

DIAMOND BH SERIES



FACILITY REQUIREMENT MANUAL

MC MACHINERY
SYSTEMS, INC.

a subsidiary of  Mitsubishi Corporation

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FACILITY REQUIREMENT CHECK LIST

Please read and understand the following facility requirements for your new MC Press Brake System. Many future problems will be prevented by completely understanding these requirements. Please notify MC Machinery one week in advance of your scheduled installation date if any of the following requirements will not be completed upon the technicians' arrival.

- Rigging-An insured rigging company has been scheduled to offload and place the machine.
- Machine location.
 - Plan out the location of the machine and accessories. Please use Machine Installation as a guide.
 - Prepare the foundation in accordance with the specifications provided in this document.
 - The site where the machine is to be installed must be cleared of all obstructions. The floor must be clean and free of debris.
 - Uncrate all machine components.
 - Do not install the machine anchors until after the install technician has arrived. The install technician will direct you as to when the anchors need to be installed; unless you are anchoring the machine with J bolts then the foundation needs to be prepared before install. If not using J bolts then you must supply the following.
 - Anchors.
 - Hammer Drill.
 - Bits for anchoring the machine.

- Electrical requirements-Electricity must be supplied to the disconnect on the machine. The install technician will be ready for electricity on the day of the install.
- Transformer will be needed depending on the power at the machine.
- Powergy™ clean power system (optional). See page 33.
- Tooling for bending of customer's production parts. Please list manufacturer of tooling _____
- Material for Bending (Test pieces and production).
- A ladder will be needed to climb on top of the machine.

When all requirements are complete this form must be faxed to Michael Brown or Chris Shrader at (630) 616-5940. The person whose signature appears below understands that if any items are incomplete when the technician arrives, MC Machinery reserves the right to reschedule the machine installation for the next available Monday and invoice for the additional airfare and travel time.

Signature _____ Title _____ Date _____

COMPANY CONTACTS

INSTALL DEPARTMENT

If you have any questions concerning this document, delivery dates, install dates, where your order is at in the credit process, or general questions concerning your order please call.

Mark Johnson

Manager, Installation Group
Customer Service & Support

Phone: (630) 616-5953

Fax: (630) 616-4066

Email: mark.johnson@mcmachinery.com

Michael Brown

Laser/ Brake/ Material Handling Install Supervisor
Customer Service & Support

Phone: (630) 616-4079

Fax: (630) 616-4066

Email: michael.brown@mcmachinery.com

MAC FUNDING / CREDIT ANALYSIS SERVICES DIVISION

If you have any questions about where your order is at in the credit process, or you have questions about any of your order documents, please call Mac Funding.

MACHINE ORDERS

Jim Puett

Senior Manager

Phone: (630) 860-4218

Fax: (630) 860-4718

Email: jpuett@mac-funding.com

Ma Yang

Sr. Credit Analyst

Phone: (630) 860-4315

Fax: (630) 860-4718

Email: myang@mac-funding.com

MEXICO ORDERS

Violeta Perez

Credit Analyst

Phone: (630) 860-4226

Fax: (630) 860-4718

Email: vperez@mac-funding.com

TRAINING DEPARTMENT

At the current time all Press Brake operation training is completed during the machine installation by the installer. If you should have any additional training needs please call the training department.

Richard A. Caron

Sr. Manager, Support Group
Customer Service and Support
Phone: (630) 616-5950
Fax: (630) 616-4066
Email: rich.caron@mcmachinery.com

Chris Shrader

Service Supervisor, Press Brake
Customer Service and Support
Phone: (630) 616-4084
Fax: (630) 616-4066
Email: chris.shrader@mcmachinery.com

Adrienne Wysuph

Administrative Assistant
Customer Service and Support
Phone: (630) 616-7701
Fax: (630) 616-4066
Email: adrienne.wysuph@mcmachinery.com

PRESS BRAKE SERVICE DEPARTMENT

To obtain service support or order parts after your machine has been installed, please call our level 1 service department at (630) 616-5900. Please choose option (1) for service or option (2) for parts.

In order to provide our customers with the fastest and highest quality of service, a level 1 operator will take your company name and machine information. This information will then be entered into our computer system with a description of the problem. You will then receive a call back from an experienced technician, who will not only help you resolve your problem but will also log the call into our computer system for future reference.

CONSUMABLE PRODUCTS GROUP “CPG”

Please contact our consumable products group OEM consumables for press brake needs. For press brake CPG provides hydraulic oil.

CPG PRESS BRAKE

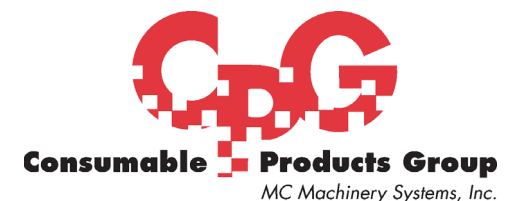
George Johnson

National Sales Manager
Consumable Products Group
Phone: (630) 616-2983
Toll Free: (888) 297-9895
Fax: (630) 616-2954
Email: george.johnson@mcmachinery.com

Bernardo Olguin

Regional Sales Manager
Consumable Products Group
Phone: (630) 616-7718
Toll Free: (888) 297-9895
Fax: (630) 616-2954
Email: berny.olguin@mcmachinery.com

Please visit our web-site for special offers www.cpgedm.com



CHOOSING A MACHINE LOCATION

It is the customer's responsibility to prepare the machine location, per the listed specifications, before the delivery of the equipment. Preparing the machine location improperly can greatly affect the performance of your machine.

FLOOR / FOUNDATION REQUIREMENTS

- The manufacturer recommends that the machine be installed according to chart below or more of reinforced concrete to minimize floor vibration.
- If the machine is installed on a foundation that is less, the customer must be aware that there could be an increase in the maintenance intervals due to shifting or settling of the foundation slab. In some cases an improper foundation can affect the accuracy of the machine.
- The floor where the machine is installed must be level to 0.039 inches over the entire length of the machine.
- In order to prevent deformation of the machine due to improper foundation, construct the foundation according to the foundation drawing before the machine is delivered.
- If the ground is weak (bearing power of soil: 5000 kg/m²) use reinforced concrete to prepare the proper foundation.

FOUNDATION		
BH825	300mm or more	11.8in or more
BH13530	300mm or more	11.8in or more
BH18530	500mm or more	19in or more
BH18540	500mm or more	19in or more
BH25030	500mm or more	19in or more
BH25040	500mm or more	19in or more

CLIMATE / ATMOSPHERE

Select machine installation place considering the followings:

1. Install machine in area where surrounding temperature should be in between 41 °F – 104 °F. Exceeding its range can cause problem to NC control unit and other electric appliances. It can cause damage to machine.
2. Install machine in area where surrounding humidity do not exceed 80 % RH. Rapid temperature change causes water condensation, causing trouble to NC control unit and other electric appliances, and rusting to the machine. It can cause damage to machine.
3. Dust, water, oil mist, corrosive gas, and organic solvent should not be present near installation area. The NC control unit is equipped with a filter for air-intake of cooling unit. If dust, dirt gets clogged in cooling unit, cooling effect will be insufficient, causing damage to machine. Again, if machine is directly exposed to dust etc., it can cause damage to the machine.
4. Install machine in area where machine is not exposed to direct sunlight. If machine is exposed to direct sunlight, temperature of machine components increases, influencing machining precision. Exposed to direct sunlight can cause trouble to NC control resulting damage to machine.
5. Installation area should be free from electric noise. Electric welding machine, electric discharge machine etc. will generate electric noise. If there is no safety in electric supply voltage, high voltage fluctuations can cause an accident and damage to machine.

Select a location with sufficient space around the machine, considering not only the machine space but also the following:

- Punch/die replacement space
- Maintenance and servicing space about 3 feet in all directions surrounding the machine.
- Upper maintenance and servicing space of about 3 feet is required above the machine.
- Machine electric box's door opening should not be obstructed.

RIGGING INFORMATION

Prior to the delivery of your machine you are required to contract a rigging company to uncrate and set the machine in place. Please make sure that the rigger that you contract is properly insured. Any damage caused by the rigger will be the responsibility of the rigger or the customer to repair.

SHIPPING DIMENSIONS (With the machine crated)

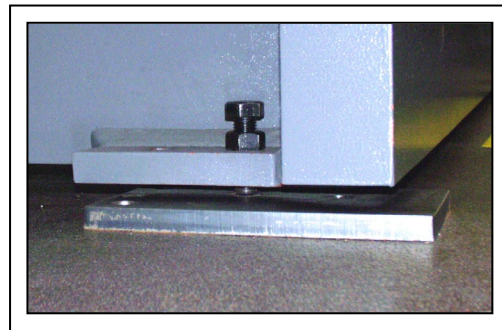
DESCRIPTION	LENGTH	WIDTH	HEIGHT	NET WEIGHT Lbs.
BH8525	143"	83"	125"	17,152
BH13530	150"	91"	128"	22,376
BH18530	160"	90"	131"	40,124
BH18540	198"	90"	136"	47,619
BH25030	158"	90"	136"	45,392
BH25040	198"	90"	143"	52,200

EQUIPMENT DAMAGE

- It is the customer's responsibility to inspect the equipment for damage before signing the bill of lading.
- Record any damage on the bill of lading and make a copy that can be sent to MC Machinery.
- If a clean bill of lading is signed, the customer or rigger will assume responsibility for any damage that is present.
- Take pictures relevant to the damage and provide them to MC Machinery. If possible e-mail the pictures to Michael Brown: michael.brown@mcmachinery.com, this will help to quickly resolve any insurance claims.
- Notify Michael Brown of the Laser Installation Department immediately if damage is present. He can be reached at (630) 616-5900. If Michael Brown is not available please ask for Mark Johnson or Troy Hirsh, they can both also be reached at this number.

