



TM-1000/1500

Vacuum Tumbling Machine

Operation Manual

Version 6.9.1

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1. INSTALLATION

Please check the electric power listed on the vacuum pump and install the vacuum pump correctly,
ground line must on the floor.

2. MAINTENANCE

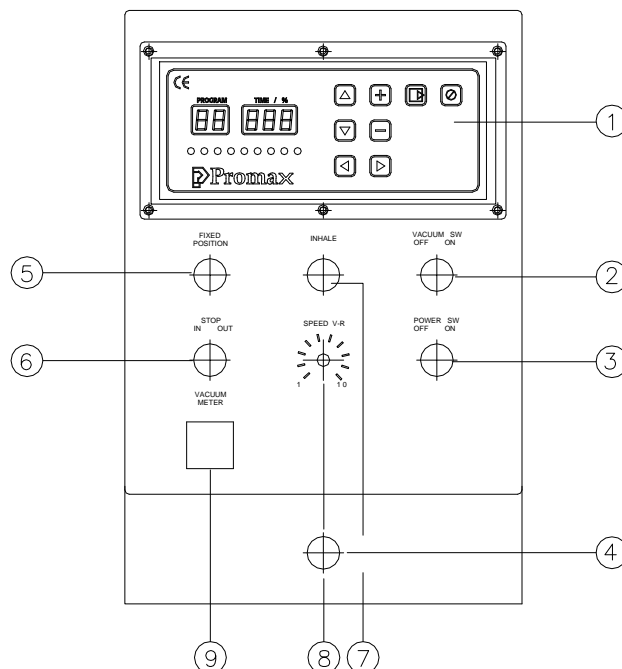
- A. To ensure vacuum pump works smoothly suggest change the vacuum oil every 500 working hours or every a half year.
- B. Check water filter bottle everyday, as soon as the water over a half of the bottle please cleans it.

3. FUNCTIONS AND OPERATIONS

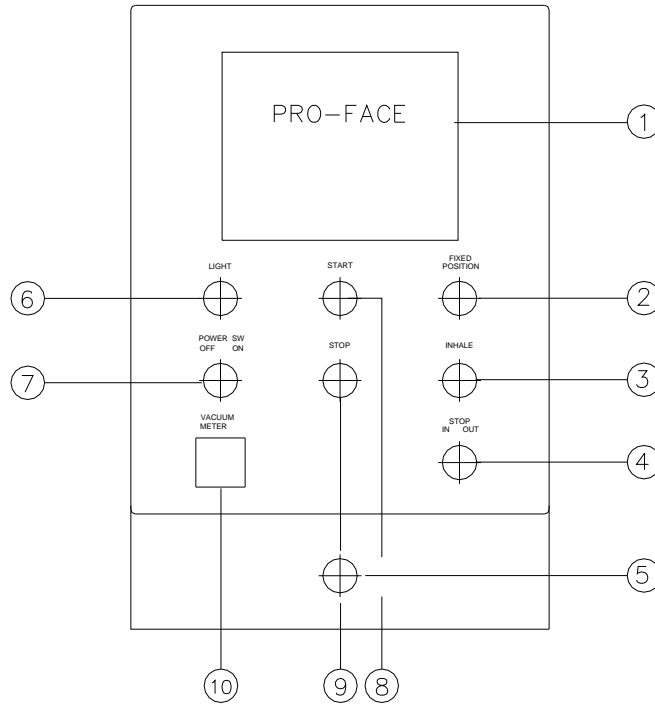
3.1 (For PV-03)

- 1 LED control panel
- 2 Vacuum switch
- 3 Power switch
- 4 Emergency stop
- 5 Fixed position
- 6 In/Stop/Out switch
- 7 Inhale
- 8 Speed V-R
- 9 Vacuum meter

Cleaning. The tumbler inside must be cleaned everyday after working hours.



3.2 (For PRO-FACE AST3301-B1-D24)



- 1 Control panel : For setup your program
- 2 Fixed position : Press this button the barrel would stop in fixed position, let would more easily for open the cover
- 3 Inhale : When you need to add the seasoning for your material, please press this button. The machine would stop fixed position, then connect the inhale pipe and put it in to your seasoning and open the valve (on the side cover) It would be started to inhale your seasoning. When it finish, please close the valve and take off the inhale pipe, then press inhale button again. The machine would start again.
- 4 In/Stop/Out switch: this is switch button for three choices
 - (1) When you turn the button to the middle that is stop position the barrel Would not be working
 - (2) When you turn the button to the left that is inlet position the barrel would be rotating for obverse. While you put the material into the barrel and this motion would let material go to deep the barrel
 - (3) When you turn the button to the right that is outlet position the barrel Would be rotating for reverse and this motion could be let material out Form barrel
- 5 Emergency stop: when you press this button machine would be stop immediately
- 6 Light: When the machine is working this light would be on. When the program finishes, the light would be twinkled. When the machine breakdown or unusual, the light would be twinkled quickly and screen would be display break down. When the problem have been solve, please press pause button for relieve and machine can start to work.

- 7 Power switch: this switch button can control the electrical supply for the machine. If the light is on, that means the machine would be ready to work. If the light is not on, please check the electrical supply.
- 8 Start: When you press this button, the machine would be started to work for your program.
- 9 Stop: When you press this button, the machine would be stopped to work.
- 10 Vacuum meter: display inside the barrels vacuum data.

4. OPERATION

PV-03 CONTROL UNIT MANUAL



1. When power on, STB LED light will be on. Wait for 2 seconds; you will be in the operation display.
2. Press "SHIFT" button, you can choose "Mix Time", "Rest Time", and "Cycle", but you just can read "Total Time", no data input necessary. Because "Total Time=Cycle x (Mix Time + Rest Time)."
3. "Mix Time" and "Rest Time" can input with Hour and Min. If the numbers on the display without "Dot" (On the lower right hand side of display), this means you input the "MINUTES". If you want to put HOUR, please press the "HR/MIN" button to switch between HOUR and MINUTES display. When the numbers on the display with "Dot", this means you are inputting the HOUR. °

