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因为努力,所以我们专业。因为专业,所以我们可靠。
因为可靠,所以客户满意。因为满意,我们铸就辉煌。
展望未来,上海水泵制造有限公司将秉承“**老品牌、新机制、高境界**”的发展理念,奋力
开启创新发展的新篇章。
Hard working makes us professional Being professional makes us reliable Being
reliable makes customer satisfied Customer's satisfaction bring us future Pump
manufacturing co.,LTD. Looking forward to the future, shanghai will be adhering
to the “old brand, new mechanism and high level” development concept, to
open a new chapter of innovation.

CG型高压多级离心泵

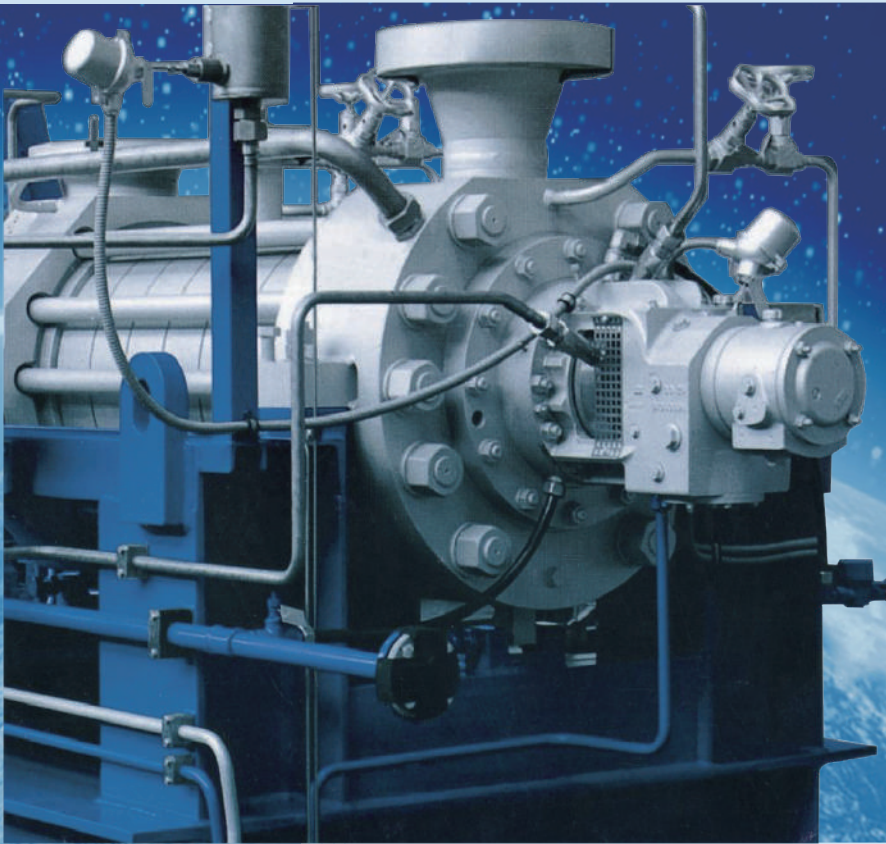
High-pressure Centrifugal Pumps CG

百年传承 泵业专家

Century inheritance Pump specialist

始创于1930年
Been Founded in 1930

我们的承诺 Our commitment
客户的利益>本公司的利益
Customers' benefit>ours' benefit
客户的需求=本公司需求
Customers' demand=ours' demand
客户的风险<本公司风险
Customers' risk<ours' risk



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上海水泵制造有限公司(上海水泵厂)
SHANGHAI PUMP MANUFACTURE CO.,LTD (SHANGHAI PUMP WORKS)

公司简介

上海水泵制造有限公司是领先的流体系统供应商。

结合创新技术和优良服务，为用户提供智能化的解决方案。

上海水泵制造有限公司是由上海电气集团下属上海水泵厂改制而组建的股份制公司，始创于1930年，专业生产各类泵系统输送产品，是中国泵行业协会副理事长单位，已成为产品范围最广，技术水平最高的泵制造商之一，在各领域享有很高的声誉。是上海市高新技术企业，上海市“专精特新”企业，获“上海名牌”称号。

上海水泵制造有限公司为以下行业提供专业服务：能源、城市给排水和污水处理、工业、冶金、石油、化工、大型农田水利建设、楼宇、泵系统相关设备安装、调试、维修、升级改进、更换和技术咨询服务等众多领域。

上海水泵制造有限公司始终坚持“为客户创造最大价值”为宗旨，实施国际化品牌战略，着力提升产品的品质品位，依托不断创新的技术、先进的经营理念和高素质的员工队伍，为海内外用户提供安全、可靠、高效的泵类产品。

