

ⓘ 在使用本产品前请仔细阅读本手册，本将其放在设备附近以备将来参阅。
Before use, please read this manual carefully and be placed nearby to the equipment for future reference



上诚泵阀 因诚而信
Shangcheng Pump and Valve
Being trustworthy because of its sincerity

❖ 转子泵系列

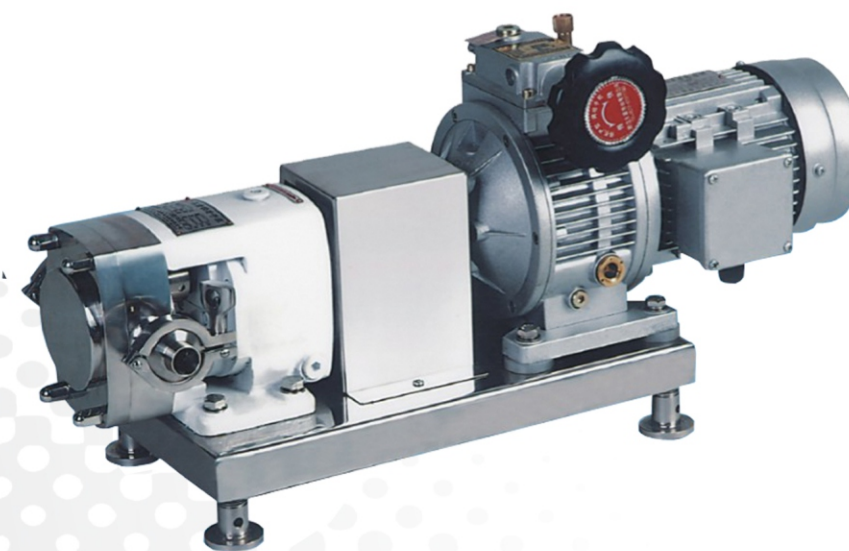


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BRIEF 企业简介 INTRODUCTION

上海上诚泵阀制造有限公司是一家集科研、开发、生产、销售于一体的泵阀企业；公司拥有一支经验丰富、勇于实践、不断创新的高素质开发、科研队伍：其中高级工程师2名，研究、设计技术人员35名，生产技术制造人员68名，现有员工总数达298人；公司拥有国内外先进的电脑微机控制性能水泵测试台，使客户更安全、更有效、更放心地使用上诚产品。

公司全面采用ISO9001：2000《质量管理体系要求》，并有效的实施；自创办以来始终把质量管理作为第一追求目标，发扬拼搏精神，争创一流的精神在泵阀行业中不断发展壮大。

公司主要生产经营各类水泵及配套蝶阀；产品畅销全国各地，广泛应用于石油、化工、电力、造纸、食品、制药、给排水工程等，深受各行业用户的一致好评，上诚秉着“以诚为贵，以质取胜”的经营理念，诚心为您提供优质的品牌产品和完美的服务，竭诚欢迎社会各界惠顾合作。

Shanghai Shangcheng Pump and valve manufacturing Co.,Ltd. is an enterprise of Researching, developing, producing and selling; The company has an experience team to develop high quality products, 2 senior engineers, 35 designing engineers, 68 technicians, which totally amounts to 298; The company has the domestic advanced automatical system to perform water pump test, which can make the customer to use our products safely, effective and easily.

The ISO9001:2000"quality control system rpequest" always be implemented effectively since our company is opened, the quality control is always our first pursue goal and we are growing strong in the pump and valve industry.

