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Visit us at: [www.productivity.com](http://www.productivity.com) Productivity is ISO 9001:2000 Certified

Productivity Inc®

**PIC Makino SP-43 Pre-Installation Checklist – Rev 06/2009**

Installation of your new Makino SP-43 can be smooth and rapid if preparations are made prior to the delivery of your machine. Any questions regarding machine installation should be directed to our service department for clarification. We hope this checklist will aid in a rapid installation of your new machine. **Note: The following must be completed prior to our service technician arriving to install your new machine.**

- Power Requirements for your machine: \*230v, 3 phase, 21 kVa  
Proper voltage per machine specifications should be ready at machine site. **Do NOT power up the machine.**

Specify either 230 or 460 volts, The SP43 requires 21 KVA input power with a ground of 10 ohms or less.

Example:  $\frac{KVA \times 1000}{1.73 \times \text{Voltage}}$  = Amperage x 125% = Service Required

- Customer should furnish and have available the proper supply and types of lubricants required for machine operation.

ITEM	CAPACITY	FLUID TYPE
Dielectric Tank	264 Gallons	Drinking water

*See attached Makino Pre-Installation Document for more information. Contact our Service Department for questions or concerns.*

- Air lines should be routed to the machine location and operational for proper air pressure.

A minimum of clean, dry compressed air of 70 psi must be available.

- Machine location should be planned to allow enough room for access panels to be opened and serviced with ease. **A minimum of 36" clearance around the machine is required for operator and maintenance access.**
- Weight requirements should be checked to insure that the surface below the machine will have sufficient strength for support and stability. The machine must be set on a solid, sound and stable, steel bar-reinforced concrete slab poured directly on the grade. In general, the 6" concrete floor on industrial buildings is suitable for machine placement.

**ENVIRONMENT:** Choose an area free of dust and vibration. An isolated foundation may be necessary if excessive vibration is present. The machine should be located in an area free of high volumes of dust, away from polishing or grinding machines.

Best results are achieved when stable temperatures and humidity are maintained.

Vibration ..... 0.7 m/s<sup>2</sup> {0.07 G} or less

Relative humidity ..... 75% or less (no condensation)

- **The Makino SP-43 Wire EDM is best moved with a forklift. You may use a crane, however please note that Makino does NOT supply the lifting bars or other apparatus needed. Upon arrival of your machine, unpack and immediately check for visible damage. Call Hope immediately – you will need to take pictures and email to [hrika@productivity.com](mailto:hrika@productivity.com). Make sure you note on BOL BEFORE the driver leaves.**

SHIPPING WEIGHT	SHIPPING DIMENSIONS OF MACHINE
8,818# Machine Crate	124" L x 90" W x 95" H (machine)
882# Accessory Crate	91" L x 51" W x 69" H (Accessory)
220# Accessory Crate	48" L x 35" W x 61" H (Accessory)
661# Accessory Crate	57" L x 46" W x 52" H (Accessory)
Floor Space Required: 118" L x 161" W x 96.5" H (8,487#)	

- Remove as much preservative from the machine as possible without having to power up (tables – slides, pulleys, etc.). We recommend mineral spirits to clean. Apply oil when finished to prevent rust.

**PLEASE FORWARD THIS TO THE APPROPRIATE PERSON. THANK YOU.**

**SP43  
EDM WIRE MACHINE  
PRE-INSTALL DOCUMENT**



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Mason, Ohio 45040  
800-552-3288 / 513-573-7200  
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<http://www.makino.com>

## **SP43 SUPPLEMENTAL INFORMATION**

### **PRECAUTION ON INSTALLATION**

- 1) The machine must be installed or relocated by only the qualified personnel designated by Makino.
- 2) The “Installation” manual covers the installation requirements and facilities necessary for machine installation. For the safety use of machine, prepare the facilities that satisfy completely the installation requirements.

