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Cam Rotary Lobe Pump

凸轮转子泵



高粘性物料输送的最佳选择
The best pump for transfer High-viscous liquid.

流體設備制造精英.....
Fluid equipment Manufacturing elite!

上海新光明泵业制造有限公司
SHANG HAI NEW-BRIGHT PUMP CO., LTD



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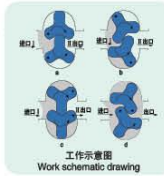
凸轮转子泵 CAM ROTARY LOBE PUMP

工作原理

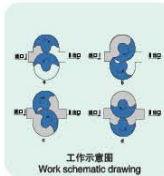
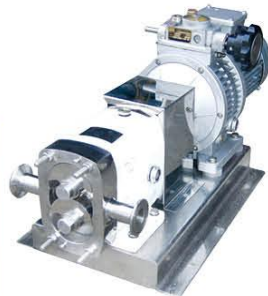
转子泵又称胶体泵,三叶泵,鞋底泵等。依靠两同步反向转动的转子(齿数为2-4)在旋转过程中于进口处产生吸力(真空度),从而吸入所要输送的物料。两转子将转子室分隔成几个小空间,并按a→b→c→d的次序运转。运转至位置a时,只有I室中充满介质;到位置b时,B室中封闭了部分介质;到位置c时,A室中也封闭了介质;到位置d时,A、B室与II室相通,介质即被输送至出口口。如此循环往复,介质(物料)即被源源不断地输送出。

Operation Principle

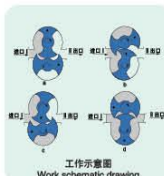
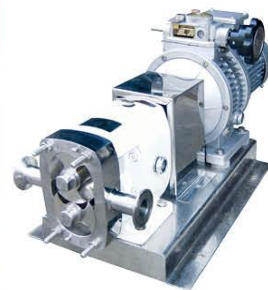
Rotor pump is also named rotary lobe pump, three-lobe pump, sole pump, etc. When the 2 simultaneous reverse rotating rotors (with 2-4 gears) revolve, it produces suction force at the inlet (vacuum), which intakes the material delivered. The 2 rotors divide the rotor housing into many smaller parts and revolve in the sequence of a→b→c→d. When it revolves to position a, only housing I is filled with medium; when it revolves to position b, housing B encloses part of the medium; when it goes to position c, housing A encloses medium, and finally it goes to position d, then housing A, B and II are interlinked and the medium is transported to the outlet. As this process is repeated, medium (material) is transported continuously.



三叶型转子泵
Tri-lobe rotor pump



单蝶曲线型颗粒转子泵
Single-wing rotor pump



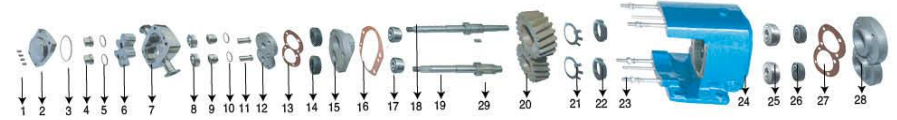
蝴蝶型转子泵
Double-wing rotor pump



凸轮转子泵 CAM ROTARY LOBE PUMP

转子泵结构图

Rotor Pump Configuration



- 1.螺帽 2.泵盖 3.密封圈 4.拼帽 5.密封圈 6.转子 7.泵腔 8.机械密封(静环) 9.机械密封(动环) 10.密封圈 11.轴套 12.轴承盖 13.密封圈垫 14.橡胶油封 15.轴承座 16.密封圈垫 17.轴承 18.上主轴 19.下主轴 20.斜齿轮 21.止退垫圈 22.拼帽 23.螺杆 24.泵主体 25.轴承 26.橡胶油封 27.密封圈垫 28.轴承盖 29.销子
1. Screw cap 2. Pump cover 3. Seal ring 4. Cap 5. Seal ring 6. Rotor 7. Pump cavity 8. Mechanical seal (stationary ring) 9. Mechanical seal (moving ring) 10. Seal ring 11. Bearing sleeve 12. Bearing cover 13. Seal gasket 14. Rubber oil seal 15. Bearing seat 16. Seal gasket 17. Bearing 18. Upper shaft 19. Lower shaft 20. Helical gear 21. Stop washer 22. Cap 23. Screw 24. Pump body 25. Bearing 26. Rubber oil seal 27. Seal gasket 28. Bearing cover 29. Pin