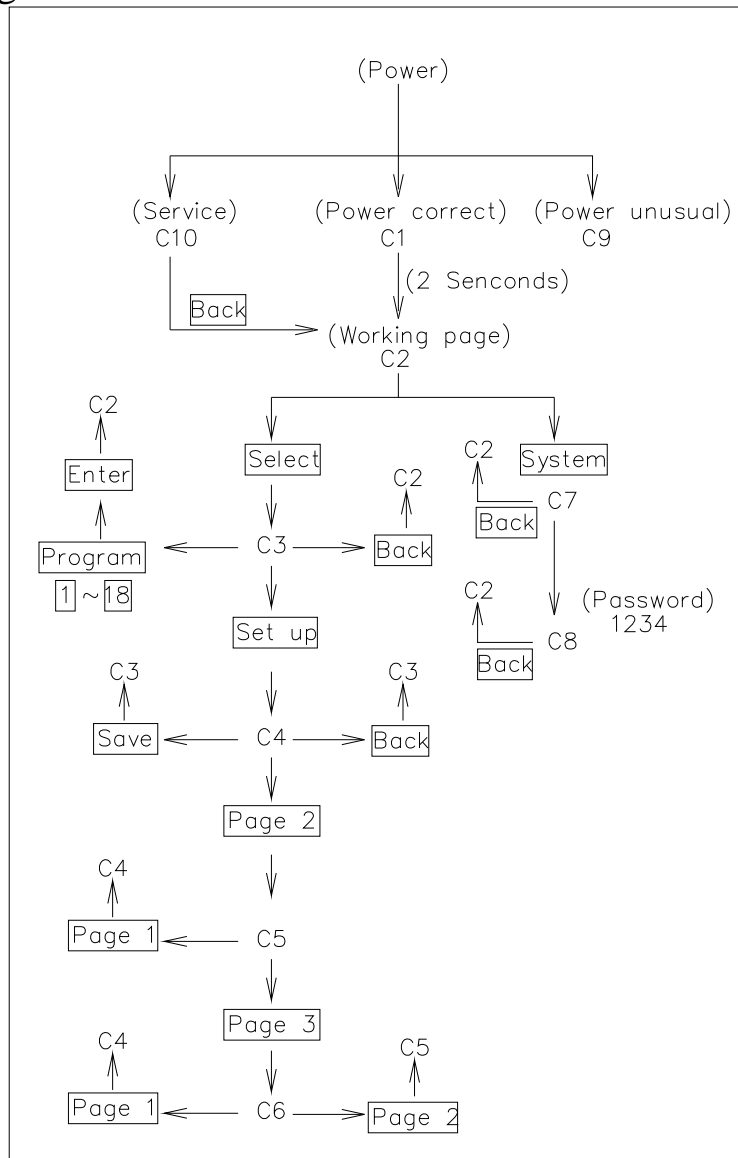
For example:

In program#1, you plan to input 1hr and 20 min mixing time in the control panel. The way to do: Shift the Led light on the mixing time. Make the display with "Dot" on the lower right hand side of display. This means you are in the Hour input.

1. Use + button to add 1
2. Press the hr/min button one time switching to MINUTE display. Use + button to add 20 on the program#1, having mix time with 1hr and 20 min.

3. Use ▲ and ▼ button to switch the PROGRAM. There are 20 programs memory for saving data. Press + or -button to adjust the value and use the shift button to select the mixing time, rest time and cycle.
4. To activate the tumbler, please press START/PAUSE button once. If you want to stop the operation, you can press STOP CYCLE button. If you want to pause the cycle, please press START/PAUSE button during the operation. If you want to restart the operation, please press the START/PAUSE button again.
5. During the operation, presses HR/MIN, you can check the remaining time for the operation.
6. If the single digit has “dot” on, the number means how many HOURS left. If the single digit has NO “dot”, the number means how many MINTUTES left. To know the total time left, you need to check the Hours and Minutes.

Exchange page illustration



C1



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中文

ENG.

**When you open the H.M.I power, it will display this page.
After two seconds it would enter to the working page (P2).
If you need to change language, please select it within two
seconds.**

C2

SERVICE TIME: <input type="text" value="200"/> HR			
PROGRAM: <input type="text" value="1"/>	NAME: TT		
SPEED: 1.0 RPM	STATE: STOP		
TOTAL TIME: 0018 MIN	<input type="button" value="1"/> <input type="button" value="2"/> <input type="button" value="3"/> <input type="button" value="4"/>		
RUNNING TIME: 0003 MIN	<input type="button" value="5"/> <input type="button" value="6"/> <input type="button" value="7"/> <input type="button" value="8"/>		
REMAIN TIME: 0000 s			
REMAIN CYCLE: 0.003	<input type="button" value="9"/> <input type="button" value="10"/> <input type="button" value="11"/> <input type="button" value="12"/>		
<input type="button" value="SYSTEM"/>	<input type="button" value="SELECT"/>	<input type="button" value="PAUSE"/>	<input type="button" value="POS."/>

1. Program: current program 1~18.
2. Name: name for current program 1~12 words.
3. Speed: current barrel speed 0.0~7.0 round.
4. Total time: be setting total time for current program 0~9999 minutes.
5. Running time: rotate time for current program 0~9999 minutes.
6. Remain time: time remain for current program 0~9999 minutes.
7. Remain cycle: display this program how many working cycle remain.
8. Service time: countdown the time for service vacuum pump (for change vacuum pump oil), remain 0~200 hours.
9. State: display current situation for machine.

