

TAIATSU GLASS REACTOR

TEM-V300 (300mL/1MPa/180°C)

TEM-V500 (500mL/1MPa/180°C)



TEM-V300 Main Unit with Control Box

TAIATSU TECHNO CORPORATION.

Tokyo, Japan

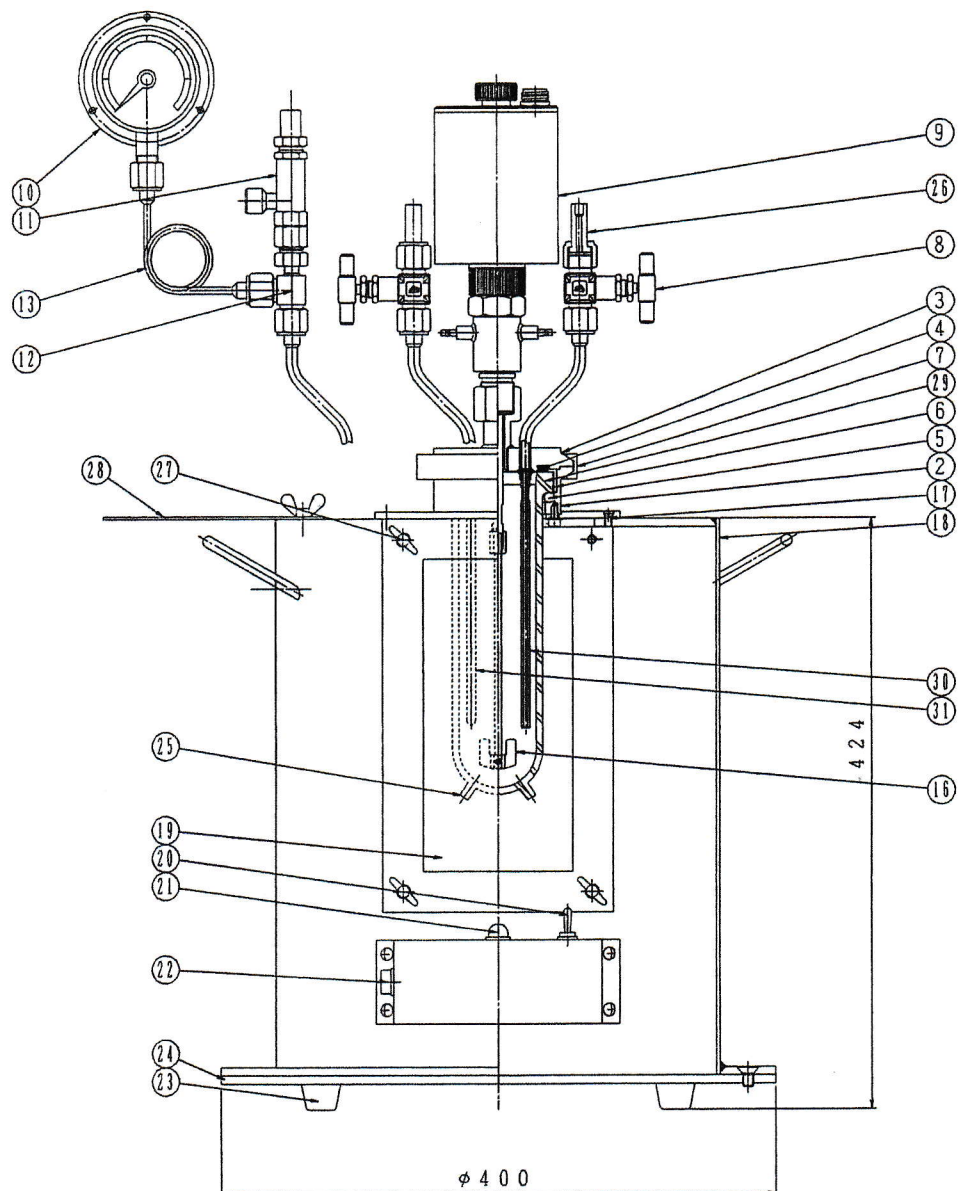
■ Introduction

Glass Reactor TEM-V300 (Capacity 300mL) and TEM-V500 (Capacity 500mL) is desktop type chemical reaction device. Excellent hyper glass is adopted as the airtightness and corrosion resistance in glass vessel. The surface of glass vessel is smooth and transparent, and it is possible to confirm by visual observation a polymerization reaction process of contents, a change with reacting color and agitating state directly during an experiment. The glass vessel is sealed by O-ring and clamp structure, and it is possible to suppress the large pressure by the small power, also operation can excel rapidity and is easy.

■ Applications

Pressure Reactors are extensively used for the research and development in chemical, petro-chemistry, resin, rubber, food, biotechnology, pharmaceuticals, perfume, etc., and stainless steel is generally adopted as the material of the pressure vessel. Hyper glass is adopted as a pressure vessel, so that Glass Reactor TEM-V Series can observe directly the reaction process during an experiment. Moreover it is possible to use for acidity contents, because glass vessel excel in acid resistance when the liquid contact components (stirring blade/shaft, thermowell & dip tube) inside vessel is treated with teflon (PFA) coating (option).

