HOT MELT APPLICATOR SYSTEM

BSDM55

PhalBok
(주)팔복시스템 hot melt applicator system engineering

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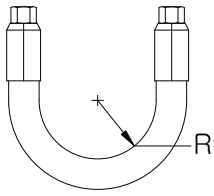
◈ Please make sure to observe it! ◈

◎ If not observed, failure and accident may occurr.

1. Electric Specification

VAC Hz Kw

2. Do not turn the pump switch ON until it reached to the set temperature.
3. Switch off the power before the panel is opened.
4. Please make sure to read the operating manual before the installation and operation of the system.
5. At time of equipment maintenance and repair, switch off the MAIN power and wait until the temperature is dropped.
6. At time of equipment operation, do not use the pressure higher than required. (Do not operate the machine in a manner prohibited or not instructed in the manual.)
7. At time of filter change, change it after removing the pressure with the pump switch OFF.
8. As the surface of TANK and GUN is so hot and may cause burns, so never fail to wear a cotton groves to touch it.
9. When the HOSE is connected to the TANK or GUN, the radius should be more than 200 mm, and fasten it rightly not to be twisted.



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1. Basic Requirements for safe use

We, Phal Bok System, are very grateful for purchase of our products.
Considering the fact that our HOT MELT APPLICATOR uses hot melt at high temperature, high pressure and high speed, please get familiarized with Service Manual for safety of operator and observe as required. Failure to observe Service Manual may cause bodily injuries and equipment damages.

(1) General Cares to be taken

* Please be sure to get familiarized with Service Manual, prior to installation, operation and repair of HOT MELT APPLICATOR.
* Please have designated workers only be engaged in operation of the machine.
* When something goes wrong with the machine when in operation or it works abnormally, stop the machine immediately and contact Phal Bok System to get technical direction.
* Do not operate the machine in such a manner as prohibited or not instructed in Service Manual.
* We are entirely not responsible for any breakdown and bodily injuries caused by installation, operation and repair not conforming to the Service Manual. With respect to what is not specified in MANUAL, please inform us for confirmation.

⚠ DANGER	It indicates first-hand exposure to danger Likely to cause death or serious injury.
⚠ WARNING	It indicates potentially dangerous situation. Likely to cause serious injury or equipment failure. .
⚠ CAUTION	It indicates potentially dangerous situation. . Likely to cause mild injury or equipment failure.
NOTICE	It indicates necessary and useful information required for operation and repair.

(2) Mechanical operators Requirements

* Workers to meet the following requirements are allowed to operate and repair the machine.

① Qualified worker
② Delegated worker
③ Educated worker

(3) Important caution for safety

◈ Transfer of equipment

◎ Do not raise or transfer the machine without being supported by mechanical lift.

◈ Wearing protective equipment

◎ When installing, operating and repairing HOT MELT APPLICATOR or working around it, please be sure to wear protective goggle, gloves (made of leather) and clothes.

◈ Danger of high pressure ejection

◎ Ejection of high pressure melt resin is likely to cause injury like burn. Do not operate the machine in such a manner as prohibited or not instructed in Service Manual.

◈ Prohibition from operating the machine

◎ Personnel without having professional education is not allowed to handle the machine.

◈ Safety cover

◎ Stop operating the machine before opening cover.

◈ Grounding.

◈ Electrical hazard.

◎ Before operation, close the machine with locking device.
◎ Turn off power before approaching electrical equipment.

◈ Familiarity with service manual.

◎ Before installation and operation of the system,
get familiarized with service manual.

◈ Burn hazard (hand off, do not touch)

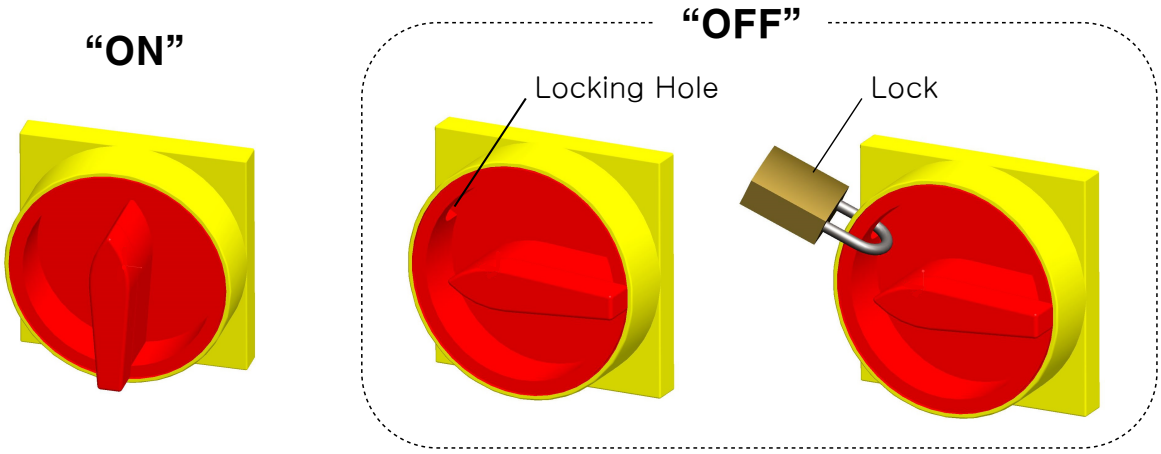
◎ After cutting off power, wait to operate the machine
until temperature will go down.

◈ Caution

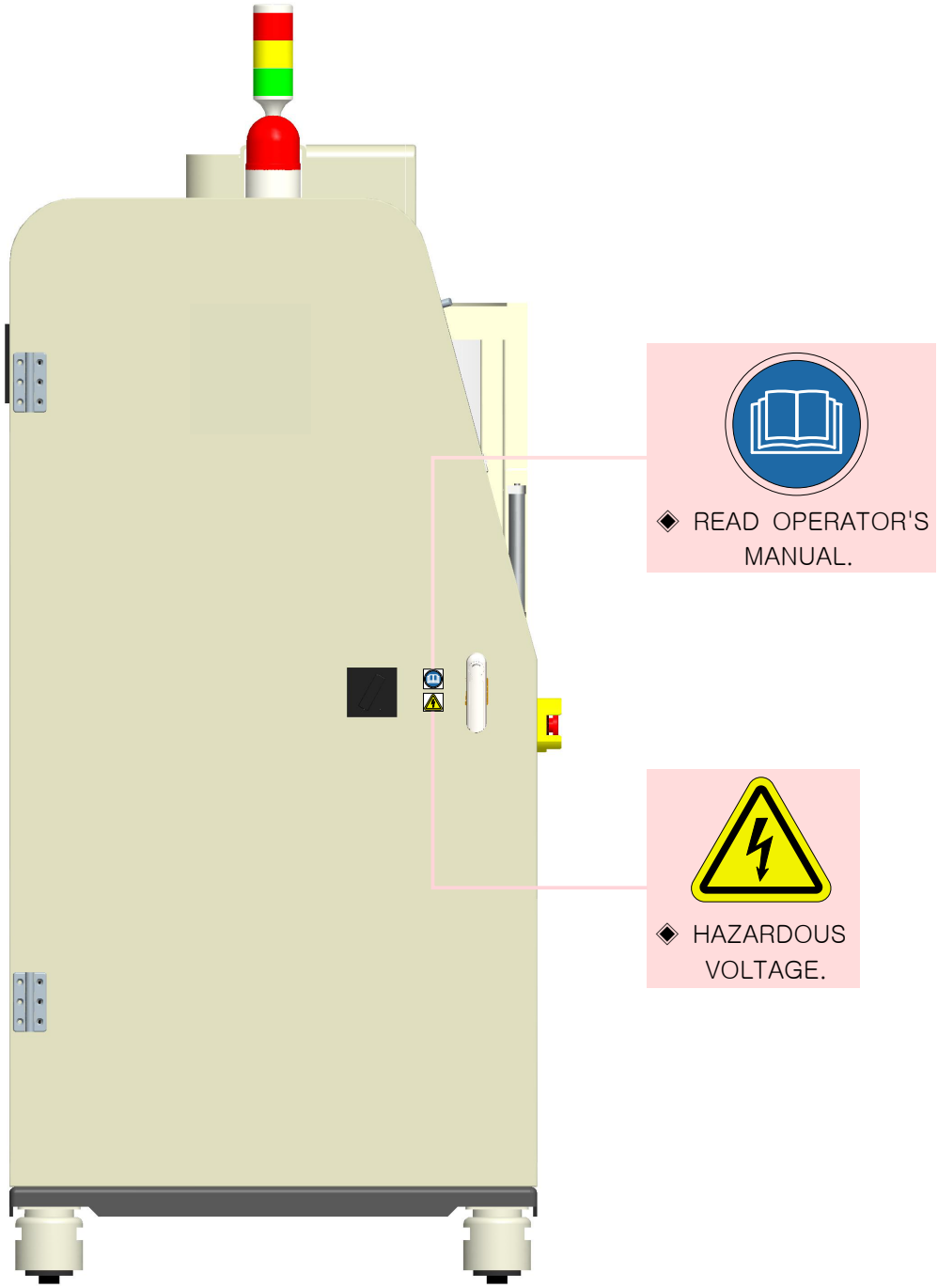
◎ Stop operating the machine before opening cover.
◎ When replacing filter, remove pressure.
◎ Do not touch the surface which is hot.
◎ Failure to follow this instruction may cause burn hazard etc.

