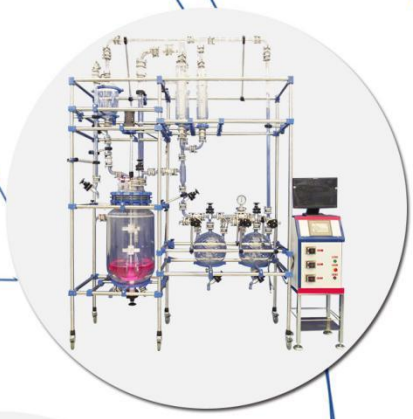


ISO 9001:2008/CE/EX

LAB SOLUTION PROVIDER

Reactor series

TOPTION®

TOPTION INSTRUMENT CO.,LTD

TOPTION INSTRUMENT CO.,LTD

TOPTION is professional lab solution provider,and all devoted to provide the best solutions & products for global customers, who are work in chemistry, biology, pharmaceutical, environment analysis, food, academic research, etc. Regardless of the field you work in, we keep striving for the same goal: to provide you with the most suitable solutions & products, to make your research more accurate & efficient.

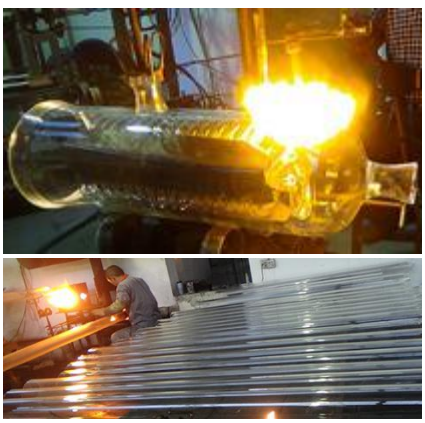
TOPTION headquarters is located in Xi'an, China, where own hundreds of universities and research institutes, and famous as its thousands of years long history culture. Profound culture and strong scientific research strength, provide sustained and vigorous power for TOPTION development, so that make us could provide better products,solutions and service for you continuously.

Main products contains chemical synthesis reactor, rotary evaporator, thin-film evaporator, photochemical reactor, high pressure reactor, freeze dryer, spray dryer, etc. TOPTION brand instrument has own high reputation in more than 70 countries and regions, provide technical support for tens of thousands organizations to solve problems within their research, special for university, research institutes, industries, inspection agencies, etc. Promoting technology progress and improving human life is TOPTION social mission.

We believe, only the most excellent quality, most leading technology, most complete solution and most professional service, could make TOPTION mission and vision come true. So we will keep in continual innovation and hard work, to provide you with the best solutions & products, and make you research more accurate and efficient.

We are a young, professional and creative team;
We are a customer-centric and responsible team.
Our mission: make your research more accurate and efficient.
Our vision: Become the world's most competitive lab solution provider.
Our value: Sharing & win-win, customer success, be thankful, keep growing, innovation and responsible.

Handmade process

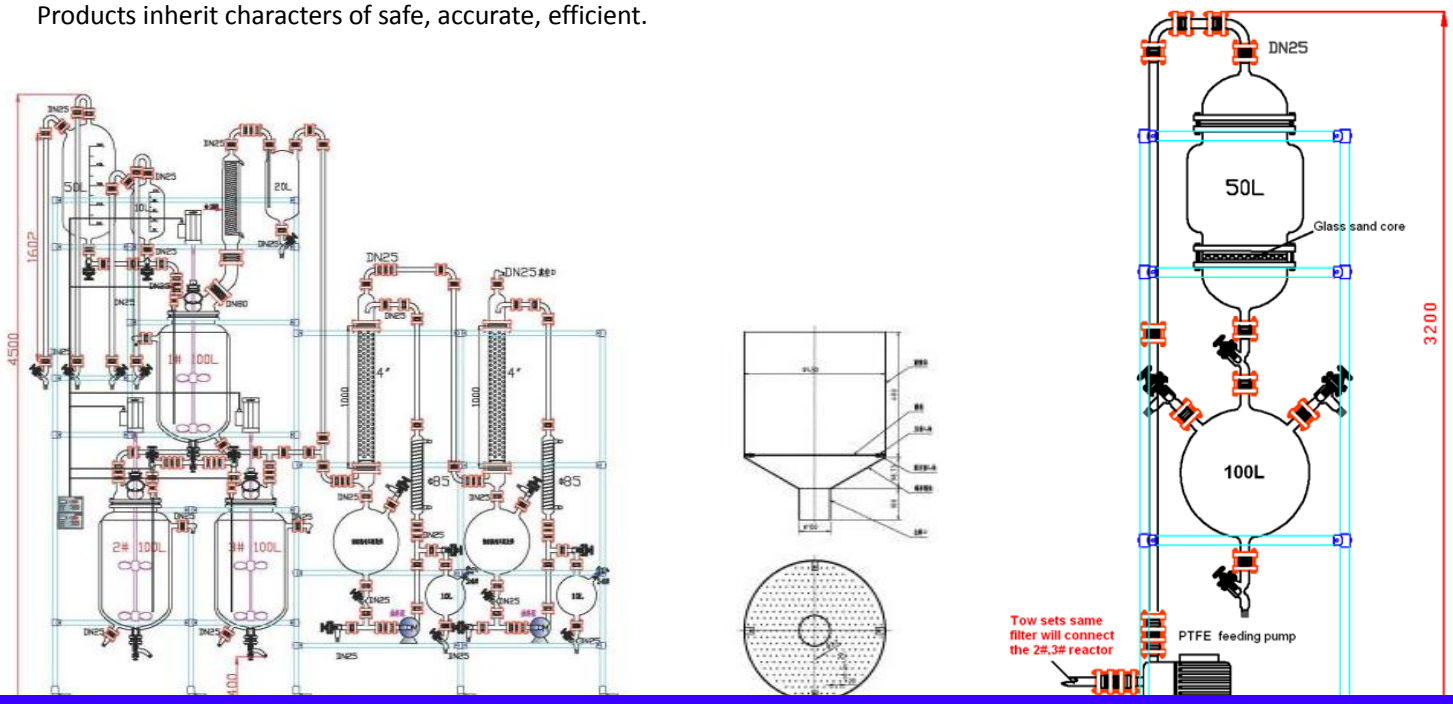


TOPTION brand advantages

1. TOPTION is a registered brand, which is well known in global lab instruments trade, ISO9001: 2008 and CE certificated lab solution provider.
2. Commits to become the world's most competitive lab solution provider.
3. Has been widely recognized and won reputation for excellent quality and professional customization among customers in 70 more countries.
4. Brand interpretation: SAFE - ACCURATE - EFFICIENT. Choose TOPTION, choose guarantee and relief.

Professional customization

Engineering team presided over by professors level cheif engineer who has more than 20 years practical working experience. Products inherit characters of safe, accurate, efficient.