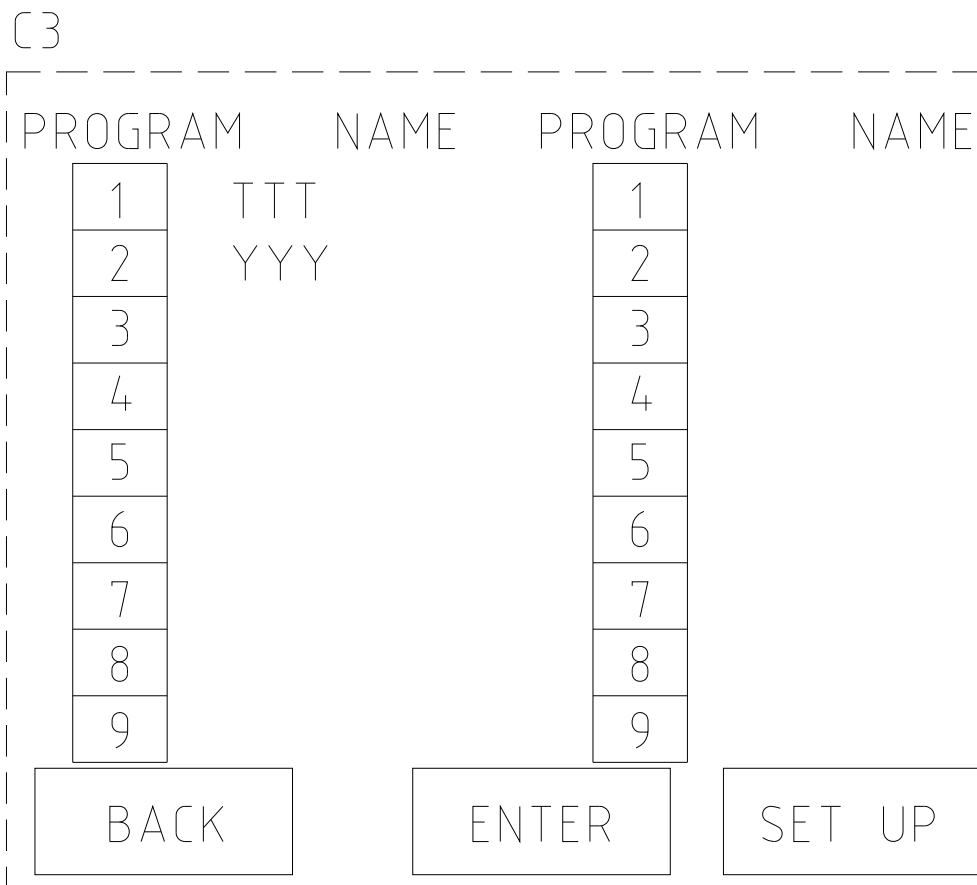
State detail

0 : POS	Fixed position
1 : IN	Inlet material
2 : OUT	Outlet material
3 : RUN	Working
4 : STOP	Stop
5 : PAUSE	Pause
6 : INHALE	Inhale material

10. System: enter to password page (this key only could use when the state display stop).
11. Select: enter to program selection page (this key only could use when the state display stop).
12. Pause: could use this key for pause or relieve when machine is rotating.
13. Fixed position: when machine at pause or stop situation, could use this key to do the barrels' cover fixed position (It's will be easy for us to open the barrel cover).

P.S.:

1. This page could do the start, stop, inlet/outlet material, fixed position for barrels' cover, inhale and pauseetc.



Program: when you press keys for 1~18, that key would show up black color.

Name: display the name for 1~18 program.

Back: leave this page (do not change program) and it would go back to working page C2.

Enter: please press this key when you want to change program and it would go back to working page C2.

Set up: for set up program → please see the program set up page C4.

C4

CURRENT	<input type="text" value="1"/>	PROGRAM NAME:	<input type="text" value="TTT"/>
TOTAL TIME:	<input type="text" value="18"/>	MIREMAIN CY.:	<input type="text" value="3"/>
PROCEDUR	RUN TIME	SPEED	VACUUM
1	<input type="text" value="1"/> MIN.	<input type="text" value="2.0"/> RPM	off <input type="checkbox"/> on
2	<input type="text" value="1"/> MIN.	<input type="text" value="5.0"/> RPM	off <input type="checkbox"/> on
3	<input type="text" value="1"/> MIN.	<input type="text" value="1.0"/> RPM	off <input type="checkbox"/> on
4	<input type="text" value="1"/> MIN.	<input type="text" value="7.0"/> RPM	off <input type="checkbox"/> on
<input type="button" value="BACK"/>		<input type="button" value="SAVE"/>	<input type="button" value="PAGE 2"/>

Total time: the time for procedure (1) ~ (12) to multiply working cycle, that would be total time 9999 minutes.

1. Procedure 1 rotation time 0~99 minutes.
2. Procedure 2 rotation time 0~99 minutes.
3. Procedure 3 rotation time 0~99 minutes.
4. Procedure 4 rotation time 0~99 minutes.
5. Procedure 1 speed 0.0~7.0 round.
6. Procedure 2 speed 0.0~7.0 round.
7. Procedure 3 speed 0.0~7.0 round.
8. Procedure 4 speed 0.0~7.0 round.
9. Procedure 1 vacuum choice OFF or ON.
10. Procedure 2 vacuum choice OFF or ON.
11. Procedure 3 vacuum choice OFF or ON.
12. Procedure 4 vacuum choice OFF or ON.

Working cycle: press this key could set up the working cycle (0~9).

Name: press this key could enter the program.

Back: do not amend set up and go back to program select page.

Save: to amend set up and go back to program select page.

Page 2: go to page 2.

C5

CURRENT PROGRAM

TOTAL TIME: MIN. PAGE 2

PROCEDUR	RUN TIME	SPEED	VACUUM
5	<input type="text" value="1"/> MIN.	<input type="text" value="3.0"/> RPM	off <input type="checkbox"/> on
6	<input type="text" value="1"/> MIN.	<input type="text" value="6.0"/> RPM	off <input type="checkbox"/> on
7	<input type="text" value="0"/> MIN.	<input type="text" value="0.0"/> RPM	off <input type="checkbox"/> on
8	<input type="text" value="0"/> MIN.	<input type="text" value="0.0"/> RPM	off <input type="checkbox"/> on

Total time: the time for procedure (1) ~ (12) to multiply working cycle, that would be total time 9999 minutes.

1. Procedure 5 rotation time 0~99 minutes.
2. Procedure 6 rotation time 0~99 minutes.
3. Procedure 7 rotation time 0~99 minutes.
4. Procedure 8 rotation time 0~99 minutes.
5. Procedure 5 speed 0.0~7.0 round.
6. Procedure 6 speed 0.0~7.0 round.
7. Procedure 7 speed 0.0~7.0 round.
8. Procedure 8 speed 0.0~7.0 round.
9. Procedure 5 vacuum choice OFF or ON.
10. Procedure 6 vacuum choice OFF or ON.
11. Procedure 7 vacuum choice OFF or ON.
12. Procedure 8 vacuum choice OFF or ON.

Page 1: go to page 1.

Page 3: go to page 3.

C6

CURRENT <input type="text" value="1"/> PROGRAM			
TOTAL TIME: <input type="text" value="18"/> MIN.		PAGE 3	
PROCEDURE	RUN TIME	SPEED	VACUUM
9	<input type="text" value="0"/> MIN.	<input type="text" value="0.0"/> RPM	off <input type="checkbox"/> on
10	<input type="text" value="0"/> MIN.	<input type="text" value="0.0"/> RPM	off <input type="checkbox"/> on
11	<input type="text" value="0"/> MIN.	<input type="text" value="0.0"/> RPM	off <input type="checkbox"/> on
12	<input type="text" value="0"/> MIN.	<input type="text" value="0.0"/> RPM	off <input type="checkbox"/> on
<input type="text" value="PAGE 1"/>		<input type="text" value="PAGE 2"/>	

Total time: the time for procedure (1) ~ (12) to multiply working cycle, that would be total time 9999 minutes.

