



**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

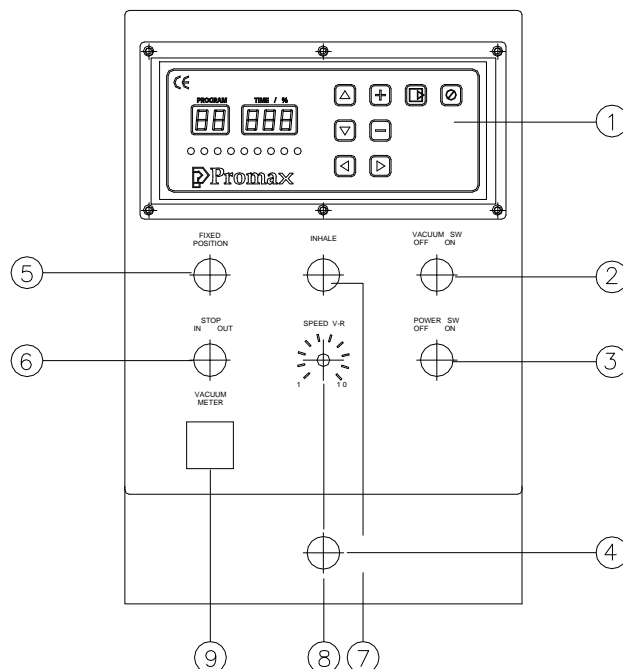
- A. To ensure vacuum pump works smoothly suggest change the vacuum oil every 500 working hours or every a half year.
- B. Check water filter bottle everyday, as soon as the water over a half of the bottle please cleans it.

