SHUOBODA instruments

HGR SERIES GLASS REACTOR

1L to 200L

Explosion-proof (optional)

Chiller, Vacuum Pump

CONTENTS

We provide good quality and function glass reactor/ vessels/bioreactors/glass fermenters. Single-layer, double-layer and three-layer jacket glass reactors capacity from 1 liter to 200 liters are available. Various circulation heating & refrigerating pump and vacuum pump can be equipped. Electric/manual lift and rotary kettle are easy to clean. Explosion-proof device ensure spark-free operation.

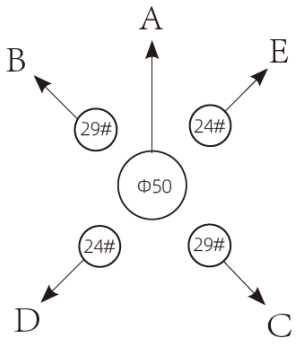
1. 1~10L Single-layer glass reactor-Desktop HGR-S series

Description

HGR-S series single layer glass reactor has an electric constant speed stirring system, condensation, dripping system, and heating bath. While stirring the materials, the bath pot heats the materials in the kettle. Under vacuum conditions, the evaporation efficiency can be improved (vacuum device is required), and the solvent vapor is cooled into liquid when it passes through the glass condensing coil (cooling device is required) and can be refluxed in the kettle, it can also be recycled through recycling bottles.
The use of this series of products needs to be equipped with a vacuum device, a cooling cycle device, etc. to form a system device.

Features

- Parts in contact with the materials are all made of high borosilicate glass (expansion coefficient 3.3) and polytetrafluoroethylene materials, which are stable in performance and difficult to chemically react with the materials.
- Main frame is made of cold plate anti-corrosion spray + aluminum alloy material, and the pot is made of stainless steel.
- Stirring and heating power switch control, tilt button (ON-OFF).
- Electronic stepless speed regulation, fine-tuning through the knob, the speed control box digitally displays the speed.
- Constant temperature bath temperature digital display, K-type sensor at the bottom of the pot + stainless steel probe.
- The stirring system adopts ceramic bearings and mechanical seals to prevent the stirring rod from being worn and chipped.
- Vacuum pressure gauge displays real-time vacuum and the pointer displays.



A)Stirring port,Φ50mm flange port
B) Condensing port,29 # conical sanding port
C) Constant pressure funnel port, 29 # conical sanding port
D) Pressure reducing port, 24 # conical sanding port
E) Temperature measurement port,24# conical sanding port

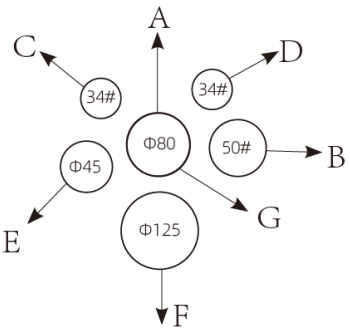
Schematic diagram of 3-5L single glass reactor reactor

- Crescent type stirring blade, 304 stainless steel + PTFE stirring blade; the stirring rod is made of 304 stainless steel, with PTFE tube outside.
- Stirring and heating double fuse safety protection.

Specification parameters:

Model		HGR-S1	HGR-S2	HGR-S3	HGR-S5
Capacity of kettle body		1L spherical	2L spherical	3L spherical	5L spherical
Voltage frequency		220V/50HZ	220V/50HZ	220V/50HZ	220V/50HZ
Stirring motor power		40W	40W	90W	90W
heating power		1.5KW	1.5KW	2KW	2KW
Stirring speed		0-800rpm/min	0-800rpm/min	0-800rpm/min	0-800rpm/min
Temperature range of kettle		-80℃~ +250℃	-80℃~ +250℃	-80℃~ +250℃	-80℃~ +250℃
Temperature range of bath		RT -180℃	RT -180℃	RT -180℃	RT -180℃
Temperature accuracy		±1℃	±1℃	±1℃	±1℃
Vacuum		0.098Mpa	0.098Mpa	0.098Mpa	0.098Mpa
Kettle port (5 pcs) Φ131mm	Mixing	Φ50 mm flange	Φ50 mm flange	Φ50 mm flange	Φ50 mm flange
	Condensation	24# mouth	24# mouth	29# mouth	29# mouth
	Constant pressure funnel	24# mouth	24# mouth	29# mouth	29# mouth
	Pressure reducing	19# mouth	19# mouth	24# mouth	24# mouth
	Temperature	19# mouth	19# mouth	24# mouth	24# mouth
impeller		Φ10×350H(mm) Leaf spread 80mm	Φ10×400H(mm) Leaf spread 80mm	Φ10×500H(mm) Leaf spread 90mm	Φ10×530H(mm) Leaf spread 90mm
Condenser		Φ40mm×350H(mm) upper 24# standard port lower 24# standard plug	Φ40mm×350H(mm) upper 24# standard port lower 24# standard plug	Φ60mm×450H(mm) upper 24# mouth lower 29# standard plug	Φ60mm×450H(mm) upper 24# mouth lower 29# standard plug
Constant pressure funnel		250ml upper 24# standard port with glass stopper lower 24# standard stopper	250ml upper 24# standard port with glass stopper lower 24# standard stopper	500ml upper 24# standard port with glass stopper lower 29# standard stopper	500ml upper 24# standard port with glass stopper lower 29# standard stopper
Pressure reducing valve		19# standard, OD 10mm	19# standard, OD 10mm	24# standard, OD 10mm	24# standard, OD 10mm
Temperature measurement port		19# Standard	19# Standard	24# standard	24# standard
Collection device		Two adapters, 24# standard 500 spherical collection bottle	Two adapters, 24# mouth 500 spherical collection bottle	Two adapters, 24# mouth 500 spherical collection bottle	Two adapters, 24# standard 500 spherical collection bottle
Vacuum exhaust nozzle		24#Glass suction head OD 10mm	24#Glass suction head OD 10mm	24#Glass suction head OD 10mm	24#Glass suction head OD 10mm
Condensing circulation in/out port		OD 10mm	OD 10mm	OD 10mm	OD 10mm
Pot size		Φ245×140H(mm)	Φ245×140H(mm)	Φ265×160H(mm)	Φ280×170H(mm)
Dimensions (mm) W*D*H		(400-700)×330×900	(400-700)×330×930	(430-1030)×330×1100	(430-1030)×330×1150
Machine net weight		18KG	18KG	23KG	25KG
Package Size		1000×460×510mm, wooden box, 0.23m³	1000×460×510mm wooden box 0.23m³	1020×480×520mm wooden box 0.26m³	1020×480×520mm wooden box 0.26m³
Package weight		33KG	33K	38KG	40KG

2. 10L 20L 30L 50L 100L Single-layer glass reactor HGR-S series



A)Stirring port,Φ80mm flange port
B) Condensing reflux port,50 #ball mill port
C) Constant pressure funnel port, 34 # standard port
D) Pressure reducing port, 34# standard port
E) Temperature measurement port,45# flange port
F) Solid feeding port,Φ125mm flange port with PTFE lid
G)Low discharging port, Φ 80mm flange port

7-port reactor lid schematic diagram of spherical single-layer glass reactor

Description

HGR-S series single layer glass reactor has an electric constant speed stirring system, condensation, dripping system, and heating bath. While stirring the materials, the bath pot heats the materials in the kettle. Under vacuum conditions, the evaporation efficiency can be improved (vacuum device is required), and the solvent vapor is cooled into liquid when it passes through the glass condensing coil (cooling device is required) and can be refluxed in the kettle, it can also be recycled through recycling bottles.
The use of this series of products needs to be equipped with a vacuum device, a cooling cycle device, etc. to form a system device.

Features

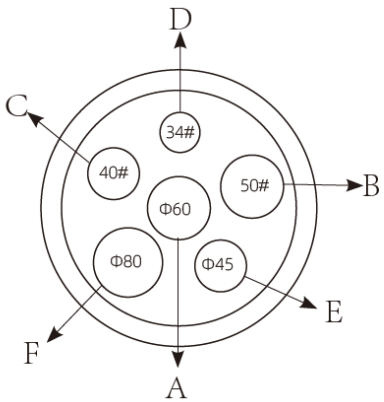
- A reliable sealing system, using a combination of PTFE+ fluor rubber to maintain ahigh deHGRee of vacuum.
- The stirring system adopts ceramic bearings and mechanical sealing to prevent the stirring rod from wearing out, with high temperature resistance, wear resistance, and good sealing effect
- High borosilicate glass (expansion coefficient 3.3), with high strength, high temperature resistance, and corrosion resistance.4. The stirring and heating dual fuse has high safety protection performance.