1. Procedure 9 rotation time 0~99 minutes.
2. Procedure 10 rotation time 0~99 minutes.
3. Procedure 11 rotation time 0~99 minutes.
4. Procedure 12 rotation time 0~99 minutes.
5. Procedure 9 speed 0.0~7.0 round.
6. Procedure 10 speed 0.0~7.0 round.
7. Procedure 11 speed 0.0~7.0 round.
8. Procedure 12 speed 0.0~7.0 round.
9. Procedure 9 vacuum choice OFF or ON.
10. Procedure 10 vacuum choice OFF or ON.
11. Procedure 11 vacuum choice OFF or ON.
12. Procedure 12 vacuum choice OFF or ON.

Page 1: go to page 1.

Page 2: go to page 2.

C7

PASSWORD

1234

BACK

1. Please enter the password (1234). If it is correct, it will go to the system set up page.
2. Back: back to working page (P2.).

C8

SYSTEM SET UP

SERVICE TIME: HR

IN/OUT SPEED: RPM

POS. DELAY: ×0.1SEC.

BACK

SERVICE

Service time: for service time remain 0~200hours.

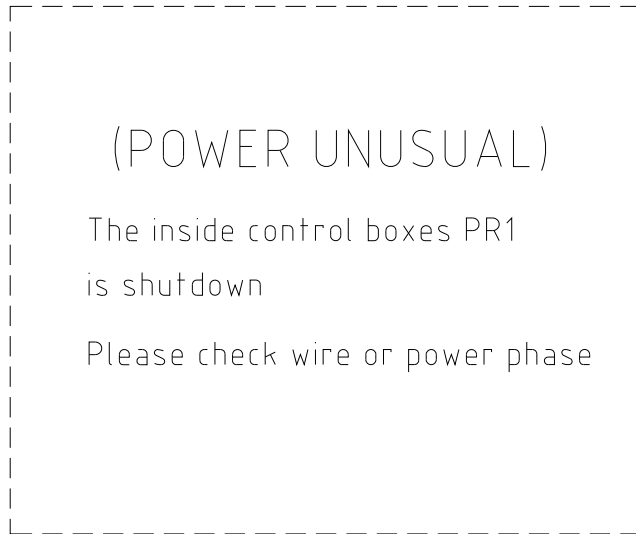
In/Out speed: this key could set up the inlet and outlet of material speed (from 1.0~4.0 rpm).

Pos. delay: press this key, you could set up the outlet material hole position (10~90)×0.1 second.

Back: go to working page C2.

Service: when you press this key, it will restart to countdown service time from 200 hours.

C9



When display this page, it means power could be unusual. Please turn off the power and resolve problems first, then turn on the power again.

C10



When you open the H.M.I. power and service time is been “0”, it will display this page to remind you to change vacuum pump oil. Please press back key to working page C2.

5. MAINTENANCE INTERVALS AND CHECK ITEMS

Check items	Daily	Monthly	Bimonthly	Yearly	Note
Clean and sanitise the machine after use	X				
Check if the safety sensor and reflector are working correctly (for TM150-500/TMC150-1000)	X				
Check vacuum pump oil level before operating the machine	X				
Check the sound of the vacuum pump	X				
Check if oil comes out from the exhaust cover of the pump or not	X				
Check if the chain becomes loose		X			
Change the vacuum oil			X		
Clean the exhaust filter			X		
Replace the exhaust filter				X	
Replace the lid gasket rubber				X	As request

Above mentioned maintenance intervals are scheduled basically for 8 working hours per day

Recommended oil: A. Grav. API 30.5

Pour Pt. -15°C

Flash Pt. 225°C

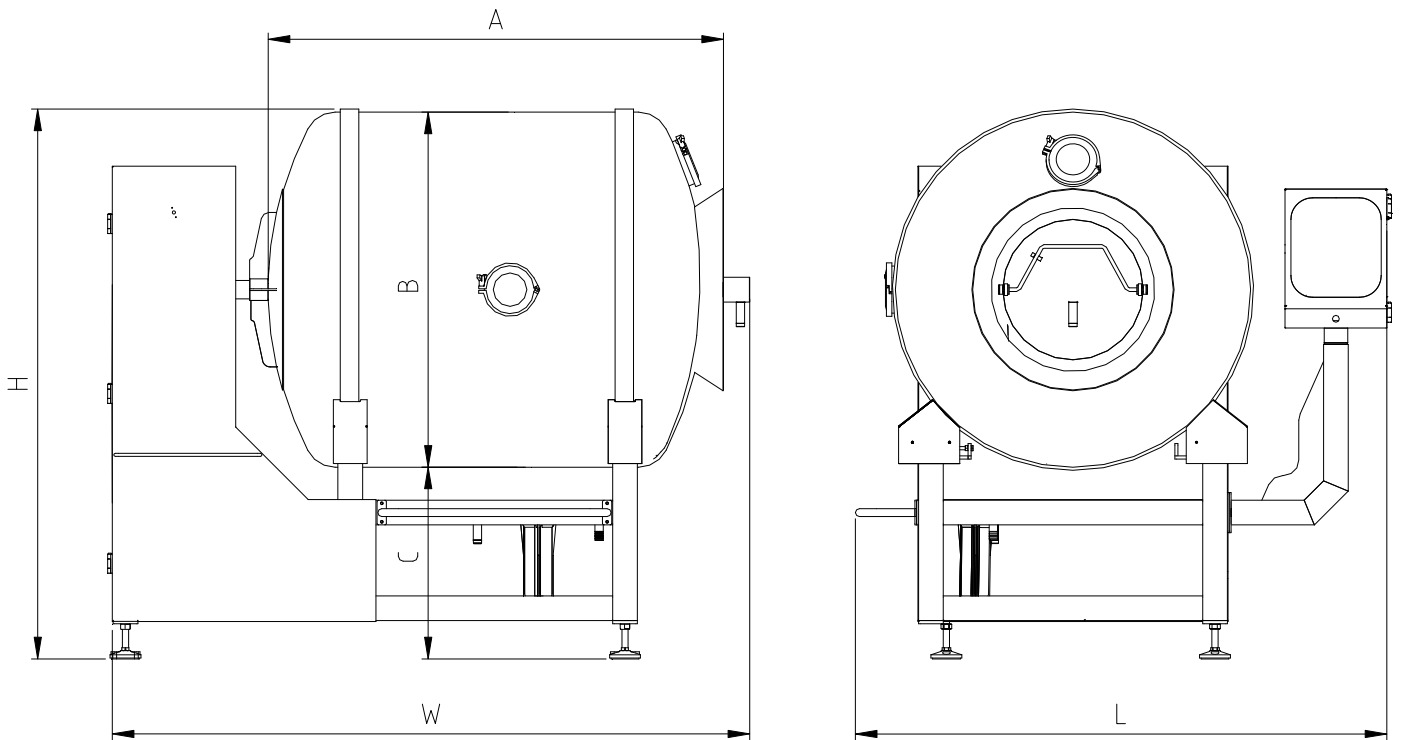
Viscosity 32.05 CST@40°C

Color Light Yellow

V.I. 100

6.MACHINE SPECIFICATION

Model	W	L	H	A	B	C	Capacity
TM-1000	2065(81.3")	1725(67.9")	1785(70.3")	1476(58.1")	∅1150(45.3")	622(24.5")	Kg
TM-1500	2225(87.6")	1875(73.8")	1905(75")	1638(64.5")	∅1310(51.6")	665(26.1")	Kg



7.MACHINE OPERATION EXPLAIN.