Company Profile

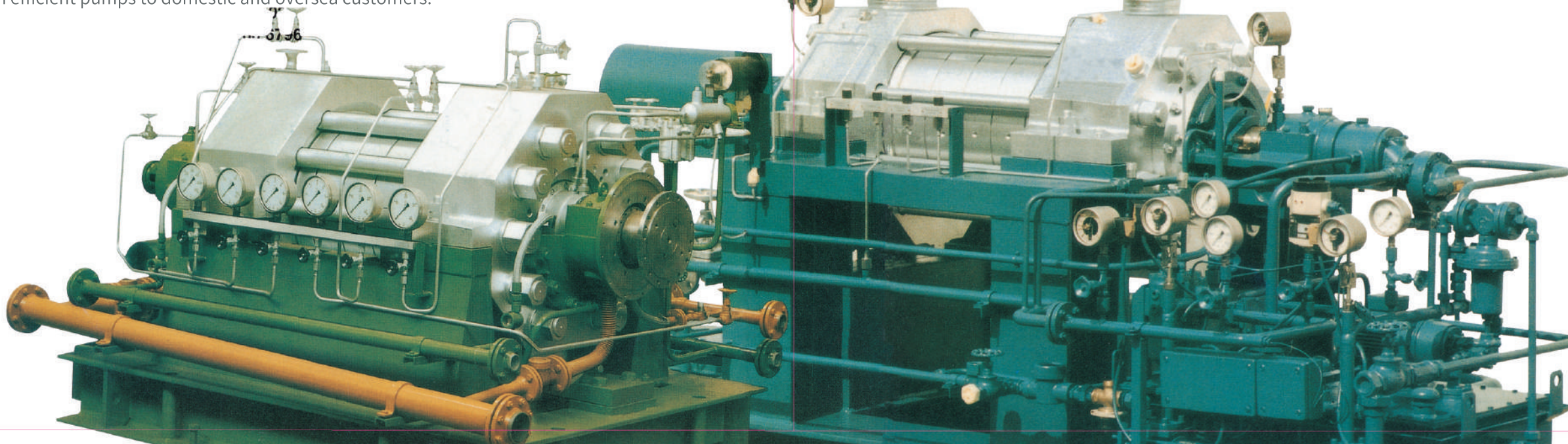
Shanghai Pump Manufacture Co.,Ltd. is the leading supplier in fluid industrial.

By combining innovative technology and excellent service, we offer the intelligentized solution for customers.

Shanghai Pump Manufacture Co.,Ltd. is the share-holding company re-organized from Shanghai Pump Works which was established in 1930 and was the subsidiary of Shanghai Electric Group. Shanghai Pump is specialized in manufacturing all kinds of pump products.And as the vice-chairman of China Pump Association,Shanghai Pump has become the most famous manufacturer in all areas with widest pump products line and highest technology level.

Application and service: Energy,Civil water supply and drainage, Sewage treatment, Industrial,Metallurgy, petroleum, chemical,big irrigation construction, high building, related pump system installation, commission,maintenance,improve and update, replacement and technology consultant etc.

Shanghai Pump Manufacture Co.,Ltd. is always adhering to the intent of creation the maximum value to customers, implementing the strategy of international brand, upgrading products quality level,depending on continuous innovated technology, advanced operation principle and high quality talents team, we supply safety, reliable and high efficient pumps to domestic and oversea customers.



概述

上海水泵制造有限公司生产的高压多级离心泵主要用于输送电站锅炉给水、凝结水及工业设备中高压水，也可用于压缩机、去氧化皮机、脱壳机等设备的水输送。

为了满足用户的需要,加速高压多级离心泵技术的发展,公司全系列引进了高新技术产品 -CG 型高压多级离心泵的全套设计和制造技术，引进技术包括整个系列产品的设计技术、制造图纸、加工及检验方面的先进技术和整套严格的质量控制技术。

General Description

The products made by Shanghai Pump Manufacture Co., Ltd One of the products is high pressure multistage centrifugal pump mainly feed-water, condensate in power stations and industrial plants, also handling the generation of water under high pressure and presses, decorticators, descaling plants.

In order to meet the customers' requirement and speed up the developement of technology for high pressure multistage centrifugal pump, our company has intr oduced from the unique design and manufacturing technique for the whole series of high pressure centrifugal pump which are high technical and most perfect.All technique include the design technique, manufacturing drawing of whole series of products, advanced technology for machining and inspection and a strict quality control system.

泵的结构简介

CG 型泵为单吸或双吸进口的卧式节段式多级离心泵，泵的进、出水壳体采用高强度的铸锻件结构，进、出口法兰焊接在泵体上，泵的吸入口和排出口通常向上，特殊需要可以向下或水平布置。