Specification parameters:

Model	HGR-S10	HGR-S20	HGR-S30	HGR-S50	HGR-S100S Spherical
Reactor capacity	10L	20L	30L	50L	100L
Glass material	GG-17				
Coating and anticorrosive pot shell size (mm)	540*440*860	640*540*890	690*590*920	740*640*960	640*640*1200
Stainless steel pot size (mm)	350*220	450*250	500*280	550*320	550*650
Move method	Universal corner wheel with brake				
Number of reaction bottles	Spherical, seven （7） mouth				Cylindrical , six(6) caps
The discharge port is off the ground	450mm				
Reaction temperature of kettle body	-80-250°C				
Vacuum	0.098Mpa				
Stirring speed	0-450rpm				
Stirring shaft diameter	15mm				
Stirring power	90W1/3		120W1/3		250W1/3

heating power	3KW	5KW	8KW		
Dimensions (mm*mm*mm)	600*440*1900	700*540*1950	750*590*2160	800*640*2200	730*630*2600
Packing size (mm*mm*mm)	1100*620*790	1220*620*790	1220*660*860	1440*720*890	1900*780*870
Packing weight (KG)	63	70	80	90	120
Motor configuration	Low-speed booster motor, speed ratio 3:1				
Speed display mode	LCD digital display				
Temperature display mode in the pot	Digital Display				
PTFE component sealing	¢70 Flange mixing port				¢60 Mixing port
Condenser	100*600mm		120*600mm		
Reflux (distillation) device	Return elbow with discharge switch, 50# ball mill mouth				
Dropping device	1L /34#		2L/ 34#		2L /40#
Pressure reducing device	34# standard port pressure reducing valve				
Temperature measuring tube	24# mouth				
Solid feeding (cleaning) port	¢120 flange port with PTFE cover				¢80 Flange port
Feeding method	Oblique discharge glass discharge valve, ¢80 flange port				
Vacuum display method	Vacuum gauge				
Stirring connection method	Universal joint connection				
Stirring rod	Traction stainless steel rod, outsourcing PTFE				
Pot shell	304 stainless steel				
Collection device	Optional collection bottle				
Cold cycle device	Optional cooling copper coil				
Explosion proof	Explosion-proof inverter, explosion-proof motor 180W/370W 0-1400 rpm				
main part	Optional machine sprayed with PTFE				
heating equipment	Optional electric heating jacket heating				

Model	HGR-S100L Barrel-shape（HGR-S100LEX Barrel-shape)
Reactor capacity	100L Barrel-shape
Voltage & frequency V/HZ	stirring 220/50 Heating bath 380/50
Stirring motor power W	200W1/3（Ex370）
Heating power KW	8（8）
Stirring speed rpm	0-450（Ex-proof 0-1400）
Reactor temperature range ℃	-80 ～ +250
Temperature control range of water bath ℃	RT-180
Temperature measurement accuracy ℃	±1
Vacuum degree Mpa	0.098
Constant pressure funnel L	2
Overall dimension	900W×770D×2550H
Net weight KG	110（120）



A)Stirring port,Φ60mm flange port
B) Condensing reflux port,50 #ball mill port
C) Dripping port, 40 # standard port
D) Pressure reducing port, 34# standard port
E) Temperature measurement port,45# flange port
F) Solid feeding port,Φ80mm flange port, inner diameterΦ80mm, with PTFE lid

Barrel-shape single-layer galss reactor
Schematic diagram of 6 port Φ340mm reactor lid

3. 200L Single-layer glass reactor HGR-S series

Specification parameters:

Model	HGR-S200L Barrel-shape（HGR-S200LEX Barrel-shape)
Reactor capacity	200 Barrel-shape
Voltage & frequency V/HZ	Stirring 220/50 Heating bath 380/50
Stirring motor power W	750W1/5
Heating power KW	21
Stirring speed rpm	0-280
Reactor temperature range ℃	-80 ～ +250
Temperature control range of water bath ℃	RT-180
Temperature measurement accuracy ℃	±1
Vacuum degree Mpa	0.098
Dripping flask capacity	5L Barrel-shape
Collecting flask capacity L	10
Overall dimension	880W×800D×1850H
Net weight KG	178

4. 1~5L Small Type Jacket Glass Reactor HGR-D Series

Introduction

Reagents are set in the inner layer of double-layer glass reaction kettle, at the same time, vacuum can be taken out and mixing speed be adjusted. Interlayer can lead in refrigerating fluid, water and high temperature liquid to heat and cool the materials. It can be used in the experiment, middle-scale test, and production of chemistry, fine chemical engineering, biological pharmacy and synthesis of new materials. The products can be made into system devices with multi-purpose circulating water vacuum pump, diaphragm vacuum pump, low temperature circulating pump (vacuum), circulating cooler, constant temperature circulator, low temperature cooling liquid circulating pump and closed cooling and heating circulating equipment.

Features

- Solvent-resistant PTFE on all sealing components ensures long time durability and operation.
- All glassware is hand-made from food grade high borosilicate glass that is heat/cold/corrosion-resistant.
- Adjustable stirring rate provides great torque or high speed.
- Patented PTFE stirring rod bearing for reliable and quiet operation.
- Optional multi-layer stirring blades for optimal reaction results.
- Wide range of temperature operations, from -80°C to 200°C.
- Large condenser cooling surface for exceptional condensation performance.
- Rugged stainless steel reinforced PTFE stirrer with anchored agitator, suitable for a wide range of viscous materials.
- Easily visual operation with digital speed and temperature displays.
- Heavy duty stainless steel supporting framework with lockable casters for mobility and stability. (whole support and glass vessel shipped pre-assembled)
- One year warranty and lifetime parts, service, and support.

Specification parameters:

Model		HGR-D1	HGR-D2	HGR-D3
Material capacity (L)		1	2	3
Jacket volume (L)		0.3	0.6	0.9
Material		High borosilicate glass 3.3	High borosilicate glass 3.3	High borosilicate glass 3.3
Material of supporting structure and adapting piece		Stainless steel cladded 304	Stainless steel cladded 304	Stainless steel cladded 304
Tolerable temperature of Reaction Kettle (℃)		-80~200	-80~200	-80~200
pressure (Mpa)		-0.1~ordinary pressure	-0.1~ordinary pressure	-0.1~ ordinary pressure
stirrer	power(W)	85	85	85

	Adjusting method	stepless speed	stepless speed	stepless speed
	speed(rpm)	50~500	50~500	50~500
	Max viscosity (mpas)	100000	100000	100000
	max torque (Ncm)	300	300	300
	Alarm h	100	100	100
	Safety	Overheating,overload protection	Overheating, overload protection	Overheating, overload protection
Opening size of Reaction Kettle (5)	Stirring	24# standard	24# standard	24# standard
	Temperature sensor	24#standard	24#standard	24# standard
	Connector of condenser	24#standard	24#standard	24# standard
	Liquid	19#standard	19#standard	19# standard
	Connector of constant voltage funnel	24#standard	24#standard	24# standard
Inlet/outlet liquid circulation nozzie		DN10	DN10	DN10
material of sealing		PTFE	PTFE	PTFE
Power supply		1~,220V 50,60Hz	1~,220V 50,60Hz	1~,220V 50,60Hz
Discharge valve		Discharge valve without effusion, the height of the discharge valve from the ground: 100~260mm(adjustable)	Discharge valve without effusion,the height of the discharge valve from the ground:100~210mm	Discharge valve without effusion,the height of the discharge valve from the ground:100~210mm
Material of temperature transducer		Stainless steel claded by fluorine, double anti-corrosion	Stainless steel claded by fluorine, double anti-corrosion	Stainless steel claded by fluorine, double anti-corrosion
Stirring		Two-blade stirring paddle,Stainless steel claded by fluorine	Two-blade stirring paddle,Stainless steel claded by fluorine	Two-blade stirring paddle,Stainless steel claded by fluorine
Dimensions (mm)		405L*420W*1020H	405L*420W*1020H	405L*420W*1020H

Model	HGR-D5
Electrical Requirement	220V 50Hz
Glass Vessel Cacacity	5L
Jacket Capacity	1.5L
Jacket Cooling/Heating Surface	1300 c ㎡
Condenser Coolin Surface	450 c ㎡
Glass Material	Food Grade Borosilicate 3.3
Durable Temperature Range	-80℃~200℃
Working Pressure	-0.1Mpa~Ordinary Pressure
Vessel Cover	Domed with 6 openings
Stirring Motor	90W
Stirring Speed	0~500 rpm
Stirring Rod	PTFE Coated Stainless Steel
Vacuum Sealing	PTFE
Openings on the Cover	1.-Stirring Shaft 2-Temperature Probe

	3-Condenser 4-Liquid Feeding Port 5-Constant Pressure Funnel
Drain Valve	1. Flush seal design with large opening and flat flange clamp 2. 360mm Above Floor
Circulating Inlet/Outlet	DN15 Flange
Temperature Sensor	Fluoro covered stainless steel
Frame Work	SUS 304
Dimensions	640L×470W×1780H (mm)
Weight	70KG

5. 5L~100L double layer Jacket Glass Reactor, Triplex Glass Reactor HGR Series

Explosion-proof, 5L, 10L, 20L, 30L, 50L, 80L, 100L

20L Jacket type | 30L jacket explosion-proof | 100L Jacket type

CHARACTERISTICS OF USES

Reagents are set in the inner layer of double-layer glass reaction kettle, at the same time, vacuum can be taken out and mixing speed be adjusted. Interlayer can lead in refrigerating fluid, water and high temperature liquid to heat and cool the materials. It can be used in the experiment, middle-scale test, and production of chemistry, fine chemical engineering, biological pharmacy and synthesis of new materials. The products can be made into system devices with multi-purpose circulating water vacuum pump, diaphragm vacuum pump, low temperature circulating pump（vacuum）, circulating cooler, constant temperature circulator, low temperature cooling liquid circulating pump and closed cooling and heating circulating equipment.

