

**Паспорт**  
**Инструкция по эксплуатации**  
**Реактор стеклянный с рубашкой**  
**НЕВ-100**

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# Паспорт

1	Main Design Data	<p>ReactionFlask (L) : 100, FlaskNicks: 5 or 6, Stirring Power: 370W, RotationSpeed: 50–900rpm, Torque: 22000g. cm, ElectricalRequirements: 220V, 50Hz.</p> <p><b>Material: 304 Stainless frame.</b>  <b>Standard configuration:</b></p> <ol style="list-style-type: none"> <li>1. Capacity – 100L      Answer: yes</li> <li>2. Operate temperature – 70 °C      Answer: no problem</li> <li>3. Operate pressure – atmospheric      Answer: Yes</li> <li>4. Rotation speed – 500 rpm      Answer: no problem.</li> <li>5. Material of stirrer’s shaft: - 304 with PTFE cover      Answer: No problem</li> <li>6. Motor: explosion-proof      Answer: No problem</li> <li>7. Frame material: 304      Answer: No problem</li> <li>8. Flask Necks – 5      Answer: No problem.</li> </ol> <ol style="list-style-type: none"> <li>1. Constant pressure funnel: 5 l</li> <li>2. Condenser with bottom receiving flask</li> <li>3. Thermocouple</li> <li>4. big feeding opening (D = 50 mm) with PTFE cover</li> <li>5. Vacuum Mouth</li> </ol> <ol style="list-style-type: none"> <li>9. Could you specify the size for each neck? Pay attention, please, the condenser no need! But we ask the addition funnel instead of it.</li> </ol> <p>Answer: for the size of each neck: now we will tell following:  Middle: 60mm, Left is 40mm, Right 40mm, Behind(rear): 34mm,</p>
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		<p>Ahead:50mm.</p> <p>10. What size of nozzle for connecting water tube to jacket? Could you specify it in your quotation?</p> <p>Answer: outer Diameter: 8mm.</p> <p>11. Metallic protection shield is not needed      Answer: Ok.</p> <p>12. Distance from floor to the drain valve shall be 60 mm Answer: ok.</p> <p>13. In addition to the reactor, the supply should include:</p> <ul style="list-style-type: none"> <li>a. glass stopper for every neck (3 pieces for each neck )</li> <li>b. The PTFE cover for big opening (3 pieces)</li> <li>c. O-ring (F-rubber) for flush bottom valve, 10 pieces. Necessarily check them for resistance to acids</li> <li>d. Spare flush bottom valve (1 pieces)</li> <li>e. Constant pressure funnel - (4 pieces)</li> <li>f. Vacuum Mouth – (4 pieces)</li> </ul>
2	Discription	<p>Circulation liquid of hot, cold or cryogenic can be filled into the jacket of reactor. Substance reacts by stirring under normal or negative pressure in aieproof glass container. Reaction process can be watched clearly through crystal reaction flask. Jacket Glass Reactor is ideal equipment in library experiment or medium-production in moden biology and pharmcy, and is also applied in synthesizing materials in fine chemical industry. Features in Design: 1. Integrated jacket reaction flask has big caliber with good seal and high strength. 2. Professional PTFE cover supports high speed stirring in vacuum. 3. Three standard mouths can be used for umlti-purpose according to customer needs. Standard fitting are chatging cork, thermometer tube, and reflux condenser. (Customization available for special needs) 4. More designs on safe and easy operation are applied on models of 20L and above.</p>
3	Note	<p>max speed: 500rpm</p>

# Инструкция

- 非常感谢您购买 *西安禾普生物科技有限公司* 的双层玻璃反应釜，我们为您真诚服务到永远。“禾普仪器”追求卓越不凡的品质，更注重良好的售后服务，如有问题，请拨打：

Thank you for using HEB brand jacketed glass reactor, our motor is good service and good quality. If you have any technical questions, plz contact with our technician, Tel:86-29-81047996

- 本说明书就该装置以及双层玻璃反应釜的用法加以说明。

Mainly describe how install and use for jacketed glass reactor.

- 操作错误会引起意外事故，缩短装置的寿命，降低其性能。因此，恳请您在使用务必仔细熟读该说明书。

The misunderstanding of operation will result some accident, reduce product life and function of product, so plz read our instruction before use.

- 将本说明书交到最终用户手中。

To give final customer for our instruction.

- 请妥善保管好本说明书，以备需要时查阅。

Plz put instruction in good postion so that read it any time.

- 说明书供参考所用，具体设计外形以实物为准。

Only is reference for our instruction.

# ATTENTION ITEMS

必须严格遵守注意事项，否则可能造成人员伤亡或损坏机器。

Must pay attention to item following, for good operation.

- 请在安装，使用，保养，检查之前，务必熟读本说明书的全部内容，做到正确使用。

Plz must read all contents of instruction before  
intall, use, maintain, examine.

- 电源电压必须与本仪器所规定的一致。

The electrical requirement must be conformance with our  
instrument precribed.

- 空载不宜高速运转。

To prohibit high speed rotation when it is no load.