### **SP43 Environmental Requirements**

Select an installation place while taking care of the following points:

- The machine must be placed on one concrete pad and not across a seam
- A place free from vibration and shock
- A light place free from dust
- A place not exposed to direct sun light
- A place of less temperature change
- The cooling fans are provided, one each at the machine, NC power supply unit, and dielectric fluid • air pressure supply unit. Therefore, the installation place should ensure the intake and exhaust air flow.
- Ensure sufficient service area by referring to the layout plans .
- Provide a space for easy workpiece mounting and dismounting.
- An easily accessible place to carry in and out the machine
- A place durable to the machine weight
- A place where the floor surface around the machine is applied with the anti-slip treatment.
- In order to prevent the radio wave interference, a shield room may be required, depending on the environment.
- Ensure the dielectric fluid disposal place since the dielectric fluid cannot be drained directly into a general drainage because it contains chips.

A drain port is provided on the rear of dielectric fluid • air pressure supply unit.

## INSTALLATION SPECIFICATIONS

### Machine Dimensions

Width X Depth X height	2180 x 2875 x 2250 mm	86" X 114" X 89"
Required Floor Space	3000 x 4100 mm	119" X 162"
Machine weight	3400 kg.	9110 lbs
Ambient temperature	10 ~35° C ± 1°	50 ~ 95°F ±2°
Optimum Temperature	20° C ± 1°	68°F ± 2°

Do not expose the machine to direct sunlight. Make sure that air conditioning vents are not blowing hot or cold air directly at the machine.

**Shipping** We recommend Air Ride Transportation. Machines are shipped FOB Port of Entry in two containers.

**Electrical** Specify either 230 or 460 volts, The SP43 requires 21 KVA input power with a ground of 10 ohms or less.

Example:  $\frac{\text{KVA} \times 1000}{1.73 \times \text{Voltage}}$  = Amperage x 125% = Service Required

**Air** Clean, dry compressed air of 70 psi. must be available

**Water** Ordinary drinking water can be piped directly into the dielectric reservoir.  
Dielectric Reservoir Capacity = 1000 liters = 264 gallons

**Environment** Choose an area free of dust and vibration. An isolated foundation may be necessary if excessive vibration is present. The machine should be located in an area free of high volumes of dust, away from polishing or grinding machines.

Best results are achieved when stable temperatures and humidity are maintained.

Vibration ..... 0.7 m/s<sup>2</sup> {0.07 G} or less

Relative humidity ..... 75% or less (no condensation)

Specifications may change without prior notice to incorporate improvements resulting from ongoing R&D programs. Cover

## SP43 SUPPLEMENTAL INFORMATION

### SP43 Air Requirements

The air pressure is required for the machine to operate. The machine stops if the air pressure lowers below 0.3MPa during operation. Prepare stable air pressure source.

Prepare the following:

Air pressure source

Pressure : 0.6MPa or more  
Flow rate : 100L/min (atmospheric pressure) or more

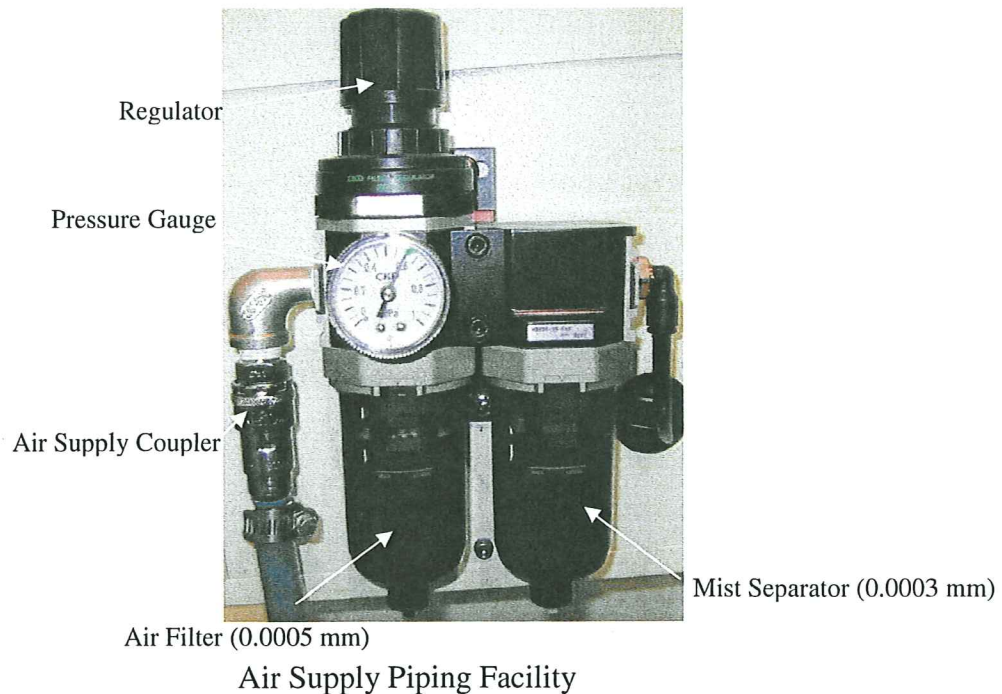
Air hose

Inside dia.: 8mm minimum

An air supply coupler is attached to the machine as a standard accessory. Connect the prepared air hose to this coupler.

Confirm with the pressure gauge that the air pressure is the specified value. If out of the specified value, adjust it with the regulator.

**Caution:** If a compressor in the factory is stopped once, then it is started abruptly, the auto drain may be kept open, causing the pressure not to rise up to the specified value. In this case, reconnect the coupler.