Design sketch

Glass reactor test

Rotary evaporator test

Mechanical sealing

Hand-made fire glass

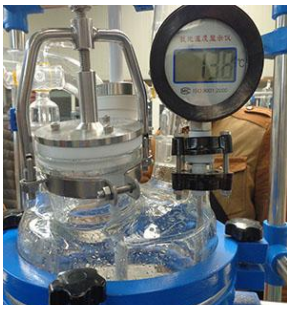
Ex control box

ISO 9001:2008 certified manufacturer

1. TOPTION has passed ISO9001: 2008 QMS. All raw materials and accessory parts are selected and tested strictly, which ensures product's durability and safety from the beginning of production.
2. Key parts production is guaranteed by TOPTION production equipments and technique, which ensure production precision and interchangeability.

CE certificate

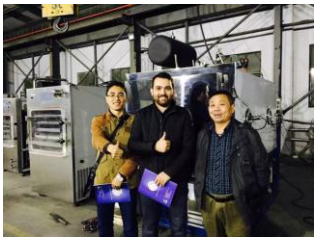
TOPTION instruments have got CE certification, and have been exported to European countries.



Strictly testing before shipping

Products pass various inspections before package, which include: test of electrical voltage durability, glass inner stress, temperature control wave accuracy, operation noise, sealing performance and safety protection, etc.

Service value: Sharing & win-win, customer success, be thankful, keep growing, innovation and responsible.



1. Professional consultation service on System Configuration

No showy, no waste, we propose more economical & practical solution to meet user's real needs.

2. We offer experimental site for buyers with special needs

Do experiment with customers so to ensure suitability of TOPTION apparatuses to buyer's needs.

3. Excelsior production & On-time delivery

Products are test by many indexes before shipping, Lead time will be strictly controlled.

4. Post-sales direction on product application

Offer free guidance on products operation, help user to improve research accuracy, efficiency and extend product service life by much.

5. Repair and maintenance support

Strong ability on remote trouble shot guidance. Oversea buyers are able to solve problem in short time.

6. Rich parts supply always

Rich parts available to TOPTION customers even for past instruments. Users are released from worry of maintenance cost.

Single layer glass reactor

1. Vertical type incline stir reaction
 - Incomparably perfect stereo-stir performance.

2. Adiabatic stand with intelligent heating system inbuilt, two kinds heating method: Oil bath & Heating mantle.
 - Max temperature up to 180℃, and digital display. Oil bath can equip cooling coil for reaction material chilling.
 - Equips Over-heat & Dry-heat protectors, ensure safe operation of heating bath.

3. Heating device material: SS304 stainless steel and spray material are optional.

4. Cooling & Liquid separation function.

5. Distilling & receiving.

6. Discharge valve.

7. Underlay base optional to enable one-time discharge.

8. Drip function.

9. Multi-function reaction flask.
 - Overall flange connection design, eliminate taper joint seizure which may damage reaction flask.
 - Standard configuration: stirring, feeding, reflux condensing, temperature measuring, multi-purpose wide opening and non-liquid accumulation bottom discharge function.
 - Extend more function: dripping, sample pickup, distilling, rectifying, liquid separation,etc.

Tel:0086-29-88763980 Email:info@toptionlab.com info@toption-china.com
Web:www.toptionlab.com (for lab solution) www.toption-china.com (for instrument)

Reactor with heating mantle - stainless steel material & spray plastics material:




Reactor with oil bath - stainless steel material & spray plastics material:



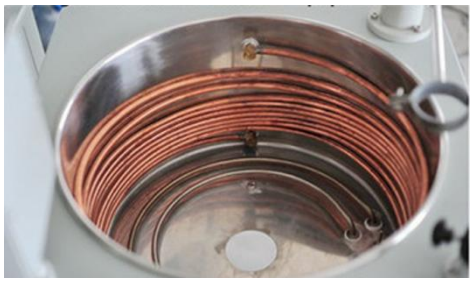


Heating mantle

Max heating temperature up to 300℃, heating quickly. 180-300°, can be customized

3-port liquid separator facility (optional)

Is able to separate liquid received of different weight. Advanced 3-port liquid separator system also available.



Cooling coil (optional)

Can be installed in heating bath and perform chilling function by getting through cooling liquid.

0.5L ~ 200L Single layer glass reactor

S：SS304L; P: spray plastics; B: oil bath; M : Heating Mantle; EX：Ex-proof

Model	TST-2MS TST-2MP TST-2BS TST-2BP	TST-5MS TST-5MP TST-5BS TST-5BP	TST-10MS TST-10MP TST-10BS TST-10BP	TST-20MS TST-20MP TST-20BS TST-20BP	TST-30MS TST-30MP TST-30BS TST-30BP	TST-50MS TST-50MP TST-50BS TST-50BP	TST-80MS TST-80MP TST-80BS TST-80BP	TST-100MS TST-100MP TST-100BS TST-100BP	TST-150MS TST-150MP TST-150BS TST-150BP	TST-200MS TST-200MP TST-200BS TST-200BP	TST-250MS TST-250MP TST-250BS TST-250BP
Reaction flask(L)	2	5	10	20	30	50	80	100	150	200	250
The mouth number of the bottle	4	4	5	5	5	6	6	6	7	7	7
Stirring power(W)	90	120	180	180	250	250	250	250	370	450	550
Speed(rpm)	0-600	0-600	0-600	0-600	0-600	0-600	0-600	0-600	0-600	0-600	0-600
OD of Stirring bar(mm)	φ6	φ10	φ10	φ10	φ12	φ12	φ16	φ16	φ18	φ18	φ18
Heater	1.5kw 180℃	2kw 180℃	2.5kw 180℃	3kw 180℃	4.5kw 180℃	6kw 180℃	7kw 180℃	9kw 180℃	10kw 180℃	11kw 180℃	15kw 180℃
Power(V)	220	220	220	220	220	220 / 380	220 / 380	220 / 380	220 / 380	220 / 380	220 / 380
Material of heater	Stainless Steel / Spraying Plastics										
Heating Method	Oil Bath / Heating Mantle										
Frequency-converting	no	have	have	have	have	have	have	have	have	have	have
Vacuum sealing	have										
Discharge valve	optional		have								
PTEE stirring bar	have										
Charging cork	have										
Temperature display	Glass tube		PT100 sensor								
Reflux and distillation system	optional	optional	have								
Vacuum meter	optional		have								
Overhead stirring	have										
Mouth for multi-functions	no	no	no	have							
Cooling coils	optional										

1. Capacity：0.5L, 1L, 2L, 3L, 5L,10L, 20L, 30L, 50L, 100L, 150L, 200L, 250L.
2. Oil bath type & electric heating mantle type, stainless steel & spray plastics are optional.
3. High temperature: RT-180℃(oil bath), RT-180℃(heating mantle). RT-300℃(heating mantle) can be customized.
4. Vacuum pump & vacuum controller are available, you can control the vacuum degree accurately.