- 电气箱的寿命与周围温度，湿度的影响很大。请保持调速和电机干燥。

Plz keep speed controller and motor drying

- 先安装机器再由专业的电工布线，通电。地线端子务必接地。高温浴锅必须接空开开关。

- 切断电源 5 分钟内，由于变频器或电容放电仍有可能触电。

Cut off power inside 5mins,plz pay attention to security by  
discharge of speed controller and capacity.

● 作业时注意身上的硬物（手表，戒指，皮带扣等）对玻璃的碰击损害。

Plz pay attention to hard thing(watch, ring, etc) to prevent from damage of crash

● 连接真空管水管之时一定要小心，以免过分用力弄碎玻璃对人体的伤害。

Must be careful for connecting between water pipe and vacuum valve or deflation valve(rear of lid) to prevent glass crack result in people wound.

● 需要用高温循环油浴锅时，注意高温对人体的伤害，我司建议用对人体伤害小的导热油（二甲基硅油，运动粘度为 100 的）作溶媒。尤其要注意高温循环的时候，应该先开循环泵，让导热溶媒进行循环的情况下，慢慢升温。

Plz attention to security when use heating circulation system, we suggest use heating oil of small dangerousness(for instance two-A silicon oil).plz pre-open circulating pump when user is going to get circulation, slowly rising temperature under circulation of heating oil.

## 一、概述

双层玻璃反应釜是常用的生化仪器，广泛地被现代精细化工，生物制药，科研实验等行业所选用，可在恒速，恒力，恒温的条件下做浓缩，蒸馏，分馏，分离，提纯反应，是教学，实验，中试，生产的理想仪器设备。

### Summery

The jacketed glass reactor often be used as bio-chemical instrument, it is used in refined chemicals, pharmaceutical, scientific experient, etc, user can do concentration, distillation, seperation, extraction under constant speed, constant temperature.

For your convenience, jacketed glass reactor, the fully assembled reactor head, stirrer shaft or agitator, stirrer shaft coupling, Tflon stirrer bearing, temperature contoller and speed controller, s. s inlet/outlet adaptors, and motor are shipped assembled on support frame.

Unpack all parts and check against packing slip to make sure you have received all necessary components, if it is possible, plz keep some of packing material so that you can use it continously, to reture us to repair our machine.

Cratel: Reactor Vessel(plz be carefully when move it), assembled motor, assembled stirrer shaft or agitator,

500ml receiving flask with three joints, all screws, all  
“O” ring and half “O” ring, Glass Lid, Condenser, Vacuum  
Valve, wrenches, charging valve, discharging valve, etc.

s. s. frame. plz install them carefully to reach good balance.

## 二、特点 Attribute

1、用聚四氟材料和特种橡胶复合密封圈进行密封，能够耐各种不同溶剂并保持高真空度使用十分方便。

Sealing for using PTFE materials and special rubber combined  
sealing ring to endure various kind of different solvents and  
keep high vacuum.

2、高效冷凝器，确保高的回收率。

High efficiency condenser to make sure high receiving rate.

3、标准化的连接方式，拆卸非常方便。

Standard connection way to unload easily.

4、安装有放料开关，回收溶媒十分快捷。

To install discharging switch, it is quite easy for receiving  
hadralytic enzymes.

5、备有真空表，对低沸点物料可以选择最佳工作真空度。

To install vacuum meter, to choose the best vacuum under  
materials of low boiled point.

6、结构合理，用料讲究。整机采用优质不锈钢，铝合金以及新型  
合成材料，具有抗腐，防锈，耐各种溶剂的优点。



The structure is reasonable, main parts were made of high quality stainless, aluminium alloy and other new sythintic material, its priority includes resisting corrosion, dust, and enduring various kind of solvent.

7、玻璃部件全部采用 GG17 耐高温硼硅玻璃材料制成，有良好的物理，化学性能。

Gls parts were made of GG17 silicon glass material, to own good physic and chemical function.

8、电气元件精心挑选，主要部件全部采用进口原装件。

Electrical parts were made of high quality processed part imported.

9、电子无级调速，电机无火花，安全可靠，寿命长（30L 以上选用原装进口变频调速器）。

Adjusting speed is no class for speed controller, motor no flame, it is reliable and secure, long life(to choose imported precessed speed controller above 30L).

### 三，仪器安装

1、打开包装后，按照装箱清单检查本机的主要配件是否齐全。

After open package, check up all parts

2、将不锈钢管与固定件按照附图所示组装框架。

Install stainless frame to use stainless pipe and metal fixing.

3、将电气箱安装在右后立杆顶端并旋紧螺钉，插上七芯插头。真空表安装在左后端，拧紧螺钉即可。

Instll speed controller on right rod of rear(plz look at picture), then insert plug; vacuum meter will be installed left of rear, then firm it well.

4、根据使用高度，将釜圆形托架固定在立杆滑块上，釜放在托架上，半圆型抱箍用于固定釜颈部分别插入立杆滑块，合拢后拧紧固定螺丝，安装时注意反应釜主体垂直。

To firm “0” ring on frame(plz look at picture)according to your desired height, and put flask vessel on “0” ring;to firm neck of flask vessel to use half” 0” ring, total two half” 0” ring, to screw up after fold two half” 0” ring, plz pay attention to verticality of flask vessel when you install.