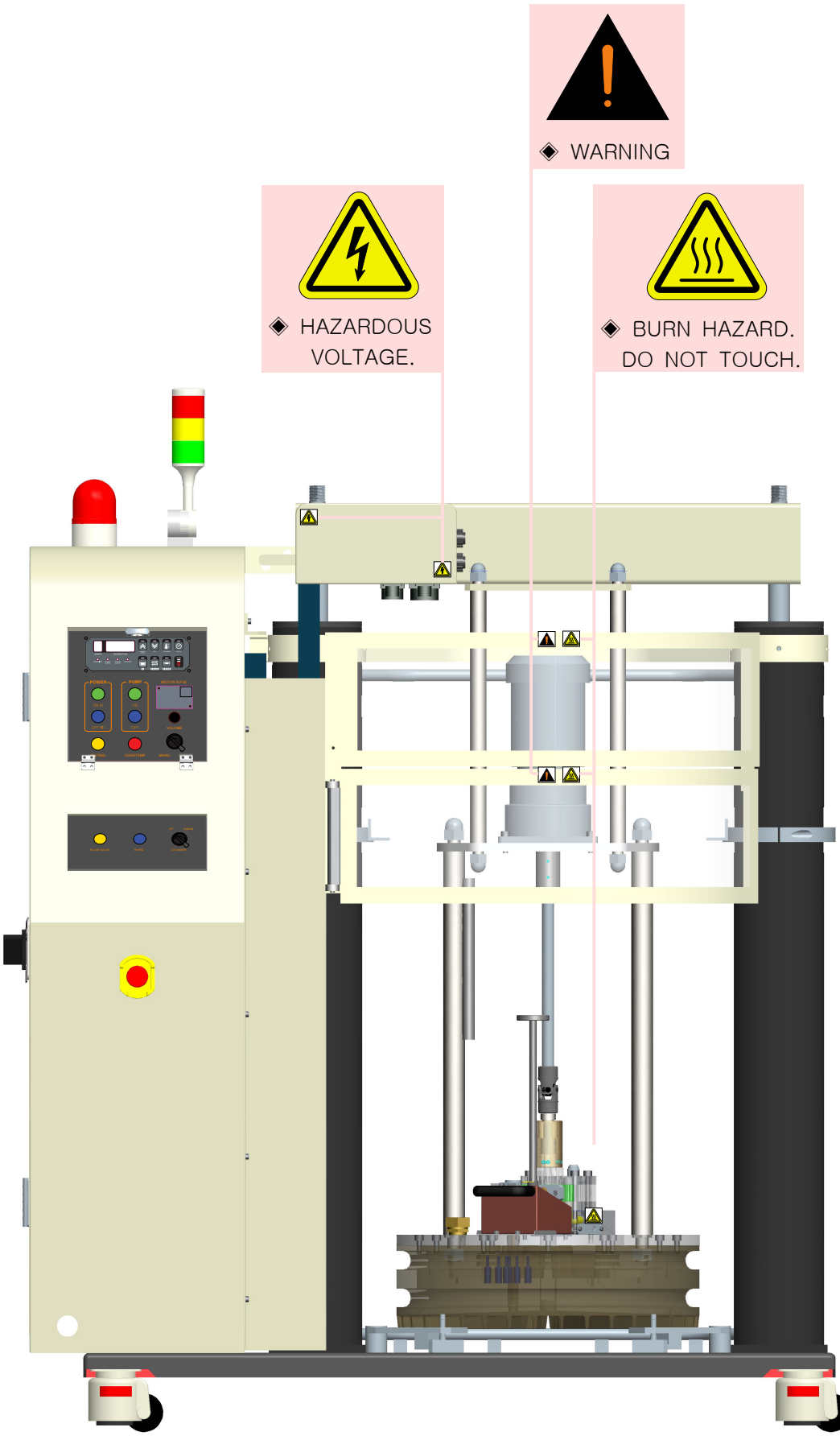
◈ MAIN SWITCH ◈

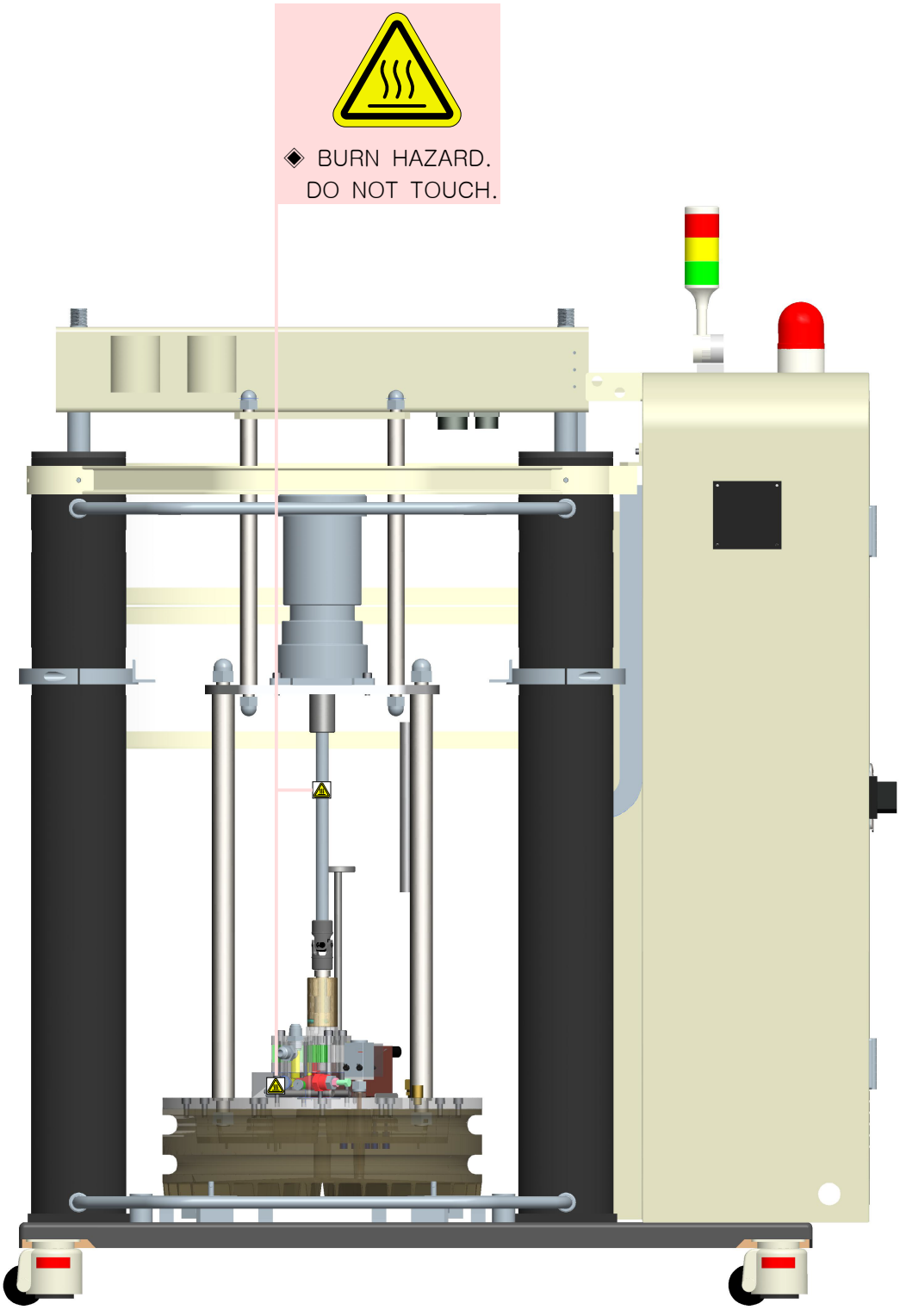
◎ Make main switch OFF before service and begin to work after locking it on locking hole.



(4) Position of Label




◈ WARNING
◈ HAZARDOUS VOLTAGE.
◈ BURN HAZARD. DO NOT TOUCH.


◈ BURN HAZARD.
DO NOT TOUCH.

2. Outline of BSDM SERIES HOT MELT DRUM UNLOADER

As BSDM series of Phalbok System Co., Ltd. is highly efficient unloader which can dissolve glue inside of 5(55) gallon container and thereafter put directly in with pumping function, it is designed suitable for adhesion or sealing with automatic spray or manual one.
BSDM Series is composed of Geared Motor, Gear Pump, Temperature Controller and Electric Equipment which is necessary for Platen and Pumping to dissolve glue.

* BSDM Series can melt and make pumping PUR, EVA, RUBBER, POLY- URETHANE, POLYAMIDE, POLYESTER and ADHESIVE of thermoplastic PLASTICs.
* Physical property change and carbonization of glue will be mitigated with TEFLON coating on the surface of PLATEN and MELT GRIDE will increase heat conduction from HEATER to increase MELT RATE.
* PUMPING SYSTEM will run GEAR PUMP in GEARED MOTOR and control pressure and discharge rate by FLOW CONTROL VALVE.
* PLATEN may descend or rise by cylinder and input and output of air for descent or rise will be done by AIR SOL circuit.
* TEMP CONTROLLER(TCS-300 SERIES) of BSDM SERIES may use respectively one or two HOSE & GUNS.
* Temperature Control System of front side will use RTD SENSOR and every temperature will be indicated as DIGITAL which is composed Main Breaker, Pump Breaker and Temperature Control System and shall use Quick Connect to connect and separate easily electricity from/to Hose.
* Controller Box of BSDM SERIES will be equipped with circuit breaker, magnetic switch and electric control parts and will be used to have many electrical connection in terminal.
* Subsidiary facilities including main power supply and spray control device shall be supplied by user.
* Following safety devices are built in UNIT of BSDM SERIES.

1. Prevention of Overheating

To prevent overheating of PLATEN caused by breakdown of PLATEN TEMP CONTROLLER or setting of immoderate temperature, S/W and Lamp for prevention of overheating to cut off power supply of Tank Heater.

2. Cut-off of Overload

To prevent breakdown of power supply in case of electric overload and short circuit of MELT UNIT, BREAKER and FUSE are built in. To protect PUMP and MOTOR, it is designed to operate connecting point of power supply of Temp Controller and overload circuit breaker is built in.

3. Automatic Cut-off of Power Supply(Halt)

* Electric Safety Circuit installed in BSDM-SERIES may control “rapid increase” of PLATEN. If PLATEN comes to a state of over-temperature through TCS-500 SERIES Temp Controller and a sort of electric equipment, lamp bar will flicker by operation of halt timer and to save time to check trouble in every ZONE, TIMER will control it which is set to block power supply in 60 seconds and light bar will flicker continuously. If you want turn on the power again, turn off breaker and make power supply on. Aforesaid PLATEN indicator in control panel(above PLATEN indication circuit) will turn on when PLATEN arrives at the set level of DRUM. This level may be adjusted and it is useful to notice the remaining state of glue to operator for finishing of work.
This electric circuit may make wiring to other type of indicator.
Moreover, if lamp of indicator for changing DRUM is on, change the DRUM.
This indicator would be adjusted and used with alarm for easy checking of separation of DRUM.

* BSDM SERIES has simple mechanical structure and high credibility so that it is easy to find breakdown and repair and all the works would be done with general tool.

3. Installation of BSDM SERIES DRUM UNLOADER

(1) Installation of MELT UNIT

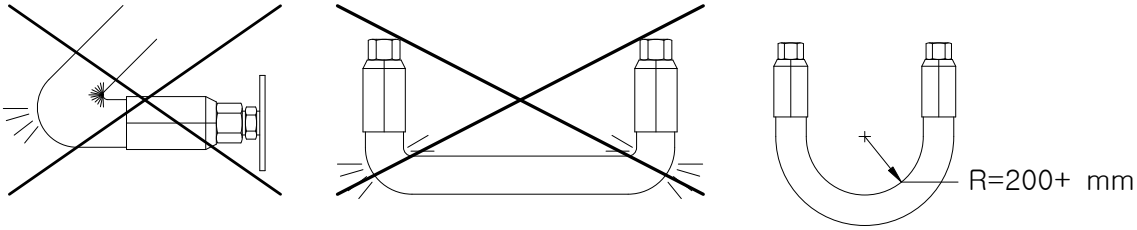
① DRUM UNLOADER shall be placed horizontally at site to be controlled and operated easily without vibration(It shall be installed firmly not to be overturned or moved.).
② DRUM UNLOADER shall be placed at the site where is not wind-dominated externally.
Ex) Please do not work at the place to be contacted directly with wind through window.
Don’t position it to the place at which fan, air-cooler, fan for controller box would reach.

(2) Installation of HOT MELT HOSE

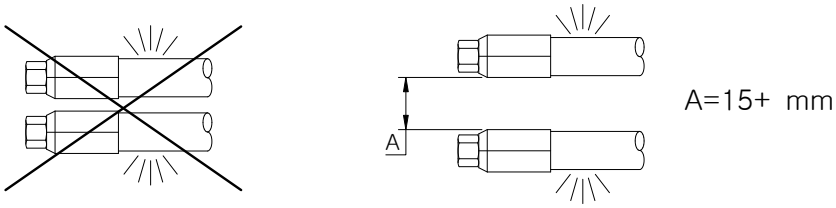
① HOT MELT supply hose shall be assembled or separated without bending for preventing damage and after HOT MELT is dissolved and heated.
② In case of installation of HOT MELT HOSE in BSDM SERIES, PLATEN shall be placed at rising position to approach to MANIFOLD(multi-organs). Don’t try to change HOT MELT HOSE in the state of putting PLATEN in DRUM.
③ Please pay attention not to make twist when you assemble or separate HOSE.
④ In case of installation of HOSE, minimum curve radius shall be over 200mm.
(When you have curve within radius of 200mm, interior material and HEATER, SENSOR and others would deviate from the position or be broken.)
⑤ If you put HOSE on the ceiling or column, neither make a certain part be tightened nor be in the way of radiation (in this case, use HOSE BAND.).

*** Cares to be taken when installing Hot melt hose ***

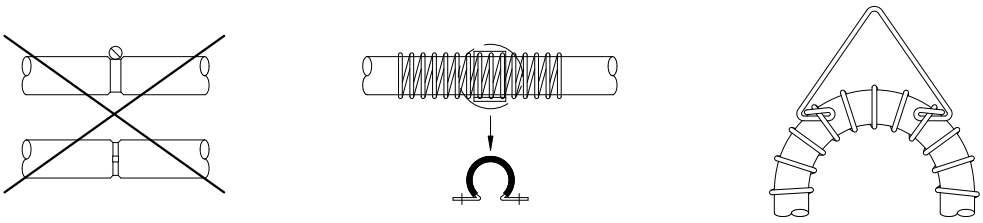
1) HOSE is to be installed with bent part of not less than 200mm.



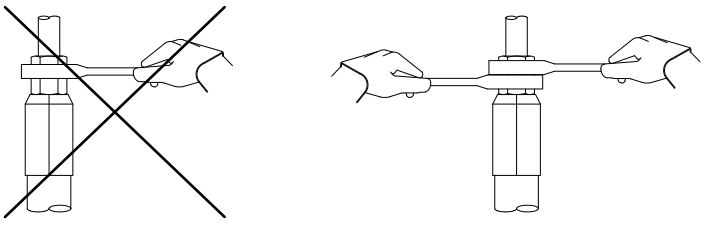
2) When two+ hoses are used, they should be 15+ mm far away from each other for a safety's sake.



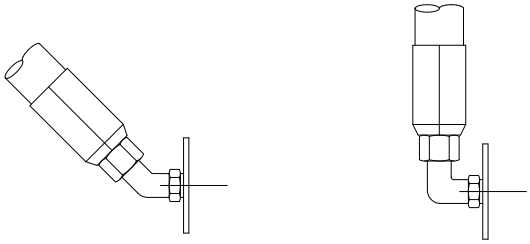
3) If any part of hose is fixed, it should not be tightened or kept from radiating heat.



4) When connected with tank or gun, hose should be assembled by holding nipples at both tips of hose. If assembled by holding nipple at either tip, hose may be or is expected to be broken caused by twisting.



5) At a time of hose being connected, nipples appropriate for intended purpose should be chosen.



4. Illustration of Electric Wiring

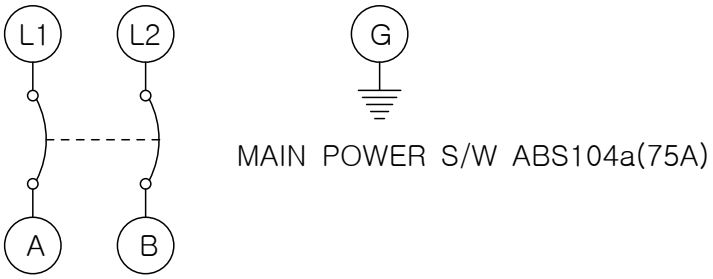
(1) Wiring and Connection of Main Power

① Power of single phase 220VAC, three phase 220VAC, three phase 380VAC(three phase 4line) 60Hz shall be supplied to BSDM-SERIES and shall earth for safety without fail.