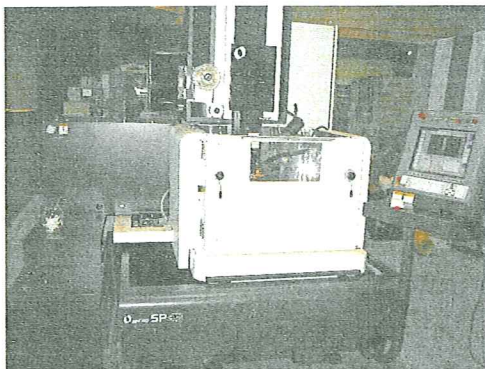
## MACHINE PHOTOGRAPHS



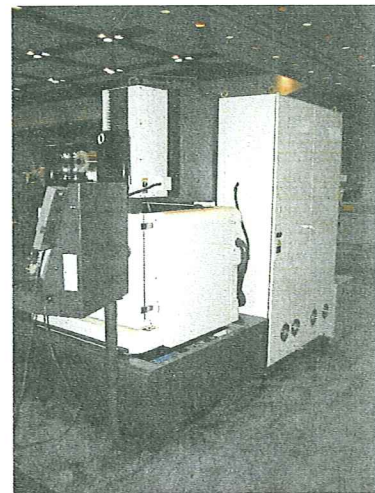
