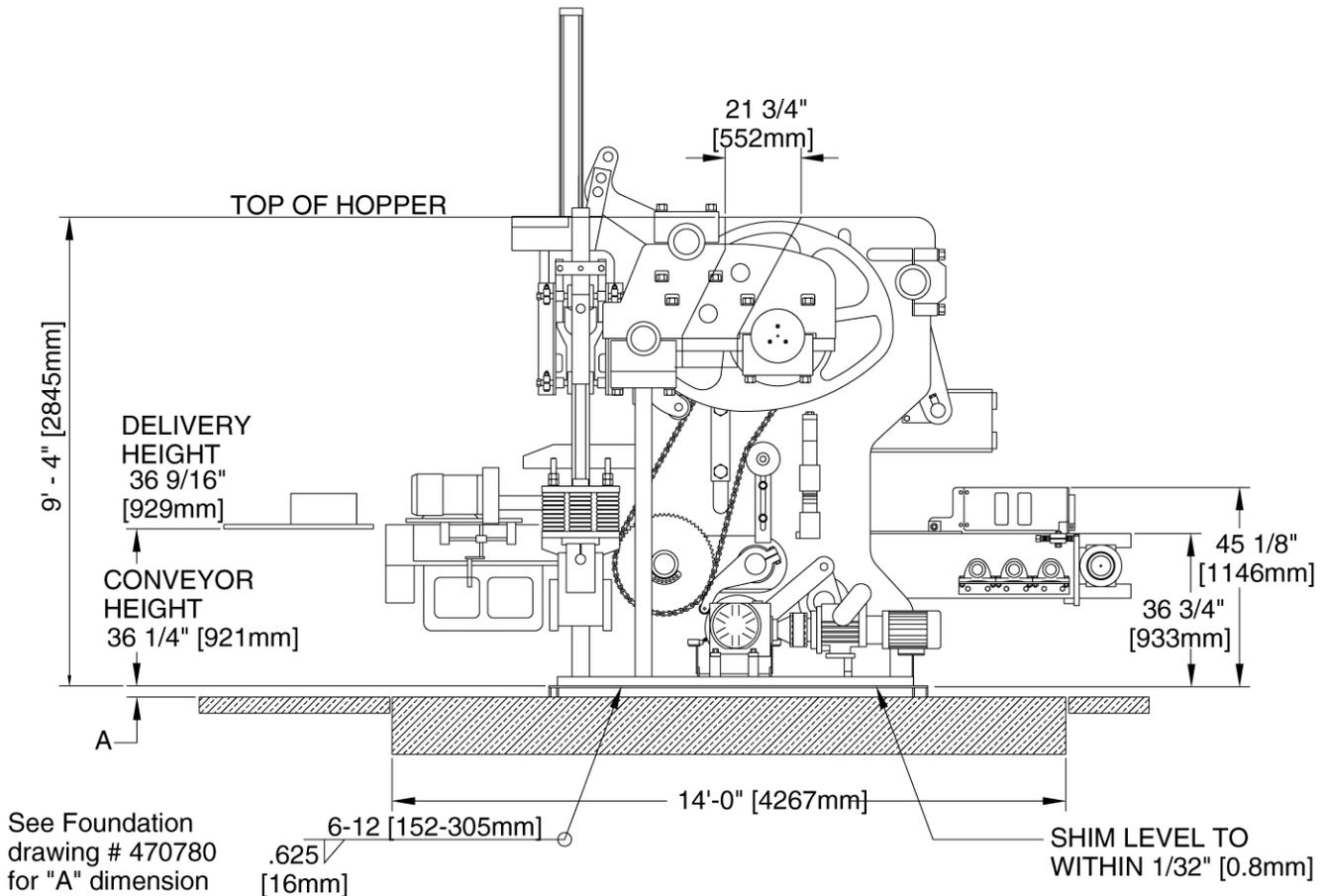
**TO INSTALL AN ULTRACAC II:**

1. Establish center lines for machine.

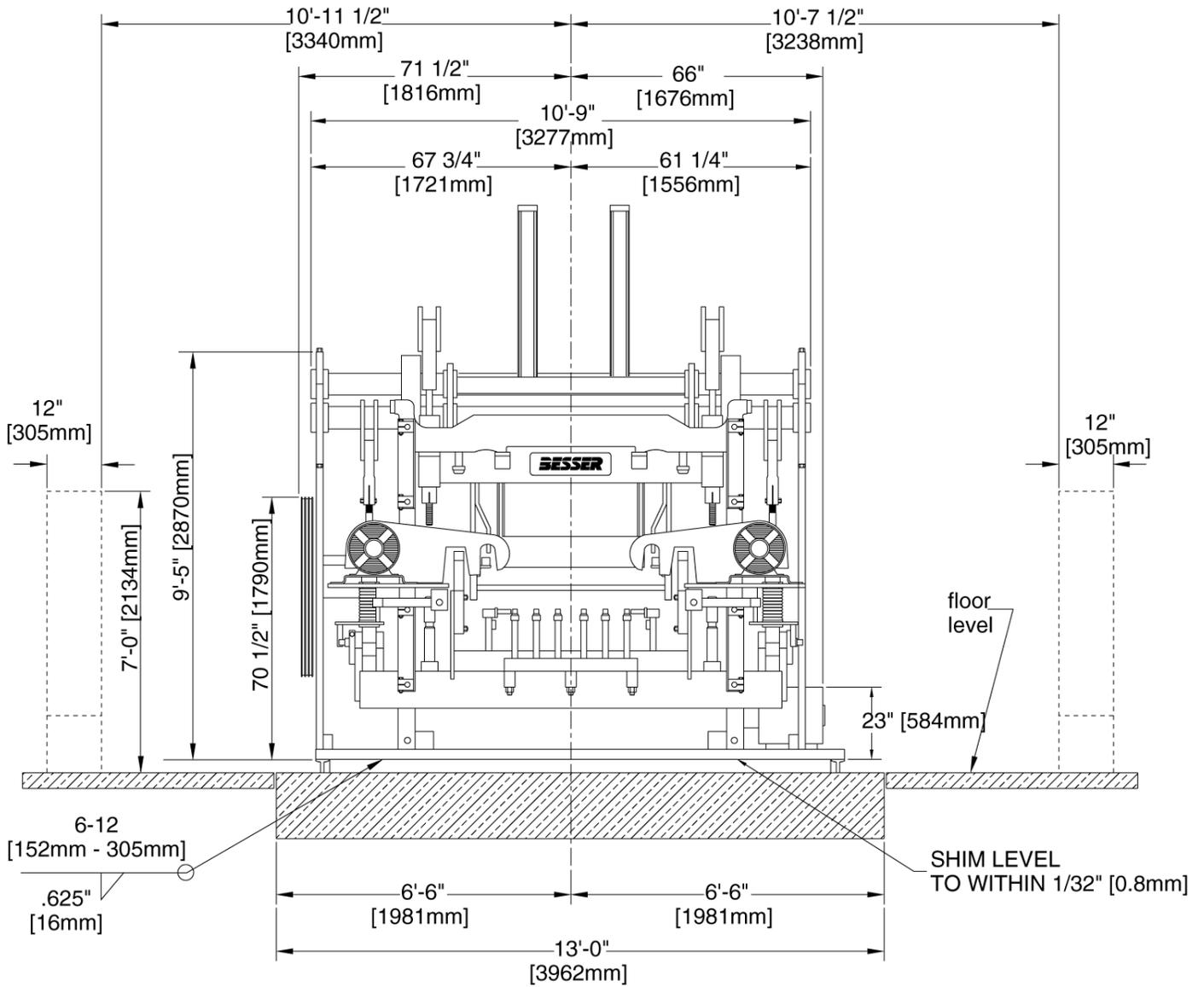
**NOTE:** The centerline of the machine is not the same as the center of the concrete slab. The centerline of the block machine is offset to one side of the foundation as shown in figure 1.2.

