STM-EB

"Budget" Heater

Date: Jul 2016

Version: Ver.A (English)

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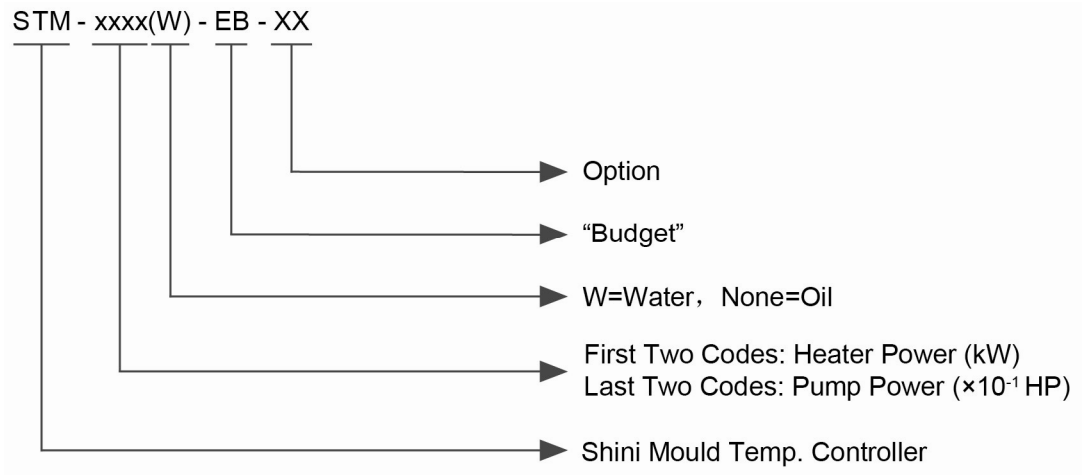
1. General Description

Read this manual carefully before operation to prevent damage of the machine or personal injuries.

STM-EB (W-EB) series are applicable for heating up the moulds and maintaining temperature, and they also can be used in other similar applications. Firstly, these series adopt different cooling methods to cool down mediums, then mediums are conveyed to the moulds after pressurized by pump and heated up by electrical heated tube. Optimized design ensures accurate heating temperature, the max.temperature can reach: water is 120℃ and oil is 200℃.

Model: STM-607W-EB

1.1 Coding Principle



1.2 Feature

1) Standard configuration

- P.I.D. multi-stage temperature control system can maintain a mould temperature with accuracy of ±1℃.
- Adopts high efficiency high temperature pump to achieve high efficient heat exchange.
- Multiple safety devices including power reverse phase protection, pump overload protection, overheat protection and low level protection that can automatically detect abnormal performance and indicate this via visible alarm.
- STM-EB is equipped with low level protection.
- STM-W-EB is equipped with water inlet low pressure protection, system high pressure protection, automatic air exhaust and water supplying.

All service work should be carried out by a person with technical training or corresponding professional experience. The manual contains instructions for both handling and servicing. Chapter 6, which contains service instructions intended for service engineers. Other chapters contain instructions for the daily operator.

Any modifications of the machine must be approved by SHINI in order to avoid personal injury and damage to machine. We shall not be liable for any damage caused by unauthorized change of the machine.

Our company provides excellent after-sales service. Should you have any problem during using the machine, please contact the company or the local vendor.

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1.3 Technical Specifications

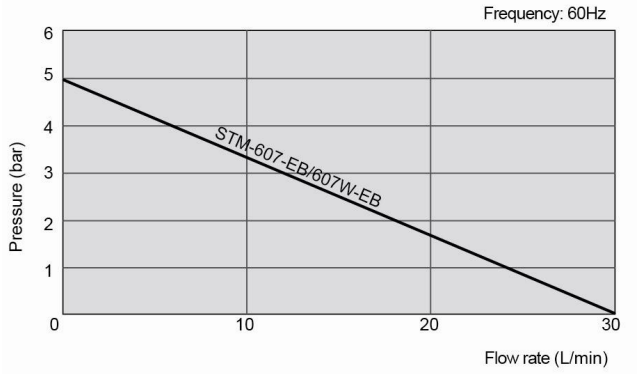
1.3.1 Specification

Table 1-1: Specification

Model		STM-607EB	STM-607W-EB	STM-910-EB	STM-910W-EB
Max. Temp.		200S℃/392℉	120℃/248℉	200℃/248℉	120℃/248℉
Pipe Heate (kW)		6		9	9x2
Pump Power (kW)		0.55		0.75/0.92	0.75x2/0.92x2
Max. pump Flow (L/min)	L	27		42/50	42x2/50x2
	gal	7.1		11/13.2	11x2/13.2x2
Max. pump Pressure (bar)		3.8		5.0	
Heating Tank Number		1		1	2
Main / Sub. Oil Tank	L	6.0/3.3	-	6/3.2	6x2/3.2x2
	gal	1.6/0.9	-	1.58/0.85	1.58x2/0.85x2
Water Heating Tank Capacity	L	-	3.0	-	3.0
	gal	-	0.79	-	0.79
Cooling Method		Indirect	Direct	Indirect	Indirect
Inlet/Outlet (inch)		$^3/_4$" / $^3/_4$"	$^3/_4$" / $^3/_4$"	$^3/_4$" / $^3/_4$"	$^3/_4$" / $^3/_4$"
Dimensions (H×W×D)	mm	686x325x563	575x285x505	705x365x655	670x305x620
	Inch	27×12.7×22.2	22.4×11.1×19.7		
Weight	kg	49	38	70	60
	lb	108	83.8	83.8	83.8

Note: 1) Pump testing standard: Power of 50/60Hz, purified water at 20℃.
(There is ±10% tolerance for either max. flow rate or max. pressure).
2) "*" stands for options.
3) Power supply: 3Φ, 230 / 400 / 460 / 575VAC, 50 / 60Hz.

1.3.2 Pump Performance



Picture 1-1: Pump performance

1.3.3 Reference Formula of Mould Controllers Model Selection

Heater Power (kW) = mould weight (kg) × mould specific heat (kcal/kg℃) × temperature difference between mould and environment (℃) × safety coefficient / heating duration (hr)/ 860

Note: safety coefficient can select a value from 1.3 to 1.5.

Flow Rate (L/min) = heater power (kw) × 860 / [heating medium specific (kcal/kg℃) × heating medium density (kg/L)×in/outlet temperature difference (℃)× time (60min/hr)]

Note: Water specific heat =1kcal/kg℃

Heating medium oil specific heat =0.49kcal/kg℃

Water density =1kg/L

Heating medium oil density =0.842kg/L

1.4 Safety Regulations

Strictly abide by the following safety regulations to prevent damage of the machine or personal injuries.

1.4.1 Safety Signs and Labels

Danger!

The unit is designed to endure high temp, and high pressure. For safe operation, do not remove the covers or switches.

Attention!

The unit should be operated by qualified personnel only.

During operation, avoid wearing gloves or clothes that may cause danger.

Turn off main switch when power supply is off.

Stop the unit when there may be power supply problems caused by static electricity.

Put on safety gloves and shoes during installation or relocation.

Components from our company can only be used for replacement.

Warning!

Do not touch the switch with wet object or hands.

Do not use the machine before fully aware of its performance.

Be careful not to touch or hit the switch or sensor.

Please keep enough operation space, and keep away obstacles.

To avoid producing statics, clean the floor from oil or water to keep a dry environment.

Protect the machine against severe vibration or collision.

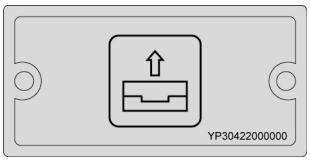
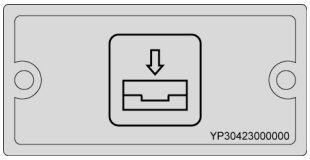
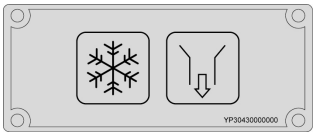
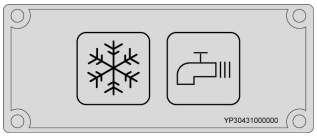
Do not remove safety signs or make it dirty.

Drunken, medicine-taking, or men without proper judgement should not operate the machine.

Warning!

High temperature, take care of hands! This label is attached on the surface of heating parts.

1.4.2 Signs and Labels

	From mould: connector for circulating water/oil coming from mould.
	To mold: connector for circulating water/ oil to go to mould.
	Water outlet: cooling water outlet.
	Water inlet: inlet for replenishing water and cooling water.

1.4.3 Operation Regulations

1) Before operation, make sure that cooling water is clean soft water without pollutants.
   ※ Low quality water brings limescales, which may cause problems.
2) If problems of drainage or bad temperature control are noted, please clean solenoid valve and cooling water inlet and outlet.
3) Do not move the unit when it is in operation.
4) When in need of repairing, wait until oil temperature falls below 30℃.
5) Motor overload may be caused by phase shortage, pipe obstruction, broken bearing, etc. Motor overload relay will trip off to stop the machine when this happens. Fixing the problems, press RESET on overload relay to clear the alarm.
6) Before turn off the pump, wait until oil temperature falls blow 50℃. Or the life of the unit would be affected.

1.5 Exemption Clause

The following statements clarify the responsibilities and regulations born by any buyer or user who purchases products and accessories from Shini (including employees and agents).

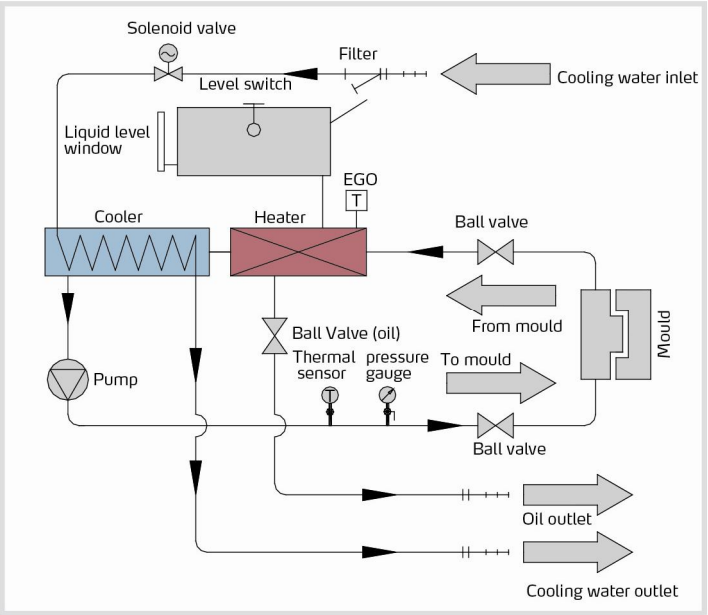
Shini is exempted from liability for any costs, fees, claims and losses caused by reasons below:

1. Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2. Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible natural disasters including fire, flood, storm and earthquake.
3. Any operational actions that are not authorized by Shini upon machine, including adding or replacing accessories, dismantling, delivering or repairing.
4. Employing consumables or oil media that are not appointed by Shini.

2. Structure Characteristics and Working Principle

2.1 Working Principle

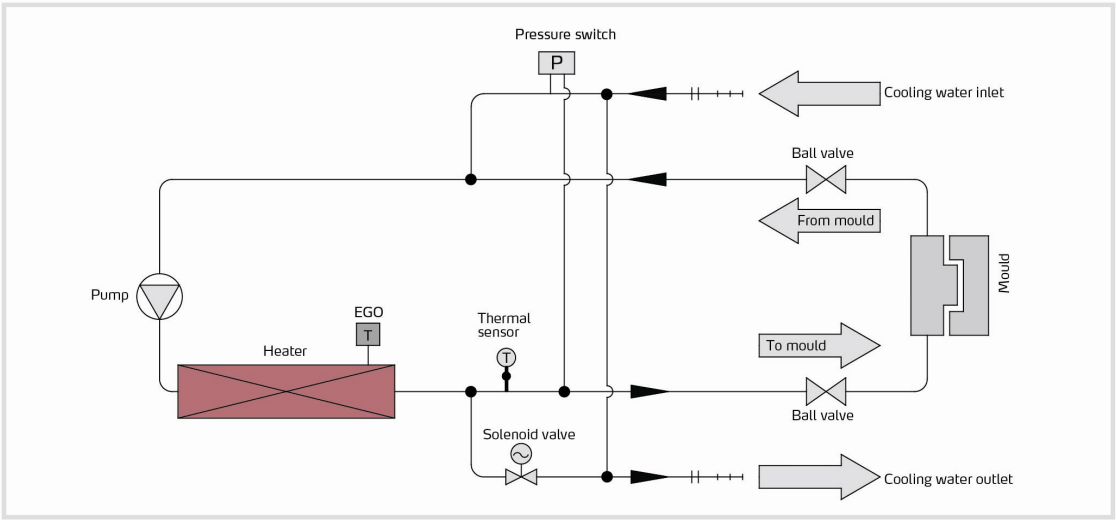
2.1.1 System flow for STM-607-EB (Indirect Cooling)



Picture 2-1: STM-607-EB Working principle

The high temperature oil returns to the machine and then be pressured by pump to the heater. After being heated, oil will be forced to the mould and continue the circle. In the process, if the temp. is too high, the system will activate the solenoid valve to let cooling water lower the temperature indirectly until the it reaches the system requirement. If the temperature keeps increasing and reaches the set point of EGO, the system will alarm and stop operation. The system will sound low level alarm and stop working if oil level falls down below the set point.

2.1.2 System flow for STM-607W-EB (Direct Cooling)

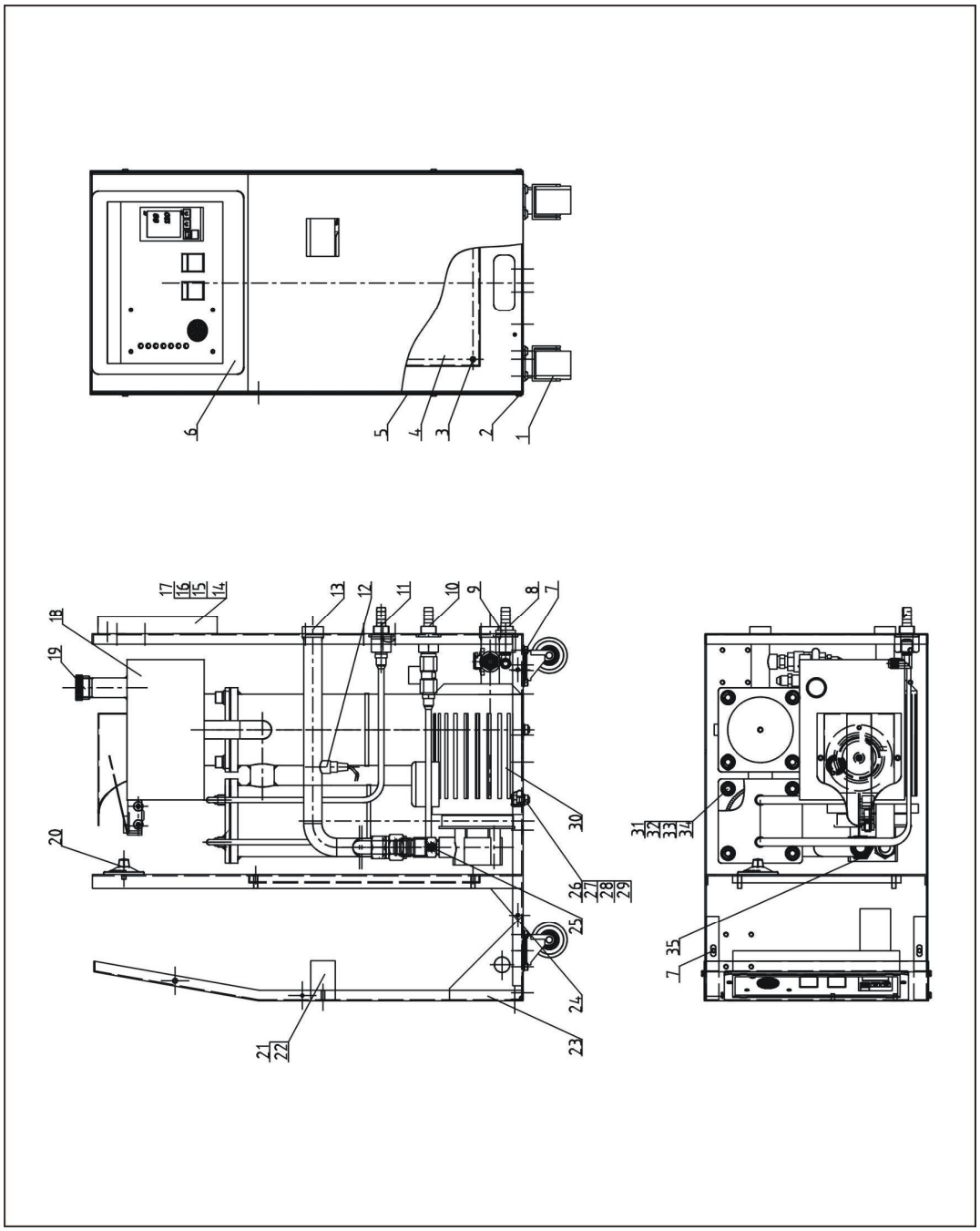


Picture 2-2: STM-607W-EB Working principle

The high temperature water returns from the mould to the temperature controller machine is pressurized by pump and conveyed to the heater. After being heated, it will be again flow to the mould to maintain the temperature, and this circle repeats. In the process, if water temperature is too high, system will activate the solenoid valve to let cooling water directly cool down the high temperature water to maintain constant temperature. If the temperature keeps increasing and reaches to the set point of EGO, machine starts high temperature alarm and halts; if system pressure is too high and reaches the set value of high pressure switch, system will launch high pressure alarm and halts; when cooling water pressure fails to reach the set value, pressure switch will send a signal of water storage to launch low pressure alarm and machine halts.