5、搅拌棒固定在电机主轴的齿环夹头上，搅拌棒穿过盖中间旋转轴承，拧紧专用连接器，然后调整电机的位置，注意垂直同心度。

Stirrer is firmed on head of “gimbal joint”, then stirrer inserts into hole of Column from center of glass lid

6、立杆上的滑块是固定调节不同方向及高低的不锈钢多用夹子。

The slipper of rear rod is to adjust different direction, it is a kind of clamp.

7、瓶盖上右边 40#标准口插蛇型回流冷凝器，左边 40#标口为加料口连接恒压漏斗，中前方 24#标口为插温度计套管口，帽子后方为 34#标口为多功能备用口，底部设有放料阀门，釜身上下分别为循环液进出口。下口接循环液进口，上口接循环液回流口。

The right side of lid for 40#standard joint with condenser, the lift side of lid for 40#standard joint with charging funnel, ahead of lid for 24#standard joint with pipe of Phmeter, rear of lid for 34standard joint, it is a multi-function joint.

8、安装玻璃仪器时必须清洁，各接口处用凡士林涂抹，以防止玻璃抱死现象出现，然后涂上真空脂以防漏气。

Must keep cleaning when user install glass parts, because of every joint with grease oil.

9、按下万向轮固定装置，进行搅拌，如果搅拌稳定，说明调试已好。

To press gimbal joint to make stirring, if its stiring is steady, the adjustment is ok for this stirring rod.

#### **四. 使用方法: Usage**

1、检查电源电压与机器铭牌上所提供的规格是否一致。

Check up electrical requirement is conformance with machine required.

2、插上电源插头，打开变频器上的电源开关，用调速旋钮来选择适合的转速。

To power on, open switch of power from speed controller, then choose desired speed to use speed botton.

3、物料的流动与电机转速的动力在某一点时可能会产生共振，请改变电机的转速，避免共振。

Flowing of material and rotating speed of motor could occur(sympathetic vibration), then plz change speed of motor to avoid it.

4、搅拌棒装上后，必须用手旋转一下，注意同心度是否好，如同心度不好应松开重夹，夹正后再打开电源，由慢至快逐步调整。

Must rotate to use hand after stirrer is installed, look at if it is vertical, if it is not vertical, plz adjust it to reach good verticality, then open power, increasingly adjust speed from slow to fast.

5、利用搅拌棒调节器，可按需要使搅拌叶子上下 5cm。

if you need to adjust stirrer, plz adjust up or down about 5cm.

6、如发现釜密封性能下降，请检查搅拌器套内的旋转轴承。

If user find sealing is not good, plz check up rotary axletree of jacket of stirrer.

7、本反应装置玻璃仪器全部采用 GG-17 低膨胀系数耐高温优质硼硅玻璃制造，用户自配反应瓶等玻璃仪器，请确认准玻璃材质，以确保安全使用。

All parts are made of GG-17 material, plz make sure glass material is good.

8、玻璃釜上的夹层外接循环口，通上热油可做加热反应，能上冷却液可进行低温反应，如果利用蒸气加热，不可超过 0.5K-1K。（尽量不要利用压力蒸气加热）。

Outside of jacket with circulation joint, user can do heating reaction to infuse heating oil, can do cooling reaction to infuse cooling liquid, if user want to use heating of 蒸汽, it is not overcome 0.5K-1K. (note: we suggest to do not heating of 蒸汽)。

9、在低温下进行试验时，底部的放料阀门会结霜，使用阀门时一定要先局部解冻，以防绞碎玻璃。

Discharging valve of bottome will get fox when user do low temperature, plz unfreeze when user uses discharging valve.

10、使用中溶液内如有微粒物体，放料时有可能存积剩物在阀门的聚四氟活塞上，再次使用时气密性会有影响，务必每次放料后先清洗，再次使用。

If user find many granules in liquid, they could be acumulated in stopcock of discharging valve. plz must clean it when you are using reactor, again.

## 五、保养须知 Maintenance

1、使用前仔细检查仪器，玻璃瓶是否有破损，各接口是否吻合，注意轻拿轻放。Plz carefully check instrument if glass vessel is ok, all joint is ok?before use.

2、用软布（可用餐巾纸替代）擦拭各接口，然后涂抹少许真空脂。（真空脂用后一定要盖好，防止灰砂进入。）

To use soft clothing to erase all joints, then coat a little of vacuum grease.

3、各接口不可拧得太紧，要定期松动活络，避免长期紧锁导致连接器咬死。

Don' t tightly screw on all joint, plz periodically move to avoid tight connection.

4、先开电源开关，然后让机器由慢到快运转，停机时要使机器处于停止状态，再关开关。

First open switch of power, then operation from slow to fast, plz keep machine stopping after use, close switch.

5、各处的聚四氟开关不能过力拧紧，容易损坏玻璃。

The switch of PTFE, plz don' t strongly screw on it in case glass is damaged

6、每次使用完毕必须用软布擦净留在机器表面的各种油迹，污渍，溶剂剩留，保持清洁。

Plz eresease various kinds of oil. durty, solvent residual after use.