不锈钢转子泵的应用范围

食品工业: 酸牛奶、鲜奶油、冰淇淋、乳酪块、乳清、啤酒、麦芽汁、酵母、汽水、水果冻、果汁、饮料、番茄酱、水果泥、蔬菜糊、布丁、果酱、果冻、调味料、水果馅、甜味料、酵母、调味佐料、面包糕点、肉糜、碎肉、肉油、食用油、糖果、糖浆、稀奶油馅、巧克力等。

日用化工: 面膏洗液、发胶凝胶、染发剂、香油精、牙膏、洗涤剂、洗发精、鞋油、化妆品、香精、肥皂、香脂等。

制药工业: 各型丸剂、乳化剂、糖浆、营养液、中药、膏状药剂、生物制品、鱼花粉、蜂蜜浆、疫苗。

化工工业: 脂肪、溶剂、树脂、聚合物、油漆、颜料、染料、涂料、润滑油、润滑油、石油剂、乳化剂、胶粘剂、塑料、炸药、玻璃钢、皮革等。

建筑工业: 各种涂料。包括内外墙涂料、防腐料、陶瓷涂料、油漆涂料、陶瓷釉料等。

其它工业: 塑料工业、纺织工业、造纸工业、煤炭浮剂、纳米材料、生物化工等行业。

Applications Of Stainless Steel Rotor Pump

Food Industry: Yogurt, Fresh Butter, Ice Cream, Cheese, Whey, Beer, Wort, Yeast, Soft Drink, Fruit Jelly, Fruit Drink, Ketchup, Fruit Puree, Vegetable Mash, Pudding, Fruit Jam, Jelly, Flavor, Fruit Stuffing, Sweet, Yeast, Seasoning, Bread, Meat Gruel, Comminuted Meat, Meat Oil, Edible Oil, Candy, Syrup, Thin Cream Dressing, Chocolate, Etc.

Daily Chemicals: Cleansing Facial Milk, Hair Gel, Hair Dyes, Essence Oil, Toothpaste, Detergent, Shampoo, Shoe Polish, Cosmetics, Perf-umery Compound, Soap, Balsam, Etc.

Pharmacy: Various Pill, Paste, Emulsifier, Syrup, Nutrition Liquid, Chinese Traditional Patent Medicine, Medicine Grease, Biological Products, Fish Meal, Pollen, Royal Jelly, Vaccine.

Chemical Industry: Fat, Dissolvent, Resin, Polymer, Paint, Pigment, Dyes, Coating Material, Lubricant, Lubricating Grease, Oil Agent, Emulsified Asphalt, Adhesive, Plastic, Explosives, Glass Fiber Reinforced Plastics, Leather, Etc.

Construction Industry: Various Coating, Including Indoor/outdoor Wall Coating, Corrosi on And Water Proof Coating, Ceramic Coating, Paint Coating, Ceramic Glazing, Etc.

Other Industries: Plastic Industry, Textile Industry, Papermaking Industry, Coal Flotation Agent, Nanometer Material, Biochemical Industry, Etc.