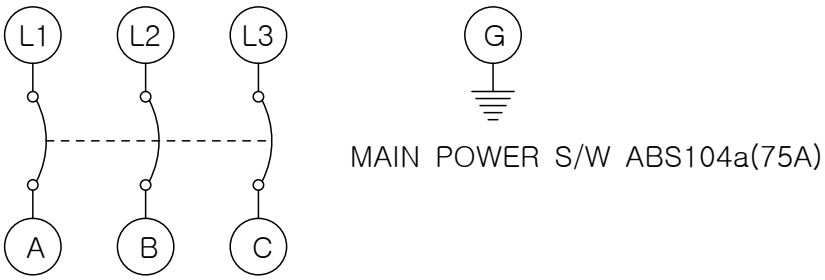
② Thickness of cable to be connected with Main Power shall be selected as per capacity of BSDM-SERIES.

③ Method of connecting main power

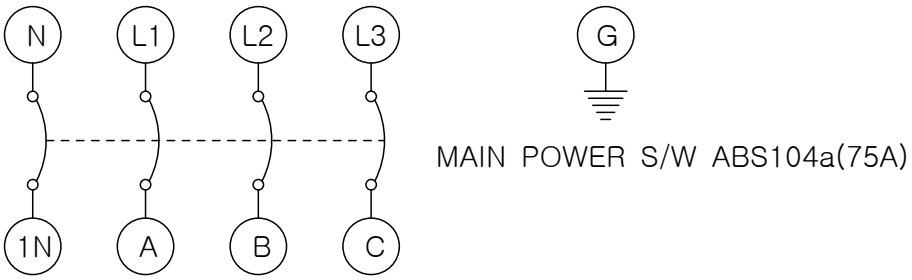
⦿ Connection Method of Single Phase 220VAC to Main Power



⦿ Connection Method of Three Phase 220VAC to Main Power



⦿ Connection Method of Three Phase 4 Line 380VAC to Main Power



5. Operation

(1) Caution before Operation

① Check that the platen, the hose and the gun are properly installed, and finally check the electric circuits before operation.
② Remove any object around the Hot Melt System Tank, which may cause fire or accident.
③ Use the Hot Melt (adhesive) under the instruction of the maker.
④ Upon setting the temperature for the Platen, the Hose and the Gun, Switch ON the Main Power of the Melt Unit. In general, the temperature for the Auto Gun shall be set to the maker's recommended temperature; however the Hose shall be set to the temperature lower than the Gun temperature by 5℃ - 10℃; and the Platen shall be set to the temperature lower than the Hose temperature by 5℃ - 10℃.
⑤ After turning the Unit ON, leave it to pre-heat for about 30 - 60 minutes. The optimal pre-heating period may be determined depending on the voltage conditions, the atmospheric temperature, and the type of Hot Melt (the base polymer such as PUR, EVA, Polyamide, Polyester, APP, Polyurethane, Rubber etc).
⑥ Observe the maker's instructions on the use of the adhesive as the mixed use (exposed to the mixture of different adhesive types) or use of cleaning agents may cause flame, generation of toxic gases, poor adhesive power or cross-linking.
⑦ Liquid or gas used to clean or prevent carbonization shall be nonflammable at the operational temperature.

◎ Caution and Note ◎

① The Hot Melt (adhesive) changes progressively and chemically over time at the specified operational temperature, and therefore it shall not be pre-heated excessively. (to prevent gelation, to delay carbonization and to save energy)
② The Hot Melt (adhesive) shall be used at the lowest temperature possible with reference to the maker's specified temperatures. (to prevent carbonization and to save energy)
③ Adjust the Flow Control Valve to use a minimum amount of Hot Melt (adhesive) under the normal working conditions. (to prevent motor over-load and to prevent wear of the Gear Pump)
④ Polyurethane Hot Melt tends to harden when reacting to moisture. Exercise caution not to get it exposed to air.

(2) Operation

The outer diameter of a sealed Platen is slightly bigger than the inner diameter of a standard 5-gallon (55) Drum. For this reason, the Platen is “shrink fit” and it securely ‘sealed’ during operation. This method of sealing is necessary for the Drum Unloader to demonstrate its functions in an adequate manner while the interior of the Drum is prevented from being contaminated. Exercise caution not to damage the Drum and the Unit.

※ Caution ※

You need to be careful when you insert a Platen into a deformed Drum.
Excessive pressure may break the Drum. Until an adequate sealing is reached, lower the Platen slowly and little by little into the Drum.
Do not attempt to insert a Platen inside a severely deformed Drum as it may cause personal injury.

1) To Insert the Platen into the Drum:

1. The Motor S/W on the Control Panel must be at the “OFF” position.
2. If the Platen is not at the highest point, lift it up to the highest point.
   (Lift it up with the Cylinder “UP/DOWN S/W” until the Platen no longer moves upward.)
3. “UP” the cylinder “UP/DOWN S/W”.
4. Use the Platen Support to prevent the hot melt from dropping onto the floor from the Platen Grid.
5. Check that the Platen is clean and there is no crumb at the upper part of the Platen.
   Place the Drum below the Platen at the center.
6. Apply grease around the seal for hot temperature operations every time the Drum is replaced.
   In this way, the seal is protected from being damaged, and can get inside the Drum easily.
7. “DOWN” the cylinder “UP/DOWN S/W”.

   The Purge Valve must be “ON” before inserting the Platen.

8. Turn the “RAPID S/W”“ON” until the Platen-Seal is inserted into the Drum if the Platen seal is caught by the Drum.
9. Fasten the base fixing hook while the Drum is placed at the center of the Platen before the Platen touches the Drum. If the Drum and the Platen are not centered, press the base fixing bar to set them.
10. Open the "Purge Valve" so that air inside the Drum is discharged during entry.
11. Allow the Platen to continue to move downward progressively.
    Pay attention if the seal joint is “pushing in” to the contour around the Platen.
    Stop the downward movement and inspect the seal again.
12. Allow the downward movement to continue until the Drum edges are successfully processed and the surface of Platen has reached the upper part of the Hot Melt inside the Drum. Pay attention to the purging sound from the Purge Valve.
13. Once the Platen reaches the material, let the Platen melt the material on the first layer.
    The melted material will pass through the “Purge Valve”. At this point, shut the “Purge Valve”.
    The pump will start and the System is now ready to inject the Hot Melt.

2) Pumping Material

The Platen now enters into the Drum, and the material is pumped out of the Drum.

1. “ON” the “Pump S/W” on the Control Panel.
2. Leave it for 10- 25 minutes so that a suitable amount of material is melted.
3. Air may be remaining inside the hose or the Drum when the System starts to pump the material for the first time. You will know this if the System sounds a pong or whistling noise. Continue to pump the material until air is completely removed from the System.

3) To Separate the Platen from the Drum:

The Drum jet circuit requires a maximum pressure of 2kgf/㎠. When the user’s air supply is out of this limit, the Drum may be damaged and the operator may also be injured.
When the Platen reaches the lowest point, the Platen Drum Replace Lamp will be turned on.
Since the Platen Seal is “Shrink Fit” inside the Drum, a suitable air pressure must be introduced to have the Drum spurt out from the Platen.
The following actions must be taken to protect eyes and clothes of the operator.
The melted material may run away from the Drum if the Drumis not moving“little by little”.
No one shall be allowed within 3m of the Drum Unloader other than the operator.
The hot melt material can cause damage to the exterior of the Drum Unloader,
and even cause blindness:

1. Read the instructions on air control and familiarize with the air control operation.
2. “UP” the cylinder “UP/DOWN S/W”.

PLThe Purge Valve must be “ON” before inserting the Platen.

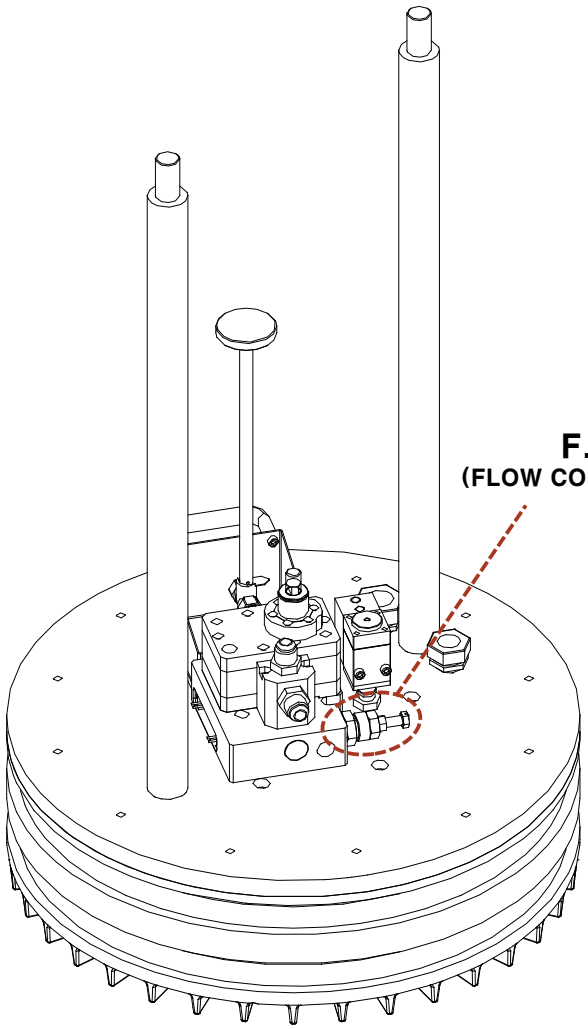
3. The Purge Valve must be “ON” before inserting the Platen.
   The Drum Blow Valve’s Sol Valve operates automatically and air is blowing into the Drum.
   The blown air separates the Platen from the Drum, and the Cylinder that lifts the Platen is set to the separation speed of the blown air. In this way the Platen can be set, and prevented from popping up or dropping while it is being removed from the Drum.
4. Check that the Blow Air Regulator operates normally.
5. Ensure that the maximum pressure of the Drum Blow Air does not exceed 2kgf/㎠.
6. Check that the Regulator and the Sol Drum Blow Valve operate normally.
7. If the Blow Off Valve does not operate and consequently air is not blown into the Drum, check immediately for cause of the problem and take appropriate actions.
   If not, the Drum may shrink.

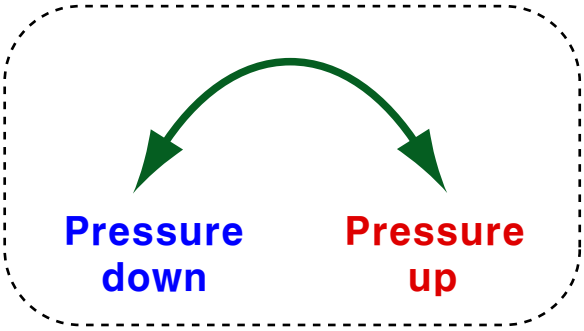
4) Limit Switch

The Low Drum Limit Switch and the Drum Replace Switch, which are located at the back of the electric box, will trigger the Low Drum Indication Lamp to illuminate.
These are positioned at the upper part of the Cylinder to indicate low level of adhesive inside the Drum and alert you to replace the Drum. These are controlled by the Proximity Switch and are adjustable.

5) Daily Operation

① Check that the Platen, the Hose and the Gun have reached the respective set temperature.
② If the above ① is satisfactory, turn the Pump Switch ON.
③ Start the operation automatically or manually.
④ Upon completion, turn the Pump Switch OFF and then turn the the Main Switch OFF.
⑤ To Adjust the Amount of Injection of the Hot Melt Adhesive:





● If insufficient : Turn the FCV clockwise with the 8mm L-wrench to increase the amount of injection.

● If excessive : Turn the FCV anticlockwise with the 8mm L-wrench to decrease the amount of injection.