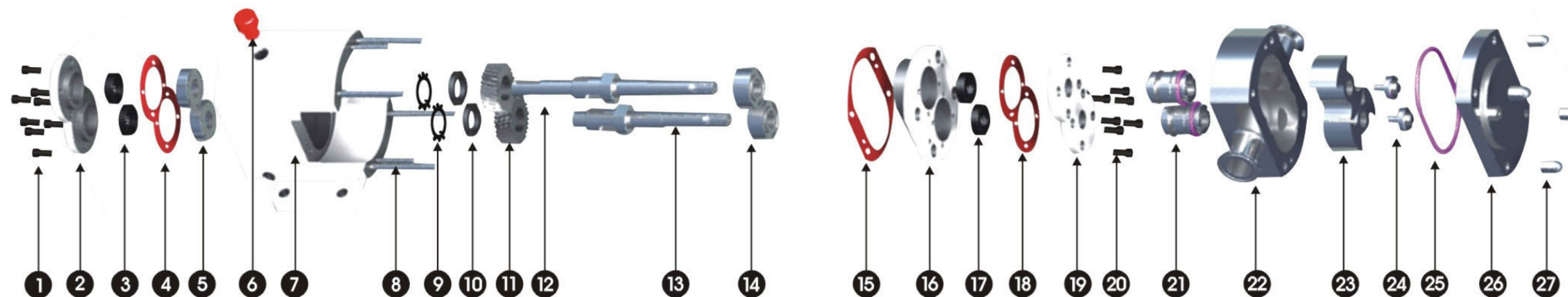
Our main products are pumps and matched valves, which are sold to the strongly all over of China, it can be widely applied to petroleum, chemical industry, electric power, paper-making, food, drugs manufacturing and so on, "honesty oriented, quality comes first" is our management idea, which sincerely provides the high quality brand product and the consummation service for you.



PRODUCT CONTENTS 产品目录

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转子泵泵头结构图 / Rotor Pump Configuration



1.螺钉
2.轴承盖
3.油封
4.垫圈
5.轴承
6.通气帽
7.齿轮箱

8.螺杆
9.止推垫圈
10.拼帽
11.齿轮
12.主传动轴
13.传动轴
14.轴承

15.垫圈
16.轴承座
17.油封
18.垫圈
19.轴承盖
20.螺钉
21.机械密封

22.泵腔
23.转子
24.螺钉
25.密封圈
26.泵盖
27.螺帽

1.Screw
2.Bearing cover
3.Rubber oil seal
4.Seal gasket
5.Bearing
6.Ventilation nut
7.Screw
8.Screw
9.Stop washer
10.Cap
11.Helical gear
12.Upper shaft
13.Lower shaft
14.Bearing

15.Seal gasket
16.Bearing seat
17.Rubber oil seal
18.Seal gasket
19.Bearing cover
20.Screw
21.Mechanical seal

22.Pump cavity
23.Rotor
24.Screw
25.Seal gasket
26.Pump cover
27.Screw cap

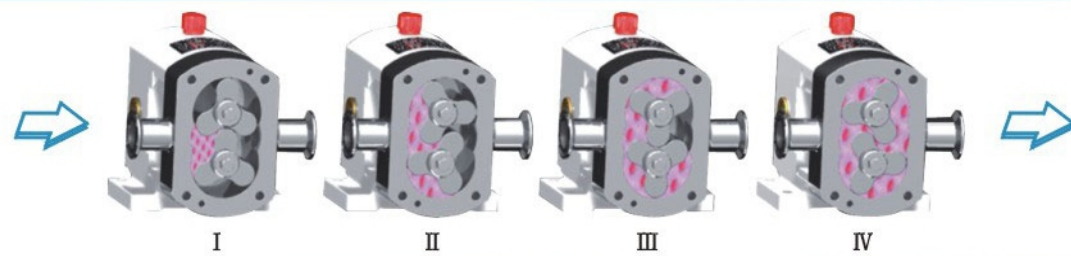


产品原理 / Product Principle

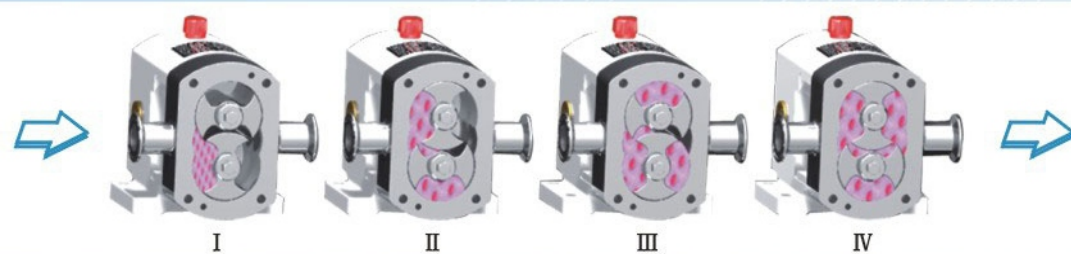
转子泵属容积式泵的一种型式，通过转子与泵体间的相对运动来改变工作容积，从而使流体的能量增加。