凸轮转子泵 CAM ROTARY LOBE PUMP

特殊的结构

蝴蝶型转子泵：由于采用了蝶形转子，所以其除了具有一般转子泵的特点以外，它在输送高粘度及内含较大颗粒的物料时，具有一定的优势，对特别粘稠的物料能够有效输送。

单蝶曲线型转子泵(颗粒转子泵)：该系列泵是为解决输送内含大颗粒物料而专门设计制造的，其独特的形状和曲线形式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，在输送物料过程中它能够有效地避免颗粒破损，是输送含颗粒物料泵的首选。

技术参数

Main Parameter

型号 Model	每百转排量 (L) Flow per 100 Rotation	建议调速范围 (r/min) Suggested regulated RPM	对应流量 (L/H) Capacity	电机功率 (KW) Power
ZB3A-3	3L	200-500	300-800	0.55
ZB3A-6	6L	200-500	650-1600	0.75
ZB3A-8	8L	200-500	850-2160	1.5
ZB3A-12	12L	200-500	1300-3200	2.2
ZB3A-20	20L	200-500	2100-5400	3
ZB3A-30	30L	200-500	3200-6400	4
ZB3A-36	36L	200-400	3800-7600	4
ZB3A-52	52L	200-400	5600-11000	5.5
ZB3A-70	70L	200-400	7100-14000	7.5
ZB3A-78	78L	200-400	9000-18000	7.5
ZB3A-100	100L	200-400	11000-22000	11
ZB3A-135	135L	200-400	15000-30000	15
ZB3A-160	160L	200-400	17000-34000	18.5
ZB3A-200	200L	200-400	21600-43000	22
ZB3A-300	300L	200-400	32400-64800	30
ZB3A-400	400L	200-400	43200-86400	37

Special Structure

Butterfly rotor pump: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.

Single butterfly curved rotor pump(powder rotor pump):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.It effectively prevents powders from clashing,which is the top choice of pumps transferring material with powders.

广泛适用输送：各种特殊物料、粘稠物料、不同比重的混合物、腐蚀性物料、大颗粒物料。

Widely used to deliver: various special material, stiff material, mixture with different specific gravity, corrosive material and material with larger powder.

注：表中流量范围是指介质为“水”时测定的数据。

调速采用无级变速机或变频器变速，其调速范围200~900rpm。

输送高粘度浓液时，电机功率须加大。

本表数据如有更改，恕不另行通知，正确参数以提供的实物为准。

Note: the flow in the table refers to the data tested taking water as the medium.

Adopts stepless speed regulator or frequency transformer to adjust the speed,with speed adjustable in 200-900rpm.

The motor power should be increased when delivering high viscosity liquid

The data in the table is subject to change without notice.See the actual products for the right data.



馅料输送转子泵(上下型)
Stuffing product feeding rotor
pump(top in,bottom out)



移动式转子泵
Movable Rotor Pump

凸轮转子泵 CAM ROTARY LOBE PUMP



主要应用特点

高粘度物料输送泵

为容积式泵，低转速，高输出扭矩、耐高温的特点使转子泵在输送高粘度、高温度的物料的领域中得以大显身手。其独特的工作原理配合使用强劲的驱动系统。保证转子泵可以在低转速下输出强有力的驱动力矩，可以保证连续地、无滞止地输送物料，并且能够保证物料在输送过程中的物料性能不会破坏，这种泵可以输送的介质的粘度可高达1000000CP。

稀薄介质输送泵

转子泵在输送特别稀薄的介质时，特别是在要求无脉动地输出稀薄介质时，也显示出比较大的性能优势。转子泵配备的驱动系统在被输送介质的粘度下降，泄露量增大时，可以以更高的转速运转。并保证输出流量的恒定。

卫生型输送泵

所有与物料接触的零件均为符合卫生标准的不锈钢材料制作，能够满足所有的食品、饮料、医药、化工等行业的卫生和耐腐蚀场合的使用。

保温夹套设计

可以根据不同的工作场合，提供具有保温夹套功能的转子泵，这种结构保证在低温状态下易凝固的物料在输送过程中保持恒温，不会产生凝结现象。

水冲洗机械密封

可以提供具有水冲洗功能的机械密封结构，防止在输送高粘度物料的过程中发生物料凝结在机械密封的端面上而影响设备正常工作的情况，并能保证机械密封在险恶环境中的使用寿命。