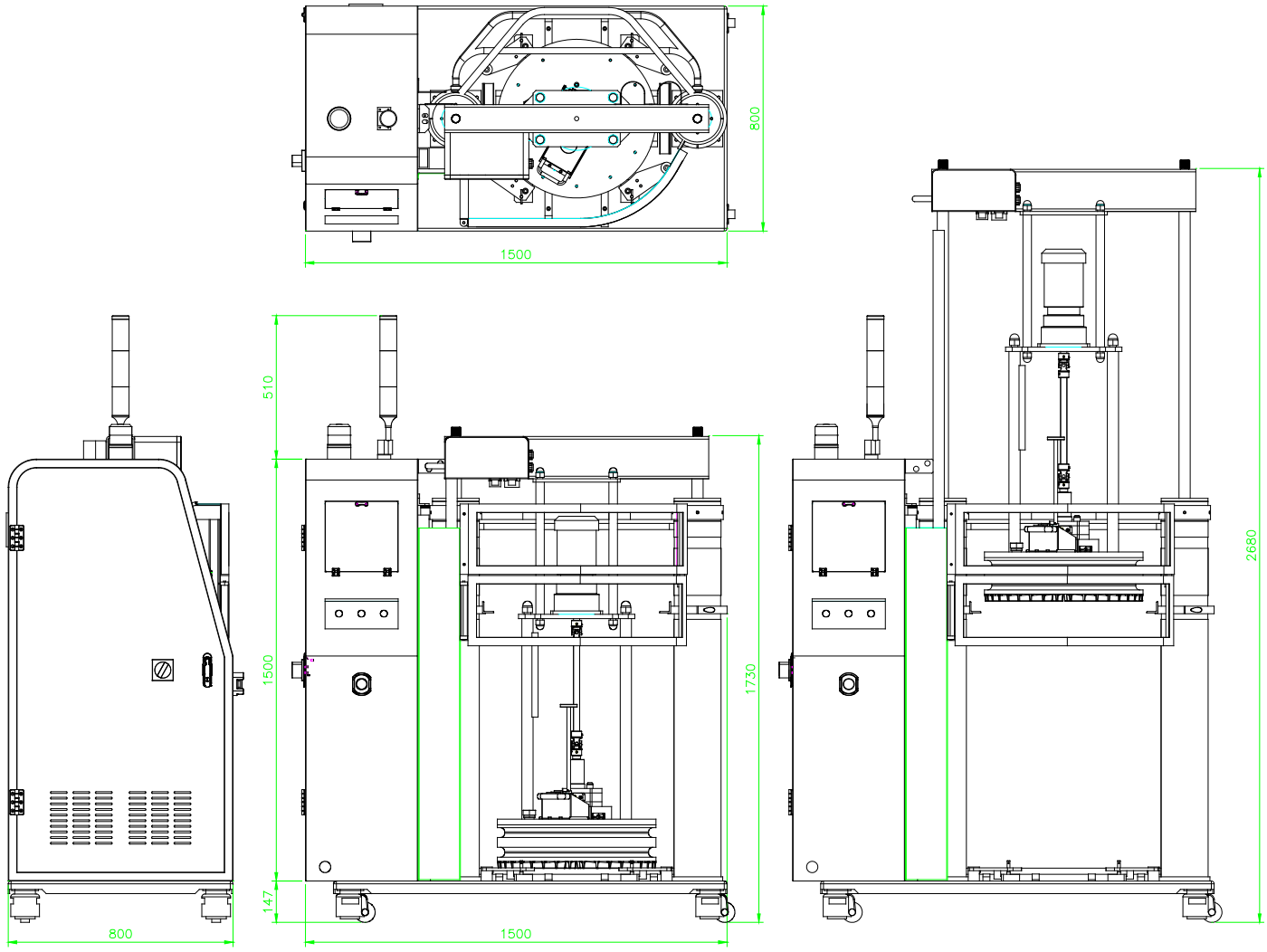
※ With excessive pressure, the Pump may be damaged.

⑥ Increase the Inverter Hz to increase the pumping amount of the adhesive.

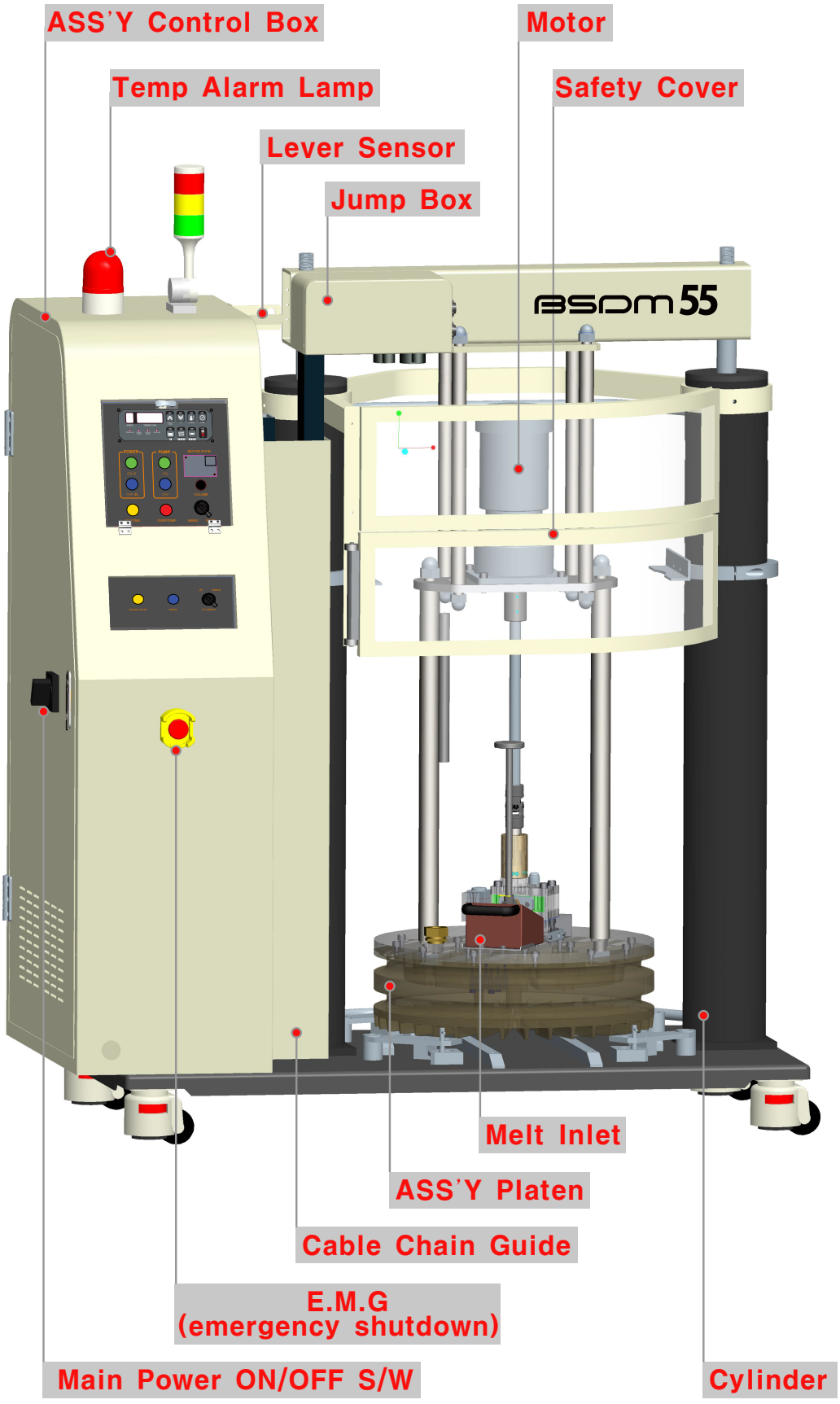
※ Caution
Do not tighten the F.C.V Bolt to the full.

6. Description and Specification of Model Bsdm-55

◈ Operational viscosity	:	500 - 100,000 CPS
◈ Drum capacity	:	55 Gallon (208Liter)
◈ Melt Rate	:	104.4 Kgf / hr (E.V.A)
◈ Operating Temperature Range	:	atmospheric - 230 ℃
		(Operaing Temperature Range)
◈ Temperature variation	:	± 1 ℃
◈ Pump pressure	:	0 - 70 Kg/㎠ (Max)
◈ Number of Hoses	:	1 - 2 EA (optional)
◈ Power	:	3ϕ,220VAC (3ϕ,380VAC) , Max 32Kw
◈ Weight of Melt Unit	:	350 Kg
◈ Melt Unit Dimensions		



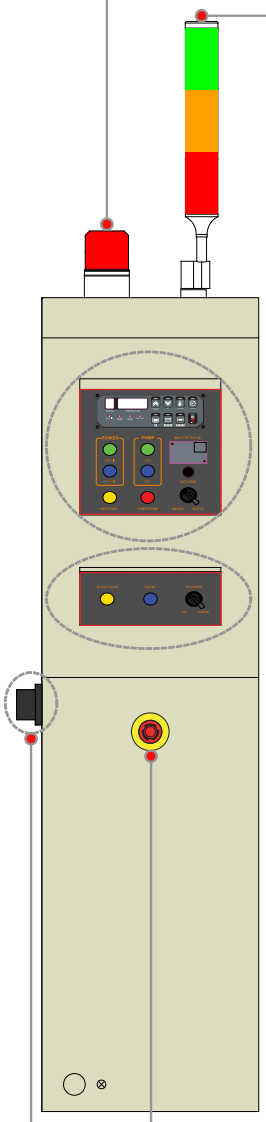
7-1. Title of every part of BSDM-55



7-2. Controllers and Indication Lamp for BSDM-55 Control Panel

Temp Alarm Lamp
Illuminates when the temperature of each zone is abnormal.

Tower Lamp
1) Orange lamp ON
- Warns that the Drum is low
2) Green lamp ON
- The Pump is ready to run.
- The temperature is normal.
- The PLC is normal.
3) Pump Motor in operation
- The Pump S/W is ON.
- If the green lamp is turned on, the Cylinder UP/DOWN S/W is "DOWN".
4) Red lamp + Yellow lamp + Buzzer (Warning lamp)
- Replace the Drum.



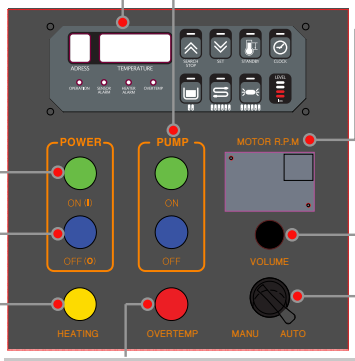
Temp Controller(TCS-500)
Controls the temperature of Platen, Pump, Block, Hose #1 and 2. (Refer to the TCS-500 Series Manual)

Pump ON/OFF S/W
This lamp turns on with PUMP S/W ON, and the Motor is powered.

Motor R.P.M
Displays RPM of the Motor digitally.

Power ON S/W
Illuminates when the Main power is ON.

Power OFF S/W
Stops power for each part by turning the Magnet OFF when the POWER S/W is OFF.



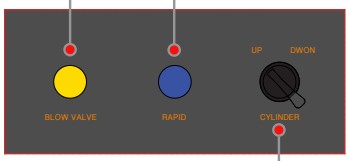
Volume
Adjusts RPM of the Motor (controlling the discharge of melted solution)

Manual/Auto S/W
For manual and auto operations

Platen Heating Lamp
Illuminates when the Platen Heater is powered. Flickers when the set value is reached.

Platen Overtemp Lamp
When the temperature of the Platen exceeds 230℃ the secondary power source is disconnected and the Overtemp Lamp illuminates. In this case, an immediate repair is necessary.

Blow Valve
The Drum's 'Jet' air valve operates automatically with the "CYLINDER/UP". It is used to supply pressure between the Platen and the Drum while removing the Platen from the Drum.



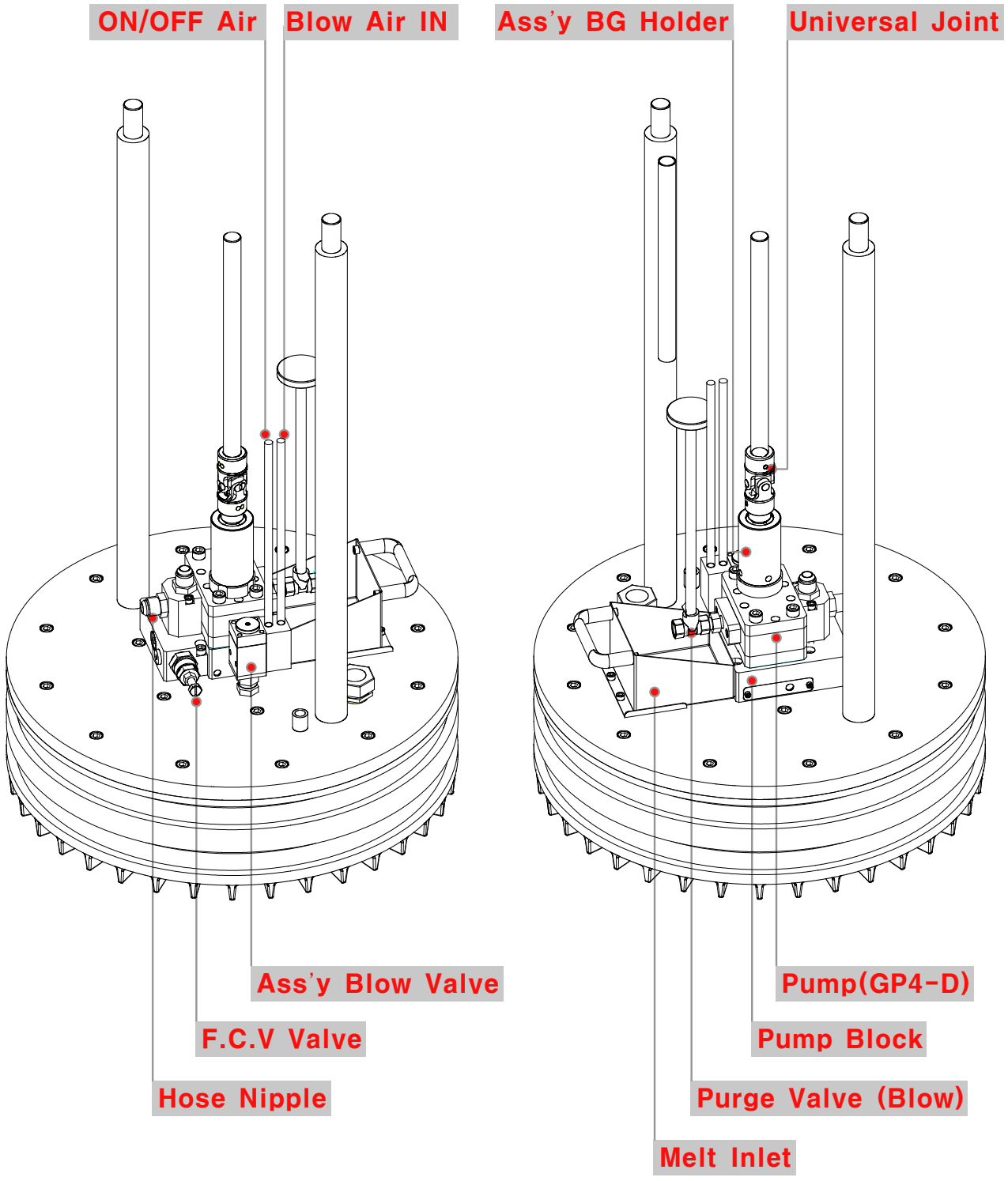
Rapid (Refer to "Air Sequence")
This allows a quick entry when the Platen is tilted toward the Drum,or the Platen Seal is tilted toward the Drum.
With "CYLINDER/DOWN", the RAPID S/W will allow rapid descent while it is being pressed.
When the Platen enters into the Drum, the RAPID S/W should be turnedOFF.