7、停机后拧松各聚四氟开关，长期静止在工作状态会使聚四氟活塞变形。Plz loose switch of PTFE after use.

8、定期对密封圈进行清洁，方法是：取下密封圈，检查轴上是否积有污垢，用软布擦干净，然后涂少许真空脂，重新装上即可，保持轴与密封圈滑润。

Periodically, plz clean some sealing ring. Method: take down sealing ring, check up if it has durty on axis, then clean it.

9、电气部分切不可进水，严禁受潮。

Electrical part, plz prohibit humidity.

10、必须采购原厂正宗配件，随意使用其他配件对机器会造成致命的损害。

Must purchase standard part from our factory, plz don' t randomly buy other sparepart from other factory.

11、对机器做任何修理或检查时，一定要先切断电源，水源。

Plz cut off power or water when we check and repair machine.

12、仪器使用三年后送回制造厂进行保养一次（建议）。

Plz maintain it after use three year(only suggestion)

注明，本设备属于易碎产品，请使用者在使用时小心轻放，易碎品的损坏不在我司的保修范围之内，如果客户需要，我司需收取相应的成本费用。

Note: our reactor is fragile product, plz carefully use it, and we don' t repair fragile product(glass), so if some customer need fragile product, need to pay cost.

## 六、故障简易排除 Malfunction Removing.

Phenomenion	Reason	Removing
开启电源开关, 指示灯不亮。The Indicator is not light when you power on	External source no pass or other	请专业电工检查电源, 插座。Plz check up power supply and jack
	Short circuit	将电源开关置于 OFF 位置, 再换置保险管。Plz put switch to OFF, exchange new fuse.
电源指示灯亮, 但不旋转。Indicator led is light, but not rotary	旋转轴生锈 rotary axis is rust	停止使用, 与供应商联系 Stop to use it, plz contact with supplier.
	电机, 电气箱故障 Motor, electrotechnical box in malfunction.	
	未连接七芯插头 no connection with seven-connector electrical male plug	重新连接七芯插头 Reconnect this plug.
Vacuum is dispealed	Check up glass is ok? Glass switch is ok?	Plz replace sealing ring and switch
有真空, 但抽不上 Has vacuum, but couldn' t reach to max vacuum	密封圈磨损, 连接真空开关泄漏 Sealing or vacuum switch plz check.	Plz replace new parts
真空时有时无 sometime is in vacuum, sometime is not in vacuum	Axis has durty, loose connection	请清除污垢检查真空表, 真空泵 plz erease durty, check up vacuum meter and vacuum pump
	真空软管老化 sofy pipe aging	请更换真空软管 plz replace it.



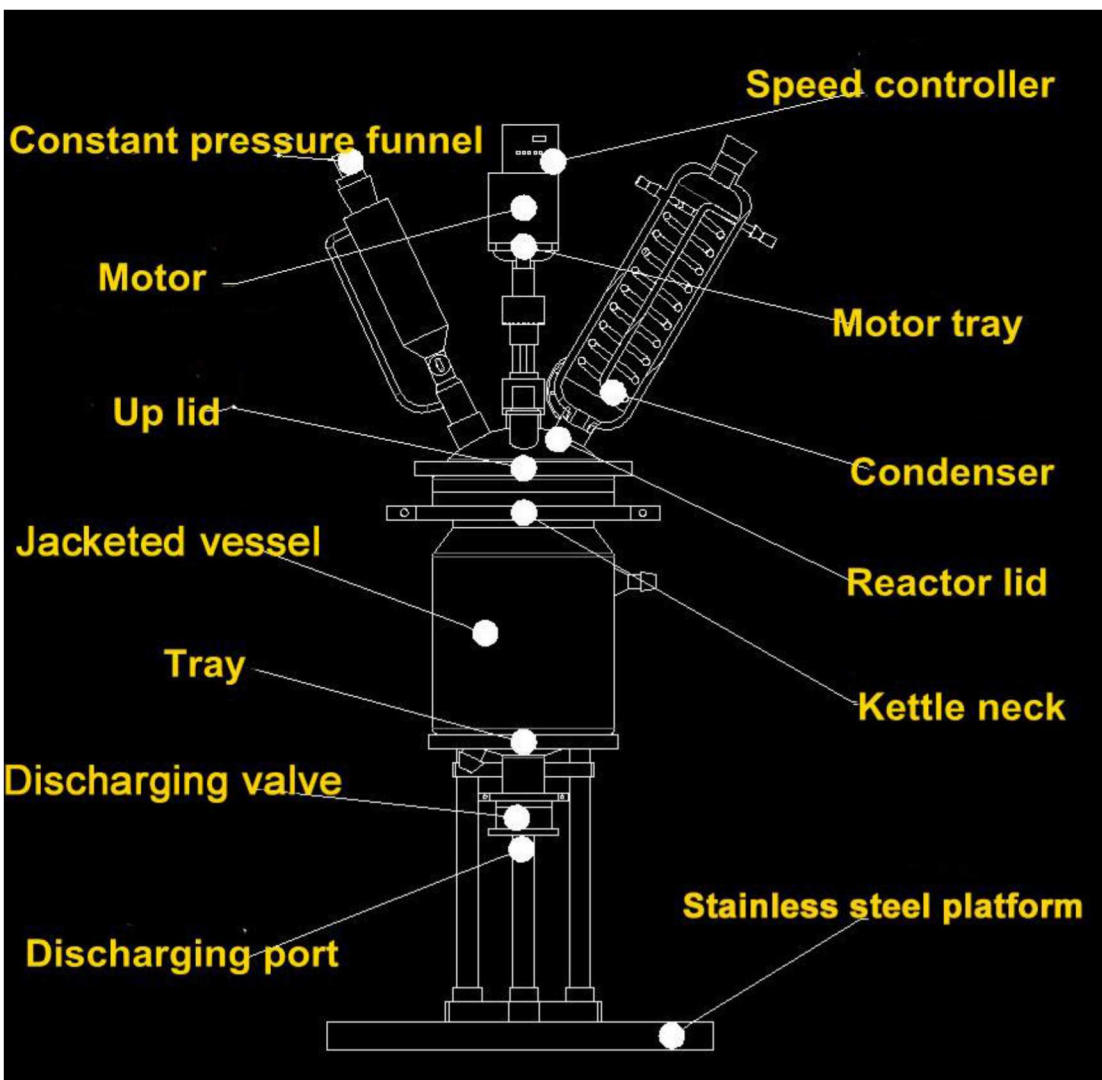
主机芯轴左右松动 Main machine	紧顶螺丝松动	旋紧
电机温度过高（室温加40℃属正常） The temperature of motor is high(RT-90degree is normal)	Overload	停机，用手使机轴转，是否很重，清除密封圈与玻璃轴接触部上的污垢，涂上真空脂 Stop working, clean up dirt between sealing ring and PTFE stirring axis
转速显示与实际不符 Speed Display is not accord with actual speed	电压不稳定，自身有误差 The voltage is not stead, or it has some error(it is normal)	与供应商联系 plz talk with supplier