FEATURES

- Temperature adopts digital setting and display, easy to operate, high precision of temperature control.
- High borosilicate glass has good physical and chemical properties.
- Can be used in wide temperature range from high temperature （300℃）to low temperature（-80℃）.

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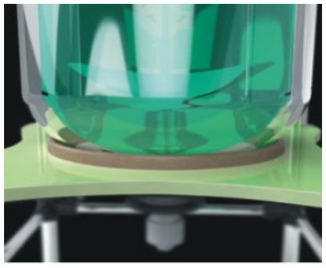
Flaring Angle Valve
Optional for placing crystals

Constant funnel

Condenser

- Can work in constant pressure and vacuum, vacuum degree is below 0.095MPa in quiet situation.
- Digital display of mixing speed, , frequency conversion, and constant speed mixing system, work steadily.
- The sealing me thod and materials between mixer shaft ,PTFE mixing propeller （paddle）,and ketttle cover are Know-how of our company.
- Corrosion resistant discharge valve is without dead space design.
- The cooling or heating solution in the interlayer can be completely removed after reaction.The whole structure is novelty, practical and beautiful.

PTFE Seal Support System



Cork Tray

Flaring Angle

PTFE No fluid discharge valve

Tuning nut

Triplex Glass Reactor

Explosion-proof motors:

1. According to the mixing material viscosity, Adjust motor power
2. Explosion-proof grade dIIBT4
3. Motor power has 180W, 90W, 370W
4. run without sparks

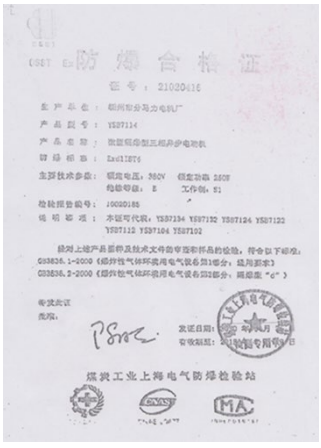
Explosion-proof control part:

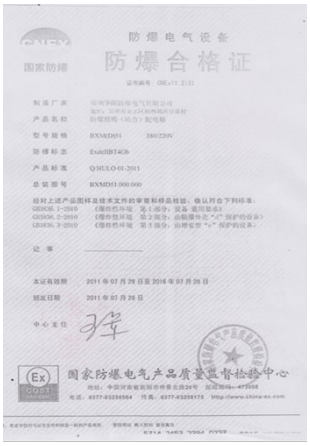
1. Using high quality steel plate welding
2. High pressure electrostatic spray
3. Increased safety structure for busbars and outlets
4. Control self-development design
5. Over-voltage, under-voltage, over-current protection
6. Overload, overheat protection
7. Explosion-proof grade dIIBT4
8. Speed digital display 50-500 rpm
9. Temperature digital display, online detection
10. Stepless speed regulation
11. Explosion-proof flexible connecting pipe is resistant to fire, corrosion, water, aging

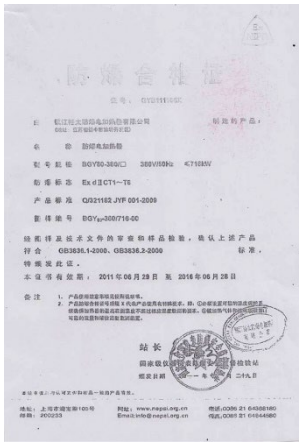
Explosion-proof standard GB3836

1. Explosion-proof mark dIIBT4, on behalf of: Explosion-proof electrical products for the type of explosion-proof, is the use of Class IIB place (Class) Do not, the ignition temperature of explosive gases T4 group.
2. Flameproof d GB3836.2 isolated ignition source exists
3. Explosion-proof electrical equipment, in accordance with the maximum test safety clearance (MESG) or minimum ignition current (MICR) to distinguish, Class II electrical equipment is divided sinto: IIA, IIB, IIC three categories.
4. According to the difference of ignition temperature of explosive gas mixture, the group is divided into six kinds of T1, T2, T3, T4, T5 and T6. The ignition temperature is expressed in t (℃).
5. T4 is: 135 ℃ <t ≤ 200 ℃; T1 is: 450 ℃ <t; T6 is: 85 ℃ <t ≤ 100 ℃

Certificate of Explosion-proof

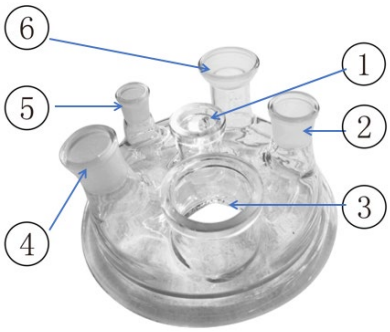






Reactor kettle body:

1. The kettle body volume is 5L, 10L, 20L, 30L,50L, 80L, 100L
2. The jacket volume is 1.6L, 3L, 6L, 10L, 16L, 24L, 30L
3. Jacket pressure ≤ 1.3Bar
4. The kettle body circulation inlet and outlet fluid are flange ports,
   Can be connected with domestic and foreign equipment
5. It can be between 200 degrees above zero and 80 degrees below zero
   Temperature zone use
6. High borosilicate glass



Reactor kettle cover:

1. Stirring: 50# flange mouth
2. Liquid addition: 34# standard grinding mouth
3. Solid: 80# flange mouth
4. Dropping: 40# standard grinding mouth
5. Sensor: 24# standard grinding mouth
6. Dispensing: 50# grinding mouth
7. According to process requirements, increase or decrease Different kettle cover opening size and quantity

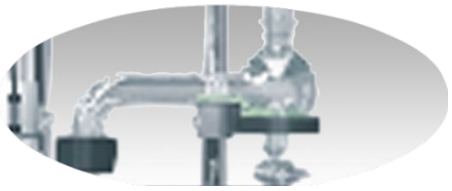
8 kettle cover opening 6

9. High borosilicate glass

Constant pressure funnel

Condenser

Pumping and filling nozzle



Condensing dispenser

Solid feed port **Liquid feed port**

Reactor glass accessories:

1. Constant pressure funnel large capacity 2L
2. The condenser is distilled efficiently
3. The condensate dispenser can be returned and recovered
4. Liquid addition valve can add solvent

5 solid feed valve can add powder, crystal material

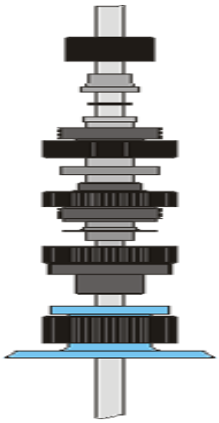
6. Air suction, liquid inlet to achieve pipeline and glass docking
7. Discharge valve without fluid, high and low temperature resistance, corrosion resistance
8. Can be placed crystallization material, easy operation and maintenance clean.

Borosilicate glass (also known as hard glass, GG17, borosilicate glass 3.3) is a special glass material with low expansion rate, high and low temperature resistance, high strength, high hardness, high light transmittance, and high chemical stability. With a very low coefficient of thermal expansion, resistance to temperature changes drastically at 200 degrees. Silicon content above 80% Strain temperature 520°C Annealing temperature 560°C. The coefficient of thermal expansion (20-300°C) is 3.3 × 10-6 K-1. It is a glass based on silicon oxide (NA2O), boron oxide (B202), and silicon dioxide (SiO2). Acid and alkali, anti-corrosion. Has good cold and heat stability, impact, chemical stability, and electrical properties.

Stirring bearing

National patent products

Patented technology guarantees vacuum and durability



1. No leakage of stainless steel and material contact
2. Smooth transmission
3. High-speed operation without PTFE powder
4. according to the user material can choose Ceramic, carbon steel, stainless steel bearings
5. High vacuum

Reactor stirring paddle

- Stirring material is made of stainless-steel skeleton, wrapped with PTFE, corrosion resistant
- Ensure that the kettle body is not in contact with any metal.
- The high-low temperature mixing blade does not fall off, and the blade is formed by a single mold.
- The agitator is classified according to the shape of the impeller:
- Anchor stirrer (Crescent), propeller stirrer.
- The number of layers can be divided into single layer, double layer, and three layers.

Teflon sealing ring

National patent products

Product advantages:

- High temperature - use working temperature up to 260 °C.
- Low temperature resistance - Good mechanical toughness; 5% elongation even if the temperature drops to -100°C.
- Corrosion resistance - inert to most chemicals and solvents. Resists strong acids, strong bases, aqua regia and various organic solvents.
- Weather resistance - The best aging life in plastic.
- High lubrication - The lowest coefficient of friction in solid materials.
- Non-adhesive - not afraid of chemical corrosion, long service life.
- Non-toxic - it is physiologically inert and there is no adverse reaction in the implant.

