连成集团
LIANCHENG GROUP

DG系列锅炉给水泵

DG SERIES BOILER WATER SUPPLY PUMP

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集团介绍

上海连成(集团)有限公司，是一家国内著名的研究制造泵、阀和流体输送系统、电气控制系统和环保设备的多元化经营的大型集团企业。

经过二十多年的发展，现已拥有五大工业园区，分布于上海、江苏、大连和浙江等经济发达地区，总占地面积达55万平方米，总部设在上海封浜工业园区。旗下拥有上海连成泵业制造有限公司、上海连成电机有限公司、上海连成阀门有限公司、上海连成集团物流有限公司、上海连成集团通用设备安装工程、上海阿美泰克工业设备有限公司、上海连成环境工程设备有限公司、上海连成集团苏州股份有限公司、上海连成（集团）大连化工泵制造有限公司等多家全资子公司及控股公司，注册资金达6.5亿元以上，总资产达数二十亿元。产品品种现已达五千多种，涵盖水泵、电机、电气柜、阀门、成套设备、环保设备、换热器、机械配件等系列，其产品性价合理，质量可靠，广泛应用于市政、水利、建筑、消防、电力、环保、石油、化工、矿业、医药等领域。集团销售绩每年均为行业前茅。

强大的制造实力

集团公司目前拥有国家“1级”水泵测试中心、三坐标测量仪、动静平衡测量仪、便携式光谱仪、激光快速成型仪、多功能抛丸机、自动氩弧焊机、10米大型立车、大型磨床、数控机床集群等各种国内外先进的生产检测设备2000台套以上。现有员工3000余人，大中专生占72.6%，其中中级职称者475人、高级职称者78人、国家级专家19人、教授6人。每年都投入大量资金用于技术研发和创新，并通过SLOIDWORKS软件，对产品进行CFD分析和强度计算。公司持有国家专利技术近达600余项，每年均参与大量的国家及行业标准起草及编写工作，涉及水利、化工、消防、城市供水等各领域的产品及技术标准累计达数二十项。集团建有完善的销售服务网络，设有30余家分公司及200多个分支机构，拥有一支1800多人的专业销售服务队伍，为广大客户提供专业的技术支持与优良的营销服务。

荣誉加身，成就更好连成

集团通过了ISO9001、ISO14001、OHSAS18001等国际管理体系认证，全面推行ＥＲＰ、CRM信息化管理平台；先后获得国家和行业颁发的工业、消防、煤矿、石油化工等重要领域的工业产品生产许可证、“安全生产许可证”、CCC中国国家强制性产品认证、CQC产品认证、CE认证、卫生许可批件、MA煤安认证、节能认证、节水认证、测量管理体系认证、采用国际标准认证、进出口企业资格等生产经营资质；并获得了“国家科学技术进步二等奖”、“大禹水利科学技术一等奖”、“国家级创新型企业”、“高新技术企业”、“中国驰名商标”、“国家标准起草单位”、“国家首批水泵节能认证通过企业”、“全国商品售后服务认证（五星级）”、“上海市级企业技术中心“、“上海市知识产权示范企业”、“上海市名牌产品”、“上海市民营制造业百强”、“中国水工业十大民族品牌”、“全国实施用户满意产品“等众多的社会荣誉。

连成产品得到国内外的用户认可

随着连成集团的永续经营，连成产品得到了用户广泛认可，目前拥有：国家体育场“鸟巢”、国家大剧院、上海世博工程、首都机场、广州白云机场、青岛国际机场、上海地铁、西安地铁、沈阳地铁、首钢京唐、首钢滦南马城矿业、霍州煤电、葫芦岛铝业、广州自来水厂、禹门口水利、松江区二次供水改造、香港供水工程深圳沙湾泵站、澳门供水工程珠海平岗泵站、黄河灌溉山西夹马口泵站、山西省西范泵站、广东云安六都泵站、长垣县浦西区雨水泵站、渭南东雷二期抽黄灌区泵站改造、黄河小浪底水利工程、宁夏扬黄灌溉工程、鄂尔多斯城市饮水工程、秦山核电、岭奥核电、国电集团、大唐电厂、华能电厂、宝钢、首钢、唐钢、太钢、鞍钢、新疆八一钢铁、大庆油田、胜利油田、中石油、中石化、中海油、青海盐湖钾盐项目、山西焦化、潞安矿业、陕西咸阳化工、中海油惠州炼油项目、清华大学、海尔集团和安哥拉农业排灌工程、缅甸国家农业灌溉项目，以及核电、火电、水电、钢铁、油田、焦化、矿业、化工、炼油等一大批国内、外样板工程。在通用、拜耳、西门子、大众、可口可乐等国际知名企业在中国的工程均采用了连成集团的产品。

百年连成、我们在行动

连成集团矢志于打造世界顶级流体处理工业企业，秉承永远珍惜人与自然和谐关系、为提高人类生活质量不懈努力的宗旨，为实现“百年连成”远大目标，一直致力于环保型、节能型产品的研发与制造，为民族企业的振兴与发展不懈努力！

水，因连成至高致远……！

Group Introduction

Shanghai Liancheng (Group) Co., Ltd. is a well-known large-scale group enterprise that dedicates to diversified operations of researching and manufacturing pumps, valves and fluid delivery systems, electrical control systems and environmental protection equipment.

After more than 20 years of development, the Group now has five industrial parks, which are located in economically developed areas such as Shanghai, Jiangsu, Dalian and Zhejiang, with a total area of 550,000 square meters. The headquarters is located in Shanghai Fengbang Industrial Park. The Group owns a number of wholly-owned subsidiaries and holding companies such as Shanghai Liancheng Pump Manufacturing Co., Ltd., Shanghai Liancheng Motor Co., Ltd., Shanghai Liancheng Valve Co., Ltd., Shanghai Liancheng Group Logistics Co., Ltd., Shanghai Liancheng Group General Equipment Installation Engineering, Shanghai Amtech Industrial Equipment Co., Ltd., Shanghai Liancheng Environmental Engineering Equipment Co., Ltd., Shanghai Liancheng Group Suzhou Co., Ltd., Shanghai Liancheng (Group) Dalian Chemical Pump Manufacturing Co., Ltd., with a registered capital of more than 650 million yuan and total assets of 2 billion yuan. The Group's productvariety has now reached more than 5,000, covering pumps, motors, electrical cabinets, valves, complete sets of equipment, environmental protection equipment, heat exchangers, mechanical parts and other series. Moreover, these products are reasonable in price and reliable in quality, and are widely used in municipal, water conservancy, construction, fire protection, electric power, environmental protection, petroleum, chemical, mining, pharmaceutical and other fields. The Group's sales performance is among the best in the industry every year.

Strong Manufacturing Strength

The Group Company currently has more than 2,000 sets of advanced domestic and overseas production and testing equipment, such as the national "Grade 1" pump test center, trilinear coordinates measuring instrument, dynamic and static balance measuring Instrument, portable spectrometer, laser rapid prototyping instrument, multi-functio

企业简介 CORPORATION OUTLINE

n shot blasting machine, automatic argon arc welding machine, 10 m large vertical car, large grinding machine, and CNC machine tool cluster. The Group has more than 3,000 employees, of which 72.6% are graduates of technical secondary school and junior college, and there are 475 middle-level titles, 78 senior titles, 19 national experts, and 6 professors. Every year, the Company invests a large amount of money in technologyresearch and development and innovation, and carries out CFD analysis and intensity calculation of products through SLOIDWORKS software. The Company holds nearly 600 national patent technologies, and participates in the drafting and preparation of a large number of national and industry standards every year, involving over 20 productsand technical standards in various fields such as water conservancy, chemical industry, fire protection and urban water supply. The Group has established a comprehensive salesservice network, with more than 30 branch companies and over 200 affiliated agencies, and has a professional sales service team surpassing 1,800 people, providingprofessional technical support and excellent marketing services for customers.

Honored to Achieve Better Liancheng

The Group has passed ISO9001, ISO14001, OHSAS18001 and other international management system certifications, and fully implemented ERP and CRM information management platform. The Group has obtained national and industrial productionlicenses for industrial products in important fields such as industry, fire protection, coal mining and petrochemical industry, "Safe Production License", CCC China NationalCompulsory Product Certification, CQC Product Certification, CE Certification, Health Permit Approval, MA Coal Safety Certification,Energy Conservation Certification, Water Saving Certification, Measurement Management System Certification, International Standard Certification, Qualification of Import and Export Enterprise, and other production and operation qualifications. The Group has also been entitled with multiple social honors such as "National Science andTechnology Progress Second Prize", "Dayu Water Conservancy Science and Technology First Prize", "National Innovation Enterprise", "High-tech Enterprise", "China Well-known Trademark", "National Standards Drafting Unit", "National First Batch of Enterprises Qualified for Water Pump Energy-Saving Certifications", "National Commodity After-sales Service Certification (Five-star)", "Shanghai Municipal Level Enterprise Technology Center", "Shanghai Intellectual Property Demonstration Enterprise", "Shanghai Famous Brand Products", "Top 100 Private Manufacturing Industries in Shanghai", "Top Ten National Brands of China Water Industry", "National Implementation of Customer Satisfaction Products".

Liancheng products are recognized by users at home and abroad

With the continuous operation of Liancheng Group, Liancheng products have beenwidely recognized by users and its projects range is as follows: National Stadium "Bird's Nest", National Grand Theatre, Shanghai World Expo Project, Capital Airport, Guangzhou Baiyun Airport, Qingdao International Airport, Shanghai Subway, Xi'an Subway, Shenyang Subway, Shougang Jingtang, Shougang Luannan Macheng Mining, Huozhou Coal and Electricity, Huludao Aluminum, Guangzhou Waterworks, Yumenkou Water Conservancy, Songjiang District Secondary Water Supply Reform, Hong Kong Water Supply Project Shenzhen Shawan Pumping Station, Macao Water Supply Project Zhuhai Pinggang Pumping Station, Yellow River Irrigation Shanxi Jiamakou Pumping Station, Shanxi XifanPumping Station, Guangdong Yun'an Liudu Pumping Station, Changyuan County Puxi District Rainwater Pumping Station, reconstruction of pumping station in the second phase of the Yellow River irrigation area in Weinan Donglei, Yellow River Xiaolangdi Water Conservancy Project, Ningxia Yellow River Irrigation Project, Ordos City Drinking Water Project, Qinshan Nuclear Power, Ling'ao NuclearPower, Guodian Group, Datang Power Plant, Huaneng Power Plant, Baosteel, Shougang, Tangsteel, Taiyuan steel, Ansteel, Xinjiang Bayi Steel, Daqing Oilfield, Shengli Oilfield, PetroChina, Sinopec, CNOOC, Qinghai Salt Lake Sylvite Project, Shanxi Coking, Lu'an Mining, Shaanxi Xianyang Chemical, CNOOC Huizhou Refining Project, Tsinghua University, Haier Group and Angola Agricultural Drainage Project, Myanmar National Agricultural Irrigation Project, and a large numberof domestic and foreign model projects such as nuclearpower, thermal power, hydropower, steel, oil fields, coking, mining, chemical, and oil refining. Liancheng Group's products are used in projects in China by GM, Bayer, Siemens, Volkswagen, Coca-Cola and other internationally renowned companies.

Centurial Liancheng in Action

In order to build the world's top fluid processing industrial enterprise, adhere to cherishing the harmonious relationship between man and nature forever, improve the quality of human life, and achieve the goal of "Centurial Liancheng", Liancheng has been committed to the development and manufacture of environmentally friendly and energy-saving products, and has been making unremitting efforts for the revitalization and development of national enterprises!

Water reveals its holiness through Liancheng's endeavor...!

中国驰名商标

上海市著名商标

国家级创新型企业

目　录

CONTENTS

DG 系列中低压、次高压锅炉给水泵

DG SERIES MIDDLE AND LOW PRESSURE, HYPO-HIGH-PRESSURE BOILER WATER SUPPLY PUMP

产品用途 Product purpose

DG型泵是卧式多级离心泵，它适合于输送清水(含杂质量小于1%，颗粒度小于0.1mm)及物理化学性质类似于清水的其它液体。

DG型中低压锅炉给水泵输送介质温度不大于105℃，适用于小型锅炉给水或输送类似于热水等场合。

性能范围

流量：3.75～185m³/h　　配套功率：4.0～400kW

扬程：69～684m　　进口直径：40～150mm

DG型次高压锅炉给水泵输送介质温度不大于160℃，适用于小型锅炉给水或输送类似于热水等场合。

性能范围

流量：15～300m³/h　　配套功率：75～1250kW

扬程：390～1050m　　进口直径：65～200mm

Model DG pump is a horizontal multi-stage centrifugal pump and suitable for transporting pure water (with the contained foreign matters' content less than 1% and graininess less than 0.1mm) and other liquids of both physical and chemical natures similar to those of pure water.

DG model middle and low pressure boiler water supply pump is applicable to transport medium with temperature of not higher than 105℃, and is also applicable for small boiler water supply or transporting medium similar to hot water.

Performance range of model DG series

Flow: 3.75~185m³/h　　Corollary power: 4.0~400kW

Head: 69~684m　　Inlet diameter: 40~150mm

DG model hypo-high-pressure boiler water supply pump is applicable to transport medium with temperature of not higher than 160℃, and is also applicable for small boiler water supply or transporting medium similar to hot water.

Performance range of model DG series

Flow: 15~300m³/h　　Corollary power: 75~1250kW

Head: 390~1050m　　Inlet diameter: 65~200mm

型号意义说明 Model meaning

DG 6 - 25 × 5

级数	No. of stages
单级扬程(m)	Head of single stage (m)
流量(m³/h)	Flow (m³/h)
多级锅炉给水泵	Multi-stage boiler water supply pump

结构说明 About the structure

本系列的卧式多级离心泵为两端支承，壳体部分是节段式，泵的传动方式是通过弹性联轴器与电动机联接，泵的旋转方向，从驱动端看，泵为顺时针方向旋转。泵的结构说明参见图1。

定子部分

主要由吸入段、中段、吐出段、导叶、填料函体等分别用拉紧螺栓联接成一体，吐出口及吸入口均为垂直向上。

转子部分

主要由轴、叶轮、平衡盘及轴套等零件组成。

For this series horizontal multi-stage centrifugal pump, both ends of it are supported, the casing portion is in a sectional form, it is connected to and actuated by a motor via a resilient clutch and the rotating direction of it, viewing from the actuating end, is clockwise. Refer to Fig. 1 for the structure of it.