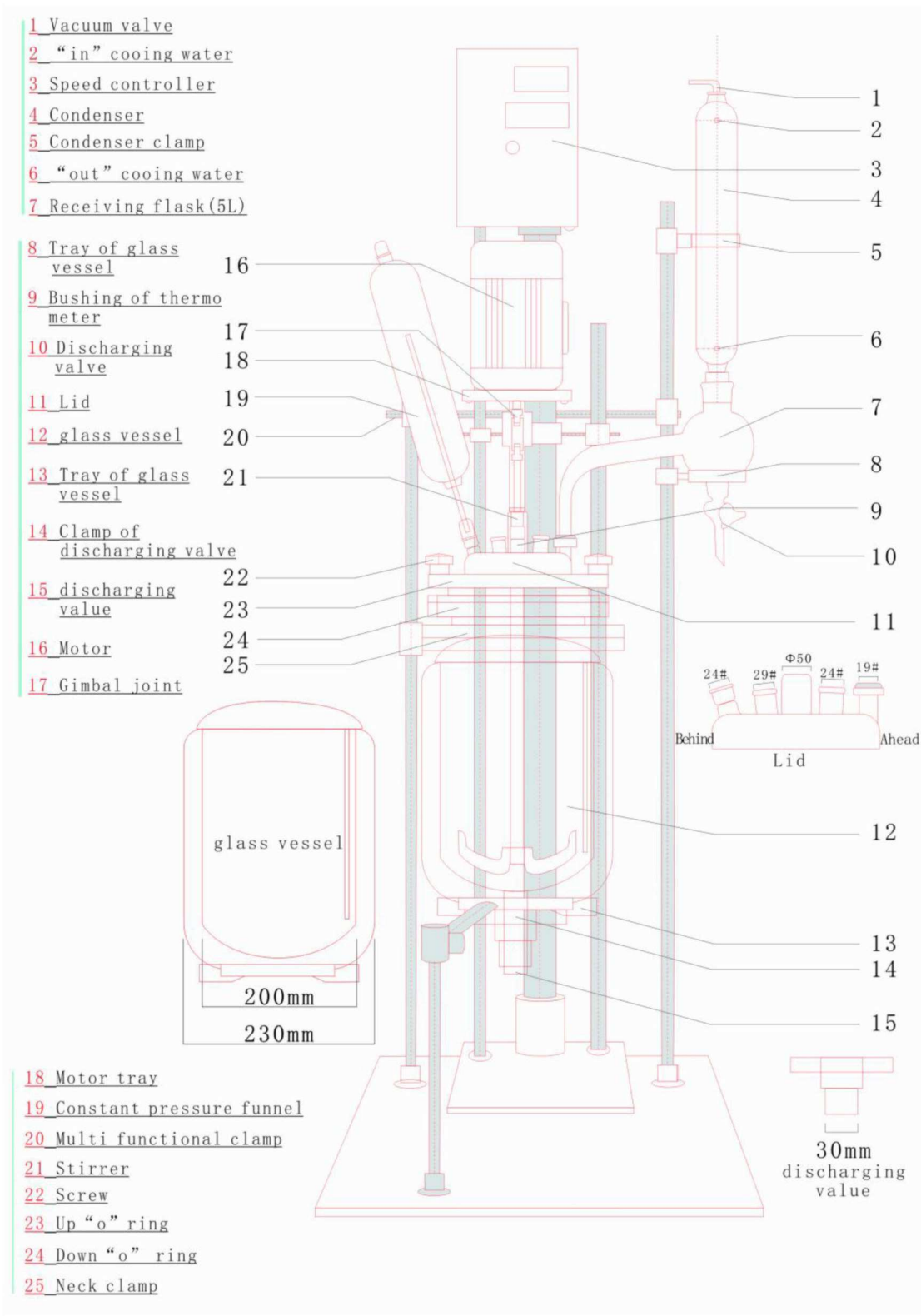
## Product Drawing(1L-5L jacketed glass reactor)