2.2 Assembly Drawing

2.2.1 System Structure Drawing (STM-607-EB)



Remarks: Please refer to material list 2.2.2 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-3: System structure drawing (STM-607-EB)

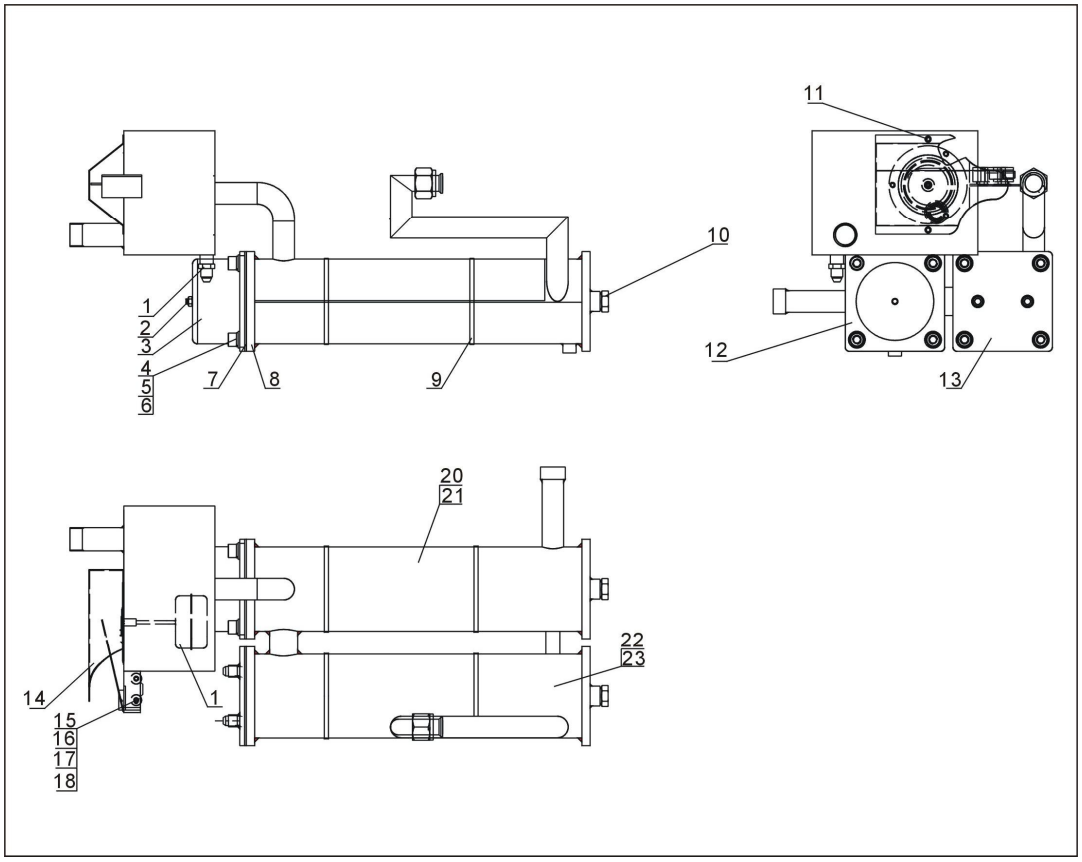
2.2.2 Parts List (STM-607-EB)

Table 2-1: Parts list (STM-607-EB)

No.	Name	Parts No.	No.	Name	Parts No.
1	Black rubber caster 2”	YW03000200000	19	Aluminum oil pipe cap	BH12030403040
2	Thick head screw M4×6	YW63040600000	20	EGO (with no plastic box)	BH90115000150
3	Flat head screw M6×15	YW63061700000	21	Breaker platen	-
4	Electrical supporting plate	-	22	Hexagon screw M5	YW64000600000
5	Cover plate	-	23	Operation panel	-
6	Plastic operation panel	YR40009500000	24	Rack	-
7	Flat head screw M6×10	YW62061000000	25	Copper flared joint 3/4”H ×1/2”PT×55	BH12030401010
8	Oil exhast coupling	--	26	Outer hexagon balbolt M8×25	YW60082500300
9	Copper female connector For set No.1234	S-136	27	Hexagon nut M8	YW64080600000
10	Cooling water inlet coupling	-	28	Flat washer 8×16×1.5	YW66081600000
11	Cooling water outlet copling	-	29	Spring washer 8mm	YW65008000100
12	Thermocouple oil type (short)	BE90100000150	30	Pump TP-55	BM20005500250
13	Oil outlet	-	31	Hexagon socket head cap screw M10×25	YW61102500000
14	Liquid level indicator base	BW20000001010	32	Flat washer 10	YW66102500000
15	Glass tube	YW70961400000	33	Spring washer 10	YW65010000000
16	Liauid level indicator male connector (S-62)	BH12010406210	34	Hexagon nut M10	YW64001000300
17	Liquid level indicator screw	BH12060700110	35	Copper flared joint 3/4”H×1/2”PT×75	BH12030401110
18	Heating tank assembly	-			

Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.3 Heating Tank Assembly (STM-607-EB)



Remarks: Please refer to material list 2.2.4 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-4: Heating tank assembly (STM-607-EB)

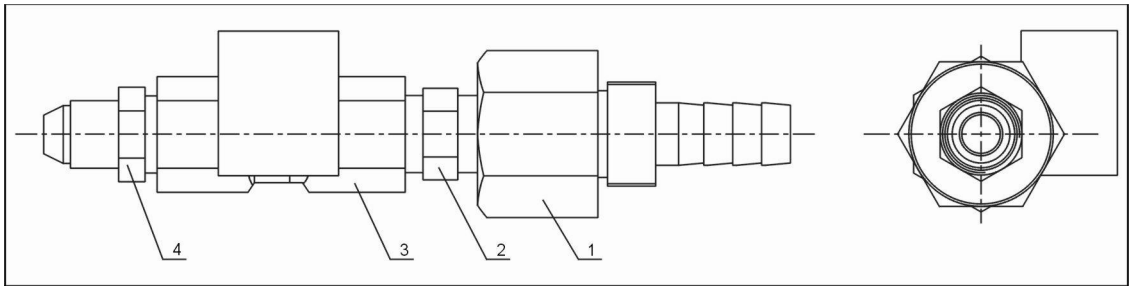
2.2.4 Heating Tank Parts List (STM-607-EB)

Table 2-2: Heating tank parts list (STM-607-EB)

No.	Name	Parts No.	No.	Name	Parts No.
1	Copper Teflon pipe coupling 1/4H x 1/4PT	BH12010400410	13	Cooling pipe set	BW88060700120
2	Screw M6	YW64000600300	14	Alternative switch cover	-
3	Heater cover	BL80091000120	15	Microswitch LXW5-1124 rod length120mm	YE14152400000
4	inner hexagon screw M10 x 25	YW61102500000	16	Nut M5	YW64000600000
5	Flat washer 10×25	YW66102500000	17	Flat head screwM5 x 30	YW60530000000
6	Spring washer 10	YW65010000000	18	Heat insulation pad of liquid level switch	YR10109000000
7	Flexible graphite washer 120 x 120 x 2.0mm	YR20121200000	19	Float ball	-
8	Heating tank	-	20	Heating tank wrapper sheet 1	-
9	Stainless steel pipe bundle (91-114mm)	YW02004500000	21	Heating tank wrapper sheet 2	-
10	Screw at tank bottom 1/2PT(S-12-0)	BH12010200510	22	Cooling tank wrapper sheet 1	-
11	Flat heat screw M6 x 10	YW62061000000	23	Cooling tank wrapper sheet 2	-
12	Heater set	BH70060700050			

Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.5 Cooling Water Inlet Connecting Assembly (STM-607-EB)



Remarks: Please refer to material list 2.2.6 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-5: Cooling water inlet connecting assembly (STM-607-EB)

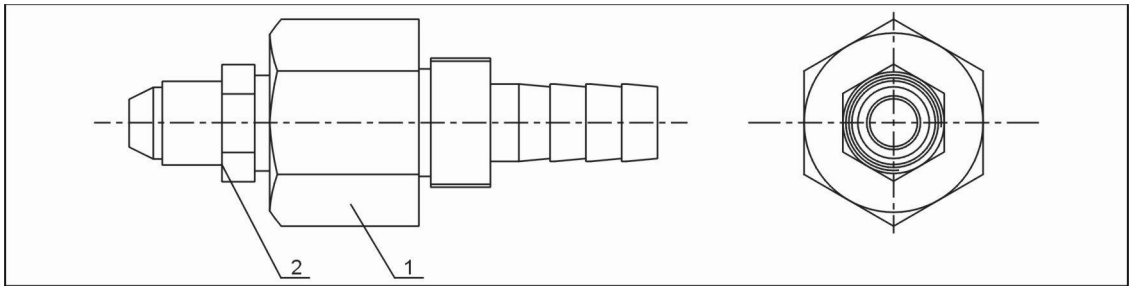
2.2.6 Parts List (STM-607-EB)

Table 2-3: Parts list (STM-607-EB)

No.	Name	Parts No.	No.	Name	Parts No.
1	Cooling water inlet/outlet connector	-	3	Solenoid valve3/8"	YE32213100000
2	Copper nipple 3/8"	BH12030800110	4	Copper Teflon pipe coupling 3/8H×3/8PT	BH12030800610

Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.7 Cooing Water Outlet Connecting Assembly (STM-607-EB)



Remarks: Please refer to material list 2.2.8 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-6: Cooling water outlet connecting assembly (STM-607-EB)

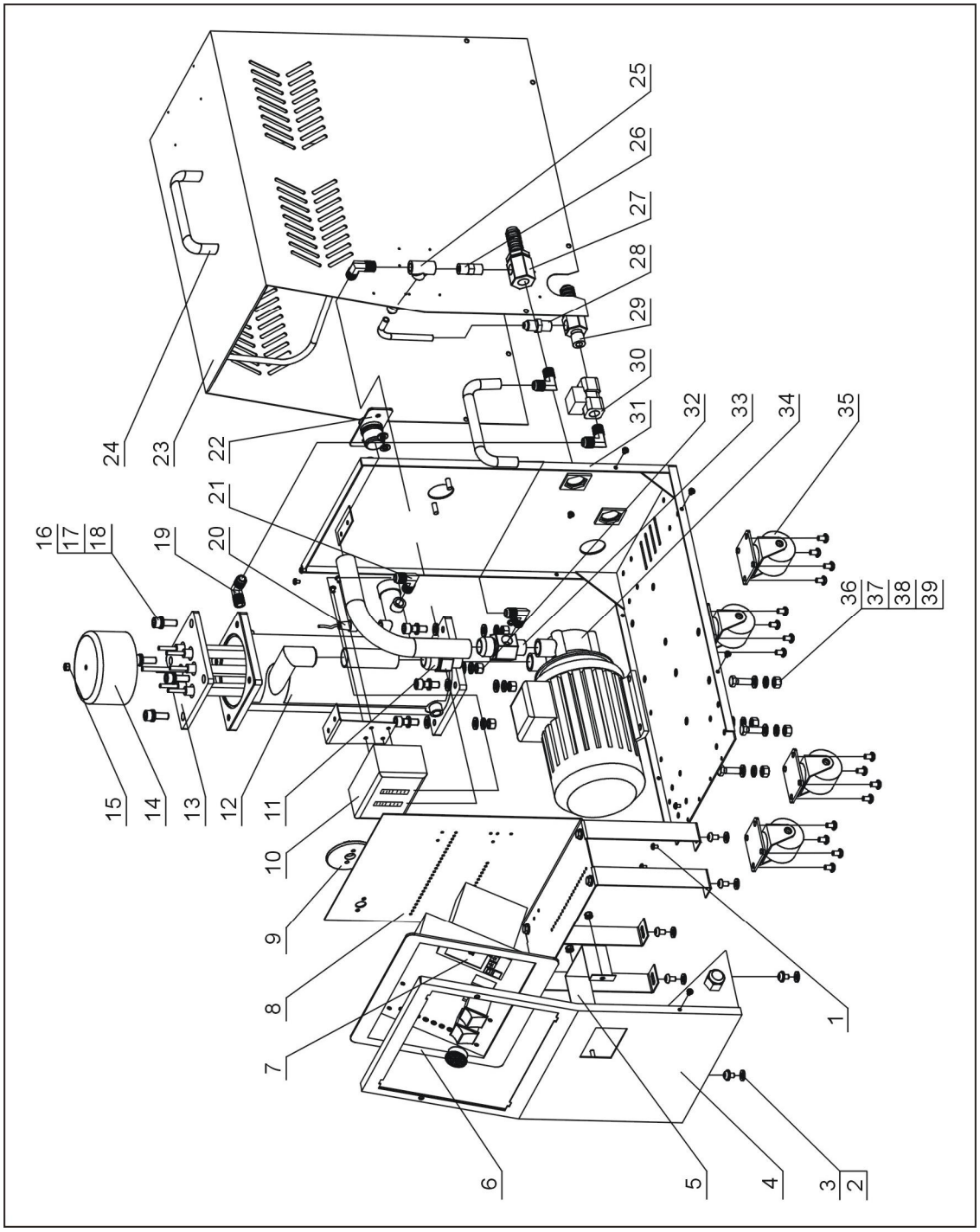
2.2.8 Parts List (STM-607-EB)

Table 2-4: Parts list (STM-607-EB)

No.	Name	Parts No.	No.	Name	Parts No.
1	Cooling water inlet/outlet connector	-	2	Copper Teflon pipe coupling 3/8H×3/8PT	BH12030800610

Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.9 System Structure Drawing (STM-607W-EB)



Remarks: Please refer to material list 2.2.10 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-7: System structure drawing (STM-607W-EB)

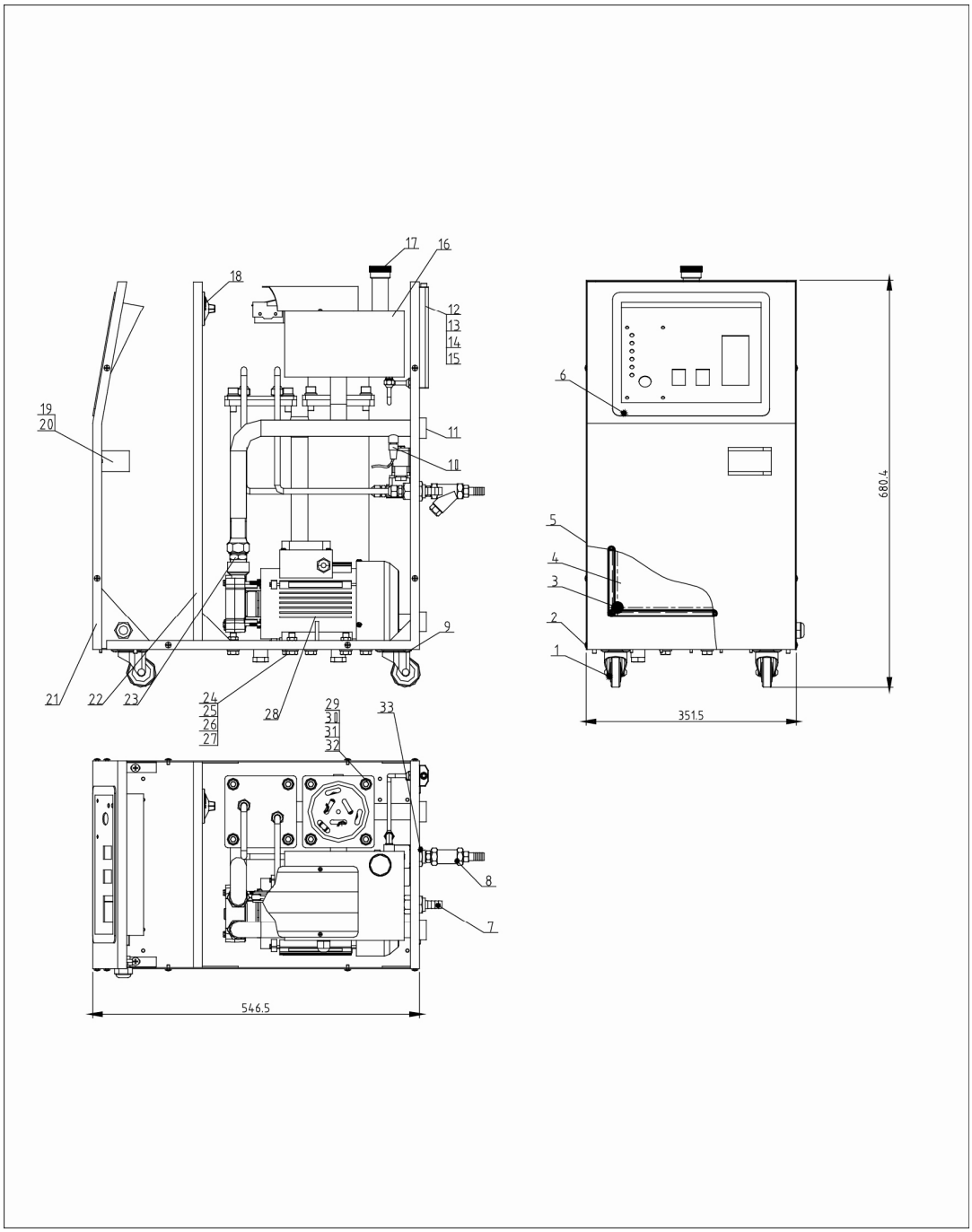
2.2.10 Parts List (STM-607W-EB)

Table 2-5: Parts list (STM-607W-EB)

No.	Name	Parts No.	No.	Name	Parts No.
1	Thick head screw M4×6	YW63040600000	21	Copper Teflon pipe coupler 1/4×1/4PT(L)	YW04010400400
2	Flat washer 6	YW66061600000	22	Water flow regulator connector	-
3	Flat head screw M6×10	YW62061000000	23	Cover plate	-
4	Front plate	-	24	Alumimum square handle 120L(M6)	BW20012000040
5	Platen	-	25	Stainless steel T-joint	YW52010400000
6	Operation panel	YR40009500000	26	Pipe couple 1/4”	BH12010400110
7	Temp. controller V200	YE81020024000	27	Copper connector for water refilling	-
8	Electrical mounting plate	-	28	Copper Teflon pipe coupler 1/4H×1/4PT	BH12010400410
9	EGO assembly (without plastic box)	BH90115000150	29	Copper connector unit 3	-
10	High and low pressure switch HLP830HMW	YE90832500000	30	Solenoid valve	YE32331000000
11	Copper Teflon pipe coupler 3/4” ×1/2”PT	BH12030401010	31	Rack	-
12	Heating tank	-	32	Hexnut M10	YW64001000300
13	Heater set	BH70060700850	33	Copper Teflon pipe coupler 3/4”H×PT×1/4	BH12030401010
14	Heater cover	BL80091000120	34	Pump TP-55	BM20005500250
15	Hexnut M6	YW64000600300	35	Black rubber castor 2”	YW03000200000
16	Inner hexagon cylindrical screw M10×25	YW61102500000	36	Hexnut M8	YW61000800200
17	Spring washer 10	YW65010000000	37	Spring washer 8	YW65008000200
18	Flat washer 10	YW66102500000	38	Falt washer 8	YW66082200100
19	Copper Teflon pipe coupler 3/8H×3/8PT(L)	YW04030800300	39	Hexbolt M8×25	YW60082500300
20	Thermocouple (short)	BE90100000150			

Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.11 System Structure Drawing (STM-910-EB)



Remarks: Please refer to material list 2.2.12 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-8: System structure drawing(STM-910-EB)

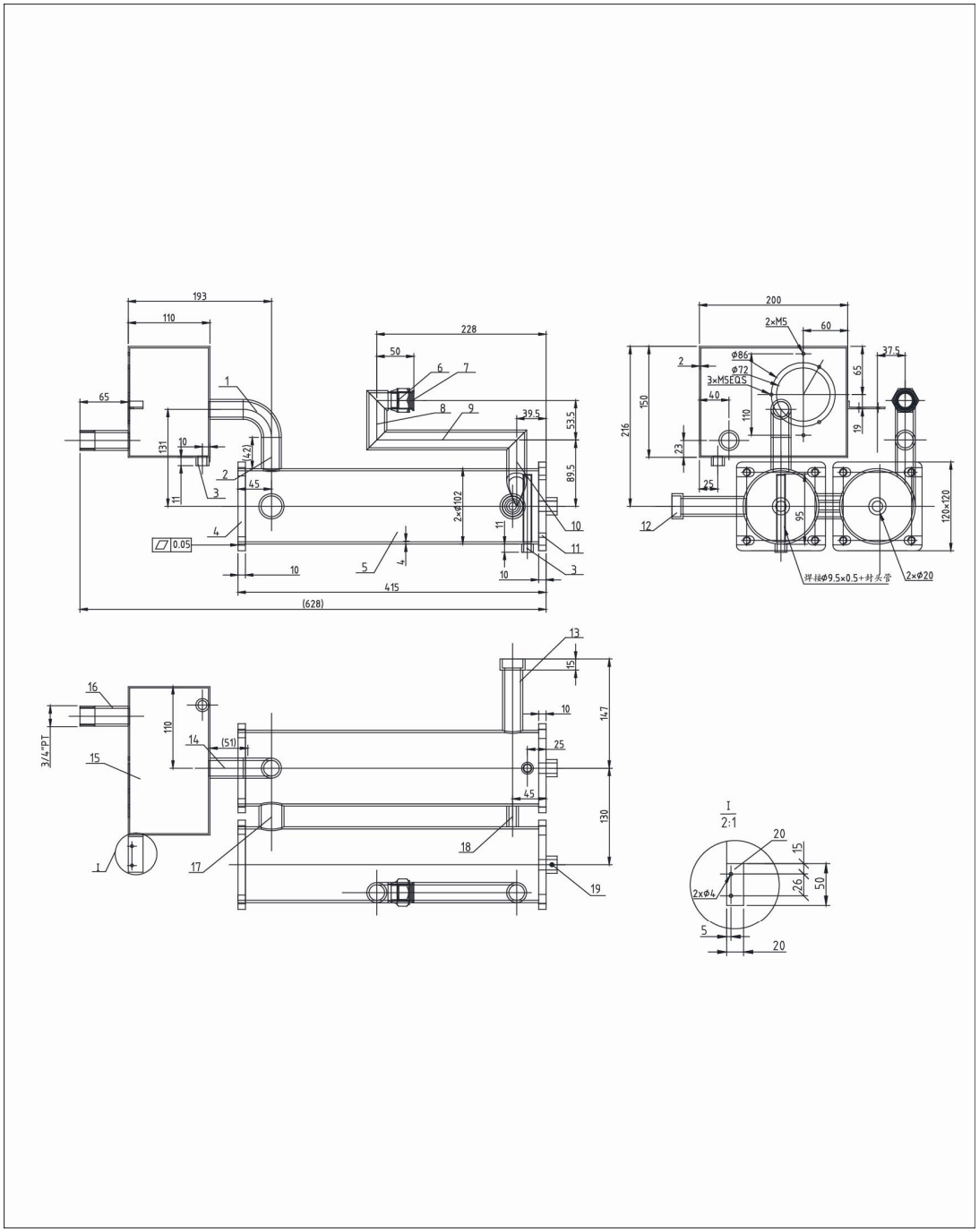
2.2.12 Parts List (STM-910-EB)