Stator portion

Consists of suck-in section, middle-section, spitting section, guide vane, packing etc., which are linked together with a take-up bolt, with both suck-in and spitting mouths vertically upward.

Rotor portion

Consists of a shaft, impeller, balancing disk, muff etc. parts.

轴承部分

整个转子由轴两端的滚柱轴承或滑动轴承来支承，轴承采用油脂润滑或20#机油。

密封及冷却

泵壳体中的吸入段、中段、吐出段之间的结合面涂以二硫化钼润滑脂密封。转子部分与固定部分之间靠密封环、导叶套、填料等密封。轴封的填料松紧程度必须适当，以液体能一滴一滴渗出为宜。禁止空车下运行。当密封环和导叶套的磨损程度已影响泵的工作和性能时，应予以及时更换。在轴的轴封处装有可更换的轴套保护泵轴。

使用时当被输送的介质温度高于80℃时，必须向水冷填料压盖和轴封冷却室通入冷却水。冷却水为常温清水，水压为1.5~3Kg/cm^2。各型泵冷却水管路接口位置不同，管路接口沿轴向位置见泵结构图，径向位置见表1。

轴封分为填料密封和机械密封，填料密封的水封水为常温软化水，压力为2~3kg/cm^2。机械密封的冲洗水亦为常温软化水，压力须比进口压力大3kg/cm^{2}以上。

Bearing portion

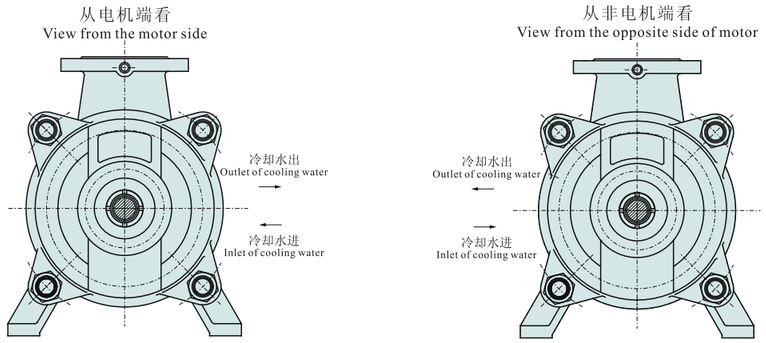
The whole rotor is supported by the roller bearings or sliding bearings on both ends of the shaft and the bearings are lubricated with grease or 20# engin oil.

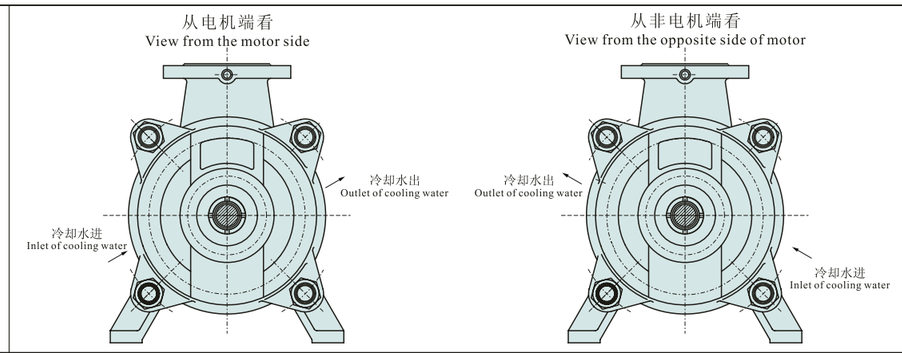
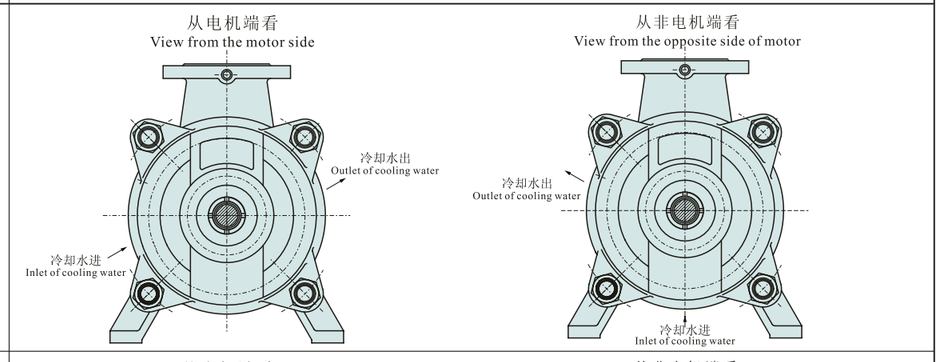
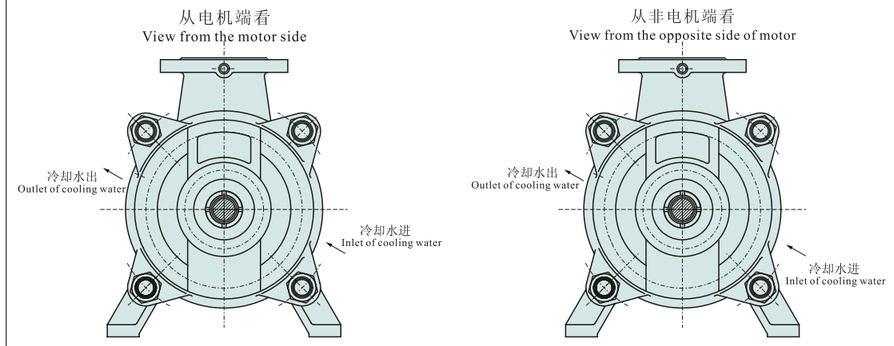
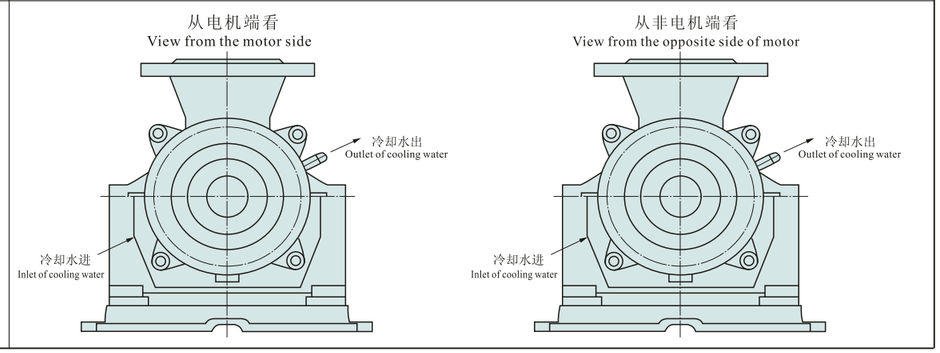
Cooling and seal of pump

The joint-part between suction section, intermediate section and discharge section with be coated with molybdenum disulfide lubricating grease as seal. Rotor and fixed parts will be sealed by seal ring, guide-vane jacket and packing. The packing tensile degree of shaft seal should be proper and seep should be feasible dip by dip Unload run should be forbid. The seal ring and guide vane jacket should be replaced if they are too worn to be used any more and even do harm to pump work. There is spare shaft sleeve near shaft seal to protect shaft of pump.

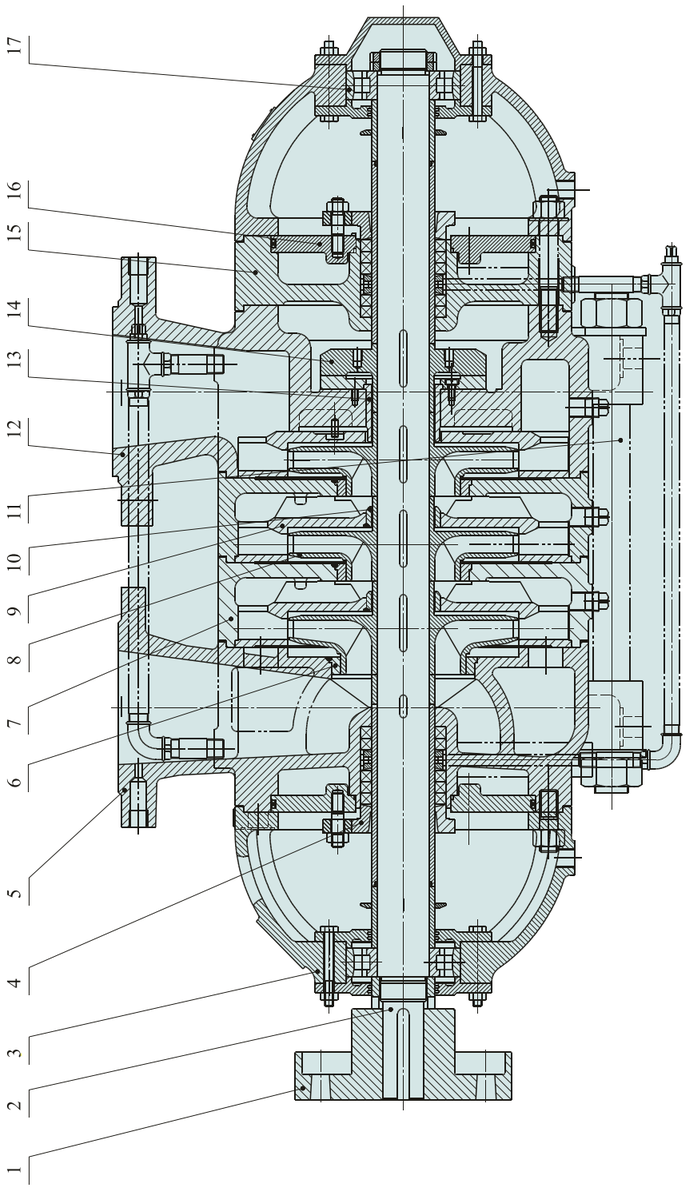
When temperature of the liquid transferred is above 80℃, cooled water should be filled to the water cooling packing gland and shaft seal cooling chamber. Cooled water should be clean water in normal degree. The pressure of water should be 1.5~3Kg/cm^2. The positions of cooling water pipe joints are different for various kind of water pump. Please refer to construction drawing of pump for axial position, and refer to chart 1 for radial position.

Shaft seals are classified as packing seal and mechanical seal. The water seal water of packing seal is softened water, with pressure of 2～3kg/cm^2. The flushing water of mechanical seal is softened water, whose pressure shall be 3kg/cm^2 higher than the inlet pressure.

DG25-30 DG46-30 DG12-25 DG155-30	

DG6-25	
DG25-50 DG46-50	
DG85-45 DG85-67 DG155-67	
DG25-80 DG45-80 DG85-80 DG150-100 DG280-100	

DG型中低压锅炉给水泵结构图
Structural drawing of DG model middle and low pressure boiler water supply pump

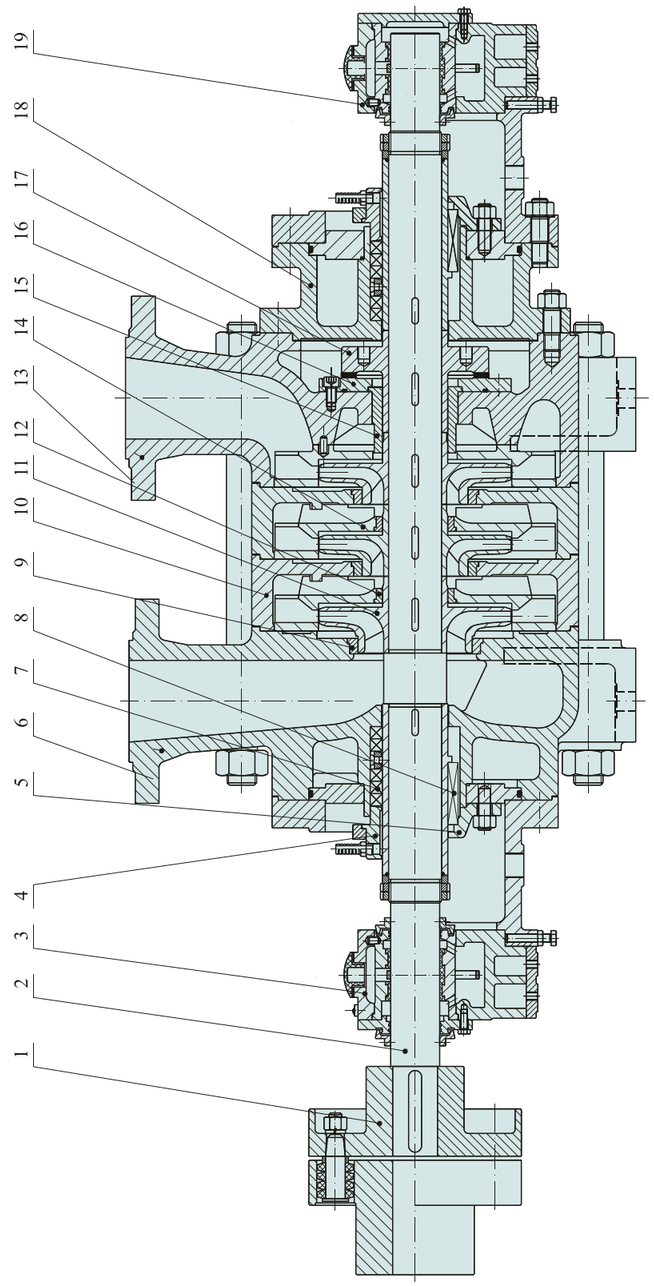


DG6-25、DG12-25、DG25-30、DG46-30、DG46-50、DG85-45、DG155-30、DG280-43、DG280-65、DG450-60、DG500-57

图1 fig.1

1	柱销弹性联轴器部件 Column resilient clutch part	2	轴 Shaft	3	滚动轴承部件 Roller bearing part	4	水冷填料压盖 Water cooled packing gland
5	吸入段 Suck-in section	6	密封环 Seal ring	7	中段 Middle section	8	叶轮 Impeller
9	导叶 Guide vane	10	导叶套 Guide vane sleeve	11	拉紧螺栓 Take-up bolt	12	吐出段 Spitting section
13	平衡套 Balancing sleeve	14	平衡盘 Balancing disk	15	填料函体 Packing	16	水冷室盖 Cover of water cooling room
17	轴承 Bearing						