# 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.



# 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  
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.

## 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

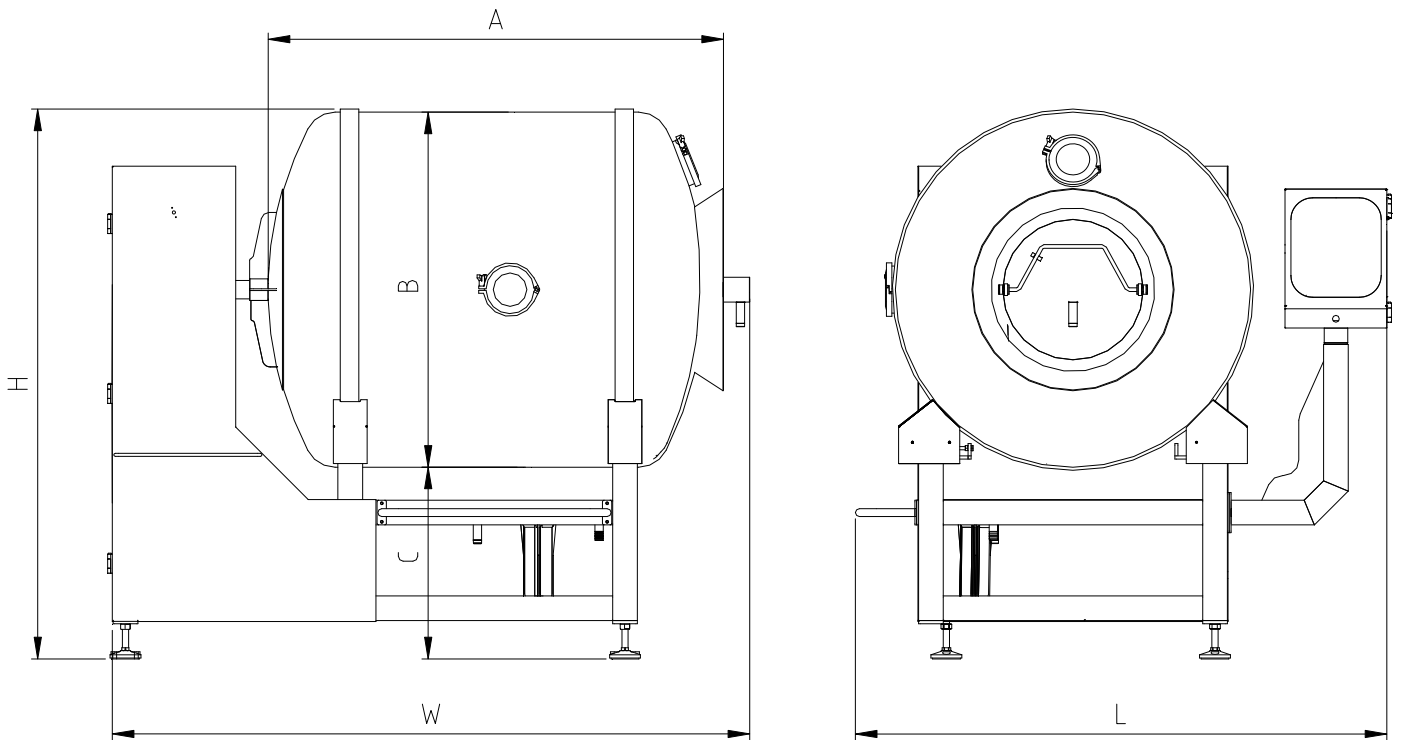
Viscosity 32.05 CST@40°C