View of DI Tank



View of Electrical Cabinet



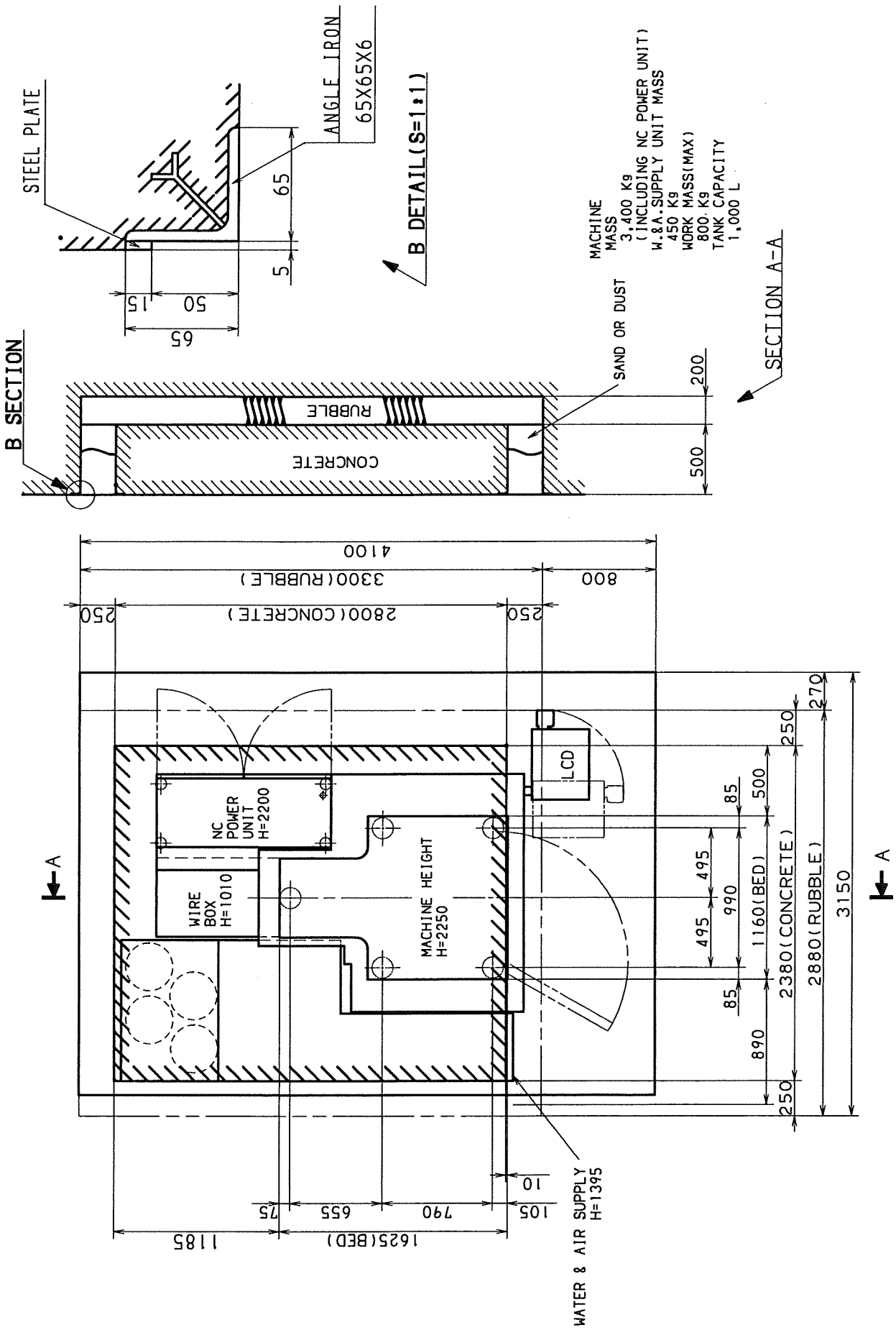
Front View of Machine