DG型中低压锅炉给水泵结构图
Structural drawing of DG model middle and low pressure boiler water supply pump



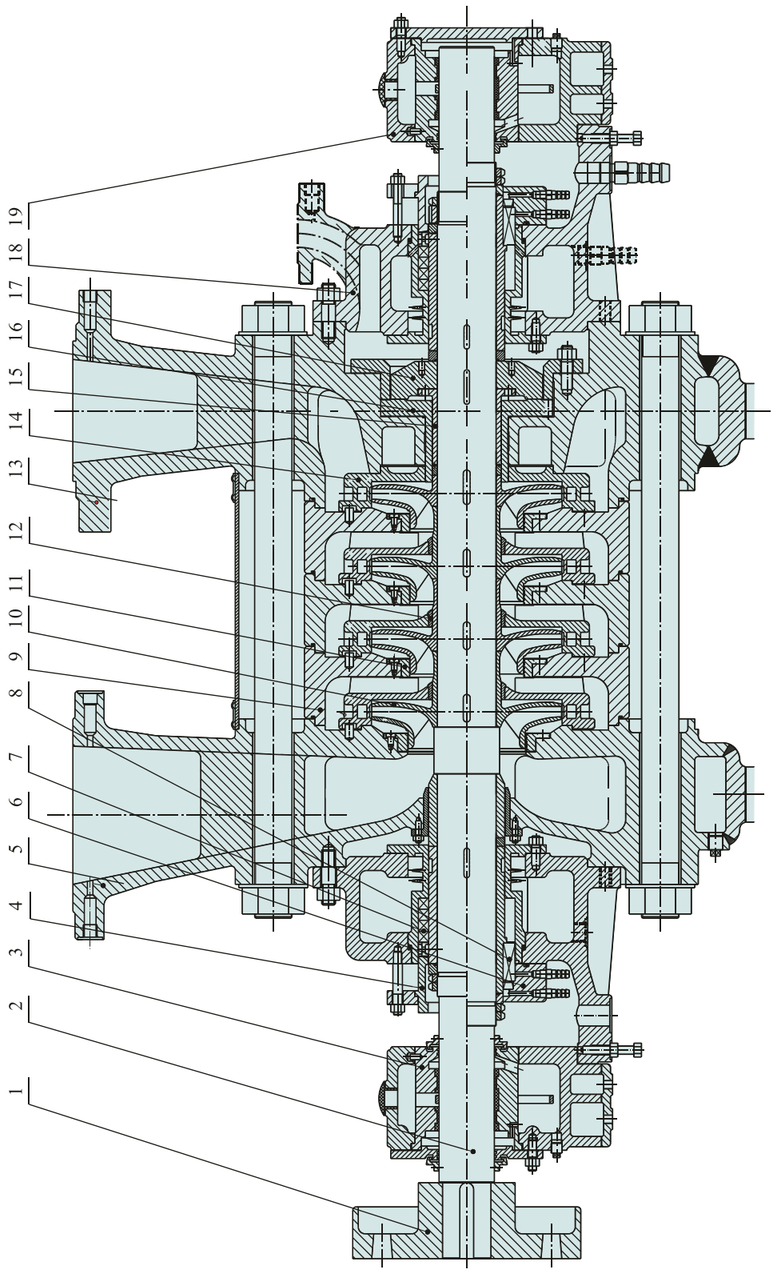
DG85-67、DG155-67

图2 fig.2

1	柱销弹性联轴器部件 Column resilient clutch part	2	轴 Shaft	3	前轴承部件 Bearing part	4	水冷填料压盖 Water cooled packing gland
5	机封压盖 Mechanical seal gland	6	吸入段 Suck-in section	7	填料 Stuffing	8	机械密封 Mechanical seal
9	密封环 Seal ring	10	中段 Middle section	11	导叶套 Guide vane sleeve	12	导叶 Guide vane
13	吐出段 Spitting section	14	平衡套 Balancing sleeve	15	平衡盘 Balancing disk	16	后轴承部件 Bearing part
17	叶轮 Impeller	18	填料函体 Stuffing content	19	后轴承部件 Bearing part		

注：DG85-67、DG155-67级数大于6时用图2结构，否则为图1结构。
Note:use the structure in Fig. 2 when the stage number of DG85-67, DG155-67 is over 6, or that in Fig. 1.

DG型次高压锅炉给水泵结构图
Struvtural drawing of DG model hypo–high–pressure boiler water supply pump



DG85-80、DG150-100、DG280-100通过单膜片联轴器与驱动端连接。

图3 fig.3

注：DG150-100、DG280-100通过单膜片联轴器与驱动端连接。

Note: DG150-100, DG280-100 are connected to the actuation side via a single-diaphragm coupling.

1	柱销弹性联轴器部件 Column resilient clutch part	2	轴 Shaft	3	前轴承部件 Bearing part	4	填料压盖 Stuffing gland	5	吸入段 Suck-in section
6	机封压盖 Mechanical seal gland	7	填料 Stuffing	8	机械密封 Mechanical seal	9	中段 Middle section	10	叶轮 Impeller
11	密封环 Seal ring	12	导叶套 Guide vane sleeve	13	吐出段 Spitting section	14	导叶 Guide vane	15	平衡套 Balancing sleeve
16	平衡环 Balancing ring	17	平衡盘 Balancing disk	18	(首)尾盖 (Front)Behind cover	19	后轴承部件 Bearing part		

DG型中低压锅炉给水泵性能表 Performance table of DG model middle and low pressure boiler water supply pump

型 号 Model	级数 No.Of Stage	转速 Speed (r/min)	流量 Flow (m^3/h)	扬程 Head (m)	功率Power(kW) 轴功率 Shaft	功率Power(kW) 电机功率 Motor	效率 Efficiency (%)	必需汽蚀余量 (NPSH)r (m)
DG6-25	3	2950	3.75	76.5	2.37	4.0	33	2
			6.3	75	2.86		45	2
			7.5	73.5	3.19		47	2.5
	4		3.75	102	3.16	5.5	33	2
			6.3	100	3.81		45	2
			7.5	98	4.26		47	2.5
	5		3.75	127.5	3.95	5.5	33	2
			6.3	125	4.77		45	2
			7.5	122.5	5.32		47	2.5
	6		3.75	153	4.73	7.5	33	2
			6.3	150	5.72		45	2
			7.5	147	6.39		47	2.5
	7		3.75	178.5	5.52	7.5	33	2
			6.3	175	6.67		45	2
			7.5	171.5	7.45		47	2.5
	8		3.75	204	6.31	11	33	2
			6.3	200	7.63		45	2
			7.5	196	8.52		47	2.5
	9		3.75	229.5	7.1	11	33	2
			6.3	225	8.58		45	2
			7.5	220.5	9.58		47	2.5
	10		3.75	255	7.89	18.5	33	2
			6.3	250	9.53		45	2
			7.5	245	10.65		47	2.5
	11		3.75	280.5	8.68	18.5	33	2
			6.3	275	10.5		45	2
			7.5	269.5	11.71		47	2.5
	12		3.75	306	9.47	18.5	33	2
			6.3	300	11.44		45	2
			7.5	294	12.78		47	2.5
DG12-25	3	2950	7.5	84.6	3.93	5.5	44	2
			12.5	75	4.73		54	2
			15	69	5.32		53	2.5
	4		7.5	112.8	5.24	7.5	44	2
			12.5	100	6.3		54	2
			15	92	7.09		53	2.5
	5		7.5	141	6.55	11	44	2
			12.5	125	7.88		54	2
			15	115	8.89		53	2.5
	6		7.5	169.2	7.85	15	44	2
			12.5	150	9.46		54	2
			15	138	10.64		53	2.5
	7		7.5	197.5	9.16	15	44	2
			12.5	175	11.0		54	2
			15	161	12.41		53	2.5
	8		7.5	225.6	10.41	15	44	2
			12.5	200	12.61		54	2
			15	184	14.18		53	2.5
	9		7.5	253.8	11.78	18.5	44	2
			12.5	225	14.18		54	2
			15	207	15.95		53	2.5

型 号 Model	级数 No.Of Stage	转速 Speed (r/min)	流量 Flow (m^3/h)	扬程 Head (m)	功率Power(kW) 轴功率 Shaft	功率Power(kW) 电机功率 Motor	效率 Efficiency (%)	必需汽蚀余量 (NPSH)r (m)
DG12-25	10	2950	7.5	282	13.09	18.5	44	2
			12.5	250	15.76		54	2
			15	230	17.73		53	2.5
	11		7.5	310.2	14.4	22	44	2
			12.5	275	17.34		54	2
			15	253	19.5		53	2.5
	12		7.5	338.4	15.7	22	44	2
			12.5	300	18.9		54	2
			15	276	21.3		53	2.5
DG12-50	3	2950	7.5	162	8.8	18.5	37.8	2
			12.5	150	10.6		48	2
			15	139.5	11.9		48	2.5
	4		7.5	216	11.7	22	37.8	2
			12.5	200	14.1		48	2
			15	186	15.9		48	2.5
	5		7.5	270	14.6	30	37.8	2
			12.5	250	17.7		48	2
			15	232.5	19.8		48	2.5
	6		7.5	324	17.6	30	37.8	2
			12.5	300	21.3		48	2
			15	279	23.7		48	2.5
	7		7.5	378	20.4	37	37.8	2
			12.5	350	24.8		48	2
			15	325.5	27.7		48	2.5
	8		7.5	432	23.3	37	37.8	2
			12.5	400	28.4		48	2
			15	372	31.7		48	2.5
	9		7.5	468	26.3	45	37.8	2
			12.5	450	31.9		48	2
			15	418.5	35.7		48	2.5
	10		7.5	540	29.2	45	37.8	2
			12.5	500	35.5		48	2
			15	465	39.6		48	2.5
	11		7.5	594	32.1	55	37.8	2
			12.5	550	39.0		48	2
			15	511.5	43.5		48	2.5
	12		7.5	648	35.0	75	37.8	2
			12.5	600	42.6		48	2
			15	558	47.8		48	2.5
DG25-30	3	2950	15	102	8.33	15	50	2.2
			25	90	9.88		62	2.2
			30	82.5	10.7		63	2.6
	4		15	136	11.1	18.5	50	2.2
			25	120	13.1		62	2.2
			30	110	14.26		63	2.6
	5		15	170	13.89	22	50	2.2
			25	150	16.47		62	2.2
			30	137.5	17.83		63	2.6
	6		15	204	16.67	30	50	2.2
			25	180	19.17		62	2.2
			30	165	21.4		63	2.6

DG型中低压锅炉给水泵性能表 Performance table of DG model middle and low pressure boiler water supply pump

型号 Model	级数 No.Of Stage	转速 Speed (r/min)	流量 Flow (m^3/h)	扬程 Head (m)	功率Power(kW) 轴功率 Shaft	功率Power(kW) 电机功率 Motor	效率 Efficiency (%)	必需汽蚀余量 (NPSH)r (m)
DG25-30	7	2950	15	238	19.44	30	50	2.2
			25	210	23.1		62	2.2
			30	192.5	24.96		63	2.6
	8		15	272	22.22	37	50	2.2
			25	240	26.4		62	2.2
			30	220	28.53		63	2.6
	9		15	306	25	37	50	2.2
			25	270	29.65		62	2.2
			30	247.5	32.1		63	2.6
	10		15	340	27.8	45	50	2.2
			25	300	32.9		62	2.2
			30	275	35.7		63	2.6
DG25-50	3	2950	15	154.5	15.78	22	40	2.5
			25	150	18.91		54	2.8
			30	144	20.64		57	3.2
	4		15	206	21.04	30	40	2.5
			25	200	25.22		54	2.8
			30	192	27.5		57	3.2
	5		15	257.5	26.2	37	40	2.5
			25	250	31.52		54	2.8
			30	240	34.40		57	3.2
	6		15	309	31.56	45	40	2.5
			25	300	37.82		54	2.8
			30	288	41.28		57	3.2
	7		15	380.5	38.86	55	40	2.5
			25	350	44.1		54	2.8
			30	336	48.16		57	3.2
	8		15	412	42	75	40	2.5
			25	400	50.45		54	2.8
			30	384	55.04		57	3.2
	9		15	463.5	47.33	75	40	2.5
			25	450	56.74		54	2.8
			30	432	61.92		57	3.2
	10		15	515	52.59	75	40	2.5
			25	500	63.04		54	2.8
			30	480	68.8		57	3.2
	11		15	566	57.8	90	40	2.5
			25	550	69.3		54	2.8
			30	528	75.68		57	3.2
	12		15	618	63.11	110	40	2.5
			25	600	75.65		54	2.8
			30	576	82.56		57	3.2
DG46-30	3	2950	30	102	13.02	22	64	2.4
			46	90	16.11		70	3
			55	81	18.84		68	4.6
	4		30	136	17.36	30	64	2.4
			46	120	21.48		70	3
			55	108	23.79		68	4.6
	5		30	170	21.7	37	64	2.4
			46	150	26.85		70	3
			55	135	29.74		68	4.6