几乎没有易损件

转子泵在工作中不存在任何零件的磨损(除机械密封外)，所有与物料接触的零件均为不锈钢制作，一对转子在工作中同步运转，相互间保持着一定的间隙，不产生任何的接触，不会有理论上的任何磨损，转子泵能够在高达220度的温度下的各种环境中工作。

Main Application Characteristics

High Viscosity Material Feeding Pump

With the characteristics of volume pump, low rotation speed, high output torque, high temperature resisting, the rotor pump plays a very important role in feeding high viscosity, high temperature material fields. It has a unique operation principle matching and can be used matching a powerful driving system, so that the rotor pump can output a powerful driving moment at a low speed and ensure material feeding consistently, without stagnancy, and also can ensure that the material performance in the process of material feeding not be damaged. The medium viscosity can reach 1,000,000CP fed by this pump.

Thin Medium Feeding Pump

When rotor pump feeding special thin medium, especially feeding thin medium without pulse as required, a big performance advantage can be shown. If the viscosity of the fed medium descends and leakage increases, driving system matched with rotor pump can improve the rotation speed and ensure the invariance of the output flux.

Sanitary Feeding Pump

All parts contacting with material are made of stainless steel which is conforming to sanitary standard, applicable to sanitary and erosion resisting place in fields of food, drinks, pharmacy, chemical industry, etc.

Heat Preservation Sleeve Design

Rotor pump with heat preservation sleeve function can be provided in different working places. This configuration can ensure the material which is easy to be coagulated during feeding to preserve the heat, without coagulation.

Water cleaning mechanical seal

Mechanical seal configuration with water cleaning function can be provided, preventing equipment normal operation on the end surface of the mechanical seal from coagulation during feeding high viscosity material, and the service life mechanical seal in bad environment can be ensured.

Almost Have No Consumable Parts

It doesn't have any damage on the part during the rotor pump is operating (except mechanical seal), all parts contacting with material is made of stainless steel. A pair of rotors runs synchronously during operating in a space with each other, no contact, it won't be any damage in theory, the rotor pump can work at temperature of 220°C in all environments.

凸轮转子泵 CAM ROTARY LOBE PUMP

传动的选择

电机+定速比减速机：这种传动的方式简单，转子的转速恒定。也就决定了流量的不可调性。

电机+机械摩擦式无级变速器：这种变速器的变速靠手动调节来实现，其特点是安全可靠，扭矩大，流量无级可调。缺点是非自动调节，较麻烦，调速在运转过程中进行，不得在停机状态下调速，其使用维护参照制造商的使用说明书。

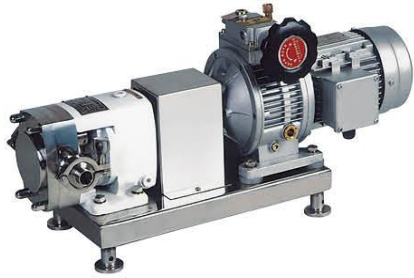
变频电机+变频器：这种方式可实现转速的自动调节，亦即实现了流量的无级调整。其优点是自动化程度高，低速扭矩较大。缺点是变频器的价格较高。其使用维护参照制造商的使用说明书。

Choose The Driving System

Motor+fixed relative ratio speed reducer:the driving is easy with constant rotary speed of the rotor,which also leads to nonadjustability of flow

Motor+mechanical abrasive stepless speed regulator:the speed regulator changes the speed by manual adjustment,which is safe,reliable and infinitive flow adjustment.But thenon-automatic adjustment is also troublesome. Speed regulating should be done in operation not in shutoff state.Pleaserefer to manufacturer instruction for maintenance and service.

Frequency transformed motor+frequency transformer: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.as refer to manufacturer instruction for maintenance and service.