Universal joints/couplings

1. Cross shaft type universal coupling: single section, cross, nominal torque 50N.m, working angle: ≤45°
2. Flexible elastic metal coupling: nominal torque 4N.m, high concentricity

- Large angular compensation capability
- Compact structure, high transmission efficiency, low noise
- Long service life, convenient maintenance
- Working speed: ≤1000RPM
- SUS304 material

Rack

Frame, connector

SUS304, GB grade 06Cr18Ni9 is a chromium-nickel stainless steel with good corrosion resistance, heat resistance, low temperature strength and mechanical properties.

Base Tray

Frame connection parts

Fluoride rubber pad

Fluoride rubber pad:

Protective kettle body kettle cover.

High vacuum seal does not leak

Prevent kettle kettle lid bonding

Cork tray gasket

Cork trays:

Protective kettle body.

Waterproof, insulation, flame retardant

Wear-resistant, high and low temperature

Recirculation inlet and outlet pipe

Recirculating inlet and outlet pipes:
Internal use of SUS304 stainless steel
Protective kettle body, easy maintenance
Acid and alkali resistance, high and low temperature resistance
Pressure resistance, anti-scald, frostbite
Buffer pressure, free tapping
Compatible with any recycling equipment

Temperature Sensor:
PT100 thermometer probe Temperature range -100 to +300 degrees
Sensor cover stainless steel SUS304
Stainless steel outer sleeve one-time forming PTFE sleeve, double anti-corrosion
With 24# standard grinding plug, vacuum sealed high

Effect:
Instrument for converting a temperature variable to a standard output signal that can be transmitted
Mainly used for the measurement and control of industrial process temperature parameters
High accuracy, good linearity, fast thermal response time, long-term stability, etc.

Vacuum Gauge:
High precision, accuracy display 0.002
Pointer display
Display range 0 to -0.1Mpa
With reactor and vacuum adapter
Metal and surface treatment, corrosion resistance

SPECIFICATIONS

Model		HGR-05D HGR-05T	HGR-10D HGR-10T	HGR-20D HGR-20T	HGR-30D HGR-30T	HGR-50D HGR-50T	HGR-80D HGR-80T	HGR-100D HGR-100T
Effective volume (L)		5	10	20	30	50	80	100
Jacketed volume (L)		1.5	3	6	10	16	24	30
Jacket heat transfer area (m^2)		0.13	0.22	0.32	0.46	0.65	0.9	1.09
Condenser heat transfer area (m^2)		0.12	0.2	0.3	0.3	0.3	0.5	0.5
Glassware Material		Pyrex 3.3	Pyrex 3.3	Pyrex 3.3	Pyrex 3.3	Pyrex 3.3	Pyrex 3.3	Pyrex 3.3
Holder Material		SUS 304	SUS 304	SUS 304	SUS 304	SUS 304	SUS 304	SUS 304
Temp. Tolerance (°C)		-80 ~ 200	-80 ~ 200	-80 ~ 200	-80 ~ 200	-80 ~ 200	-80 ~ 200	-80 ~ 200
Operation Pressure(Mpa)		Vacuum or atmospheric pressure						
Motor	Power(W)	90	90	90	90	140	250	250
	Adjustment	Frequency Control						
	RPM	50 ~ 500	50 ~ 500	50 ~ 500	50 ~ 500	50 ~ 500	50 ~ 500	50 ~ 500
Stirring port (Flange)		50#	50#	50#	50#	50#	60#	60#
Sensor port		24#	24#	24#	24#	24#	24#	24#
Condenser (Milling mouth)		35#	50#	50#	50#	50#	50#	50#
Liquid feeding		24#	34#	34#	34#	34#	34# * 2	34# * 2
Constant pressure funnel		29#	40#	40#	40#	40#	40#	40#
Solid feeding (Flange)		/	80#	80#	80#	80#	95#	95#
Outlet/Inlet interface		DN15	DN15	DN15	DN15	DN15	DN15	DN15
Seal Material		Teflon	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon
Power Supply		220V 50HZ	220V 50HZ	220V 50HZ	220V 50HZ	220V 50HZ	220V 50HZ	220V 50HZ
Discharge valve	Description	No effusion side discharge valve						
	Ground Clearance	400mm	400mm	370mm	360mm	320mm	400mm	350mm
Temp. sensor material		Stainless steel coated with fluorine , double corrosion						

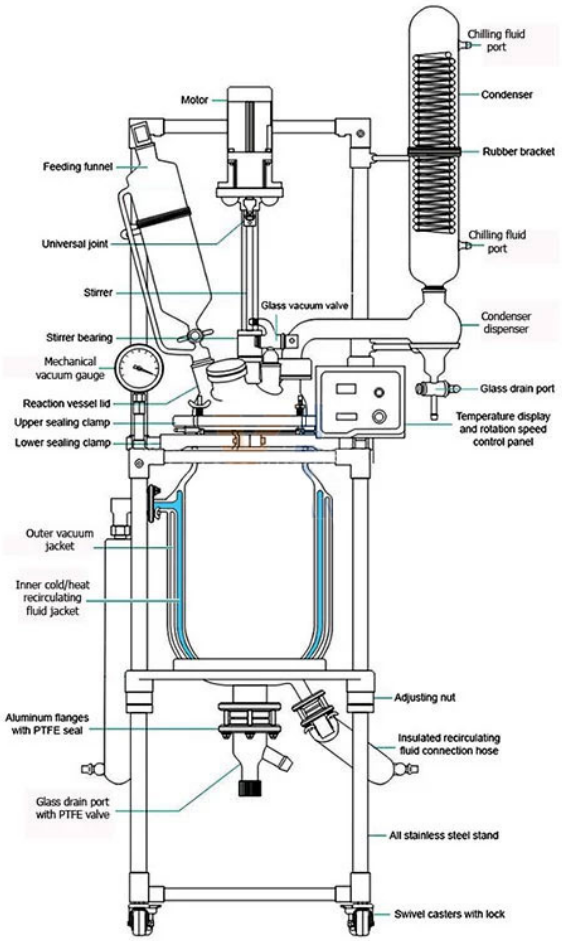
Stirrer	Clover rotary vane impeller, stainless steel PTFE Outsourcing						
Dimensions(mm) (L*W*H)	460×380×1680	460×380×1680	520×520×2030	520×520×2150	570×570×2250	670L×670W×2600	670×670×2600
Remark	“D” means double layer glass reactor, “T” means tripe-layer glass reactor						

Model “D” is double layer jacket type, model “T” is three-layer jacket type

6. 1~3L, 5~200L Jacket Glass Reactor HGR-DN Series

HGR series glass reactor is designed as double-layer glass. The inner layer is placed in the reaction medium and can be stirred. The interlayer can be heated or circulated by different cold and heat sources (refrigerant, hot water or hot oil). Under the constant temperature condition, the sealed glass reactor can be stirred under normal pressure or negative pressure according to the requirements of use, and can carry out reflux and distillation of the reaction solution. It is a modern fine chemical, biopharmaceutical and new material. The ideal pilot and production equipment for synthesis. Technical Features The whole stainless steel column mobile frame structure, five reactor lids, complete glass with reflux, liquid addition, temperature measurement, etc. Use G3.3 borosilicate glass

HGR series glass reactor is designed as double-layer glass. The inner layer is placed in the reaction medium and can be stirred. The interlayer can be heated or circulated by different cold and heat sources (refrigerant, hot water or hot oil). Under the constant temperature condition, the sealed glass reactor can be stirred under normal pressure or negative pressure according to the requirements of use, and can carry out reflux and distillation of the reaction solution. It is a modern fine chemical, biopharmaceutical and new material. The ideal pilot and production equipment for synthesis.



Technical characteristics

- The whole stainless steel column mobile frame structure, five reactor lids, complete glass with reflux, liquid addition and temperature measurement.
- G3.3 borosilicate glass is used, which has good chemical and physical properties.
- Alloy steel mechanical seal, Teflon joint, keep high precision seal under working condition.
- Pt100 sensor probe has high temperature measurement accuracy and small error, which effectively improves work efficiency.
- Japanese technology AC gear motor, strong torque, no noise.
- Double PTFE stir pad for mixing and mixing of low to high viscosity liquids.
- PTFE discharge valve, movable interface, completely and quickly.