MACHINE PLACEMENT

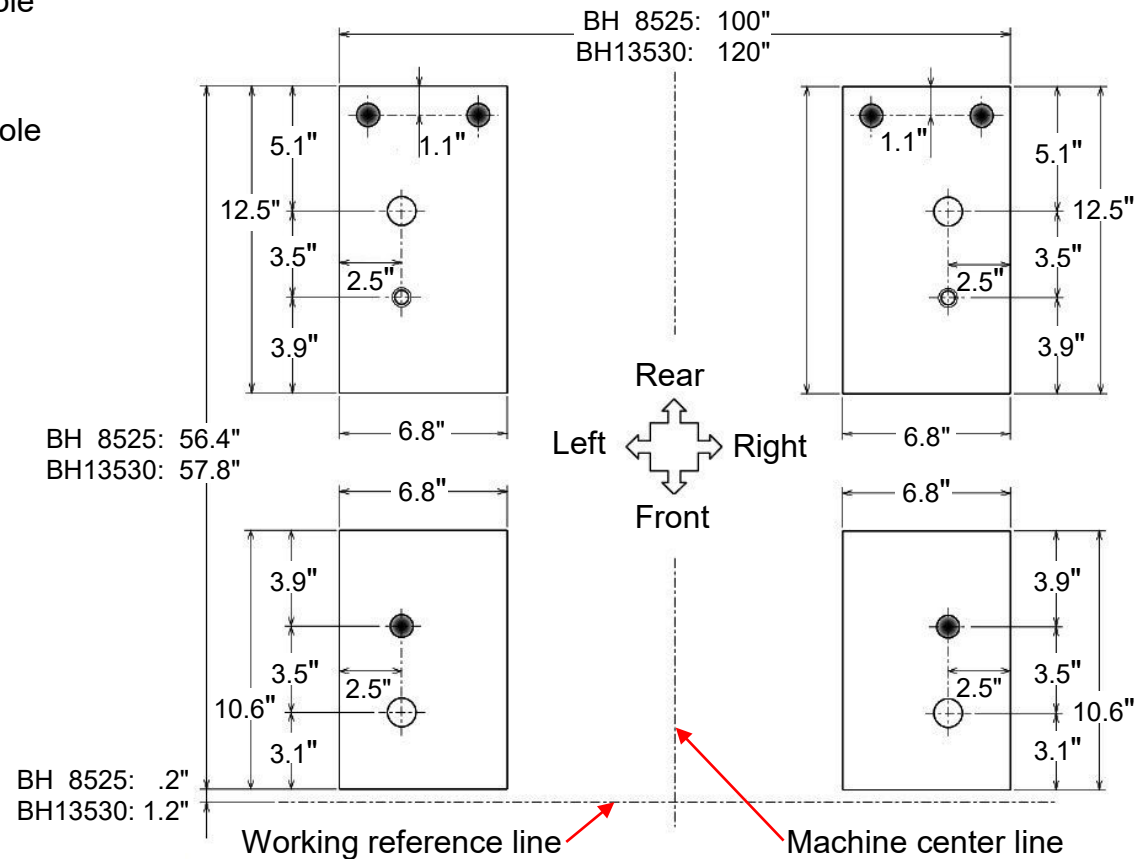
- Before the machine arrives, mark your floor using the attached drawings. This will allow your rigger to quickly and correctly place the machine.
- Use the lifting points provided to ensure the safe movement and placement of your equipment
- The machine manuals are inside the electrical cabinet.
- The machine is to be rough leveled by the riggers and/or customer prior to install.
- The machine will be leveled to within 0.05mm/M (.02/3ft) or less across the X and Y directions by the installer.
- After the machine is installed you will want to anchor the machine to prevent movement. **DO NOT ANCHOR THE MACHINE UNTIL THE INSTALLER HAS CONFIRMED THAT THE INSTALLATION IS COMPLETED.**
- You will be placing 4 leveling pads under the machine. Two leveling screws are located in front of the machine and two leveling screws located in the back of the machine.



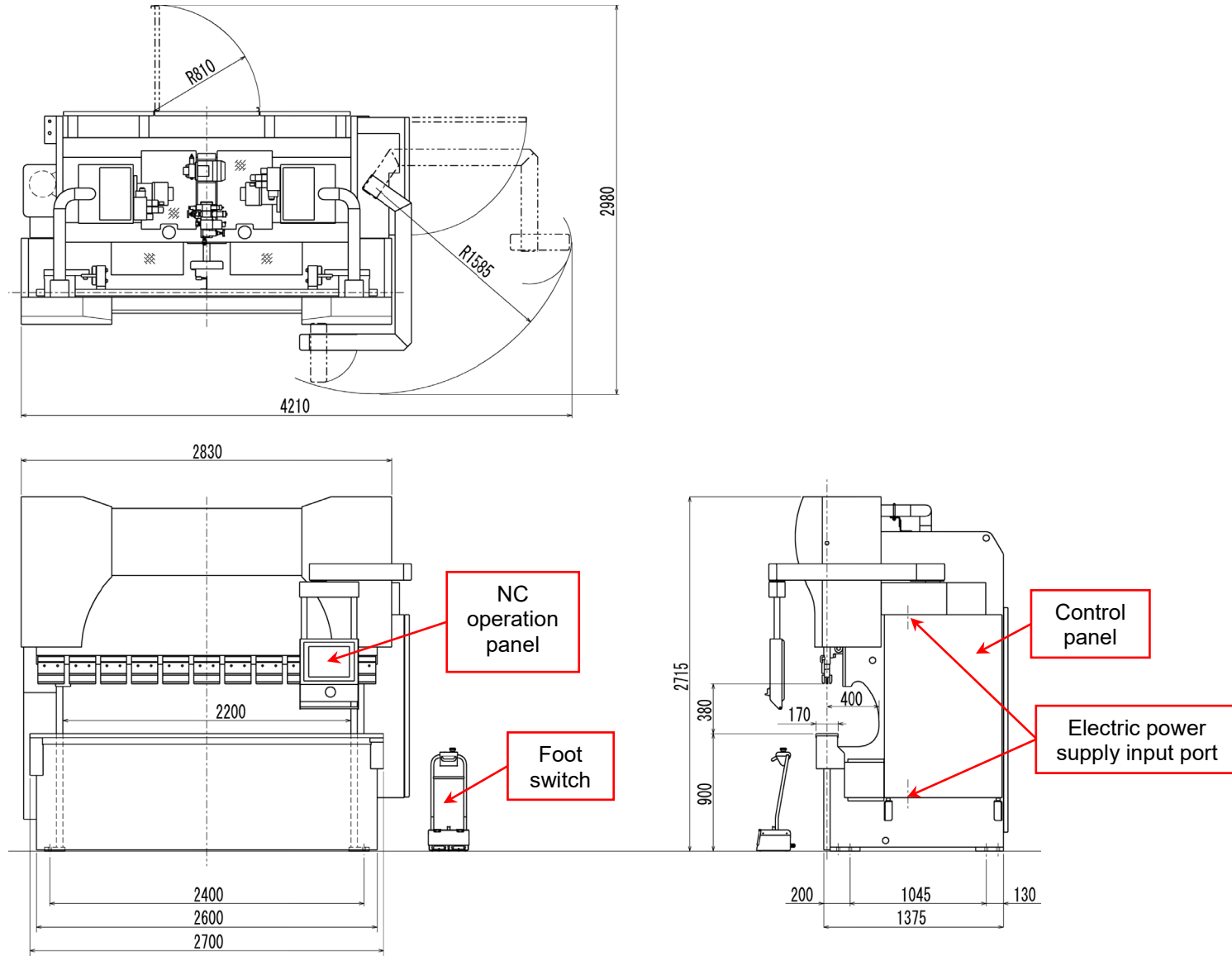
FOUNDATION PLATE LAYOUT

- The plates are arranged in advance at the place where the press brake is installed.
- Models: **BH8525**, **BH13530**.
- Unit: inch

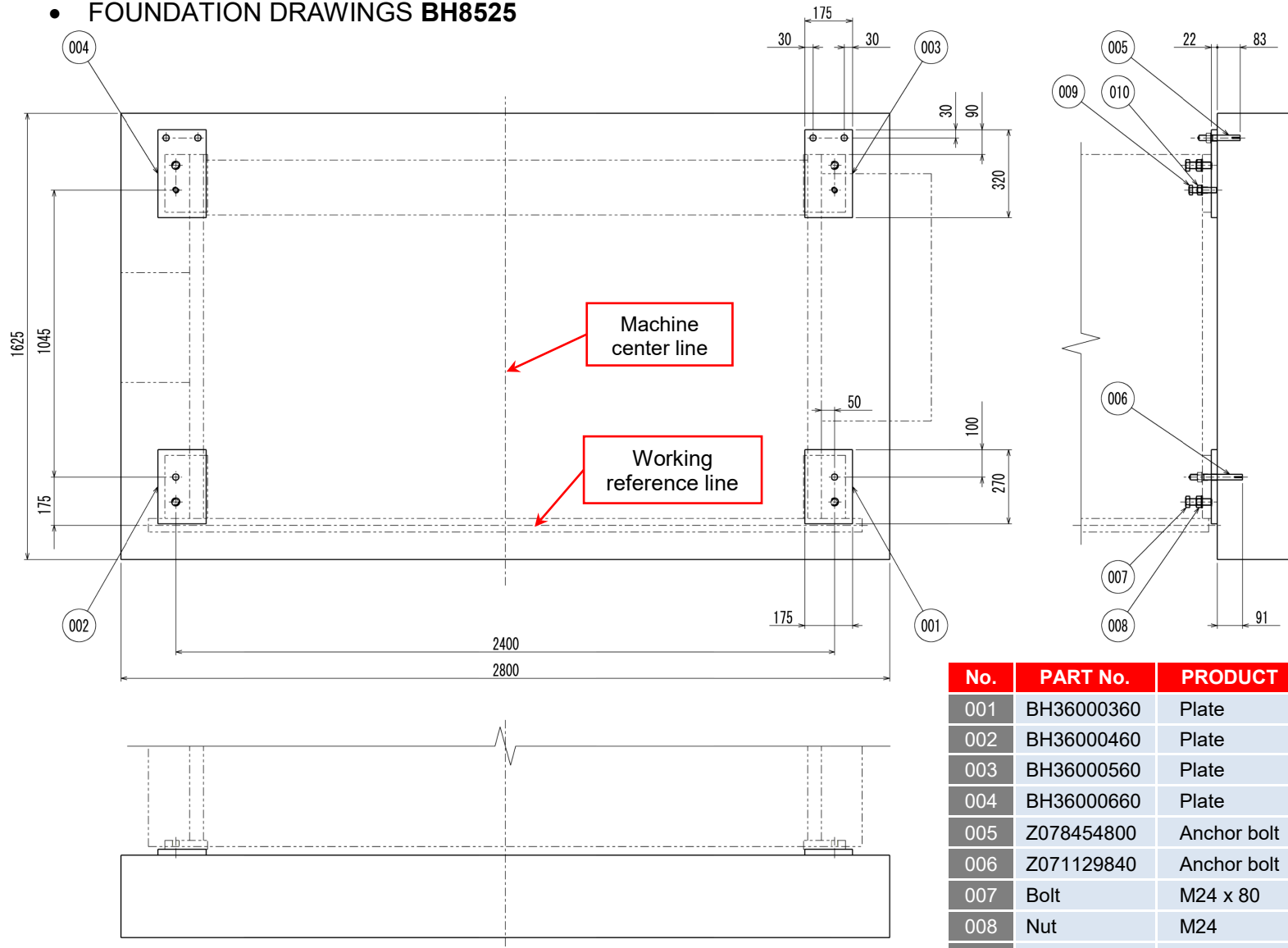
- Trough hole
- Spot face
- ⊕ Tapped hole