转子泵又称罗茨泵，胶体泵、高浓浆泵等。它依靠两个同步运动的转子，由一对外置式同步齿轮箱进行传动，转子在传动轴的带动下同步反方向旋转，从而构成了较高的真空度和排放压力。两转子将转子室分隔成几个小空间，并按 I → II → III → IV 的次序运转（如下图）。运转到 I 位置时，只有进口处充满介质；运转到 II 位置时，II 室中封闭了部分介质；到位置 III 时，III 室中也封闭了介质；到位置 IV 时，进口处和出口室相通，介质即被输送至出物料管道。按这样的循环往复，介质即被不断的输送出去。

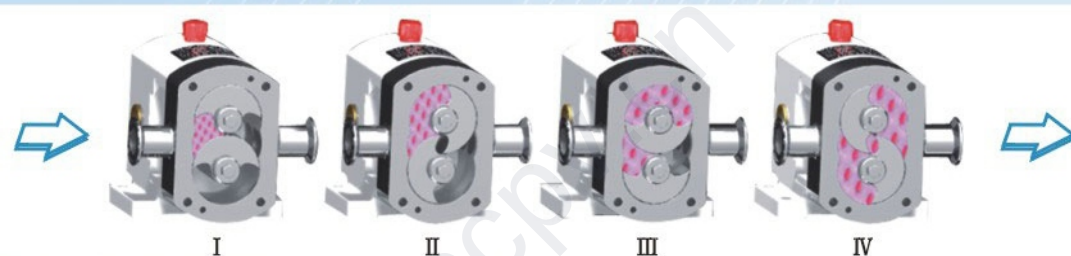
三叶型



蝴蝶型



单叶型



Rotor Pump is also named Roots Pump, Colloidal Pump, High Concentration Pump, etc. It depends on two synchronic rotors. The two rotors are driven by a pair of outer-set synchronic gear boxes and the transmission shaft. They move synchronically in counter-clockwise directions. Which consequently, builds up high vacuum capacity and emission pressure. The two rotors divide the rotor room into many smaller parts and the works according to I → II → III → IV (as below). When it revolves to position I, only entrance is filled with medium; when it revolves to position II, room II encloses part of the medium, when arriving at position III, room III encloses medium, and finally it goes to position IV, then entrance and Export housing are interlinked and the medium is transported to the outlet. As this process is repeated, medium is to be gone out by unfailing transportation.

产品特点 / Product features

- 本泵中凡与输送物料接触的零配件，均采用符合卫生标准的不锈钢材料制作，其密封件均采用无毒橡胶。可靠的防锈性和无毒密封性确保了安全卫生。
- 转子的流线结构以及转子室中无死点和非金属件，避免了对被输送物质造成污染。
- 适合于就地CIP清洗与蒸汽消毒，完全符合美国FDA规范要求及医药级（GMP）规范要求
- 特别适用于在输送过程中容易其泡沫以及输送高粘度、浓度及任何含颗粒的介质，经其输送的物料保持原有品质不变，不起任何理化反应。
- 采用外装动、静环式机械密封，可直接水冲洗，耐高压，不易磨损，无泄漏。
- 体积小，流量大，扬程压力高，适用长距离与高阻力定量输送。
- 泵的叶轮与传动齿轮分开，且在泵腔内各零配件之间保证一定的间隙，相互不接触，无磨损，低噪音，可靠性好，使用寿命长，节能降耗。
- 配置变频器后，可以随意调节流量，并可做一般计量泵使用。
- 可输送汽、液、固等三相混合物料。可以输送的介质的粘度可高1000000CP和含固量达55%的浆料。
- 结构紧凑，维护方便，几乎无易损件，运行成本低。



- All parts of the pump, touching transporting materials, is made of stainless steel according to the sanitation standard, Its airproof parts adopt innocuity latex.
- The pollution for transporting materials is avoided by both streamline structure of rotor and rotor room without dead center and nonmetal P parts.
- Be fit for cleaning with CIP and steam sterilization on the spot meeting the American criterion of FDA and GMP entirely.
- Be fit for transporting liquid of bubbles, high viscosity and consistency and with any grain medium especially. The materials transported by the bump keep original character without any physical and chemical reaction.
- Adopt dynamic and static ring-shaped mechanical airproof, swash with water directly, enduring high pressure, without leakage and not easy to abrase.
- Small cubaque, heavy flow, high pressure of head of delivery. Be fit for the quantified transportation of long distant and high resistance.
- Bump impeller and transmission gears are separated, while every parts in the bump room keep certain space, without interference one another, low noise, high reliability, long time use, energy saving.
- Having been deployed by a transducer, the bump can adjust flux, and it also can be used as a measure pump.
- The mixture of vapour, liquid and solid can be transported, and the medium under 1000000CP viscosity or oar materials with 55% solid can be also transported.
- The product has the feature of compact in frame, steady in performance, facilitated in operation and IOW costs for operation.