Check the right power source with the name plate of the machine. Plug in the power and ready to operate the machine.

Turn on main power switch and set the value on control panel. After finish all of the setting push down the safety bar and press “Start/Pause” button to start the function. Safety function will be effective and machine will stop at the same time while user pull up the safety bar or gear motor box during working process.

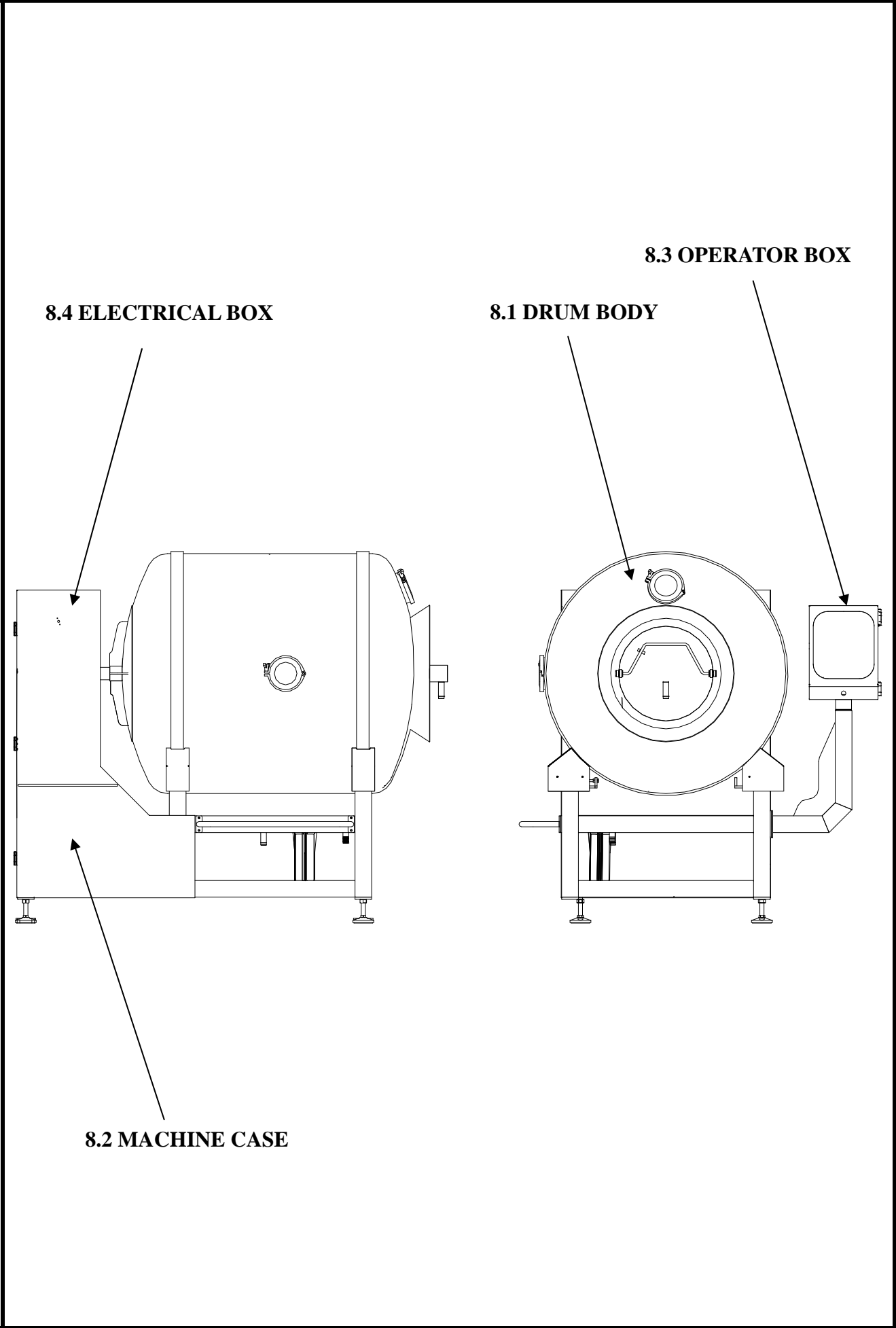
After vacuum tumbling job finish, machine will stop and air ventilation at the same time. As soon as machine finish air ventilation, open the vacuum cover and use unloading switch to unload the product in drum.

The stopper on the side of the machine is design to hold the drum and remain it in the same angle and help user to load in the processing product. How to use the stopper:

- A. Push in the handle bar of stopper to the hole of the drum before load in the processing product.
- B. Pull back the handle bar of stopper from the hole of the drum before start the machine.

Warning: The handle bar of the stopper must be pulled back before user start the machine!! The machine will be damaged if user have not fulfill it!!