Cylinder UP/DWON
#1. In the direction of "CYLINDER DOWN":
The Platen descends (downward) and the Platen Seal is inserted into the Drum with the Purge Valve ON to remove air from the Drum when the Platen Seal is in close contact with the Drum.
When the Platen Seal is inserted into the Drum and the Hot Melt inside the Drum is flowing out to the Purge Valve, turn OFF the Purge Valve.
#2. In the direction of "CYLINDER UP":
Air enters into the Drum through the Blow-off Valve and the Platen and consequently the Drum is separated from the Platen.
The pressure of theBlow-off Valve must not exceed2Kgf/㎠.
The Platen is separated from the Drum by the rising pressure of the Platen Cylinder and the internal pressure of the Blow-off Valve,and the Drum is fixed on the floor so that it does not ascend with the Platen.

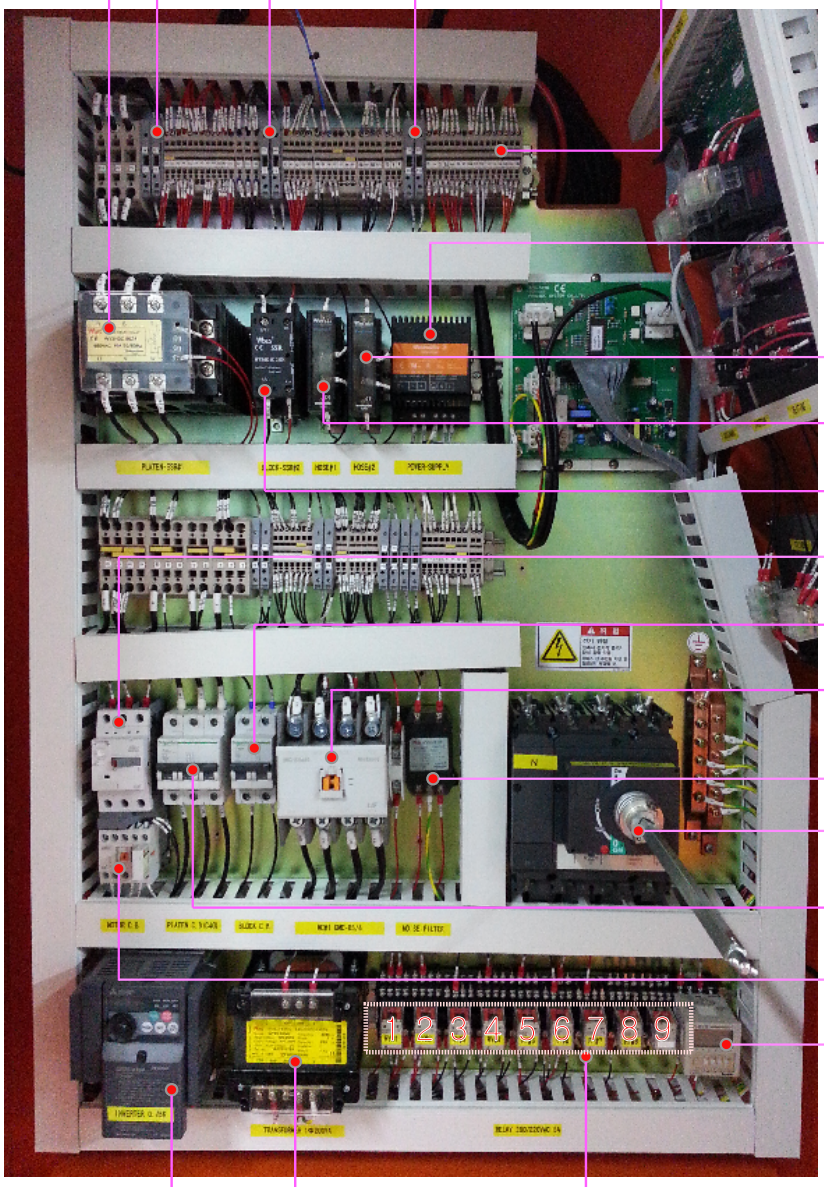
E.M.G
This Emergency Stop Switch turns the entire System OFF in emergency.

Main Power ON/OFF S/W
Stops power for each part by turning the Magnet OFF when the POWER S/W is OFF.

7-3. Controller and Parts of BSDM-55 PLATEN



7-4. Controller and Parts of BSDM-55 INNER PANEL



◈ RELAY ◈

1. POERATION, MOTOR 기동 접점 RELAY
2. ALARM, BUZZER & ALARM 동작 접점 RELAY
3. MOTOR 정지 접점 RELAY (CYLINDER UP 일때)
4. MOTOR 기동 접점 RELAY (CYLINDER DOWN 일때)
5. TOWER LAMP ORANGE 동작 접점 RELAY (LEVEL CHECK LOW 감지될 때)
6. TOWER LAMP RED 동작 접점 RELAY (LEVELCHECK EMPTY감지 될 때)
7. TEMP CONTROLLER HEATING MAIN BREAKER 차단 접점 RELAY
8. TEMP CONTROLLER ALARM 외부 접점 RELAY
9. SPARE

7-5. Explanation of Electric Parts

◈ PLATEN HEATER

"INSERT TYPE"

◈ HEATER SPEC'

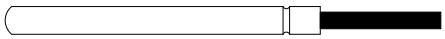
o ELECTRICAL	:	380 VAC
o HEATING POWER (W)	:	7000W x 3

◈ PUMP MANIFOLD HEATER

◈ HEATER SPEC'

o ELECTRICAL	:	240 VAC
o HEATING POWER (W)	:	500W x 2
o LENGHT (L)	:	113 mm

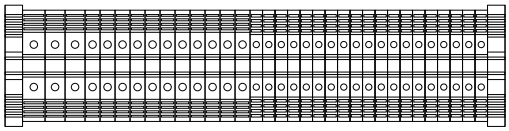
◈ RTD SENSOR



◈ SENSOR SPEC'

o TYPE	:	PT TYPE
o LENGHT (L)	:	45 mm

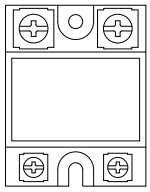
◈ TERMINAL



◈ TERMINAL SPEC'

o MAIN TERMINAL		
ELECTRICAL POWER	:	630 VAC
ELECTRICAL CURRENT	:	57[A]
o SPARE #1 TERMINAL		
ELECTRICAL POWER	:	630 VAC
ELECTRICAL CURRENT	:	41 [A]
o SPARE #2 TERMINAL		
ELECTRICAL POWER	:	750 VAC
ELECTRICAL CURRENT	:	32 [A]
o SPARE #3 TERMINAL		
ELECTRICAL POWER	:	750 VAC
ELECTRICAL CURRENT	:	24 [A]
o SPARE #4 TERMINAL		
ELECTRICAL POWER	:	500 VAC
ELECTRICAL CURRENT	:	17.5 [A]
o SPARE #5 TERMINAL		
ELECTRICAL POWER	:	500 VAC
ELECTRICAL CURRENT	:	6.3 [A]

◈ S . S . R



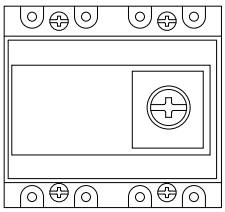
◈ S.S.R #1 SPEC'

- o INPUT POWER : 3 - 32 VDC
- o ELECTRICAL POWER : 240 VAC
- o ELECTRICAL CURRENT : 50 [A]

◈ S.S.R #2 SPEC'

- o INPUT POWER : 3 - 32 VDC
- o ELECTRICAL POWER : 530 VAC
- o ELECTRICAL CURRENT : 50 [A]

◈ MCCB (MOLDED CASE CIRCUIT BREAKER)



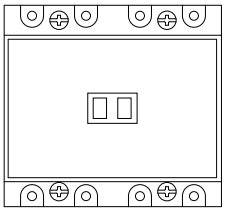
◈ MCCB #1 SPEC'

- o ELECTRICAL POWER : 690 VAC
- o ELECTRICAL CURRENT : 50AF 3P
- o TYPE : ABS 53b (LS)

◈ MCCB #2 SPEC'

- o ELECTRICAL POWER : 690 VAC
- o ELECTRICAL CURRENT : 30AF(10A) 3P
- o TYPE : ABS 33b (LS)

◈ CONTACTOR



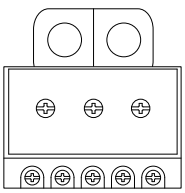
◈ CONTACTOR #1 SPEC'

- o ELECTRICAL POWER : 600 VAC
- o ELECTRICAL CURRENT : 85 [A] 4P
- o TYPE : GMC-85/4(LS)

◈ CONTACTOR #2 SPEC'

- o ELECTRICAL POWER : 220 VAC
- o ELECTRICAL CURRENT : 20 [A]
- o TYPE : GMC-22 (LS)

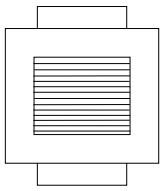
◈ EMPR



◈ EMPR SPEC'

- o ELECTRICAL POWER : 220 VAC
- o ELECTRICAL CURRENT : 6 [A]
- o FREWUENCY : 50/60Hz
- o TYPE : GMP 60T (LS)

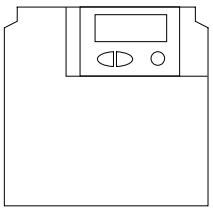
◈ TRANSFORMER



◈ TRANSFORMER SPEC'

o INPUT POWER : 220 VAC
o OUTPUT POWER : 220 VAC
o TYPE : 22-220 [AF]

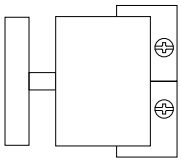
◈ INVERTER



◈ INVERTER SPEC'

o POWER : 1.5 [Kw]
o INPUT : 6.9 [A]
o OUTPUT : 4 [A]
o TYPE : FR-E540-1.5K
(MITSHBISHI)

◈ EMG (EMEGENY S/W)



◈ EMG SWITCH SPEC'

o ELECTRICAL POWER : 220 VAC
o COLOR : RED

◈ TOP LAMP

◈ TOP LAMP SPEC'

o INPUT : 24 VAC
o POWER : 10W
o COLOR : GREEN, YELLOW, RED

◈ SURGE UNIT

◈ SURGE UNIT SPEC'

o ELECTRICAL POWER : 200-240 V
o TYPE : AS-13 (LS)

◈ NOISE FILTER

◈ NOISE FILTER SPEC'

o ELECTRICAL POWER : 250 V
o ELECTRICAL CURRENT : 6 [A]
o TYPE : SN-M6N-CM
(FINE SUNTRONIC)

◈ POWER SUPPLY

◈ POWER SUPPLY SPEC'

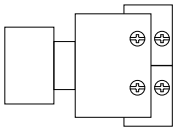
o INPUT POWER : 240 VAC
o OUTPUT POWER : DC 24 V
o TYPE : MSF 80-24
(FINE SUNTRONIX)

◈ MOTOR

◈ MOTOR SPEC'

o ELECTRICAL POWER : 380 VAC
o POWER : 1HP
o FREWUENCY : Ø3 ,50/60Hz

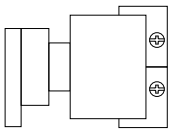
◈ POWER SWITCH (OFF)



◈ POWER SWITCH SPEC'