2. Clean area inside support steel and top of steel.
3. Make sure a 3/4" [19mm] strip of insulation has been placed between the machine foundation and the plant floor to isolate the vibration to the machine foundation (figure 1.3).
4. Place machine on support steel and align with center lines.
5. Level machine using machined area next to side plates to within 1/32" [0.8mm]. Use 6" [152mm] shim every foot [305mm]. Check machine vertical level on both side shafts (must be plumb both ways). Refer to figures 1.7 and 1.8.

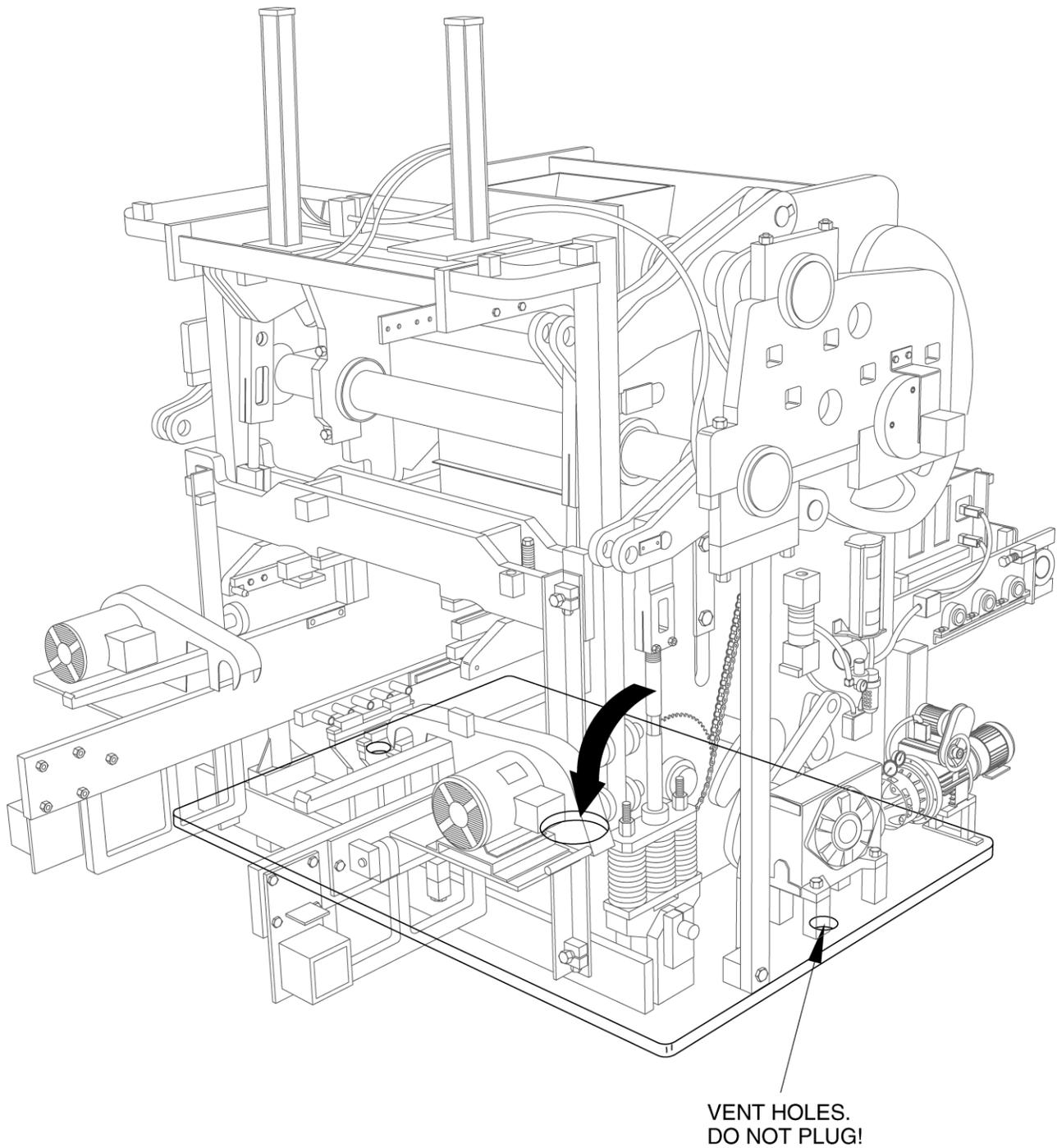
6. Weld machine to steel with 5/8" [16mm] skip weld. Make sure machine stays aligned with center line during welding. Weld over the shims. Refer to figure 1.7 and 1.8.
7. Non-shrink grout should be placed inside the I-beams once the block machine has been placed and test run (figure 1.9). 6 1/4 cu.ft. (1.9 m3) of grout is necessary for every inch below the base.
8. Make air connections. (Refer to figure 1.10 on page 18)
  - a. 50 SCFM at 80 psi [5.5 bars] on the left side of machine for air compaction (optional).
  - b. 10 SCFM at 80 psi [5.5 bars] on the left side of machine for other machine components.
  - c. 10 SCFM at 80 psi [5.5 bars] on left or right side of machine for Smartpac option.