■ System Configuration



■ Main Specifications

Model		TEM-V300	TEM-V500	
Glass Reactor Main Body	Max.working temperature	180°C		
	Max.working pressure	1.0MPa		
	Glass vessel capacity	300mL	500mL	
	Material	Reaction vessel	Hyper glass	
		Lid	SUS316	
		Lower flange	SUS304	
		Packing	Viton (As standard)	
	Carbon teflon (for lower flange)			
Glass teflon (Spacer)				
Weight	Approx. 35kg			
Control Box	Temp.indication controller	Digital display type PID control with auto-tuning function Setting temp. range : 0~200°C (Min. 0.1°C) Indication accuracy : ±0.3%FS±1digit		
	Temp.sensor	Thermocouple K (CA)		
	Agitator RPM meter	RPM indicator range 100rpm~1000rpm (Min.10rpm)		
	Volt meter	Heater volume range 0~100V		
	Power source	AC100V 50/60Hz 15A		
	Weight	Approx. 8kg		

※It is attached the terminal for recorder at the rear of control box.

■ Components

No.	Part Name	Material	Q'ty	Remarks
①	Glass vessel	Hyper glass	1	with Scale & Heater coating
②	Lower flange	SUS304	1	
③	Lid	SUS316	1	with (3) Nozzles & (1) Adaptor for VP motor
④	Sealed packing ①	Viton	1	O-Ring P-62, for Lid
⑤	Packing ②	Carbon teflon	1	O-Ring P-67, for Lower flange
⑥	Spacer	Glass teflon	1	SP-3500
⑦	Clamp	SUS304	1	CL-3500
⑧	Needle valves	SUS316	2	for Inlet & Outlet (each 1)
⑨	VP motor	SUS316	1	Magnetic drive + Motor one body type Agitator
⑩	Pressure gauge	SUS316	1	2MPa, Compound type, φ 75
⑪	Safety valve	SUS316	1	Spring type, 1MPa set
⑫	Joint	SUS316	1	T-Joint
⑬	Nozzles for Pressure gauge	SUS316	2	
⑭	Dip tube	SUS316	1	
⑮	Thermowell	SUS316	1	Screwed type
⑯	Stirring blade	SUS316	1	Anchor E-type
⑰	Ring for fixing	SUS304	1	
⑱	Stand	SS-400	1	φ 138.5 × 400mmH, Green baking finish, with windows in front & behind
⑲	Observing windows	Transparent acryl	2	274 × 156 × 25mmt, Effective observing area 225 × 108
⑳	Switch		1	for Heater
㉑	Pilot lamp		1	for Heater
㉒	Connector		1	for Heater
㉓	Rubber feets	Synthetic rubber	4	for Stand
㉔	Stand base plate	SS-400	1	Green baking finish
㉕	Heater terminals		2	
㉖	Union nut sleeve joint	SUS316	2	for Welding use
㉗	Bolt nuts for Observing window	SUS304	8	M6
㉘	Holder for Lid	SUS304	1	
	Control box		1	attached with glass reactor main body
	Spare packing		1	included as standard accessories
	Tool & Tool box		1	included as standard accessories

■ Glass Vessel treated with Heater Coating



The vessel adopts excellent Hyper Glass as the airtightness, corrosion resistance and heat resistance. The surface of glass vessel is transparent, and it is possible to observe the inside of vessel while heating it.

It must keep the charged volume to 60 or 70% of the contents in the vessel. When there is little charged volume, the damage of glass vessel is caused by boiling with no water (fluid) in the heater coating face. At the time, please suppress the control volume switch for heater output in control box and be heating it gradually.

Part No.	TEM-V3G	TEM-V5G
Capacity	300mL	500mL
Size(mm)	Depth	145
	ID	φ 55.4
	Thickness	4.8t
Material	Hyper glass with Heater coating	
Sealed packing	Viton (Possible to change other material by the contents)	

■ Agitator (VP Motor)

VP Motor is equipped as agitator in the Glass Reactor. Agitator motor which installs high performance rare earth magnet in the shaft of DC brushless motor induces the shaft from outside. It is compact design, since one body type agitator of magnetic drive and motor.

■ Control Box

Exclusive Control Box attaches to Glass Reactor. It is able to control and check the temperature, and also control the low temperature relatively by the control volume switch for heater output. Additionally the following 4 kinds of data are displayed at high illumination LED display part on the control box at one time.

- ① Rotation speed(RPM), ② Load current value (A), ③ Torque (N·m), ④ Load factor (%)

■ Safety

The following safety measures are provided to Glass Reactor.

- ① Excessive temperature rise prevention warning of glass vessel by temperature controller.
- ② Excessive pressure rise prevention of glass vessel by safety valve.
- ③ Prevention of scattering of splinter when being damaged glass vessel by a close stand.

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