应用领域 / Applications

- **食品工业**：牛奶、酸奶、奶油、冰淇淋、巧克力、果冻、果酱、糖浆、啤酒、汽水、果汁、布丁、番茄酱、芝麻酱、花生酱、调味品、食用油、乳酪块、乳清、麦芽汁、酵母等；
- **Food Industry**：Milk, yoghurt, Butter, ice-cream, Chocolate, jelly, jam, syrup, Beer, Soft drinks, fruit juice, pudding, Tomato sauce, Sesame, peanut butter, Condiment, edible oil, Cheese blocks, whey, Wort, yeast, Etc；
- **日化工业**：洗面奶、洗发精、洗洁精、洗手液、沐浴露、洗衣粉、化妆品、护肤霜、染发剂、牙膏、肥皂、鞋油、甘油、脂肪酸、发型凝胶等；
- **Daily Chemicals**：Face cream, Shampoo, Detergent, Hand sanitizer, skin gel, Detergent, Cosmetics, skin cream, toothpaste, Hair dye, soap, Shoe polish, Glycerol, fatty alcohol, hair gel, Etc；
- **化工工业**：汽油、柴油、煤油、原油、油泥、沥青、油漆、颜料、染料、涂料、各种催化剂、皮革、脂肪、溶剂、树脂、硅油、粘胶剂、各种乳胶、各种胶体料、各种高粘度物料及含固量较高的料浆等；
- **Chemical Industry**：Gasoline, diesel, kerosene, Crude oil, sludge, asphalt, Paint, Pigment, Dyes, Coating Material, catalyzer, Leather, Fat, solvents, resins, Silicone oil, Adhesives, Latex, colloidal material, and other colloidal subst, Etc；
- **制药工业**：各种保健品、药剂、疫苗、生物制品、糖浆、药浆、蛋白质、蜂王浆、浸膏、乳剂、药丸浆等；
- **Pharmacy Industry**：Health care products, pharmaceutical, Vaccine, Biological Products, Syrup, Slurry, Protein, Royal Jelly, Extracts, emulsions, pills slurry, Fish Meal, Pollen, Etc；
- **环保工业**：泥浆、粪肥、肥料溶液、污水、污泥、各种有毒药剂等；
- **Environmental Protection**：Mud, manure, fertilizer solution, sewage, sludge, Toxic agents, Etc；
- **建筑工业**：各种油漆、涂料、树脂、有机溶剂、内外墙涂料、防水涂料、陶瓷涂料、油漆涂料、陶瓷釉料等；
- **Construction Industry**：Paints, coatings, resins, organic solvents, Indoor/outdoor Wall Coating, Water Proof Coating, Ceramic Coating, Paint Coating, Ceramic Glazing, Etc；
- **其它工业**：纳米材料、造纸、纺织、塑料、生化、煤炭等工业等；
- **Other**：Nano-materials, Papermaking, Textile, Plastic, Biochemical, Coal Industry, Etc；



典型转子及应用特点 / Typical rotors and application features

三叶型转子泵 Three-lobe rotor pump

特别适用于在输送过程中容易其泡沫以及输送高粘度、浓度及含颗粒的介质，经其输送的物料保持原有品质不变，不起任何理化反应。输送流量可以较准确的控制并可以作计量泵使用。

Especially suitable for the mediums that are easy to foaming or may be damaged during high-speed transportation. Output materials has been steadily delivered and its components will not be destroyed. the transfer flow can be controlled precisely or can be made to variable capacity pump easily.



蝴蝶型转子泵 Butterfly rotor pump

它不仅具有一般转子泵的特点，并且在输送高粘度及。内含较大颗粒的物料时，也具有一定的优势，对特别粘稠的物料也能够有效输送。经其输送的物料保持原有品质不变。

With butterfly rotor, it is superior to other rotor pump when transferring material with high viscosity and larger powder and effectively transports extremely stiff material. Output materials has been steadily delivered and its components will not be destroyed.