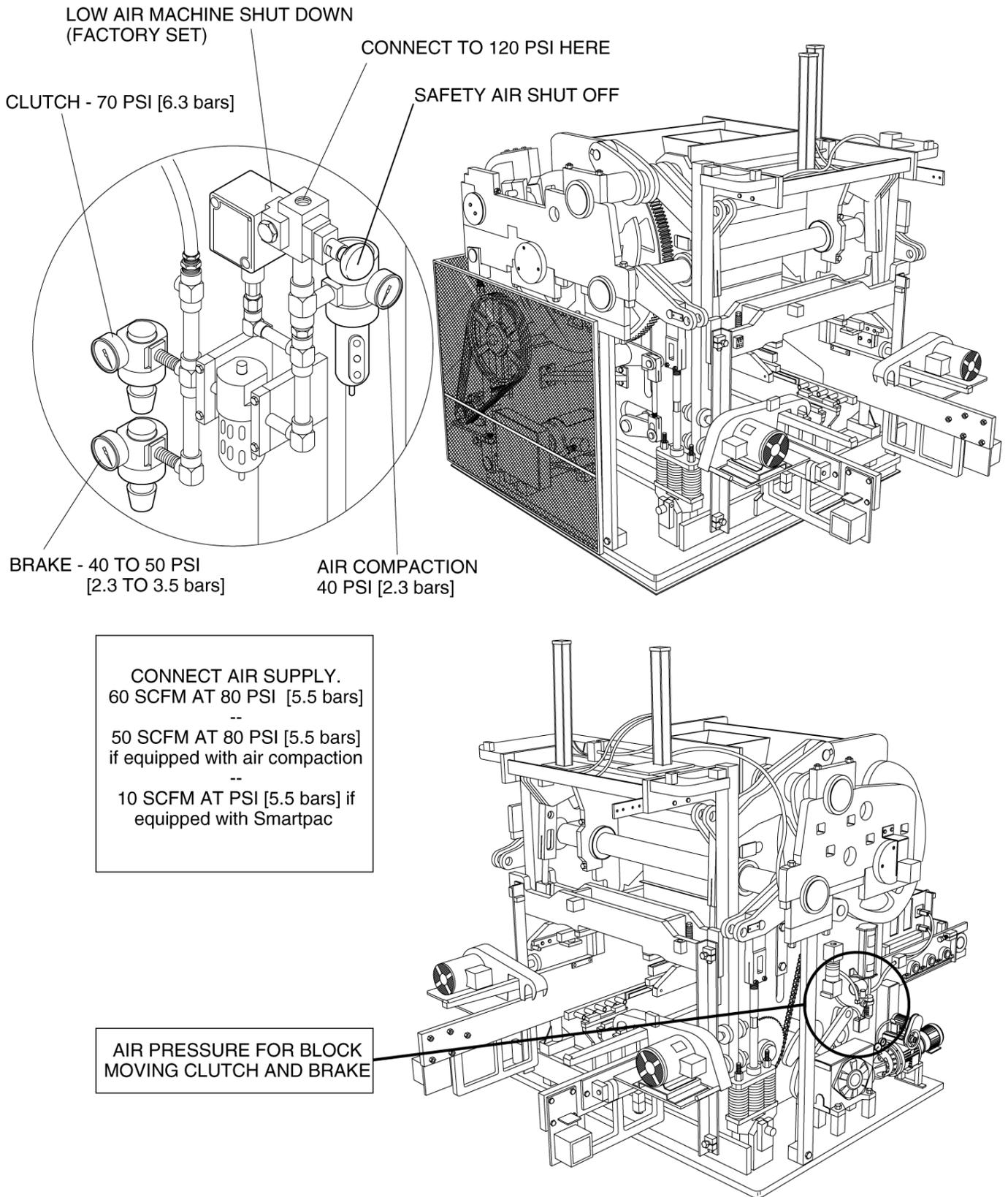
**Figure 1.7 RIGHT SIDE ELEVATION**



**Figure 1.8** FRONT ELEVATION

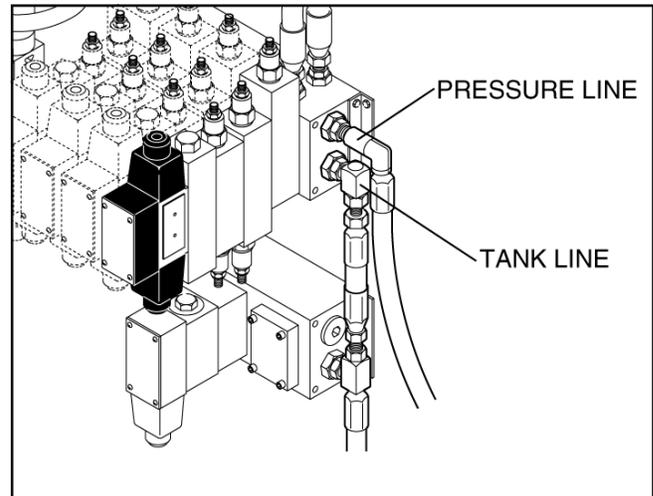


**Figure 1.9** POUR NON-SHRINK GROUT INSIDE. FILL-UP TO TOP OF MACHINE BASE PLATE

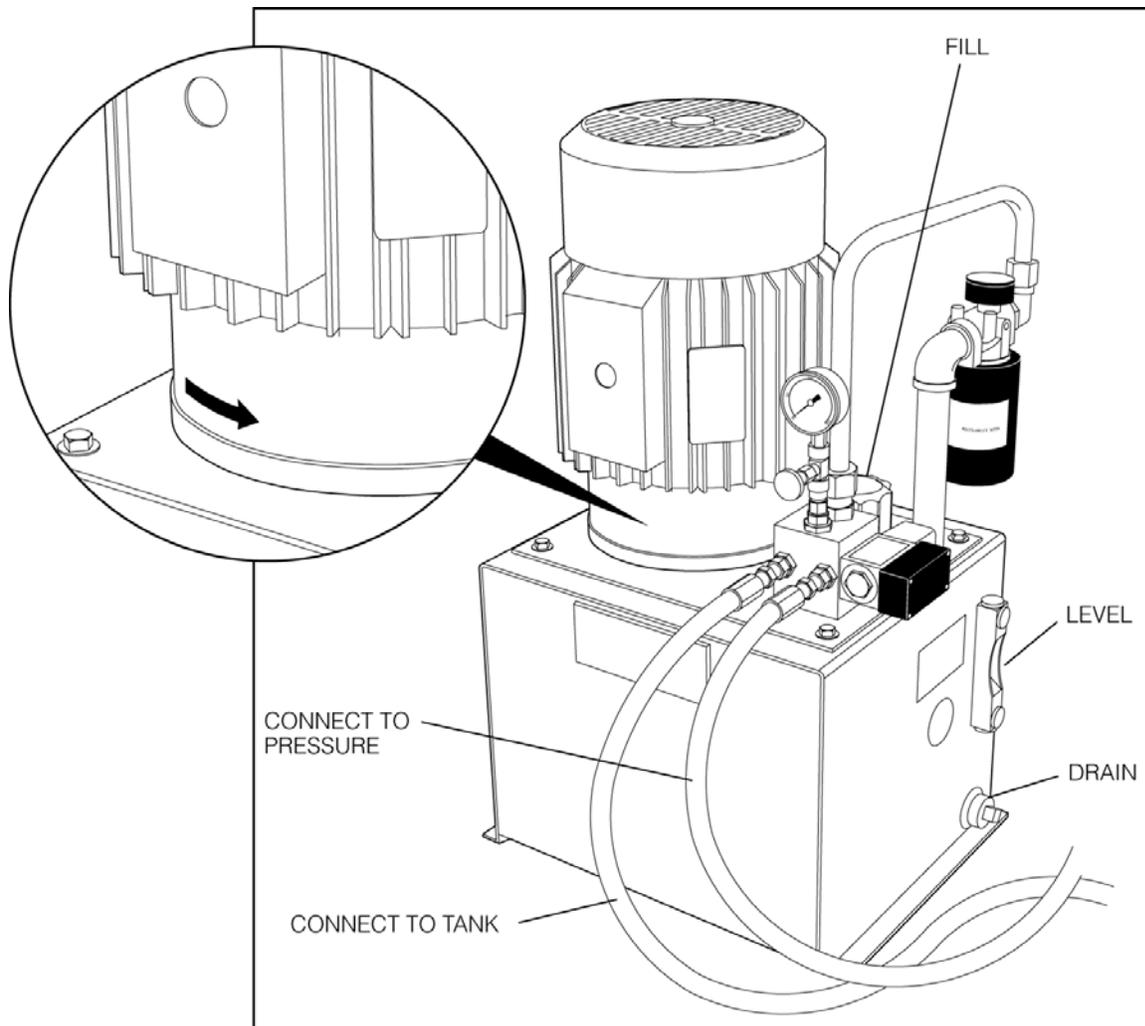


**Figure 1.10 AIR SUPPLY CONNECTIONS**

9. Install hydraulic power unit. Refer to sheet #2 of the foundation drawing and make hydraulic line connections (figure 1.11 & 1.12)