8. FABRICATION



8.4 ELECTRICAL BOX

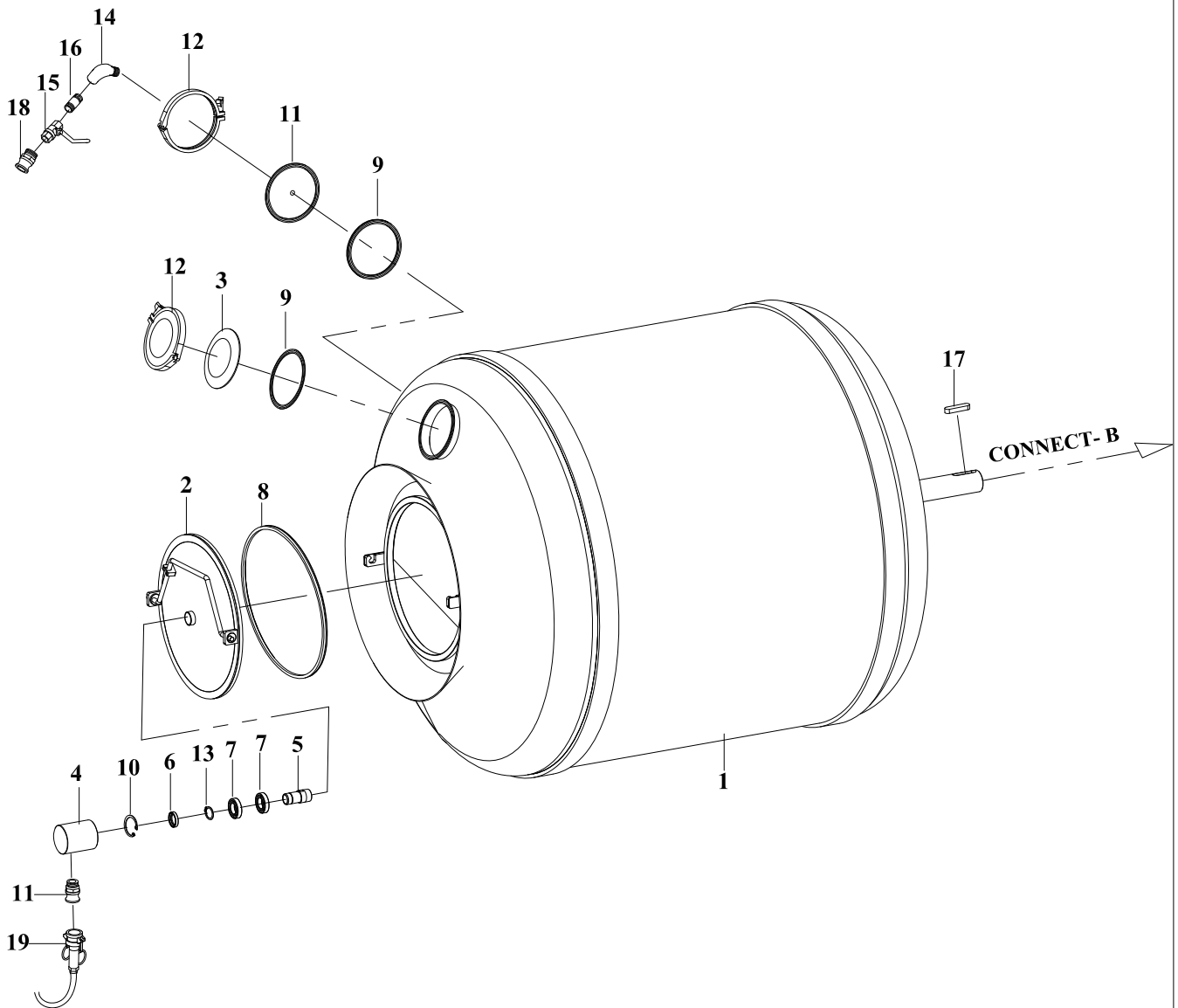
8.3 OPERATOR BOX

8.1 DRUM BODY

8.2 MACHINE CASE

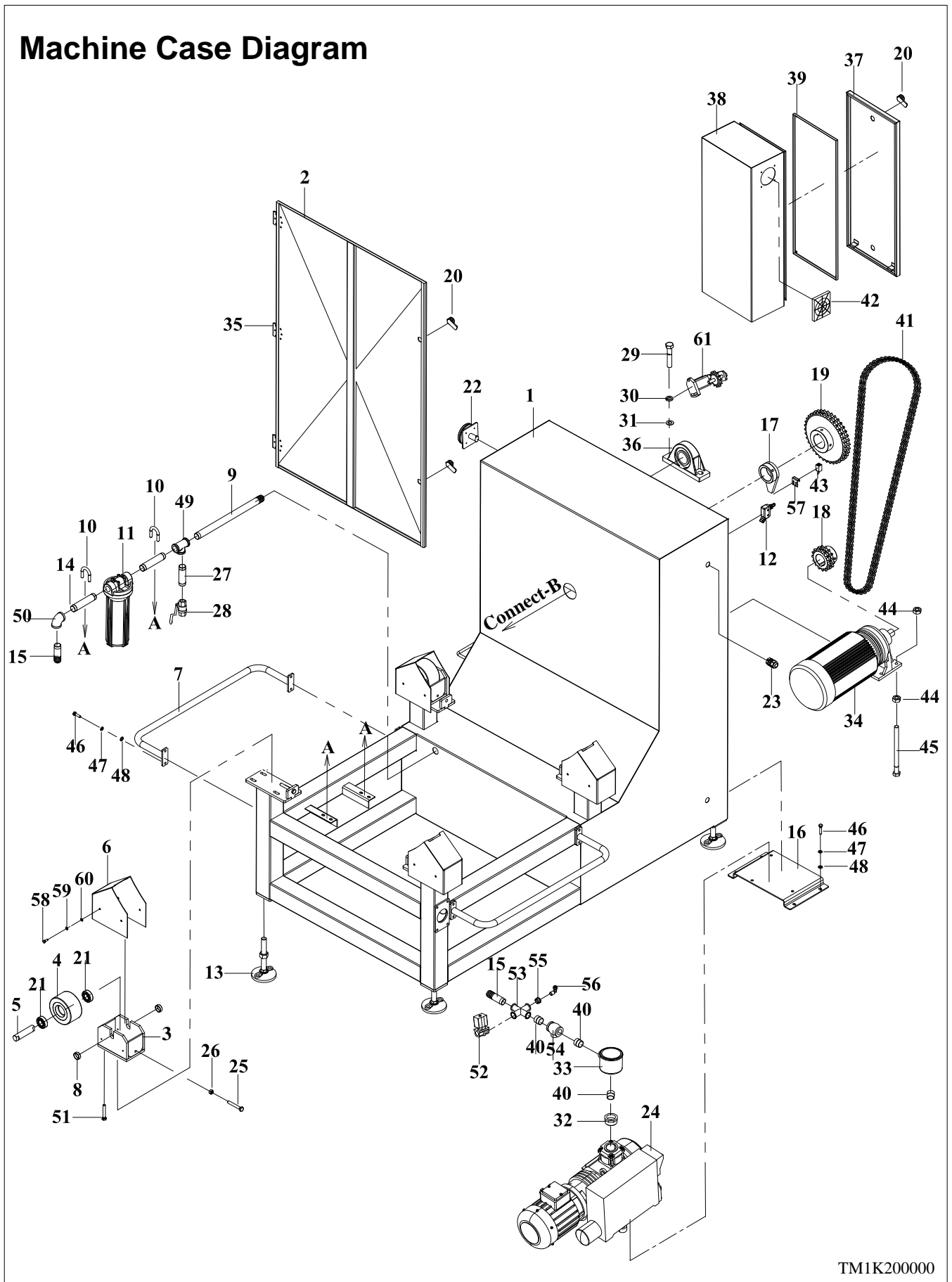
8.1 DRUM BODY

Drum Body Diagram



TM1K100000

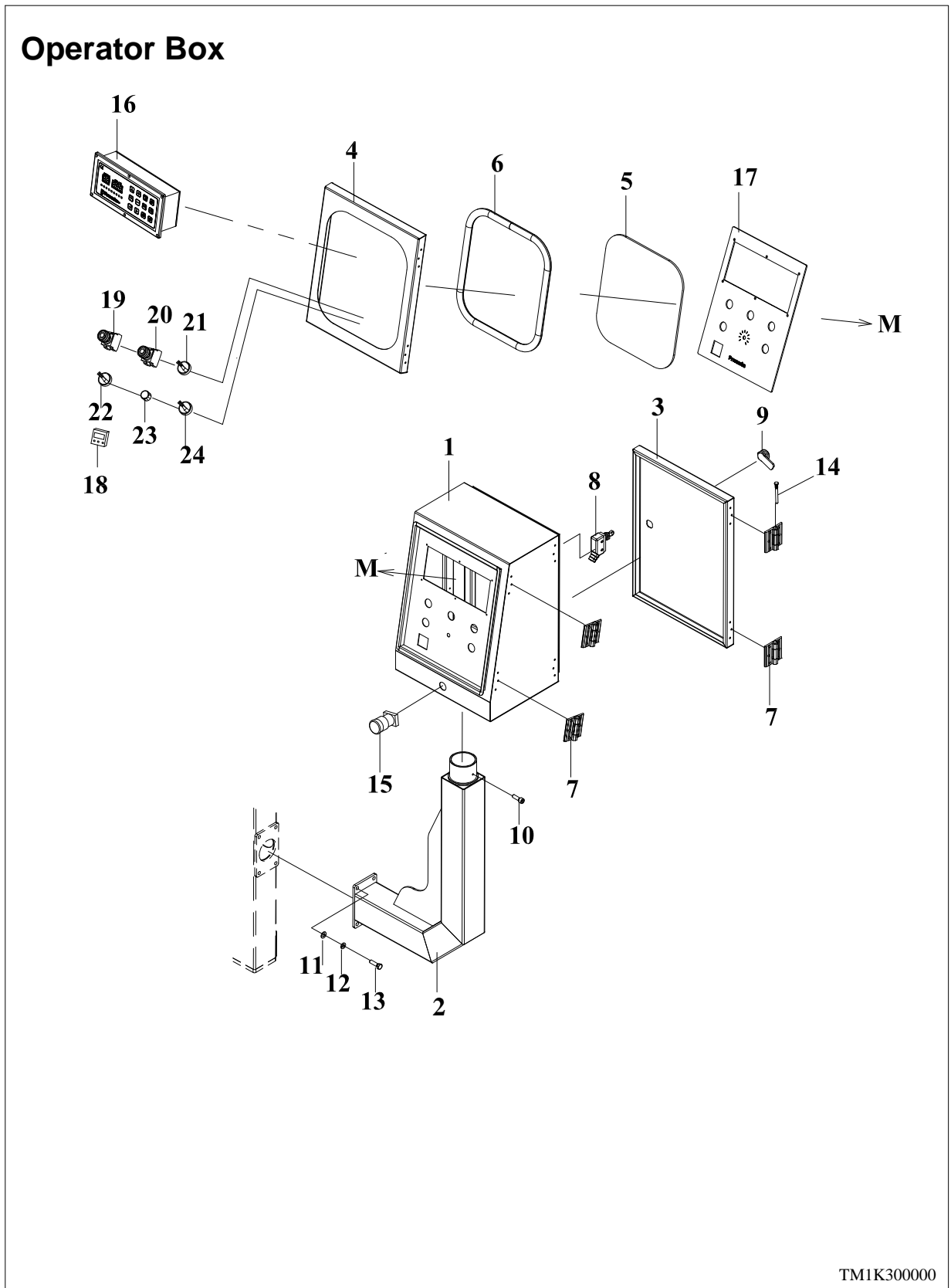
8.2 MACHINE CASE DIAGRAM



NO.	PART NO.	DESCRIPTION	QTY	NOTES
1	TM1K101000	Frame(TM1000)	1	Option
	TMK5101000	Frame(TM1500)	1	
2	TM1K102000	Side door(TM1000)	1	Option
	TMK5102000	Side door(TM1500)	1	
3	TM1K103000	Wheel fixed plate	4	
4	TM1K104000	Wheel	4	
5	TM1K105000	Shaft	4	
6	TM1K106000	Wheel cover	4	Option
	TMK5106000	Wheel cover	4	
7	TM1K107000	Protect rod	2	Option
	TMK5107000	Protect rod	2	
8	TM1K113000	Pad	8	
9	TM1K121000	Fitting	1	Option
	TMK5121000	Fitting	1	
10	27049834	Screw U type 5/16x1"	2	
11	2940004	Filter bottle	1	
12	2853313	Limit switch	1	
13	27M82536	Base leg	4	
14	290921832	Nipple 3/4"x5"	2	
15	TM1K122000	Fitting	2	
16	TM1K108000	Vacuum pump mounting bracket	1	
17	TM1K111000	Switch sensor plate	1	
18	TM1K109000	Chain wheel	1	
19	TM1K110000	Chain wheel	1	
20	2883349	Round lock C-408K	4	
21	27280226	Bearing 6205	8	
22	28017051	Switch	1	
23	2861025	Straight connectot MG20A	1	
24	PRA063-230	Vacuum pump	1	
25	2700454	Hex head screw M10x70	4	
26	2707017	Nut M10	4	
27	290932782	Nipple 3/4"x9cm	1	
28	29095031	Fitting 3/4"	1	
29	2700203	Hex head screw M18x60	4	
30	2705325	Split lock washer M18	2	
31	2705192	Flat washer M18	2	