Table 2-6: Parts list (STM-910-EB)

No.	Name	Parts No.	No.	Name	Parts No.
1	Black rubber caster 2"	YW03000200000	18	EGO (with no plastic box)	BH90115000150
2	Thick head screw M4x6	YW63040600000	19	Breaker platen	STM-607E-ALL-05
3	Flat head screw M6x15	YW63061700000	20	Hexagon screw M5	YW64000600000
4	Elestrical supporting plate	STM-910E-ALL-02	21	Operation panel	STM-910E-ALL-01
5	Cover plate	STM-910E-ALL-03	22	Rack	STM-910E-A-ALL
6	Plastic operation panel	YR40009500000	23	Copper flared joint 3/4"Hx3/4"PT	BH12030400310
7	Cooling water outlet coupling	STM-607E-D-ALL	24	Outer hexagon balbolt M8×25	YW60082500300
8	Cooling water intlet coupling	STM-607E-C-ALL	25	Hexagon nut M8	YW64080600000
9	Flat head screw M6x10	YW62061000000	26	Flat washer 8×16×1.5	YW66081600000
10	Thermocouple oil type (short)	BE90100000150	27	Spring washer 8mm	YW65008000100
11	Oil outlet	STM-607E-ALL-04	28	Pump TP-75	BM20007500150
12	Liquid level indicator base	BW20000001010	29	Hexagon socket head cap screw M10×25	YW61102500000
13	Glass tube	YW70961400000	30	Flat washer 10	YW66102500000
14	Liauid level indicator male connector (S-62)	BH12010406210	31	Spring washer 10	YW65010000000
15	Liquid level indicator screw	BH12060700110	32	Hexagon nut M10	YW64001000300
16	Heating tank assembly	STM-910E-B-ALL	33	General copper nut S-136	BH12060703910
17	Aluminum oil pipe cap	BH12030403040			

Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.13 Heating Tank Structure (STM-910-EB)



Remarks: Please refer to material list 2.2.14 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-9: Heating tank structure (STM-910-EB)

2.2.14 Heating Tank Parts List (STM-910-EB)

Table 2-7: Heating tank parts list (STM-910-EB)

No.	Name	Parts No.	No.	Name	Parts No.
1	Stainless steel elbow 3/4" PT	YW53273000100	11	Heating tank flange 3	STM-607E-B-02/03
2	33/4"x3t PT pipe	s picture	12	3/4"PT female connector	STM-607E-B-02/02
3	1/4" female pipe	S-100	13	3/4"x3t PT pipe	As picture
4	Heating tank flange 1	S-37	14	3/4"x3t PT pipe	As picture
5	Tank body (seamless steel pipe)	As picture (∅102"x4t)	15	Oil tank	As picture
6	Iron trumpet nut 6''	BH12000600110	16	3/4"x3t PT pipe(male)	As picture
7	3/4" Iron trumpet	STM-607E-B-02/01	17	1"x3t PT pipe	As picture
8	3/4" x3t PT pipe	As picture	18	1/2"x3t PT pipe (for support)	As picture
9	3/4"x3t PT pipe	As picture	19	1/2" female pipe	S-104
10	3/4"x3t PT pipe	As picture	20	Liquid level switch plate	As picture

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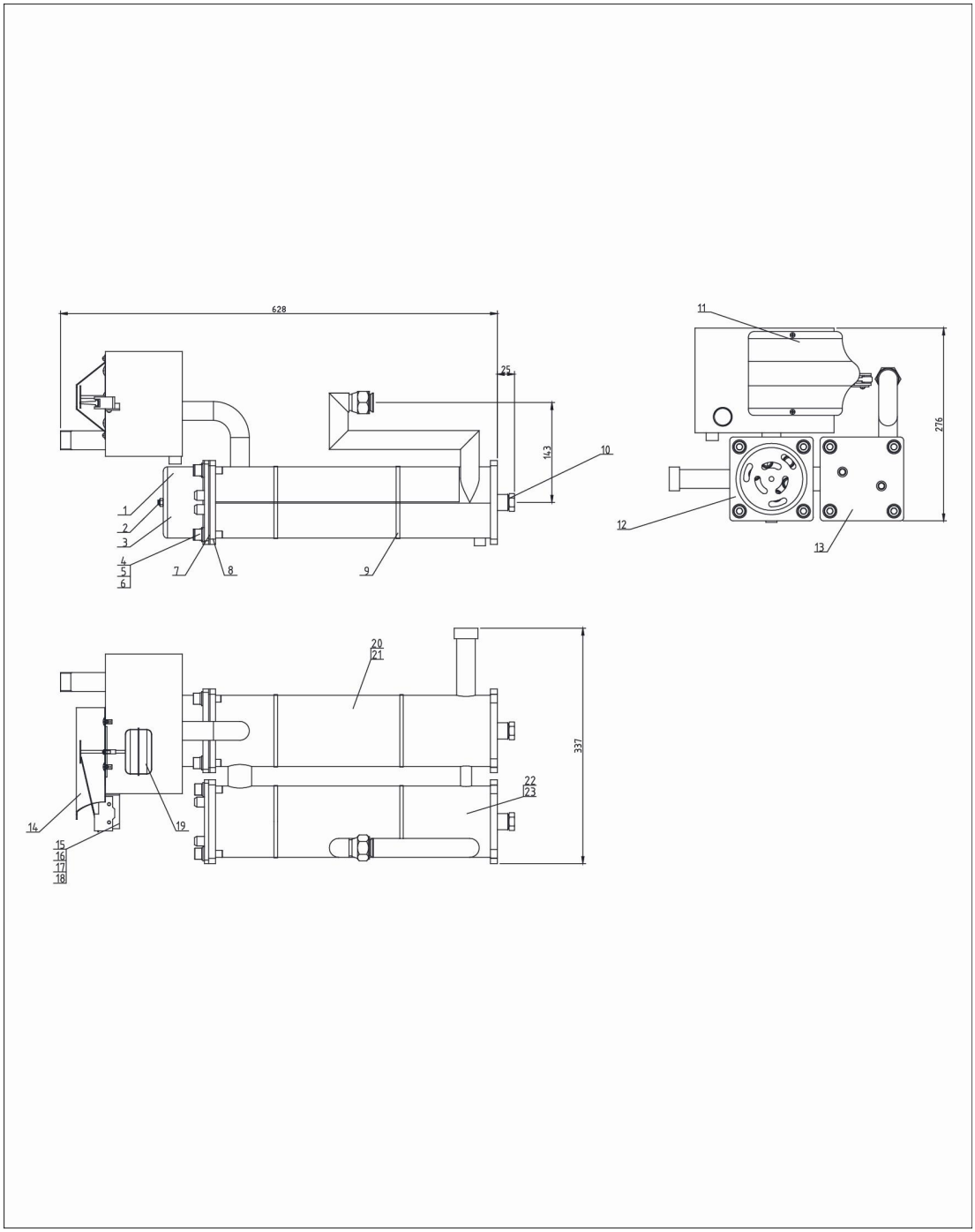
2.2.15 Heating Tank Assembly Drawing (STM-910-EB)



Remarks: Please refer to material list 2.2.16 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-10: Heating tank assembly drawing(STM-910-EB)

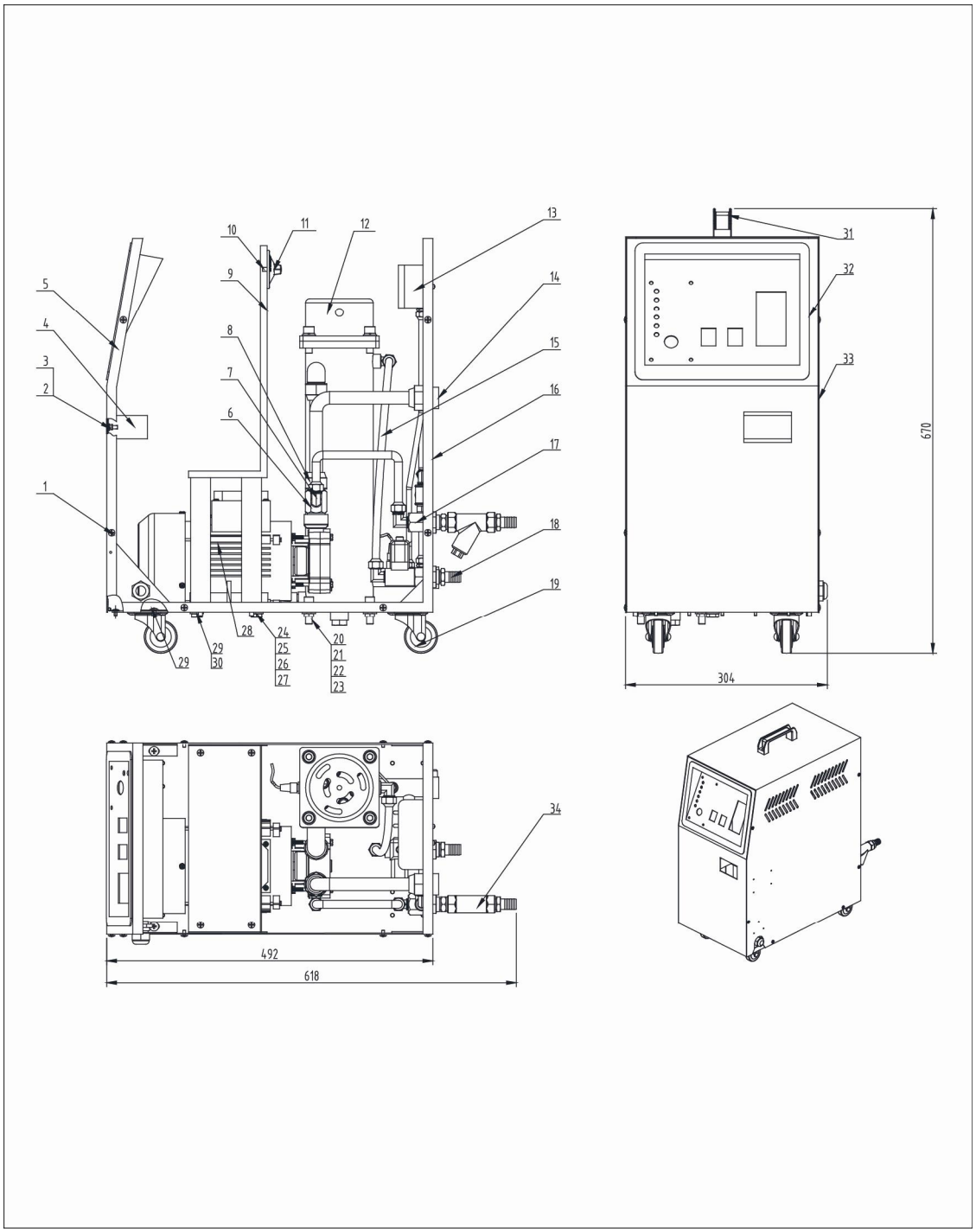
2.2.16 Parts List of Heating Tank Assembly (STM-910-EB)

Table 2-8: Parts list of heating tank assembly (STM-910-EB)

No.	Name	Parts No.	No.	Name	Parts No.
1	Copper Teflon pipe coupling 1/4H x 1/4PT	BH12010400410	13	Cooling pipe set	BW88060700120
2	Screw M6	YW64000600300	14	Alternative switch cover	STM-910-A-16
3	Heater cover	BL80091000120	15	Microswitch LXW5-1124 rod length120mm	YE14152400000
4	inner hexagon screw M10 x 25	YW61102500000	16	Nut M5	YW64000600000
5	Flat washer 10×25	YW66102500000	17	Flat head screwM5 x 30	YW60530000000
6	Spring washer 10	YW65010000000	18	Heat insulation pad of liquid level switch	YR10109000000
7	Flexible graphite washer 120 x 120 x 2.0mm	YR20121200000	19	Float ball	STM-607E-B-04
8	Heating tank	STM-910E-B-01	20	Heating tank wrapper sheet 1	STM-607E-B-05
9	Stainless steel pipe bundle (91-114mm)	YW02004500000	21	Heating tank wrapper sheet 2	STM-607E-B-06
10	Screw at tank bottom 1/2PT(S-12-0)	BH12010200510	22	Cooling tank wrapper sheet 1	STM-607E-B-07
11	Flat heat screw M6 x 10	YW62061000000	23	Cooling tank wrapper sheet 2	STM-607E-B-08
12	Heater set	BH70091000850			

Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.17 System Structure Drawing (STM-910W-EB)



Remarks: Please refer to material list 2.2.18 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-11: System structure drawing (STM-910W-EB)

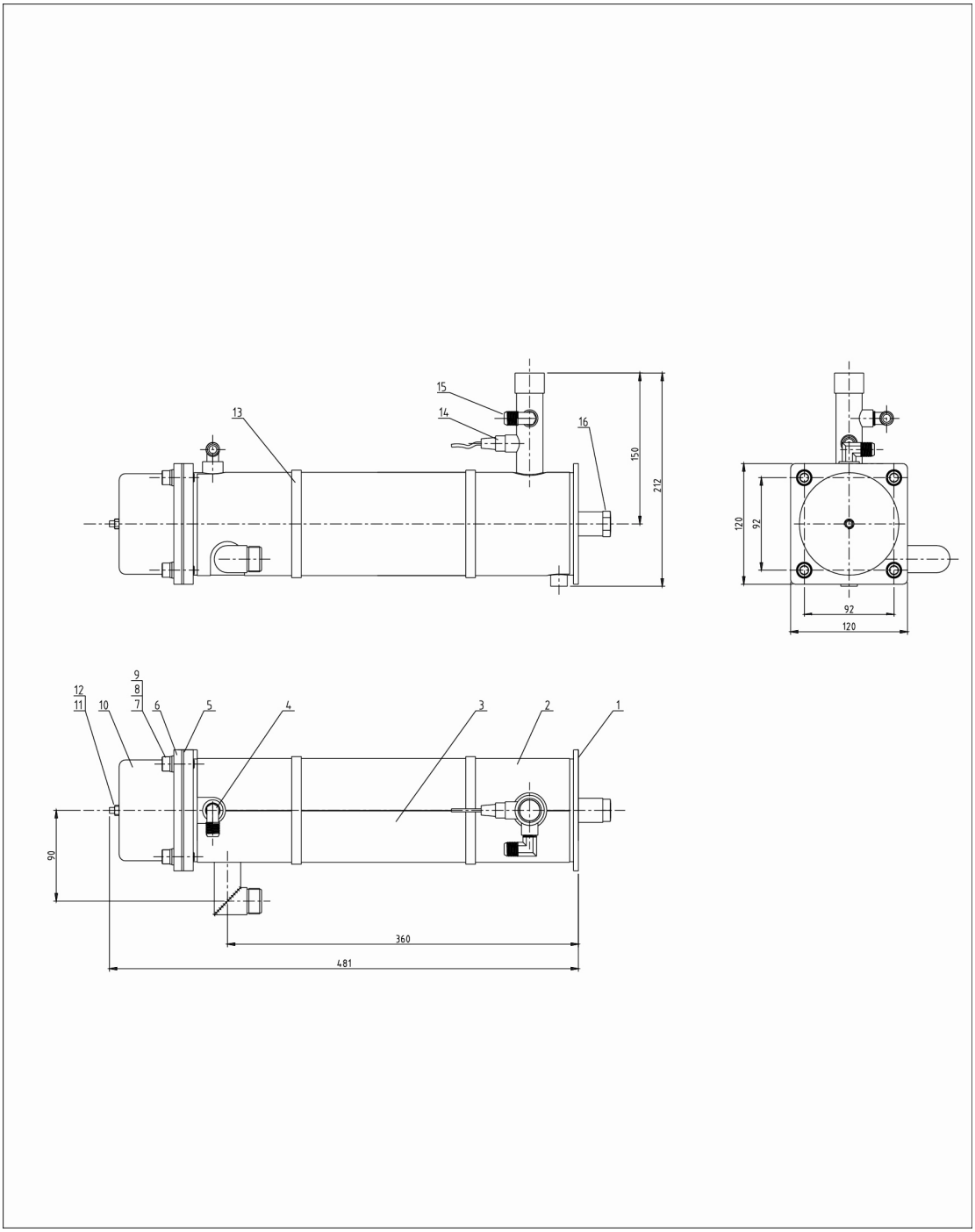
2.2.18 Parts List (STM-910W-EB)

Table 2-9: Parts list (STM-910W-EB)

No.	Name	Parts No.	No.	Name	Parts No.
1	Flat head screw M4x10	YW62041000000	18	Water drainage connector	STM-607N-WE-D-ALL
2	Hexagon screw M5	YW64000600000	19	Black rubber caster 2"	YW03000200000
3	Flat washer 5	YW66061300000	20	inner hexagon cylindrical screw M10x25	YW61102500000
4	Pressing plate	STM-607N-WE-ALL-02	21	Flat washer 10	YW66102500000
5	Front plate	STM-910WE-ALL-01	22	Spring washer 10	YW65010000000
6	Tonflon connector 3/4"Hx3/4"PT*1/4 middle hole	BH12030400610	23	Hexagon screw M10	YW64001000300
7	Tonflon connector 3/8"Hx1/4"PT (L)	BH12010400510	24	Hexagon bolt M8x25	YW60082500300
8	Tonflon connector 3/4"Hx3/4"PT	BH12030400310	25	Flat washer 8	YW66082200100
9	Installing plate parts of electric control	STM-910WE-ALL-02	26	Spring washer 8	YW65008000200
10	Thick head screw M4x10	YW63041000000	27	Hexagon screw M8	YW61000800200
11	EGO(With no plastic box)	BH90115000150	28	Pump TP-75	BM20007500150
12	Heating tank parts	STM-910WE-B-ALL	29	Flat head screw M6x10	YW62061000000
13	high and low pressure switch HLP830HME	YE90832500000	30	Flat washer 6	YW66061600000
14	H changes to PT pipe connector	S-66/04	31	Alumimum square handle 120L(M6 hole)	BW20012000040
15	Teflon + connector 3/8"x46cm	YW59384600000	32	Plastic operation panel	YR40009500000
16	Rack	STM-910WE-A-ALL	33	Cover plate	STM-910WE-ALL-03
17	Water replenishing connector	STM-607N-WE-C-ALL	34	Y-type filter 1/2"	YW57010200000

Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

2.2.19 Heating Tank Assembly Drawing (STM-910W-EB)



Remarks: Please refer to material list 2.2.20 for specific explanation of the Arabic numbers in parts drawing.