泵体中段由高强度穿杠螺栓联接，密封采用O形圈或金属面硬密封；进、出水段和吸入室及泵盖之间的静密封采用金属缠绕垫密封。

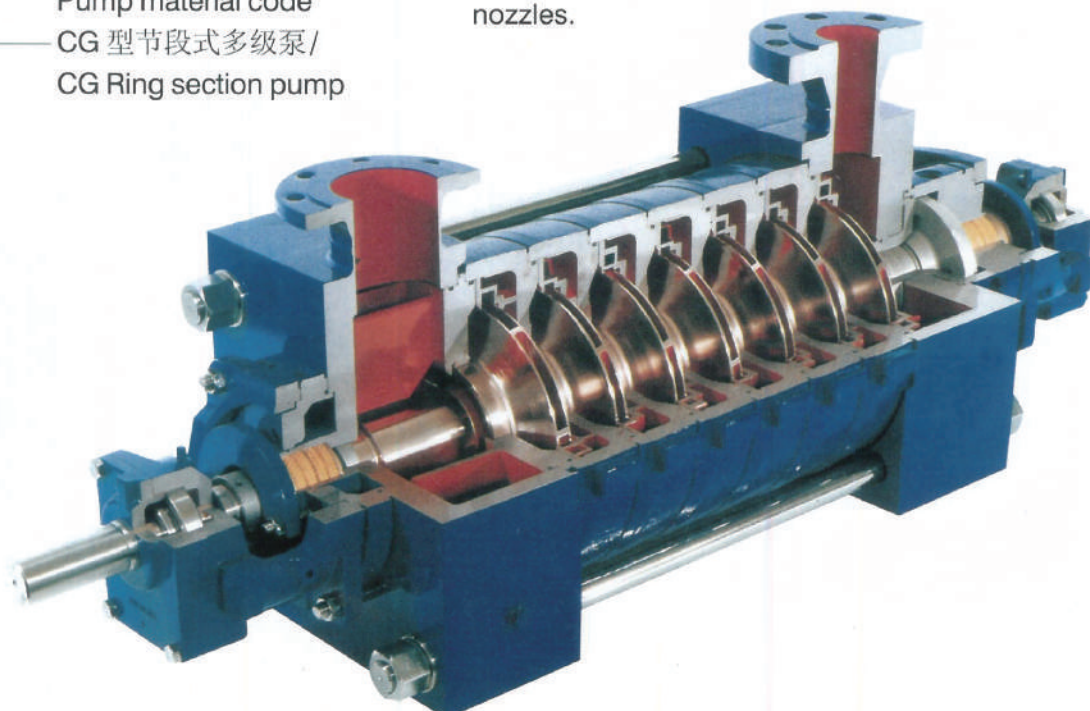
泵的轴向力采用平衡盘或平衡鼓承受，残余轴向力及特殊工况下的附加轴向力由推力轴承承受。根据需要，平衡盘平衡的泵可增加启停装置。

两端的轴密封采用填料密封或机械密封。轴承采用滚动轴承、滑动轴承及瓦块式推力轴承，其润滑采用油环润滑或强制油润滑。泵可以在不拆卸进、出口管路时更换轴承、密封及平衡装置。

型号意义 / Designation

CG B 4 / 10

- 泵级数 / Number of stage
- 泵型号 / Pump size
- 泵材料组合 / Pump material code
- CG 型节段式多级泵 / CG Ring section pump



Brief of Construction for HG Pump

CG pump are radially split ring section pump with radial impellers, single or doubleflow, multistage. The suction and discharge casing are casting or forged of strong material. Suction and discharge flanges are welded on the respective casing. The orientations of suction and discharge nozzles are generally pointing vertically upward and also pointing downward as required.

The stages are clamped together by tie bolts and sealed off against each other by O-rings or by metallic sealing faces. Spiral wound gasket is used as stationary seal between suction discharge casing and suction section discharge cover.

The axial thrust force is accommodated by balance disc or piston, the residual thrust force and additional axial force in special operation condition are accommodated by thrust bearing. Dependent on requirement, the pump with balance disc is possible to have a lift-off device.

Either packed gland or mechanical seals can be used at both ends. Bearings at pump ends are high quality antifriction bearing slide bearing or titling pad thrust bearing. The bearing lubrication can be accept by oil ring lubrication or force feed oil lubrication. The bearings, seals and balancing device of pumps can be replaced or inspected without dismantling suction and discharge nozzles.

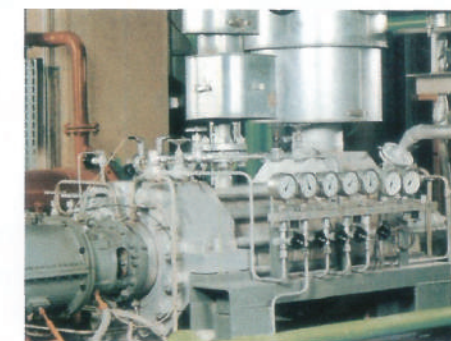
泵的监测与保护 / Monitoring and Protection

CG 型高压多级离心泵大多备有随机监测仪表，以便在运行中对机组进行监测，防止重大事故的发生。

- 泵各主要轴承均设有温度监测仪表
- 泵配有各有关压力指示仪表
- 吸入过滤器的差压指示
- 最小流量阀门的控制装置（由最小流量装置成套供应）

CG type pumps are generally provided with monitoring instrument to monitor the unit in operation and to avoid the major failure.

- Temperature measuring instruments for major bearings.
- Various pressure indicators.
- Differential pressure indicator for suction filter.
- Controlling device for the minimum flow device (supplied with the minimum flow device as a complete set).



泵组的驱动方式 / Driving of Pump Unit

直接驱动 / direct driving:

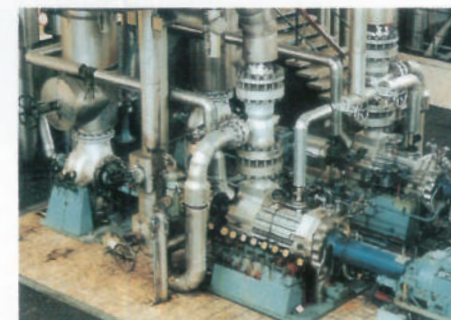
水泵 — 电机	pump — electric motor
水泵 — 小汽轮机	pump — steam turbine
水泵 — 内燃机	pump — internal combustion

间接驱动 / indirect driving:

水泵 — 液力耦合器 — 电机	pump — hydraulic coupling — electric motor
水泵 — 齿轮变速箱 — 电机	pump — gearbox — electric motor