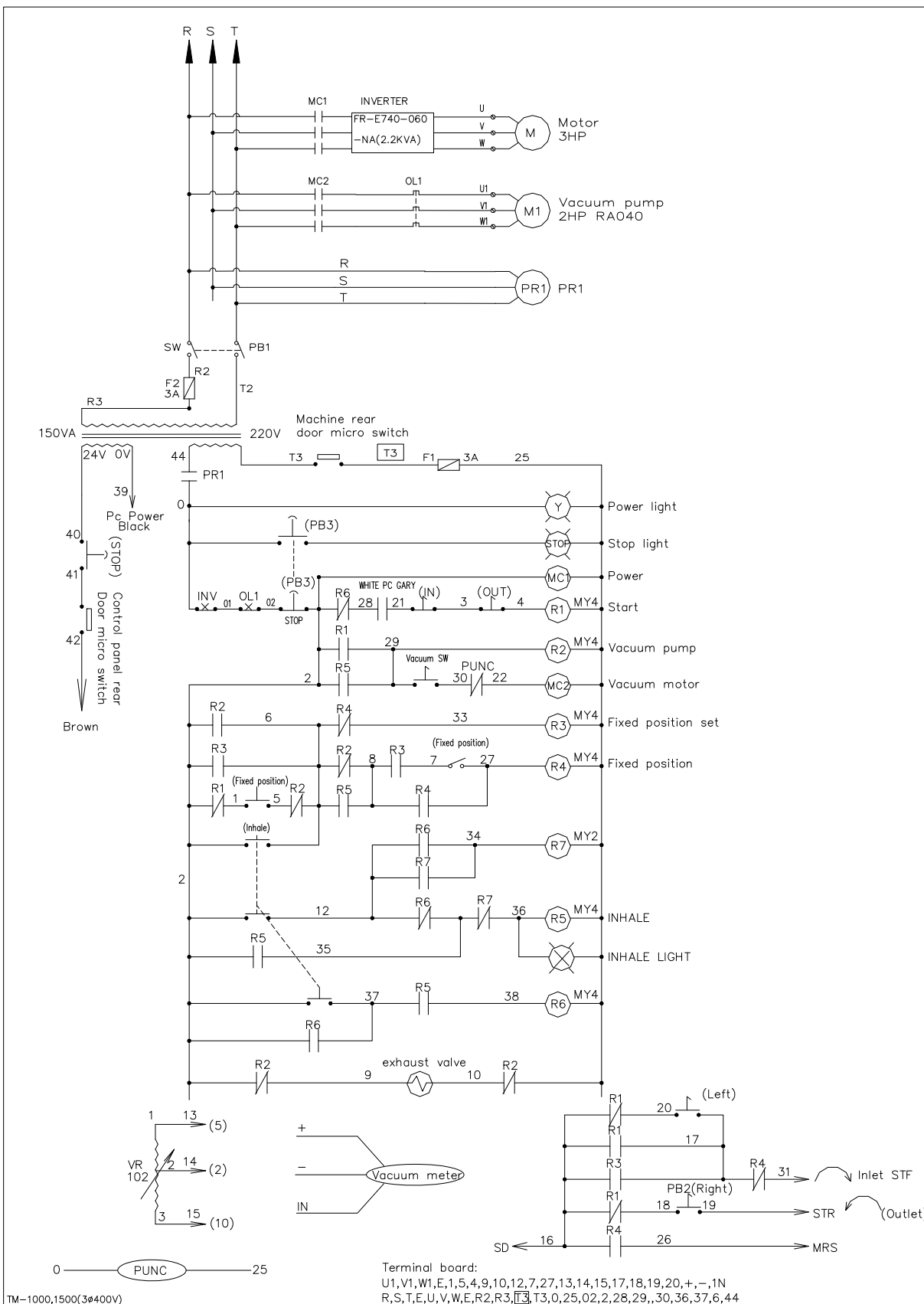
NO.	PART NO.	DESCRIPTION	QTY	NOTES
32	29092083	Fitting 3/4"x1-1/4"	1	
33	293080	Air filter 3/4"	1	
34	2814462	Motor TL 3HP 4P 1/120(PL50-2200) 415V	1	Option
	2814463	Motor TL 3HP 4P 1/120(PL50-2200) 220/380V	1	
35	D2320000	Hinge	3	
36	272855712	Bearing pillow block UCP212	1	
37	TM1K802000	Electrical box door	1	
38	TM1K801000	Electrical box	1	
39	TM1K803000	Panel	1	
40	29092183	Fitting 3/4"x3cm	3	
41	2713RS60-2	Chain RS60-2	1	TM1000
	2713RS61-2	Chain RS60-2	1	TM1500
42	2893126	Fan	2	
43	28511110	Sensor	1	
44	2705329	Nut M16	4	
45	27002030	Hex head screw M16x150	4	
46	2700408	Hex head screw M8x20	12	
47	2705301	Split lock washer M8	12	
48	2705152	Flat washer M8	12	
49	2740006H	Fitting 3/4"	1	
50	2740006A1	Eblow 3/4"	1	
51	2700400	Hex head screw M10x25	16	
52	29110018	Valve MUV-20-D-AC220V	1	
53	29091507	Fitting 3/4"	1	
54	2914059	Valve YORK itap 3/4"	1	
55	2909141	Fitting 3/4"x1/2"	1	
56	29093432	Fitting A036-2 1/2"x5/16" 90	1	
57	TM1K112000	Sensor fixed plate	1	
58	27004021	Hex head screw M6x20	16	
59	2705302	Split lock washer M6	16	
60	2705151	Flat washer M8	16	
61	2714252	Chain wheel RSC-45-60D	1	

8.3 OPERATOR BOX



TM1K300000

8.4 ELECTRICAL DIAGRAM



ITEM	PART NO.	DESCRIPTION	SPECIFICATION	Q'TY	NOTE
MC1	28107282	Contactora	TELC1D018M7 (AC220V)F	1	
MC2	28107283	Contactora	TELC1D09M7 (AC220V)F	1	
R1~6	2830197	Relay	RXM4AB-2P7 AC220	6	
	2831106	Socket,Relay	SY4S-05D	6	
R7	2830198	Relay	RXM2A2P7 AC220	1	
	2833327	Socket,Relay	PYF08A-C MY2	1	
T1	28960018	Transformer	30VA/0-110-220V.OF- 24V UL	1	3 ϕ 220V
	28960082	Transformer	150VA/380-400- 415V.OF-24V UL	1	3 ϕ 380/400V
KM1 OL	2811645	Relay, Overload	LRD-14(7-10A)	1	3 ϕ 220V
	2811616	Relay, Overload	LRD-012(5.5-8A)	1	3 ϕ 380/400V
IN1	2805424	INVERTER	FR-E720-110-NA	1	3 ϕ 220V TM1000/1500
	2805434	INVERTER	FR-E740-060	1	3 ϕ 380/400V TM1000/1500
QM1	28017051	Switch selector	P1-32/EA/SVB	1	
TMR1	2832020	TIMER	GE1A-B30HA220	1	
PU-NC	28560093	Controller	DC12V 50mA (AC220)	1	
	2833202	Socket	PF-085A	1	
APR-3	2830154	Relay	APR-3S AC208-440V	1	
	2833202	Socket	PF-085A	1	
T.B	2843204	Terminal,block	PUW-20	23	
	2843202	Terminal,block	PTU-20L	2	