Specifications:

1L~3L small type

Model	HGR-1DN	HGR-2DN	HGR-3DN
voltage	220V/50HZ	220V/50HZ	220V/50HZ
Motor Power	40W	40W	60W
Rotating speed	0-1100rpm/min	0-1100rpm/min	0-1100rpm/min
Reactor capacity	1L	2L	3L
Mezzanine capacity	0.4L	0.5L	0.6L
Constant pressure low price funnel capacity	250ML	250ML	500ML
Port number of reactor lid	5 pcs of port	5 pcs of port	5 pcs of port
Kettle reaction temperature	-80℃-250℃	-80℃-250℃	-80℃-250℃
Vacuum	0.098Mpa	0.098Mpa	0.098Mpa
Mixing shaft diameter	Ø10	Ø10	Ø10
Discharge port off the ground	300mm	300mm	300mm
Dimensions (L*W*H) mm	350 *345 *1000	350 *345 *1000	350*410 *1250
Package dimensions(L*W*H) mm	1200*480*400	1200 *480 *400	1380*500 *400
Package weight	32KG	32KG	38KG

5~200L standard type

Model	HGR-5DN	HGR-10DN	HGR-20DN	HGR-30DN	HGR-50DN	HGR-80DN	HGR-100DN	HGR-150DN	HGR-200DN
Volume(L)	5	10	20	30	50	80	100	150	200

Neck No.on Cover	5	6	6	6	6	6	6	6	6
External Diameter of Inner Vessel (mm)	180	230	290	330	365	410	460	550	600
External Diameter of Outer Vessel (mm)	230	290	330	365	410	460	500	600	650
Cover Diameter (mm)	180	265	265	265	265	340	340	340	340
Vessel Height (mm)	400	450	550	730	850	950	950	980	1200
Motor Power (W)	60	140	140	140	140	250	250	400	750
Vacuum Degree (Mpa)	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098
Rotation Speed (rpm)	50-600	50-600	50-600	50-600	50-600	50-600	50-600	50-600	50-600
Torque (Nm)	0.95	2.23	2.23	2.23	2.23	3.98	3.98	6.37	6.37
Power (V)	220	220	220	220	220	220	220	220	220
Dimension (cm)	45*45*120	65*65*190	70*50*200	70*50*210	80*60*230	100*70*250	100*70*270	120*90*300	120*90*320

5~200L Ex-proof type

Model	HGR-5DN	HGR-10DN	HGR-20DN	HGR-30DN	HGR-50DN	HGR-80DN	HGR-100DN	HGR-150DN	HGR-200DN
Volume (L)	5	10	20	30	50	80	100	150	200
Neck No.on Cover	5	6	6	6	6	6	6	6	6
External Diameter of Inner Vessel(mm)	180	230	290	330	365	410	460	550	600
External Diameter of Outer Vessel(mm)	230	290	330	365	410	460	500	600	650
Cover Diameter (mm)	180	265	265	265	265	340	340	340	340
Vessel Height(mm)	400	450	550	730	850	950	950	980	1200

Motor Power(W)	120	120	120	180	180	370	370	750	750
Vacuum Degree (Mpa)	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098
Rotation Speed (rpm)	50-600	50-1400	50-1400	50-600	50-600	50-600	50-600	50-600	50-600
Torque (Nm)	1.90	1.90	1.90	2.86	2.86	5.89	5.89	11.90	11.90
Power (V)	220	220	220	220	220	220	220	220	220
Dimension (mm)	450*450*1200	650*650*1900	700*500*2000	700*500*2100	700*500*2300	1000*700*2500	1000*700*2700	1200*900*3000	1200*900*3200

Accessories for Turnkey

Refrigerating Heating Temperature Control System – for jacket

Various models fit for different capacity of jacket reactor
Heating up to 200° C
Cooling lower to -80° C
Digital LCD screen display
PLC control is optional
Explosion-proof is optional
Silicone oil is optional

Low Temperature Circulating Chiller – cooling for condenser

Various models fit for different capacity of reactor
Cooling lower to -120° C
Digital LCD screen display
Explosion-proof is optional
Silicone oil is optional

VP-B95 SERIES CIRCULATION WATER VACUUM PUMP

- Max vacuum: 0.098 Mpa
- Material of case: Plastic, Stainless steel optional
- Number of taps: 5 pcs
- Power supply: AC220V/50Hz
- Power: 550W
- Flow: 100L/min

2XZ SERIES ROTARY VANE OIL VACUUM PUMP

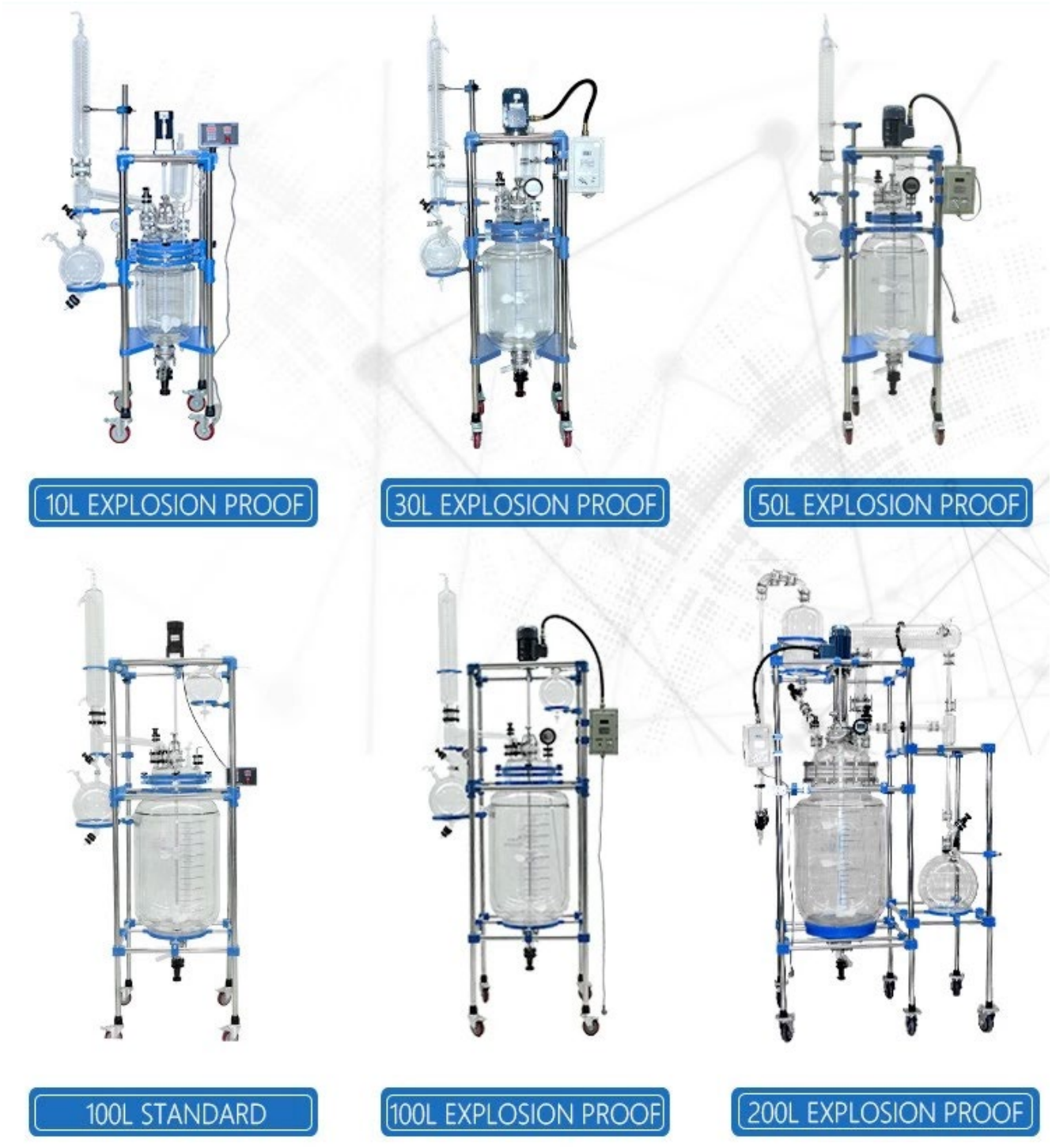
- Max vacuum: ≤6×10-2 Pa
- Explosion-proof type is optional
- Pump rate: 2 to 4 m^3/h
- Power supply: 110V/220V/380V, 50Hz/60Hz
- Power of motor: 370W to 550W
- 2XZ-2, 2XZ-4 is optional

Glass reactor with heating bath

Glass reactor with heating cooling

Glass reactor + chiller + vacuum pump

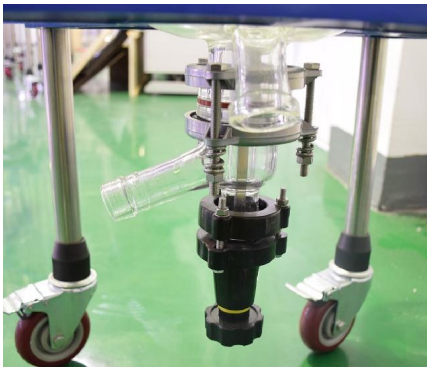
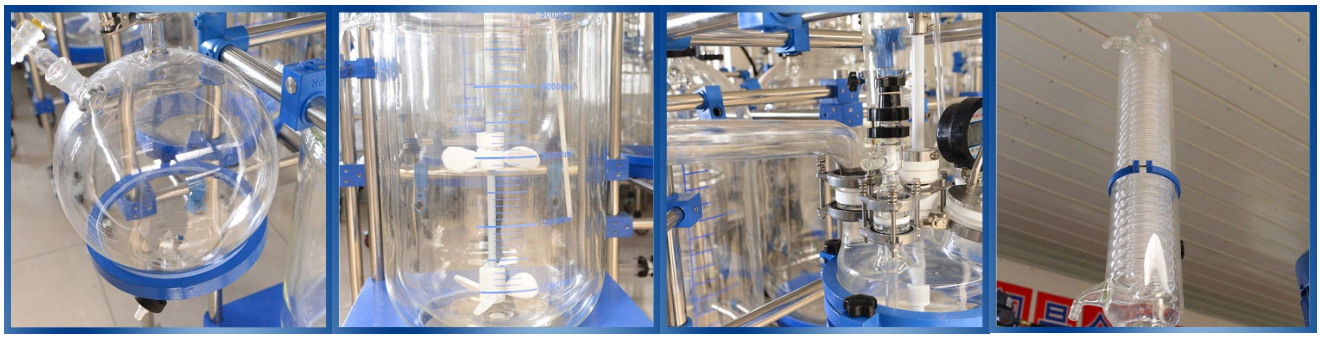
7. 1~3L, 5~200L Jacket Glass Reactor, Ex-proof type HGR-DN Series