Side View of machine







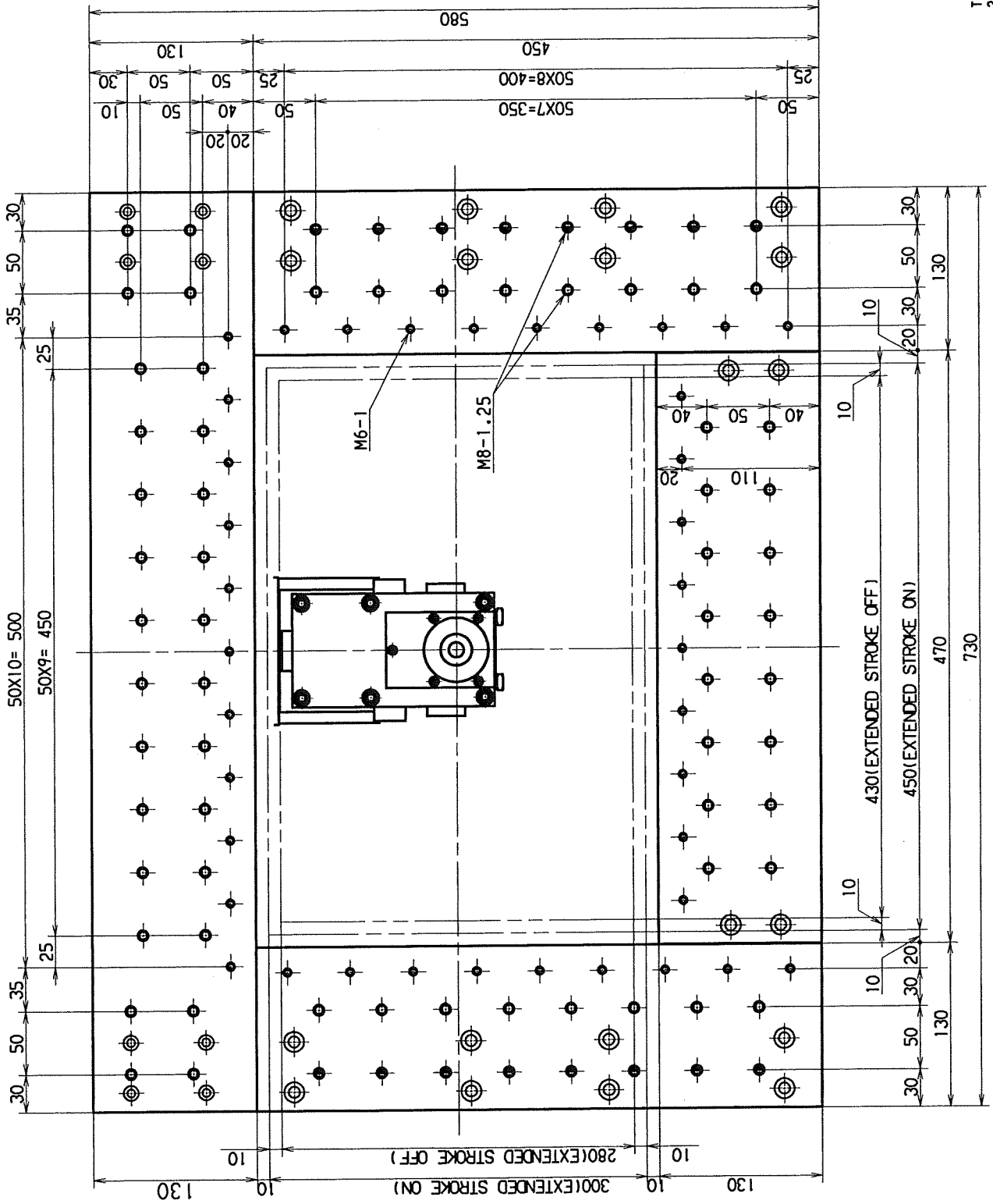
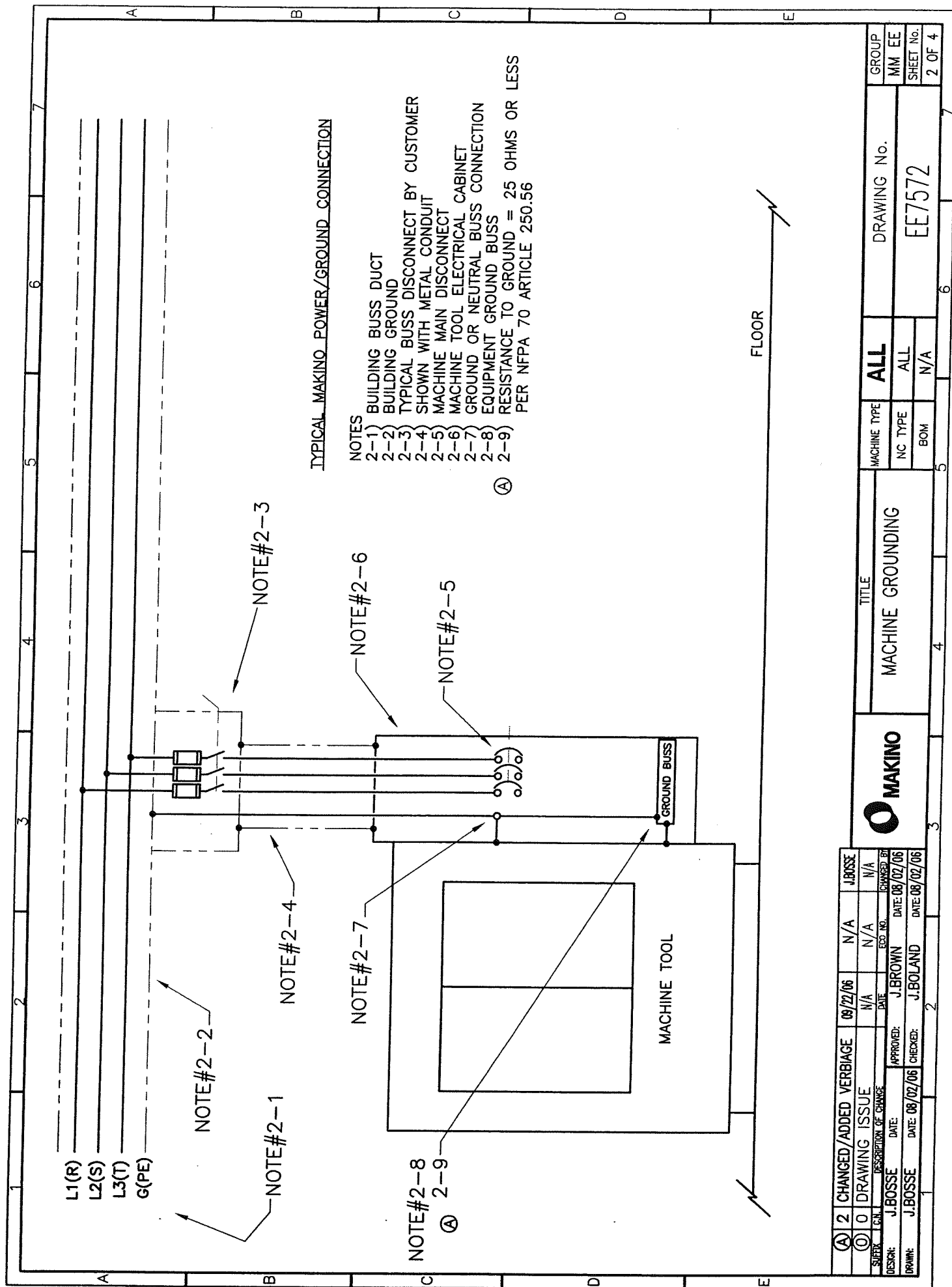