Double layer glass reactor 1L~200L

1.PTFE flush discharge valve

No-sample accumulation in valve during operation and discharge. Max drift diameters is 20~32mm.

2.Side discharge valve (standard or preload)

No dead angle, air isolated discharge. Max drift diameter 20~32mm. Preload discharge valve is able to decrease flask crack risk due to improper over-screw of discharge valve. Customization of TOPTION big capacity glass reactors.

3.Flask cap (≥10L)

1) Charging valve - pure charge process without gel pollution.

2)Thermometer-direct measurement.

3) Condenser - Ball joint connection, easy to assemble, with less vibration.

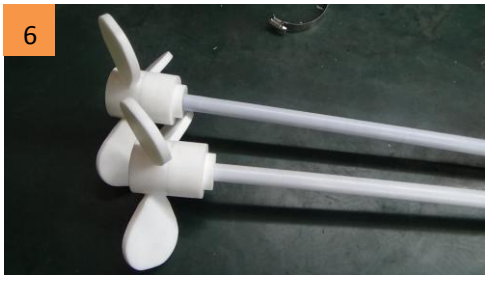
4) All taper joints upgrade to flanges, no seizure, no damage to glass necks.

4.Flange quick press ring

One-piece quick clip design. Offer new experience on easy, reliable, and high sealing connection for flanges.

1. Glass reactor lid.

2. PTFE Reactor stirring paddle.



Double layer glass reactor 1L~200L

Double layer glass reactor

Three layer glass reactor

Three layer glass reactor customization

1. Compared with jacketed glass reactor, it has outermost layer to keep vacuum airtight state.

2. More effective to protect temperature,so as to save reaction time and finally make your research more effective.

Type	Stir medium flange	Liquid material inflow	Condenser	Temp. measure	Multi function valve	Solid charging port	Stirring paddle	Reactor lid flange(mm)	Inner diameter of reactor body(mm)	External diameter (mm)	Reactor body height(mm)	Power (w)	Rotate speed (rpm)
TOPT-1L	35	24# 0.25L	24#	14#	-----	-----	¢ 7mm Anchor type	150	113	150	250	40	50-800
TOPT-2L	35	24# 0.25L	24#	14#	-----	-----	¢ 7mm Anchor type	150	135	180	280	40	50-800
TOPT-3L	35	24# 0.25L	24#	14#	-----	-----	¢ 7mm Anchor type	150	150	200	300	40	50-800
TOPT-5L	40	24# 1L	24#	19#	24#	-----	¢ 10mm single layer two blade paddle type	180	180	230	400	60	50-600
TOPT-10L	50	34# 1L	34#	DN15	DN25	DN80	¢ 16mm single layer three blade paddle type	265	230	290	450	120	50-600
TOPT-20L	50	34# 1L	34#	DN15	DN25	DN80	¢ 16mm single layer three blade paddle type	265	290	330	550	120	50-600
TOPT-30L	50	34# 1L	34#	DN15	DN25	DN80	¢ 16mm single layer three blade paddle type	265	330	365	730	120	50-600
TOPT-50L	50	34# 1L	34#	DN15	DN25	DN80	¢ 16mm double layer three blade paddle type	265	365	410	850	140	50-600
TOPT-80L	50	5L 24#	DN40 ball mouth	DN15	DN25	DN80	¢ 16mm three layer three blade paddle type	340	410	460	950	250	50-600
TOPT-100L	60	5L 24#	DN40 ball mouth	DN15	DN25	DN80	¢ 16mm three layer three blade paddle type	340	460	500	950	250	50-600
TOPT-150L	60	5L 24#	DN40 ball mouth	DN15	DN25	DN80	¢ 16mm three layer three blade paddle type	340	550	600	980	400	50-600
TOPT-200L	60	10L DN25	DN50 ball mouth	DN25	DN25	DN100	¢ 16mm three layer three blade paddle type	340/ 440PP flange	550	650	1100	400	50-600

Glass reactor with lifting & rotating function

1. Kettle body lift, rotate also 120 ℃, easy to use and clean.
2. Glass interface flange seal avoids the use of vacuum grease seal appears the phenomenon is difficult to open;
3. 360° rotating function could customize.




Type	Stir medium flange	Liquid material inflow	Condenser	Temp measure	Multi function valve	Solid charging port	Stirring paddle	Reactor lid flange (mm)	Inner diameter of reactor body(mm)	External diameter (mm)	Reactor body height (mm)	Power	Rotate speed (mm)
TOPR-1L	35	24# 0.25L	24#	14#	-----	-----	¢ 7mm Anchor type	150	113	150	250	40	50-800
TOPR-2L	35	24# 0.25L	24#	14#	-----	-----	¢ 7mm Anchor type	150	135	180	280	40	50-800
TOPR-3L	35	24# 0.25L	24#	14#	-----	-----	¢ 7mm Anchor type	150	150	200	300	40	50-800
TOPR-5L	40	24# 1L	24#	19#	24#	-----	¢ 10mm single layer two blade paddle type	180	180	230	400	60	50-600
TOPR-10L	50	34# 1L	34#	DN15	DN25	-----	¢ 16mm single layer three blade paddle type	265	230	290	450	120	50-600
TOPR-20L	50	34# 1L	34#	DN15	DN25	-----	¢ 16mm single layer three blade paddle type	265	290	330	550	120	50-600
TOPR-30L	50	34# 1L	34#	DN15	DN25	-----	¢ 16mm single layer three blade paddle type	265	330	365	730	120	50-600
TOPR-50L	50	34# 1L	34#	DN15	DN25	DN80	¢ 16mm double layer three blade paddle type	265	365	410	850	140	50-600

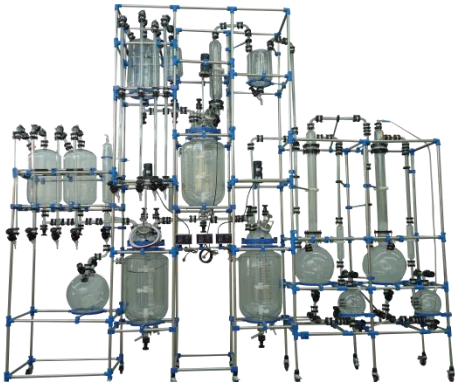
Professional customization of glass reactor

Reactor with pipe bundle condenser

Reactor with horizontal condenser

Reactor with sample condenser

Reactor with rectification column system



Reactor with tail gas treatment system

Falling film evaporator

Reactor with IR heater(400℃)

Reactor with PLC automatic system

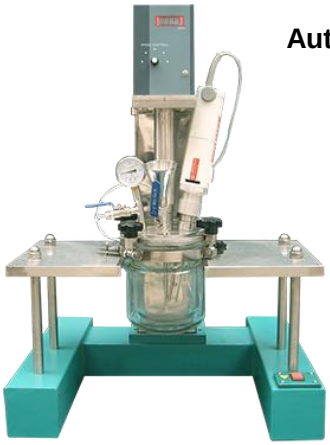
Professional customization of glass reactor

Ultrasonic continuous reactor

Ultrasonic reactor

Multi-function reactor with filter system

High shear Homogeneous Reactor system



Automatic lifting type

Manual lifting type

Laboratory Homogeneous Emulsification System Reactor is an instrument developed by our engineers with latest German technologies, designed in modular structure, applies to blending, mixing, emulsifying, dispersing and homogenizing mobile liquids. This homogenizer can be widely applied in cosmetic cream, oil-water emulsion, polyreaction and nanophase material dispersion as well as special occasions requiring vacuum or pressure test.