Picture 2-12: Heating tank assembly drawing (STM-910W-EB)

2.2.20 Parts List of Heating Tank Assembly (STM-910W-EB)

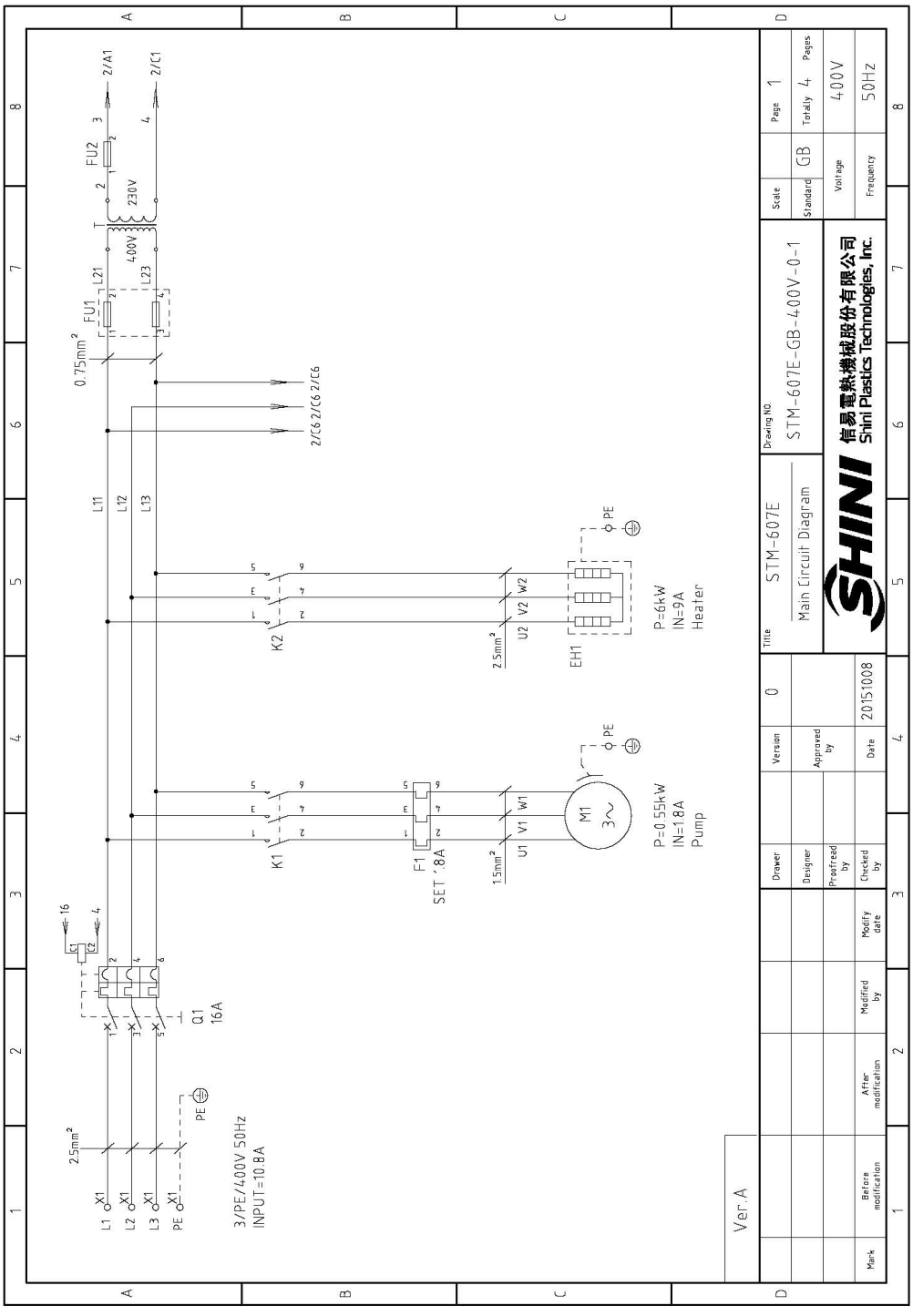
Table 2-10: Parts list of heating tank assembly (STM-910W-EB)

No.	Name	Parts No.
1	Heating tank	STM-607N-WE-B-01
2	Heating tank wrapper sheet 1	STM-607N-WE-B-02
3	Heating tank wrapper sheet 2	STM-607N-WE-B-03
4	Copper Teflon pipe coupling 3/8H*3/8PT(L)	YW04030800300
5	Flexible graphite 120x120x2.0	YR20121200000
6	Heater set	BH70091000850
7	Inner hexagon screw M10x25	YW61102500000
8	Spring washer10	YW65010000000
9	Flat washer 10	YW66102500000
10	Heater cover	BL80091000120
11	Screw M6	YW64008000000
12	Flat washer 6	YW66061600000
13	Stainless steel clamp 4.5"	YW02004500000
14	Thermocouple oil type(short)	BE90100000150
15	Copper Teflon pipe coupling 1/4Hx1/4PT(L)	YW04010400400
16	Screw at tank bottom 1/2PT	BH12010200510

Please confirm the version of manual before placing the purchase order to guarantee that the item number of the spare part is in accordance with the real object.

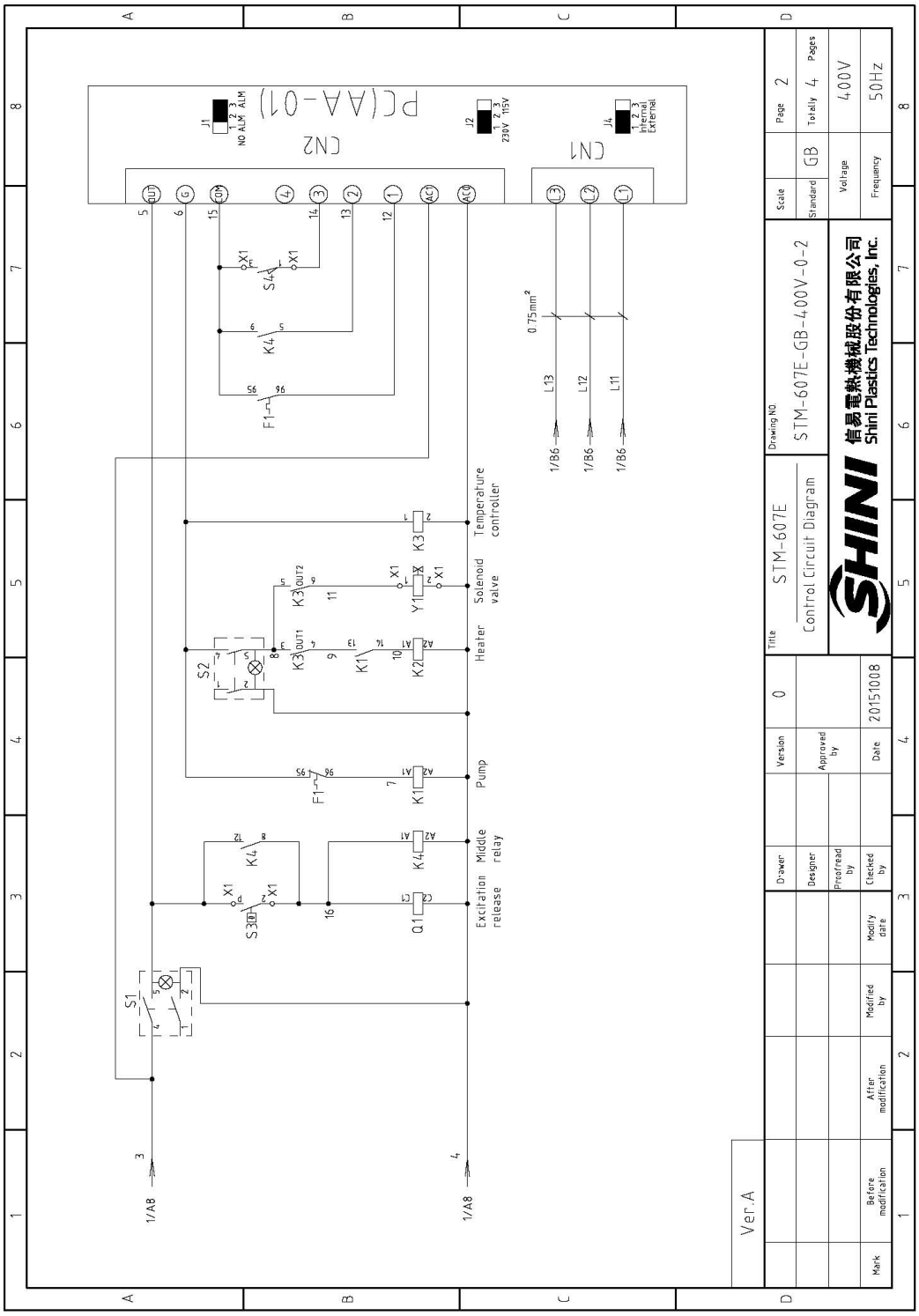
2.3 Electrical Diagram

2.3.1 Main Circuit Dia. (STM-607/910-EB 400V)



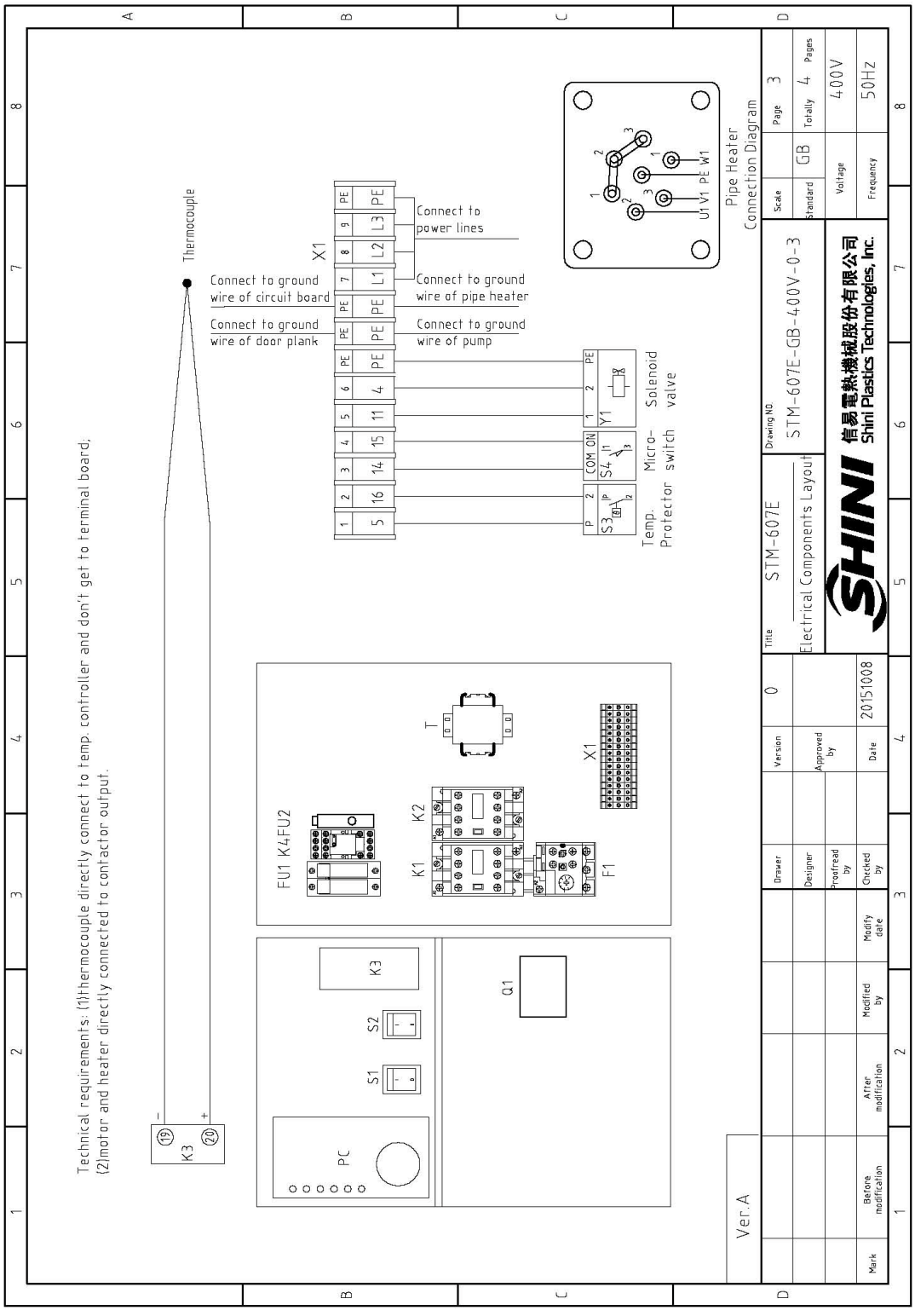
Picture 2-13: Main circuit dia. (STM-607/910-EB 400V)

2.3.2 Control Circuit Dia. (STM-607/910-EB 400V)



Picture 2-14: Control circuit dia. (STM-607/910-EB 400V)

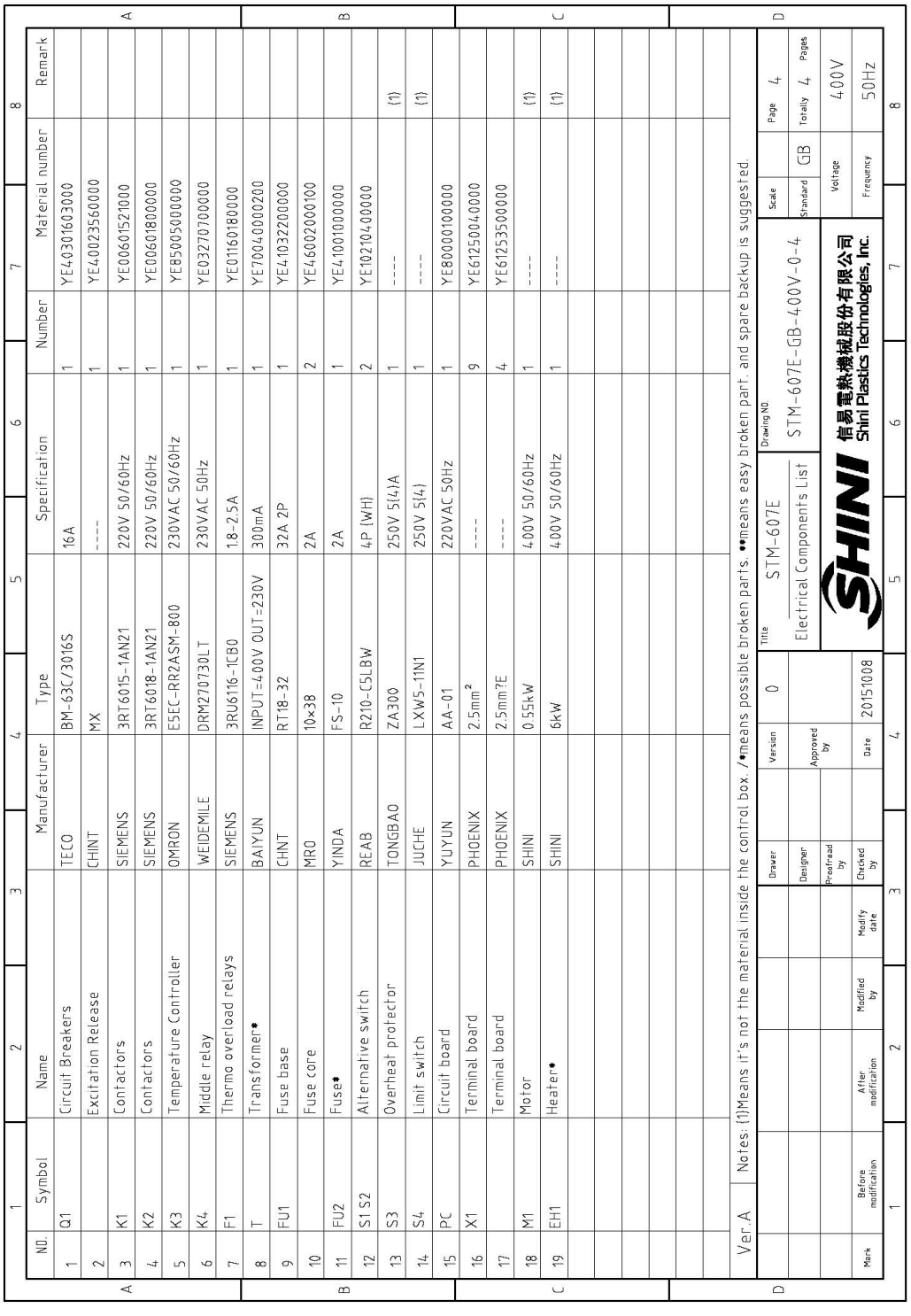
2.3.3 Electrical Components Layout (STM-607/910-EB 400V)



Picture 2-15: Electrical components layout (STM-607/910-EB 400V)

2.3.4 Electrical Components List(STM-607/910-EB 400V)

Table 2-11: Electrical components list (STM-607/910-EB 400V)



NO.	Symbol	Name	Manufacturer	Type	Specification	Number	Material number	Remark
1	Q1	Circuit Breakers	TECO	BM-63C/3016S	16A	1	YE43016603000	
2		Excitation Release	CHINT	MX	----	1	YE40023560000	
3	K1	Contactors	SIEMENS	3RT6015-1AN21	220V 50/60Hz	1	YE00601521000	
4	K2	Contactors	SIEMENS	3RT6018-1AN21	220V 50/60Hz	1	YE00601800000	
5	K3	Temperature Controller	OMRON	E5EC-RR2ASM-800	230VAC 50/60Hz	1	YE85005000000	
6	K4	Middle relay	WEIDEMILE	DRM270730LT	230VAC 50Hz	1	YE03270700000	
7	F1	Thermo overload relays	SIEMENS	3RU6116-1CB0	1.8-2.5A	1	YE01160180000	
8	T	Transformer*	BAIYUN	INPUT-400V OUT-230V	300mA	1	YE78044000200	
9	FU1	Fuse base	CHNT	RT18-32	32A 2P	1	YE41032200000	
10		Fuse core	MRO	10×38	2A	2	YE46002000100	
11	FU2	Fuse*	YINDA	FS-10	2A	1	YE41001000000	
12	S1 S2	Alternative switch	READ	R210-C5LBW	4P (WH)	2	YE10210400000	
13	S3	Overheat protector	TONGBAO	ZA300	250V 5(4)A	1	----	(1)
14	S4	Limit switch	JUCHE	LXW5-11N1	250V 5(4)	1	----	(1)
15	PC	Circuit board	YUYUN	AA-01	220VAC 50Hz	1	YE80000100000	
16	X1	Terminal board	PHOENIX	2.5mm²	----	9	YE61250040000	
17		Terminal board	PHOENIX	2.5mm?E	----	4	YE61253500000	
18	M1	Motor	SHINI	0.55kW	400V 50/60Hz	1	----	(1)
19	EH1	Heater*	SHINI	6kW	400V 50/60Hz	1	----	(1)

Ver.A

Notes: (1)Means it's not the material inside the control box. /*means possible broken parts. ●●means easy broken part. and spare backup is suggested.