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.

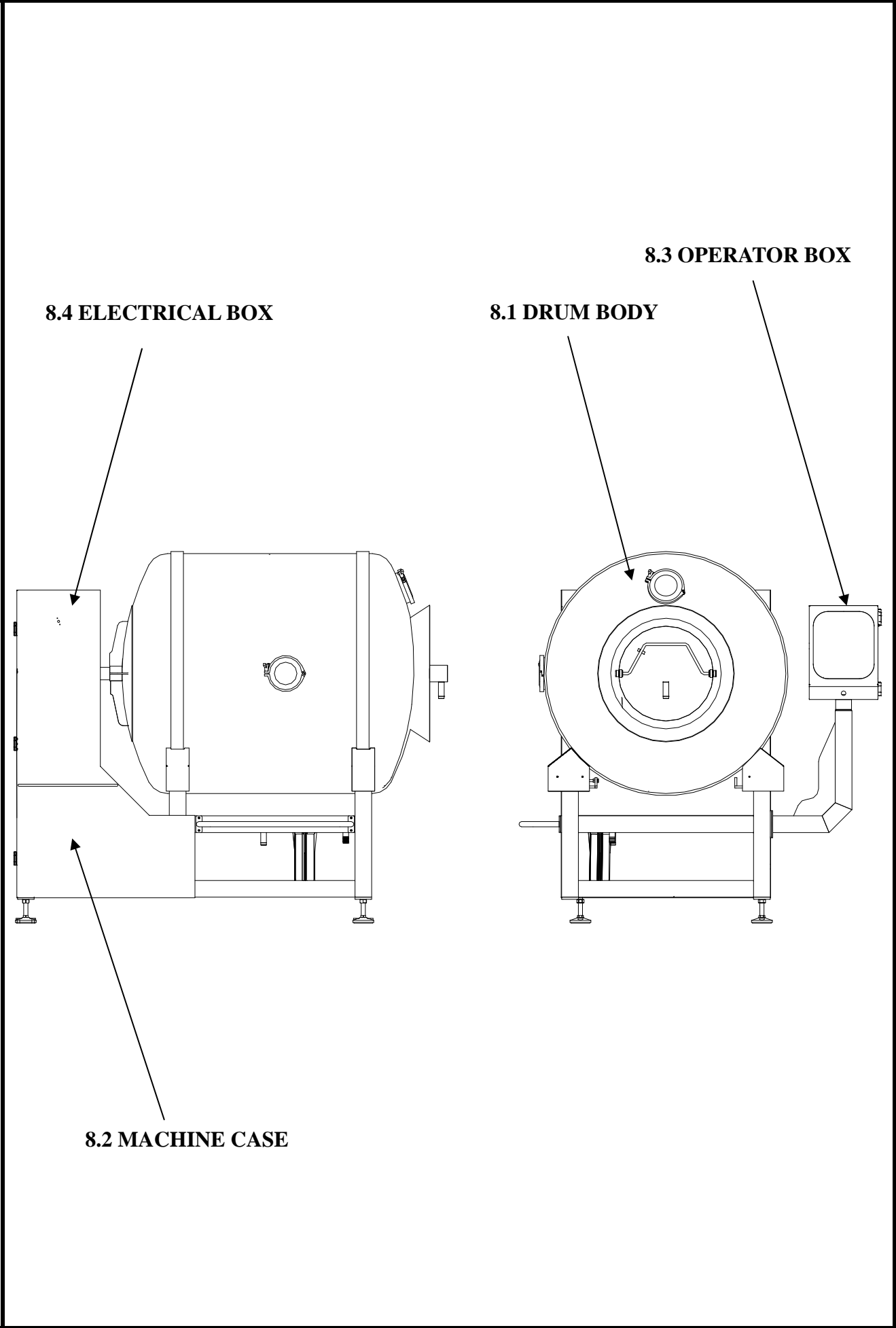
After vacuum tumbling job finish, machine will stop and air ventilation at the same time. As soon as machine finish air ventilation, open the vacuum cover and use unloading switch to unload the product in drum.