泵机组安装外形及尺寸根据用户要求布置形式确定后另行提供。

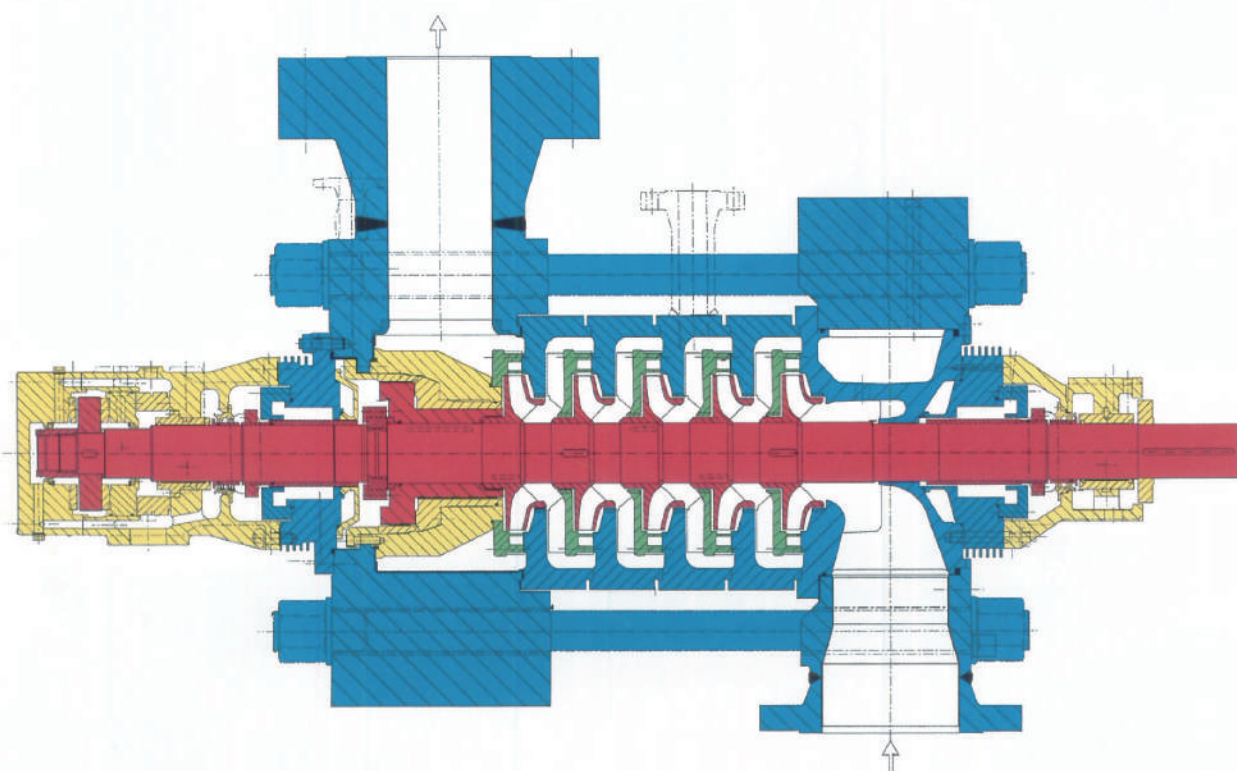
Installation profile and dimension for pump unit shall be supplied separately after arrangement is determined upon customer's requirement.



泵的设计特点

CG 型高压多级离心泵系先进、完善的高压多级离心泵，其设计的基本思想在于泵组运行全过程的实用安全性、经济性、无故障运行能力以及低的维修费用。该泵的主要设计特点简述如下：

- ◆ 先进的组合模块化设计，大量使用经过长期运行考验的局部组件，零部件具有高度的可互换性。
- ◆ 快速的装配和拆卸设计，允许水泵在不拆卸泵体和进、出口管路的情况下更换密封、轴承和平衡部件，保证了少的大修和检查时间。
- ◆ 高效率、高可靠性、低成本的组合。通过叶轮和导叶的最佳搭配，以及合理的配合间隙和较宽的轴向节流设计，使CG型高压多级离心泵在长期运行后仍然能保持其高度的稳定性和极高的运行效率。
- ◆ 良好的汽蚀性能。采用优秀的叶轮水力模型或特殊的双吸叶轮结构，用户无需另外配置前置泵或提高进水箱的高度。



- ◆ 轴向力的平衡采用平衡盘、平衡鼓或双平衡鼓装置。残余轴向力由滚动轴承或瓦块式推力轴承承受，通过附加滚动轴承或瓦块式推力轴承的启停装置，可保证泵在非正常运行条件下平衡盘和平衡盘座不致于磨损或咬死。
- ◆ 安全的泵体密封设计。根据不同的压力及结构，泵体采用金属面对金属面的硬密封和金属缠绕垫或O形圈密封。
- ◆ 独特的结构强度设计和抽芯式设计。允许