10. Fill hydraulic power unit. The hydraulic power unit capacity is 10 gallons [38 liters]. Use Shell Tellus 46 or equivalent. In order to fill the tank, power unit must be available to operate the different hydraulic movement. Fill the system as follows:
  - a. Fill tank.
  - b. Check pump rotation, as shown in figure 1.12, by pushing starter in panel.
  - c. Manually operate controls to fill the tank.
    - Inner frame raises and lowers;
    - Clam gate (optional) opens and closes;
    - Hopper raises and lowers (optional);
  - d. Fill tank again and repeat until the full 10 gallon [38 liters] capacity is reached.

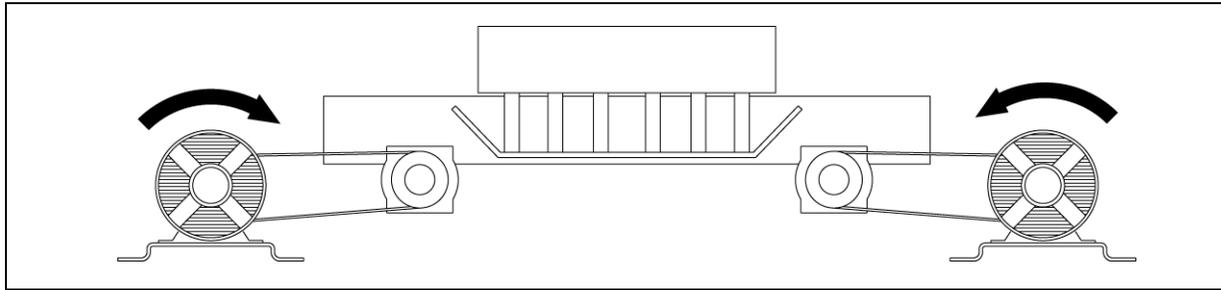


**Figure 1.11** HYDRAULIC LINE CONNECTIONS



**Figure 1.12** THE HYDRAULIC POWER UNIT

11. Check direction of rotation of vibrating shafts. The left side motor should be wired so it turns clockwise and the right side motor turns counterclockwise when viewed from front of machine (see figure 1.13).



**Figure 1.13** VIBRATING SHAFT ROTATION.

