



TORONTECH



JACKETED GLASS REACTOR

Jacketed Glass Reactor is primarily used for experiments like material synthesis, distillation, and concentration. Its double-layer design allows temperature control by circulating a liquid of the desired temperature through the jacket.

APPLICATIONS

The Torontech Jacketed Glass Reactor is a fundamental and versatile tool for chemical and process R&D. Its primary application is to provide a precisely controlled thermal environment for a wide range of thermally sensitive processes. By allowing for uniform heating or cooling, it enables the controlled study, optimization, and execution of processes such as synthesis, crystallization, and distillation on a laboratory or pilot scale.

This essential process control is a cornerstone of research and development in:

- **Pharmaceutical & Chemical Synthesis:** As a standard workhorse for the development of new Active Pharmaceutical Ingredients (APIs) and specialty chemicals, where precise temperature control is critical for maximizing reaction yield, selectivity, and product purity.
- **Academia & Research Institutes:** As a foundational piece of equipment for a broad range of chemical research, enabling the study of reaction kinetics, the execution of complex syntheses, and the development of new process methodologies.
- **Polymer & Materials Science:** For the synthesis and process development of new polymers and advanced materials, where strict temperature management is crucial for controlling polymerization rates and achieving the desired molecular weight and material properties.
- **Food, Flavor & Fragrance:** To perform extractions, create concentrates, and formulate new flavor and fragrance compounds, where precise temperature control is key to preserving the integrity of delicate, high-value molecules and ensuring batch-to-batch consistency.

FEATURES

- Made from 3.3 borosilicate glass, offering exceptional physical and chemical durability.
- Suitable for a wide temperature range, from high (200°C) to low (-80°C).
- Features excellent sealing, achieving a vacuum level of 0.095 MPa.
- Designed to handle pressures from -0.1 MPa to normal atmospheric pressure.
- Equipped with a PTFE plug and discharge valve for reliable operation.
- Includes insulated hoses to minimize damage to the glass vessel during external pipe connections.
- Customizable structures and configurations to meet specific process requirements.
- Optional filter reactors available, tailored to customer needs.
- A bottom receiving tray can be added to collect drippings during operation.

THEORY & METHOD

Jacketed Glass Reactor

GR1, 2 & 3

Jacketed Glass Reactor

GR5 & 5Ex

Jacketed Glass Reactor

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TECHNICAL SPECIFICATIONS

Model	GR-1	GR-2	GR-3	GR-5	GR-5Ex
Glass material	3.3 borosilicate glass				
Glass vessel volume	1L	2L	3L	5L	
Glass vessel flange	Φ105mm			Φ170mm	
OD of glass vessel opening	Φ150mm			Φ215mm	
ID of bottom valve	Φ10mm			Φ15mm	
Jacket interface	25#			35#	
Allowable pressure of jacket interface	≤0.03MPa				
Liquid inlet/outlet circulation hose interface	Rc1/2 and Rc3/4			Rc3/4	
No. of glass vessel lid openings	5				
Center opening of glass vessel lid	24/40			50#	
Side openings of glass vessel lid	24/40×3, 19/26			24/29×2, 29/32, S35	

Model	GR-1	GR-2	GR-3	GR-5	GR-5Ex
Sealing gasket of glass vessel lid	Φ148*Φ105*3			Φ212*Φ168*3	
Stirring speed	40-500rpm			50-500rpm	
Motor power	Output power 50W			90W	180W
Support parts for stirrer	PTFE+PEED+Glass			PTFE	
Dripping funnel volume	200ml			500ml	
Interface of dripping funnel	24/29			29/32	
Condensation area of condenser	0.025m²			0.045m²	
Interface of condenser	24/29			29/32	
Receiving bottle	Optional				
Drain port ground clearance	About 100mm			About 400mm	
Dimensions	480W×420D×1100H mm		480W×480D×1200H mm	640W×530D×1600H mm	660W×530D×1600H mm

Model	GR-10	GR-10Ex	GR-20	GR-20Ex	GR-30	GR-30Ex
Glass material	3.3 borosilicate glass					
Glass vessel volume	10L		20L		30L	
Glass vessel flange	Φ215mm					
OD of glass vessel opening	Φ265mm					
ID of bottom valve	Φ21mm					
Jacket interface	35#					