型号 Model	级数 No.Of Stage	转速 Speed (r/min)	流量 Flow (m^3/h)	扬程 Head (m)	功率Power(kW) 轴功率 Shaft	功率Power(kW) 电机功率 Motor	效率 Efficiency (%)	必需汽蚀余量 (NPSH)r (m)
DG46-30	6	2950	30	204	26.04	37	64	2.4
			46	180	32.21		70	3
			55	162	35.68		68	4.6
	7		30	238	30.38	45	64	2.4
			46	210	37.58		70	3
			55	189	41.63		68	4.6
	8		30	274	34.72	55	64	2.4
			46	240	42.95		70	3
			55	216	47.58		68	4.6
	9		30	306	39.06	55	64	2.4
			46	270	48.32		70	3
			55	243	53.53		68	4.6
	10		30	340	43.3	75	64	2.4
			46	300	53.7		70	3
			55	270	59.5		68	4.6
DG46-50	3	2950	30	166.5	25.19	37	54	2.5
			46	150	29.83		63	2.8
			55	138	32.3		64	3.2
	4		30	222	33.59	45	54	2.5
			46	200	39.77		63	2.8
			55	184	43.06		64	3.2
	5		30	277.5	41.98	55	54	2.5
			46	250	49.71		63	2.8
			55	230	53.85		64	3.2
	6		30	333	50.38	75	54	2.5
			46	300	59.65		63	2.8
			55	276	64.59		64	3.2
	7		30	388.5	58.78	90	54	2.5
			46	350	69.6		63	2.8
			55	322	75.36		64	3.2
	8		30	440	67.18	90	54	2.5
			46	400	79.54		63	2.8
			55	368	86.12		64	3.2
	9		30	499.5	75.57	110	54	2.5
			46	450	89.48		63	2.8
			55	414	96.89		64	3.2
	10		30	555	83.97	132	54	2.5
			46	500	99.42		63	2.8
			55	460	107.66		64	3.2
	11		30	610.5	92.37	132	54	2.5
			46	550	109.36		63	2.8
			55	506	118.42		64	3.2
	12		30	666	100.8	132	54	2.5
			46	600	119.3		63	2.8
			55	552	129.2		64	3.2
DG85-45	2	2950	55	102	24.25	37	63	3.2
			85	90	28.94		72	4.2
			100	78	30.33		70	5.2
	3		55	153	36.38	55	63	3.2
			85	135	43.4		72	4.2
			100	117	45.52		70	5.2

DG型中低压锅炉给水泵性能表 Performance table of DG model middle and low pressure boiler water supply pump

型号 Model	级数 No.Of Stage	转速 Speed (r/min)	流量 Flow (m^3/h)	扬程 Head (m)	功率Power(kW) 轴功率 Shaft	功率Power(kW) 电机功率 Motor	效率 Efficiency (%)	必需汽蚀余量 (NPSH)r (m)
DG85-45	4	2950	55	204	48.5	75	63	3.2
			85	180	57.87		72	4.2
			100	156	60.7		70	5.2
	5		55	255	60.63	90	63	3.2
			85	225	72.34		72	4.2
			100	195	75.86		70	5.2
	6		55	306	72.75	110	63	3.2
			85	270	86.81		72	4.2
			100	234	91.04		70	5.2
	7		55	357	84.88	132	63	3.2
			85	315	101.3		72	4.2
			100	273	106.2		70	5.2
	8		55	408	97	132	63	3.2
			85	360	115.7		72	4.2
			100	312	121.4		70	5.2
	9		55	459	109.1	160	63	3.2
			85	405	130.2		72	4.2
			100	351	136.6		70	5.2
DG85-67	3	2950	55	222	57.3	90	58	3.3
			85	201	68.4		68	4.0
			100	183	73.3		68	4.4
	4		55	296	76.4	110	58	3.3
			85	268	91.2		68	4.0
			100	244	97.7		68	4.4
	5		55	370	95.6	132	58	3.3
			85	335	114		68	4.0
			100	305	122.2		68	4.4
	6		55	444	114.7	160	58	3.3
			85	402	136.9		68	4.0
			100	366	146.6		68	4.4
	7		55	518	133.8	200	58	3.3
			85	469	159.6		68	4.0
			100	427	171		68	4.4
	8		55	592	152.9	220	58	3.3
			85	536	182.4		68	4.0
			100	488	195.4		68	4.4
	9		55	666	172	250	58	3.3
			85	603	205.2		68	4.0
			100	549	219.9		68	4.4
DG155-30	2	1480	119	64	28.76	55	72.0	3.2
			155	60	32.84		77.0	3.9
			190	54	36.68		76.5	4.8
	3		119	96	43.14	75	72.0	3.2
			155	90	49.26		77.0	3.9
			190	81	55.02		76.5	4.8
	4		119	128	57.52	90	72.0	3.2
			155	120	65.68		77.0	3.9
			190	108	73.36		76.5	4.8
	5		119	160	71.90	110	72.0	3.2
			155	150	82.10		77.0	3.9
			190	135	91.70		76.5	4.8
	6		119	192	86.28	132	72.0	3.2
			155	180	98.52		77.0	3.9
			190	162	110.04		76.5	4.8

型号 Model	级数 No.Of Stage	转速 Speed (r/min)	流量 Flow (m^3/h)	扬程 Head (m)	功率Power(kW) 轴功率 Shaft	功率Power(kW) 电机功率 Motor	效率 Efficiency (%)	必需汽蚀余量 (NPSH)r (m)
DG155-30	7	1480	119	224	100.66	160	72.0	3.2
			155	210	114.97		77.0	3.9
			190	189	128.38		76.5	4.8
	8		119	256	115.04	160	72.0	3.2
			155	240	131.36		77.0	3.9
			190	216	146.72		76.5	4.8
	9		119	288	129.42	200	72.0	3.2
			155	270	147.78		77.0	3.9
			190	243	165.06		76.5	4.8
	10		119	320	143.80	200	72.0	3.2
			155	300	164.20		77.0	3.9
			190	270	183.40		76.5	4.8
DG155-67	3	1480	100	228	97.0	132	64	3.2
			155	201	114.7		74	5.0
			185	177	123.9		72	6.6
	4		100	304	129.3	200	64	3.2
			155	268	152.9		74	5.0
			185	236	165.1		72	6.6
	5		100	380	161.6	220	64	3.2
			155	335	191.1		74	5.0
			185	295	206.4		72	6.6
	6		100	456	194	280	64	3.2
			155	402	229.3		74	5.0
			185	354	247.7		72	6.6
	7		100	532	226.3	315	64	3.2
			155	469	267.5		74	5.0
			185	413	289		72	6.6
	8		100	608	258.6	355	64	3.2
			155	536	305.7		74	5.0
			185	472	330.3		72	6.6
	9		100	684	290.9	400	64	3.2
			155	603	344		74	5.0
			185	531	371.6		72	6.6
DG280-43	3	1480	185	141	103.0	160	69	3.0
			280	129	127.7		77	4.7
			335	114	138.7		75	6.0
	4		185	188	137.3	200	69	3.0
			280	172	170.3		77	4.7
			335	152	184.9		75	6.0
	5		185	235	171.6	250	69	3.0
			280	215	212.9		77	4.7
			335	190	231.1		75	6.0
	6		185	282	205.9	315	69	3.0
			280	258	255.5		77	4.7
			335	228	277.3		75	6.0
	7		185	329	240.2	355	69	3.0
			280	301	298.1		77	4.7
			335	266	323.6		75	6.0
	8		185	376	274.5	400	69	3.0
			280	344	340.7		77	4.7
			335	304	369.8		75	6.0
	9		185	423	308.9	450	69	3.0
			280	387	383.2		77	4.7
			335	342	416.0		75	6.0

DG型中低压锅炉给水泵性能表 Performance table of DG model middle and low pressure boiler water supply pump

型 号 Model	级数 No.Of Stage	转速 Speed (r/min)	流量 Flow (m^3/h)	扬程 Head (m)	功率Power(kW) 轴功率 Shaft	功率Power(kW) 电机功率 Motor	效率 Efficiency (%)	必需汽蚀余量 (NPSH)r (m)
DG450-60	3	1480	335 450 500	195 180 170	247.1 279.2 298.5	355	69 77 75	3 4.7 6
	4		335 450 500	260 240 228	329.4 372.3 398	450	69 77 75	3 4.7 6
	5		335 450 500	325 300 285	411.8 465.4 497.5	560	69 77 75	3 4.7 6
	6		335 450 500	390 360 342	494.2 558.2 597	630	69 77 75	3 4.7 6
	7		335 450 500	455 420 399	576.5 651.5 696.5	800	69 77 75	3 4.7 6
	8		335 450 500	520 480 456	658.9 744.6 796	900	69 77 75	3 4.7 6
	9		335 450 500	585 540 513	741.2 837.7 895.6	1000	69 77 75	3 4.7 6
	10		335 450 500	650 600 570	823.6 930.8 995.1	1120	69 77 75	3 4.7 6
	11		335 450 500	715 660 627	906.1 1023.4 1094.9	1250	69 77 75	3 4.7 6
DG500-57	3	1480	425 500 600	186 171 150	286.9 294.6 318.2	355	75 77 77	4.6 6 7
	4		425 500 600	248 228 200	382.8 392.8 424.2	450	75 77 77	4.6 6 7
	5		425 500 600	310 285 250	478.2 491 530.3	560	75 77 77	4.6 6 7
	6		425 500 600	372 342 300	573.8 589.2 636.4	710	75 77 77	4.6 6 7
	7		425 500 600	434 399 350	669.5 687.4 742.4	800	75 77 77	4.6 6 7
	8		425 500 600	496 456 400	765.1 785.7 848.5	900	75 77 77	4.6 6 7
	9		425 500 600	558 513 450	860.7 883.8 945.5	1000	75 77 77	4.6 6 7
	10		425 500 600	620 570 500	956.4 982.1 1060.6	1120	75 77 77	4.6 6 7
	11		425 500 600	682 627 550	1051.5 1081.1 1169.2	1250	75 77 77	4.6 6 7

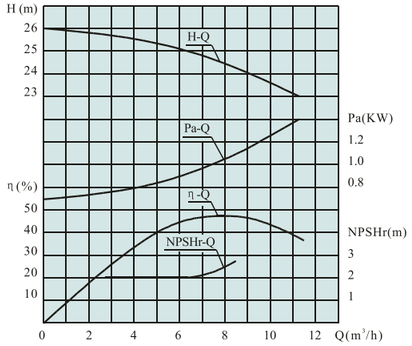
DG型次高压锅炉给水泵性能表 Performance table of DG model hypo-high-pressure boiler water supply pump

型 号 Model	级数 No.Of Stage	转速 Speed (r/min)	流量 Flow (m^3/h)	扬程 Head (m)	功率Power(kW) 轴功率 Shaft	功率Power(kW) 电机功率 Motor	效率 Efficiency (%)	必需汽蚀余量 (NPSH)r (m)
DG25-80	4	2980	15 25 30	346.4 320 312	44.3 49 58	55.0	32 45 44	3.2 3.5 5
	5		15 25 30	433.0 400.0 390.0	55.00 60.50 72.10	75.0	32 45 44	3.2 3.5 5
	6		15 25 30	519.6 480.0 468.0	66.00 72.60 86.52	90.0	32 45 44	3.2 3.5 5
	7		15 25 30	606.2 560.0 546.0	77.00 84.70 100.94	110.0	32 45 44	3.2 3.5 5
	8		15 25 30	692.8 640.0 624.0	88.00 96.80 115.36	132.0	32 45 44	3.2 3.5 5
	9		15 25 30	779.4 720.0 702.0	99.00 108.90 129.78	132.0	32 45 44	3.2 3.5 5
	10		15 25 30	866.0 800.0 780.0	110.00 121.00 144.20	160.0	32 45 44	3.2 3.5 5
	11		15 25 30	952.6 880.0 858.0	121.00 133.10 158.62	200.0	32 45 44	3.2 3.5 5
	12		15 25 30	1039.2 960.0 936.0	132.00 145.20 173.04	200.0	32 45 44	3.2 3.5 5
DG45-80	4	2950	36 45 62	334.2 320 277.2	65.6 71.3 83.6	90	50 55 56	3.9 4 5.5
	5		36 45 62	417.7 400 346.5	81.9 89.2 104.5	110	50 55 56	3.9 4 5.5
	6		36 45 62	501.2 480 415.7	98.3 107.0 125.4	132	50 55 56	3.9 4 5.5
	7		36 45 62	585.2 560.0 477.4	114.8 124.6 143.5	160	50 55 56	3.9 4 5.5
	8		36 45 62	668.8 640.0 545.6	131.2 142.4 164.0	200	50 55 56	3.9 4 5.5
	9		36 45 62	752.4 720.0 613.8	147.6 160.2 184.5	220	50 55 56	3.9 4 5.5
	10		36 45 62	836.0 800.0 682.0	164.0 178.0 205.0	250	50 55 56	3.9 4 5.5
	11		36 45 62	919.6 880.0 750.2	180.4 195.8 225.5	280	50 55 56	3.9 4 5.5
	12		36 45 62	1003.2 960.0 818.4	196.8 213.6 246.0	280	50 55 56	3.9 4 5.5
DG85-80	5	2950	54 85 108	443.6 400 338.9	123.2 142.5 151.1	250	53 65 66	4.4 4.5 5.3

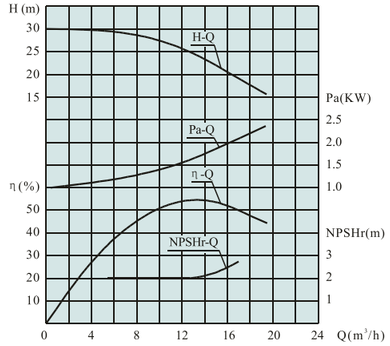
型 号 Model	级数 No.Of Stage	转速 Speed (r/min)	流量 Flow (m^3/h)	扬程 Head (m)	功率Power(kW) 轴功率 Shaft	功率Power(kW) 电机功率 Motor	效率 Efficiency (%)	必需汽蚀余量 (NPSH)r (m)
DG85-80	6	2950	54 85 108	540.3 480 412.2	150.0 171.0 183.8	250	53 65 66	4.4 4.5 5.3
	7		54 85 108	616 560 490	170.9 199.3 218.4	250	53 65 66	4.4 4.5 5.3
	8		54 85 108	704 640 560	195.3 227.8 249.6	280	53 65 66	4.4 4.5 5.3
	9		54 85 108	792 720 630	219.8 256.3 280.7	315	53 65 66	4.4 4.5 5.3
	10		54 85 108	880 800 700	244.2 284.8 311.9	355	53 65 66	4.4 4.5 5.3
	11		54 85 108	968 880 770	268.6 313.2 343	400	53 65 66	4.4 4.5 5.3
	12		54 85 108	1056 960 840	293 341.7 374.3	400	53 65 66	4.4 4.5 5.3
DG150-100	6	2950	120 150 180	630 600 540	307 353 368	450	67 70 72	3.4 4.8 5.5
	7		120 150 180	735 700 630	359 412 429	500	67 70 72	3.4 4.8 5.5
	8		120 150 180	840 800 720	410 470 491	630	67 70 72	3.4 4.8 5.5
	9		120 150 180	945 900 810	461 518 552	630	67 70 72	3.4 4.8 5.5
	10		120 150 180	1050 1000 900	512 588 613	800	67 70 72	3.4 4.8 5.5
DG280-100	4	2950	250 280 300	420.0 400.0 392.0	386.4 396.0 416.0	450	74 77 77	5.1 5.6 5.9
	5		250 280 300	525.0 500.0 490.0	483.0 495.0 520.0	630	74 77 77	5.1 5.6 5.9
	6		250 280 300	630.0 600.0 588.0	579.6 594.0 624.0	710	74 77 77	5.1 5.6 5.9
	7		250 280 300	735.0 700.0 686.0	676.2 693.0 728.0	800	74 77 77	5.1 5.6 5.9
	8		250 280 300	840.0 800.0 784.0	772.8 792.0 832.0	1000	74 77 77	5.1 5.6 5.9
	9		250 280 300	945.0 900.0 882.0	869.4 891.0 936.0	1120	74 77 77	5.1 5.6 5.9
	10		250 280 300	1050.0 1000.0 980.0	966.0 990.0 1040.0	1250	74 77 77	5.1 5.6 5.9