- OVERALL LAYOUT **BH8525**

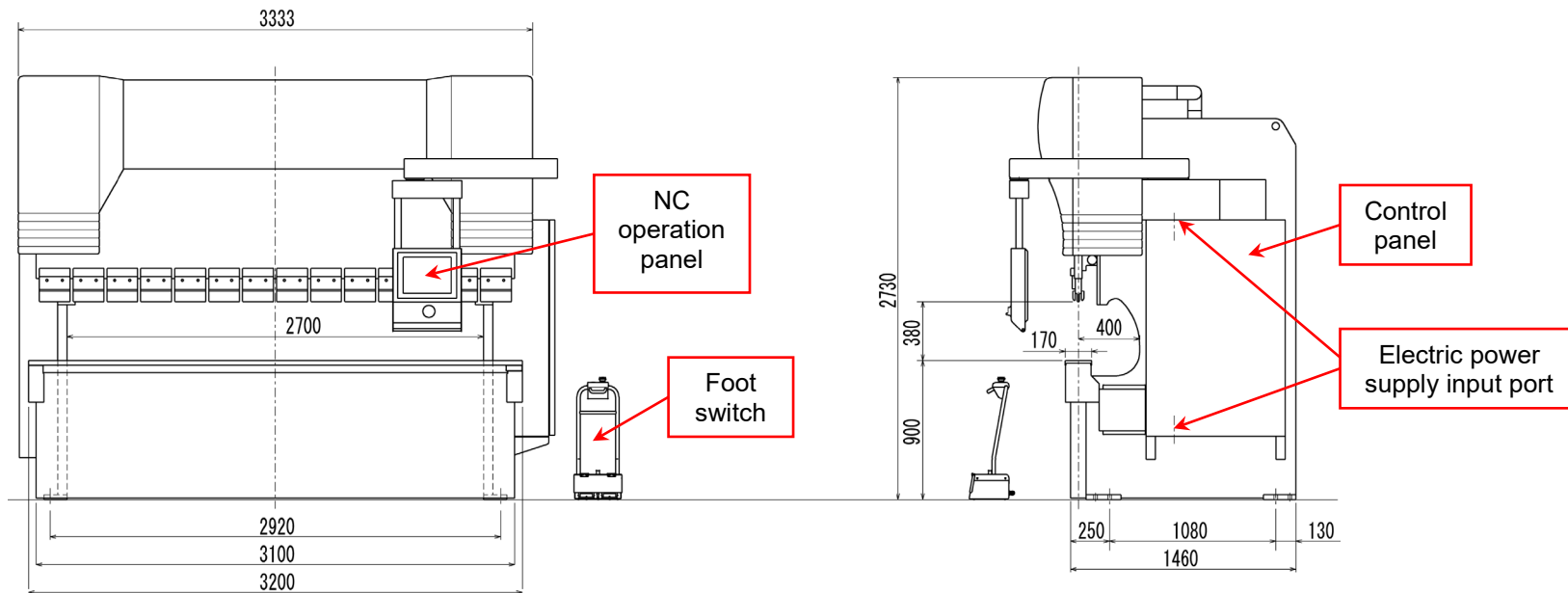
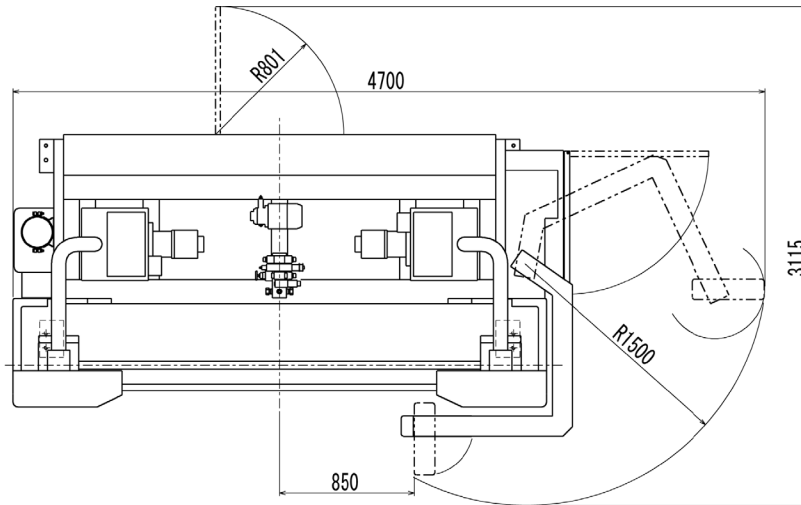


FOUNDATION DRAWINGS BH8525

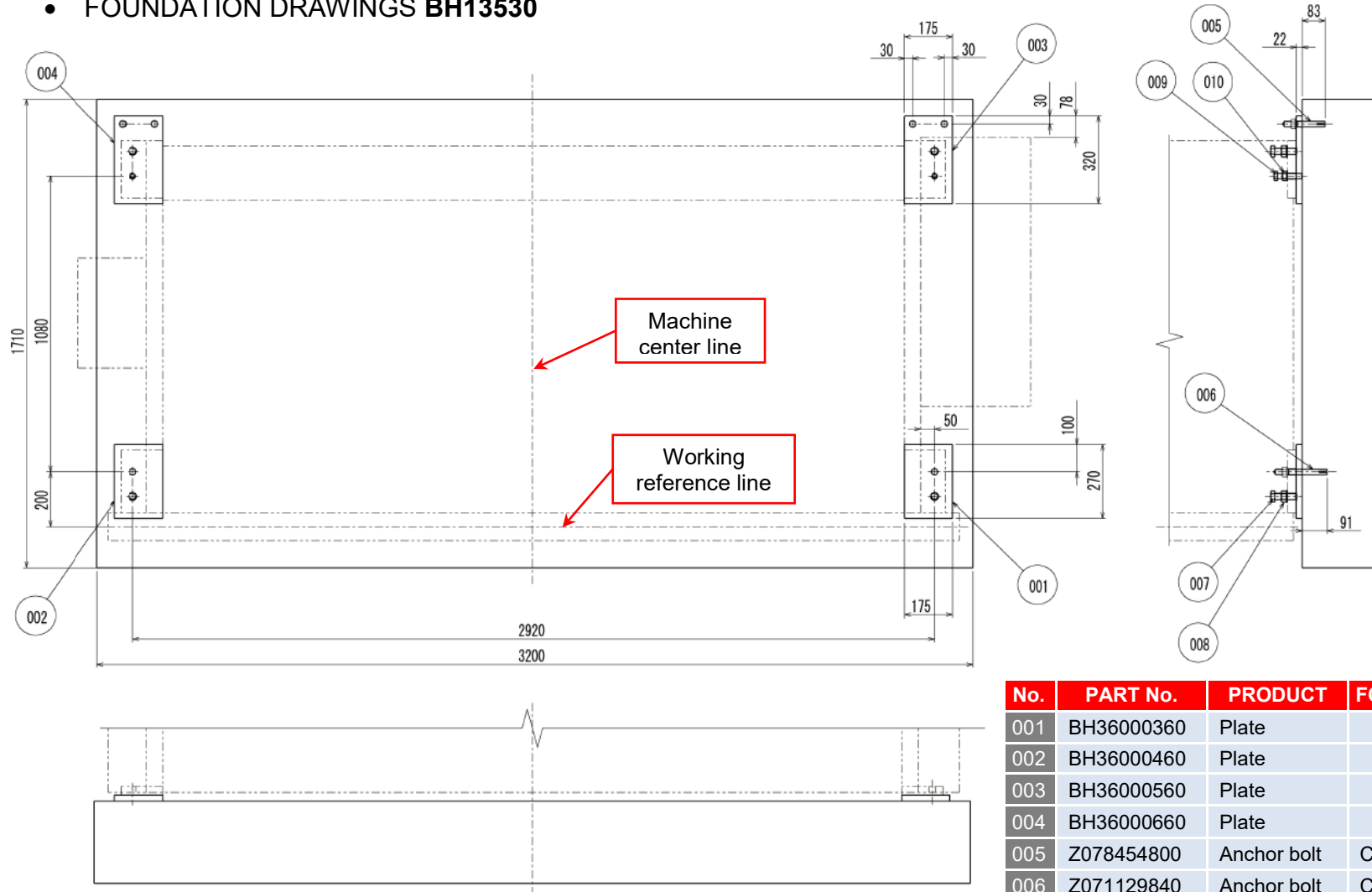


No.	PART No.	PRODUCT	FORMAT	QTY
001	BH36000360	Plate		1
002	BH36000460	Plate		1
003	BH36000560	Plate		1
004	BH36000660	Plate		1
005	Z078454800	Anchor bolt	C20-150	4
006	Z071129840	Anchor bolt	C20-150	2
007	Bolt	M24 x 80		4
008	Nut	M24		4
009	Bolt	M20 x 90		2
010	Nut	M20		2