单叶型转子泵 Single butterfly rotor pump

专门针对输送内含大颗粒物料而设计制造，其独特的结构形状和使其能够在输送内含大颗粒物料时具有其他泵中不可比拟的优越性，经其输送的物料保持原有品质不变，是输送含颗粒物料泵的首选。

This pump series are specially design to transport material with larger powder. Its unique shape and curve makes it more outstanding compared to other pumps in delivering material with larger powders. Output materials has been steadily delivered and its components will not be destroyed, which is the top choice of pumps transferring material with powders.



驱动形式 / Driving System

电机+无级变速器 Motor+stepless speed variator

主要特点：调速精度高，变速范围大（速比可在1:1.41:7之间任意变化），可连续工作运转，运转平稳，性能稳定，噪音低，扭矩大，流量无级可调。但它的变速是需手动来调节，自动化程度不高，调速须在运转中进行，不可在停车时转动调速手轮。它不宜用于可能超负荷或堵塞使用场合。

The main characteristics: High speed-regulating precision, Large speed-changing range (The speed ratio ranges from 1: 1.4 to 1: 7 freely). Continuous in running, smooth in driving, stable in performance and low in noise, which is reliable and infinitive flow adjustment. But it changes the speed by manual adjustment, low degree of automation, and speed-regulation should be effected in running. Do not turn the hand wheel of speed-regulation when the machine stops. The mechanical stepless speed variator is not used in such an occasion where overload or running-blockage happen to occur.



电机+一级齿轮减速机 Motor and single stage gear reduction

主要特点：承载能力强，传动方式简单，特别针对高粘度，高浓度物料的输送，若电机采用变频电机时可配变频器，以达到流量的自动调节。

The main characteristics: Strong bearing capacity, The driving is easy, Specifically for the delivery of materials with high viscosity and thickness. If the inverter motor adopted, then inverter can be configured, in order to achieve the automatic adjustment of the flow.



电机+二级齿轮减速机 Motor and two stage gear reduction

主要特点：承载能力强，传动方式简单，特别针对高粘度，高浓度物料的输送，若电机采用变频电机时可配变频器，以达到流量的自动调节。其承载能力比一级齿轮减速机更大，传动更平稳。

The main characteristics: Strong bearing capacity, The driving is easy, Specifically for the delivery of materials with high viscosity and thickness. If the inverter motor adopted, then inverter can be configured, in order to achieve the automatic adjustment of the flow. Its carrying capacity is much better than single stage gear reduction, and has more stable transmission.



变频电机+变频器 Frequency transformed motor+frequency transformer

主要特点：调速精度高，运转平稳，性能稳定，可实现转速的自动调节，确保了流量的任意控制，弥补了无级变速器自动化程度不高的缺陷。缺点是变频器的价格较高，输送扭力比较小，不适合高粘度，高浓度物料的输送。

The main characteristics: High speed-regulating precision, stable in performance and low in noise, it realizes both automatic adjusting and infinitive adjustment of flow. It is highly automatic and has large torque in low speed. But the frequency transformer is expensive, Conveyor torque is relatively small, not suitable for the delivery of materials with high viscosity and thickness.



上进下出型 Up- inlet down-outlet

特别针对流动性较差的物料的输送，进口处可根据客户需要做成不同的连接方式，如卡箍、法兰、螺纹、喇叭口矩形，驱动也可采用无极变速和定比齿轮减速形式。

Especially for the delivery of materials with poor mobility, inlet connections can be customized such as clamps, flanges, threaded etc, the driver system can be stepless speed variator and fixed relative ratio speed reducer.



小车移动式 Movable

应用于非定点输送物料的场所，可根据不同工况、物料的要求做成各种不同配置方式。

Transport of materials used in non-designated occasions, various configurations can be designed according to the requirements of the different working conditions and materials.