The glass reactor is designed as double-layer glass. The inner layer is placed in the reaction medium and can be stirred. The interlayer can be heated or circulated by different cold and heat sources (refrigerant, hot water or hot oil). Under the constant temperature condition, the sealed glass reactor can be stirred under normal pressure or negative pressure according to the requirements of use, and can carry out reflux and distillation of the reaction solution. It is a modern fine chemical, biopharmaceutical and new material. The ideal pilot and production equipment for synthesis. Technical Features The whole stainless steel column mobile frame structure, five reactor lids, complete glass with reflux, liquid addition, temperature measurement, etc. Use G3.3

borosilicate glass

The glass reactor is designed as double-layer glass. The inner layer is placed in the reaction medium and can be stirred. The interlayer can be heated or circulated by different cold and heat sources (refrigerant, hot water or hot oil). Under the constant temperature condition, the sealed glass reactor can be stirred under normal pressure or negative pressure according to the requirements of use, and can carry out reflux and distillation of the reaction solution. It is a modern fine chemical, biopharmaceutical and new material. The ideal pilot and production equipment for synthesis.

Technical characteristics

- The whole stainless steel column mobile frame structure, five reactor lids, complete glass with reflux, liquid addition and temperature measurement.
- G3.3 borosilicate glass is used, which has good chemical and physical properties.
- Alloy steel mechanical seal, Teflon joint, keep high precision seal under working condition.
- Pt100 sensor probe has high temperature measurement accuracy and small error, which effectively improves work efficiency.
- Japanese technology AC gear motor, strong torque, no noise.
- Double PTFE stir pad for mixing and mixing of low to high viscosity liquids.
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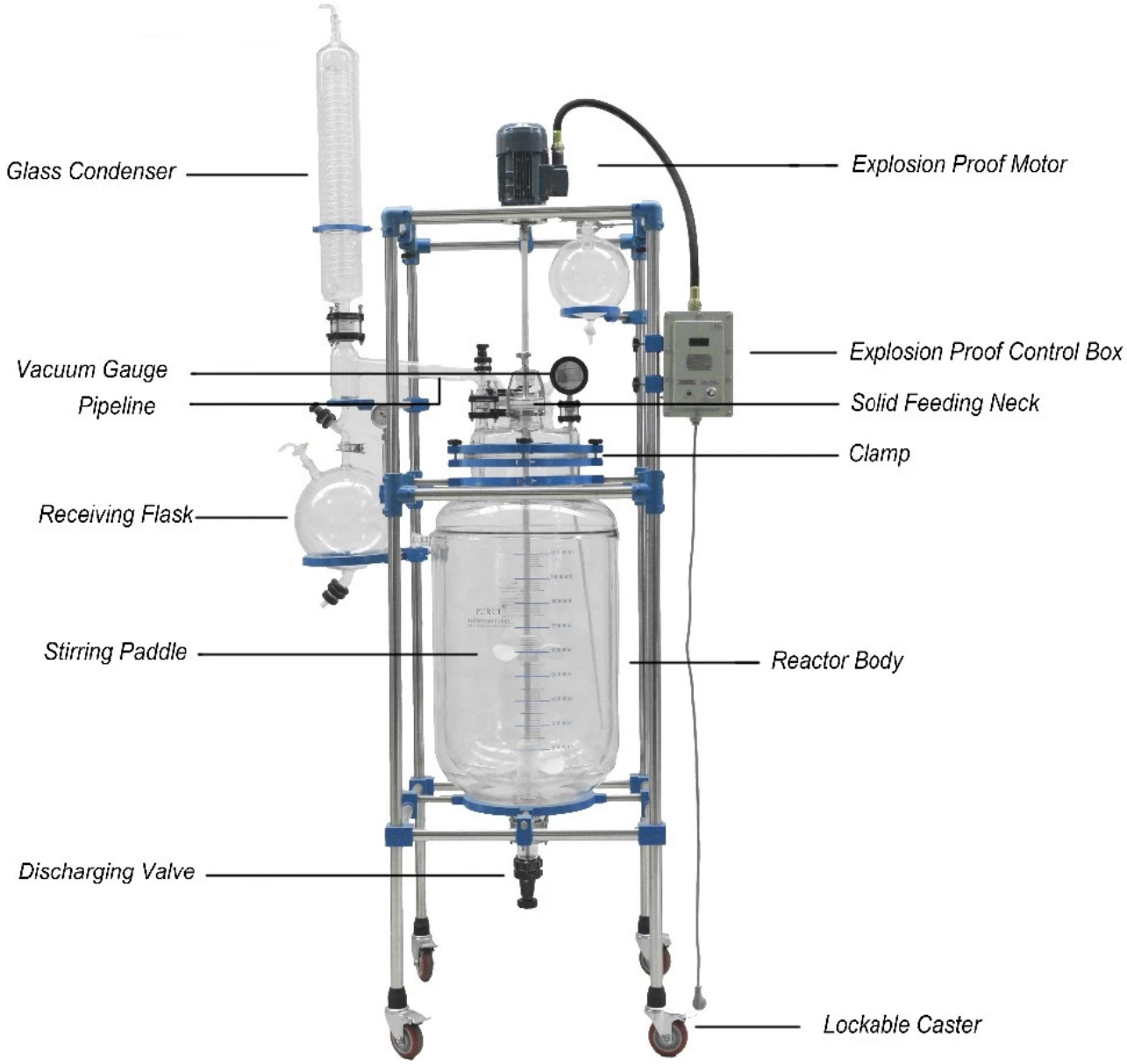
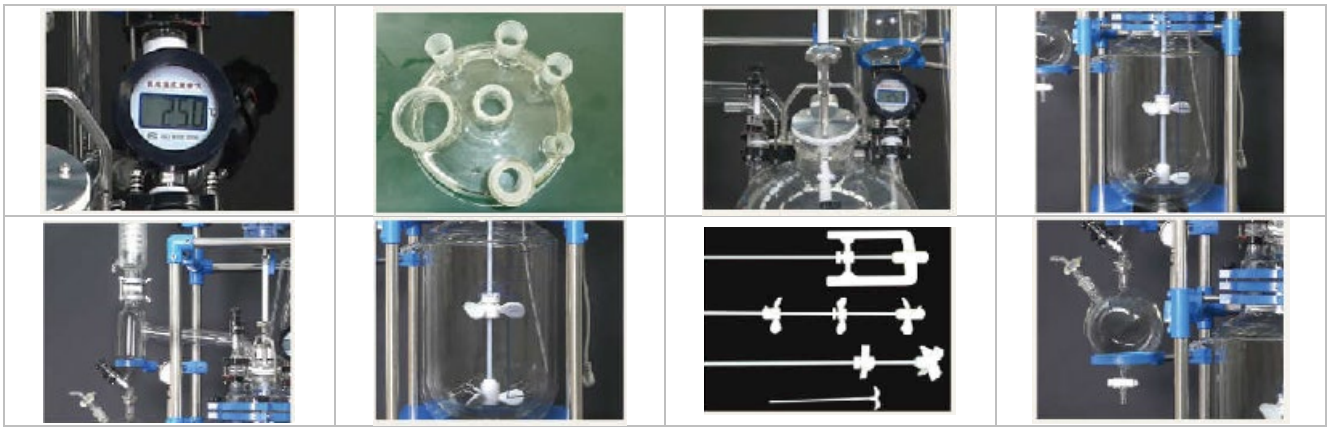

Glass Condenser
Explosion Proof Motor
Explosion Proof Control Box
Vacuum Gauge
Pipeline
Solid Feeding Neck
Clamp
Receiving Flask
Stirring Paddle
Reactor Body
Discharging Valve
Lockable Caster

SPARE PARTS



Specifications:

5~200L standard type

Model	HGR-5DN	HGR-10DN	HGR-20DN	HGR-30DN	HGR-50DN	HGR-80DN	HGR-100DN	HGR-150DN	HGR-200DN

Volume(L)	5	10	20	30	50	80	100	150	200
Neck No.on Cover	5	6	6	6	6	6	6	6	6
External Diameter of Inner Vessel (mm)	180	230	290	330	365	410	460	550	600
External Diameter of Outer Vessel (mm)	230	290	330	365	410	460	500	600	650
Cover Diameter (mm)	180	265	265	265	265	340	340	340	340
Vessel Height (mm)	400	450	550	730	850	950	950	980	1200
Motor Power (W)	60	140	140	140	140	250	250	400	750
Vacuum Degree (Mpa)	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098
Rotation Speed (rpm)	50-600	50-600	50-600	50-600	50-600	50-600	50-600	50-600	50-600
Torque (Nm)	0.95	2.23	2.23	2.23	2.23	3.98	3.98	6.37	6.37
Power (V)	220	220	220	220	220	220	220	220	220
Dimension (cm)	45*45*120	65*65*190	70*50*200	70*50*210	80*60*230	100*70*250	100*70*270	120*90*300	120*90*320

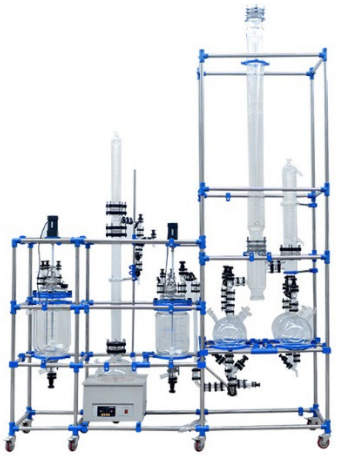
1L~3L small type

Model	HGR-1DN	HGR-2DN	HGR-3DN
Volume(L)	1	2	3
Neck No.on Cover	4	4	4
External Diameter of Inner Vessel(mm)	113	135	150
External Diameter of Outer Vessel(mm)	150	180	200
Cover Diameter(mm)	150	150	150
Vessel Height(mm)	250	280	300
Motor Power(W)	40	40	40
Vacuum Degree(Mpa)	0.098	0.098	0.098

Rotation Speed(rpm)	50-1400	50-1400	50-1400
Torque (Nm)	0.27	0.27	0.27
Power (V)	220	220	220
Dimension(mm)	320*350*800	320*350*800	320*350*900

5~200L Ex-proof type



Model	HGR-5DN	HGR-10DN	HGR-20DN	HGR-30DN	HGR-50DN	HGR-80DN	HGR-100DN	HGR-150DN	HGR-200DN
Volume(L)	5	10	20	30	50	80	100	150	200
Neck No.on Cover	5	6	6	6	6	6	6	6	6
External Diameter of Inner Vessel(mm)	180	230	290	330	365	410	460	550	600
External Diameter of Outer Vessel(mm)	230	290	330	365	410	460	500	600	650
Cover Diameter(mm)	180	265	265	265	265	340	340	340	340
Vessel Height(mm)	400	450	550	730	850	950	950	980	1200
Motor Power(W)	120	120	120	180	180	370	370	750	750
Vacuum Degree (Mpa)	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098
Rotation Speed (rpm)	50-600	50-1400	50-1400	50-600	50-600	50-600	50-600	50-600	50-600
Torque(Nm)	1.90	1.90	1.90	2.86	2.86	5.89	5.89	11.90	11.90
Power (V)	220	220	220	220	220	220	220	220	220
Dimension (mm)	450*450*1200	650*650*1900	700*500*2000	700*500*2100	700*500*2300	1000*700*2500	1000*700*2700	1200*900*3000	1200*900*3200

WORKSHOP


Glass production

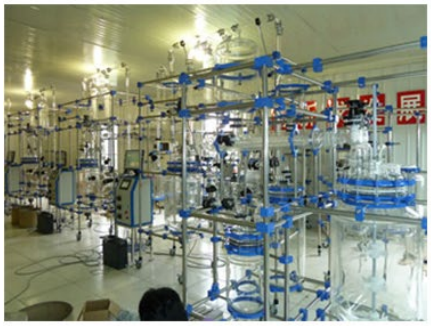

Glass firing shop


Glass production workshop


Finishing workshop

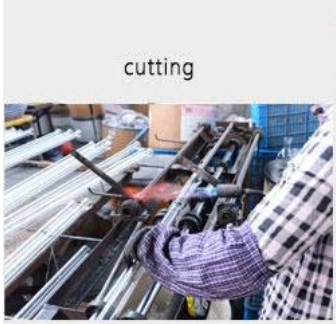

Complete equipment assembly workshop


Machine assembly workshop


Assembly site


Machine assembly workshop


Cycle machine finished machine

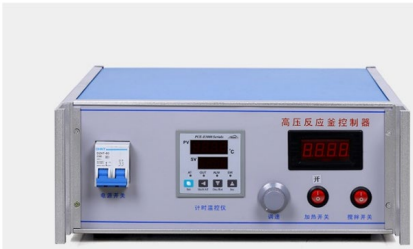



firing,welding


end glass parts

8. High-Pressure Stainless-Steel Reactor CJF Series

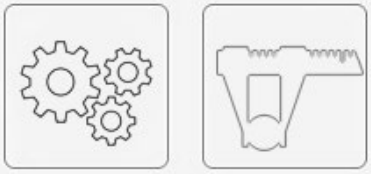
Cooling Coil Connector



Controller

PRODUCT INTRODUCTION

Static Seal-No Leakage



Rigorous Structure High-precision

Reaction vessel stationary ring and stationary ring base create the perfect seal with no need for o-rings, according to their structural features, contact stress increased with increasing working pressure, sealing performance is better under the high pressure.

Notes: During preloading, the bolt force is smaller when establish the initial sealing than the mandatory sealing, so we can not use diameter bolts.

DETAIL DISPLAY

Pressure Gauge

Motor

Safety Valve—Safe and Seliable

Stainless Steel Material Exquisite Workmanship

The reaction kettle equipped with safety valve, that adopted blasting diaphragm, blasting numerical error is small, instantly exhaust gas fast, safe and reliable. Each valve adopts needle valve, reciprocating closed form, seal is reliable and durable. All safety valves with reasonable installation and releasing unblocked.

CJF series stainless-steel high-pressure tank reactor is a gas-liquid, liquid-liquid, liquid-solid or gas-liquid-solid three-phase chemical raw material of a chemical reaction stirring device. It can make a variety of chemical substances in high pressure, vacuum, temperature conditions are fully stirred to enhance the mass transfer and heat transfer process.

CJF series reactor is composed by reactor vessel body, kettle lid, magnetic stirrer, heater, valves, charging port , within the cooling coil, safe blasting device, pressure gauge, controller and lifting devices etc.

Features of stainless steel high pressure tank reactor:

(1) Static sealing structure

(2) The mixer bath electrical machinery transmission uses the magnetic force couple connection.

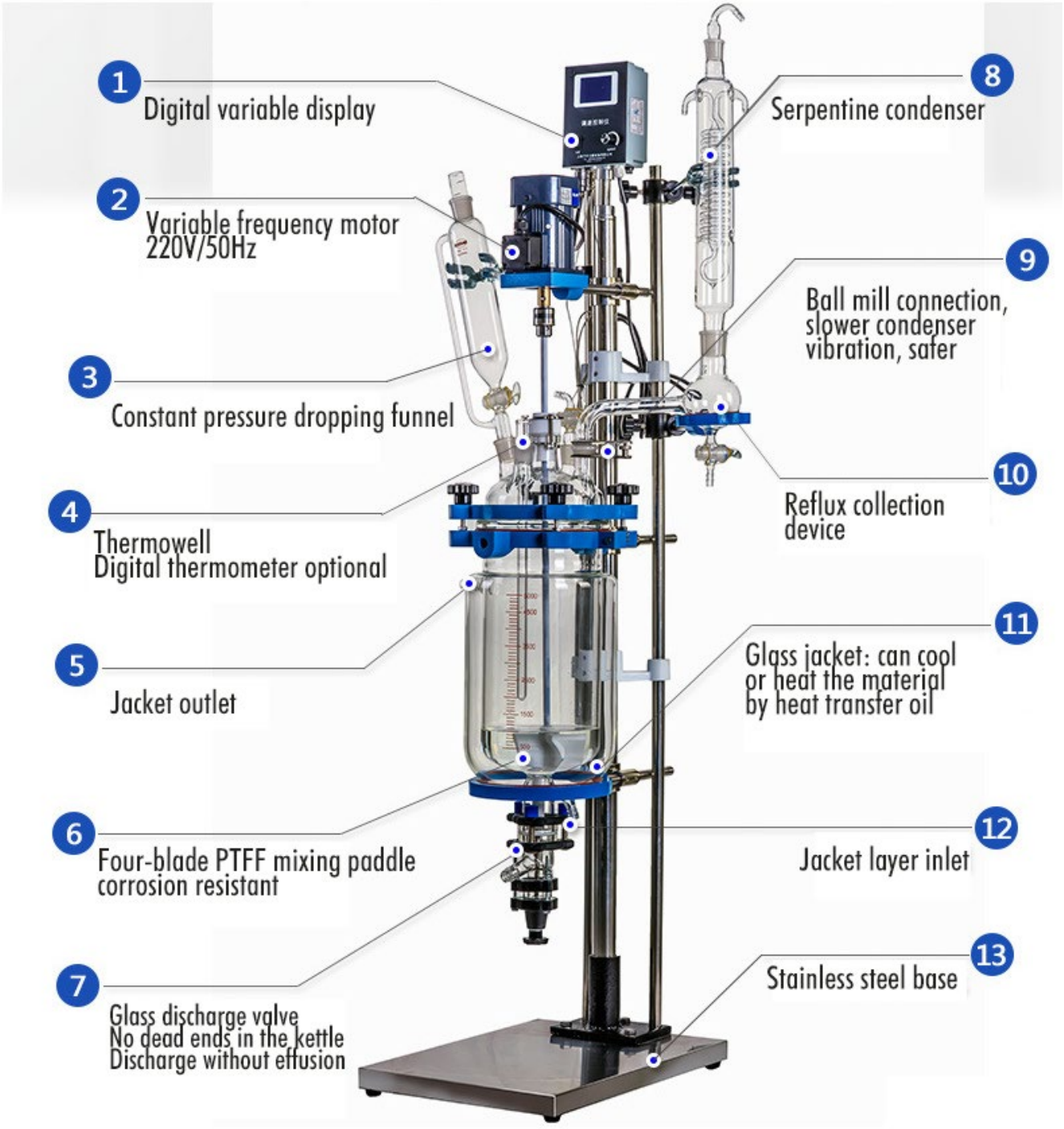
(3) No-touch passing moment, solving the stirred leak problem.