- OVERALL LAYOUT **BH13530**



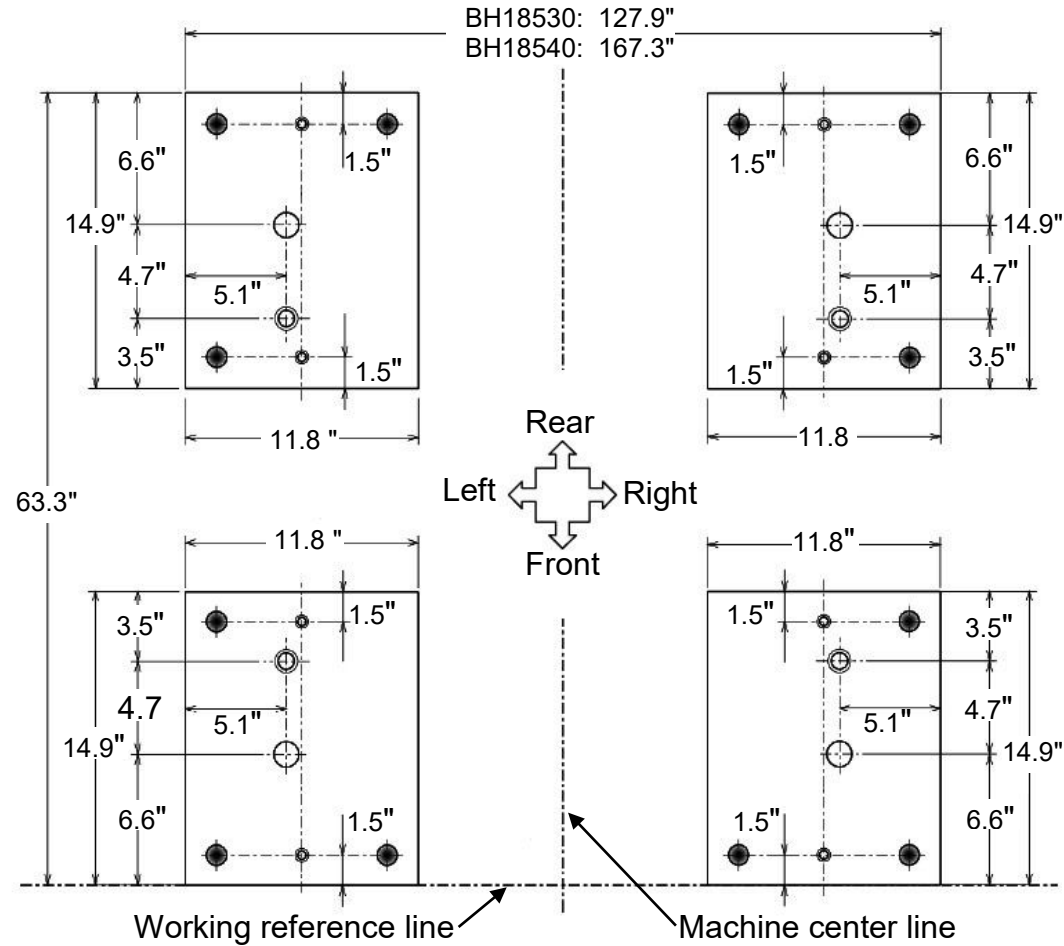
• FOUNDATION DRAWINGS BH13530



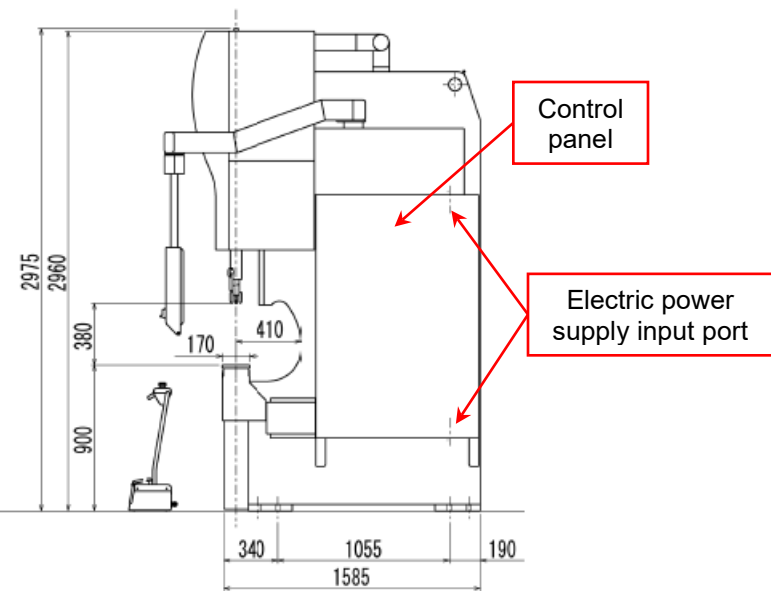
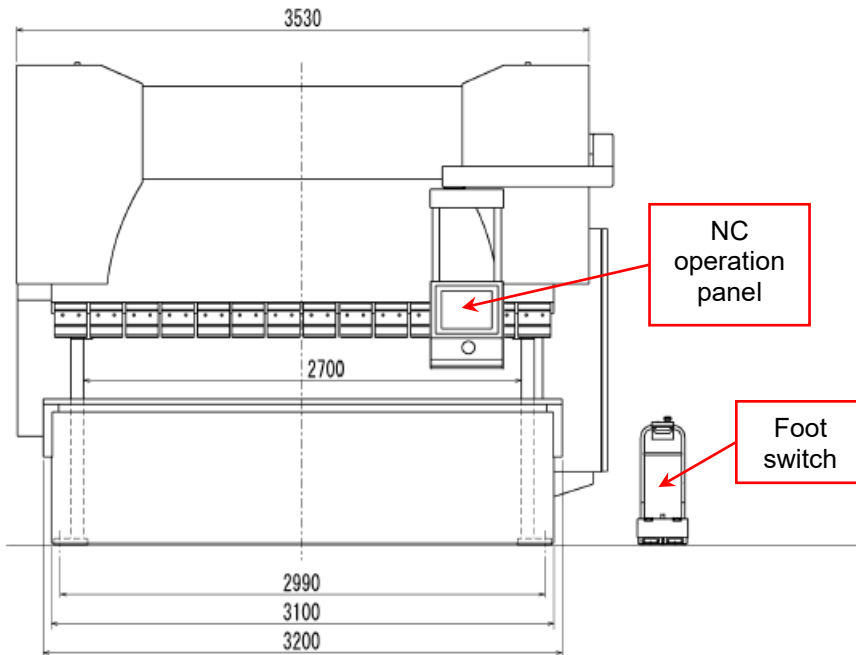
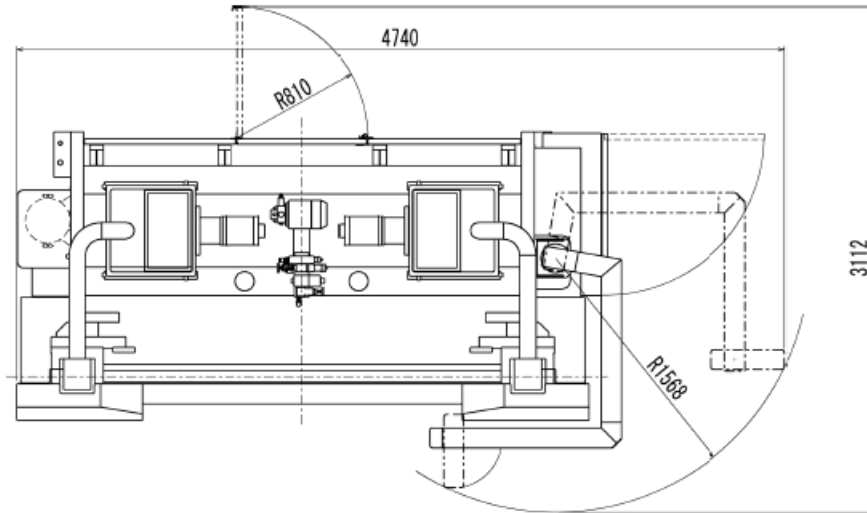
No.	PART No.	PRODUCT	FORMAT	QTY
001	BH36000360	Plate		1
002	BH36000460	Plate		1
003	BH36000560	Plate		1
004	BH36000660	Plate		1
005	Z078454800	Anchor bolt	C20-150	4
006	Z071129840	Anchor bolt	C20-150	2
007	Bolt	M24 x 80		4
008	Nut	M24		4
009	Bolt	M20 x 90		2
010	Nut	M20		2

- The plates are arranged in advance at the place where the press brake is installed.
- Models: **BH18530, BH18540.**
- Unit: inch

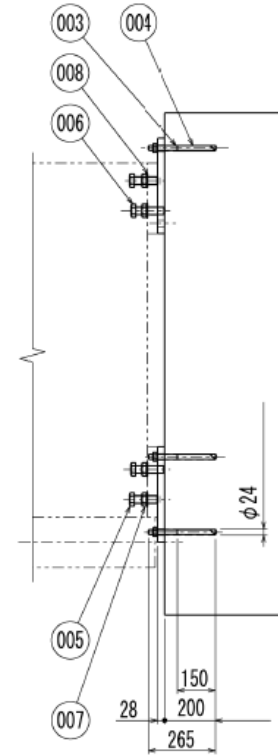
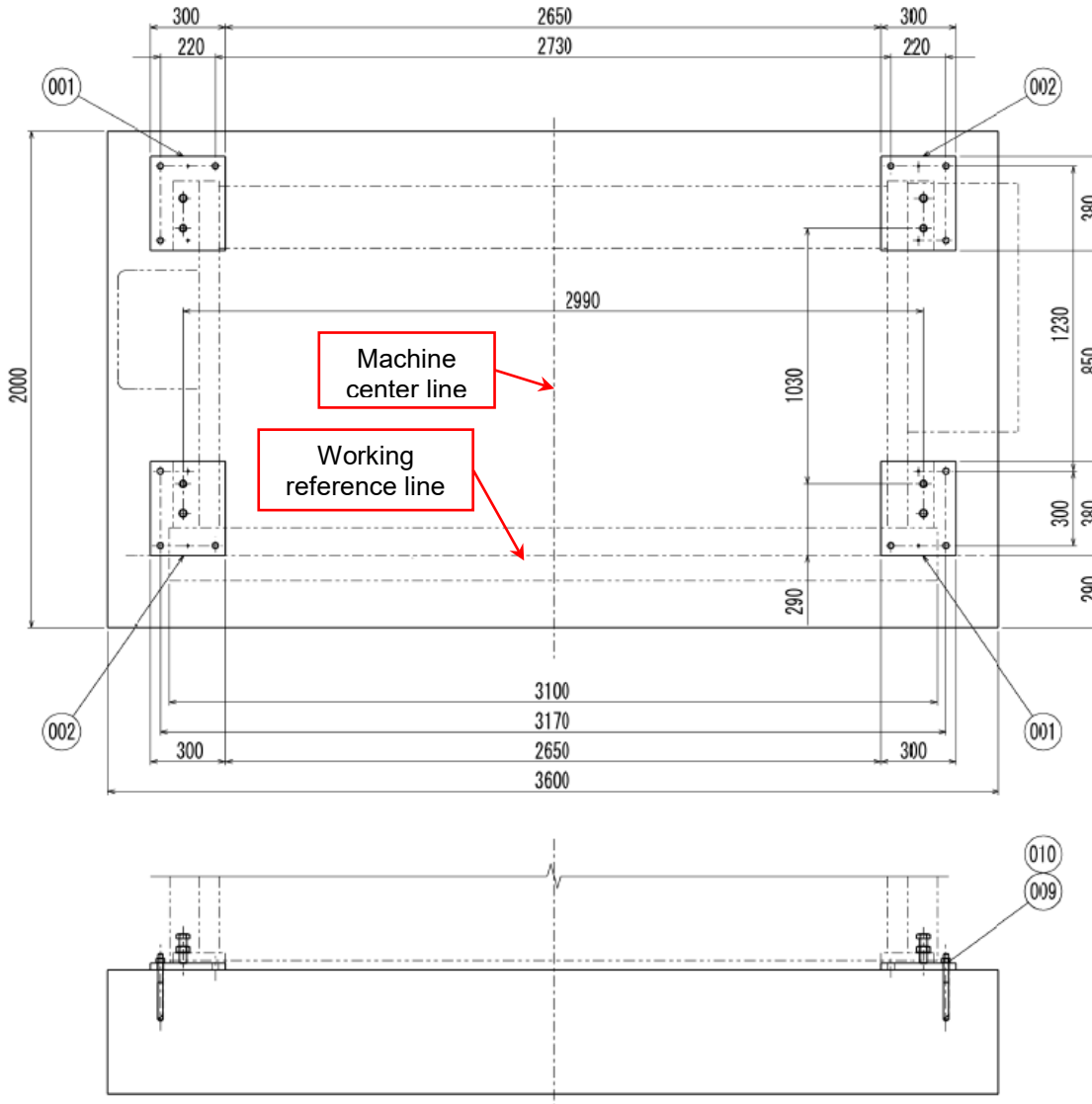
- Trough hole
- Spot face
- ⊕ Tapped hole