DG型中低压锅炉给水泵性能曲线图
Performance curve figures of DG model middle and low pressure boiler water supply pump

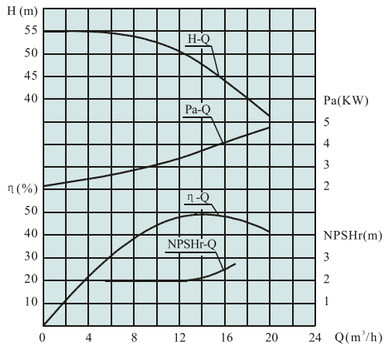
DG6-25



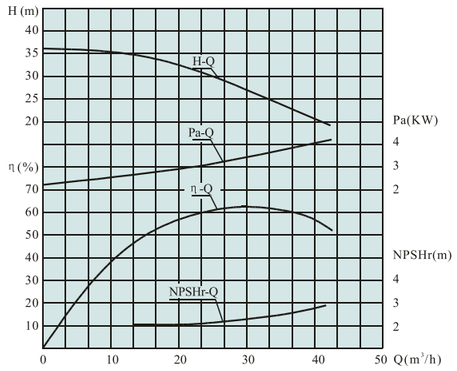
DG12-25



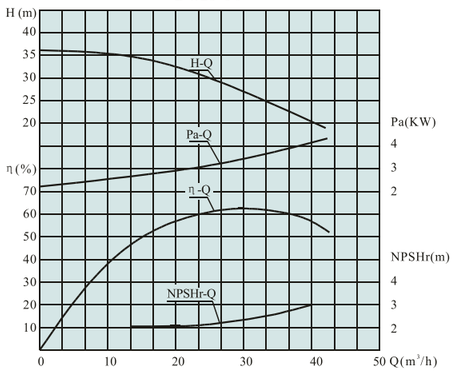
DG12-50



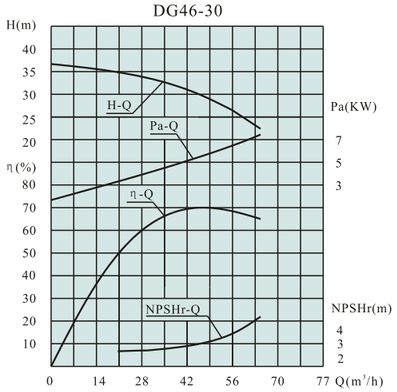
DG25-30



DG25-50

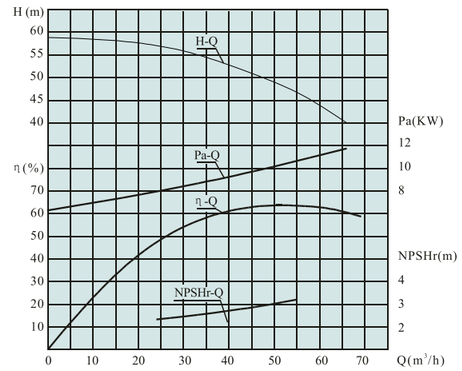


DG46-30

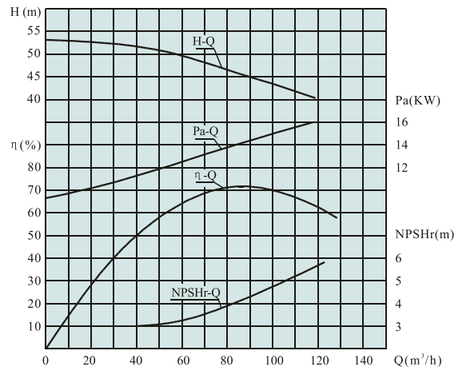


DG型中低压锅炉给水泵性能曲线图
Performance curve figures of DG model middle and low pressure boiler water supply pump

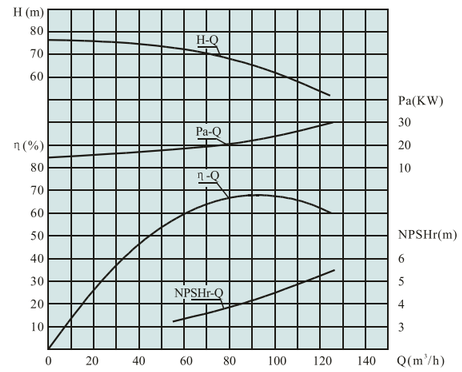
DG46-50



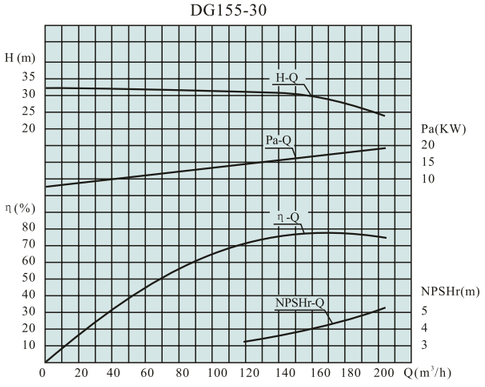
DG85-45



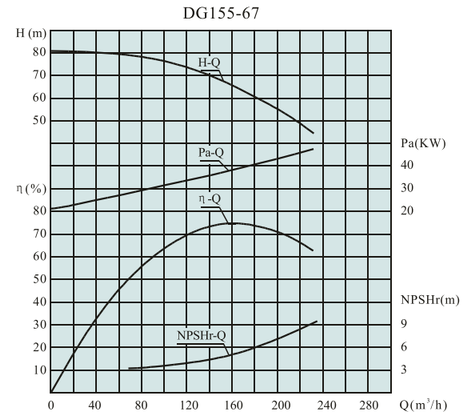
DG85-67

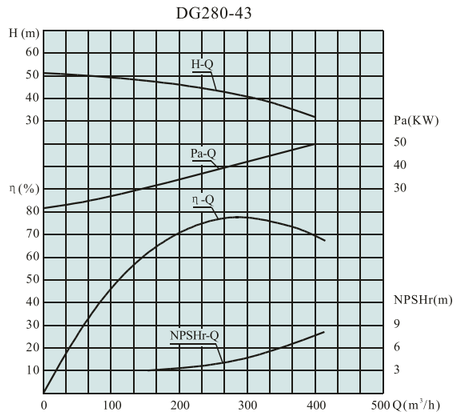


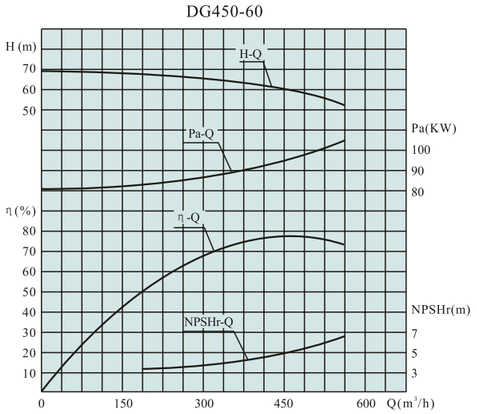
DG155-30

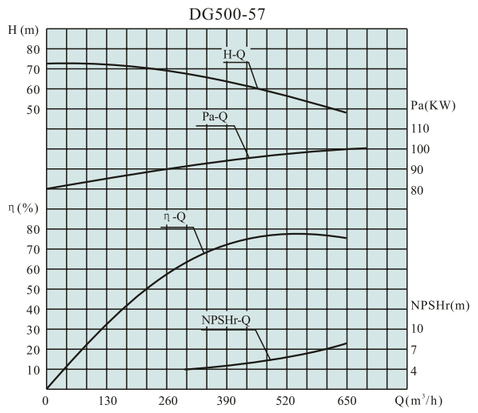


DG型中低压锅炉给水泵性能曲线图
Performance curve figures of DG model middle and low pressure boiler water supply pump

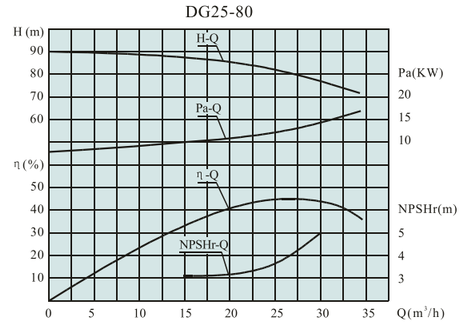


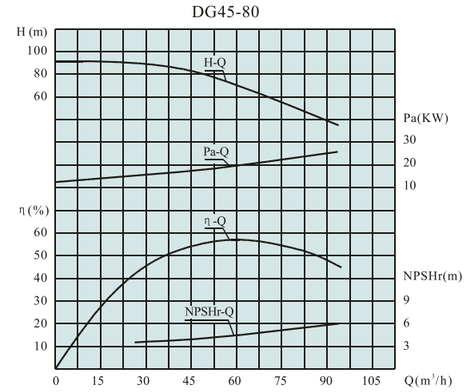


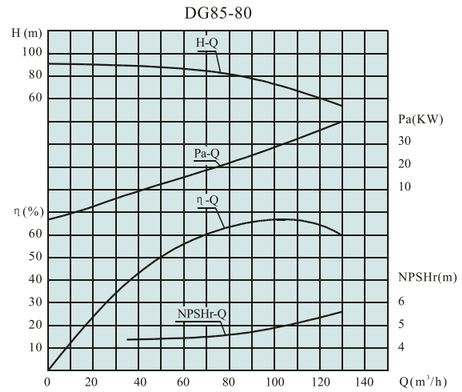


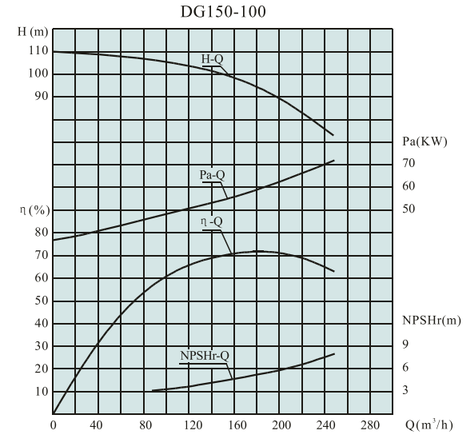


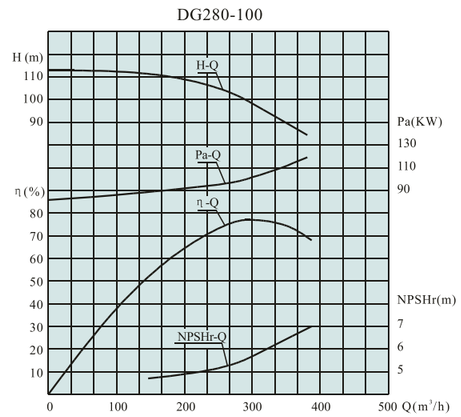
DG型次高压锅炉给水泵性能曲线图
Performance curve figures of DG model hypo–high–pressure boiler water supply pump











绘出的曲线系一级的性能，级数增加，流量不变，扬程、轴功率均按查得的扬程、轴功率乘级数、2级乘2、3级乘3、依次类推。

The curve shows the performance of No. 1 stage. When the stage number is increased, the flow is kept unchanged, both head and shaft power are those gained from the curves and multiplied by the number of the stage, e.g. multiplied by 2 in case of 2 stages, by 3 in case of 3 stages, and so on and so forth.

泵的装配与检测 Assembly and detection of pump

本型泵装配质量的好坏对泵的性能及运行稳定性影响特别显著。诸如叶轮出口中心与导叶进口中心的对准，泵的转子部分与定子部分的各个密封间隙值大小均匀等，装配时应按图纸的技术要求，方能保证装配质量。

1、转子部件

以两轴承为支承分别测量叶轮口环，叶轮挡套(或叶轮后脐子)，平衡挡套和轴套的圆跳动值及平衡盘端面的跳动值应符合转子结合部件图纸(图4)的要求。

The assembly quality of the pump will result in a notable affection to the performance and the running stability of it and can not be guaranteed unless the technical requirements in the drawings are strictly followed in the assembly, such as on the alignment between the centers of the impeller's outlet and the guide vane's inlet, the uniform values of the sealing intervals of both rotor and stator portions etc.

1.Rotor

It takes two bearings as the support and measure the circle jumping values of the oral ring of the impeller, the impell-er's baffling sleeve (or rear navel), the balancing baffling sleeve and the muff, respectively, and the jumping value of the balancing disk's end-face, which should conform the requirements in the figure of the jointed parts of rotor (Fig. 4).

