



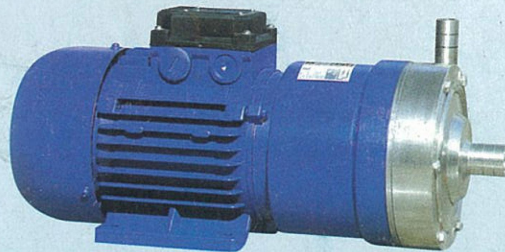
为了您的使用和安全，使用前请仔细阅读说明书

## CQ系列不锈钢磁力泵

· CQ SERIES STAINLESS STEEL MAGNETIC PUMP ·

使用说明书

Operating Specification



®

上海新光明泵业制造有限公司  
SHANGHAI XINGUANGMING PUMP MFG CO.,LTD.

## ■ 磁力泵概述

在石油、化工、军工、制药等领域中，经常存在着一些输送腐蚀性液体的场所，因此研制和开发全密封、无泄漏、抗腐蚀性能强的离心泵是我们关心和研究的方向。磁力传动静密封技术在泵领域的应用显示出其零泄漏的密封特性。

磁力传动离心泵(简称磁力泵)是应用现代磁力学原理，利用永磁体的磁力传动实现扭矩的无接触传递的一种新型泵，也就是电机带动外转子(即外磁钢)总成旋转时，通过磁场的作用磁力线穿过隔离套带动内转子(即内磁钢)总成和叶轮同步旋转，由于介质封闭在静止的隔离套内，从而达到无泄漏抽送介质的目的，彻底解决了机械传动泵的轴封泄漏而设计的全密封、无泄漏、无污染的新型工业用泵。

磁力泵是化工流程中杜绝跑、冒、滴、漏现象，消除环境污染，创造“无泄漏车间”、“无泄漏工厂”，实现安全、文明生产的理想用泵。广泛应用于石油、化工、制药、印染、电镀、食品、环保等企业的生产流程中输送不含铁屑杂质的腐蚀性液体，尤其适用于易燃、易爆、易挥发、有毒和贵重液体的输送。

磁力泵产品有CQ、CQF、ZCQ、CQB、CQB-F、CQB-G、IMC、ZBF、MP、MPH、CQG等系列，产品符合国际标准ISO2858、国家标准GB5662和JB/T7742-1995的有关要求；以上各种系列磁力泵都采用最优秀的水力模型，达到了高效、节能、性能稳定等优点。而且结构简单，安装简便，占地面积小，拆卸维修方便，噪音低，是石油、化工、制药、电镀、电子、环保等行业的首选产品。

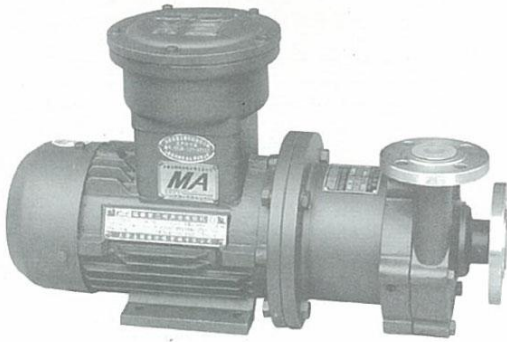
## ■ BRIEFING OF MAGNETIC PUMP

In the fields of petroleum, chemicals, war industry and pharmaceuticals etc., there are often needs to handle some corrosive liquids. For this reason we dedicate ourselves to the development and research of fully sealed, leak-tight and corrosion-resisting centrifugal pumps. Magnetism-driven silent seal technology performs leak-tight seal in pump industry.

Magnetism-driven centrifugal pump (magnetic pump for short) is a late model uses the theory of modern magnetics. The noncontact transfer of torque is actualized by the magnetic force of permanent magnet. Namely, when motor drives outer rotor (outer magnet steel) assembly rotating, inner rotor (inner magnet steel) assembly will rotate synchronously with impeller driven by magnetic line of force through spacer sleeve under the function of magnetic field. As medium is closed in the actionless spacer sleeve, leak-tight delivery of medium can be effected, making it a new-style industrial pump of full seal and no leakage and pollution, and away from the trouble of leakage at shaft seal borne by mechanical drive pumps.