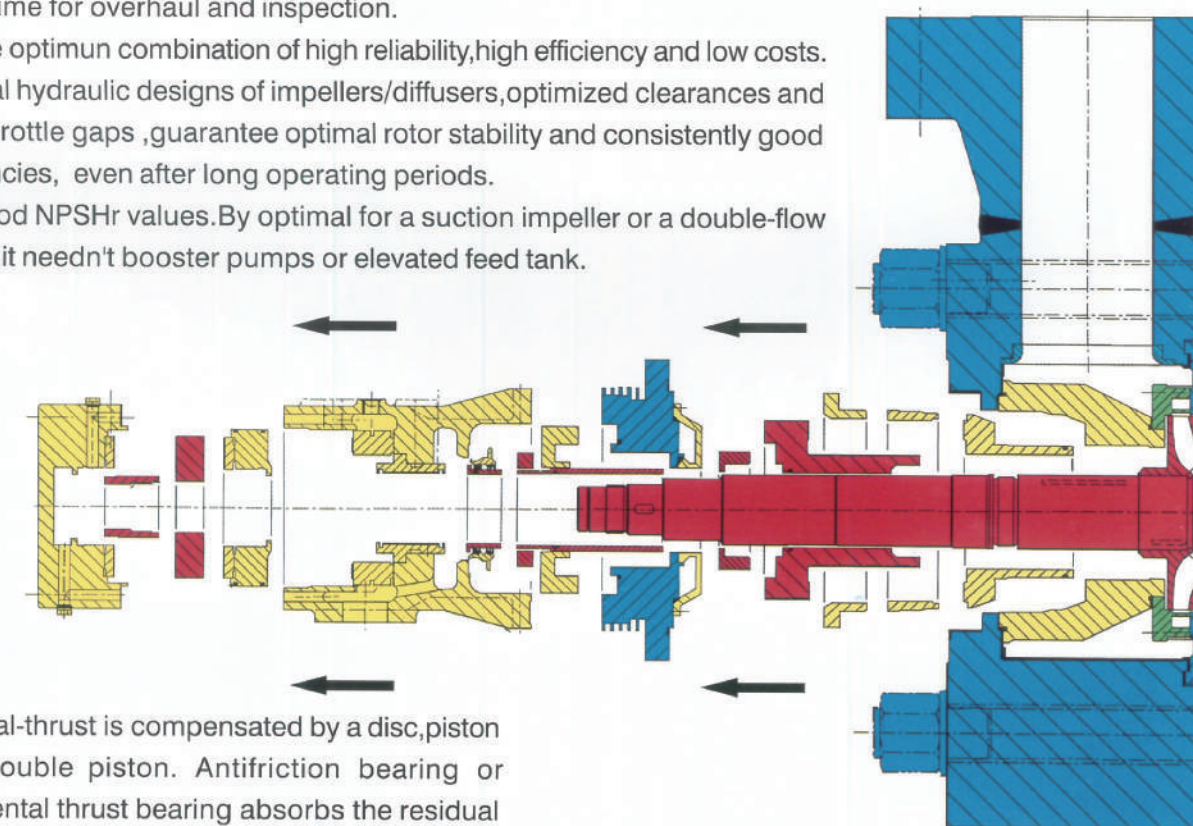
泵的单级扬程达80bar，出口压力可达420bar，并且使轴承和转子组成的芯包部件不受温度变化的影响，具有优秀的抗热冲击性能。

- ◆ 高强度的泵壳锻件结构和高质量材料以及多种选择的进、出口法兰和接管设计，提供了泵很高的许用接管载荷，并且可随时满足用户特殊情况下系统的特定要求。
- ◆ 根据用户要求，可增加中间抽头及最小流量系统。

Mainly Design Features for Pumps as Follows

CG type high pressure centrifugal pump is the most advanced and perfect products of company. In developing the new concept, special importance was attached to functional safety of the pressure boundary, trouble-free functioning under all operating conditions, high economy over the entire operating period, and a very modest expenditure for preventive maintenance and overhaul. The following descriptions are mainly design features for pumps:

- ◆ Advanced combination of modularization design. Fewer parts, with time-tested subassemblies and a high degree of parts recurrence.
- ◆ Quick assembly and disassembly design. Allowing replacement of seals, bearing and balancing device without having to disassemble the pump casing and nozzles, short downtime for overhaul and inspection.
- ◆ The optimum combination of high reliability, high efficiency and low costs. Optimal hydraulic designs of impellers/diffusers, optimized clearances and long throttle gaps, guarantee optimal rotor stability and consistently good efficiencies, even after long operating periods.
- ◆ Good NPSHr values. By optimal for a suction impeller or a double-flow intake, it needn't booster pumps or elevated feed tank.



- ◆ Axial-thrust is compensated by a disc, piston and double piston. Antifriction bearing or segmental thrust bearing absorbs the residual axial thrust. By opting for lift-off device of antifriction or tilting thrust bearing, it can avoid the risk of galling and gripping between balancing disk and balancing counter disk during off-design conditions.
- ◆ Safety casing seal design. Depending on the pressure and structure the casing and stages are sealed off against each other by metal spiral gasket or O-ring and metallic sealing faces.
- ◆ Extraordinary structural strength and cartridge design. It permits individual stage pressures to 80bar and discharge pressures to

420 bar or more. The pump's bearing and rotor form thermal and mechanical unit is capable of responding to all operating conditions from hot to cold.