TOPTION homogenizer has simple structure, small bulk, low noise, stable operation and long service life, and it's easy to operate, clean, dismantle and maintain.

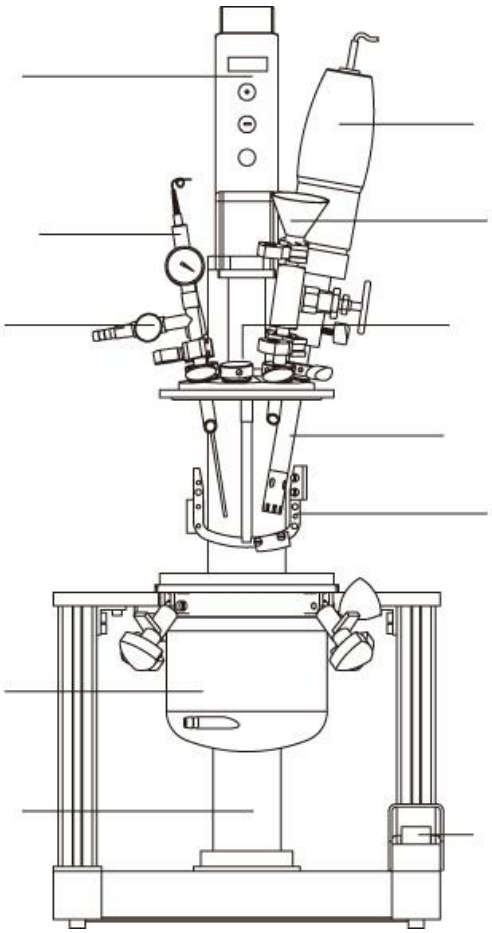
Stirring motor

Temperature sensor

Vacuum port/ gas inlet port

Reactor

Lifting pillar



Homogeneous motor

Charging port

Reserved openings (1pcs)

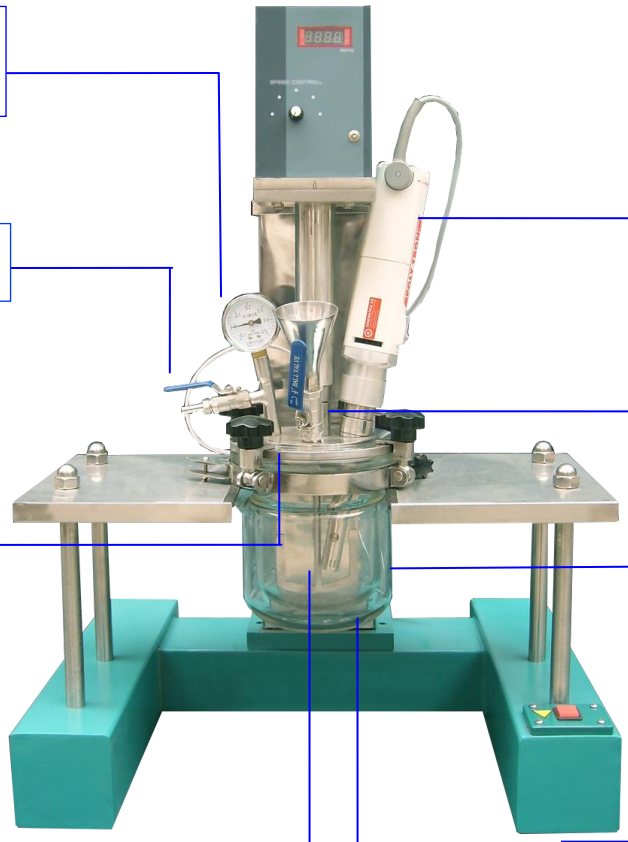
High shear dispersing tool

Stirring paddle

Lifting button

Structure of High shear Homogeneous Reactor

This homogenizer can be widely applied in cosmetic cream, oil-water emulsion, polyreaction and nanophase material dispersion as well as special occasions requiring vacuum or pressure test.



Vacuum
Pressure meter

Humidity
digital display

Vacuum pump

FA25 FA30 FA40

1. Distribution droplets.
2. Condenser.
3. Peristaltic pump.

Display
PH Conductivity

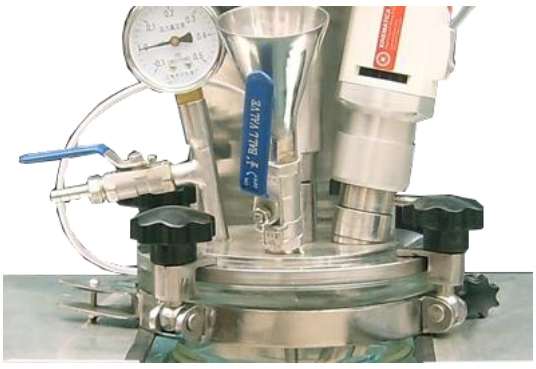
Pressure
sensor

1. Metal kettle.
2. Glass jacket kettle.
3. Sample valve.

1. Fan blade type mixing propeller.
2. Three blade propeller.
3. Anchor propeller.
4. Scrape wall propeller.
5. Anchor propeller.
6. Wall-scratching impeller.

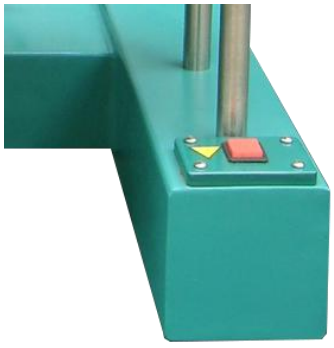
1. Low-temperature circulating pump.
2. Water bath, oil bath.