Magnetic pump is an environmental-friendly solution to the phenomena of bleeding, emitting, dropping and leaking, thus to effect "leak-tight workshop" and "leak-tight factory" for safe and civilized production. They are widely used in the industries of petroleum, chemicals, pharmaceuticals, printing and dyeing, electroplating, foodstuff, environment protection and etc. to handle corrosive liquid not containing scrap irons, especially inflammable, explosive, volatile, toxic and precious liquids.

Magnetic pumps are provided with CQ, CQF, ZCQ, CQB, CQB-F, CQB-G, IMC, ZBF, MP, MPH, CQG series conforming to ISO2858, GB5662 and JB/T7742-1995, Using the most superior hydraulic model, all magnetic pumps above are featured by high efficiency, energy saving, steady performance, simple structure, easy installation, small occupation of floor, convenient disassembly and maintenance and low noise, making them optimal for the industries of petroleum, chemicals, pharmaceuticals, electroplating, electronics, environment protection and etc.



### 产品特点 Product features

CQ型泵具有结构简单、外型美观、体积小、噪音低、运转可靠、使用维修方便等优点。磁传动部分采用铁氧体为主要材料，过流部分采用不锈钢，是目前应用最广泛的无泄漏磁力传动离心泵。

CQ series pump, this pump is featured by simple structure, appealing profile, small volume, low noise, reliable running, easy operation and maintenance, and etc. its magnetism-driven part uses ferrite as main material, provided with competitive price, it is the most widely-used leak-tight pump at present.

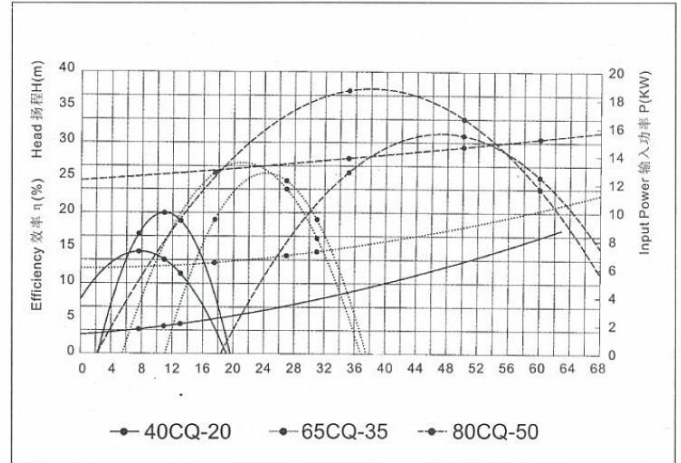
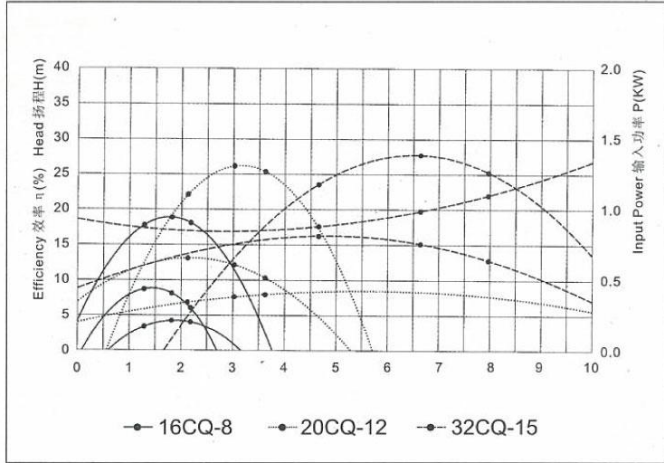
### 型号意义 Signification of model