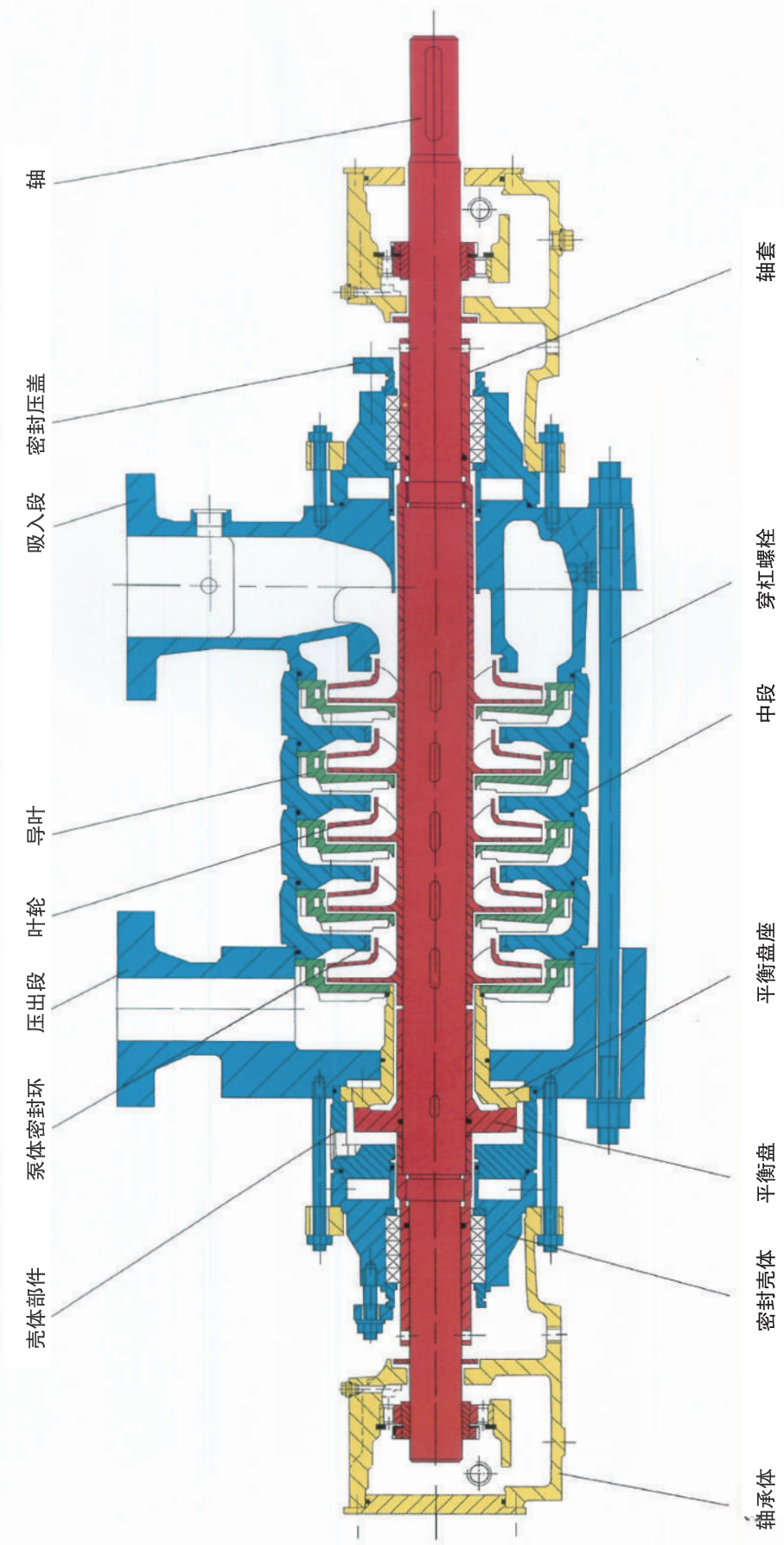
- ◆ Strong, wrought-steel casing elements and high-quality materials and numerous possible nozzle sizes or orientations. The pumps are geared to coping with high-to-exceptional system forces and moments and the customers' special-case requirements are met quickly and easily.
- ◆ According to customers' requirements, the system can also have part flow nozzle and minimum-flow valve.

CG 型泵材料选择表 / CG Pump Material Table

材料结构 material option		CGB			CGC					
		CG2	CG3	CG4	CG2	CG3(<170bar)	CG3(>170bar)	CG4	CG5	CG6
泵尺寸 pump size		140	140	195	240	170	270	290	300	260
最大出口压力 max.dis.pressure		8~9/0.03~0.15 或者 or >9.0/ <0.1			240	170	270	290	300	260
pH 值 (25℃) /含氧量O2 (ppm)		8~9/0.03~0.15 或者 or >9.0/ <0.1			240	170	270	290	300	260
106	吸入段 suction casing	ZG230-450	16Mn			A743 CA6NM	16Mn 堆焊 plating	16Mn 堆焊 plating		
107	压出段 discharge casing		16Mn			16Mn 堆焊 plating	20Cr13	20Cr13		
108	中段 stage casing		20				20Cr13	20Cr13		
130	壳体部件 casing part	45	20Mn				20Cr13	20Cr13		
131	进水池 inlet ring	-	ZG230-450		-	-	20Cr13	20Cr13		
171	导叶 diffuser					A743 CA15				
210	轴 shaft	45 镀铬 Cr-plating					17-4PH 镀铬 Cr-plating			
230	叶轮 impeller					A743 CA15 特殊热处理 spec.HT				
350	轴承体 bearing housing					HT250				
441	密封壳体 seal housing	45					20Cr13			
502	泵体密封环 casing wear ring					RWA350				
522	节流套 throttling sleeve	-	17-4PH	-	-		17-4PH			
523	轴套 shaft sleeve					1Cr18Ni9Ti				
601	平衡盘 balancing disc					17-4PH				
602	平衡盘座 balancing disc seat					RWA350				
603	平衡鼓 balancing drum	-	-	17-4PH	-	-	-	17-4PH		
905	穿杠螺栓 tie bolts	≤150bal: 42CrMo, >150bar: 1.6772								

- 注意 / Note:
1. 最大出口压力按T=20℃时流量Q=0 计算 / Max. discharge pressure is calculated under this condition: T=20℃, Q=0.
 2. 此表仅适合与转速n=2950rpm / This table is only useable for pump speed n=2950rpm.
 3. 如用户要求超出以上范围请向工程部门询问 / If customers have additional requirement, please contact engineering department.