Detail of Structure of High Homogeneous Reactor



Reactor lid

Reaction vessel & stirring paddle



Stainless steel shelf and on/off

Technical specification：

A： Automatic lifting type M： Manual lifting type

Model	THER-1A THER-1M	THER-2A THER-2M	THER-3A THER-3M	THER-5A THER-5M
Emulsifying capacity	1L	2L	3L	5L
Glass structure	Double-layer	Double-layer	Double-layer	Double-layer
Glass material	G3.3	G3.3	G3.3	G3.3
Homogenizer rotation speed	7 Grade adjustable, adjusting range: 10000-28000rpm.			
Lifting height	170 mm	190 mm	190 mm	225 mm
Max.working temperature	Standard 120℃, support 180℃ customization.			
Max.handling viscosity	100,000CP	100,000CP	100,000CP	100,000CP
Homogenizer motor power	500W	500W	500W	500W
Main medium-contact materials	SS316L, borosilicate glass, PTFE	SS316L, borosilicate glass, PTFE	SS316L, borosilicate glass, PTFE	SS316L, borosilicate glass, PTFE
Agitator motor power	40W	90W	90W	90W
Agitator rotation speed(rpm)	0-1300rpm	0-1300rpm	0-1300rpm	0-1300rpm
Overall dimension (mm)	400*300*850	450*350*950	450*350*950	450*350*950

Ultrasonic Homogeneous Reactor System

SS304L Cylinder Reactor

TUER- 5 S (G) U (L) S D

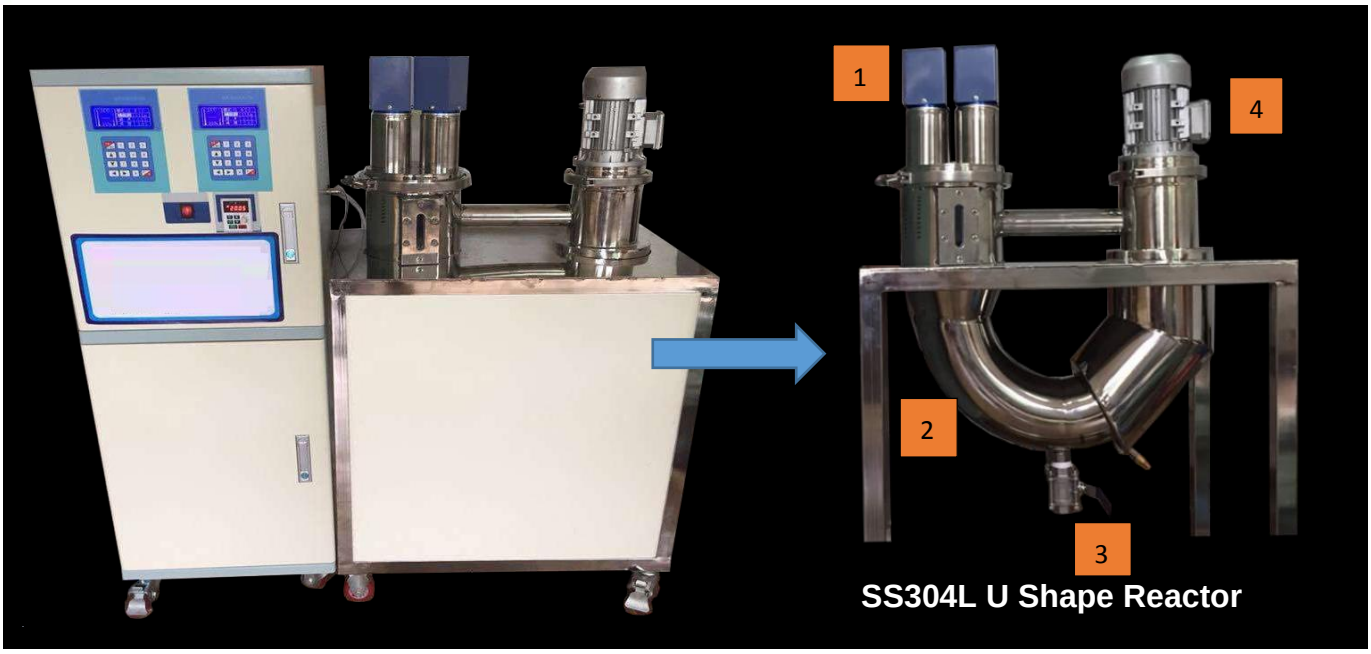
- 5: Capacity
- S: Stainless steel material reactor
- (G): Glass material reactor
- U: "U" shape design
- (L): Cylinder shape design
- S: Single layer
- D: Double layer

Ultrasonic emulsificati on reactor

1. Mechanical drive stirring motor, makes material mixing more uniform.

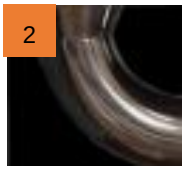
2. Multi ultrasonic working head combined together, large power, much better emulsification result.

Glass material ultrasonic reactor



1. Multi ultrasonic working head combined together for much better sample emulsification result.

3. Downward discharging valve, more convenient for material discharging.



2. In-built circulating system makes sample get more uniform mixing, no dead angle.

4. Vertical electric stirring makes material mixing more uniform.

Description of Pilot ultrasonic emulsification reactor:

The core content of ultrasonic nanotechnology is how to solve the problem agglomeration of nanoparticles, as nano particles themselves is easy to reunite, so want to get single dispersive nano particles is very difficult. How to make the nano particles evenly dispersed in the matrix is the key technology of nanotechnology.

TOPTION ultrasonic series instruments use the cavatition of ultrasonic to disperse the coacervate particle. It put the required processing of particulate suspension (liquid phase) in the super sound field, use appropriate ultrasonic amplitude and duration to process. Due to the inherent characteristics of powder particles coacervate, so for some powder which could not be dispersed well in medium, you could add the right amount of dispersant to keep the dispersed steady state, general could reach dozens of nanometers, even more small. This type ultrasonic emulsification reactor is most suitable to disperse nano materials (graphene, silicon dioxide,etc).

Ultrasonic Emulsification Reactor through its "cavitation effect" to realize the emulsification of oil blended with water, emulsification of water mixed with oil, the mixture and homogenization of dispersed phase and continuous phase, it's modern chemical technology to instead of propeller, colloid mill and other traditional emulsification technology.

Pilot ultrasonic emulsification reactor technical specification:

Model	TUER-5SUS / TUER-5SUD TUER-5SLS / TUER-5SLD TUER-5GLS / TUER-5GLD	TUER-10SUS / TUER-10SUD TUER-10SLS / TUER-10SLD TUER-10GLS / TUER-10GLD	TUER-20SUS / TUER-20SUD TUER-20SLS / TUER-20SLD TUER-20GLS / TUER-20GLD
Ultrasound Method	Energy-gathered circulation multiple-step type		
Capacity（L）	5	10	20
Stir Motor Power（W）	100	150	200
Ultrasonic Frequency	20KHz	20KHz	20KHz
Standard Ultrasonic Probe	¢20*1	¢35*1	¢35*1
Ultrasonic Power(w)	50~1200 Adjustable	100~2500 Adjustable	100~2500 Adjustable
Circulation Stirring Rate (rpm)	0~1000 Integrated Digital Display	0~1000 Integrated Digital Display	0~1000 Integrated Digital Display
Controlled Temperature ℃ （Optional）	-40--80	-40--80	-40--80
Reactor Material	SS304/Glass	SS304/Glass	SS304/Glass
Application	Laboratory & Pilot	Laboratory & Pilot	Pilot
Note:1. Professional Customization is provided, high temp. device, low temp. device, constant temp. device are available (-40℃ ~ 80℃). 2. The max volume can be 500L。			

An important characteristics of ultrasonic emulsification is that, there's no need or less need emulsifier to get very stable emulsion. The obvious advantages of ultrasonic emulsification has prompted it in food, chemical, pharmaceutical, textile, paper making, paint, fuel thermal power, fuel central air conditioning, petroleum, metallurgy and many other industrial process has been applied more and more, including down fuel combustion is an important project to rise.