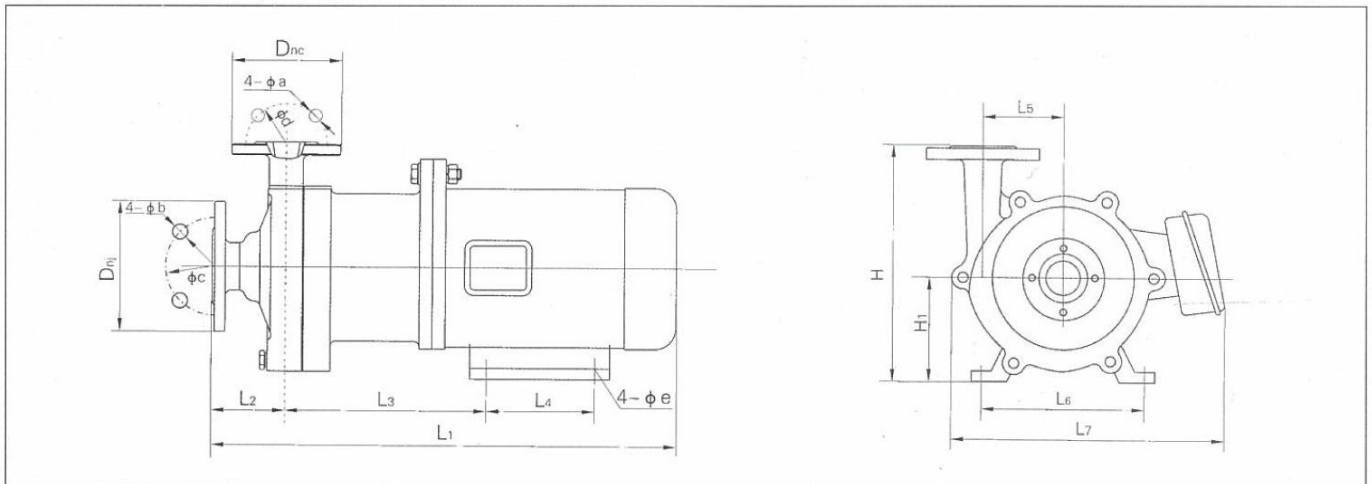
### 性能参数 Performance parameters

型号 Model	口径(mm) Caliber		流量 (m <sup>3</sup> /h) Flow	扬程 (m) Head	汽蚀余量 (NPSH)r(m) Net positive suction head	电机功率 (kW) Motor power	转速 (r/min) Rotary speed	电压 (V) Voltage
	进口 Inlet	出口 Outlet						
16CQ-8	16	12	1.8	8	6.0	0.18	2900	220/380
20CQ-12	20	12	3	12	6.0	0.37	2900	220/380
25CQ-15	25	20	5.4	15	6.0	1.1	2900	380
32CQ-15	32	25	6.6	15	6.0	1.1	2900	380
32CQ-25	32	25	4.8	25	5.5	1.1	2900	380
40CQ-20	40	32	10.8	20	4.0	2.2	2900	380
40CQ-32	40	32	12	32	4.0	4.0	2900	380
50CQ-25	50	40	14.4	25	4.0	4.0	2900	380
50CQ-40	50	40	13.2	40	4.0	4.0	2900	380
50CQ-50	50	32	7.8	50	4.0	5.5	2900	380
65CQ-25	65	50	16.8	25	4.0	5.5	2900	380
65CQ-35	65	50	27	35	4.0	7.5	2900	380
80CQ-20	80	65	50	20	4.0	7.5	2900	380
80CQ-35	80	65	50	35	4.0	11	2900	380