(4) Medium and the stirring member is in sealing state to work.

Technical parameter:

Model	CJF-1	CJF-2	CJF-3
Capacity (L)	1	2	3
Heating Power (W)	2000W	2000W	2500W
Setting Pressure (Mpa)		22	
Design Temperature (℃)		300	
Accuracy of temperature (℃)		±1	
Heating Method	General Electric heating, the others are far infrared, thermal oil, steam, circulating water, etc.		
Stirring Speed (R/min)	0-800		
Temperature controller	Realtime display and adjust the speed, temperature, time, heating voltage, with standard PID automatic temperature adjustment meter.		
Temperature controller working environment	Ambient temperature 0-50℃, Relative humidity 30-80%		
Lifting mode	CJF-no lift, FCF-manual lift or electric lift		
Material	304/316 Stainless steel, Titanium, also can plus PTFE liner		

9. 1~3 L Small Jacket Glass Reactor HGR Series

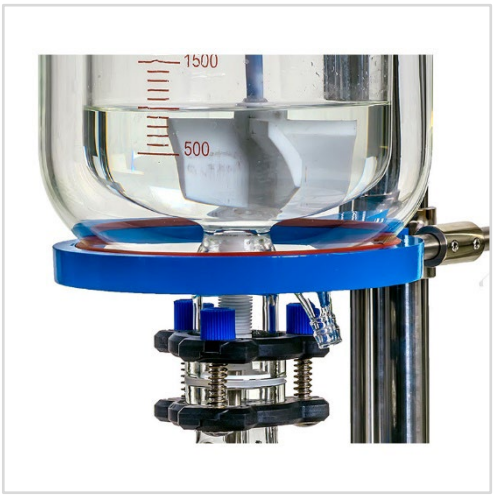


Use characteristics:

The inner layer container of the double-layer glass reactor is placed with the reaction material, and at the same time, vacuuming and speed-adjusting stirring can be performed, and the interlayer can be introduced into the freezing liquid, water and high-temperature liquid to heat and cool the material. It is used in experiments, pilot tests and production of chemical, fine chemical, biopharmaceutical new material synthesis. The product can be combined with circulating water multi-purpose vacuum pump, diaphragm vacuum pump, low temperature circulation (vacuum) pump, circulating cooler, constant temperature circulator, low temperature coolant circulation pump, closed refrigeration heating cycle device (also known as high and low temperature circulation device). System device.

Features:

- High borosilicate glass material with excellent physical and chemical properties
- Can be used in high temperature zones from high temperature (300 ° C) to low temperature (-120 ° C)
- It can work under normal pressure and vacuum conditions. Under vacuum, the vacuum can reach below -0.095MPa.
- Digital display of mixing speed, variable frequency, constant speed mixing system, stable operation
- Single or double PTFE paddle (stirring blade), corrosion resistant
- Anti-corrosion discharge valve without dead space design
- The cooling or heating solution of the interlayer can be completely eliminated after the reaction is completed, and no liquid is accumulated.
- The overall structure is novel, practical and beautiful



Specifications:

Model	HGR-1L	HGR-2L	HGR-3L
Material capacity (L)	1	2	3
Jacket capacity (L)	1	1.5	1.5
Number of ports of reactor	4 pcs (Stirrer port, liquid feeding port, temperature sensor port, condensation port)	4 pcs (Stirrer port, liquid feeding port, temperature sensor port, condensation port)	4 pcs (Stirrer port, liquid feeding port, temperature sensor port, condensation port)
Stirrer Power (W)	90W	90W	90W
Speed (rpm)	0-680	0-680	0-680

Maximum torque (N.cm)	200	200	200
High Temperature range	RT ~ 99°C Water bath RT ~ 300°C Oil bath	RT ~ 99°C Water bath RT ~ 300°C Oil bath	RT ~ 99°C Water bath RT ~ 300°C Oil bath
Lowest temperature	-120°C	-120°C	-120°C
Frequency	Standard	Standard	Standard
PTFE combination seal	Standard	Standard	Standard
Speed digital display	Standard	Standard	Standard
Temperature digital display	Standard	Standard	Standard
Distillation reflux unit	Standard	Standard	Standard
Temperature measuring tube	Standard	Standard	Standard
Constant pressure dropping funnel	Standard	Standard	Standard
Condenser	Standard	Standard	Standard
PTFE stir bar	Anchor or propeller	Anchor or propeller	Anchor or propeller
Discharge valve	Standard (PTFE no fluid, no leakage)	Standard (PTFE no fluid, no leakage)	Standard (PTFE no fluid, no leakage)
Glassware material	GG-17 (3.3) High borosilicate glass	GG-17 (3.3) High borosilicate glass	GG-17 (3.3) High borosilicate glass
Explosion-motor	Optional	Optional	Optional
Explosion-control	Optional	Optional	Optional
Power supply (V/HZ)	220/50	220/50	220/50

10. Elevating & rotary Glass Reactor HGR-DL Series

Characteristics:

- Reaction Kettle can lift, fall and rotate 120 degrees, it is convenient to use and clean;
- Use flange to seal glass interface, avoid using vacuum silicon to seal and open it difficultly;
- Connect it using all flange interface, it can with stand the positive pressure to 0.03Mpa.

Model description:

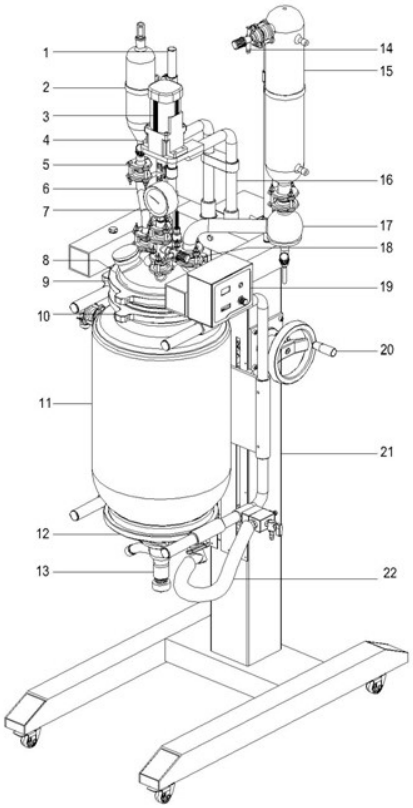
S: single layer glass reactor **D:** double layer jacket glass reactor

T: triple layer jacket glass reactor **L:** manual lift & rotary type glass reactor

Specifications:

Model	HGR-5SL	HGR-10SL	HGR-20SL	HGR-30SL	HGR-50SL
	HGR-5DL	HGR-10DL	HGR-20DL	HGR-30DL	HGR-50DL
	HGR-5TL	HGR-10TL	HGR-20TL	HGR-30TL	HGR-50TL
Reactor kettle material	High borosilicate glass				
Temperature sensor material	Stainless steel cladded by fluorine, double anti-corrosion				
Temperature range	-80~200				
Speed Control method	Frequency speed control				
Affordable jacket temperature difference between inside and outside	60°C (TL series, triple layer jacket reactor) 110°C (DL series, double layer jacket reactor)				

Inlet/putlet liquid circulation nozzle	DN15
Power supply	220/50



1. upright pipe
2. Silicon rubber binding
3. Rotary motor
4. Constant pressure funnel
5. aluminum flange
6. connecting elbow of constant pressure funnel
7. vacuum gauge
8. Reaction Kettle cover
9. Upper tray
10. Middle tray
11. Reaction Kettle body
12. Kettle body pallet
13. Discharge valve
14. Valve connector
15. Condenser
16. Motor strut
17. condensor separator
18. Vacuum gauge installation valve
19. Electric control box
20. Elevating spanner
21. Reaction kettle frame
22. Circulation connection kit

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