TABLE SHAPE SQUARE  
20EC910C401-01





Q	2	CHANGED/ADDED	VERBIAGE	09/22/06	N/A	N/A	J.BOSSE
Q	0	DRAWING	ISSUE	N/A	N/A	N/A	N/A
DESIGN:	J.BOSSE	DATE:	J.BROWN	DATE:	08/02/06	DATE:	08/02/06
DRAWN:	J.BOSSE	DATE:	J.BOLAND	DATE:	08/02/06	DATE:	08/02/06



TITLE  
MACHINE GROUNDING

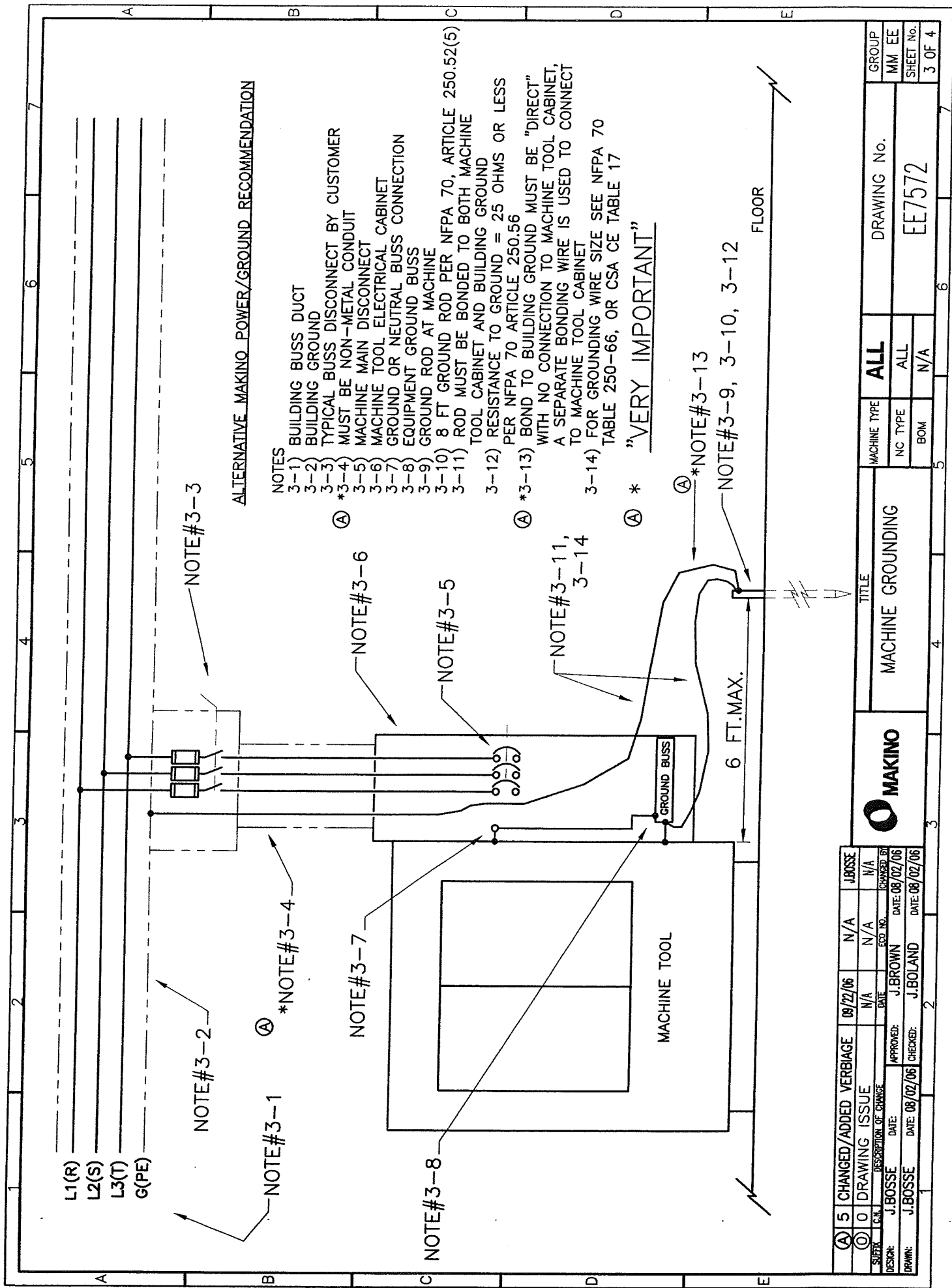
ALL

MACHINE TYPE  
NC TYPE  
BOM

DRAWING No.