• OVERALL LAYOUT **BH18530**

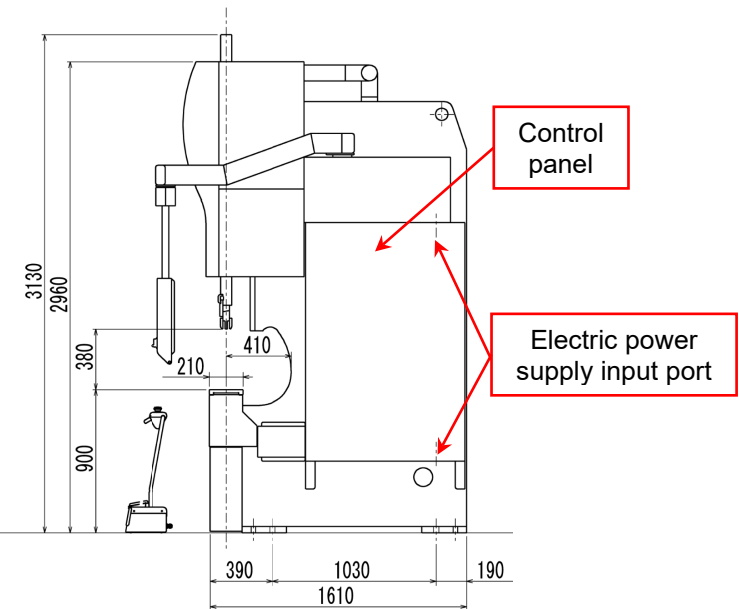
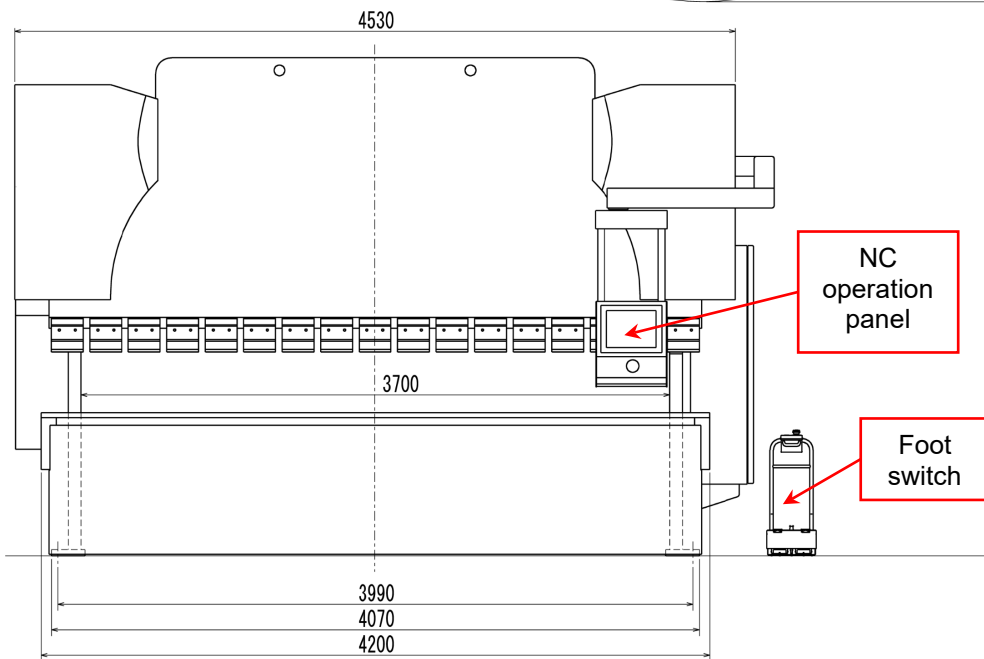
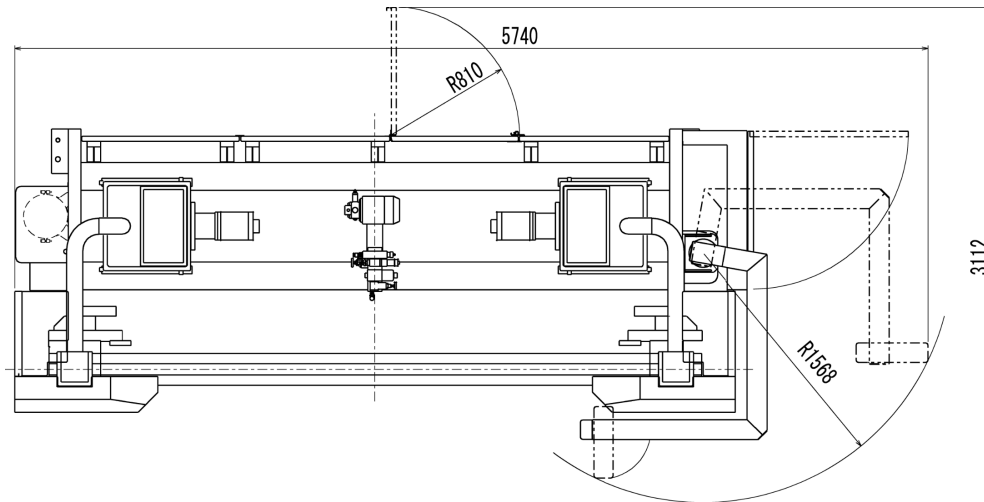


• FOUNDATION DRAWINGS BH18530

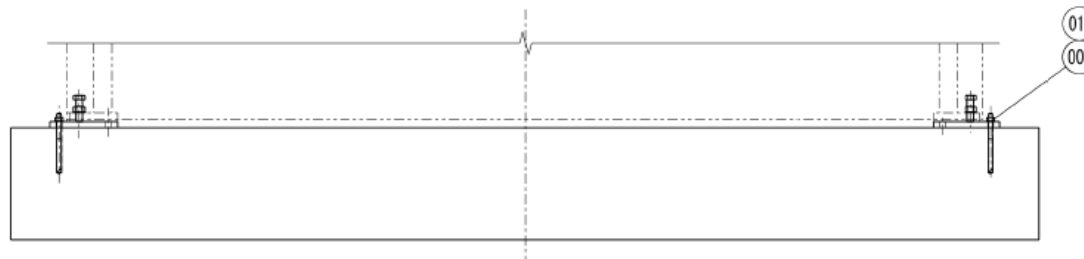
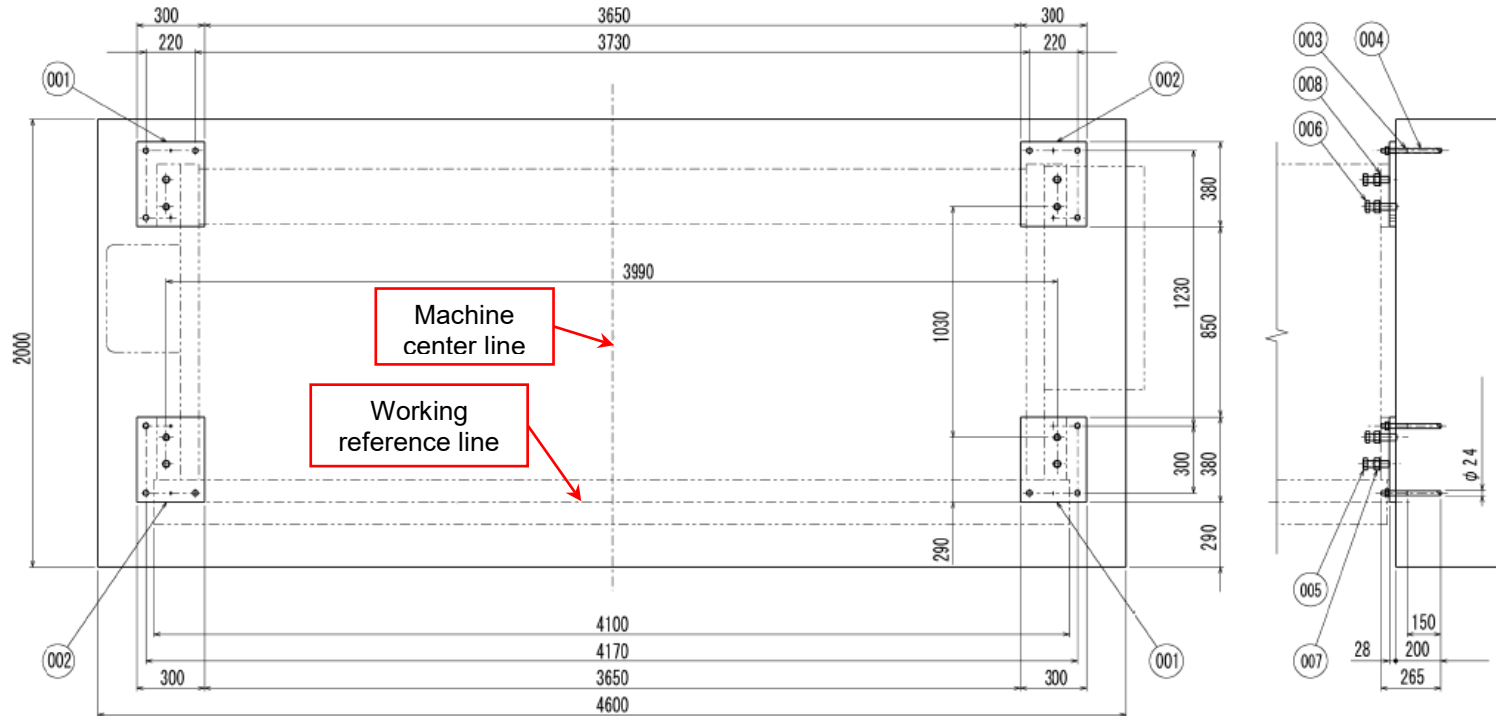


No.	PART No.	PRODUCT	FORMAT	QTY
001	BH46000160	Plate		2
002	BH46000260	Plate		2
003	BH46000360	Bolt		8
004	Z063156720	Chemical anchor	R19	8
005	Bolt	M30 x 100 11T		4
006	Bolt	M30 x120 11T		4
007	Nut	M30		8
008	Washer	M30		8
009	Nut	M20		8
010	Washer	M20		8