性能曲线 Performance graph



安装尺寸 Installation dimensions



型号 Model	4-φ a	4-φ b	φ c	φ d	D <sub>nc</sub>	D <sub>nj</sub>	4-φ e	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L <sub>5</sub>	L <sub>6</sub>	L <sub>7</sub>	H	H <sub>1</sub>	
16CQ-8	管子连接 Pipe connection							7	330	60	125	71	50	90	140	140	60
20CQ-12	管子连接 Pipe connection							8	350	57	130	80	55	100	160	170	73
25CQ-15	10	12	75	65	90	100	10	460	68	190	100	72	125	240	205	80	
32CQ-15	12	14	90	75	100	120	10	460	68	190	100	72	125	240	205	80	
32CQ-25	14	14	90	75	100	120	10	460	68	190	100	85	125	260	260	80	
40CQ-20	14	14	100	90	120	130	10	545	75	235	125	78	140	290	220	90	
40CQ-32	14	14	100	90	120	130	12	620	80	271	140	91	190	336	260	112	
50CQ-25	14	14	110	100	130	140	12	620	80	271	140	91	190	336	260	112	
50CQ-40	14	14	110	100	130	140	12	620	90	305	140	91	190	336	260	112	
50CQ-50	14	14	110	100	130	140	12	695	90	305	140	0	216	350	300	132	
65CQ-25	14	14	130	110	140	160	12	695	90	305	140	91	216	350	300	132	
65CQ-35	14	14	130	110	140	160	12	720	76	360	140	0	216	350	292	132	

### ■ 磁力泵安装和使用 Installation and operation of magnetic pump

- 一、磁力泵应水平安装不宜竖立，塑料泵不得承受管路重量，特殊垂直安装的情况，电机务必朝上。
- 二、抽吸液面高于泵轴心线时，起动前先开吸入管道阀门；抽吸液面低于泵轴心线，管道需配备底阀。
- 三、泵使用前应进行检查，电机转动要灵活，无卡滞及异常声响，各紧固件无松动现象。
- 四、检查电机旋转方向与转向标记是否一致。
- 五、电机启动后，缓慢打开排出阀，待泵进入正常工作状态后，再将排出阀调到所需开度。
- 六、泵停止工作前，应先关闭排出阀门，然后关闭吸入管阀门。

1. Magnetic pump should be horizontally installed, but not upright. Plastic pump is not able to endure the weight of pipeline. In case of special occasions requiring upright installation, motor should be kept upward.
2. When liquid level is higher than the centerline of pump, turn on the valve of intake pipe before start; when liquid level is lower than the centerline, a bottom valve should be fitted to the pipeline.
3. Check before operation to make sure that motor rotates flexibly without jamming and abnormal sound, and that all fasteners are not loosened.
4. Check whether motor rotates in accordance with the direction sign.
5. After motor is started, slowly turn on discharge valve. When pump enters normal working state, adjust the discharge valve to the required opening.
6. Before pump stops working, turn off discharge valve first, and then the valve of intake pipe.


### ■ 磁力泵注意事项 Cautions for magnetic pump

- 一、因磁力泵轴承的冷却和润滑是靠被输送的介质，所以绝对禁止空载运转，同时应避免在工作中途停电后再启动时所造成的空载运转。
- 二、被输送介质中，若含有固体颗粒，泵入口要加过滤网：如含有铁磁质微粒，需加磁性过滤器(本公司有生产，属于选购件)。
- 三、被输送的介质及其温度应在泵材允许范围内(请向相关部门技术咨询)。工程塑料泵的使用温度 $<60^{\circ}\text{C}$ ，进口压力不大于 $0.1\text{MPa}$ ，最大工作压力为 $0.6\text{MPa}$ ；金属泵的使用温度 $<100^{\circ}\text{C}$ ，输送进口压力不大于 $0.2\text{MPa}$ ，最大工作压力 $1.6\text{MPa}$ ；
- 四、对于输送液为易沉淀结晶的介质，使用后应及时清洗，排净泵内积液。
- 五、磁力泵长时间运行或运行过程发现泵有异常情况(噪音大，震动加剧)后，应拆检轴承和端面动环的磨损情况，若轴承和轴套的间隙大于 $0.5\sim 1\text{mm}$ ，叶轮轴向窜动 $2\sim 3\text{mm}$ 时，应更换轴承和轴向动环。