- o ELECTRICAL POWER : 220 VAC
- o COLOR : BLUE

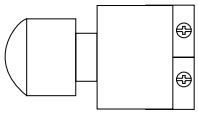
◈ PUMP SWITCH



◈ POWER SWITCH SPEC'

- o ELECTRICAL POWER : 220 VAC
- o COLOR : BLACK

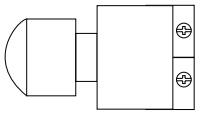
◈ POWER LAMP (ON)



◈ POWER LAMP SPEC'

- o ELECTRICAL POWER : 220 VAC
- o COLOR : GREEN

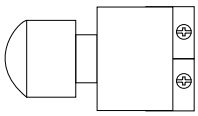
◈ PUMP LAMP



◈ PUMP LAMP SPEC'

- o ELECTRICAL POWER : 220 VAC
- o COLOR : WHITE

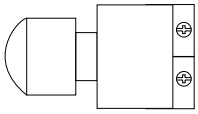
◈ OVERTEMP LAMP



◈ OVERTEMP LAMP SPEC'

- o ELECTRICAL POWER : 220 VAC
- o COLOR : GREEN

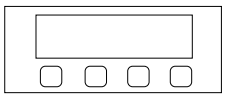
◈ HEATING LAMP



◈ HEATING LAMP SPEC'

- o ELECTRICAL POWER : 220 VAC
- o COLOR : YELLOW

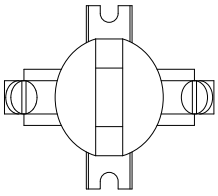
◈ R.P.M METER



◈ R.P.M METER SPEC'

- o INPUT POWER : 220 VAC
- o OUTPUT POWER : DC 10 V

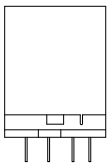
◈ OVERTEMP SWITCH



◈ OVERTEMP SWITCH

- o TEMP REACH AT 350°F IS OFF
- o IF S/W I OFF, COTOFF TANK HEATER POWER, TURNON THE SAFETY DEGREE.
- o PREPARE TO TANK OVER HEATING

◈ RELAY



◈ RELAY

- o WHEN INOUT OPERATION SIGNAL USING OF EARTH.
- o ELECTRICAL POWER : AC 220

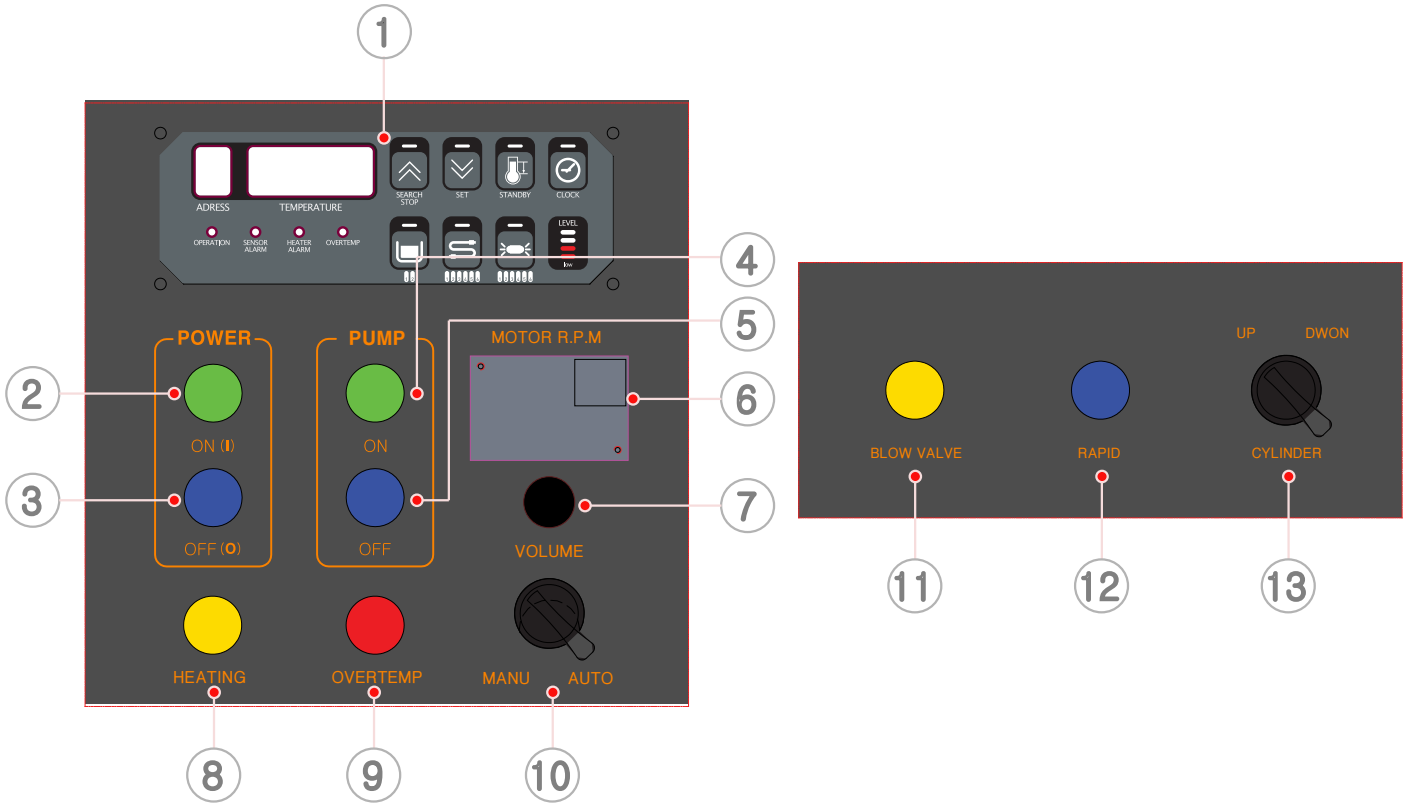
◈ TEFRON WIRE

◈ TEFRON WIRE

- o THIS TEFRON WIRE IS OVERCOME IN THE HIGH TEMPERATURE

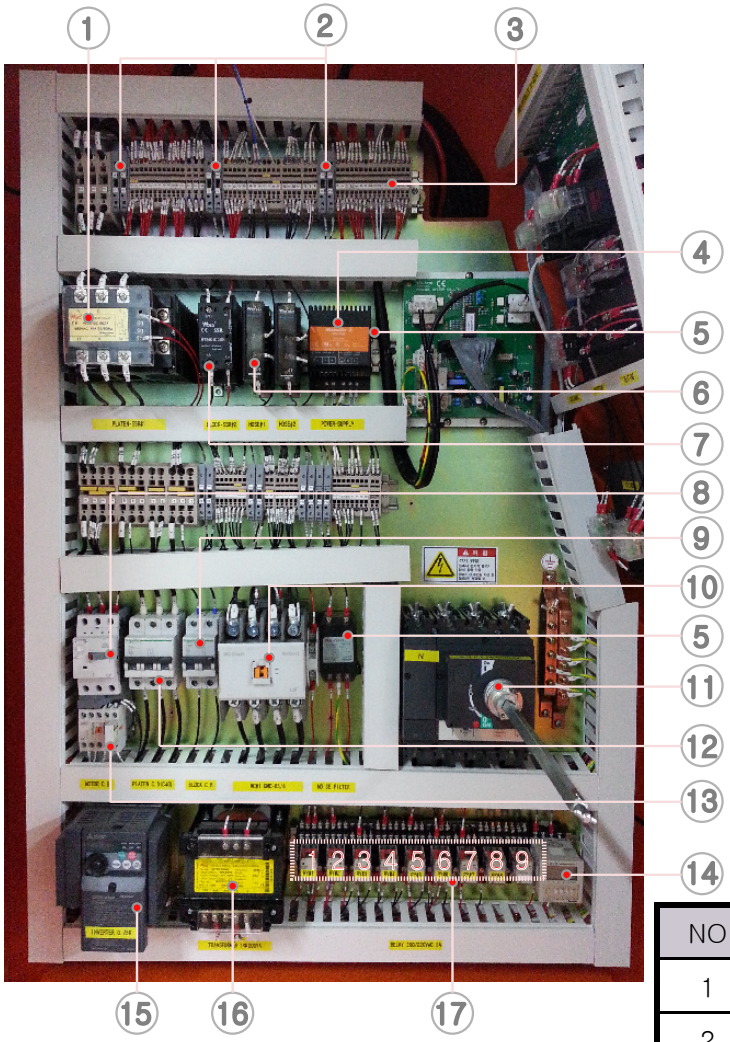
8. PART LIST

(1) CONTROL PANEL



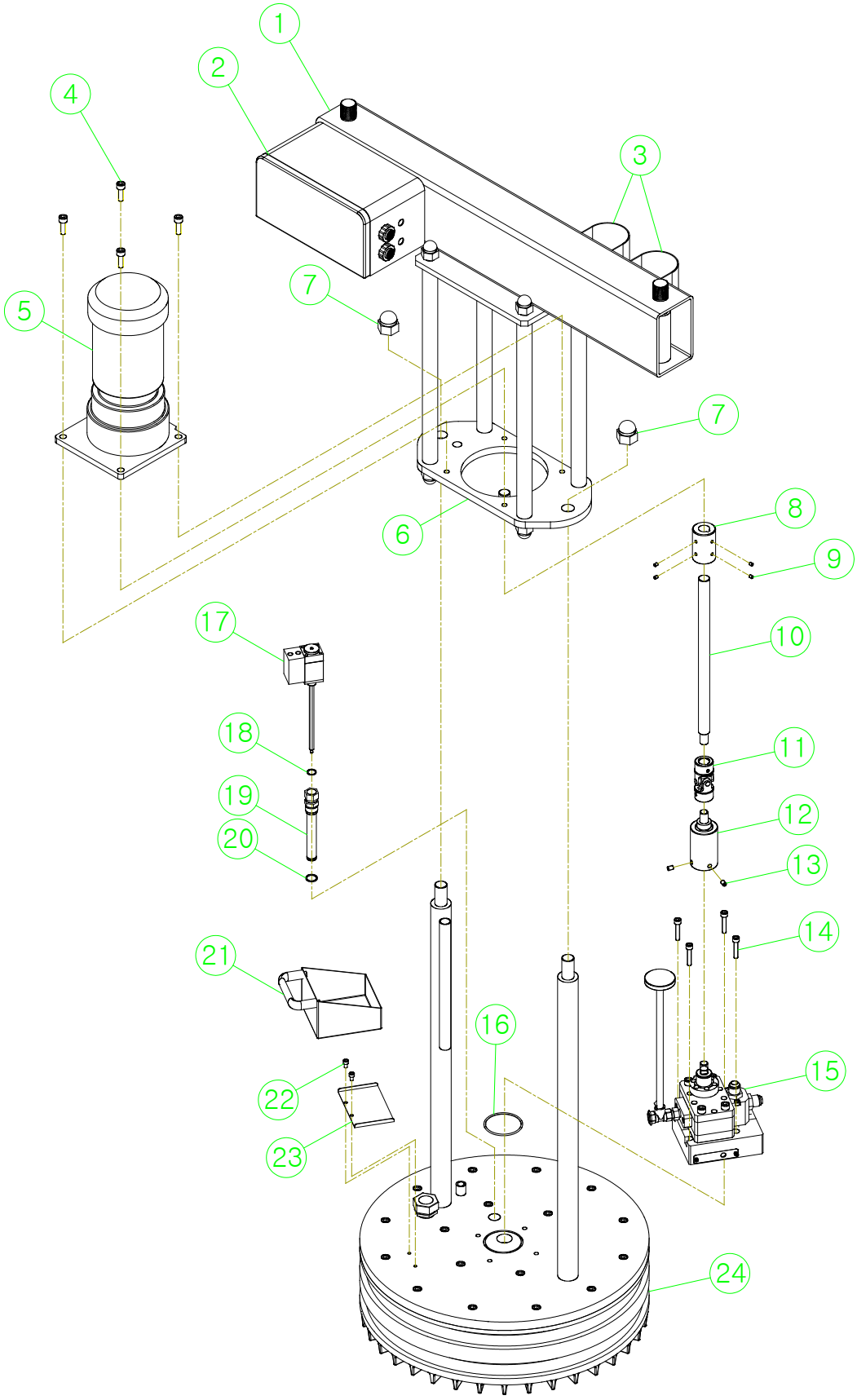
NO	PART NO	INDIBATOR
1	DM0207-1	TEMP CONTROLLER (TCS-500)
2	DM0207-2	POWER ON LAMP S/W
3	DM0207-3	POWER OFF S/W
4	DM0207-4	PUMP ON LAMP S/W
5	DM0207-5	PUMP OFF S/W
6	DM0207-6	R.P.M METER
7	DM0207-7	R.P.M METER VOLUME
8	DM0207-8	HEATING LAMP
9	DM0207-9	OVERTEMP LAMP
10	DM0207-10	MANUAL or AUTO S/W
11	DM0207-11	BLOW VALVE S/W
12	DM0207-12	RAPID S/W
13	DM0207-13	CYLINDER UP/DOWN S/W