• OVERALL LAYOUT **BH18540**



FOUNDATION DRAWINGS BH18540



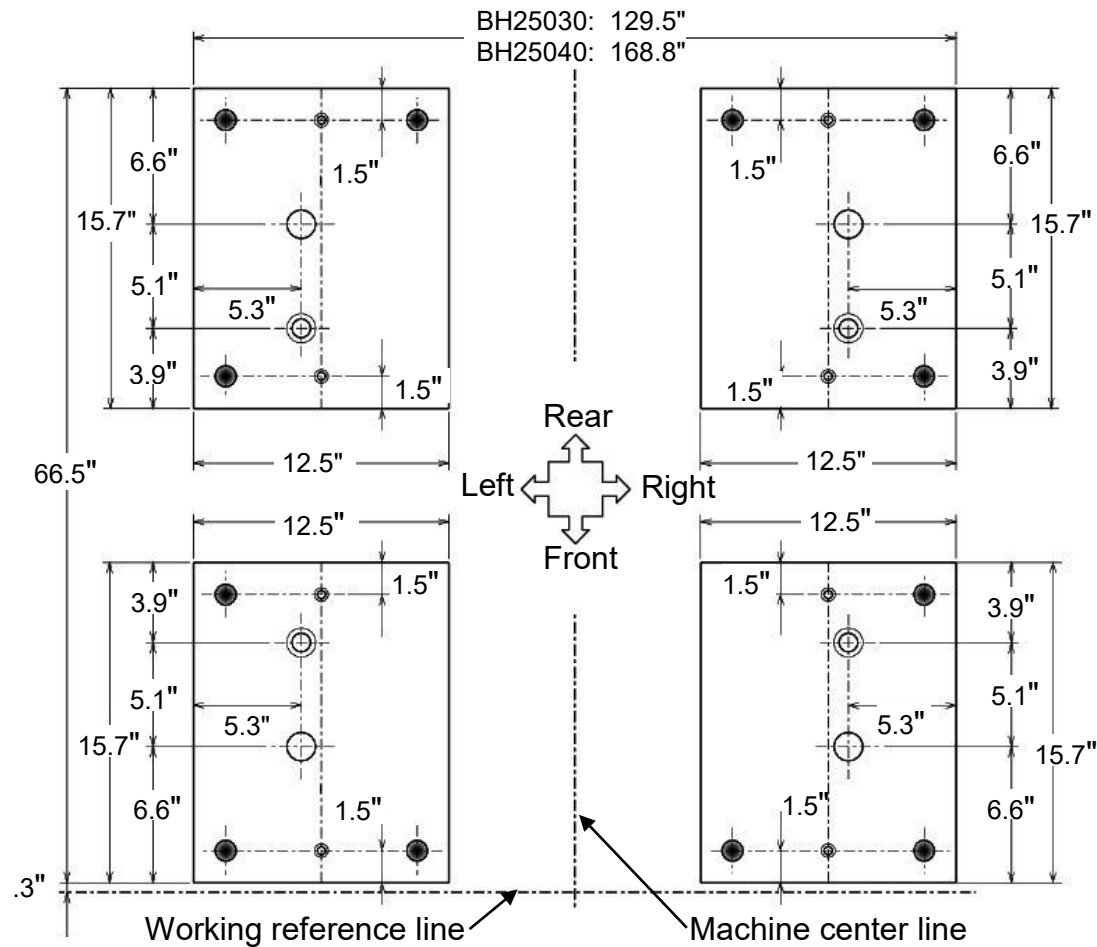
No.	PART No.	PRODUCT	FORMAT	QTY
001	BH46000160	Plate		2
002	BH46000260	Plate		2
003	BH46000360	Bolt		8
004	Z063156720	Chemical anchor	R19	8
005	Bolt	M30 x 100 11T		4
006	Bolt	M30 x120 11T		4
007	Nut	M30		8
008	Washer	M30		8
009	Nut	M20		8
010	Washer	M20		8

- The plates are arranged in advance at the place where the press brake is installed.
- Models: **BH25030**, **BH25040**.
- Unit: inch

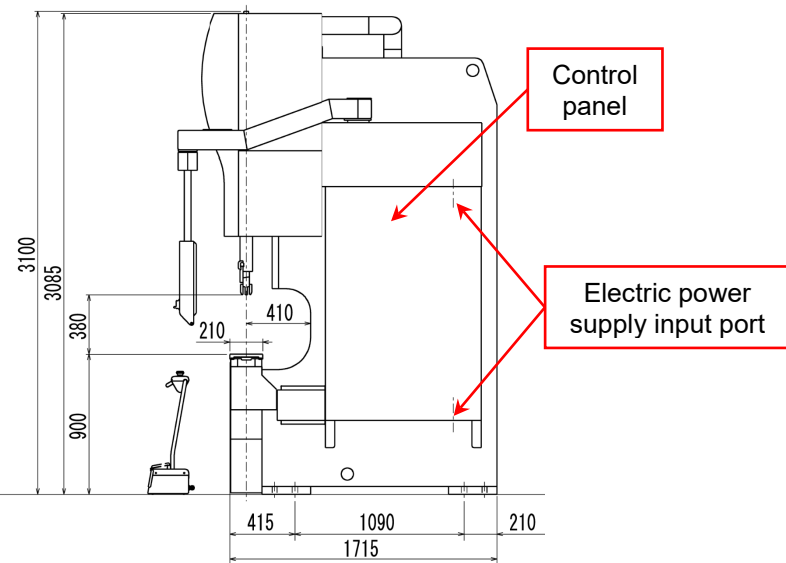
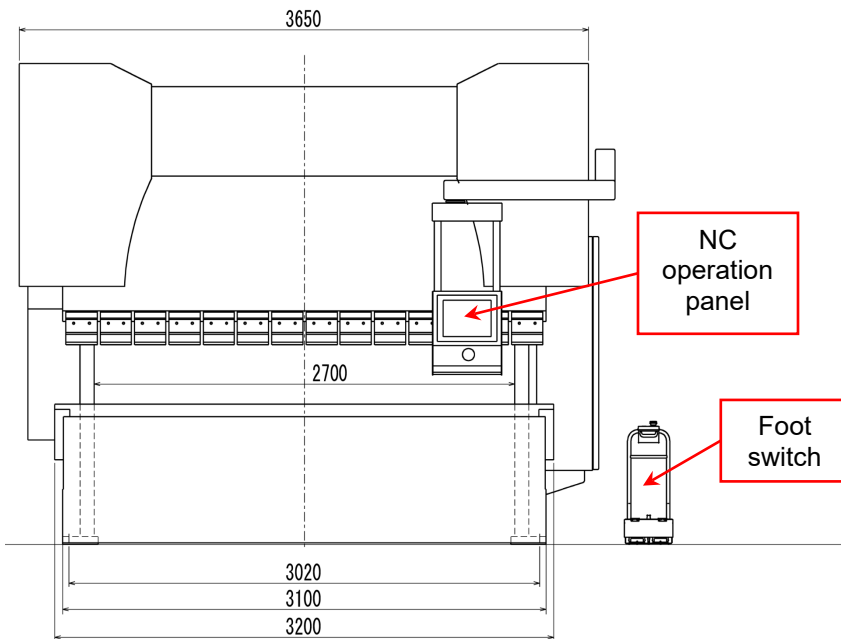
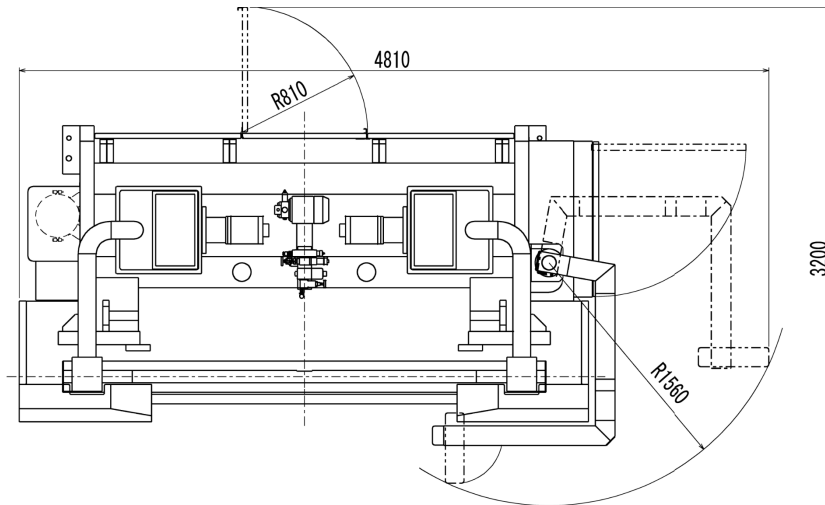
● Trough hole

⊕ Spot face

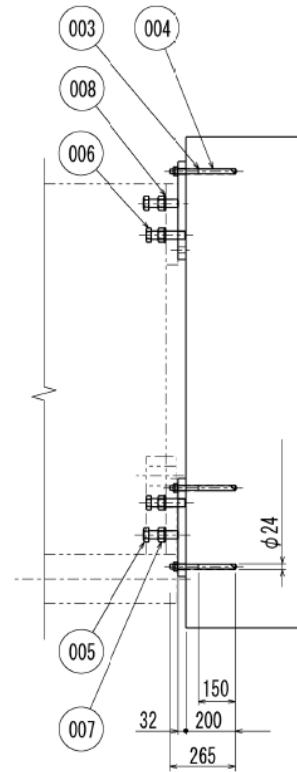
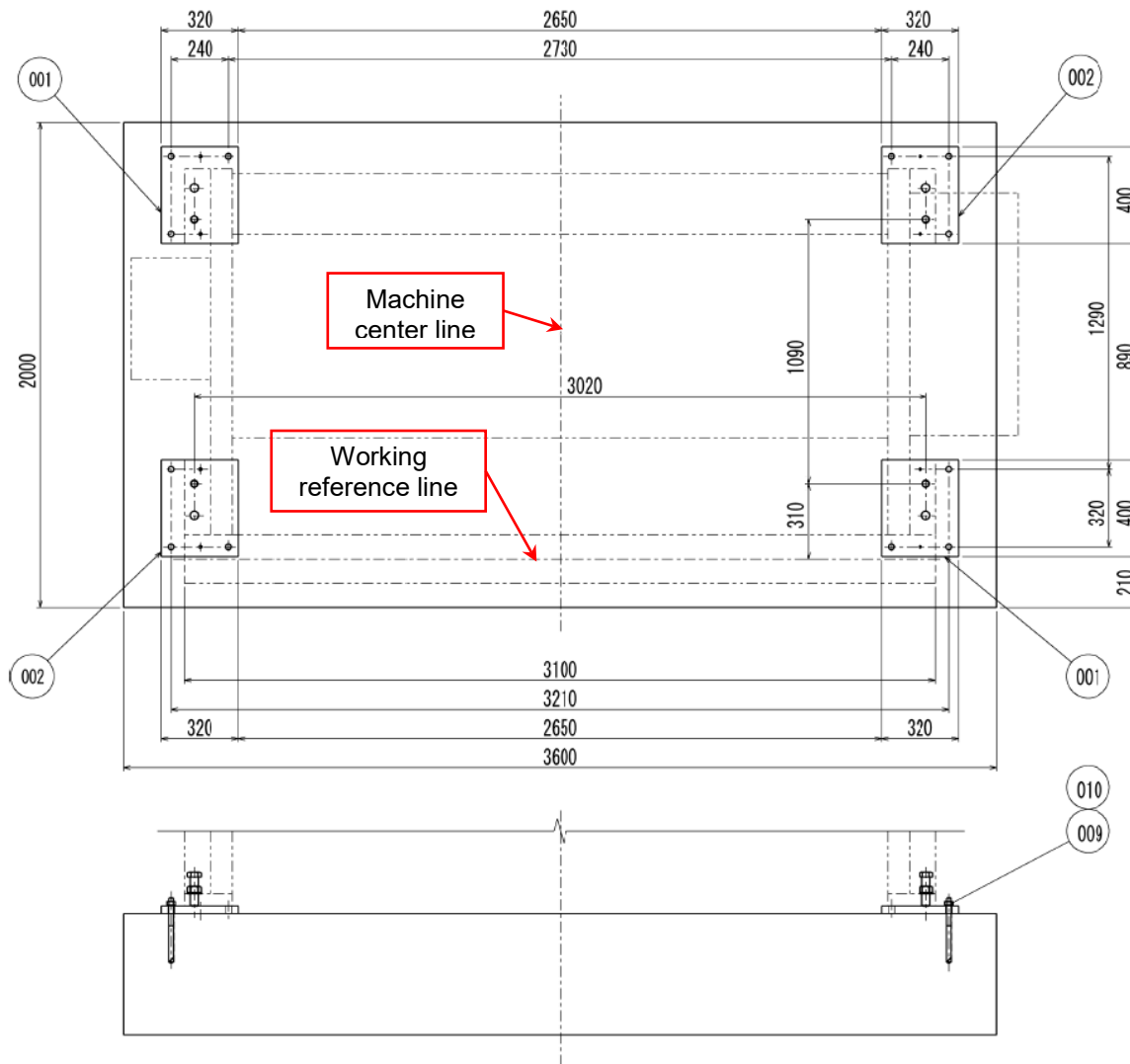
⊕ Tapped hole