1. As the cooling and lubrication of magnetic pump's bearing depends on the medium to be handled, that's why unloaded operation is absolutely prohibited. Meanwhile, pay close attention to avoid the unloaded operation after re-start due to power cut in process.
2. If the mediums to be handled contain solid particles, then there should be a filter net at the entrance of pump, If there are ferromagnetic particles contained in mediums, a magnetic filter should be fitted (available in factory for your options).
3. The mediums to be handled, as well as their temperature, should be kept within the allowed scope of pump material (please consult with relative technical department). The service temperature of engineering plastic pump should be  $<60^{\circ}\text{C}$ , inlet pressure not greater than  $0.1\text{MPa}$ , maximum working pressure at  $0.6\text{MPa}$ ; the service temperature of metal pump should be  $<100^{\circ}\text{C}$ , inlet pressure not greater than  $0.2\text{MPa}$ , maximum working pressure at  $1.6\text{MPa}$ .
4. For mediums easily deposited or crystallized, please flush immediately after use to clear away the deposited liquid inside.
5. In case of any abnormal conditions (like large noise or violent vibration) occurred after long-time operation or during operation, disassemble the bearing and end-face rotating ring for examination of abrasion. If the clearance between bearing and axle sleeve is greater than  $0.5\sim 1\text{mm}$ , and axial drunkenness of impeller from  $2\sim 3\text{mm}$ , then the bearing and axial rotating ring should be replaced.

### ■ 磁力泵使用环境 Service conditions of magnetic pump

环境温度： $-20\sim 40^{\circ}\text{C}$ ；环境湿度：95%；海拔高度：不超过1000米(大于时应在订货时提出)。

- 警告：a)、泵用电机应由专业人员进行有效安全接地，永久性标志为 。
- b)、为防止触电，维修或清理磁力泵前应切断电源。




1、磁力泵在维修拆装过程中，内、外磁钢部件辐射出来的磁场将对如：心脏起搏器、信用卡、计算机磁盘、手表、精密仪器、仪表等产生磁场干扰，甚至产生危害性的影响。

- a) 上述物件应远离磁性器件，保持1米以上的距离。
- b) 装配好的整机磁力泵，不存在上述问题，因结构上有磁回路屏蔽，可放心使用。

2、装配内磁转子对准外磁转子轴向到位时，由于磁吸力(尤其是钕铁硼或稀土钴强磁)，用户应采取适当的缓冲措施，以免卡、夹手指，防止工伤事故。

Ambient Temperature:  $-20\sim 40^{\circ}\text{C}$ ; Ambient humidity: 95%; Height above sea level: not exceeding 1,000m (If beyond, please clarify when placing an order).

Warning: a) Pump motor should be safely earthed by a professional, permanent sign as .

- b) To avoid electric shock, the maintenance and cleaning of magnetic pump should be done after power supply is cut off.

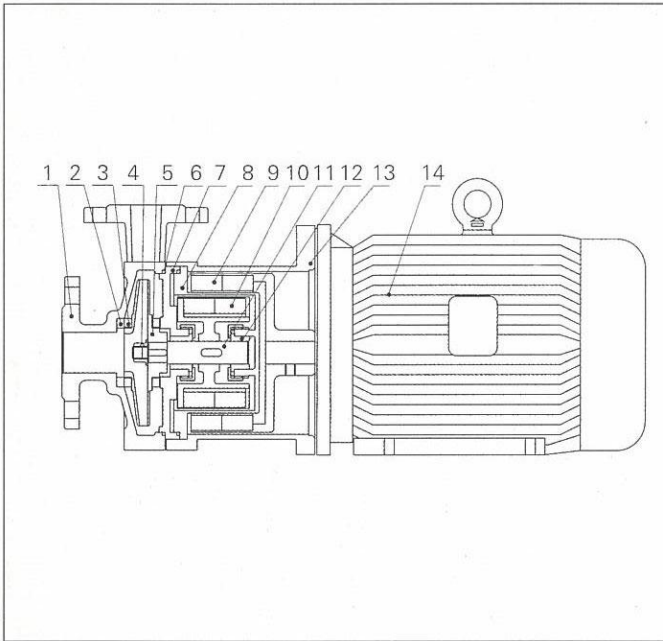
1. When disassembling magnetic pump, the magnetic field radiated by inner and outer magnet steel components may produce interference, and even harmful influence to heart pacemaker, credit card, computer disk, watch, precision instrument, meter and etc.,