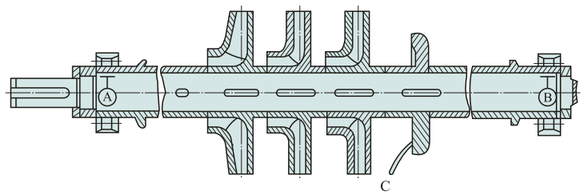


图 4 Fig. 4

泵体密封环与叶轮密封环的名义径向间隙，按下表：
For the nominal radial intervals of the seal rings of both pump casing and impeller, upon the table below:

名义尺寸(mm) Nominal size (mm)	30～90	>90～120	>120～180	>180～250	>250～500	>500～800	>800～1250	>1250
直径间隙(mm) Diameter interval (mm)	0.3～0.4	0.4～0.5	0.5～0.6	0.6～0.7	0.7～0.85	0.85～1.2	1.2～1.6	1.6～2.0

装配好的转子部件，各零件的径向跳动允差，按下表：
For the allowed radial jumping error of each part of the assembled rotor, upon the table below:

部位 Part ＼ 名义直径 Nominal diameter	≤50	>50～120	>120～260	>260～500	>500～800
叶轮密封环(A-B) Seal ring of impeller (A-B)	0.08	0.10	0.10	0.12	0.15
平衡盘C的端面跳动(A-B) End-face jumping of disk C (A-B)	0.05	0.05	0.06	0.08	0.08

2、定子部件

测量转子轴向串量、平衡环(套)的端面跳动值，应符合总装图的要求。

1.Stator

Measure the axial serial amount of the rotor and the end-face jumping value of the balancing ring (sleeve), which should conform the requirements in the overall assembly drawing.

3、装配完毕，用手转动转子，检查泵内是否有磨擦声或转动不灵活等不正常现象。

3.At the end of assembly, move the rotor with hand to check if there is frictional sound, non-flexible movement etc. abnormal condition inside of the pump.

泵的安装 Installation of pump

1、泵的安装步骤

泵的安装步骤一般包括把泵放到地基上，找水平、调正和联接泵的管路等。

2、泵安装需要的设备

泵安装时需要下列常规的设备和工具：

a、有合适负载能力而且安全的起重设备；

b、每个地脚螺钉处都必须备有一块钢的垫铁或楔铁，作找平底座用；

c、灌浆的材料必须是不收缩的灌浆料，为了灌浆需准备一个木盒，而且需配有漏斗；

d、为了安装和拆卸填料，需要一套专用的工具，如带钩的夹具等。

3、泵的搬运

在搬运时要注意安全以防事故发生，搬运时要注意下列事项：

a、在搬运泵时，起重机的吊钩应挂在底座下面，也可用叉式起重机搬运泵，不允许吊在泵和原动机和螺栓孔或吊泵的轴承体，更不能在泵轴处起吊；

b、起重负载应均匀平衡，且应注意起重设备的承载能力，起吊时应小心谨慎，防止泵件的碰撞，特别应避免泵联轴器处轴加工配合面的损坏；

c、严禁异物或灰尘在搬运过程中进入泵和电动机内。

4、泵的开箱检查

泵运到使用单位后应开箱检查泵的零件是否丢失，是否在运输过程中有损坏，如果出现丢失或损坏时，应立即向运输部门和泵制造厂声明。

5、暂时库存

如果泵需要在安装以前库存一段时间，泵仍然需要包装，而且应放在干燥、防雨、防灰尘的合适的地面上，泵的吐出口和吸入口应盖住，以防异物进入。泵的轴、轴承和其它精加工的零件应注意防潮，应涂保护油层。

⚠ 注：半个月盘车一次，保证盘车灵活。

1.Installation steps

Generally covering the placement of the pump on the foundation, leveling, adjustment and connection of the pump's pipeline.

2.Facilities necessary for installation

The following common facilities and tools are required in installation:

a.Safe lifters available with a proper loading capacity.

b.Set a steel horn or wedge horn on every foot screw for leveling foundation.

c.The grouting material must be a non-shrinking one and it is necessary to prepare a wood case for grouting, which has to be fitted with a hopper.

d.To mount and remove the packing, a set of special tools is required, such as the clamp with hooks.

3.Pump transportation

When to transport the pump, take care of safety to prevent any accident from occurring and the following cautions:

a.Place the hook of the lifter under the foundation or use a folk lifter, do not lift it with the hook in the pump, the prime mover and bolt holes or on the bearing, furthermore, on the pump shaft.

b.Make the lifted load even and balanced, take care about the lifting capacity and not to let the pump parts collided with each other, especially the processed fitting-surface of the shaft on the pump clutch, not to let it damaged.

c.Prohibited foreign matters or dust from getting into both pump and motor during transportation.

4.Unpacking and check of pump

Unpack and check, when the pump arrives, if any part is lost and if there is any damage, report it to the transporter and the pump manufacturer at once if any.

5.Temporary storage

If the pump is to be stored for a period of time before installation, pack it and place it on a dry, rain-proof and dust-proof ground with both spitting and suck-in mouths covered to prevent foreign matters in.Pay attention not to let the shaft, bearing and other precisely processed parts of the pump getting wet and coat them with a protective oil layer.

⚠ **Note: turn the pump once per two weeks and make sure it can be turned flexibly.**

6、泵的基础

6.1 泵的基础必须具有足够强度和尺寸的混凝土地基，基础的质量约等于机组质量3～5倍，泵的地基就比泵的底座长出50～70mm，且要留出地脚孔(为地脚螺栓3～4倍的钢管直径)；

6.2 打地基包括如下内容：地基的地脚螺栓钉孔的定位，灌浆和留出联接管路位置，然后在其余空间灌浆；

6.3 地基的表面可以是粗糙的，以使灌浆效果好；

6.4 地基完全固化再安装设备。

7、搬放和找水平

7.1 在底座下面放置钢的垫铁和楔铁或调整垫，一般都放置在地脚螺栓处，如果底座较长，在两地脚螺栓中间可放置一块垫铁；

7.2 检查底座下面的地基，清洗灰尘、油和其它杂物；

7.3 起重吊钩底座的四个角上，把底座吊在地基上方，慢慢地把底座放在每个螺栓孔的位置上(对地脚螺孔的位置)；

7.4 用一个刀口平尺和机械水平仪放到泵和电机底脚加工平面上，用调整楔铁或调整垫的厚度来确定底座在各个方位上的水平，推荐每100mm长不平度小于0.25mm，这时地脚螺栓的螺母拧到适当的程度(不能过紧)，楔铁或调整垫片应紧固；

7.5 底座找平，而且和地基配合较紧后再灌浆。

8、底座的灌浆

8.1 灌浆时，确保做到每个空间的空气必须全部排出；

8.2 当灌浆材料固化后，拧紧地脚螺栓的螺母，然后再对灌浆材料涂油漆防潮；

8.3 灌浆后，进行泵和电动机的调正工作。

9、设备的调整

设备调正包括角度调正和中心线位置的调正，至少应在下面三个时期检查设备，进行调正：

第一次，泵和底座已经紧固，但电动机没紧固；

第二次，泵和电动机已紧固，但吸入和吐出管路法兰的螺栓没紧固；

第三次，在泵运转24小时后，再检查一次，检查后把泵和电动机最后紧固。

6.Basis for the pump

6.1 The basis should be a concrete one of sufficient strength and size, with the mass of it 3~5 times that of the unit one, and 50~70mm longer than that of the pump foundation, plus the foot bolt holes (a steel pipe's diameter 3~4 times that of the foot bolt).

6.2 The job to set the basis covers: locating the foot bolt hole, grouting and leave the place for the pipeline connection, then grouting into the other space.

6.3 The rougher the surface of the basis, the better the grouting effect.

6.4 Do not install any equipment until the basis gets completely solidified.

7.Movement, placement and leveling

7.1 Place steel and wedge horns or regulating iron at the foot bolts under the pump foundation, in general, place a horn in between two bolts in case of a longer foundation.

7.2 Check the basis under the pump foundation and clear dust, oil and other foreign matters.

7.3 Place lifting hooks on the four corners of the foundation to lift it above the basis and then slowly put it on the position with the bolt holes aligned.

7.4 Place a knife edge flat ruler and a mechanical leveler under the processed planes of both pump and motor's foundations and use the thickness of a regulating wedge iron or pad to decide the levelness of the foundation on every respect, for which, non-flatness less than 0.25mm per 100mm is recommended. Then tighten the nut of the foot bolt to a proper extent (not over-tightened) and secure the wedge iron or regulating pad.

7.5 Level the foundation, do not grout until it is more closely fitted with the basis.

8.Grout the foundation

8.1 Make sure the air inside of each space is completely exhausted when to grout.

8.2 Tighten the nut of the foot bolt when the grouted material is solidified and then coat the material with paint for wet resisting.

8.3 After grouting, adjust both pump and motor.

9.Adjustment of equipments

Covering angle and central line position adjustment. check the equipments at least in the following three periods and take adjustment:

The first time, both pump and foundation are secured while the motor is not.

The second time, both pump and motor are secured while the bolts on the suck-in and spitting pipeline flanges are not.

The third time is in 24 hours after the pump starts running, then secure both pump and motor.

在调正工作中应注意以下事宜：

a、在调正以前，检查全部的管线，保证它们不对泵座产生作用或力矩；

b、在调正泵和电动机时，垫片应垫在电动机的下面。

角度调正是保证联轴器的两个平行度，用一块千分表去检查联轴器法兰端面上四点，千分表读数为0.02～0.03，检查其平行度也可用塞尺，两联轴器平面间的差值(a-b)≤0.06(见图5)。

中心线对中是指泵和电机轴中心线的对正程度，应使c≤0.08(见图5)。

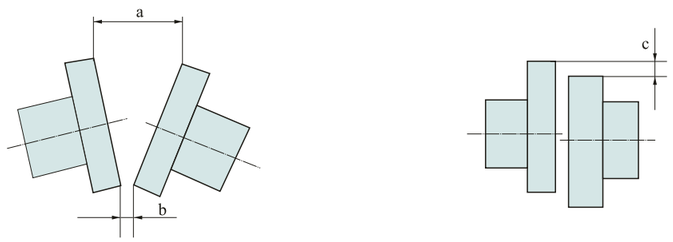


图5 fig5

10、主要管路的联接

泵灌浆且紧固在地基上以后，在不受外力条件下对正并联接泵法兰和管路的法兰，这个对正联接不能依靠法兰螺栓的力。

对管路支撑(附加)应避免管路系统的振动，应减少对管路系统进行清洗。

安装管路，应注意事项：

a、使用管路的规格和长度应适合，且有足够的承压能力，尽量减少管路的转弯和附件；

b、泵的吸入管路应是短而直，管路直径应大于或等于泵的吸入口的直径，泵的吸入管路的弯曲半径应做的尽量大。

11、附加设备的联接

11.1 压力表

在吸入管路和吐出管路上用的压力表必须是质量好性能合格的仪表。吐出压力表最好装配在泵和主管路的吐出法兰2倍直径长的距离上，不能装在弯管和阀的旁边，以防受不稳定流动的干扰。

11.2 联轴器

泵和电机联轴器联接以前重新检查其对中性；检查

Pay attention to the following cautions in the adjustment:

a.Before adjusting, check all pipelines to make sure they will not produce any action or moment on the pump foundation.

b.Put the pad under the motor while to adjust both pump and motor. Angle adjustment is to guarantee the parallelism of the two planes of the clutches. Use a dial gauge to check four points on the end-face of the clutch flange, the reading on the gauge is 0.02~0.03, and use a feeler to check the parallelism, the difference (a-b) between the two planes is ≤0.06 (see Fig. 5). Central line alignment means the aligned degree between the central lines of both pump and motor's shafts, c should be ≤0.08 (see Fig. 5)

10.Link the main pipelines

After grouting and securing the pump on the basis, align and link the flanges of both pump and pipeline without subject to an external force, i.e. the force from the flange bolt.

For the pipeline support (additional), it should be able to avoid the pipeline vibration and reduce the cleaning to the pipeline.

Cautions in the installation of the pipeline:

a.The pipeline used should be of a proper norm and length and a sufficient bearing capacity, reducing both bends and fittings of the pipeline as can as possible.

b.The suck-in pipeline of the pump should be short and straight, the diameter of it should be equal or more than that of the pump's suction inlet and the bent radius of the suck-in pipeline should be made as big as possible.

11.Link the additional equipments

11.1 Pressure gauge

The pressure gauges used on both suck-in and spitting pipelines must be good quality and certified performance. It is better for the spitting pressure gauge to be mounted at the distance 2 times of the diameter of the spitting flange of both pump and main pipeline while not by both elbow and valve so as to prevent the disturbance from unstable flowing.

11.2 Clutch

Recheck the alignment before linking the clutches of

电动机的转向是否符合要求，泵轴的转向：从联轴器方向看泵为顺时针方向旋转，如果电动机转向不符合泵轴的转向，必须把电动机转向调正。

11.3 轴封

如果需要，在泵转动以前，重新调整轴封或重新装配。

both pump and motor; check if the motor moves in the correct direction, and the pump shaft as well; viewing from the clutch, the pump moves clockwise and adjust it if the motor moves in a direction not in line with the pump's.

11.3 Shaft seal

Readjust or reassemble the shaft seal before the pump starts moving if necessary.

泵的运转 Running of the pump

1、操作注意事项

1.1 泵只能允许在规定的参数范围内运转；

1.2 泵不允许在吐出阀门关闭或关到很小开度下运转，否则导致泵发热，降低寿命，如果泵是安装在一个并联系统中，每台泵都要在特定的参数下运行以保证泵的流量；

1.3 泵不能关闭吸入阀运行，否则使泵发生干转，导致泵零件损坏；

1.4 泵输送介质不能含有空气或气体，否则会使泵的流量和扬程不可能准确地测出，同时会产生研磨损坏零件；

1.5 该型泵不能输送带颗粒的材料，否则会降低泵的效率和零件的寿命；

1.6 启泵以前应对泵进行开车前检查。

2、启泵前检查

2.1 启泵前，检查全部螺栓、管路及引线的联接是否紧固；

2.2 检查全部仪表、阀门及仪器是否正常；

2.3 检查油环位置、油位计的油是否正常；

2.4 检查电动机的转向是否正确。

2.5 启动前，应进行盘车，确保无磨卡现象。

3、泵的启动

3.1 泵启动时注意事项

a、该型泵输送介质温度较高(＜160℃)；

b、启动时观察压力表和开关的指示，以便调整；

c、泵启动后，不能使吐出阀关闭或接近关闭较长时间，否则会使泵内液体过热。

3.2 启泵步骤

a、首先进行启动前检查(按前述步骤)；

1.Cautions in operation

1.1 The pump is allowed to run within the set parameter range only.

1.2 The pump is not allowed to run with the spitting valve closed or closed to a little opening, or it will be caused heated and duration lowered. Each pump is required to run under the special parameters so as to guarantee the flow of it if mounted in a parallel system.