Vacuum filter

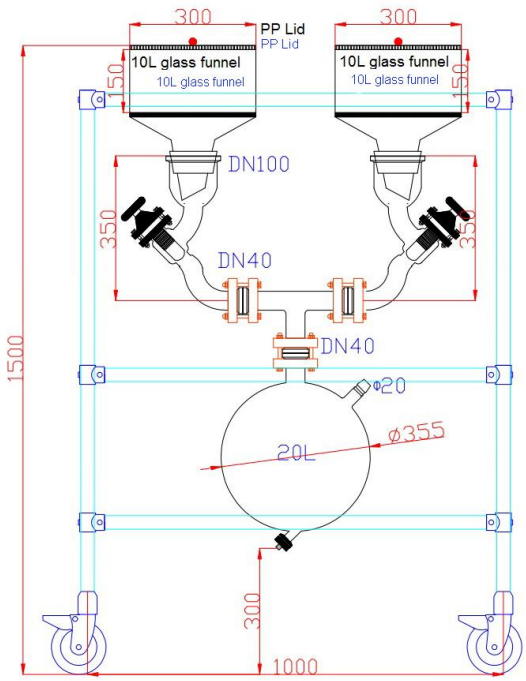
SS304 type

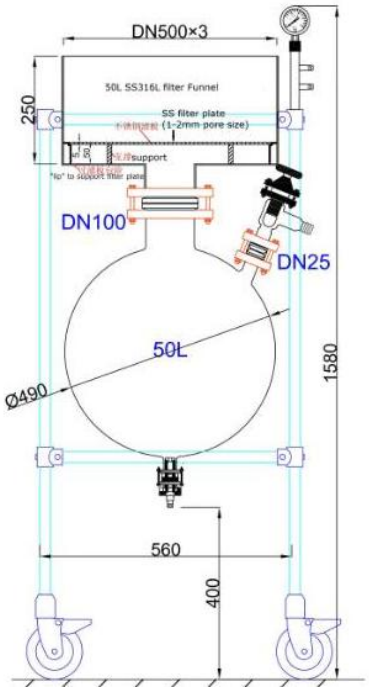
Ceramic type

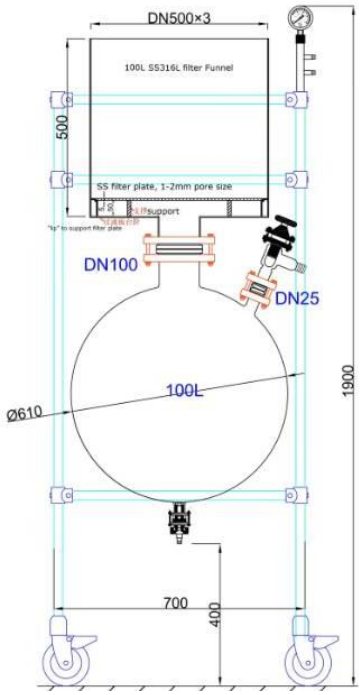
Glass type

List name/ Model	TP-CL10L(G) TP-CL10L(S) TP-CL10L(C)	TP-CL20L(G) TP-CL20L(S) TP-CL20L(C)	TP-CL30L(G) TP-CL30L(S)	TP-CL50L(G) TP-CL50L(S)
Funnel volume	10L	20L	30L	50L
Funnel material	G: Glass ; S: SS304L C: Ceramic		G: Glass ; S: SS304L	
Collecting flask	10L	20L	30L	50L
Other models can be customized.				

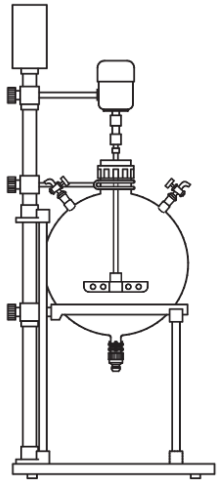
Vacuum filter design：







Glass liquid seperator



	Model	TOPTF-10L	TOPTF-20L	TOPTF-30L	TOPTF-50L
Basic information	Reaction bottle(L)	10	20	30	50
	openings	3	3	3	3
	Stirring power(W)	120	120	250	250
	Speed(rpm)	40-720	40-720	40-720	40-720
	Stirring rod dia(mm)	¢10	¢10	¢12	¢12
	Voltage(V)	220	220	220	220
Function and Configuration	frequency control	Have	Have	Have	Have
	Vacuum sealing	Have	Have	Have	Have
	Bottom discharging valve	Have	Have	Have	Have
	PTFE stirring rod	Have	Have	Have	Have
	Size (mm)	450x550x1200	450x550x1200	550x650x1500	550x650x1700

Hydrothermal synthesis reactor

PTFE Lined

PPL Lined

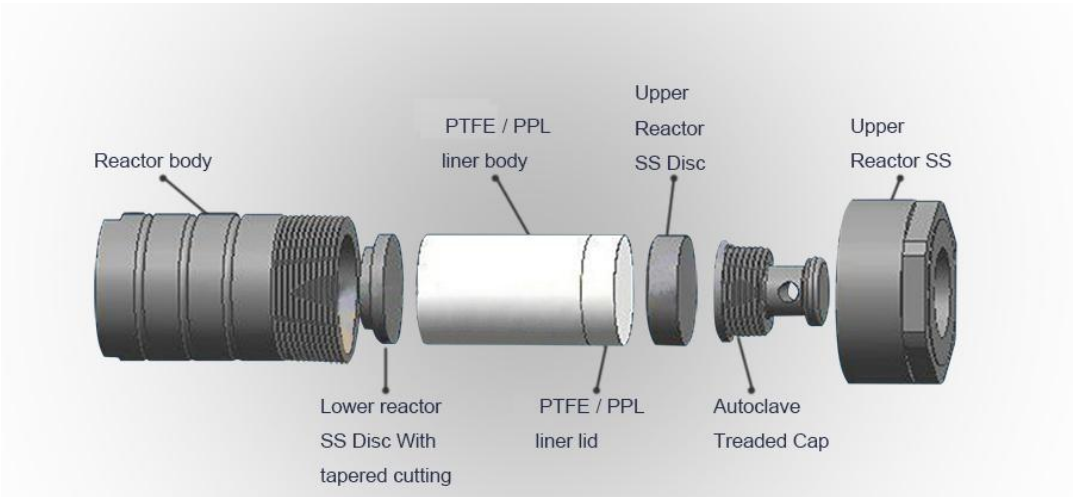
PTFE Liner (200℃)