(2) INNER PANEL



NO	PART NO	INDIBATOR
1	DM0208-1	PLATEN S.S.R
2	DM0208-2	TERMINAL BLOCK FUSE
3	DM0208-3	TERMINAL BLOCK
4	DM0208-4	POWER SUPPLY
5	DM0208-5	TEMP CONTROLLER NOSE FILTER
6	DM0208-6	HOSE S.S.R
7	DM0208-7	PUMP BLOCK S.S.R
8	DM0208-8	MOTOR C.B
9	DM0208-9	PLATEN C.B
10	DM0208-10	MAIN MAGNET
11	DM0208-11	MAIN POWER C.B
12	DM0208-12	PUMP BLOCK C.B
13	DM0208-13	MOTOR MAGNET
14	DM0208-14	SHUT DOWN DELAY TIMER
15	DM0208-15	MOTOR INVERTER
16	DM0208-16	TRANSFORMER
17	DM0208-17	RELAY

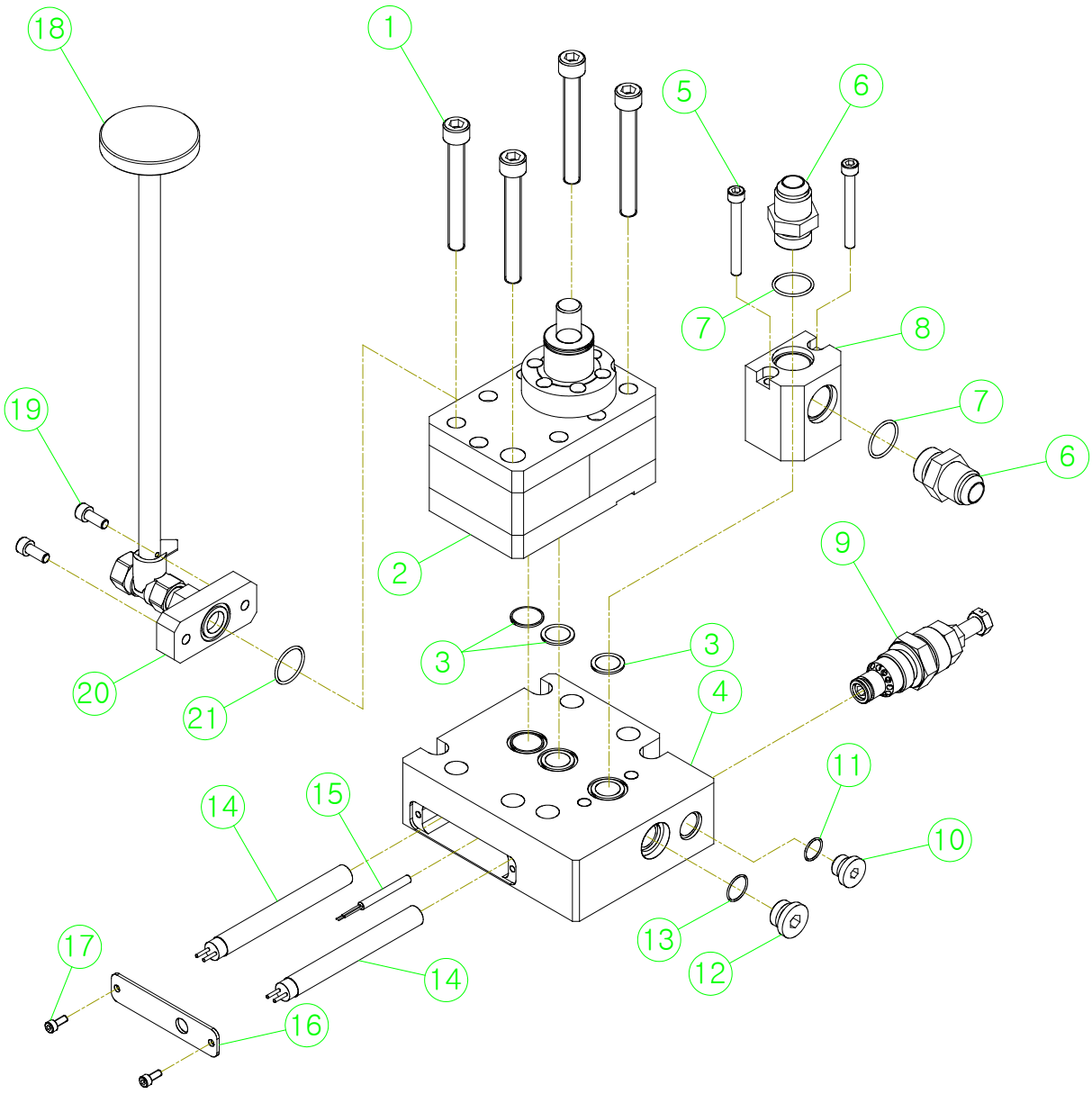
(3) Exploded View and Explanatio n of PLATEN PART



◈ Exploded View and Explanatio n of PLATEN PART ◈

NO	Q'TY	PART / NO	CONTENT / SPEC'
1	1	DM1401	CROSS BEAM ASS'Y
2	1	DM1402	JUMP BOX ASS'Y
3	2	DM1403	HOSE COVER
4	4	41A10030	WRENCHI BOLT (M10x30L)
5	1	DM1404	MOTOR (SPG)
6	1	DM1405	MOTOR PLATE
7	2	41J24	CAP NUT (M24)
8	1	DM1406	MOTOR COUPLING
9	4	41G06008	SET BOLT (M6x8L)
10	1	DM1407	DRIVE SHAFT
11	1	DM1408	UNIVERSAL JOINT (106AL)
12	1	DM1409	ASS'Y BG HOLDER
13	2	41G08010	SET BOLT (M8x10L)
14	4	41A08040	WRENCHI BOLT (M8x40L)
15	1	DM1410	PUMP BLOCK ASS'Y
16	1	514070	O-RING (G70)
17	1	DM1411	BLOW MODULE ASS'Y
18	1	512014	O-RING (AN014)
19	1	DM1412	MODULE JOINT ASS'Y
20	1	512016	O-RING (AN016)
21	1	DM1413	MELT INLET ASS'Y
22	2	41A06010	WRENCHI BOLT (M6x10L)
23	1	DM1414	INLET GUIDE
24	1	DM1415	PLATEN ASS'Y

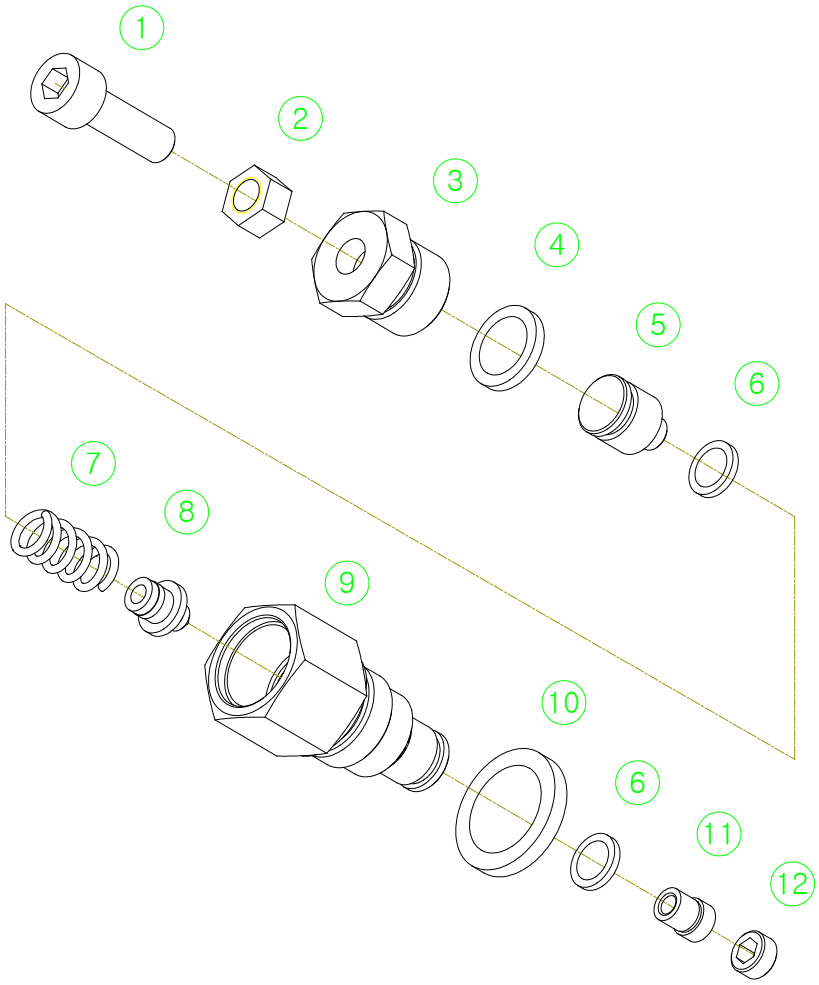
(4) Exploded View and Explanation of PUMP BLOCK PART



◈ Exploded View and Explanation of PUMP BLOCK PART ◈

NO	Q'TY	PART / NO	CONTENT / SPEC'
1	4	41A10080	WRENCHI BOLT (M10x80L)
2	1	914134-30P	GP4-D PUMP ASS'Y
3	3	512019	O-RING (AN019)
4	1	DM1410-1	PUMP BLOCK
5	2	41A06055	WRENCHI BOLT (M6x55L)
6	2	471206-2	HOSE NIPPLE (UNF 7/8"-14)
7	2	514020	O-RING (G20)
8	1	DM1410-2	MANIFOLD BLOCK
9	1	DM1410-3	F.C.V VALVE ASS'Y
10	1	46F-D010	BLANK (PS 1/4")
11	1	511011	O-RING (P11)
12	1	46F-F010	BLANK (PS 3/8")
13	1	511014	O-RING (P14)
14	2	DM1410-4	HEATER (1/2" x 240V x 500W x 113L)
15	1	710405	SENSOR (PT TYPE)
16	1	DM1410-4	BLOCK COVER
17	2	41A04010	WRENCHI BOLT (M4x10L)
18	1	DM1410-5	PURGE(BLOW) VALVE ASS'Y
19	2	41A06015	WRENCHI BOLT (M6x15L)
20	1	DM1410-6	PURGE JOINT BLOCK
21	1	512019	O-RING (AN019)

(5) Exploded View and Explanation of F.C.V. VALVE



◈ Exploded View and Explanation of F.C.V. VALVE ◈

NO	Q'TY	PART / NO	CONTENT / SPEC'
1	1	41A10030	WRENCHI BOLT (M10x30L)
2	1	41H10	NUT (M10)
3	1	981152	VALVE COVER
4	1	512116	O-RING (AN116)
5	1	981153	STOPPER
6	2	512014	O-RING (AN014)
7	1	981154	SPRING DAMPER
8	1	981155	DAMPER
9	1	981156	VALVE BODY
10	1	512211	O-RING (AN211)
11	1	981157	SEAT
12	1	981158	SET SCREW

9. Troubleshooting for DRUM UNLOADER

[TABLE 1-1]

		Troubleshooting											
		PLATEN NOT HEATED	PLATEN HEATED SLOWLY	PLATEN OVERHEATED	SYSTEM HEATED SLOWLY	PLATEN · HOSE NOT HEATED	HOSE OVERHEATED	PUMP NOT OPERATING	PUMP MOTOR STOPPED	PUMP MOTOR OVERLOADED	PLATEN NOT DESCENDED	DRUM NOT INSERTED	DRUM NOT SEPARATED
	1. Incoming voltage	O	O		O	O	O	O					
	2. Main breaker/cut	O				O		O					
	3. Power cord	O				O							
	4. System wire and fuse	O				O		O					
	5. TCS-500 Controller	O	O	O	O	O	O	O	O				
	6. Overtemp S/W	O		O									
	7. Platen Heater	O	O	O		O			O				
	8. Supply Hose Heater					O							
	9. Pump S/W Breaker							O	O	O			
	10. FLOW CONTROL VALVE							O	O	O			
	11. Pump							O	O	O			
	12. Pump Motor							O	O	O			
	13. Foreign materials inside Pump							O	O	O			
	14. Purge (blow) Valve										O	O	
	15. Blow valve												O
	16. Platen Seal											O	O
	17. Damaged Drum											O	O

◎ Additional Information on Troubleshooting ◎

The following information matches the item numbers shown in Table 1-1.
Low voltage can be a cause of the trouble. Voltage, in general, tends to drop and therefore the voltmeter must be used to measure and check that sufficient voltage is supplied to the Unit. Voltage of each part also needs to be suitable for the Unit to avoid material damage to the System. (Please refer to the electrical wiring and circuit diagrams.)

*. Trouble D -Measure voltage of the Applicator Heater and the Hot Melt Supply Hose, and check the fuse of each unit.

*. Trouble G -Check voltage and frequency of the Pump Motor shown on the Motor.

1) Incoming Voltage

Incoming voltage works with 'single phase 220VAC', '3p 220VAC', '3p 380VAC (3p 4-wires)' depending on the customer's requirements. Ensure that correct voltage and power are used.