Mark | Before modification | After modification | Modified by | Modify date | Drawer | Designer | Proofread by | Checked by | Version 0 | Approved by | Date 20151008

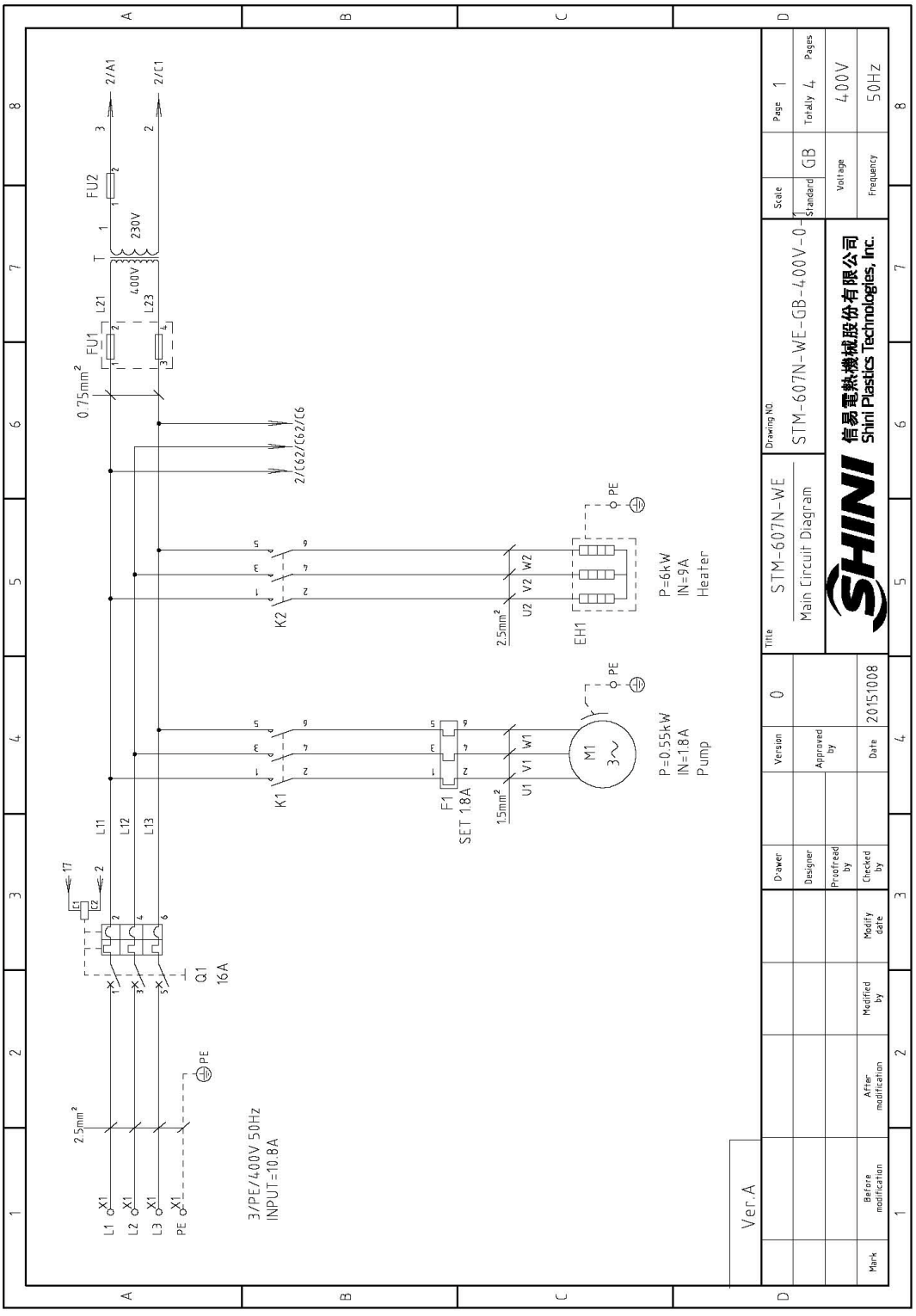
Title: STM-607E Electrical Components List

Drawing NO.: STM-607E-GB-400V-0-4

信易電熱機械股份有限公司 Shini Plastics Technologies, Inc.

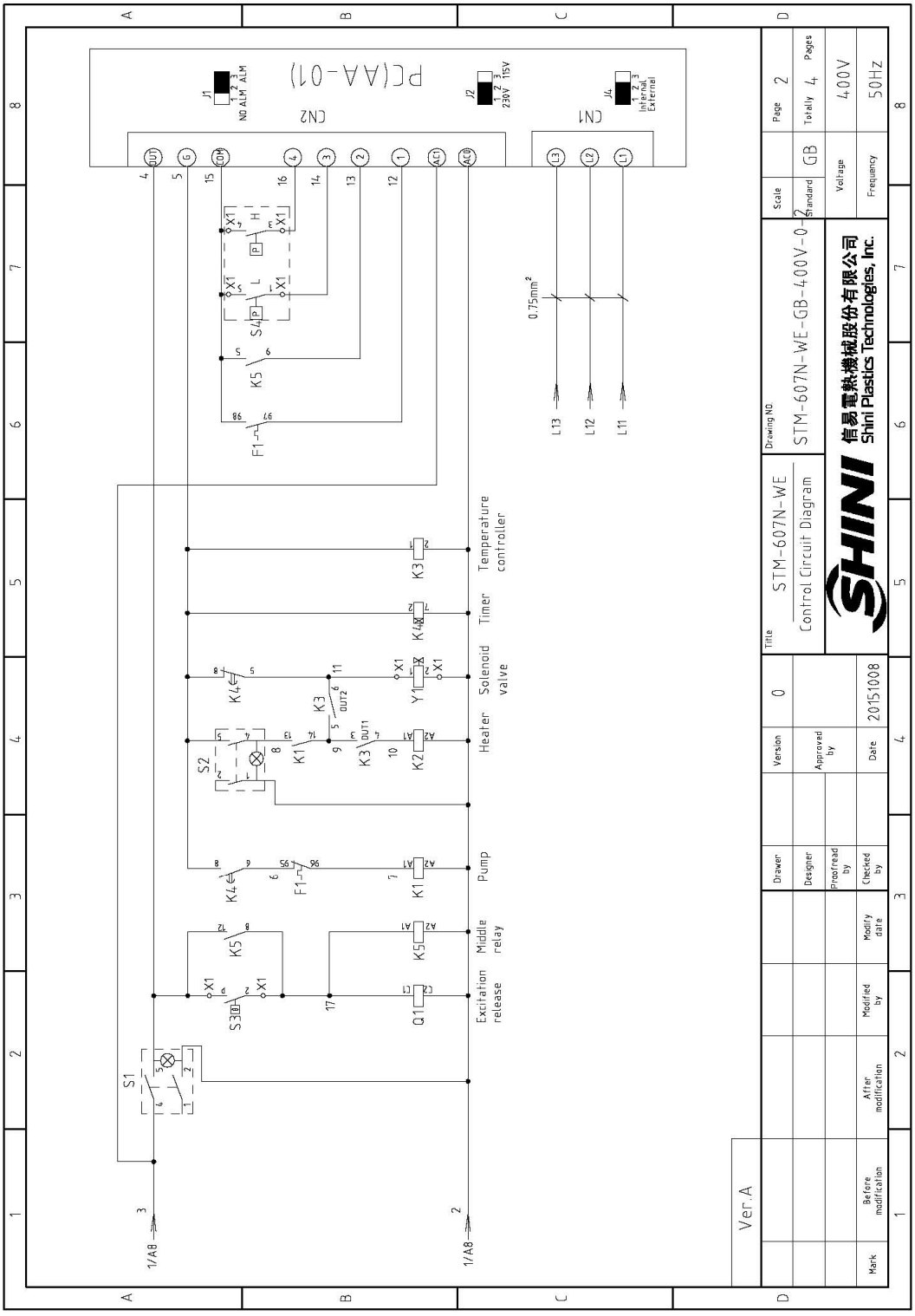
Scale | Standard GB | Page 4 | Totally 4 Pages | Voltage 400V | Frequency 50Hz

2.3.5 Main Circuit Dia. (STM-607W/910W-EB 400V)



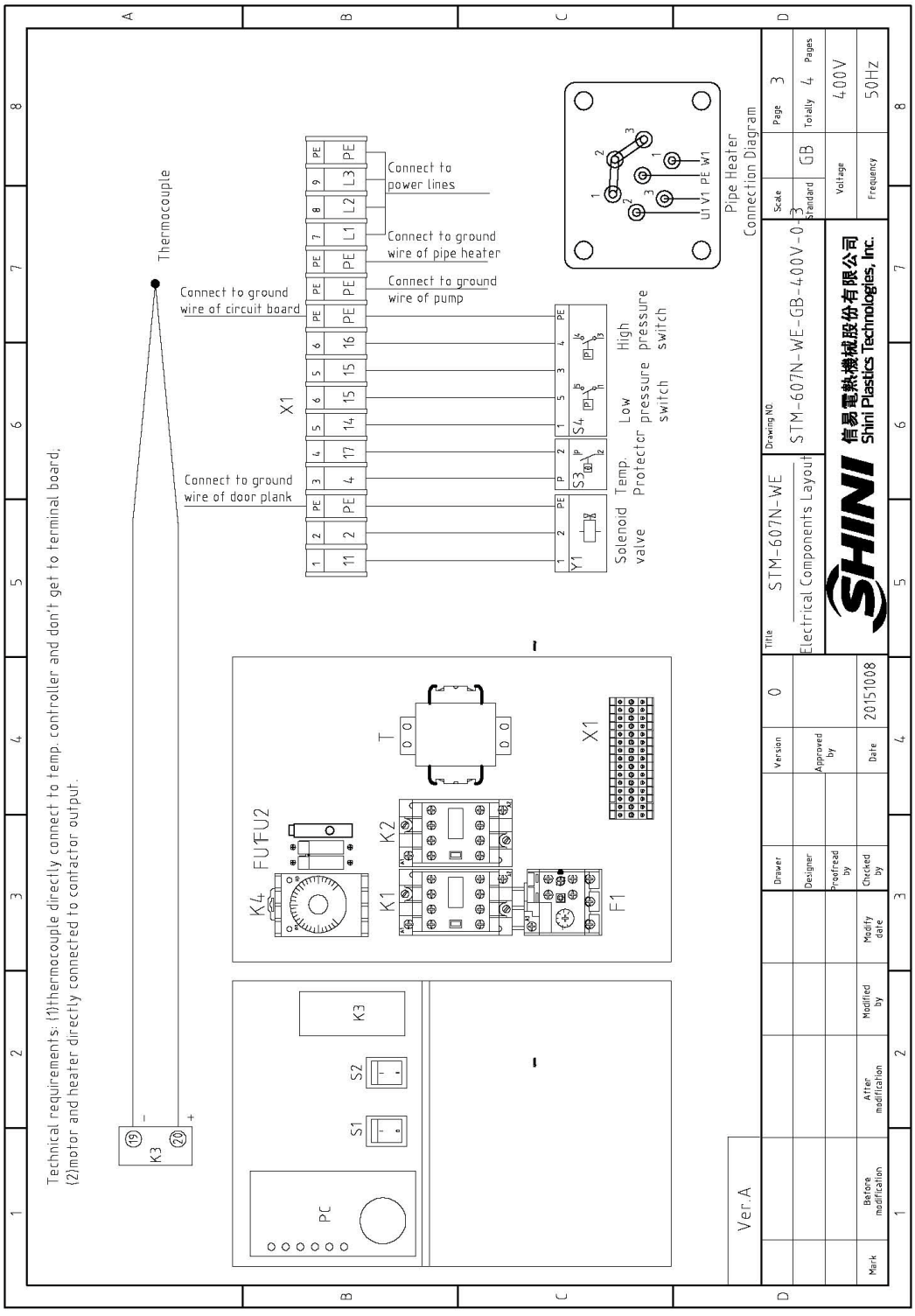
Picture 2-16: Main circuit dia. (STM-607W/910W-EB 400V)

2.3.6 Control Circuit Dia. (STM-607W/910W-EB 400V)



Picture 2-17: Control ciruit dia. (STM-607W/910W-EB 400V)

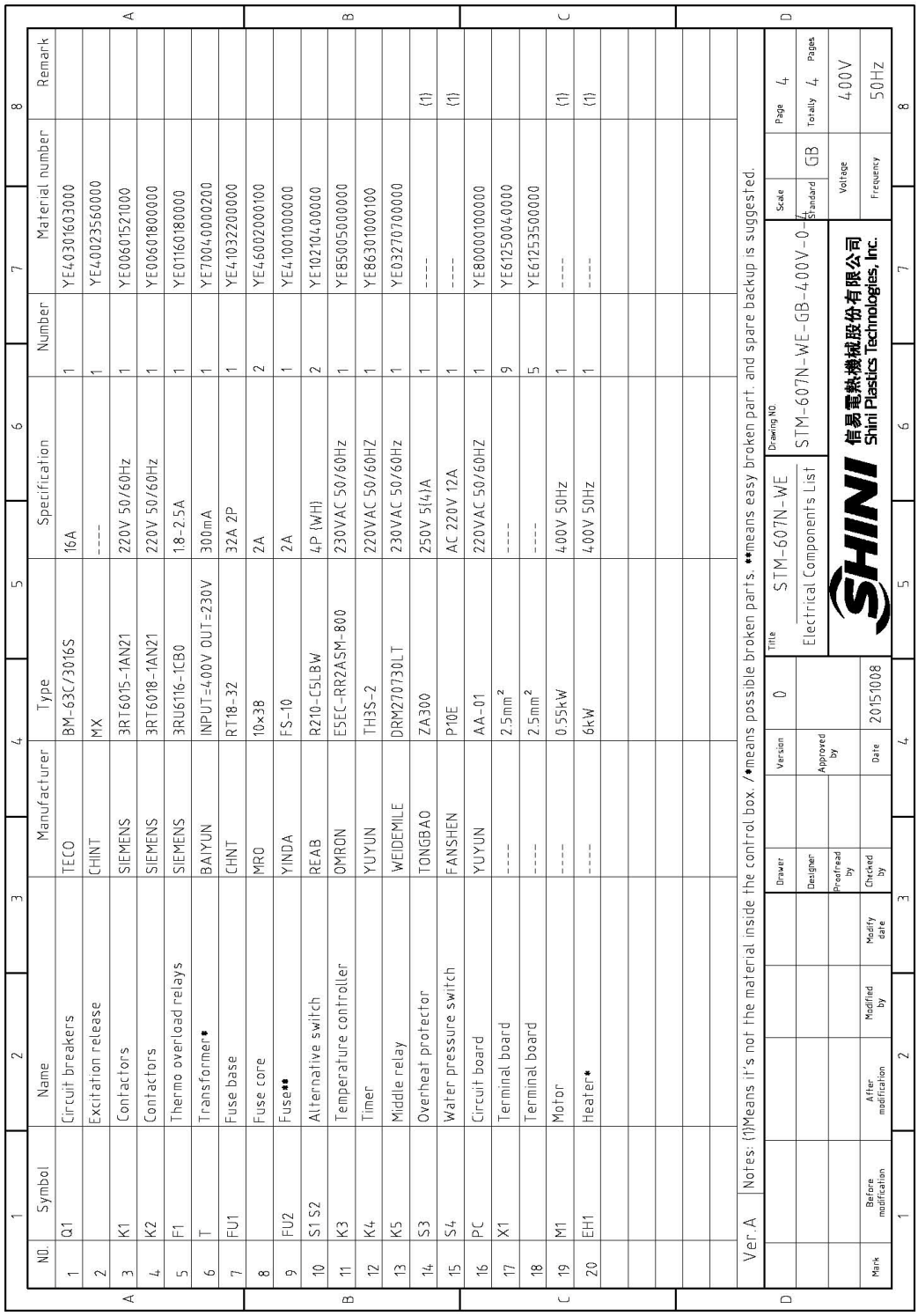
2.3.7 Electrical Components Layout (STM-607W/910W-EB 400V)



Picture 2-18: Electrical components layout(STM-607W/910W-EB 400V)

2.3.8 Electrical Components List (STM-607W/910W-EB 400V)

Table 2-12: Electrical components list (STM-607W/910W-EB 400V)



NO.	Symbol	Name	Manufacturer	Type	Specification	Number	Material number	Remark
1	Q1	Circuit breakers	TECO	BM-63C/3016S	16A	1	YE40301603000	
2		Excitation release	CHINT	MX	----	1	YE40023560000	
3	K1	Contactors	SIEMENS	3RT6015-1AN21	220V 50/60Hz	1	YE00601521000	A
4	K2	Contactors	SIEMENS	3RT6018-1AN21	220V 50/60Hz	1	YE00601800000	
5	F1	Thermo overload relays	SIEMENS	3RU6116-1CB0	1.8-2.5A	1	YE01601800000	
6	T	Transformer*	BAIYUN	INPUT=400V OUT=230V	300mA	1	YE70040000200	
7	FU1	Fuse base	CHNT	RT18-32	32A 2P	1	YE41032200000	
8		Fuse core	MRO	10x38	2A	2	YE46002000100	
9	FU2	Fuse**	YINDA	FS-10	2A	1	YE41001000000	
10	S1 S2	Alternative switch	READ	R210-C5LBW	4P (WH)	2	YE10210400000	
11	K3	Temperature controller	OMRON	E5EC-RR2ASM-800	230VAC 50/60Hz	1	YE85005000000	B
12	K4	Timer	YUYUN	TH3S-2	220VAC 50/60HZ	1	YE86301000100	
13	K5	Middle relay	WEIDEMILE	DRM270730LT	230VAC 50/60Hz	1	YE03270700000	
14	S3	Overheat protector	TONGBAO	ZA300	250V 5(4)A	1	----	(1)
15	S4	Water pressure switch	FANSHEN	P10E	AC 220V 12A	1	----	(1)
16	PC	Circuit board	YUYUN	AA-01	220VAC 50/60HZ	1	YE80000100000	
17	X1	Terminal board	----	2.5mm²	----	9	YE61250040000	
18		Terminal board	----	2.5mm²	----	5	YE61253500000	
19	M1	Motor	----	0.55kW	400V 50Hz	1	----	(1)
20	EH1	Heater*	----	6kW	400V 50Hz	1	----	(1)

Ver.A

Notes: (1)Means it's not the material inside the control box. /*means possible broken parts. **means easy broken part. and spare backup is suggested.

Mark	Before modification	After modification	Modified by	Modify date	Drawer	Designer	Proofread by	Checked by	Approved by	Version	0	Date	20151008

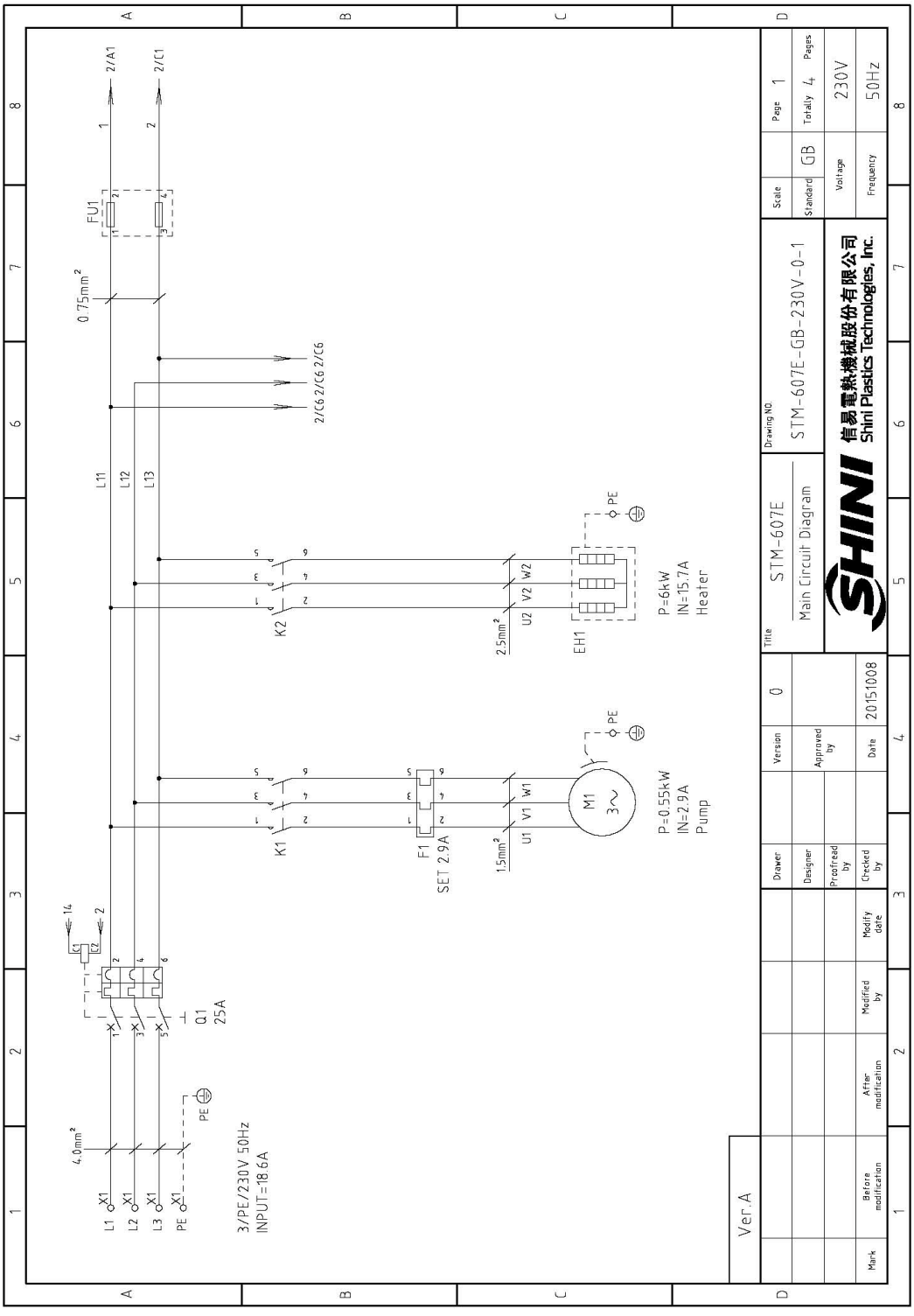
Title: STM-607N-WE
Electrical Components List

SHINI 信易電熱機械股份有限公司 Shini Plastics Technologies, Inc.