1.3 The pump can not run with the suck-in valve closed, or it may be dried moving to cause parts damaged.

1.4 The medium the pump transports can not contain air or gas, or both flow and head of the pump may not be accurately measured and, meanwhile, grinding may be produced to damage parts.

1.5 This pump is not allowed to transport any material with grains, or both pump efficacy and part duration may be lowered.

1.6 Check the pump before starting it.

2.Check before starting the pump

2.1 Before starting the pump, check if all the bolts, pipelines and the lead-wires are securely connected.

2.2 Check if all the meters, valves and instruments are normal.

2.3 Check if the oil ring's position and the oil in the oil leveler are normal.

2.4 Check if the motor moves in the correct direction.

2.5 Turn the pump before starting it to make sure it does not get stuck.

3.Start the pump

3.1Cautions therein

a.The temperature of the medium this pump transports is higher (＜160℃).

b.Look at the indications of both pressure gauge and switch during starting so as to adjust them.

c.After starting the pump, do not let the spitting valve closed or nearly closed for a longer time, or the liquid inside of the pump may become overheated.

3.2 Steps to start the pump

a.First do the before-starting check (as abovementioned).

b、打开泵的吸入阀和水封水管路的阀；

c、关闭吐出管路，使泵内充满液体；

d、起动电机，接着打开吐出管路的阀。

4、泵运转检查

泵运转后，应立即按2.2条的程序每隔一定时间检查仪表，以此确定泵的工作是否正常，而且要检查泵的转速，此外，监测泵的流量、扬程、温度及润滑状况。泵在发生故障时，应停泵，且参照故障排除表进行维修。

5、停泵

5.1 将泵的吐出阀关到最小流量，但决不允许关闭泵的吸入阀；

5.2 关闭电动机；

5.3 关闭泵的吐出阀；

5.4 当泵停稳后再关闭泵的吸入阀。

⚠ 警告：水泵禁止空运转！

b.Open the pump's suck-in valve and the water sealed water pipeline's valve.

c.Close the spitting pipeline to have inside of the pump full of liquid.

d.Start the motor and then open the valve on the spitting pipeline.

4.Check of the pump movement

After the pump starts moving, check the meters every certain time upon the procedure in 2.2 to see if it works normally and the rotating speed of it. In addition, check the flow, head, temperature and lubrication of it. In case of a failure, stop it and repair it by referring the table of troubleshooting.

5.Stop the pump

5.1Close the pump's spitting valve to the smallest flow, but do not close the pump's suck-in valve.

5.2Turn off the motor.

5.3Close the pump's spitting valve.

5.4Then close the sick-in valve when the pump stops stably.

⚠ **Warning: Idle running is forbidden!**

泵的维修 Repair of pump

⚠ 泵维护与维修前切断电源！

1、概述

为了保持泵高效稳定的工作状况，泵必须经常维修，维修的项目和每次维修间隔时间取决泵的工作条件和泵的运行状况。

2、泵的维护

定期检查泵的性能(如流量、扬程、振动等)而且做好记录，按这些记录数据去分析泵是否工作正常，是否需要维修，或确定要修的哪一个部位。

在一般条件下，如果坚持精确地测试、记录、定期的总结记录，那么每隔几个月就可以得到泵是否需要维修的可靠资料。

除在规定时间对泵监测之外，下面的维护是经常的：

a、检查泵底座、泵、电动机是否紧固，如果松动会引起泵的振动；

b、检查仪表、引线的状况；检查管路是否泄漏或松动，或其它形式的损坏，如果需要维修应立即检修；

c、填料压盖不能压的过紧，否则会影响填料的寿命；

d、轴承润滑油每工作1000小时更换一次。

⚠ **Turn off the power before maintenance!**

1.General

To keep the pump in a high effective and stable work, it must be often repaired, the items of repair and the interval between every repair depend on the working condition and running state of it.

2.Maintenance of pump

Hold a periodic check of the pump's performance (as the flow, head, vibration etc.) And make a record, then analyze the pump upon these recorded data to see if it works normally, needs repairing or decide which portion needs repairing.

In general conditions, reliable information whether the pump needs repairing can be gained every several months provided that insistent and accurate tests and records as well as periodic summarizing of the records have been made.

In addition to the monitor of the pump at the set time, the follo-wings need to be maintained often:

a.Check if the pump, foundation and motor are secured, causing the pump vibrated if loose.

b.Check the meters and leading-wires' state; check if the pipeline leaks or loosens or gets damaged in any other forms, repair it at once if necessary.

c.Do not let the packing gland pressed too tightly, or the duration of it may be affected.

d.Replace the lubricating oil on the bearings every 1000h of work.

故障原因及解决方法 Failures and troubleshooting of pump

故　障 Failure	原　因 Causes	解决方法 Troubleshooting
1、水泵不吸入，压力表及真空表的指针剧烈跳动 Pump not suck in, pointers of pressure gauge and vacuum meter severely jumping	注入水泵的水不够，进水管与仪表等处漏气 Water injected into the pump insufficient, air leaks from water inlet pipe, meters etc.	再往水泵内注水，拧紧堵塞漏气处 Inject water into pump, tighten the leaking places
2、水泵不吸水，真空表显示高度真空 Pump not suck water, high vacuum shown on vacuum meter	底阀没有打开或已淤塞，吸水管阻力太大，吸入高度太大 Foot valve not opened or blocked up, too big resistance with water sucking pipe, too high suck-in height	校正或更改底阀，清洗或更换吸水管，降低吸水高度 Correct or replace foot valve, clean or replace water sucking pipe, lower the height
3、看压力表水泵出口处是有压力而水泵不出水 Pressure available at pump outlet viewing from pressure gauge while no water out of pump	出水管阻力太大，旋转方向不对，叶轮淤塞，或损坏水泵，转数不够 Too big resistance with water outlet pipe, wrong rotating direction, impeller blocked up, or pump damaged, insufficient r.p.m.	检查或缩短水管及检查电机取下水管接头，清洗或更换叶轮提高转数 Check or shorten outlet pipe, check motor, remove the pipe union, clean or replace impeller, raise r.p.m.
4、流量不足 Insufficient flow	水泵淤塞，密封环磨擦过多，转数不足 Pump blocked up, too much friction with seal ring, insufficient r.p.m.	清洗水泵及管子更换密封环提高转数 Clean pump and pipe, replace seal ring, raise r.p.m.
5、水泵消耗的功率过大 Too big power the pump consumes	填料压盖压得过紧，填料室发热，叶轮磨损，水泵供水量增加 Too tightly pressed packing gland, packing room heated, impeller worn out, water supply quantity of the pump increases	拧松填料压盖或更换填料，更换叶轮，增加出水管阻力来减少流量 Loosen packing gland or replace packing, replace impeller, increase resistance with outlet pipe to reduce the flow
6、水泵内部声音反常，水泵不上水 Abnormal sound inside of pump, no water into pump	流量太大，吸水管内阻力太大，吸水高度过大，在吸水处有空气渗入，所输送液体温度过高 Too big flow, too big resistance inside of water sucking pipe, too high water-sucking height, air gets in the water-sucking place, too high temperature of the liquid being transported	增加出水管内的阻力以减低流量，检查吸水管和底阀，减少吸水高度，拧紧堵塞漏气处 Increase the resistance inside of water outlet pipe to reduce the flow, check water-sucking pipe and foot valve, lower the height, tighten the air leaking places
7、水泵振动 Pump vibrates	泵轴与电机轴线不在同一条中心线上，脏物或水浸入轴承 Axes of pump and motor not on one central line, dirt or water gets into the bearing	把水泵和电机的轴中心线对准，清洗轴承更换润滑脂 Align the two central lines, clean bearing, replace lubricating grease
8、轴承过热 Bearing overheated	润滑脂干固或脏了，水泵轴与电机轴不在同一条中心线上 Lubricating grease dried or dirty, axes of pump and motor not on one central line	检查或清洗轴承体更换润滑脂把轴中心对正 Check or clean bearing, replace lubricating grease, align the central lines
9、平衡水中断，平衡室发热，电机功率增加 Balancing water stops, balancing room heated, motor's power increased	水泵在大流量低扬程运转，平衡盘与平衡板产生研磨 Pump runs under a big flow and low head, grinding occurs between balancing disk and board	关小出口阀至设计工况运转，拆卸平衡盘进行检修 Close outlet valve to the designed working condition, remove balancing disk for rep-Airing

4、泵的拆卸

4.1 当拆卸泵时应注意下列事项：

a、按5条停泵程序停泵；

b、将泵壳内的液体放掉(如有冷却水套时也应放掉水)；

c、如果轴承部件是稀油润滑时应将润滑油放掉；

d、拆去防碍拆卸的附属管路，如平衡管、水封水管等管路相引线；

e、应用加热的方法拆卸联轴器(当需要拆卸电机联轴器时亦应如此)。

4.2 拆卸顺序

泵的拆卸步骤应从吐出侧的轴承部件开始，其顺序大体如下：

a、拧下吐出侧轴承压盖上的螺栓和吐出段、填料函体、轴承体三个之间的联接螺母，卸下轴承部件；

b、拧下轴上的圆螺母，依次卸下轴承内圈，轴承压盖和挡套后，卸下吐出段(包括填料压盖、填料环、填料等在内)；

c、依次卸下轴上的O型密封圈、轴套、平衡盘和键后，卸下吐出段(包括末级导叶、平衡板等在内)；

d、卸下末级叶轮和键后，卸下中段(包括导叶在内)，按同样方法继续卸下其余各级的叶轮、中段和导叶，直至卸下首级叶轮为止；

e、拧下吸入段和轴承体的联接螺母和拧下轴承压盖上的螺栓后，卸下轴承部件(在这之前应预先将泵联轴器卸下)；

f、将轴从吸入段中抽出，拧下轴上固定螺母，依次将轴承内圈、O型密封圈、轴套、挡套等卸下。

至此拆卸工作基本完成，但在上述拆卸过程中，还有部份零件互相是联接在一起的，一般情况下拧下联接螺母后即可卸下。

5、清洗和检查

5.1 用煤油清洗全部的零件，在空气中干燥或用布擦干；

5.2 检查全部零件的磨损情况，对不能确保正常运转的零件应更换新的；

5.3 检查轴是否有尘或生锈，用千分表检查轴的跳动度(轴的径向跳动值不大于8级精度)；

5.4 当密封间隙超过推荐值的最大值50%时，应更换密封元件。

4.Removal of pump

4.1 Cautions in the removal

a.Stop the pump upon the pump stopping procedure in 5.

b.Drain the liquid inside of the pump casing out (for the cooling water sleeve too if it is available).

c.Drain out the thinned oil if it is used for lubricating the bearings.

d.Remove the additional pipelines obstructing the removal, such as the balancing pipe, water sealed water pipe etc.

e.Remove the clutches by way of heating (for the motor's clutch too if necessary to remove it).

4.2 Sequence of removal

Start the pump removal from the bearing on the spitting side, the sequence comes as below:

a.Screw out the bolts on the bearing gland on the spitting side and the linking nuts between the spitting section, packing and bearing to remove the bearing.

b.Screw out the circular nut on the shaft, then in turn remove the inner ring of the bearing, gland and baffling sleeve, then the spitting section (including the packing gland, packing ring, packing etc.).

c.Remove the O-seal ring, muff, balancing disk and key on the shaft in turn, then the spitting section (including the guide vane on the last stage, balancing board etc.).

d.After removing the last-stage impeller and key, remove the middle section (including the guide vane), then the impeller, middle section, guide vane on the rest stages in the same way till the impeller on the first stage.

e.Screw out the linking nuts between the suck-in section and the bearing and the bolt on the bearing gland to remove the bearing (remove the pump clutch prior to this).

f.Draw out the shaft from the suck-in section, screw out the fixing nut on it, then remove the inner ring of the bearing, O-seal ring, muff, baffling sleeve etc. in turn).

The removal has then been finished generally. However some parts are still linked together during the removal and can be removed once the linking nuts are screwed out, in general.