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

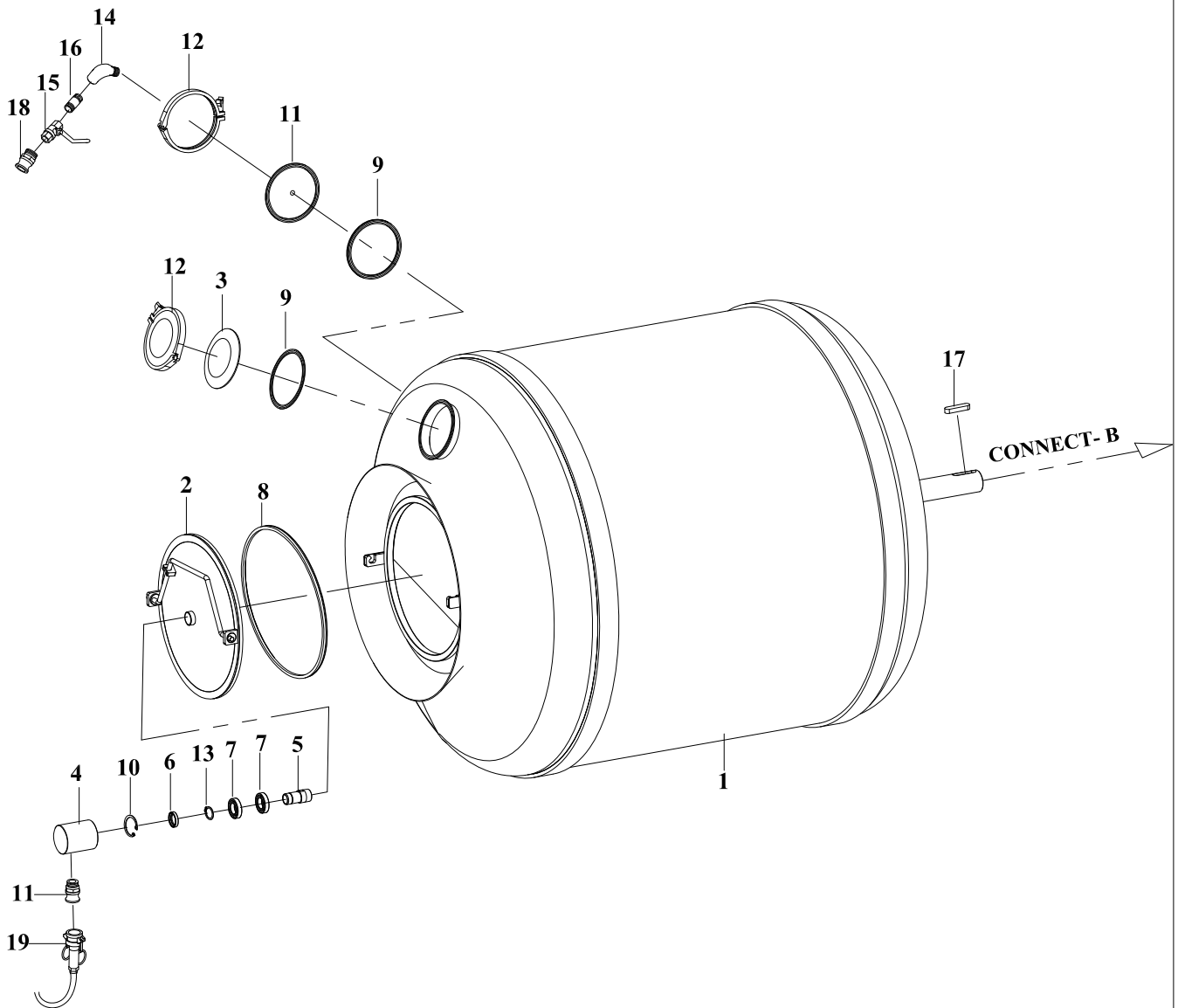
8.1 DRUM BODY

8.2 MACHINE CASE



## 8.1 DRUM BODY

### Drum Body Diagram



TM1K100000

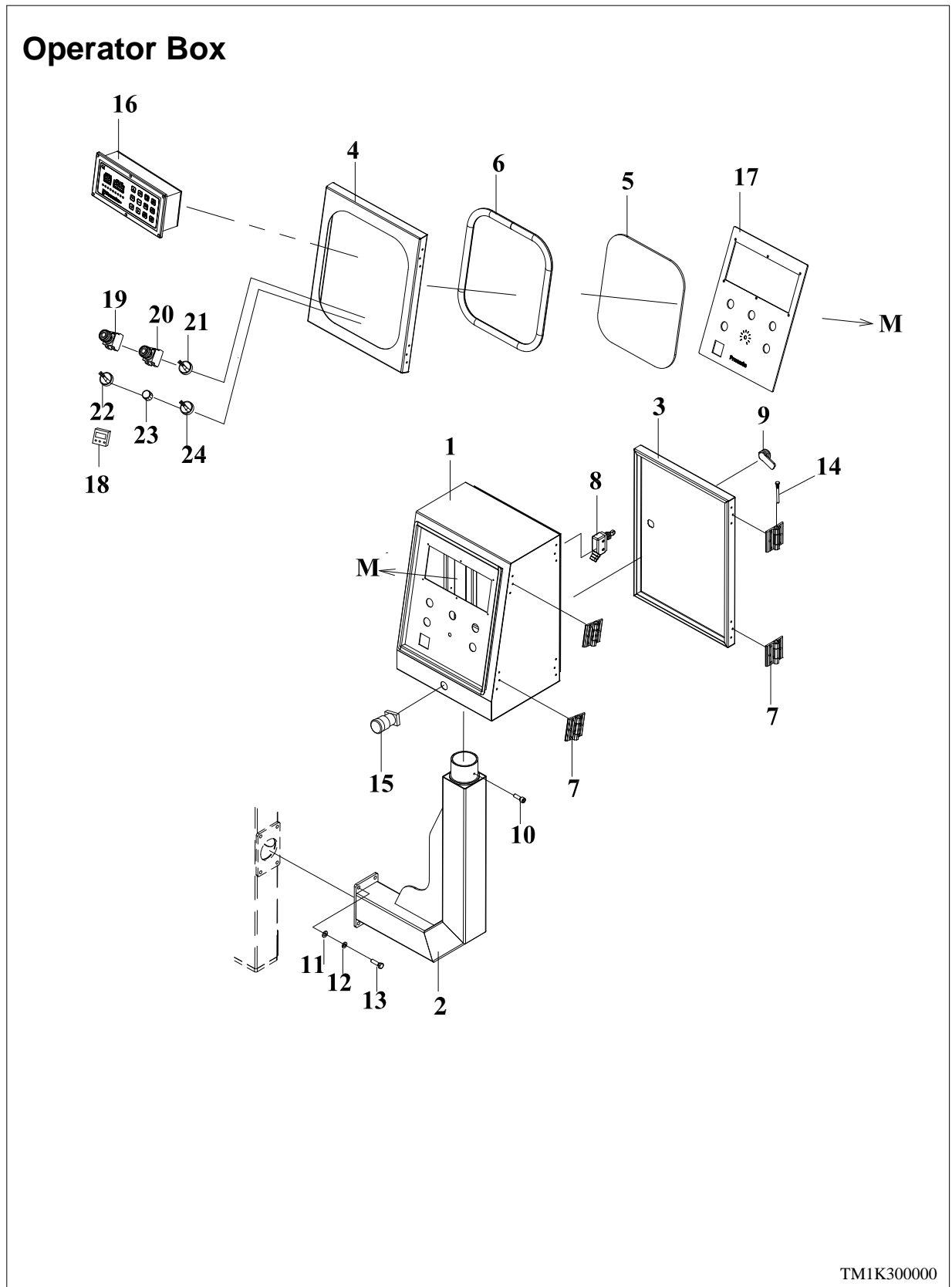
NO.	PART NO.	DESCRIPTION	QTY	NOTES
1	TM1K201000	Drum tank(TM1000)	1	Option
	TMK5201000	Drum tank(TM1500)	1	
2	TM1K202000	Front corver(TM1000,1500)	1	
3	29092251	Adapter IDF-014 6"	1	
4	TM1K204000	Fitting	1	
5	TM1K205000	Fitting	1	
6	274005921	Oil seal D30x42x8	1	
7	27280061	Bearing 6006ZZ	2	
8	3114467	Lid gasket	1	
9	29092254	Gasket IDF-017 6"	2	
10	27062201	Ring R55	1	
11	TM1K206000	Fitting	1	
12	29092253	Heavy duty single pin clamp IDF-015 6"	2	
13	27060091	Ring S30	1	
14	29092621	Fitting 3/4"	1	
15	29095031	Fitting 3/4"	1	
16	29092183	Nipple 3/4"x3cm	1	
17	TM1K231000	Key 18x12x73	1	
18	29093294	Fitting 316 F 3/4"	1	
19	TM1K130A00	Tube	1	