Model	Material	Capacity	Remark
TOPT-HT10	1. Shell made of quality stainless steel.304L 2. Liner materials is special PTFE.	10ml	1. Safe temperature is 200°C. 2. Working pressure ≤3 Mpa (surface pressure). 3. Tempe heating and cooling speed: ≤ 5℃/ min. 4.Break down the refractory material quickly.
TOPT-HT25		25ml	
TOPT-HT30		30ml	
TOPT-HT50		50ml	
TOPT-HT100		100ml	
TOPT-HT150		150ml	
TOPT-HT200		200ml	
TOPT-HT250		250ml	
TOPT-HT300		300ml	
TOPT-HT400		400ml	
TOPT-HT500		500ml	
TOPT-HT1000		1000ml	
TOPT-HT1500		1500ml	
TOPT-HT2000		2000ml	

PPL Liner (260℃)

Model	Material	Capacity	Remark
TOPT-HP10	1. Shell made of quality stainless steel.304L 2. Liner materials is special PPL.	10ml	1. Safe temperature is 260°C. 2. Working pressure ≤3 Mpa (surface pressure). 3. Tempe heating and cooling speed: ≤ 5℃/ min. 4.Break down the refractory material quickly.
TOPT-HP25		25ml	
TOPT-HP30		30ml	
TOPT-HP50		50ml	
TOPT-HP100		100ml	
TOPT-HP150		150ml	
TOPT-HP200		200ml	
TOPT-HP250		250ml	
TOPT-HP300		300ml	
TOPT-HP400		400ml	
TOPT-HP500		500ml	

Please note：Shell can be made of SS316L or copper



Tel:0086-29-88763980 Email:info@toptionlab.com info@toption-china.com
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Customization of hydrothermal synthesis autoclave reactor

1.Copper material hydrothermal synthesis reactor.

2. Pressure released vent type hydrothermal synthesis autoclave reactor.

3. High pressure vessel - with pressure gauge and gas needle valve

- Temperature ≤220℃. - Pressure ≤3MPa. - Lined material: PTFE.
- Basic configuration: pressure gage, vent valve, gas outlet valve (support customize special request).
- Capacity range: 5ml, 10ml, 15ml, 25ml, 50ml, 100ml, 150ml, 200ml, 250ml, 300ml, 500ml, 1000ml.



4. Flange type hydrothermal synthesis autoclave reactor:





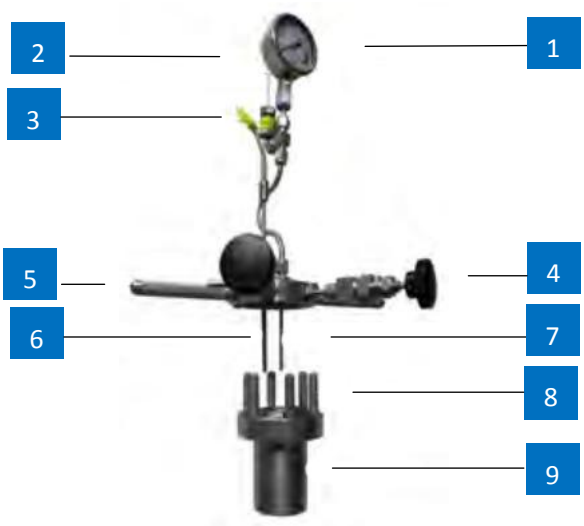
THR type high pressure reactor with magnetic stirrer

1.Application: Chemistry, Pharmaceutical, Macromolecule, Metallurgy, Environmental Protection,etc, chemical process areas. For instance: high pressure reaction, hydrogenation reaction, catalytic reaction, synthetic process, pharmaceutical synthesis, high pressure polymerization, nano synthesis, conditions screening, crystallization screening, combinatorial chemistry, biomass conversion, supercritical reaction, hydrothermal reaction, polymer synthesis, electrochemical corrosion testing, infrared detection,etc.

2.The maximum operating temperature of THR High Pressure Reactor is 250℃, use corrosive medium to do reaction, PTFE inner is optional, but its high temperature resistance is 180℃， so if the corrosive medium temperature is over 180℃, please choose other material reactors.

3.THR Series High Pressure Reactor adopt module heating method, which is quick heating and precise temperature control. THR series all are internal magnetic stirring, when magnetism arrive 250℃, degaussing phenomenon will happen, so if operating in over 250℃ condition, please choose TOPTION MHR Series High Pressure Reactor.

Detail description



1.Pressure Gage - monitor working pressure in reactor.
2.Explosion Valve - Protect reator overpressure working.
3.Temperature Sensor Plug - monitor the temperature in reactor, connect with thermocouple.

4.Needle valve - air inflow, exhaust or sampling.
5.Handlebar - to teardown reactor lid.
6.Temperature measure jacket tube - used to insert temperature sensor.

7.Accused of bottom tube - used to sample during reaction.
8.Reactor lid lock screw - uniform distribution 6pcs in total, clockwise is tight, anticlockwise is loose.
9.Reactor body - coefficient of material charging is 80% of reactor whole volume, not suitable for all kinds of medium.

THR type high pressure reactor with magnetic stirrer

1.Temperature display - display real time temp. when working.
2.Rotating speed display - display real time rotating speed during working.
3.Indicator lamp display - function indicator when working.
4.Temp & time set key [T-Set] - used to set temperature, timing, and parameters which is related with temperature & time.
5.UpKey - add key.
6.Down key and self set key - reduce key and self set key.
7.Lift key and check key - shift key and check working time & timing.
8.Speed set key - used to set speed and related parameters.
9.Working and stop key - start or stop working.

Technical specification

The stirring reactor laboratory miniature high-pressure reaction kettle				
Model	THR50	THR100	THR250	THR500
Material capacity(L)	50ml	100ml	250ml	500ml
The working interface	LCD Display	LCD Display	LCD Display	LCD Display
The maximum operating temperature	250℃	250℃	250℃	250℃
The maximum operating temperature with PTFE Liner	180℃	180℃	180℃	180℃
Heating mode	Module heating	Module heating	Module heating	Module heating
The heating power	1.2KW	1.2KW	1.5KW	2.0KW
Stirring speed	0-1200rpm	0-1200rpm	0-1300rpm	0-1300rpm
Stirring method	The internal magnetic stirring	The internal magnetic stirring	The internal magnetic stirring	The internal magnetic stirring
The stirring power	40W	40W	40W	80W
The maximum working pressure	10Mpa	10Mpa	10Mpa	10Mpa
Materials of construction	SS304 (standard); (SS316L Alloy TA2, ALLOY C-276, Nickel ALlloy, Zirconium materials are optional)			
PTFE liner	Optional			
Note: 1. Max volume 2000ml could be customized. 2.Suitable for the material which temp ＜250℃ and is nonmagnetic. 3.Temperature timing set, temp. set when working, this function is optional.				