• OVERALL LAYOUT BH25030

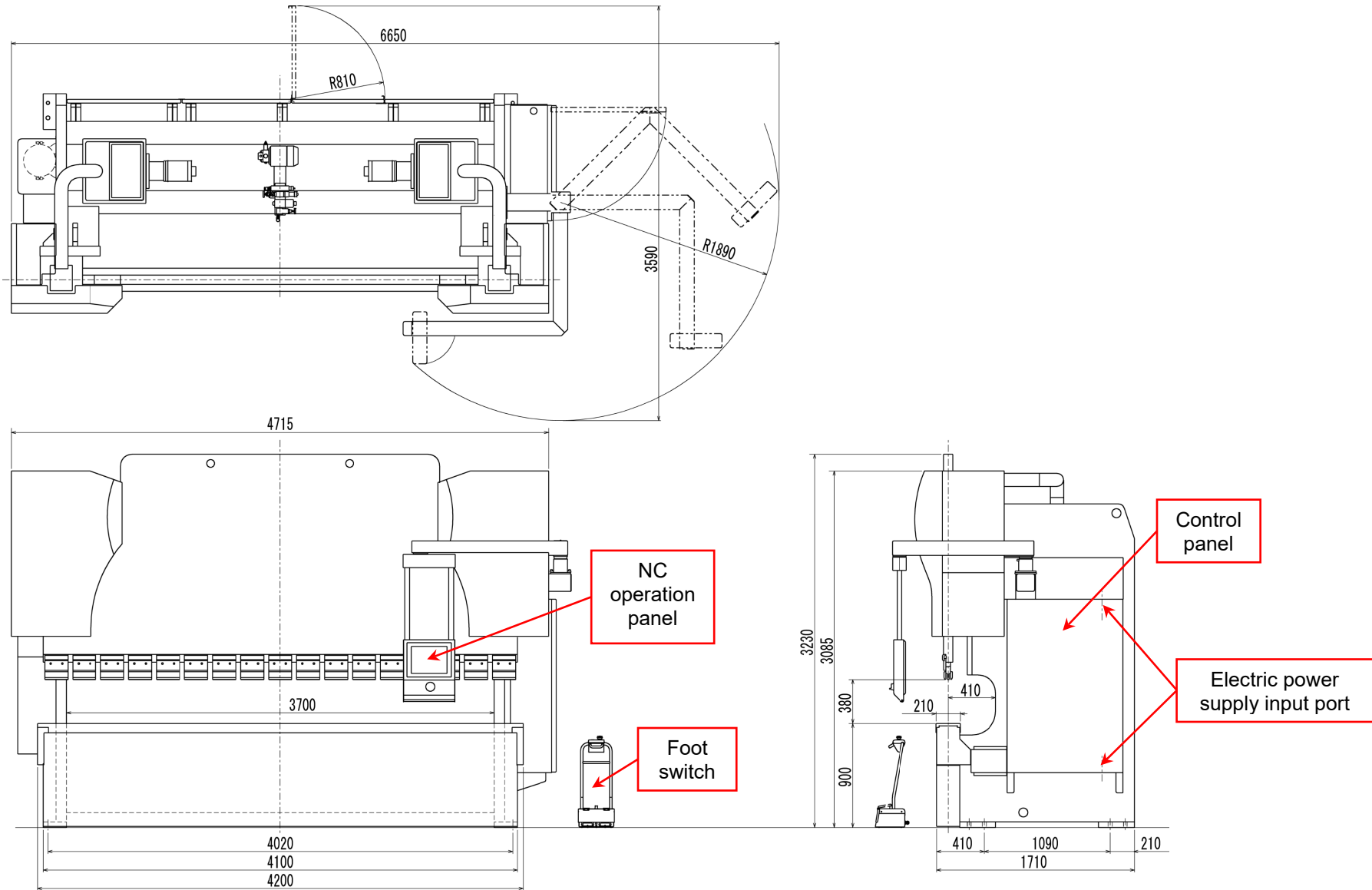


• FOUNDATION DRAWINGS BH25030

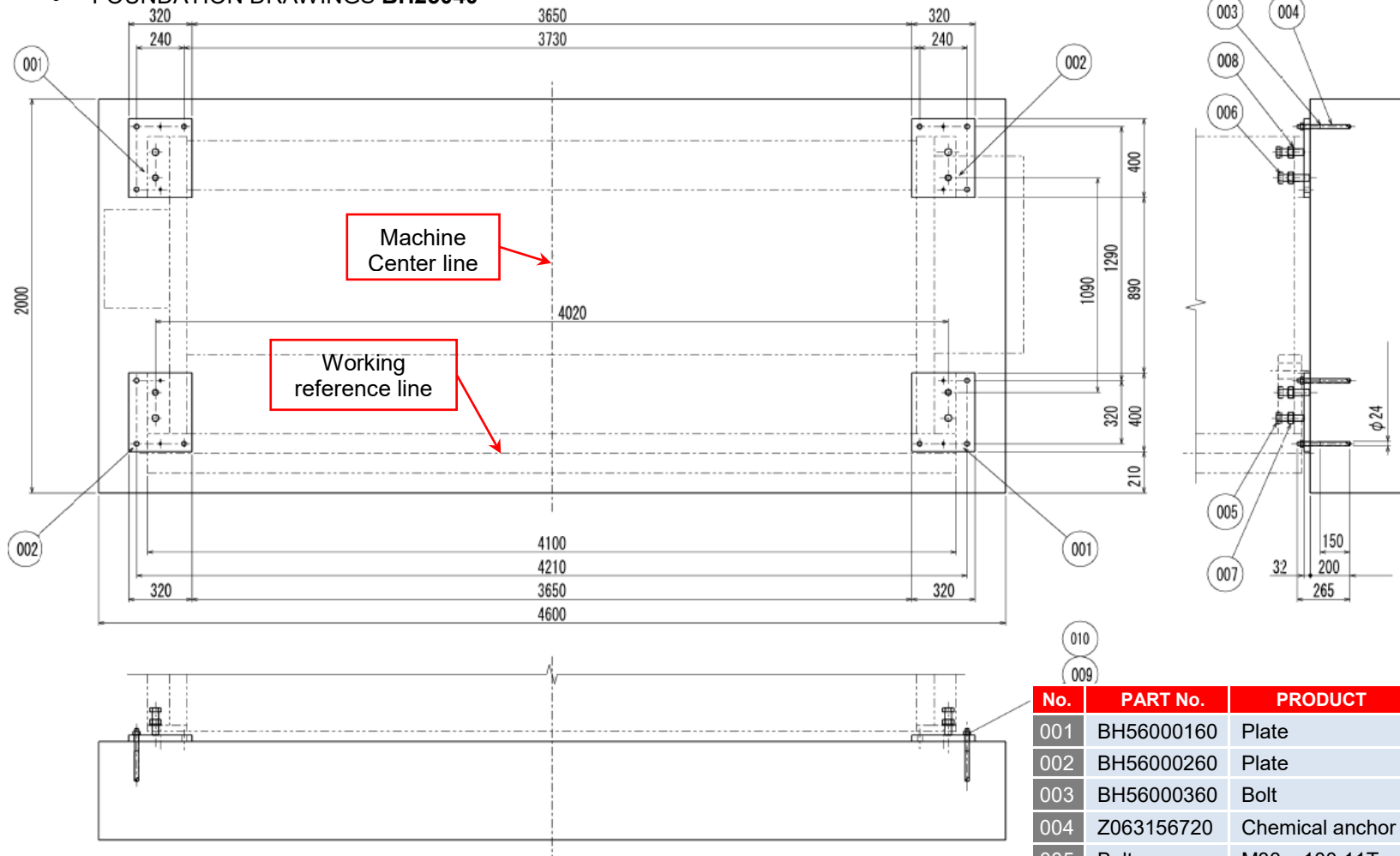


No.	PART No.	PRODUCT	FORMAT	QTY
001	BH56000160	Plate		2
002	BH56000260	Plate		2
003	BH56000360	Bolt		8
004	Z063156720	Chemical anchor	R19	8
005	Bolt	M33 x 120 11T		4
006	Bolt	M33 x 140 11T		4
007	Nut	M33		8
008	Washer	M33		8
009	Nut	M20		8
010	Washer	M20		8

• OVERALL LAYOUT **BH25040**



• FOUNDATION DRAWINGS BH25040



No.	PART No.	PRODUCT	FORMAT	QTY
001	BH56000160	Plate		2
002	BH56000260	Plate		2
003	BH56000360	Bolt		8
004	Z063156720	Chemical anchor	R19	8
005	Bolt	M33 x 100 11T		4
006	Bolt	M33 x 120 11T		4
007	Nut	M33		8
008	Washer	M33		8
009	Nut	M20		8
010	Washer	M20		8

RIGGING MACHINE

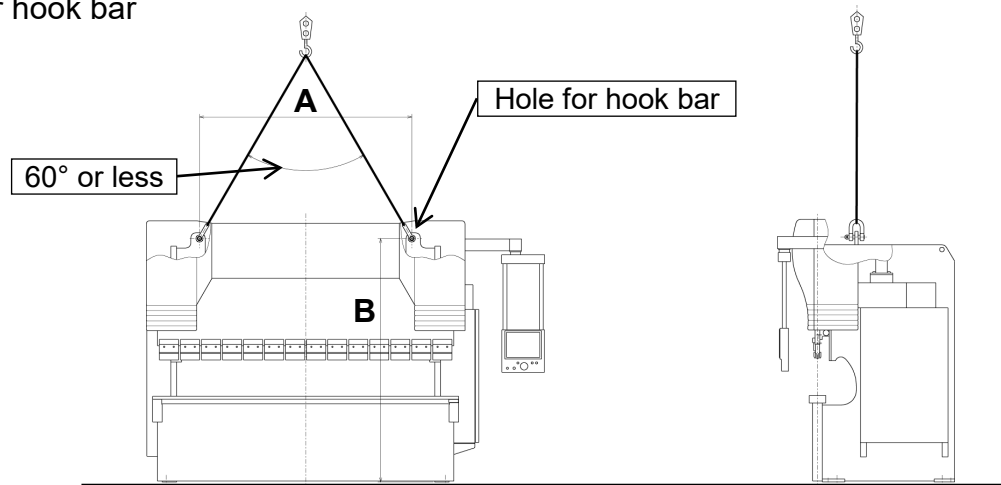
WARNING

- There exists an extreme danger when the press brake is transported. Operators or companies possessing transportation work certificate should transport the press brake.
- The center of gravity is located at the upper side of the press brake machine. If the lower side of the machine is lifted by a forklift, the machine will be in unbalanced condition. Never lift the lower side of the machine by the forklift.