Drawing NO. STM-607N-WE-GB-400V-0-A

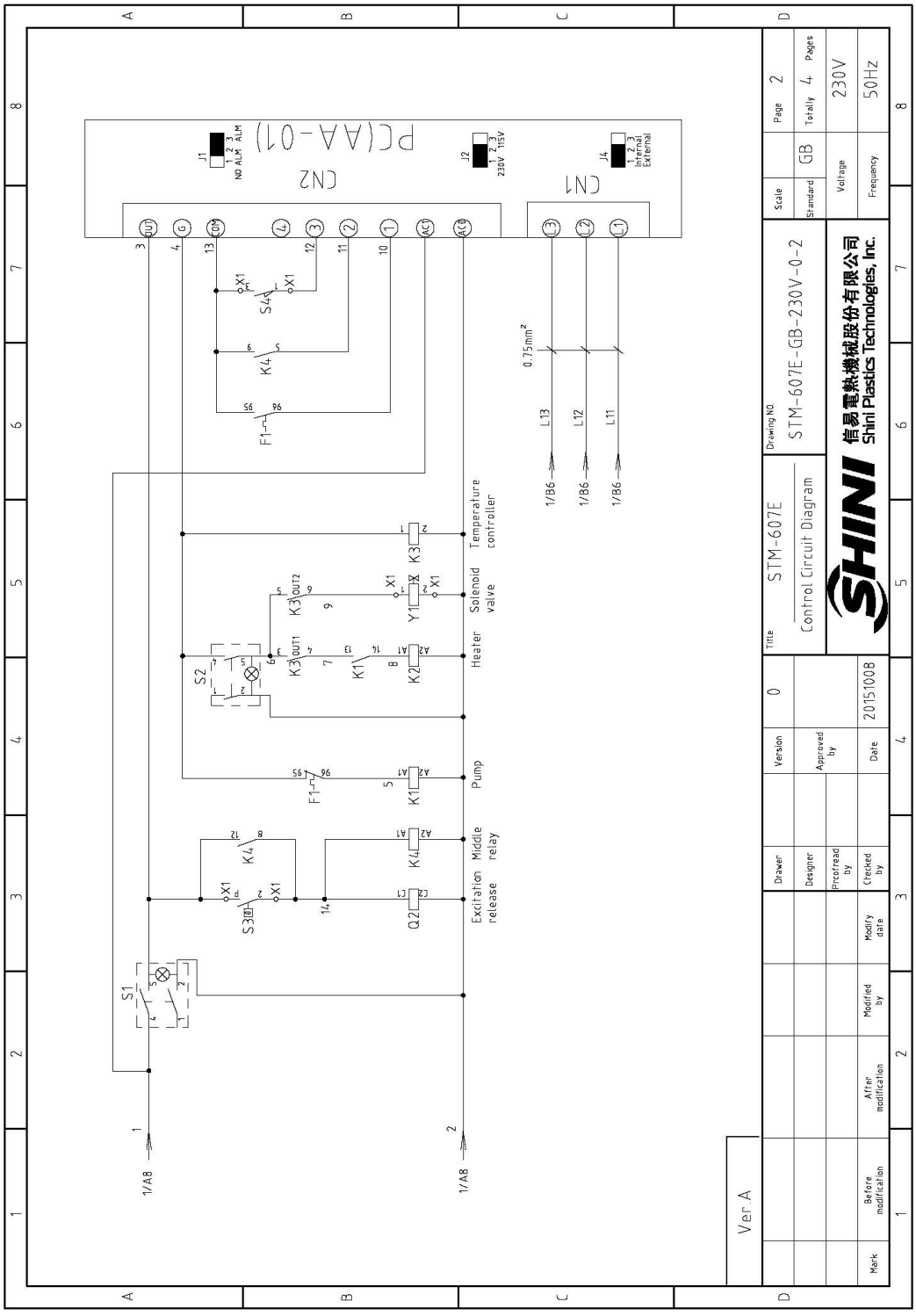
Scale | Standard GB | Page 4 | Totally 4 Pages | Voltage 400V | Frequency 50Hz

2.3.9 Main Circuit Dia. (STM-607/910-EB 230V)



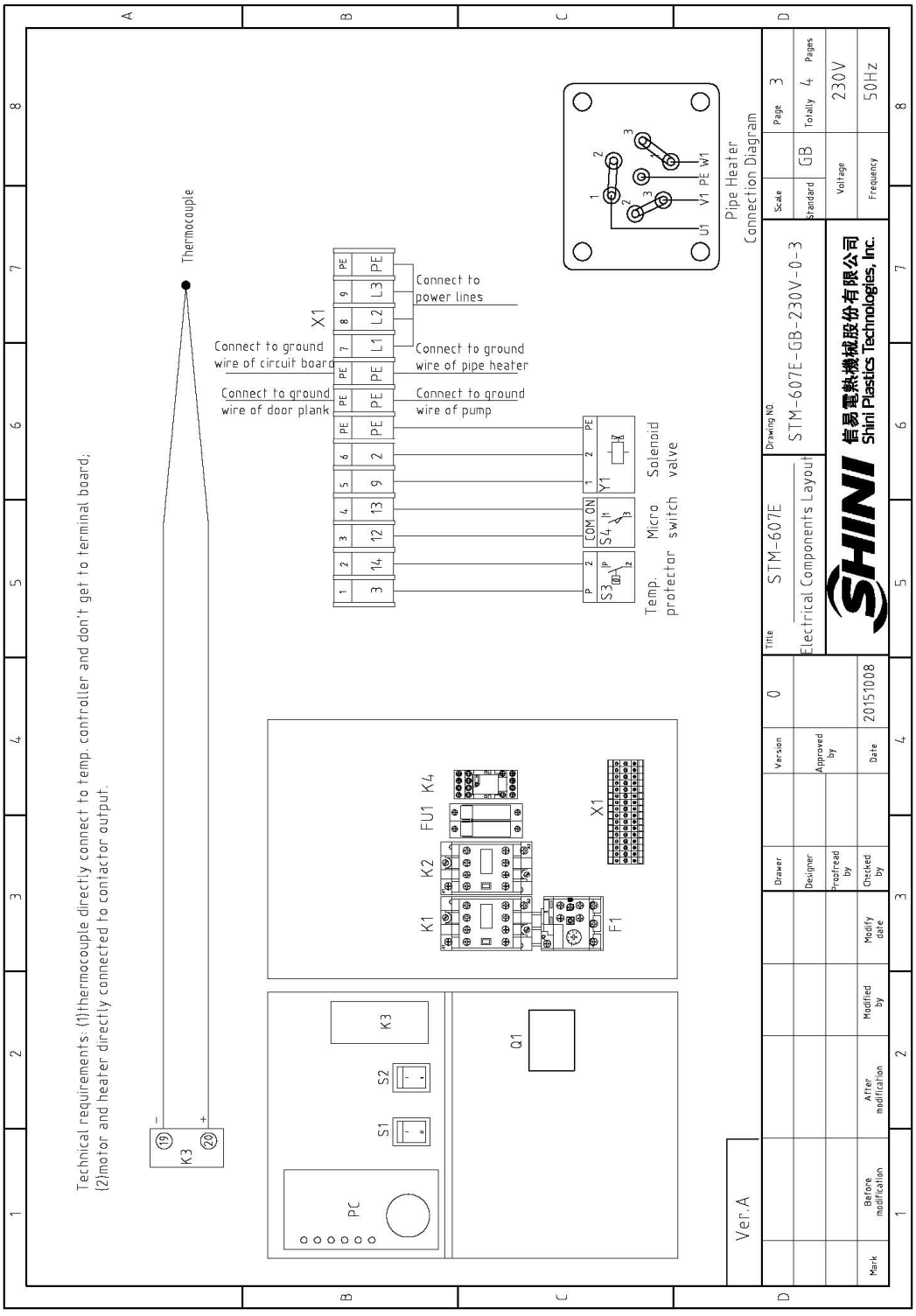
Picture 2-19: Main circuit dia. (STM-607/910-EB 230V)

2.3.10 Control Circuit Dia. (STM-607/910-EB 230V)



Picture 2-20: Control circuit dia. (STM-607/910-EB 230V)

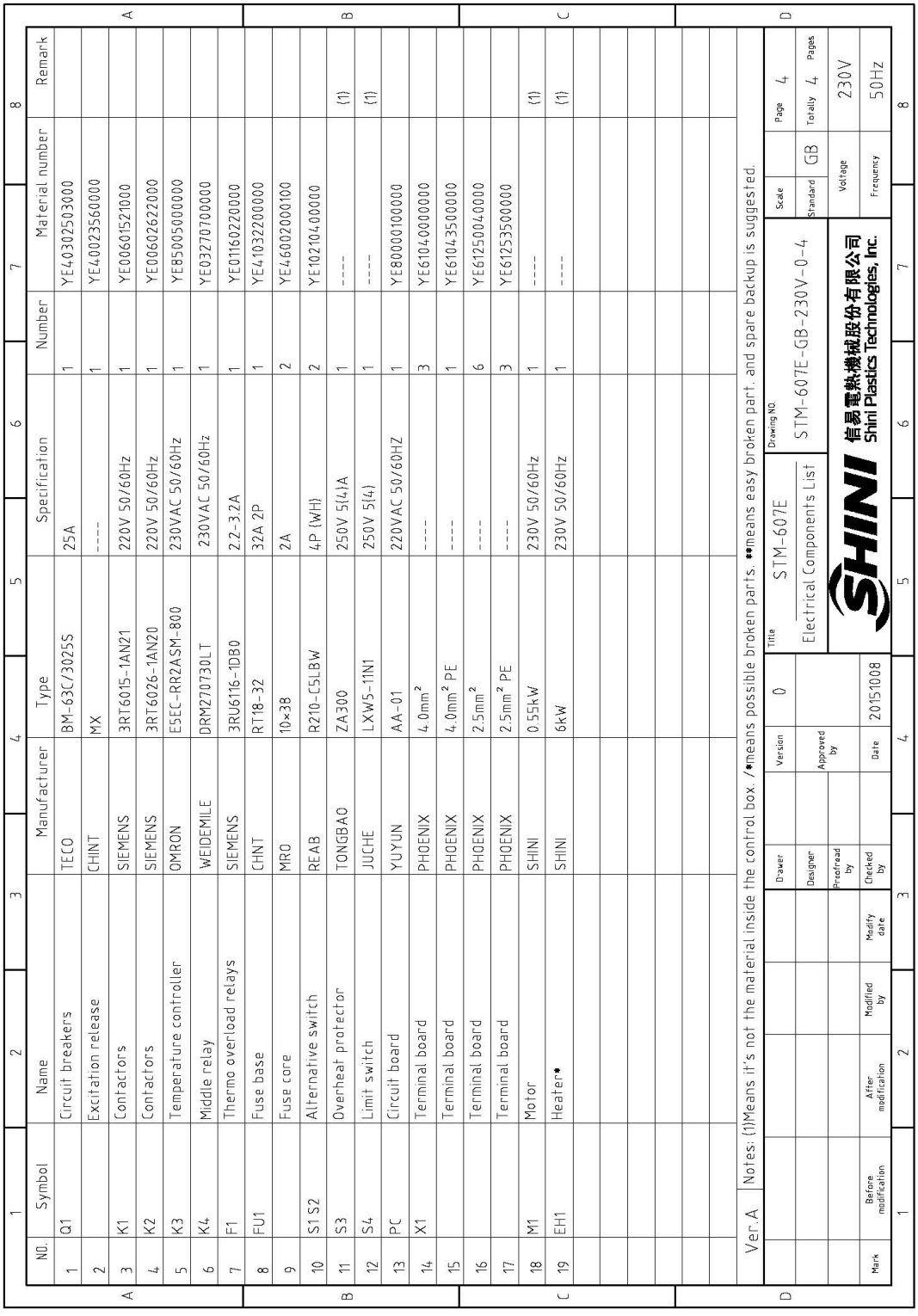
2.3.11 Electrical Components Layout (STM-607/910-EB 230V)



Picture 2-21: Electrical components layout (STM-607/910-EB 230V)

2.3.12 Electrical Components List(STM-607/910-EB 230V)

Table 2-13: Electrical components list (STM-607/910-EB 230V)



NO.	Symbol	Name	Manufacturer	Type	Specification	Number	Material number	Remark
1	Q1	Circuit breakers	TECO	BM-63C/3025S	25A	1	YE40302503000	
2		Excitation release	CHINT	MX	----	1	YE40023560000	
3	K1	Contactors	SIEMENS	3RT6015-1AN21	220V 50/60Hz	1	YE00601521000	
4	K2	Contactors	SIEMENS	3RT6026-1AN20	220V 50/60Hz	1	YE00602622000	
5	K3	Temperature controller	OMRON	E5EC-RR2ASM-800	230VAC 50/60Hz	1	YE85005000000	
6	K4	Middle relay	WEIDEMILE	DRM270730LT	230VAC 50/60Hz	1	YE03270700000	
7	F1	Thermo overload relays	SIEMENS	3RU6116-1DB0	2.2-3.2A	1	YE01160220000	
8	FU1	Fuse base	CHNT	RT18-32	32A 2P	1	YE41032200000	
9		Fuse core	MRO	10×38	2A	2	YE46002000100	
10	S1 S2	Alternative switch	REAB	R210-C5LBW	4P (WH)	2	YE10210400000	
11	S3	Overheat protector	TONGBAO	ZA300	250V 5(4)A	1	----	(1)
12	S4	Limit switch	JUCHE	LXW5-11N1	250V 5(4)	1	----	(1)
13	PC	Circuit board	YUYUN	AA-01	220VAC 50/60HZ	1	YE80000100000	
14	X1	Terminal board	PHOENIX	4.0mm²	----	3	YE61040000000	
15		Terminal board	PHOENIX	4.0mm² PE	----	1	YE61043500000	
16		Terminal board	PHOENIX	2.5mm²	----	6	YE61250040000	
17		Terminal board	PHOENIX	2.5mm² PE	----	3	YE61253500000	
18	M1	Motor	SHINI	0.55kW	230V 50/60Hz	1	----	(1)
19	EH1	Heater*	SHINI	6kW	230V 50/60Hz	1	----	(1)

Ver.A

Notes: (1)Means it's not the material inside the control box. /*means possible broken parts. **means easy broken part, and spare backup is suggested.

Mark | Before modification | After modification | Modified by | Modify date | Drawer | Designer | Proofread by | Checked by | Version 0 | Approved by | Date 20151008

Title: STM-607E Electrical Components List

Drawing NO. STM-607E-GB-230V-0-4

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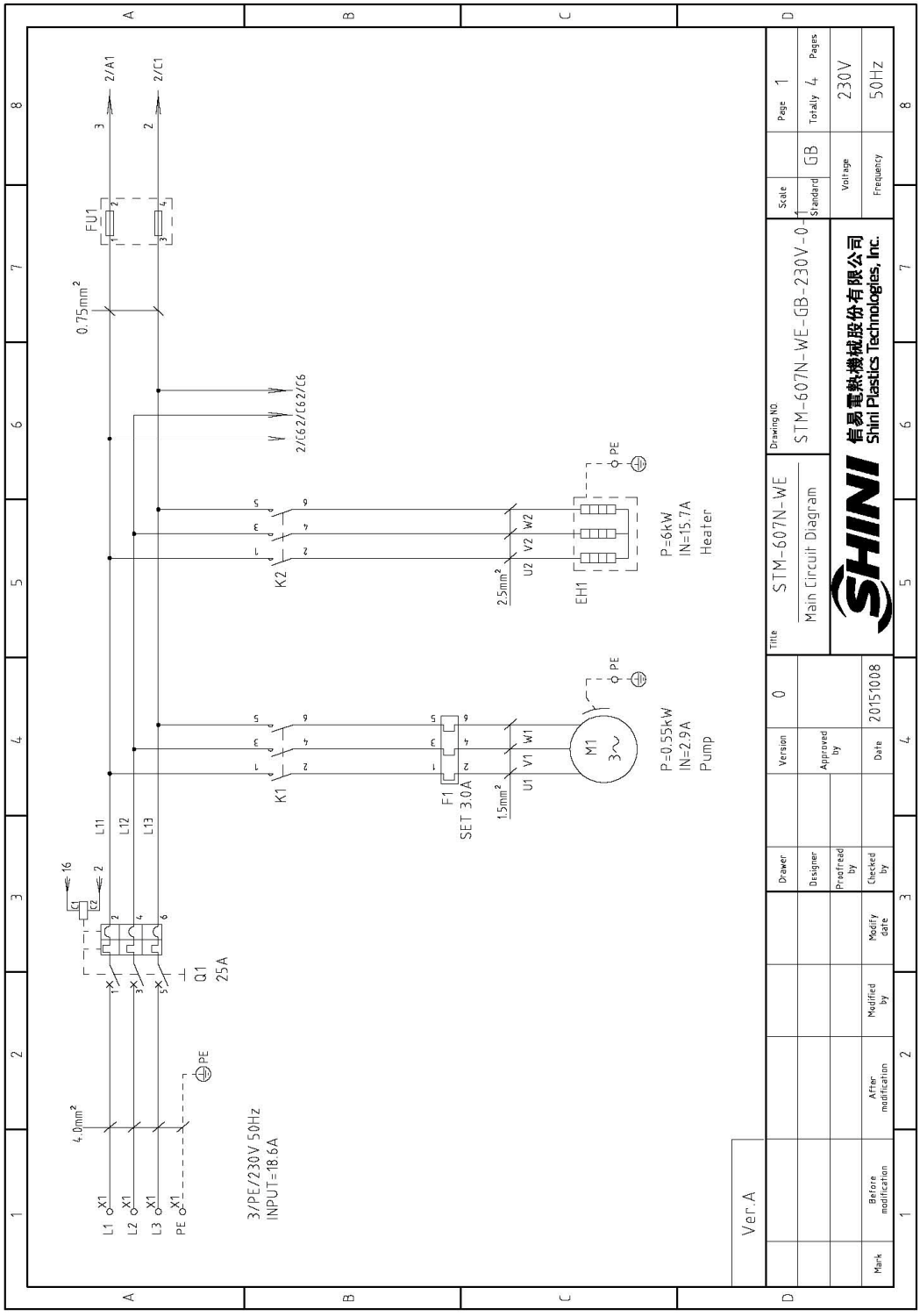
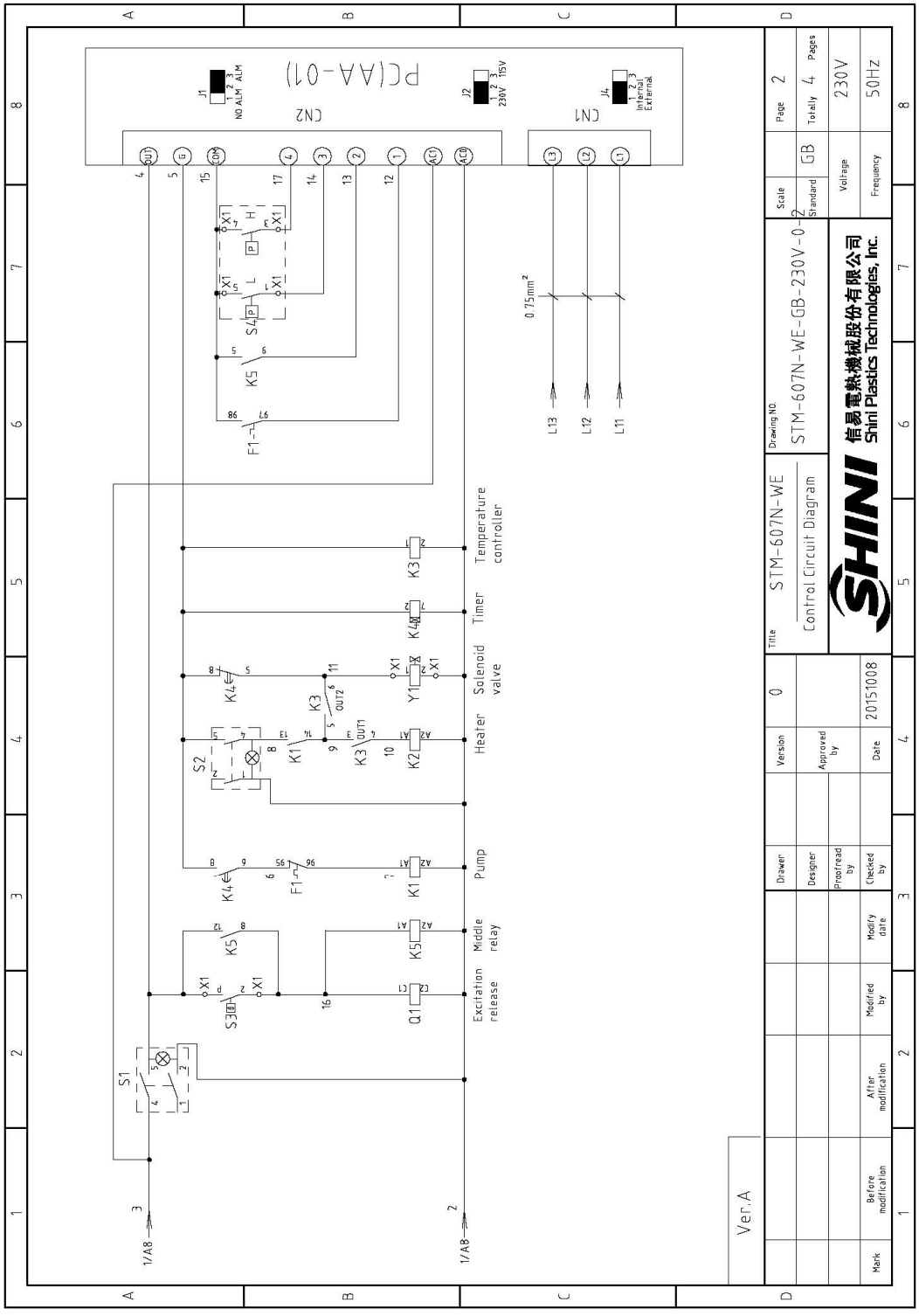
Scale | Standard GB | Page 4 | Totally 4 Pages | Voltage 230V | Frequency 50Hz