MHR type high pressure reactor with magnetic coupling mechanical agitation

Configuration and description

1. Rotating speed and temperature control panel (LCD display and Nixie tube display are optional).
2. Internal heat collection heater.
3.4. Stainless steel reactor.
5. Air inlet valve (sampling valve).
6. Air exhaust valve.
7. Principal axis cooling jacket.
8. The coupling magnetic steel.
9. Sensor insert mouth.
10. Pressure meter.
11. Transmission flexible shaft.
12. Flexible shaft support frame.
13. Dynamical system.
14. MHR high pressure reactor is suitable for small capacity sample reaction, high temp, big viscosity or magnetism medium.
15. Safety explosion protection valve is 12.5MPa, digital display pressure meter is optional.
16. Max working temp:300℃, module electric heating, heating quickly and control temp precise.

Model	MHR50	MHR100	MHR250	MHR500
Material capacity(L)	50ml	100ml	250ml	500ml
The working interface	LCD Display			
The maximum operating temperature	300℃	300℃	300℃	300℃
The maximum operating temperature with PTFE Liner	180℃	180℃	180℃	180℃
PPL liner	250℃	250℃	250℃	250℃
Heating mode	Module heating	Module heating	Module heating	Module heating
The heating power	1.2KW	1.2KW	1.5KW	2.0KW
Stirring speed	0-1200rpm	0-1200rpm	0-1300rpm	0-1300rpm
Stirring method	Rare earth permanent magnetic coupling drive			
The stirring power	40W	40W	40W	80W
The maximum working pressure	10Mpa	10Mpa	10Mpa	10Mpa
Materials of construction	SS316L (standard); (Alloy TA2, ALLOY C-276, are optional)			
PTFE liner/PPL liner	Optional			

Note: 1. Max volume 2000ml could be customized.
2.Suitable for the material which temp ＞250℃ and has magnetism, viscosity is a little big.
3.Temperature timing set, temp. set when working, this function is optional.

THR (N) series high pressure reactor with magnetic stirrer

Parallel micro high pressure reactor do research with more than one THR series high pressure reactor at the same time, each THR high pressure reactor is equipped with independent heating, stirring and pressure component, to ensure every high pressure reactor could do research independent under different temperature, pressure and stirring speed conditions, so as to screen experimental conditions more quickly and optimize it.

The reaction kettle bit and volume could be flexible combination, for ordinary, has 2, 4, 6, 8 parallel high pressure reactor, you could customize based on your actual experimental requirements.

Standard configuration of Parallel micro high pressure reactor

1. Pressure meter.
2. Safety valve.
3. Temperature sensor.
4. Inlet valve.
5. Sampling valve.
6. Vent valve.
7. Heating switch.
8. Stirring switch.
9. Rotating speed display meter.
10. Temperature display meter.
11. Rotating speed control button.
12. Temperature control button.
13. The first via inlet valve.
14. The second via inlet valve.

THR (N) series high pressure reactor with magnetic stirrer

Technical specification

Model	THR50（N）	THR100（N）	THR250（N）	THR500（N）
The reaction kettle bit	N=2, 4, 6, 8			
Material capacity(L)	50ml	100ml	250ml	500ml
The working interface	Touch control liquid crystal display			
The maximum operating temperature	250℃	250℃	250℃	250℃
The maximum operating temperature with PTFE Liner	180℃	180℃	180℃	180℃
Heating mode	Module heating			
The heating power	1.2KW	1.2KW	1.5KW	2.0KW
Stirring speed	0-1200rpm	0-1200rpm	0-1300rpm	0-1300rpm
Stirring method	The internal magnetic stirring			
The stirring power	40W	40W	40W	80W
The maximum working pressure	10Mpa	10Mpa	10Mpa	10Mpa
Materials of construction	SS316L (standard); (Alloy TA2, ALLOY C-276, are optional)			
PTFE liner	Optional			

KCFD type mini high pressure reactor

Description

1. Make cumbersome experimental simple, it can be realized in one operation with different environments or with different environment temperature/ pressure diversified series of different experiments.

2. Through the RS232 communication interface a computer connected to print and show the historical value and the actual curve according to user's needs, the whole system can be monitored real time by software.

3. Catalysis, high temperature and pressure synthesis, dynamics testing, Fischer- tropsch, and hydrogenation reaction. Mainly used in the fields of biochemical, chemical material, environmental protection new material reaction, etc.

Small- high-pressure reactor **(the Lid can rise ,the reactor can turn,without bottom discharge)**	TOPT-KCFD025-10	1. Volume:0.25L 2. Design pressure: <10MPa 3. Temp:RT--300°C 4. Materials:SS304 5. Agitation type:with Mechanical agitation
	TOPT-KCFD03-10	1. Volume:0.3L 2. Design pressure: <10MPa 3.Temp: RT--300°C 4.Materials:SS304 5.Agitation type:with Mechanical agitation
	TOPT-KCFD05-10	1. Volume:0.5L 2. Design pressure: <10MPa 3. Temp:RT--300°C 4. Materials:SS304 5. Agitation type:with Mechanical agitation
	TOPT-KCFD1-10	1. Volume: 1L 2. Design pressure: <10MPa 3. Temp:RT--300°C 4. Materials:SS304 5. Agitation type:with Mechanical agitation
	TOPT-KCFD2-10	1. Volume: 2L 2. Design pressure: <10MPa 3. Temp:RT--300°C 4. Materials:SS304; 5. Agitation type:with Mechanical agitation
	TOPT-KCFD5-10	1. Volume: 5L 2. Design pressure: <10MPa 3. Temp:RT--300°C 4. Materials:SS304; 5. Agitation type:with Mechanical agitation

TFCF type hand-lifted high pressure reactor

Customization support

Technical specification

High-pressure reactor **(the Lid can rise ,the reactor can not turn,with bottom discharge)**	TOPT-TFCF1-10	1. Volume: 1L 2. Design pressure: <10MPa 3. RT--300°C; 4. Material: SS304; 5. Type agitation:with Mechanical agitation
	TOPT-TFCF2-10	1.Volume: 2L 2.Design pressure: <10MPa 3.RT--300°C; 4.Material: SS304; 5.Type agitation:with Mechanical agitation
	TOPT-TFCF5-10	1.Volume: 5L 2.Design pressure: <10MPa 3.RT--300°C; 4.Material: SS304; 5.Type agitation:with Mechanical agitation
	TOPT-TFCF10-10	1.Volume: 10L 2.Design pressure: <10MPa 3.RT--300°C; 4.Material: SS304; 5.Type agitation:with Mechanical agitation
	TOPT-TFCF20-10	1.Volume: 20L 2.Design pressure: <10MPa 3.RT--300°C; 4.Material: SS304; 5.Type agitation:with Mechanical agitation

High pressure reactor customization

2L type

2L-4 parallel type

3L type

5L type

5L hand-lifting type

Reactor stirring part

10L type

50L type

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