Model	GR-10	GR-10Ex	GR-20	GR-20Ex	GR-30	GR-30Ex
Allowable pressure of jacket interface	<=0.03MPa					
Liquid inlet/outlet circulation hose interface	Rc3/4					
No. of glass vessel lid openings	6					
Center opening of glass vessel lid	50#					
Side openings of glass vessel lid	S51, S51, 35#, 40/38, 34/35					
Solid charging port	80#					
Sealing gasket of glass vessel lid	Φ264*Φ220*3					
Stirring speed	50-500rpm					
Motor power	90W	180W	90W	180W	90W	180W
Support parts for stirrer	PTFE					
Dripping funnel volume	1000ml		2000ml			
Interface of dripping funnel	40/38					
Condensation area of condenser	0.234m²		0.341m²			

Model	GR-10	GR-10Ex	GR-20	GR-20Ex	GR-30	GR-30Ex
Interface of condenser	40/38					
Receiving bottle	Optional					
Liquid collection tray	Optional					
Drain port ground clearance	About 330mm		About 360mm			
Dimensions	825W*665D*1780H mm	825W*720D*1780H mm	825W*665D*1960H mm	825W*720D*1960H mm	825W*665D*2090H mm	825W*720D*2090H mm

Model	GR-50	GR-50Ex	GR-100	GR-100Ex
Glass material	3.3 borosilicate glass			
Glass vessel volume	50L		100L	
Glass vessel flange	Φ215mm			
OD of glass vessel opening	Φ265mm			
ID of bottom valve	Φ21mm			
Jacket interface	45#			
Allowable pressure of jacket interface	<=0.03MPa			
Liquid inlet/outlet circulation hose interface	Rc3/4			
No. of glass vessel lid openings	6		7	
Center opening of glass vessel lid	50#			
Side openings of glass vessel lid	S51, 35#, 40/38, 34/35		S51, 35#, 40/38, 34/35*2	

Model	GR-50	GR-50Ex	GR-100	GR-100Ex
Solid charging port	80#		95#	
Sealing gasket of glass vessel lid	Φ264*Φ220*3		Φ338*Φ294*3	
Stirring speed	50-500rpm			
Motor power	140W	180W	250W	370W
Support parts for stirrer	PTFE			
Dripping funnel volume	2000ml		10000ml	
Interface of dripping funnel	40/38		Φ12.5	
Condensation area of condenser	0.429m ²		0.954m ²	
Interface of condenser	40/38			
Receiving bottle	Optional		20000ml	
Liquid collection tray	Optional			
Drain port ground clearance	About 315mm		About 340mm	
Dimensions	825W*665D*2130H mm	825W*720D*2130H mm	1160W*780D*2400H mm	1160W*780D*2400H mm

Model	GRF-100	GRF-100Ex	GRF-150	GRF-150Ex
Glass material	3.3 borosilicate glass			
Glass vessel volume	100L		150L	
Glass vessel flange	Φ285mm			
OD of glass vessel opening	Φ338mm			
ID of bottom valve	Φ21mm		Φ40mm	

Model	GRF-100	GRF-100Ex	GRF-150	GRF-150Ex
Jacket interface	45#			
Allowable pressure of jacket interface	<=0.03MPa			
Liquid inlet/outlet circulation hose interface	Rc3/4			
No. of glass vessel lid openings	7			
Center opening of glass vessel lid	60#			
Side openings of glass vessel lid	S51, 35#, 40/38, 34/35*2			
Solid charging port	95#			
Sealing gasket of glass vessel lid	Φ338*Φ294*3			
Stirring speed	50-500rpm			
Motor power	250W	370W	750W	
Support parts for stirrer	PTFE			
Dripping funnel volume	10000ml			
Interface of dripping funnel	Φ12.5			
Condensation area of condenser	0.954m ²		1.274m ²	
Interface of condenser	40/38		80#	
Receiving bottle	20000ml			
Liquid collection tray	Standard			
Drain port ground clearance	About 380mm		About 370mm	
Dimensions	1250W*1000D*2400H mm		1250W*1060D*2800H mm	



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