无极调速型转子泵
Step-less variator rotor pump



变频调速型转子泵
Frequency type rotor pump



齿轮定速比型转子泵
Gear constant speed ratio rotor pump

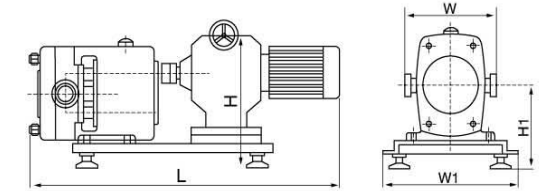
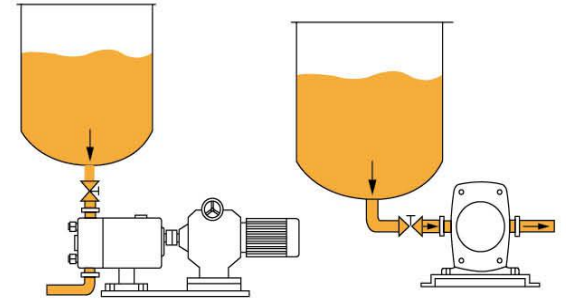
凸轮转子泵 CAM ROTARY LOBE PUMP

要达到完美的效果，选泵时请客户决定几点：

- 输送介质或液体的名称；
- 介质的粘度及温度(-20至150°C最高灭菌温度180°C)
- 需要输送扬程、压力及流量；
- 介质内含粒子的数量及大小；
- 接口的选择(卡箍、螺纹、法兰)。
- 泵体材质：根据介质要求304、316、316L选择。
- 可配冷却与加热装置
- 密封材料：标准橡胶密封圈为硅橡胶，根据介质要求选择氟橡胶，三元乙丙，聚四氟，丁腈。标准机械密封为碳化硅-硬质合金，根据介质选择石墨-碳化硅，石墨-陶瓷等。

To choose the right model and achieve the perfect results, end-users please consider below information.

- Name of medium or liquid delivered
- Viscosity and temperature of medium (-20°C-150°C, highest sterilizing temperature 180°C)
- Delivery head, pressure and flow needed
- Number and size of particles in medium
- Type of interface (nipping fork, thread, flange)
- Valve body material: choose 304, 316 or 316L according to different medium
- Cooling or heating device can be equipped
- Sealing material: standard rubber gasket is silicon rubber, different medium may use fluorine rubber, Ethylene-Propylene Terpolymer isate rubber, PTFE rubber, nitrile rubber. The standard mechanical seal is silicon carbide hard alloy, and different medium may use graphite-silicon carbide, graphite-ceramic, etc.



转子泵安装示意图 Rotor pump installation instruction

技术参数

Main Parameter

型号 Model	电机功率(Kw) Power	接口尺寸 Diameter	L	H	H1	W	W1	接口形式 Connection type
ZB3A-3	0.55	Φ25X1.5	710	290	150	150	240	卡箍 (clamp) 螺纹 (thread) 法兰 (flange)
ZB3A-6	0.75	Φ25X1.5	780	390	170	190	240	
ZB3A-8	1.5	Φ32X1.5	850	400	170	190	280	
ZB3A-12	2.2	Φ38X1.5	980	450	185	220	330	
ZB3A-20	3	Φ38X1.5	1000	450	190	250	330	
ZB3A-30	4	Φ50.8X1.5	1050	480	220	270	350	
ZB3A-36	4	Φ38X1.5	1100	490	220	270	360	
ZB3A-52	5.5	Φ50.8X1.5	1250	580	260	270	480	
ZB3A-66	7.5	Φ63.5X1.5	1350	600	260	270	480	
ZB3A-78	7.5	Φ63.5X1.5	1260	600	295	370	480	
ZB3A-100	11	Φ76X2	1320	670	295	370	480	
ZB3A-135	15	Φ89X2	1500	670	295	370	480	
ZB3A-160	18.5	Φ102X3	1500	720	320	420	560	
ZB3A-200	22	Φ102X3	1500	720	320	420	560	
ZB3A-300	30	Φ125X3	1650	800	400	480	620	
ZB3A-400	37	Φ150X3	1700	800	400	480	620	