CG 型泵典型结构图 / CG Pump Typical Construction Drawing



设计结构: 滚动轴承, 平衡盘, 水冷却填料密封
Design: antifriction bearings, balancing disc, cooled packed gland

CG 型泵性能参数表 / Specifications for CG Pumps

泵型号 Model	流量 Q (m³/h)	扬程 H (m)	转速 RPM (r/min)	轴功率 P (kW)	效率 η (%)	必须汽蚀余量 NPSHr (m)	温度 t (°C)	水力模型 Hydra.	叶轮直径/ 出口宽度 D/B
CG2/5	40	258.5	2950	40.7	65.2	4.0	120	3.1	214/6.7
CG2/6		310.2		48.9					
CG2/7		361.5		57.1					
CG2/8		413.6		65.3					
CG2/9		465.3		73.3					
CG2/10		517		81.5					
CG2/11		568.7		90					
CG2/12		620.4		97.8					
CG2/13		672.1		106					
CG2/14		723.8		114.1					
CG2/15		775.3		122.2					
CG2/5	60	322.5	2950	69.1	72.0	3.4	120	4.1	227/8.5
CG2/6		387		82.8					
CG2/7		451.5		96.7					
CG2/8		516		110.5					
CG2/9		580.5		124.3					
CG2/10		645		138.2					
CG2/11		709.6		151.9					
CG2/12		774		165.8					
CG2/13		838.5		179.5					
CG2/14		903		193.4					
CG2/15		967.5		207.2					
CG3/3	90	294	2950	98.5	69.1	4.1	120	5.0	283/8.6
CG3/4		392		131.2					
CG3/5		490		164					
CG3/6		588		196.8					
CG3/7		686		229.6					
CG3/8		784		262.4					
CG3/9		882		295.2					
CG3/10		980		327.9					
CG3/11		1078		360.8					
CG3/12		1176		393.5					
CG3/13		1274		426.4					
CG3/14		1372		459.1					
CG3/15		1470		491.9					

CG 型泵性能参数表 / Specifications for CG Pumps

泵型号 Model	流量 Q (m³/h)	扬程 H (m)	转速 RPM (r/min)	轴功率 P (kW)	效率 η (%)	必须汽蚀余量 NPSHr (m)	温度 t (°C)	水力模型 Hydra.	叶轮直径/ 出口宽度 D/B
CG3/3	90	234	2950	77.2	70	4.1	120	5.1	259/9.7
CG3/4		312		103					
CG3/5		390		128.7					
CG3/6		468		154.4					
CG3/7		546		180.2					
CG3/8		624		205.9					
CG3/9		702		231.7					
CG3/10		780		257.4					
CG3/11		858		282.2					
CG3/12		936		308.9					
CG3/13	133	1014	2950	334.6	76.3	4.4	120	6.1	266/12.5
CG3/14		1092		360.4					
CG3/15		1170		386.1					
CG3/3		252		112.8					
CG3/4		336		150.3					
CG3/5		420		187.9					
CG3/6		504		225.5					
CG3/7		588		263.1					
CG3/8		672		300.7					
CG3/9		756		338.3					
CG3/10	185	840	2950	375.8	76.3	6.3	120	7.0	327/12.5
CG3/11		924		413.4					
CG3/12		1008		451					
CG3/13		1092		488.6					
CG3/14		1176		526.2					
CG3/15		1260		563.8					
CG4/3		438		272.9					
CG4/4		581		362					
CG4/5		730		454.8					
CG4/6		876		545.7					
CG4/7		1022		636.7					
CG4/8		1168		727.6					
CG4/9		1314		818.6					
CG4/10		1460		909.5					
CG4/11		1606		1000.5					
CG4/12		1752		1091.4					
CG4/13		1898		1182.4					
CG4/14		2044		1273.3					
CG4/15		2190		1364.3					

CG 型泵性能参数表 / Specifications for CG Pumps

泵型号 Model	流量 Q (m³/h)	扬程 H (m)	转速 RPM (r/min)	轴功率 P (kW)	效率 η (%)	必须汽蚀余量 NPSHr (m)	温度 t (°C)	水力模型 Hydra.	叶轮直径/ 出口宽度 D/B
CG4/3	185	330	2950	200.9	78	6.3	120	7.1	297/14.0
CG4/4		440		267.9					
CG4/5		550		334.8					
CG4/6		660		401.8					
CG4/7		770		468.8					
CG4/8		880		535.7					
CG4/9		990		602.7					
CG4/10		1100		669.9					
CG4/11		1210		736.6					
CG4/12		1320		803.6					
CG4/13		1430		870.6					
CG4/14		1540		937.5					
CG4/15		1650		1004.5					
CG4/3	185	282	2950	166.1	80.6	6.3	120	7.2.2	271/15.3
CG4/4		376		221.5					
CG4/5		470		276.9					
CG4/6		564		332.3					
CG4/7		658		387.7					
CG4/8		752		443					
CG4/9		846		498.4					
CG4/10		940		553.8					
CG4/11		1034		609.2					
CG4/12		1128		664.6					
CG4/13		1222		719.9					
CG4/14		1316		775.3					
CG4/15		1410		830.7					
CG4/3	235	435	2950	340.8	77	6.6	120	8.0	328/15.4
CG4/4		580		454.4					
CG4/5		725		567.9					
CG4/6		870		681.5					
CG4/7		1015		795.1					
CG4/8		1160		908.7					
CG4/9		1305		1022.3					
CG4/10		1450		1135.9					
CG4/11		1595		1249.5					
CG4/12		1740		1363.1					
CG4/13		1885		1476.7					
CG4/14		2030		1590.2					
CG4/15		2175		1703.8					