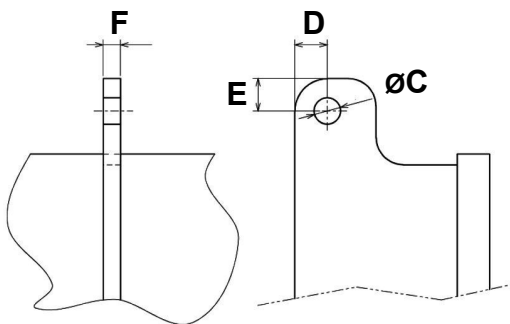
Observe the followings when the press brake is transported and suspended:

- A series of work operation from preparation to lift the press brake using ropes to its rope removal should be done by authorized person, possessing slinging operation license.
- Crane operation for lifting machine and equipments should be done by authorized person, possessing crane operation license. If crane operation is done by unauthorized person, who does not have knowledge of crane safety operation, there exists a possibility of an accident resulting in injury and damage to the machine.
- Use appropriate withstanding capacity wire ropes, shackle, lifting jigs etc., by considering machine dimensions and weight. Machine weight is mentioned in the machine nameplate. If machine is lifted by insufficient strength ropes, jigs etc., machine will fall down causing an accident resulting in injury and damage to the machine.
- Check the balance of machine in front-rear and left-right direction after lifting machine slightly. If machine is moved in unbalanced condition, machine will fall down causing an accident, resulting in injury and damage to the machine.
- When machine lifting operation is done by 2 or more persons, carry out operation by giving sufficient attention to each other, after proper signaling and communication with each other. If crane operation is done carelessly, causing an accident resulting in injury and damage to the machine.

- Confirm that tools or waste clothes etc. are not forgot in machine, before lifting the machine. During lifting, tools etc. will fall down from the machine, causing an accident resulting in injury or damage to the machine.
- Before lifting the machine, confirm that all parts are fixed. If all parts are not fixed, during machine lifting, they may cause damage to the machine.
- Hole position for hook bar



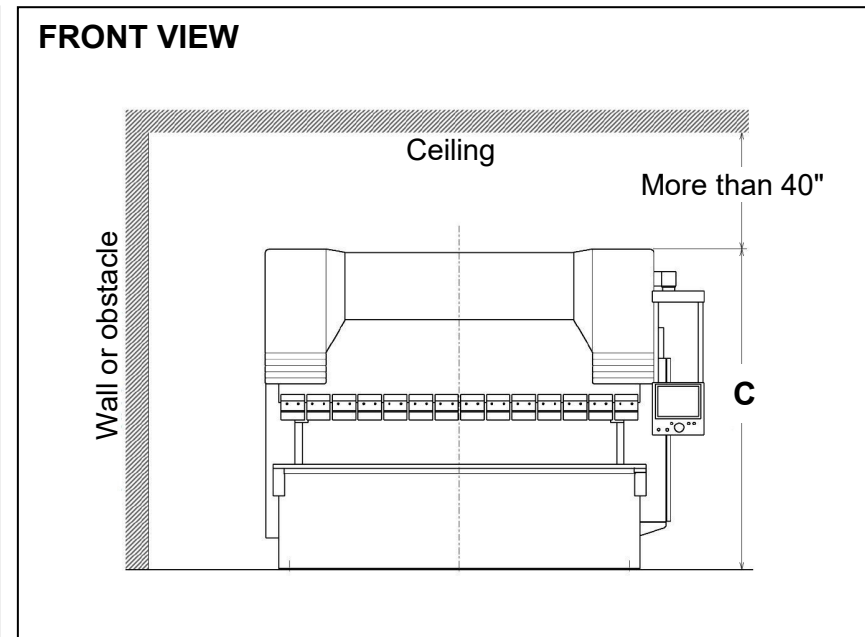
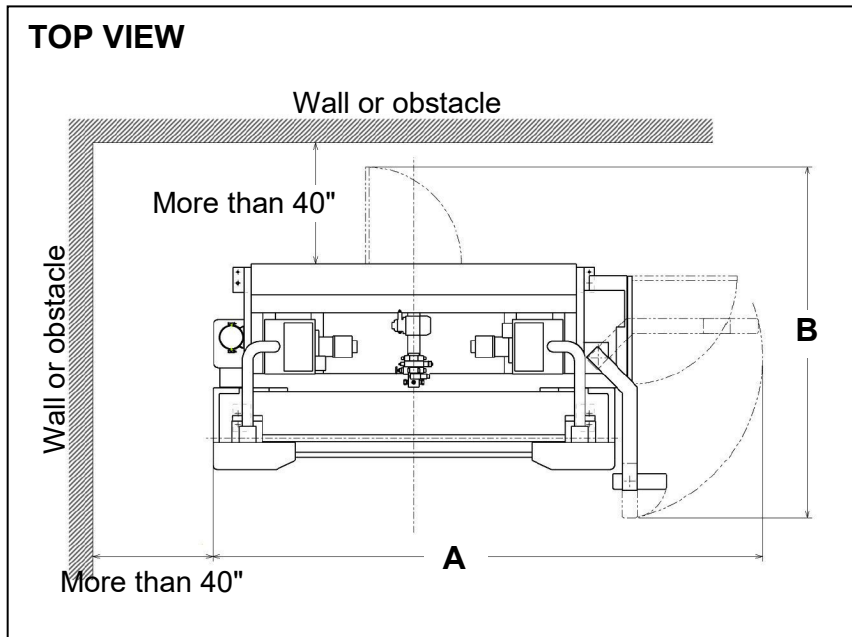
- Details of hole for hook bar



SYMBOL	BH8525	BH13530	BH185		BH250	
			3m	4m	3m	4m
A	68"	88"	96"	135"	91"	130"
B	98"	101"	110"		115"	
C	2"	2"	3"		3"	
D	3"	3"	4"		4"	
E	3"	3"	4"		4"	
F	1"	2"	3"		3"	
Machine weight Lbs.	15,432	19,621	35,274	44,093	38,581	48,502

MACHINE LAYOUT

SYMBOL	BH8525	BH13530	BH18530	BH18540	BH25030	BH25040
A	166"	185"	187"	226"	190"	262"
B	118"	123"	123"	123"	126"	142"
C	107"	108"	118"	124"	122"	128"

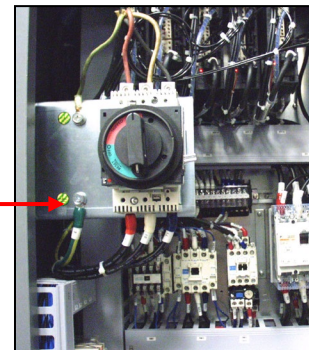


POWER REQUIREMENTS

- Primary power supply connection should be done by direct and independent cables from power source. And its work should be done by persons possessing electric work certificate.
- Be sure to use primary voltage cable of correctly calculated rated specification for electric supply capacity. If appropriate cables are not used, there is a possibility of generation of fire, causing an accident resulting in injury and damage to the machine.
- If the power requirements or cable thickness fails to meet the specifications, the power source voltage will drop, causing various troubles to the machine.
- Power supply voltage: (AC208V) within $\pm 10\%$.
- Frequency (50/ 60Hz) ± 1 Hz.
- Quick voltage cut-off within 10 msec.
- Peak value of RMS voltage should be less than 200 % for less than 1.5 msec. in pulse.
- AC supply voltage waveform distortion should be less than 7%.
- Unbalance in phase voltage should be less than 5%.

The Powergy™ unit cleans and conditions the electricity that is supplied to your equipment. It also protects your machine from power spikes. It also protects your machine from power spikes. This is an optional piece of equipment that is not included with the machine. If you wish to purchase a Powergy™ Clean Power System please contact your salesman or call MC Machinery at (630)-616-5900.

In order to access the termination point for the 3 phase you will need to open the door located on the right side of the machine.



POWER CAPACITY/ WIRING				
Machine Model	BH825	BH13530	BH18530 BH18540	BH25030 BH25040
Power Supply	27A or more (9KVA)	36A or more (12KVA)	63A or more (22KVA)	77A or more (27KVA)
Recommended earth leakage circuit breaker capacity	60 A or more	75 A or more	75 A or more	100 A or more
Electric wiring	14mm ² or more	14mm ² or more	22mm ² or more	22mm ² or more
Earth	Be sure to do proper earthing exclusively for NC (An earth bar should be prepared by your company) and proper earthing for power (Three-phase earth).			
* If the installation area fails to meet the above requirements, it can cause various problems to the machine. Consult our personnel prior to determining the installation area.				

CLASS I

These appliances must have their chassis connect to electrical earth (US: ground) by an earth conductor (coloured green/yellow in most countries, green in the U.S., Canada and Japan). A fault in the appliance which causes a live conductor to contact the casing will cause a current to flow in the earth conductor. This current should trip either an overcurrent device (fuse or circuit breaker (CB)) or a residual-current device (RCD) also named as residual current circuit break (RCCB), or ground fault circuit interrupter (GFCI) or also, residual current operated circuit-breaker with integral overcurrent protection (RCBO), which will cut off the supply of electricity to the appliance.



Green/yellow ground



Class I symbol

OIL REQUIREMENTS

- The brake uses DTE 25 (ISO VG46) hydraulic fluid or equivalent. You can source it out or purchase it from our Consumable Products Group. A 55 gallon drum is part number CLC-HO 46-Z-55. A 5 gallon bucket is part number CLC-HO-46-Z-5.

MODEL	BH85	BH135	BH185	BH250
Tank capacity (Gallon)	11.8 x 2	11.8 x 2	22.4 x 2	22.4 x 2