- a) The above articles should be kept over 1 meter away from magnetic pads.

b) The above-mentioned problems don't happen to assembled overall magnetic pump, because there is provided with a magnetic loop shield for your reassurance.

2. When inner magnet rotor is leveled to outer magnet rotor axially, and due to magnetic force (especially the strong magnet of NdFeB or rare earth-cobalt), users must take appropriate buffering measures to avoid work accidents like fingers being clamped.

■ 结构示意图 Structure drawing



■ 零件名称 Name of part

序号 No.	零件名称 Name of part	材质或型号 Material or model
1	泵体 Pump body	不锈钢 Stainless steel
2	静环 Stationary ring	氮化硅 Silicon nitride
3	动环 Rotating ring	填充四氟 Packing PTFE
4	叶轮螺母 Impeller nut	不锈钢 Stainless steel
5	叶轮 Impeller	不锈钢 Stainless steel
6	密封网 Sealing ring	聚四氟乙烯 FE
7	隔板 Baffle	不锈钢 Stainless steel
8	隔离套 Spacer sleeve	不锈钢 Stainless steel
9	外磁钢总成 Assembly of outer magnet steel	铁氧体 Ferrite
10	内磁钢总成 Assembly of inner magnet steel	铁氧体 Ferrite
11	泵轴 Pump shaft	不锈钢 Stainless steel
12	轴套 Axle sleeve	填充四氟 Packing PTFE
13	联接架 Linkup stand	铸铁 Cast iron
14	电机 Motor	普通防爆 Flameproof

■ 磁力泵的故障形式与排除方法 Magnetic pump's failure mode and trouble shootings

故障形式 Failure mode	产生原因 Creator	排除方法 Trouble shootings
泵不出水 No flow	1、水泵反转 Pump reverses 2、进水管道漏气 Air in filtrates from intake pipe 3、泵腔蓄水太少 Pump contains little water 4、电压太高, 启动时联轴器打滑 Trigger voltage is so high that the clutch slips 5、吸程太高 The suction lift is too high	1、改变电机接线 Change the line of electromotor 2、杜绝漏气 Stop air infiltration 3、增加蓄水量 Increase the cavity of water 4、调整电压 Adjust the voltage 5、降低泵安装位置 Place the pump down
流量不足 Discharge deficiency	1、吸入管径太小 Intake pipe is too little 2、叶轮流道阻塞 Impeller blocks 3、扬程过高 The lift is too high 4、转速太低 Rotation speed is low	1、调换进水管 Change the pipe 2、清洗叶轮 Clear 3、开大出水阀 Turn up the discharge valve 4、恢复额定转速 Turn to normal speed
扬程过低 The lift is too low	1、流量过大 The quantity of flow is too big 2、转速太低 The speed is low	1、关小出水阀 Turn down the discharge valve 2、恢复额定转速 Turn to normal speed
噪音太大 Noisy	1、轴严重磨损 The shaft wears badly 2、轴套严重磨损 The axle box wears badly 3、驱动磁钢杯与隔离套接触 The driving alnico contacts the distance sleeve	1、更换泵轴 Change the shaft 2、更换轴套 Change the axle box 3、拆除泵头重新组装 Reassemble the head of pump
漏液 Weeping	○型密封圈损坏 O-ring wears	更换○型密封圈 Change