2) Main Breaker/Cut

Check the contact point(s) of BSDM-SERIES UNLOADER,which power supply is disconnected, and also check the continuity of the mechanical functions. Inspect the connections and that wiring has been made correctly. Inspect the power supply connection of the Main power source.

3) Power Cord

Inspect the connections and that wiring has been made correctly. Inspect the power supply connection of the Main power source.
* Inspect that theelectrical connector for the in-feed hose has been installed properly.
It is probable that the connector wiring pins are arranged incorrectly or loose.
Check also the electrical connector for the hose output.
This must be coordinated well with the electric connection at the upper part of the Platen.

4) System Wiring

With reference to the electrical drawing, check that the melting unit has been correctly wired. If the troubl

5) TCS-5OO TemperatureController

Troubleshooting for TCS-5OO Temperature ControllerErrors
A temperature control error is detected when a wild number is shown on the Controller.
If the Controller does not function, you must replace the Controller or the RTD sensor.
Turn the System OFF and check the continuity of the 100 OHM RTD sensor with the OHM meter.
The number shall be between 106 and 110 OHM. (The sensor shows 100 OHM at 0℃) If not,
replace the sensor. (Refer to TCS-500 Manual for further information.)

* When the TCS-500 Temperature Controller is out of order, the Overheat Thermo Switch controls the Heater. The overheat Switch is designed to prevent the Platen from overheating. Once the Switch is open, the Shutdown Delay Time is activated, and the Unit is completely shut down after a set time.
* When TCS-500 is out of order, the Overheat Thermo Switch will control the Platen Heater. The overheat Switch is designed to prevent the Platen from overheating. Once the Switch is open, the Shutdown Delay Time is activated, and the Unit is completely shut down after a set time.
* Trouble T -When the Platen reaches the set temperature or is at a low temperature and the Thermo Switch is activated, it indicates that the Thermo Switch is faulty or the temperature has been rated at a too low temperature. In both cases, replace the Thermo Switch.

6) Overheat Switch

Once the Overheat Switch is activated, the warning lamp (red) will start turning with a sound, and the Main Off Delay Timer (60 seconds) which was set to a random time will be activated.
The Main power will be disconnected in T seconds.
At this moment, open the Controller Box to “OFF” the Main Breaker, and then turn it back “ON” to turn power back “ON”. If the trouble with the TCS-500 Temperature Controller is solved during the ‘DELAY TIME’, the warning lamp will be turned off and the System will resume operation normally.

7) Platen Heater

The Platen Heater is a single unit generating 240V 8KW heater calorie each.
Check the Heater from the electrical connection box at the upper part of the Platen.

8) Supply Hose Heater

Check the Supply Hose, and Heater 1, 2, 3 and 6. When the trouble persists, separate the Hose Input Power Connector and check resistance of the Hose Heater with the OHM Meter.
Replace the hose if the Hose Heater is out of order.

9) Pump Switch Breaker

The Pump Switch has a circuit that is connected to, and in the order of, the Fuse, the Magnet, the Motor Protection Relay, the Inverter and the Motor.
* Current of the Motor Protection Relay can be adjusted to your requirements.

10) Flow Control Valve (FCV)

An accurate adjustment of the FCV will result in the desired pumping performance for the Drum Unloader. If the FCV does not work, replace it.

11) PUMP

The pumping performance of the BSD-SERIES:

* Trouble A -Check that the Purge Valve is in the 'LOCK' position.

* Trouble B -Move the Drum to check the Platen and check if there is any foreign material around the Pump Inlet and Outlet. The gear on the Gear Pump may be worn out requiring replacement or repair. During repair, check for and remove all foreign materials around the inlet and outlet of the Gear Pump.

* TroubleC - If there is any leak of hot melt between the Pump and the Platen, tighten the screw that fixes the FCV and the Pump. If the trouble persists, replace the O-ring.

* TroubleD -It is very likely that the Pump is severely worn. Separate the Pump from the Platen to measure the wear, and replace if necessary.

12) PUMP MOTOR

When there is an error, the Pump Motor is the last item to check in normal cases.
The interior of all motors are heat-protected. Turn the Pump Switch to the "OFF" position and cool the motor for about 20 minutes. Turn back the Pump Switch to the "ON" position.
If the Motor still does not work, check other items to identify the cause of the trouble.

13) Foreign Materials inside the Pump

Foreign materials inside the Gear Pump must be removed. If necessary, use STRIP-N-CLEAN to clean the System.

14) Purge Valve

As the Paten is lowered into a new Drum and until the hot melt is flowing from the valve, the Purge Valve Switch must be at the "ON" position.

15) Drum Blow Valve

* The Drum Blow Module facilitates the Auto Air Sol to be activated to open the Drum Blow Valve Module when the Cylinder UP/DOWN S/W is in the “UP” direction to separate an empty drum from the Platen.

* Check for leak on the air pipe.

If the Drum is not separated smoothly, check if the Drum Blow Module is stopped.

● Check if the operational air of 2Kgf/㎠is supplied.

16) Platen Seal

* Check if the Platen Seal is worn or damaged.
* This is a regular check item.

17) Out-of-shapeDrum

* Check if the Drum is damaged or punched.
* A damaged or punched Drum can affect the whole Drum Unloader System. Additional care must be exercised when operating the System in this condition.

10. Preventive Action and Inspection of Drum Unloader

BSDM-SERIES DRUM UNLOADER requires a regular temperature check as described herein. If there is a burnt stain or the physical properties of the hot melt change, use “Strip-N-Clean” to clean the System. Please read and observe the following warnings and cautions before commencing a maintenance work:

1) Warning

HOT MELT may cause serious burn or blindness.
1. Wear protective goggles, gloves and overalls.
2. Turn the PUMP S/W to the "OFF" position.
3. Always“cool down” the Unit, unless specified otherwise, before commencing a maintenance work.
4. Disconnect the electric connector on the Hot Melt Supply Hose.

2) Caution

Before separation, assembly or adjustment, the System, the Hot Melt Supply Hose, the Platen and the Gear Pump must be heated to 250°F(120℃) to prevent damage. Otherwise they may be damaged or malfunctioning. When maintaining a heated part and there is a residue of adhesive inside the System, exercise caution as it may be combustive.

Perform the heating as follows:
* Power the Unit.
* Use a hand-held hot air gun.
* Place the part on the hot plate.

3) General Inspection

Most industrial machinery wears out over time. Parts used in the BSDM-SERIES DRUM UNLOADER may also be broken over time of operation. The following instructions are provided to ensure that parts are periodically replaced and readjusted:

1. Inspect the Platen Seal for cut or excessive wear on the exposed areas. Replace if necessary.

2. Inspect the wiring and connections between the Controller Box and the Jump Box. Tighten them if loose.

3. Inspect the air facilities and valves for leak. Tighten or replace as appropriate.

4) Inspection of the Hot Melt Supply Hose

1. Check that the Hot Melt Supply Hose is properly supported and not exposed to excessive pressure during operation. The minimum bending radius shall be 200mm.

2. Check the temperature of the Hot Melt Supply Hose, and adjust if necessary.

3. You may check the temperature of the Hot Melt Supply Hoseonly when it is not heated up to a suitable temperature. You will need to inspect one end of the Supply Hose to check the temperature.
   Exercise care as power is still on for the Unit while you check the Hot Melt Supply Hose.

4. Lift the Platen and turn “OFF”the Pump S/W at the Controller Box to check the temperature of the Hot Melt Supply Hose.

5. After the Platen is separated from the Drum, insert a thermostat 1m into the outlet of the Hot Melt Supply Hose. Connect the input power connector on the Hot Melt Supply Hose. Check and adjust the temperature of the Hot Melt Supply Hose.
   Stabilize the temperature of the Hot Melt Supply Hose and remove the thermostat.
   Re-connect the Hot Melt Supply Hose.

5) PlatenInspection

1. Move the Drum from the System to check if the Platen’s exterior surface is excessively sooty. Clean the “hot” Platen using a cloth or a cloth wet with “Strip-N-Clean”. Sink the Platen in a large cleaning vessel to clean if it is heavily polluted. Do not scratch the Platen with a sharp object as it may cause the brown Teflon coating on the Platen surface to peel off.

2. Check the temperature of the Platen and set to an accurate temperature if necessary.

6) Platen Seal Replacement

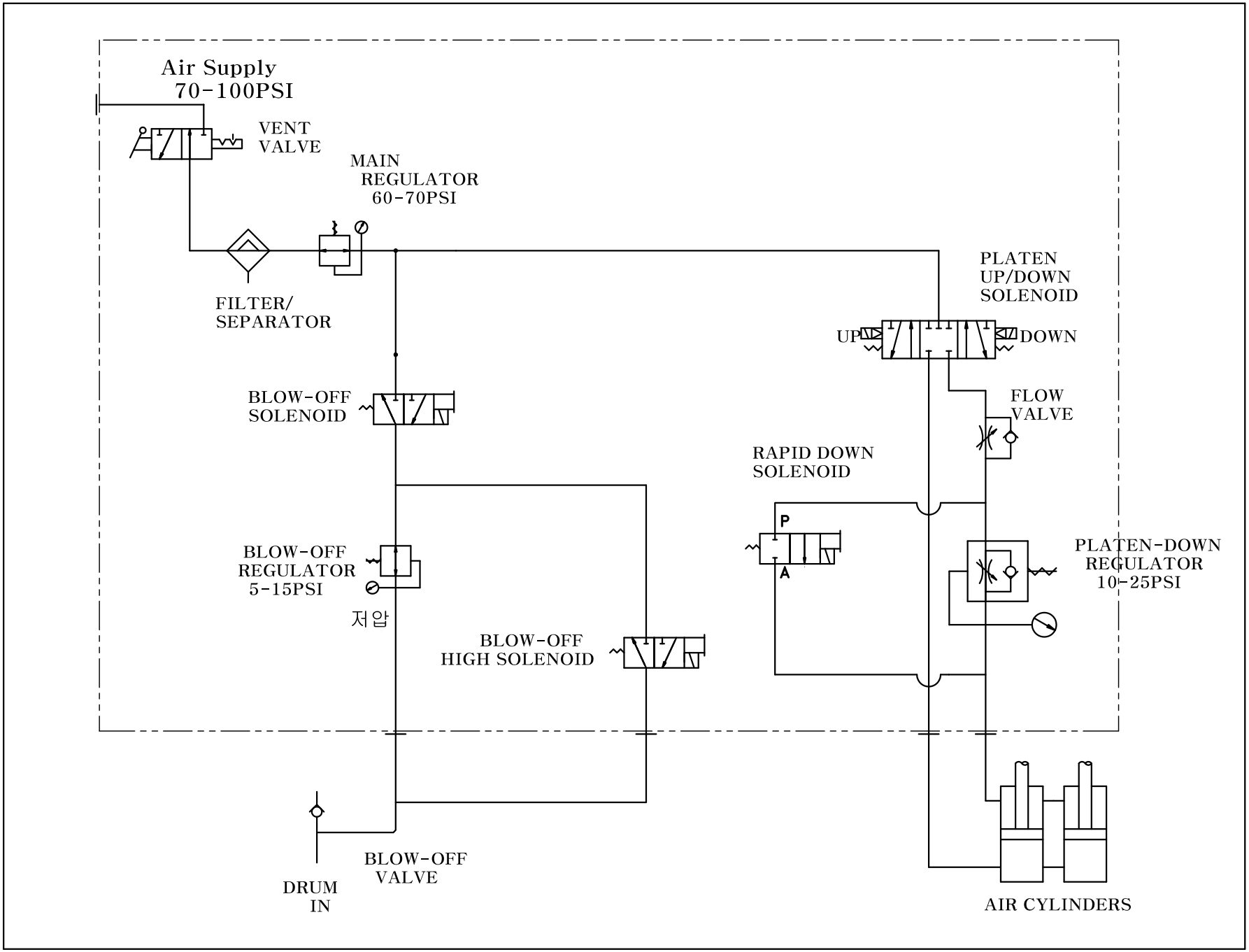
1. Move the Platen from the Drum to set the Platen to the operation temperature.
2. Use two screw drivers to lift the Platen Seal from its groove and to pull it down toward the bottom end of the Platen.
3. Clean the Platen exterior before replacing the Seal.
4. Power “Off” the Platen Heater and leave it to cool.
5. Roll up the new Platen Seal from the back of the Platen to insert it into the seal groove. Alternatively, tie a wire at both sides of the Seal, stick the Seal starting from the back, and pull the wire at the front to insert it into the groove. Cut off the wire to remove. (This job requires 2 men.)

11. CE LABEL

Web Site : www.phalbok.com
Model Name : BSDM-55
Gross Weight : 250 kg
S/N :
Manufactured Date :
SCCR : kA
Main Drawing No :
Rated Voltage : VAC
Rated Current : A
Rated Frequency : Hz
Company Name : Phalbok System
Address : 62 Dangjeong-ro, Gunpo -si , Gyeonggi-do , Korea
Tel. No. : +82-31-456-4190
Fax. No. : +82-31-456-4191

CE

PhalBok



*상기 도면은 추후 변경될 수 있습니다. *