2.3.13 Main Circuit Dia. (STM-607W/910W-EB 230V)



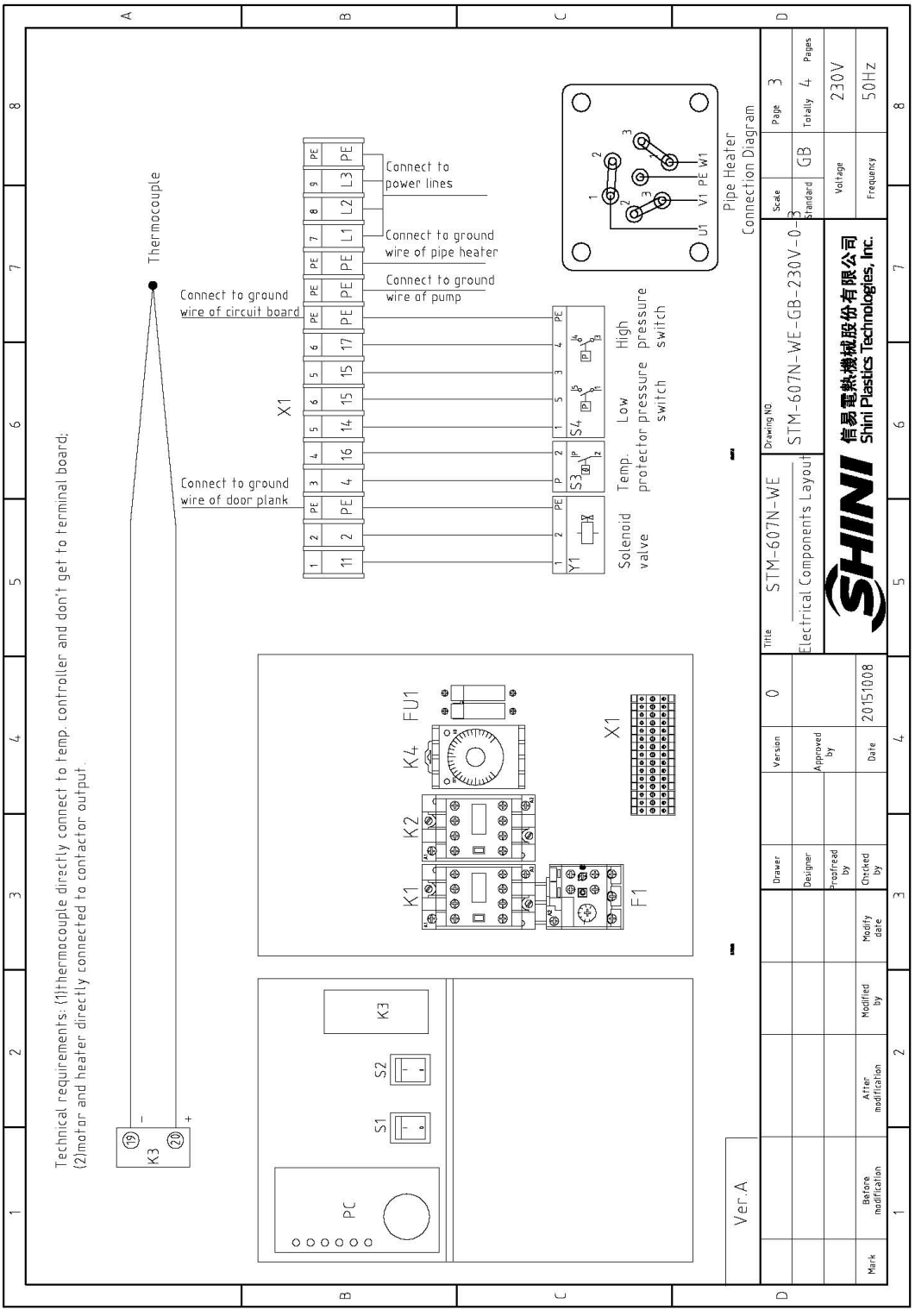
Picture 2-22: Main circuit dia. (STM-607W/910W-EB 230V)

2.3.14 Control Circuit Dia. (STM-607W/910W-EB 230V)



Picture 2-23: Control ciruit dia. (STM-607W/910W-EB 230V)

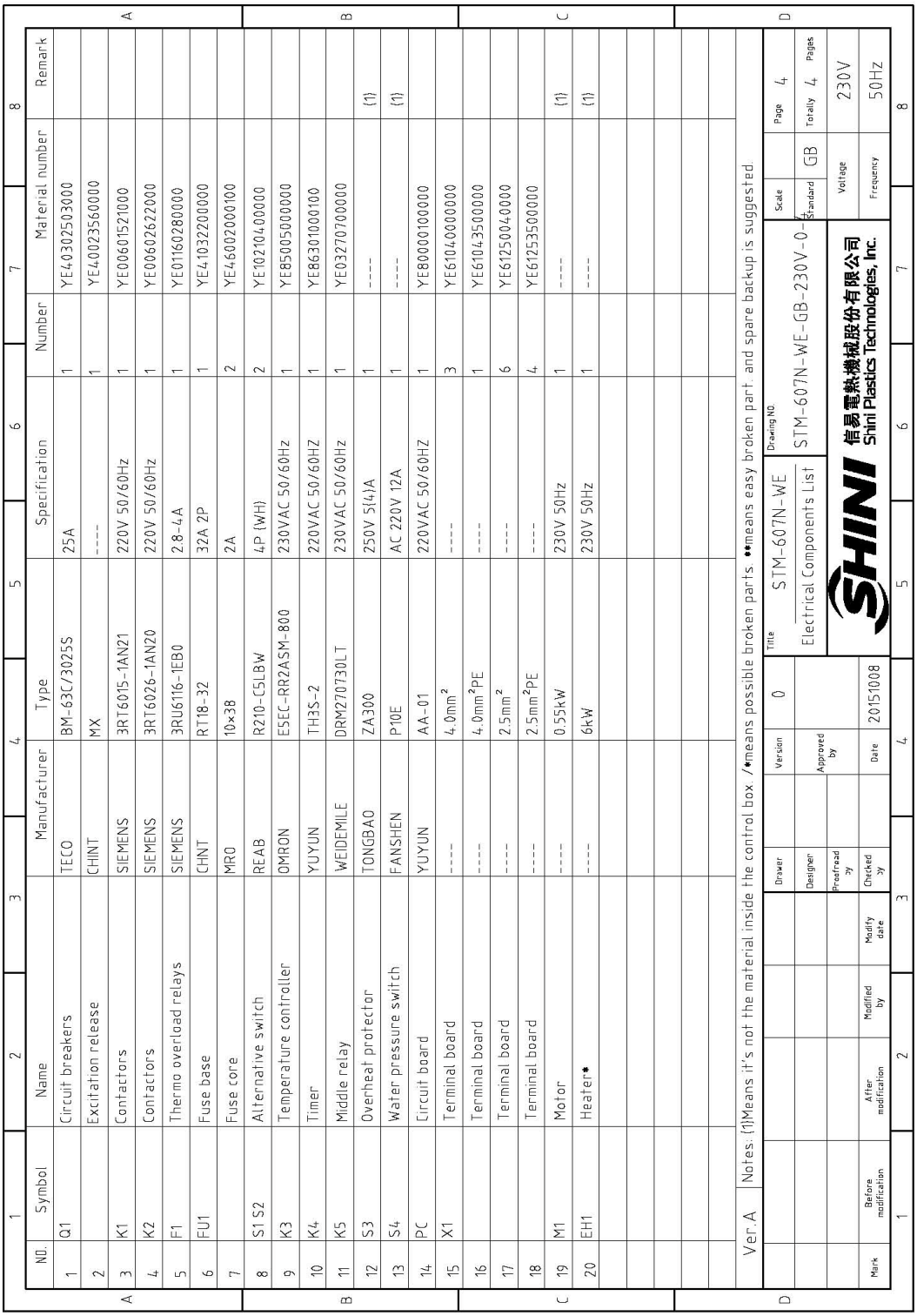
2.3.15 Electrical Components Layout(STM-607W/910W-EB 230V)



Picture 2-24: Electrical components layout(STM-607W/910W-EB 230V)

2.3.16 Electrical Components List (STM-607W/910W-EB 230V)

Table 2-14: Electrical components list (STM-607W/910W-EB 230V)



NO.	Symbol	Name	Manufacturer	Type	Specification	Number	Material number	Remark
1	Q1	Circuit breakers	TECO	BM-63C/3025S	25A	1	YE40302503000	
2		Excitation release	CHINT	MX	----	1	YE40023560000	
3	K1	Contactors	SIEMENS	3RT6015-1AN21	220V 50/60Hz	1	YE00601521000	
4	K2	Contactors	SIEMENS	3RT6026-1AN20	220V 50/60Hz	1	YE00602622000	
5	F1	Thermo overload relays	SIEMENS	3RU6116-1EB0	2.8-4A	1	YE01160280000	
6	FU1	Fuse base	CHNT	RT18-32	32A 2P	1	YE41032200000	
7		Fuse core	MRO	10x38	2A	2	YE46002000100	
8	S1 S2	Alternative switch	READ	RZ10-C5LBW	4P (WH)	2	YE10210400000	
9	K3	Temperature controller	OMRON	E5EC-RR2ASM-800	230VAC 50/60Hz	1	YE85005000000	
10	K4	Timer	YUYUN	TH3S-2	220VAC 50/60HZ	1	YE86301000100	
11	K5	Middle relay	WEIDEMILE	DRM270730LT	230VAC 50/60Hz	1	YE03270700000	
12	S3	Overheat protector	TONGBAO	ZA300	250V 5(4)A	1	----	(1)
13	S4	Water pressure switch	FANSHEN	P10E	AC 220V 12A	1	----	(1)
14	PC	Circuit board	YUYUN	AA-01	220VAC 50/60HZ	1	YE80000100000	
15	X1	Terminal board	----	4.0mm²	----	3	YE61040000000	
16		Terminal board	----	4.0mm²PE	----	1	YE61043500000	
17		Terminal board	----	2.5mm²	----	6	YE61250040000	
18		Terminal board	----	2.5mm²PE	----	4	YE61253500000	
19	M1	Motor	----	0.55kW	230V 50Hz	1	----	(1)
20	EH1	Heater*	----	6kW	230V 50Hz	1	----	(1)

Ver.A

Notes: (1)Means it's not the material inside the control box /*means possible broken parts **means easy broken part and spare backup is suggested

Mark | Before modification | After modification | Modified by | Modify date | Designer | Proofread by | Checked by | Drawer | Version 0 | Approved by | Date 20151008

Title: STM-607N-WE Electrical Components List

SHINI 信易電熱機械股份有限公司 Shini Plastics Technologies, Inc.

Drawing NO. STM-607N-WE-GB-230V-0-4

Scale | Standard GB | Page 4 | Totally 4 Pages | Voltage 230V | Frequency 50Hz

2.4 Optional Accessories

1) Water manifolds, Teflon hose and transfer oil are optional.

2) Heat transfer oil is optional (the specification refers to 6.6)(only for mainland)

3. Installation and Debugging

3.1 Installation Space

During installation of the machine, keep at least 500mm installation space around the machine as shown by the picture. Do not install the machine in a position crowded with other objects. This would cause inconvenience to operation, maintenance and repair.

Do not sit on the machine or place stuff on that.

Keep away flammable and explosive goods.

Picture 3-1: Installation space

3.2 Power Supply

Make sure that power supply is the same as required before installation.

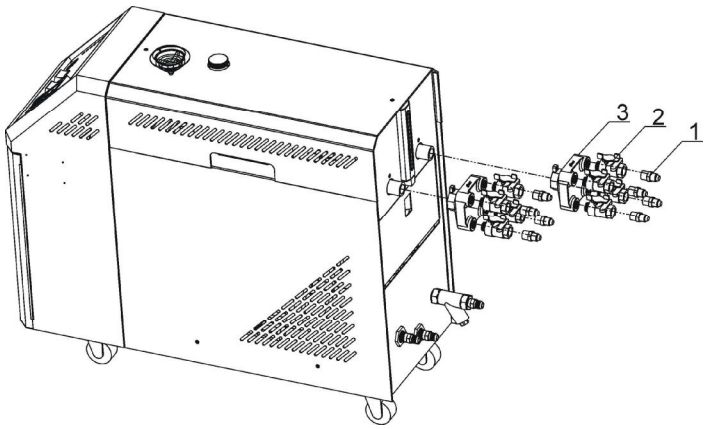
Mould heater are generally set to be used with 3Φ 400V power supply or other specifications according to customers' requirement.

3.3 Operation Procedures

Table 3-1: Main pipe simension

Model	Main Inlet/Outlet Dimension	Water Flow Regulator	Parts No.
STM-607-EB	3/4"PT Female	3/8" 2-in-2-out	BY40382034050
	3/4"PT Female	3/8" 4-in-4-out	BY40384034050
STM-607W-EB	3/4"PT Female	3/8" 2-in-2-out	BY40382034050
	3/4"PT Female	3/8" 4-in-4-out	BY40384034050

3.3.1 Installation Steps for Options Water Manifold (Dewaxing)

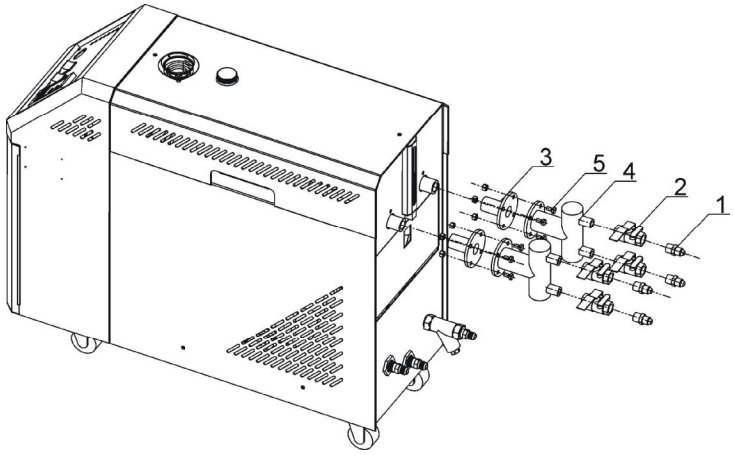


1) Install copper joint to the level valve.
2) Install level valve with copper joint to the dewaxing water manifold.
3) Install water manifold to the machine.
4) Install Teflon to copper joint.

Note!

For the operating temperature not higher than 200℃, Teflon with temperature resistance 200℃ is usable.

3.3.2 Installation Steps for Options Water Manifold (Welding)



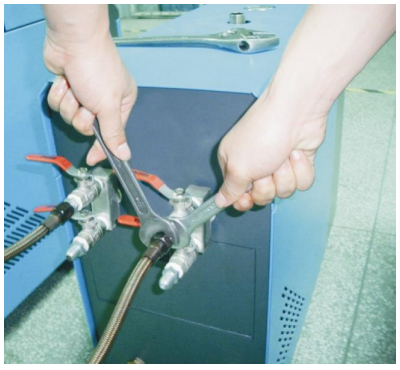
1) Install copper joint to the level valve.
2) Install level valve with copper joint to the welding water manifold.
3) Install water manifold to the machine.
4) Connect water manifold with manifold joint via screws.
5) Install Teflon to copper joint.

Note!

For the operating temperature not higher than 200℃, Teflon with temperature resistance 200℃ is usable.

3.4 Mould and Water Coupling

1) When connect mould coupling with pipes from the mould. Use a spanner to secure one end of the coupling, insert mould connecting pipe and fasten it by another spanner.



Picture 3-2: Mould and water coupling 1

2) Unused mould couplings can be connected with each other by a teflon pipe, as shown in picture.

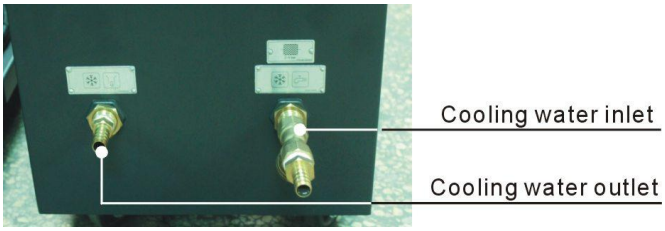
Picture 3-3: Mould and water coupling 2

3) Connect cooling water inlet with water supply and cooling water outlet with a drainage pipe. After that, turn on water supply.