**产品抗化学腐蚀状况**  
CHEMICAL RESISTANCE GUIDE

化学药品 Chemical		材 料 Chemical							
		不锈钢 1Cr18Ni9Ti	聚丙烯 PP	聚偏二氟乙烯 PVF <sub>2</sub>	三无乙丙胶 EPDM	铬钢玉 AL <sub>2</sub> O <sub>3</sub>	高密度碳 Karbate	聚四氟乙烯 PTFE	丁腈橡胶 Nitrile
硫酸 Sulfuric acid	0~5%	B1	B4	A4	A3	A4	A4	A4	B2
	10~80%	X	B2	B3	A2	A4	A3	A4	X
	90~100%	B1	X	B2	B2	A4	X	A4	X
硝酸 Nitric acid	30%	A4	B2	B3	A2	A4	C1	A4	X
	40~60%	B4	C1	B3	X	A4	X	A4	X
	70~100%	A1	X	C1	X	A4	X	A4	X
盐酸 Hydrochloric acid	0~25%	X	B4	A4	A2	A4	A4	A4	B3
	30~40%	X	C2	A4	C2	A4	A4	A4	C2
氢氟酸 Hydrofluoric acid	10%	X	B4	A4	A2	X	A4	A4	X
	30%	X	B2	A4	B2	X	A4	A4	X
	60%	X	B3	A4	C2	X	A4	A4	X
醋酸 Acetic acid	20%	B4	B4	C4	A2	A4	A4	A4	C3
	80%	B3	C4	B2	X	A4	A4	A4	X
氢氧化钠 Sodium hydroxide	20%	A1	B4	C4	A2	X	A4	A4	B2
	50%	C2	B4	B2	A3	X	A4	A4	B1
	70~80%	B3	B4	C2	A3	X	A4	A4	X
溴水	Bromine water	C1	X	A4	X	A1	A1	A4	X
乙醇	Ethyl alcohol	A4	C4	A4	B2	A4	A4	A4	C3
丙酮	Acetone	A4	C4	X	B2	A4	A4	A4	X
氟里昂12	Freon 12	A2	C2	A4	B1	A4	C1	A4	X
氯化铝	Aluminum chloride	X	B4	A4	A3	X	A4	A4	B3
氨水	Ammonia liquid	A4	B3	A4	B2	A4	A4	A4	B3
王水	Aqua regia	X	X	B1	C2	A4	X	A4	X
甲醛	Formaldehyde	A4	C3	B2	A3	A4	A4	A4	C1
汽油	Gasolines	A4	X	A4	X	A4	A4	A4	B2
煤油	Kerosene	A4	X	A4	X	A4	C4	A4	B3
甲醇	Methyl alcohol	A4	C4	A4	A2	A4	A4	A4	B3
甲苯	Toluene	A4	X	A4	X	A4	A4	A4	X
三氯烯	Trichloroethylene	B4	X	A4	X	A4	A4	A4	X
二甲苯	Xylene	A4	X	A4	X	A4	A4	A4	X
乙烷	Ethane	A4	C1	A4	B2	A4	A1	A4	B1
氢氧化钾	Potassium hydroxide	B4	B4	C4	A4	X	A4	A4	B2

抗化学腐蚀注释： A——优良 B——良好 C——一般 X——不适用  
 液体最高温度标签注释： 1——20℃ 2——50℃ 3——80℃ 4——100℃  
 以上为部分化学药品对材料的腐蚀状况，仅供参考，详情请查询《腐蚀数据与选材手册》或向我厂技术部门咨询。

Chemical resistance ratings: A——Excellent B——Good C——Fair X——Not recommended  
 Maximum operating temperature: 1——20℃ 2——50℃ 3——80℃ 4——100℃  
 The above-mentioned are the corrosion of some chemicals to the materials, which is only for reference, for details please refer to corrosion data and material selection manual or consult with our technical department.

**上海新光明泵业制造有限公司**

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