EE7572

GROUP  
MM EE  
SHEET No.  
2 OF 4



# ALTERNATIVE MAKING POWER/GROUND RECOMMENDATION

## NOTES

- 3-1) BUILDING BUSS DUCT
- 3-2) BUILDING GROUND
- 3-3) TYPICAL BUSS DISCONNECT BY CUSTOMER
- 3-4) MUST BE NON-METAL CONDUIT
- 3-5) MACHINE MAIN DISCONNECT
- 3-6) MACHINE TOOL ELECTRICAL CABINET
- 3-7) GROUND OR NEUTRAL BUSS CONNECTION
- 3-8) EQUIPMENT GROUND BUSS
- 3-9) GROUND ROD AT MACHINE
- 3-10) 8 FT GROUND ROD PER NFPA 70, ARTICLE 250.52(5)
- 3-11) ROD MUST BE BONDED TO BOTH MACHINE TOOL CABINET AND BUILDING GROUND
- 3-12) RESISTANCE TO GROUND = 25 OHMS OR LESS PER NFPA 70 ARTICLE 250.56
- 3-13) BOND TO BUILDING GROUND MUST BE "DIRECT" WITH NO CONNECTION TO MACHINE TOOL CABINET, A SEPARATE BONDING WIRE IS USED TO CONNECT TO MACHINE TOOL CABINET
- 3-14) FOR GROUNDING WIRE SIZE SEE NFPA 70 TABLE 250-66, OR CSA CE TABLE 17

\* "VERY IMPORTANT"

\*NOTE#3-13

NOTE#3-9, 3-10, 3-12

6 FT. MAX.

FLOOR

REV	DESCRIPTION	DATE	BY	DATE	BY
5	CHANGED/ADDED VERBIAGE	08/22/06	N/A	N/A	J.BOSSE
4	DRAWING ISSUE	N/A	N/A	N/A	N/A
3	DESCRIPTION OF CHANGE	DATE	DATE	DATE	DATE
2	J.BOSSE	J.BOSSE	J.BOSSE	J.BOSSE	J.BOSSE
1	J.BOSSE	J.BOSSE	J.BOSSE	J.BOSSE	J.BOSSE



MACHINE GROUNDING

TITLE

ALL

DRAWING No.

EE7572

GROUP

MM EE

SHEET No.

3 OF 4

GROUNDING ELECTRODE CONDUCTOR WIRE SIZE  
IN RELATIONSHIP TO MACHINE SERVICE  
CONDUCTOR WIRE SIZE PER NFPA 70, TABLE 250.66

SERVICE CONDUCTOR WIRE SIZE (AWG/kcmil) COPPER	GROUND ELECTRODE WIRE SIZE (AWG) COPPER NOT LESS THAN
2 OR SMALLER	8
1 OR 1/0	6
2/0 OR 3/0	4
OVER 3/0 THROUGH 350 kcmil	2
OVER 350 THROUGH 600	1/0
OVER 600 THROUGH 1100	2/0
OVER 1100	3/0

GROUNDING ELECTRODE CONDUCTOR WIRE SIZE  
IN RELATIONSHIP TO MACHINE SERVICE  
AMPACITY PER CSA CE TABLE 17

SERVICE AMPACITY	GROUND ELECTRODE WIRE SIZE (AWG) COPPER NOT LESS THAN
100 OR LESS	8
101 TO 125	6
126 TO 165	4
166 TO 200	3
201 TO 260	2
261 TO 355	0
356 TO 475	00
OVER 475	000

① 2	CHANGED/ADDED VERBIAGE	08/22/06	N/A	J.BOSSE
① 0	DRAWING ISSUE	N/A	N/A	N/A
DESIGN: J.BOSSE	DATE: 08/02/06	APPROVED: J.BROWN	DATE: 08/02/06	CHANGED BY: J.BOSSE
DRAWN: J.BOSSE	DATE: 08/02/06	CHECKED: J.BOLAND	DATE: 08/02/06	



TITLE  
MACHINE GROUNDING

MACHINE TYPE	ALL	DRAWING No.	
NC TYPE	ALL		
BOM	N/A		
GROUP	MM EE		
SHEET No.	4 OF 4		