It is suggested that cooling water pressure is not less than 2 bar, external diameter of inlet/outlet pagoda connector is Ø13.

Attention!

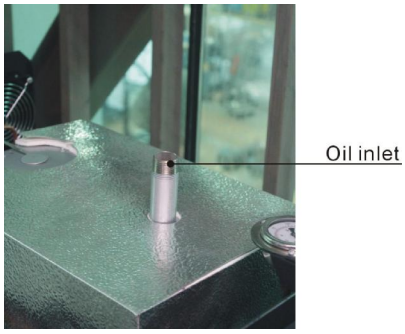
Cooling water inlet and outlet as shown in picture. No reversal!



Picture 3-4: Mould and water coupling 3

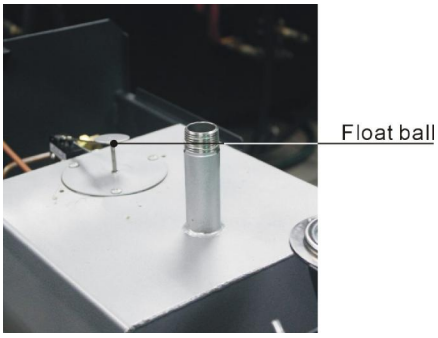
3.4.1 Add Heat Transfer Oil

1) Fill the oil tank



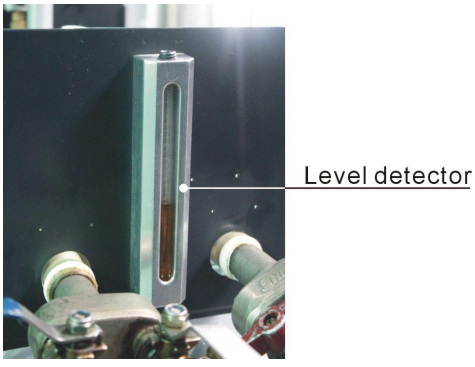
Picture 3-5: Heat transfer oil filling 1

2) When float ball floats up, stop oil filling. At this moment, turn the pump on and off several times to exhaust the air in the pipeline; After the air is exhausted, oil passes through the pipeline, float ball drops down. At this moment, re-fill the oil tank to make the float ball float up. It'd better not to touch the microswitch.



Picture 3-6: Heat transfer oil filling 2

3) Repeat step 2 several times, the oil would full fill in the pipeline. At this time, check level detector at back of the machine, the liquid level should not above half of the indicator.



Picture 3-7: Heat transfer oil filling 3

4. Operation Guide

4.1 Control Panel

Picture 4-1: Control panel

Table 4-1: Control panel

No.	Name	Functions	Remarks
1	Power indicator	Connect the machine with power supply and turn on main switch. This indicator will become green.	Warning! Do not remove any electrical parts or touch any terminals after the power is on.
2	Phase reversal alarm	When phase reversal or phase shortage occurs, it becomes red. The buzzer sounds, and system stop working.	Turn off the machine. Exchange the place of two of the electrical wires of main power supply. Indicator and buzzer would not reset until touble-shooting is settled.
3	Motor overload alarm	When motor current exceeds the limits, the buzzer sounds. Motor overload alarm is red and system stops working.	Check that if motor shaft is blocked or the bearing is broken or setting current of overload relay is too low. After the problems solved, wait for one minute and then press the blue RESET button to reset the overload relay and clear the alarm.
4	Overheat alarm	When oil temperature is higher than EGO (temperature sensor) setting value, this indicator becomes red. The buzzer sounds and system stops working.	EGO setting value should be higher than temperature setting value of temperature controller. Check if there are problems of pipe heater contactor.

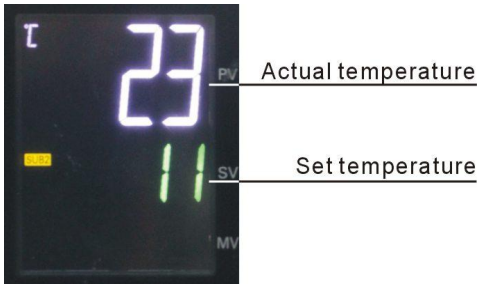
No.	Name	Functions	Remarks
5	Low level alarm	When oil in auxiliary tank is in shortage, the alarm light will become red. The buzzer sounds and system stops working.	Ensure oil supply from the auxiliary tank.
6	Pump switch	Turn on and off the pump.	Note: motor rotating direction should be correct.
7	Heater switch	Turn on and off the heater.	Heater switch is applicable only after pump is turned on.
8	Temp. controller	Temperature setting and control.	-

4.2 Machine Startup

1) Switch On the main power switch.

Pictuer 4-2: Machine startup

2) Switch On the pump. (start the pump 40 secs.after auto-filling)
3) Swicth On the heater.
4) Set mould temperature (If the temperature has been set, omit this step).The temperature controller is able to increase/decrease the set temperature. The max.temperature : STM-EB is 200℃, STM-W-EB is 120℃. STM controllable lowest temperature is related to cooling water temperature.



4.3 Machine Shutdown

1) Swicth Off heater.
2) Wait until oil temperature falls below 50℃, turn off pump switch.
3) Turn off main switch.

 Warning!

When main switch is turned on, be careful of electrical shock.

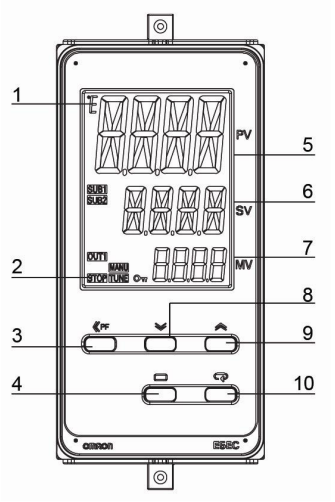
 Note!

Pump motor rotating direction should be the same as indicated.

 Note!

In order to prolong machine lifespan, please do as above steps to turn on and off the machine.

4.4 Temperature Controller



Picture 4-3: Control panel

Table 4-2：Control panel description

No.	Name	Functions
1	Temperature unit	Temperature unit displays together with the value. Unit: ℃ o r℉
2	Action display	SUB1：auxiliary output 1 SUB2：auxiliary output 2 OUT1：control output 1 (In current output, OUT1 lights on unless the output is 0%) OUT2： control output 2 TUNE: flickers in auto-carlibration, lights on auto-turning. STOP: stop the control, it lights on when “start/stop” is in stop. In control stop, all functions are valid except control output. CMW: communication is written in permit/forbid, it lights on when in permit, lights off when in forbid. Protection: Lights on when protection is set to ON (when Up, Down key is invalid). MAUN: manual output, it lights on when auto/manual is set to manual mode.
3	Shift (PF) key	It is the function key. Press PF key to shift digit position to modify parameter value. When changing last digit value, press PF key will confirm input parameter value.
4	Menu key	Press the key to select setting menu
5	No.1 display	Display actual temp. or value type (about 1 sec. to light on after start)
6	No.2 display	Set value, set read value or modify set value
7	No.3 display	(Except E5EC-PR: no display when setting) MV, usually in SP
8	Down key	Press the key, No.2 display value would decrease or modify temp.control parameter
9	Up key	Press the key, No.2 display value would increase or modify temp.control parameter
10	Mode key	Press the key to select temp.control parameter on each menu.

4.4.1 Setting Confirmation

1) Press  key at the last parameter, it returns to display the first parameter on current menu.
2) Press  key to modify or set the parameter; after setting, press  key for confirmation or not modify it over 2 secs.
3) When selecting another menu, confirm the parameter and settings on the displayer.
4) When power off, firstly confirm the setting or parameter (by press ). Sometimes  and  key can not modify or set the parameter.

 Attention!

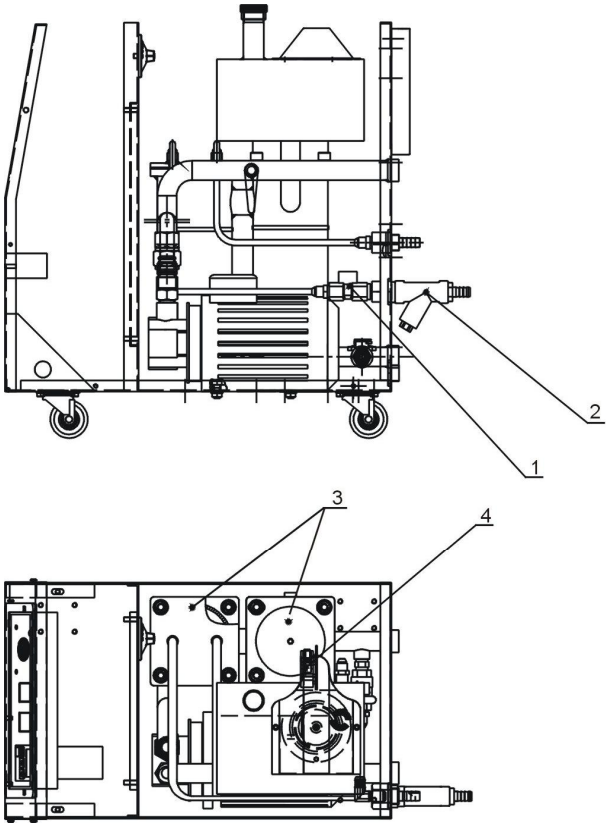
Before delivery, temperature controller parameter has already been set. Don’t modify the parameter unless there is the special use.

5. Trouble-shooting

Faults	Resons	Solutions
Main power indicator does not become bright after circuit breaker switch is turned on.	Did not connect through power supply. Main switch broken. Power supply wires problems. Control circuit fuse melt. Transformer broken.	Connect through power supply. Replace main switch. Check electrical wires. Fix the fuse. Replace the transformer.
Both power and phase reverse indicator are bright after breaker switch is turned on. The buzzer sounds to raise alarm.	Power supply low voltage. Phase shortage. Phase reversal. PCB problems.	Check power supply. Check power supply. Exchange two of the wires of power supply. Replace the PCB.
Pump overload relaly is bright. The buzzer sounds and system stops working.	Abnormal fluctuations of power supply. Pump blocked. Pump motor problems. Thermalrelay setting current value error.	Check power supply. Check the pump. Set the setting current of thermal relay to equal to 1.1 times of pump current. Please refer to “Main components” for details of thermalrelaly. Reset relay: Wait for one minute, then press the blue button to reset.
Overheat indicator is bright. The buzzer sounds and system stops working.	EGO temperature setting mistakes. EGO poor temperature detecting. Heater main contactor are sticky.	Correctly set EGO temperature. (EGO temperature setting value= temperature setting value+10℃) Replace EGO. Replace the contactor.
Low level indicator is bright. The buzzer sounds and system stops working.	Low pressure of of water supply. Pressure switch problems.	Increase the pressure of water supply. Replace pressure switch.
Main switch indicator won't become bright after turning on main switch. Pump can not start when turning on pump switch.	PCB output relay problems. Pump switch problems. Time relay (K5) problems. Electrical circuit problems.	Check or replace the PCB. Replace the switch. Replace time relay. (K5) Check electrical circuit.
No display of temperature controller after turning on pump and heater switch.	Heater switch problems. Temperature controller problems. Electrical circuit problems.	Replace the switch. Replace temperature controller. Check electrical circuit.

Faults	Resons	Solutions
Too big deviation between setting temperature and actual temperature.	Too short time after machine startup. Temperature parameter setting error. Cooling water valve problems.	Wait for a while. Check temperature parameters. Please refer to the standard manual of setting parameters. Replace solenoid valve.
Temperature can't rise up.	Heater contactor problems. Heater problems. Thermocouple problems. Temperature controller operation mode set to STOP. Temperature output problems.	Replace the contactor. Replace pipe heater. Replace thermocouple. Set temperature controller to working mode. Replace or repair temperature parameters.
Circuit breaker tripping off at turning on main switch.	Short circuit of main circuit. Transformer short circuit or connected with earth wire. Problems of circuit breaker.	Check electrical wire. Replace circuit breaker. Repalce transformer
Circuit breaker tripping off at turning on pump switch.	Pump motor coil short circuit. Problems of circuit breaker.	Check pump motor. Replace circuit breaker.
Circuit breaker tripping off at turning on controller OUT1 output.	Pipe heater short circuit or contact with heating tank. Problems of circuit breaker.	Replace pipe heater. Replace circuit breaker.

6. Maintenance and Repair



1.Clean solenoid valve
Period: trimonthly
2.Clean Y-type filter
Period: monthly
3.Clean process heater/cooler
Period: half yearly
4.Check level switch
Period: trimonthly

Pay attention to the following rules during maintenance:

1) Need at least two persons present when checking the machine. Let the machine cool down, turn off power supply, drain out the oil and water. Make sure enough place before checking and maintenance.
2) The machine works in high temperature. Stop the machine, wait it to cool down. Put on protective gloves before servicing or maintenance.
3) In order to prolong the life of the machine and to prevent accidents, check the machine at a fixed frequency.
4) During operation, the oil is heated up to a high temperature, wait it to fall below 50℃ to perform repairing or maintenance. (Please note that it is dangerous to check or tear down the machine during operation.)

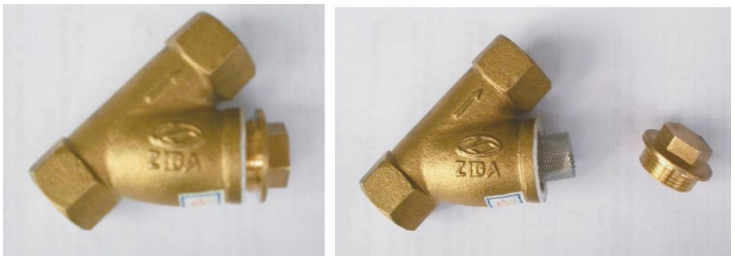
6.1 Open the Covers

Open the top cover (as picture, firstly loosen the side-plate screws, slightly lift up the cover, then take it out).

Picture 6-1: Open the machine

6.2 Y Type Strainer

1) Clean soft water should be used as cooling water. Filter screen is used in the strainer to stop impurities and pollutants entering into water pipe.
2) Impurities or pollutants may cause errors and bad temperature control. Clean filter screen of the strainer periodically.
3) Cleaning steps: turn off power and cooling water supply. Open Y type water strainer cover at the bottom in below picture. Take out the filter screen, then assemble it back as reverse order after cleaning.

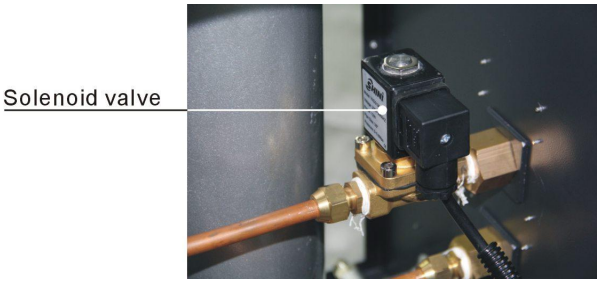


Picture 6-2: Y type strainer

6.3 Solenoid Valve

Replace solenoid valve:

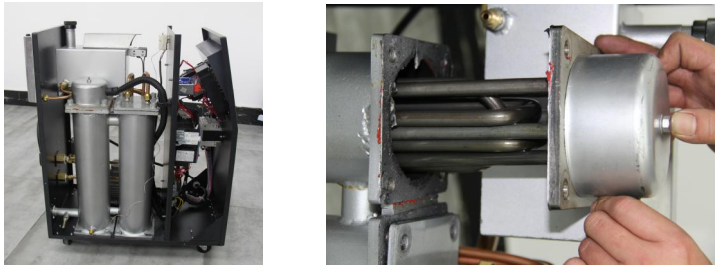
1) Open the cover of machine (as 6.1 Chapter).
2) Dismantle the solenoid valve or replace it.
3) Assemble it back as reverse order.



Picture 6-3: Solenoid valve

6.4 Pipe Heater

1) Take out pipe heater cover (as picture, loosen the screw and wire clamp; take out the cover and pipe heater.



Picture 6-4: Pipe heater

2) Assemble it back as reverse order.

6.5 Cooling Pipe

1) Take out cooling pipe (as picture, loosen the screw and take out cooling pipe).

Picture 6-5: Cooling pipe

2) Assemble it back as reverse oder.

6.6 Heat Transfer Oil

Because the heat transfer oil may become carbonized agglutination after a long time heating, which will shorten the lifespan of the pump, so it is suggested to replace every three monthes.

Service time of high temperature oil:

≤120℃ Period: replace annually

≥120℃~≤160℃ Period: replace half yearly

＞160℃ Period: replace trimonthly

Use kerosene up to 200 degrees model:

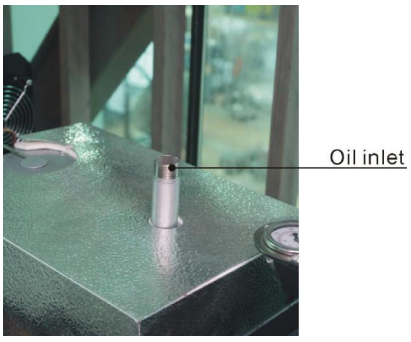
Model: Nanhai MCH32. For using other brands, fire point should be higher than 240 degrees.

Use kerosene up to 300 degrees model:

Model: Goddess HT-3 heat trsnfer oil. For useing other brands, fire point should be higher than 340 degrees.

6.6.1 Heat Tranfer Oil Replacement

1) Firstly, cut off the power, make sure oil temperature has dropped already (If oil temperature is too high, when open the ball valve of oil tank, high temperature oil would splash and cause human injury due to high pressure.
2) Open two oil outlets at machine bottom (one is at heater bottom, another is at cooler bottom) to exhaust oil medium.
3) Cover two oil outlets, then fill new oil medium in the oil tank. The filling method refers to 3.3.4.



Picture 6-6: Oil Inlet

4) Fasten oil inlet cover after the filling of oil.

6.7 Maintenance Schedule

6.7.1 About the Machine

Model _____ SN _____ Manufacture date _____

Voltage_____Φ_____V Frequency _____ Hz Power _____ kW

6.7.2 Installation & Inspection

☐Check the installation space is enough as required.

☐Check the pipes are correctly connected.

Electrical installation

☐Voltage: _____ V _____ Hz

☐Fuse melting current: 1 Phase _____A 3 Phase _____A

☐Check phase sequence of power supply.

6.7.3 Daily Checking

☐Check machine startup function.

☐Check all the electrical wires.

6.7.4 Weekly Checking

☐Check loose eletrical connections.

☐Check and clean Y type filter [1].

☐Check solenoid valve.

☐Check motor overload and phase reversal alarm function.

☐Check whether pipeline joints are under looseness.

☐Check the sensitivity of EGO.

6.7.5 Trimonthly Checking

☐Check level switch.

☐Check the contactor [2].

☐Replace the hot kerosene with a using temperature above 160 degree [3].

6.7.6 Half-yearly Checking

☐Check damaged pipes.

☐Clean process heater/cooler.

☐Check indicator and buzzer.

☐Replace the hot kerosene with a using temperature above 120~160 degree [4].

6.7.7 Yearly Checking

☐Replace the hot kerosene with a using temperature above 120 degree [5].

6.7.8 3 year Checking

☐PC board renewal.
☐No fuse breaker renewal.

Note: 1. Y-type filter has the function of filling water cooling protection effect, be sure the waterway are clear to avoid cooling failure.
2. Manufacturer laboratory data for AC contactor is two million times in life. we suggest service life for one million four hundred thousand times, if work eight hours per day, recommended replacing frequency is 1.5 years, if work day and night, replacement is suggested to be done every six months.
3. Hot kerosene coke will influence the detection accuracy of internal temperature probe and the efficiency of heat elements, three months replacing frequency is suggested.
4. Hot kerosene coke will influence the detection accuracy of internal temperature probe and the efficiency of heat elements, six months replacing frequency is suggested.
5. Hot kerosene coke will influence the detection accuracy of internal temperature probe and the efficiency of heat elements, suggested replacing frequency is one year.