Our Part following:

- (1): HEB-FC-307: Frequency-convertor for digital display
- (2): HEB-10: Condenser
- (3): HEB-11: Electric Stirrer motor power: 40W-120W.
- (4): HEB-21: Lock Clamp
- (5): HEB: Constant Pressure Funnel
- (6): HEB-1: half-ring Clamp
- (7) HEB-07-12: receiving flask
- (8) HEB-021: black lock clamp
- (9) HEB-2: discharging Valve
- (10) HEB-99-16: 5 Neck Lid
- (11) HEB-0 Screw
- (12) HEB-RH-208 Lock Clamp "O"
- (13) HEB-5: support rod 4
- (14) HEB-RH-210 Support Ring "O"
- (15) HEB-JR-111 1L-5L Jacketed vessel
- (16) HEB-ST-101 Stirrer Shaft Stainless Teflon agitator
- (17) HEB-RH Lock 4
- (18) HEB-DS-158 Discharging Valve not existing materials
- (19) HEB-4 Main support rod
- (20) HEB-3 Flat Base

Note:



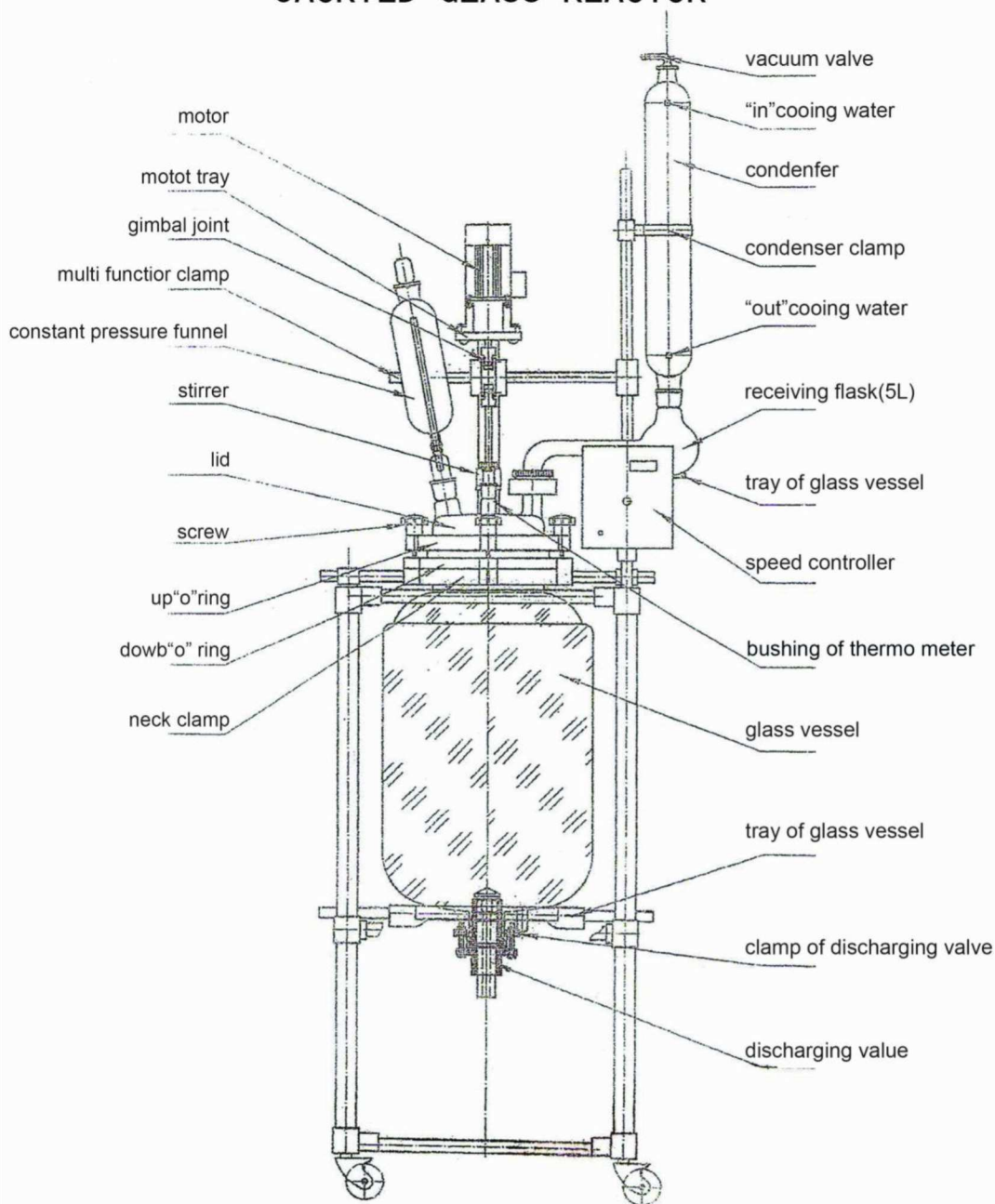


Product' s Drawing(10L-100L jacketed glass reactor)

1. Item	Part	
NO	Numbr	Description
1.	HEB-10	Condenser

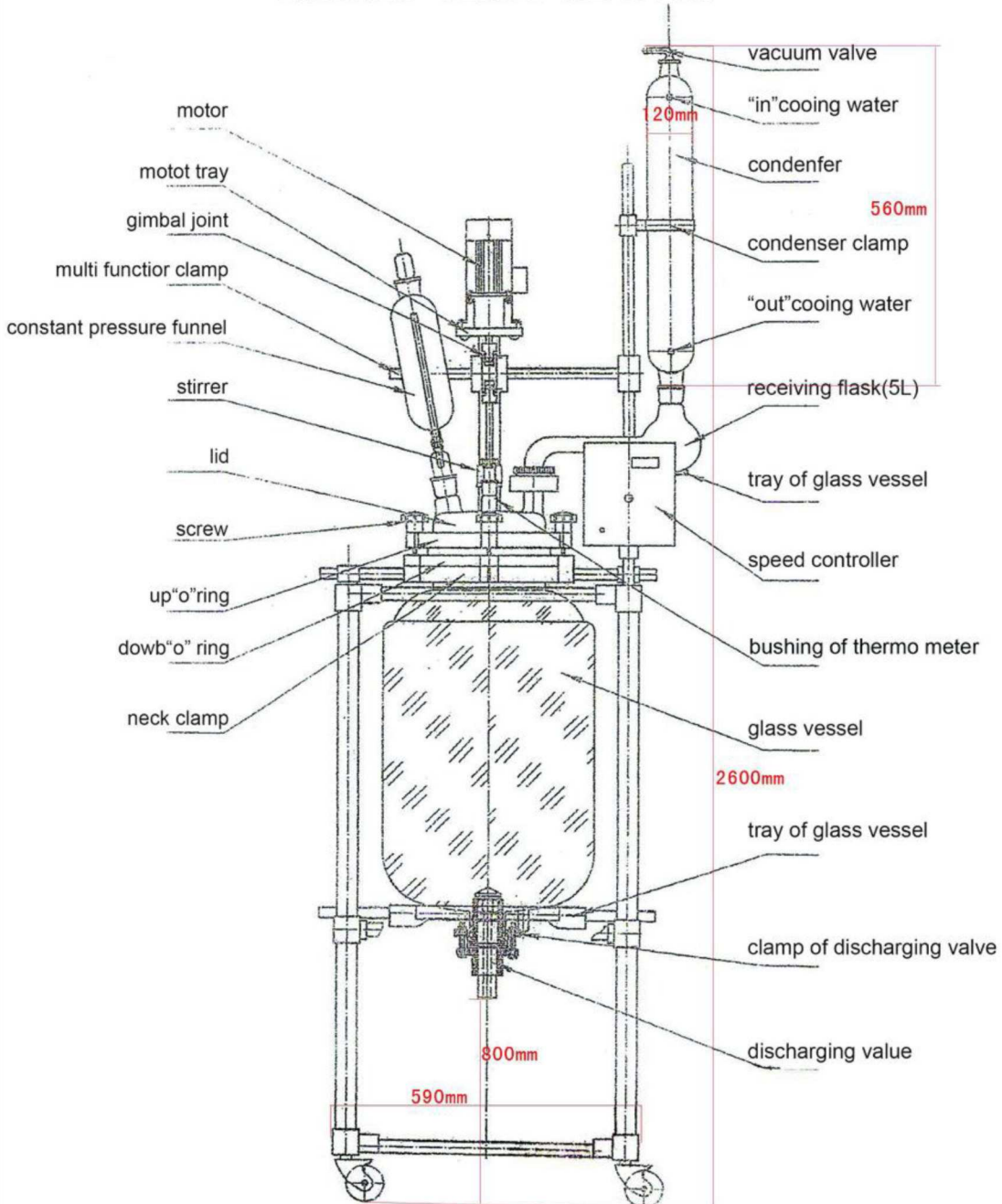