CG 型泵性能参数表 / Specifications for CG Pumps

泵型号 Model	流量 Q (m³/h)	扬程 H (m)	转速 RPM (r/min)	轴功率 P (kW)	效率 η (%)	必须汽蚀余量 NPSHr (m)	温度 t (°C)	水力模型 Hydra.	叶轮直径/ 出口宽度 D/B
CG4/3	275	327	2950	285.3	81.5	7.2	120	8.1.3	300/17
CG4/4		436		380.3					
CG4/5		545		475.4					
CG4/6		654		570.5					
CG4/7		763		665.6					
CG4/8		872		760.7					
CG4/9		981		855.7					
CG4/10		1090		950.8					
CG4/11		1199		1045.8					
CG4/12		1308		1141					
CG4/13		1417		1236					
CG4/14		1526		1331.1					
CG4/15		1635		1426.2					
CG5/3	345	520.5	2950	565.6	81.5	8	120	9.0	360/16.9
CG5/4		694		754.1					
CG5/5		867.5		942.6					
CG5/6		1041		1131.1					
CG5/7		1214.5		1319.6					
CG5/8		1388		1508.1					
CG5/9		1561.5		1696.7					
CG5/10		1735		1885.2					
CG5/11		1908.5		2073.7					
CG5/12		2082		2262.2					
CG5/3	320	432	2950	432.7	82	7.2	120	9.1.2	329/18.7
CG5/4		576		577					
CG5/5		720		721.2					
CG5/6		864		865.4					
CG5/7		1008		1009.7					
CG5/8		1152		1153.9					
CG5/9		1296		1298.2					
CG5/10		1440		1442.4					
CG5/11		1584		1586.6					
CG5/12		1728		1730.9					

CG 型泵性能参数表 / Specifications for CG Pumps

泵型号 Model	流量 Q (m³/h)	扬程 H (m)	转速 RPM (r/min)	轴功率 P (kW)	效率 η (%)	必须汽蚀余量 NPSHr (m)	温度 t (°C)	水力模型 Hydra.	叶轮直径/ 出口宽度 D/B
CG5/3	320	334.8	2950	331.3	83	7.2	120	9.2.2	303/20.0
CG5/4		446.4		441.8					
CG5/5		558		552.2					
CG5/6		669.6		662.6					
CG5/7		781.2		773.1					
CG5/8		892.8		883.5					
CG5/9		1004.4		994					
CG5/10		1116		1104.4					
CG5/11		1227.6		1214.8					
CG5/12		1339.2		1325.3					
CG5/3	400	576	2950	734.6	80.5	9	120	10.00	303/20.0
CG5/4		768		979.5					
CG5/5		960		1224.4					
CG5/6		1152		1469.3					
CG5/7		1344		1714.2					
CG5/8		1536		1959					
CG5/9		1728		2203.9					
CG5/10		1920		2448.8					
CG5/11		2112		2693.7					
CG5/3	400	517.5	2950	640.1	83	9	120	10.0	358/20.3
CG5/4		690		853.5					
CG5/5		862.5		1066.9					
CG5/6		1035		1280.3					
CG5/7		1207.5		1493.7					
CG5/8		1380		1707.1					
CG5/9		1552.5		1920.4					
CG5/10		1725		2133.8					
CG5/11		1897.5		2347.2					
CG5/12		2070		2560.6					

CG 型泵性能参数表 / Specifications for CG Pumps

泵型号 Model	流量 Q (m³/h)	扬程 H (m)	转速 RPM (r/min)	轴功率 P (kW)	效率 η (%)	必须汽蚀余量 NPSHr (m)	温度 t (°C)	水力模型 Hydra.	叶轮直径/ 出口宽度 D/B
CG5/3	450	312	2950	424	85	11.0	120	10.2.2	305/24.5
CG5/4		416		565.3					
CG5/5		520		706.6					
CG5/6		624		847.9					
CG5/7		728		989.3					
CG5/8		832		1130.6					
CG5/9		936		1271.9					
CG5/10		1040		1413.2					
CG5/11		1144		1554.6					
CG5/12		1248		1695.9					
CG6/3	525	591	2950	937	85	10.3	120	11.1.2	385/21.9
CG6/4		788		1249.3					
CG6/5		985		1561.6					
CG6/6		1182		1873.9					
CG6/7		1379		2186.2					
CG6/8		1576		2498.5					
CG6/9		1773		2810.9					
CG6/10		1970		3123.2					
CG6/3	630	687	2950	1307	85	11.0	120	12	412/23.4
CG6/4		916		1742.6					
CG6/5		1145		2178.3					
CG6/6		1374		2614					
CG6/7		1603		3049.6					
CG6/8		1832		3485.3					
CG6/9		2061		3920.9					
CG6/3	750	480	2950	1074.5	86	14.0	120	13.1.2	368/29.7
CG6/4		640		1432.6					
CG6/5		800		1790.8					
CG6/6		960		2148.9					
CG6/7		1120		2507.1					
CG6/8		1280		2865.2					
CG6/9		1440		3223.4					