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	
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	

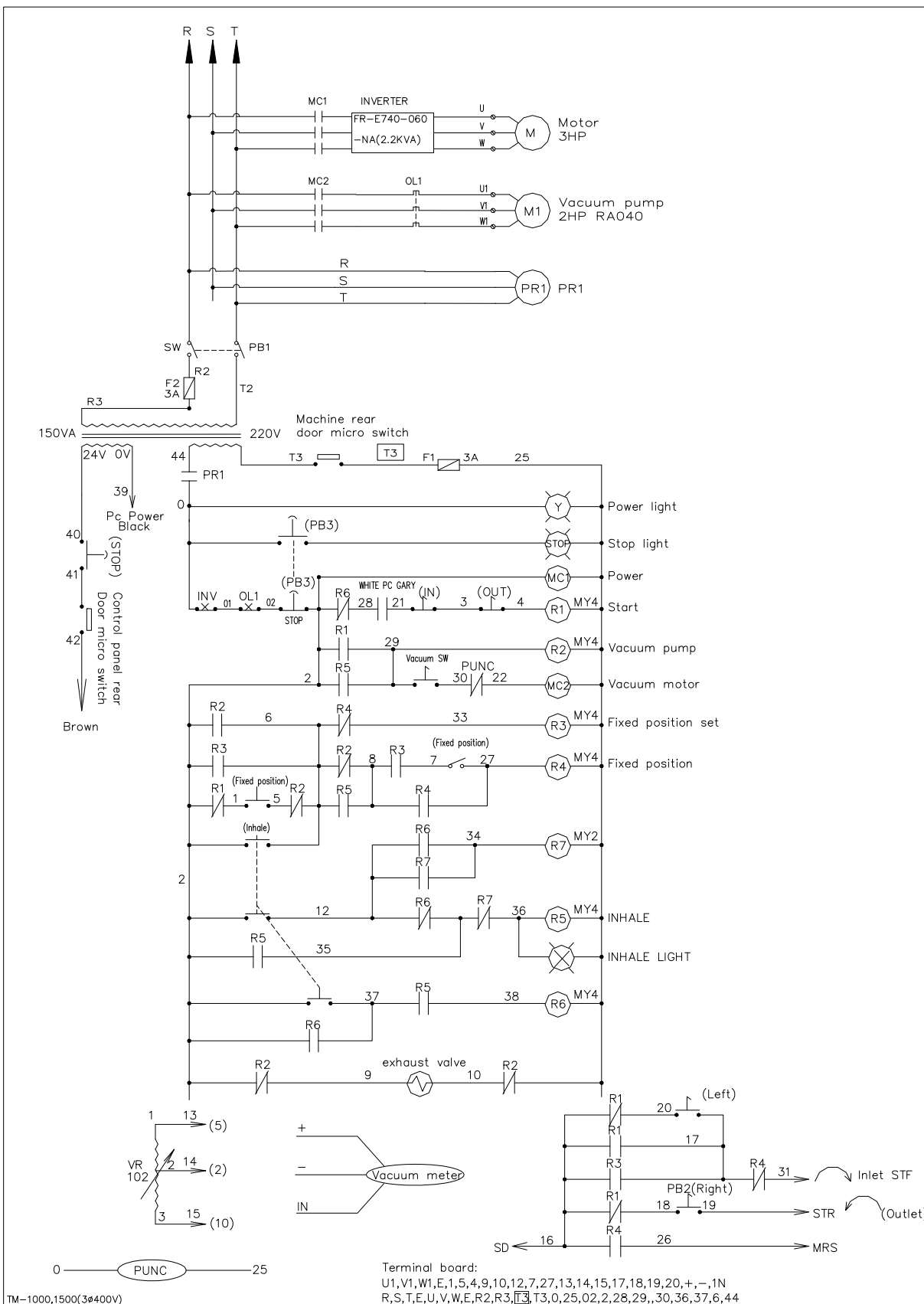
## 8.3 OPERATOR BOX



TM1K300000

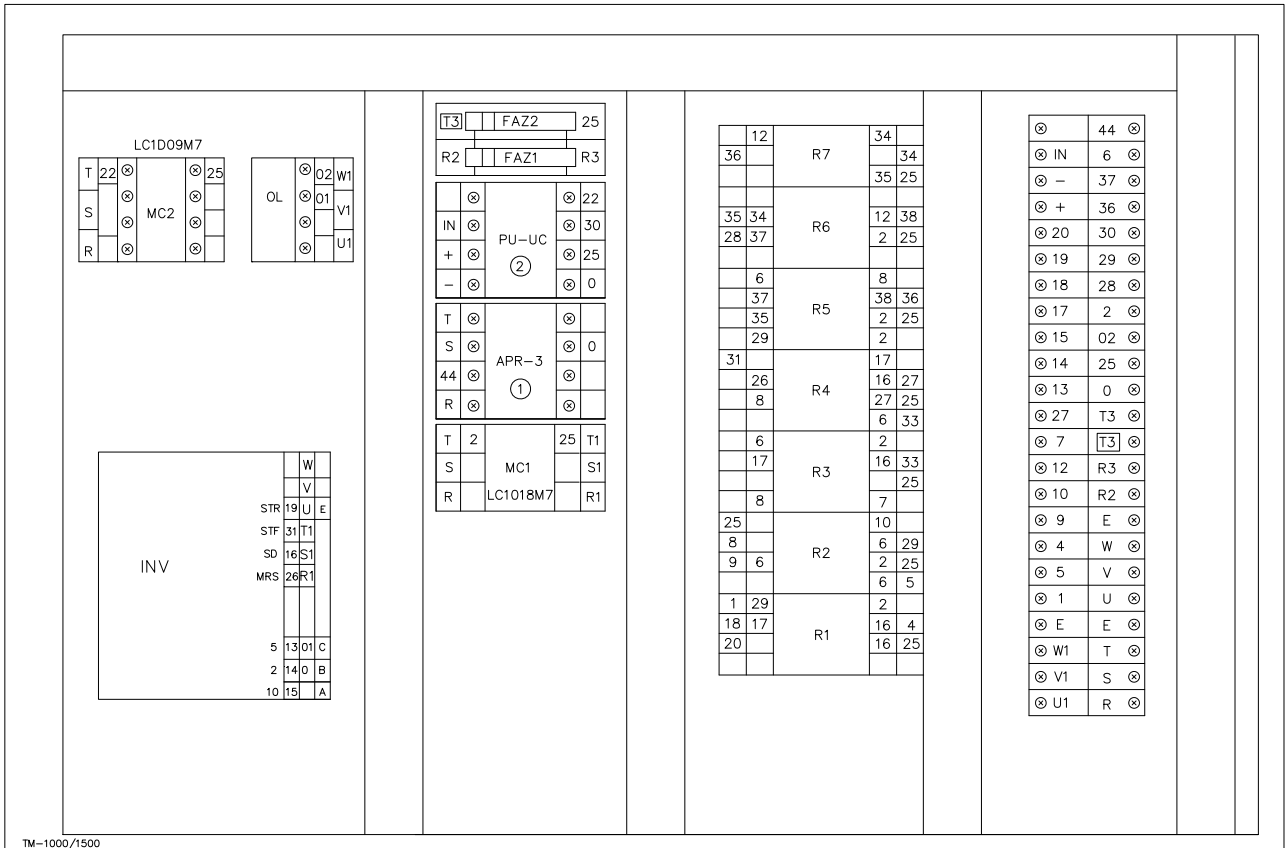
NO.	PART NO.	DESCRIPTION	QTY	NOTES
1	TM1K811000	Operation box	1	
2	TM1K806000	Operation box support base	1	
3	TM1K813000	Operation box back-cover	1	
4	TM1K814010	Operation box cover	1	
5	TM1K814020	Window	1	
6	TM1K814030	Gasket L=1020	1	
7	D2320000	Hinge	4	
8	2853313	Limit switch	1	
9	2883349	Door lock C408K	1	
10	2701167	Socket, hex hd M5x20 (S)	1	
11	2890132	Washer, flat M10 (S)	4	
12	2705304	Split lock washer M10	4	
13	27004001	Screw, hex hd M10x20 (S)	4	
14	MSK1122000	Pin, hinge	4	
15	2870076	switch, irradiation type bgend of button M22EL-TSF02E30	1	
16	2874044	Control panel	1	
17	TM1K812000	Control panel plate	1	
18	2961011	Pressure switch(w/cover)	1	
19	2871704	Switch yellow TE ZB4-BA5	1	