2.	HEB-15	Connection Joint
3.	HEB-11	Electric Stirrer Motor(Proof-Explosive) 50-900rpm Power:370W
4.	HEB13	Pressure Meter Max pressure 0.098Mpa
5.	HEB-07-12	Receiving Flask(2L-5L Optional)
6.	HEB-99-16	5-Neck Lid diameter for Middle:60,Left:40, Right:50,Back:34mm, Front:29mm
7.	HEB-FC-307	Frequency-Convertor for Digital Display
8.	HEB-BP-502	Beaded Pipe Coupling(outlet)
9.	HEB-BP-503	Beaded Pipe Coupling(Inlet)
10.	HEB-JR-111	10-100L Jacketed Vessel
11.	HEB-ST-101	Stirrer Shaft Stainless, Teflon Agitator
12.	HEB-RH-210	Aluminium Support Ring
13.	HEB-DS-158	Discharging Valve Not Existing Materials
14.	HEB-LC-199	Heavy Duty Lockable Casters
15.	HEB-VM-201	Vacuum Mouth
16.	HEB-SF-08	Support Frame,Stainless
17.	HEB-CP-0	Constant Pressure Funnel
18.	HEB-PTFE	PTFE cover for big mouth
19.	HEB-GV	Glass Valve
20.	HEB-TP	Bushing of temperature meter
21.	HEB-FS	various kind of clamps