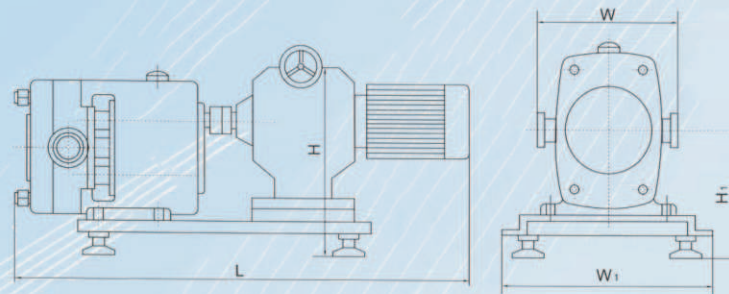
技术参数 / Main Parameter

型号	每100r排量 (L)	建议调速范围 (rpm)	每100r排量 (L/H)	电机功率 (kW)
ZB3A-6	6	200~500	650~1600	1.5
ZB3A-8	8	200~500	850~2160	1.5
ZB3A-12	12	200~500	1300~3200	2.2
ZB3A-20	20	200~500	2100~5400	3
ZB3A-30	30	200~400	3200~6400	4
ZB3A-36	36	200~400	3800~7600	5.5
ZB3A-52	52	200~400	5600~11000	5.5
ZB3A-66	66	200~400	7100~14000	7.5
ZB3A-78	78	200~400	9000~18000	7.5
ZB3A-100	100	200~400	11000~22000	11
ZB3A-135	135	200~400	15000~30000	11

- 注:
- 可根据介质特点的需要及工况的需要选择最佳的驱动;
 - 表中的流量及压力均为在介质为水的状态下测定;
 - 可根据连接需要选择连接方式: 螺纹接头、重型卡箍、连接法兰。

Note:

- The motor power should be increased when delivering high viscosity liquid, and adopts stepless speed regulator or frequency transformer to adjust the speed;
- the flow in the table refers to the data tested taking water as the medium;
- You can choose Hoop, thread and flange.



外型尺寸 / Shape Size

产品型号 Product Model	电机功率 Motor Power kW	接口尺寸 Connection Dimensions	L	H	H ₁	W	W ₁	接口形式 Type of connection
ZB3A-3	0.55	Φ25x1.5	710	290	150	150	300	卡箍 Forked
ZB3A-6	0.75	Φ25x1.5	850	425	170	180	330	
ZB3A-8	1.5	Φ32x1.5	850	425	170	180	330	
ZB3A-12	2.2	Φ38x1.5	980	490	187	220	390	螺纹 Screwed
ZB3A-20	3	Φ50.8x1.5	1000	490	187	220	390	
ZB3A-30	4	Φ42x1.5	1100	490	238	270	390	
ZB3A-36	5.5	Φ50.8x1.5	1250	610	238	270	480	法兰 Flanges
ZB3A-52	5.5	Φ63.5x1.5	1300	610	238	270	480	
ZB3A-66	7.5	Φ76x2	1320	620	248	270	480	
ZB3A-78	7.5	Φ63.5x2	1180	480	292	330	480	
ZB3A-100	11	Φ76x2	1200	480	292	330	480	
ZB3A-135	15	Φ102x2	2220	480	292	330	480	
ZB3A-160	18.5	Φ102x3	1500	495	320	420	560	
ZB3A-200	22	Φ125x3	1600	495	320	420	560	

世界各国不锈钢牌号 / Stainless Steel Standards Of Different Counties

中国 China	日本 Japan	德国 Germany	美国 U.S.A	美国 U.S.A	欧盟 Europa	英国 England
GB	JIS	DIN	AISI	ASTM	EN	BSI
0Cr18Ni9	SUS304	1.4301	304	TP304	X5 CrNi 18-10	304S15&304S16
00Cr19Ni10	SUS304L	1.4306	304L	TP304L	X2 CrNi 19-11	304S11
0Cr17Ni12Mo2	SUS316	1.4401	316	TP316	X5 CrNiMo 17-12-2	316S31
00Cr17Ni14Mo2	SUS316L	1.4404	316L	TP316L	X2 CrNiMo 17-12-2	316S11