	28704940	Button guard ZBPO	1	
20	2871764	Switch blue TE ZB4-BW36	1	
	28704940	Button guard ZBPO	1	
21	2871722	Switch TE ZB4-BD2	1	
22	2871724	Switch TE ZB4-BD3	1	
23	2896418	Switch black	1	
	2896440	Variable resistor		
24	2871782	Switch TE ZB4-BK1243	1	

# 8.4 ELECTRICAL DIAGRAM





# 8.4 ELECTRICAL BOX



TM-1000/1500

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	2830197	Relay	RXM4AB-2P7 AC220	1	
	2833327	Socket,Relay	PYF08A-C MY2	1	
T1	28960018	Transformer	30VA/0-110-220V.OF- 24V UL	1	3 $\phi$ 220V
	28960082	Transformer	150VA/380-400- 415V.OF-24V UL	1	3 $\phi$ 380/400V
KM1 OL	2811645	Relay, Overload	LRD-14(7-10A)	1	3 $\phi$ 220V
	2811616	Relay, Overload	LRD-012(5.5-8A)	1	3 $\phi$ 380/400V
IN1	2805424	INVERTER	FR-E720-110-NA	1	3 $\phi$ 220V TM1000/1500
	2805434	INVERTER	FR-E740-060	1	3 $\phi$ 380/400V TM1000/1500
QM1	28017051	Switch selector	P1-32/EA/SVB	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	