# JACKED GLASS REACTOR



Model	Parameters Inside's/outside's dia of glassvesse	Glass lid with 5 necks				
		Middle	Left	Right	Behind	Ahead
TFD-50	355*400	Φ60	40#	Φ50	34#	29#
TFD-30	310*355	Φ50	40#	40#	34#	24#
TFD-20	310*355	Φ50	40#	40#	34#	19#
TFD-10	245*260	Φ50	40#	40#	34#	19#

# JACKED GLASS REACTOR



Parameters Model	Inside's/outside's dia of glassvesse	Glass lid with 5 necks				
		Middle	Left	Right	Behind	Ahead
HEB-100	405*460	Φ60	40#	Φ50	34#	29#

Quality Certificate

Product Model:

Batch No:

Manufacturing Date:

Signature:

Warranty Card	<p>The product rely on Q/320211 DFX01,02-2000 standard to approve selling.</p> <p>The reason is in manufacturing, or the motor is in malfunction, warranty time for one year.</p> <p>Buying date: Invoice No:</p>	<p>Instruction:</p> <ol style="list-style-type: none"> <li>1. the user should fill in "WarrantyCard" and WarrantyRegistration Card</li> <li>2. the warranty registration card will be sent to us in one month.</li> </ol>
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**Warranty Registration Card**

Company or unit			Address		
customer		Tel		P.C	
dealer		Invoice No		Buying Date	
Product model		Batch No		Mark	
Quality Tracking	Date	Repair Record			Contact person
User suggestion					

## **Гарантия**

Гарантийный срок составляет 12 месяцев для правильно установленных и эксплуатируемых в нормальных условиях приборов.

Гарантийный бесплатный ремонт и замена деталей и улов, имеющих брак, производится при предъявлении копии документов, подтверждающих покупку.

Наш максимальный объем ответственности в самом исключительном случае не превышает стоимости продукта. И мы оставляем за собой право по своему собственному усмотрению возместить покупную цену вместо ремонта или замены.

Мы не несем ответственности за прямые или косвенные убытки любого рода, возникшие, включая в том числе, но не ограничиваясь, невозможность использования изделия либо части его функций, потерю времени, неудобства, упущенную выгоду, стоимость трудозатрат, или другие случайные или косвенные убытки в отношении лиц, бизнеса, или имущества, будь они в результате нарушения гарантии, небрежности или по какой иной причине. Несмотря на любое положение настоящей гарантии.

Покупатель несет ответственность за определение пригодности и применимости настоящего изделия для конкретных целей или при включении его в качестве детали в системы, которые клиент разрабатывает, производит или продает.

### **Гарантийное обслуживание не осуществляется в следующих случаях:**

1. При отсутствии документов, подтверждающих покупку прибора у компании либо у её представителя.
2. При наличии механических и других повреждений, вследствие нарушения требований условия эксплуатации, правил транспортирования и хранения.
3. Самопроизвольного изменения конструкции или внутреннего устройства оборудования
4. При нарушении сохранности заводских гарантийных пломб на устройствах оборудования и несанкционированного доступа к настройкам (регулировкам).
5. Применения запасных частей и материалов, не предусмотренных эксплуатационной документацией.
6. При нарушении режимов работы, установленных эксплуатационной документацией.

### **Гарантия не распространяется:**

1. На расходные материалы и уплотнительные элементы и электродвигатель.



2. На изделия, использовавшиеся не по назначению, эксплуатировавшиеся без своевременного обслуживания и контроля.
3. На изделия вышедшие из строя по причине форс-мажорных обстоятельств или при перевозке.

**Условия гарантии не предусматривают:**

1. Профилактику и чистку изделия, а также выезд мастера к месту установки изделия с целью его подключения, настройки, ремонта и консультации. Данные работы производятся по отдельному договору.
2. Транспортные расходы не входят в объем гарантийного обслуживания. Перевозка в ремонт и из ремонта относится на счет покупателя в любом случае.

Дата начала гарантии \_\_\_\_\_

Номер накладной (серийный номер) \_\_\_\_\_