不锈钢化学成分及力学性能 / Chemical Composition And Mechanics Property

钢种	碳(≤) C	硅(≤) Si	锰(≤) Mn	磷(≤) P	硫(≤) S	铬 Cr	钼 Mo	镍 Ni	力学性能			
									屈服强度 (σ _{0.2}) (Mpa) ≥	抗拉强度 (σ _b) (Mpa) ≥	延伸率 (δ 5%)	硬度 Hb <
中国 (GB)	304	0.07	1.0	2.0	0.035	0.03	17~19	—	8~11	205	520	40 187
	304L	0.03	1.0	2.0	0.035	0.03	18~20	—	8~12	177	480	40 187
	316	0.08	1.0	2.0	0.035	0.03	16~18.5	2.0~3.0	10~14	205	520	40 187
	316L	0.03	1.0	2.0	0.035	0.03	16~18.5	2.0~3.0	12~15	177	480	40 187
美国 (ASTM)	304	0.08	1.0	2.0	0.04	0.03	18~20	—	8~11	206	520	35 187
	304L	0.03	1.0	2.0	0.04	0.03	18~20	—	9~13	177	481	35 187
	316	0.08	1.0	2.0	0.04	0.03	16~18	2.0~3.0	10~14	206	520	35 187
	316L	0.03	1.0	2.0	0.04	0.03	16~18	2.0~3.0	12~16	177	481	35 187
日本 (JIS)	304	0.07	1.0	2.0	0.045	0.015	17~18	—	8~10	205	520	40 187
	304L	0.03	1.0	2.0	0.045	0.015	17~18	—	8~10	180	480	40 187
	316	0.07	1.0	2.0	0.045	0.015	16.5~18	2.0~2.5	10~13	205	520	40 187
	316L	0.03	1.0	2.0	0.045	0.015	16.5~18	2.0~2.5	10~13	180	480	40 187
美国 (AISI) 英国 (BSI) 德国 (DIN) 欧盟 (EN)	TP304	0.08	0.75	2.0	0.04	0.03	18~20	—	8~11	205	515	35 187
	TP304L	0.035	0.75	2.0	0.04	0.03	18~20	—	8~13	170	485	35 187
	TP316	0.08	0.75	2.0	0.04	0.03	16~18	2.0~2.5	10~14	205	515	35 187
	TP316L	0.035	0.75	2.0	0.04	0.03	16~18	2.0~2.5	10~15	170	485	35 187

转子泵选型咨询表

单位名称				单位地址				邮编			
联系人		职务		联系电话		传真		手机			
贵公司所需设备型号：_____											
设备要求级别	☐ 卫生级 ☐ 化工级 ☐ 无菌级										
输送介质描述：											
介质特征	☐ 卫生级 ☐ 腐蚀性 ☐ 有毒型										
介质粘度				CP	最高粘度				CP		
正常工作温度				°C	最高允许温度				°C		
出口额定压力				MPa	出口最大压力				MPa		
入口额定压力				MPa	入口最大压力				MPa		
额定压差				MPa	真空度				MPa		
流量	m³/h		流量变化范围	m³/h		输送距离（扬程）	m				
密封要求	☐ 机械密封 ☐ 填料密封 ☐ 骨架密封										
传动方式	☐ 无极变速 ☐ 定比减速 ☐ 变频变速										
是否保温	☐ YES ☐ NO			是否防爆	☐ YES ☐ NO						
防爆等级				电压				频率			
物料流向	进口方向：				出口方向：						
进出口管径	进口内径：mm				出口内径：mm						
连接方式	☐ 法兰式 ☐ 螺纹式 ☐ 卡箍式										
转子形式	☐ 单叶型 ☐ 蝴蝶型 ☐ 三叶型										
安装方式	☐ 固定式 ☐ 移动式										
工作方式	☐ 连续式 ☐ 间歇式										
橡胶材料	☐ VNQ硅橡胶 ☐ EPDM三元乙丙 ☐ FKM氟橡胶 ☐ PTFE聚四氟										
其它特殊要求：											

本系列产品已被国内很多知名企业使用在他们的生产线上
Many well-known Enterprises to use in their production line in china



北京汇源食品饮料集团



大连宜家家具



丝宝集团



福建闽东电力公司



复旦大学附属中山医院



金红叶纸业集团有限公司



上海交通大学



三井住友银行



玖龙纸业(太仓)有限公司



内蒙古霍煤鸿骏铝公司



巨化集团公司制药厂



上海隧道工程股份有限公司



上海南汇自来水厂



上海理工大学



中粮粮油工业（巢湖）



中国石化集团上海海洋石油局



中国建设银行



浙江大学



浙江嘉化集团股份有限



长庆油田装备有限公司



新疆旺旺食品有限公司



太仓阳鸿石化有限公司



无锡华东可可食品有限公司



中国核工业第二三建设公司