5. Clean and check

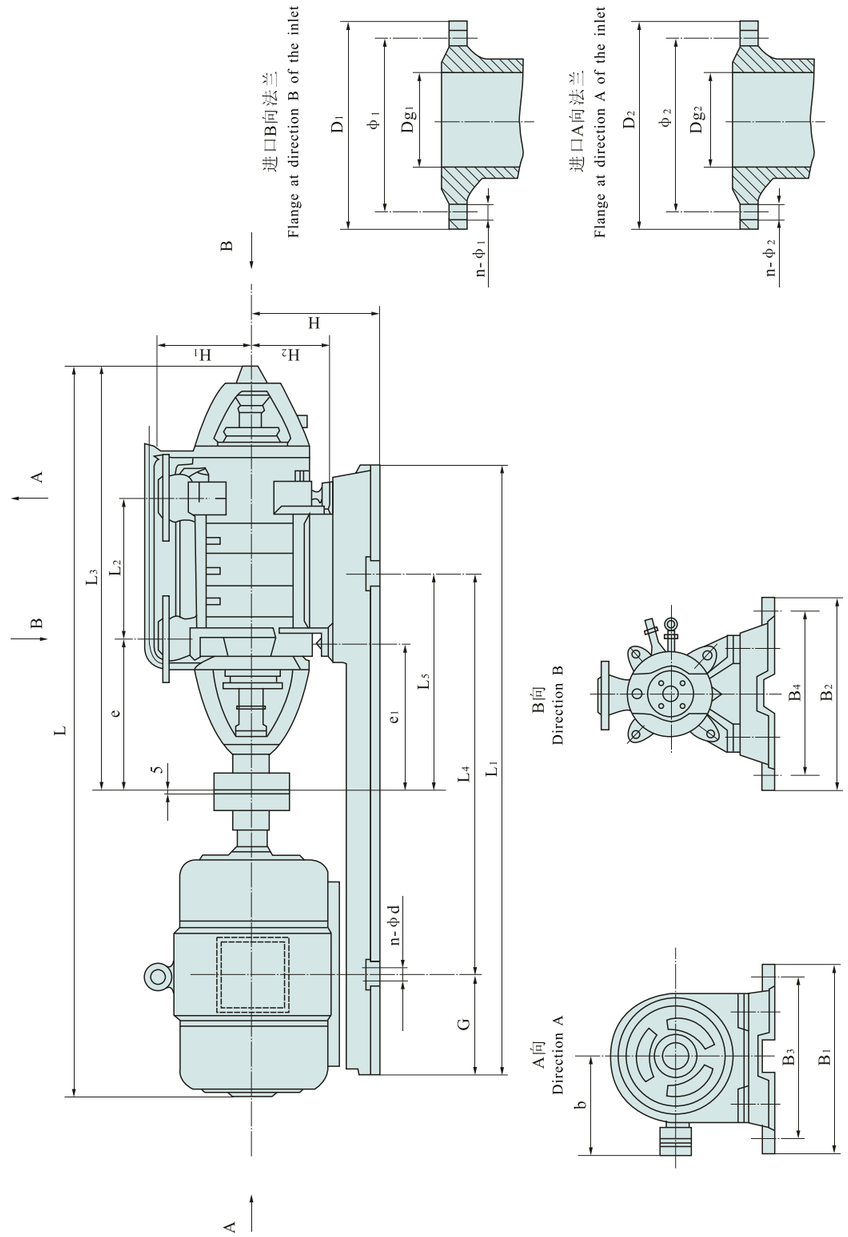
5.1 Clean all the parts with coal oil and let them dried in the air or with a cloth.

5.2 Check the worn-out conditions on the all parts and replace those unable to make sure of normal work.

5.3 Check if there is dust or rust on the shaft and use a dial gauge to check the non-straightness of it (the radial jumping valve of it not more than the 8-class accuracy).

5.4 Replace the sealing element when the sealing interval is over the maximum value of the recommended one by 50%.

泵的外形和安装尺寸 Out–form and installation dimensions of pump



DG型中低压、次高压锅炉给水泵尺寸表 The dimension of model dg model middle and low pressure, hypo-high-pressure boiler water supply pump

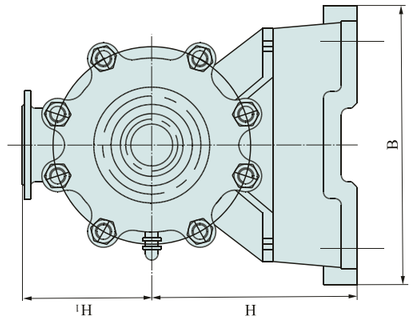
型号 Model	级数 No.of stage	泵的安装尺寸 Installation dimension of pump(mm)																														
		L	L1	L2	L3	L4	L5	e	e1	B1	B2	B3	B4	b	H	H1	H2	G	n-d	进口法兰 Flange at inlet Dg1	Φ1	D1	n-Φ1	出口法兰 Flange at outlet Dg2	Φ2	D2	n-Φ2
DG6-25	3	1198	885	180	718	600	358	261	266	440	440	390	390	210	230	170	150	148.5	4-Φ25	40	100	130	4-Φ13.5	40	110	150	4-Φ17.5
	4	1248	985	230	768	650	408											176									
	5	1298		280	818																						
	6	1350	1206	330	868	785	459											195									
	7	1400		380	918																						
	8	1573	1306	430	968	835	509			485	485	435	435	255	240												
	9	1623		480	1018																						
	10	1673	1500	530	1068	935	584																				
	11	1723		580	1118																						
	12	1773		630	1168																						
DG12-25	3	1192	965	180	695	645	355	275	275	420	420	370	370	210	250	170	150	130	4-Φ24	50	110	140	4-Φ13.5	40	110	150	4-Φ17.5
	4	1378	1120	230	745	745	403			490	410	440	360		255			170									
	5	1428		280	795																						
	6	1478	1215	330	845	820	458			480	410	430	360	235													
	7	1528		380	895																						
	8	1623	1430	430	945	920	501			530	460	480	410	270													
	9	1673		480	995																						
	10	1743	1490	530	1045	975	520			530	415	470	365	285	280												
	11	1793		580	1095																						
	12	1952	1640	630	1145	965	578			550	400	500	350	310	350												
DG25-30	3	1450	1110	230	845	760	432	330	315	530	530	460	460	255	250	210	170	165	4-Φ30	65	130	160	4-Φ17.5	65	145	185	8-Φ17.5
	4	1560	1219	295	910	850	478											180									
	5	1650	1297	360	975	880	510							285	260												
	6	1825	1432	425	1040	970	553			575	530	505	460	310	280			200									
	7	1890	1497	490	1105	1000	583																				
	8	1955	1562	555	1170	1030	613																				
	9	2020	1627	620	1235	1080	663																				
	10	2120	1728	685	1300	1120	680			610	545	345	305														
DG46-30	3	1520	1167	230	845	845	487	330	315	530	530	460	460	285	260	210	170	192	4-Φ30	80	150	190	4-Φ18	65	145	185	8-Φ18
	4	1690	1312	295	910	850	443											210									
	5	1755	1367	360	975	910	503			575	530	505	460	315	280												
	6	1820	1432	425	1040	935	528											220									
	7	1925	1532	490	1105	1010	580			615	545	345	305														
	8	2105	1694	555	1170	1110	600			664	594	385	330					235									
	9	2170	1759	620	1235	1140	630																				
	10	2305	1897	685	1300	1245	679			720	650	410	360					250									

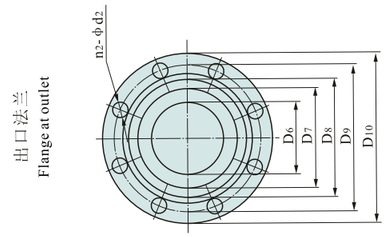
DG型中低压、次高压锅炉给水泵尺寸表 The dimension of model dg model middle and low pressure, hypo-high-pressure boiler water supply pump

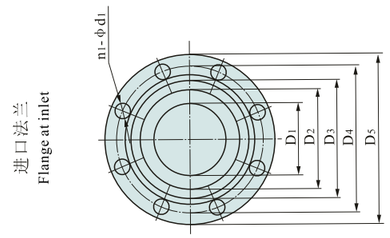
型号 Model	级数 No.of stage	泵的安装尺寸 Installation dimension of pump(mm)																										
		L	L_1	L_2	L_3	L_4	L_5	e	e_1	B_1	B_2	B_3	B_4	b	H	H_1	H_2	G	n-d	进口法兰 Flange at inlet Dg_1	ϕ_1	D_1	n-ϕ_1	出口法兰 Flange at outlet Dg2	ϕ_2	D_2	n-ϕ_2
DG12-50	3	1517	1230	248	852	845	319	315			490				250	230	200	250	4-φ27	50	135	175	4-φ23	50	135	175	4-φ23
	4	1597	1310	301	905	880												247									
	5	1762		354	958	990					545				280			190									
	6	1822	1650	407	1011													350									
	7	1882		460	1064																						
	8	1982	1750	513	1117	1305				610			490		310	230	200	188	4-φ24	65	160	205	8-φ23	65	160	205	8-φ23
	9	2042		566	1170													219									
	10	2204	1870	619	1223	1200												229									
	11	2264		672	1276						670				350			263	6-φ24								
	12	2407	2000	725	1329	1300												302									
DG25-50	3	1615	1228	245	936	830	506	351	318.5	550	550	480	480	285	360	270	210	307									
	4	1780	1426	305	996	935	509							315	390			307									
	5	1840		365	1056													328									
	6	1940	1517	425	1116	985	547			620	600	550	345	410				328									
	7	2115	1679	485	1176	1100	581			670			385	420				227	4-φ24	80	170	215	8-φ22	80	170	215	8-φ22
	8	2245	1811	545	1236	1180	620			720	650	650	410	450				197									
	9	2305	1931	605	1296	1280	625											210									
	10	2365		665	1356													307									
	11	2475	2102	725	1416	1420	646				670	750	500	515				358	6-φ24								
	12	2535		785	1476													355.5									
DG46-50	3	1720	1317	245	937	875	475.5	351	318	570	570	500	315	360	420	270	210	371.5									
	4	1820	1415	305	997	925	460.5			620		550	345					198	4-φ25	100	190	235	8-φ22	100	190	235	8-φ22
	5	1995	1571	365	1057	1020	535.5			670		600	385					280	6-φ25								
	6	2125	1758	425	1117	1130	615.5			720	650	650	410	420				315									
	7	2185		485	1177																						
	8	2295	1869	545	1237	1180	665.5																				
	9	2575	2046	605	1297	1330	770.5			820	570	750	500	576	515												
	10	2665		665	1357																						
	11	2765	2222	725	1427	1480	880.5																				
	12	2825		785	1477																						
DG85-45	3	1945	1468	277	1010	1040	473	344	327	675	580	615	385	365	395	250	210										
	4	2089	1615	351	1084	1060	505			730		670	410														
	5	2213	1740	425	1158	1120	549																				
	6	2507	683	499	1232	303	430			580	520	576	345														
	7	2651	757	573	1306	377																					
	8	2725	831	647	1380	415																					
	9	2799	905	721	1454	525																					
DG155-30	2	2137	1550	315	1202	1060	572.5	460	435	650	650	580	385	430	350	280											
	3	2322	1895	430	1317	1260	760.5			710	710	640	580	410													
	4	2487		545	1432		815																				

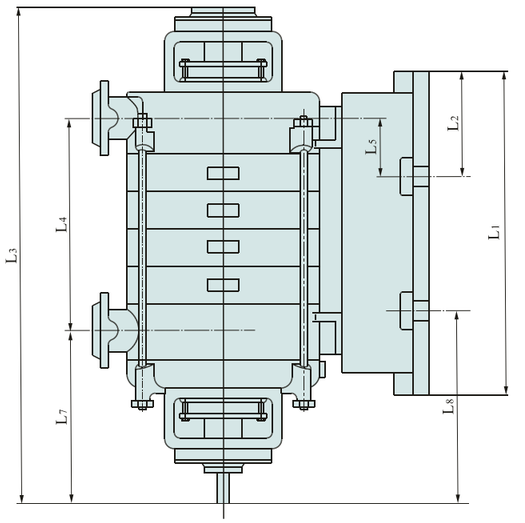
注：DG85-45的2~5级为共同底座，6~9级为单独底座。

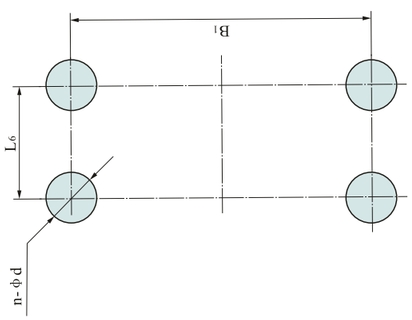
DG85-67、DG155-67、DG280-43型泵的外形及安装尺寸图 Figure of the out-form and installation dimensions of model DG85-67, DG155-67, DG280-43 pumps







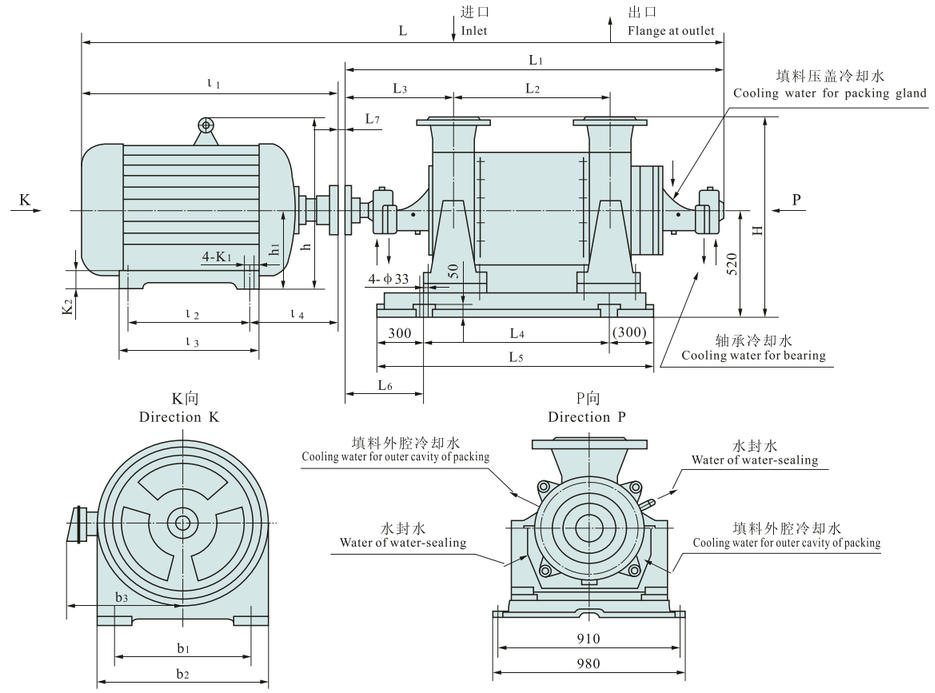




DG85-67、DG155-67、DG280-43型泵的外形及安装尺寸表 Table of the out-form and installation dimensions of model DG85-67, DG155-67, DG280-43 pumps

泵型号 Model of pump	级数 No. of stage	配套电机 Corollary motor 型号 Model	功率 Power (kW)	电压 Voltage (V)	n_2-ϕd_2	n_1-ϕd_1	n-ϕd	D_{10}	D_9	D_8	D_7	D_6	D_5	D_4	D_3	D_2	D_1	H_1	H	B_1	B	L_8	L_7	L_6	L_5	L_4	L_3	L_2	L_1
DG85-67	3	Y280M-2	90	380	8-φ24	8-φ24	4-φ30	250	200	168	149	100	250	200	168	149	100	350	420	600	670	541	557	400	13	371	1409	182	765
	4	Y315S-2	110	380														350	420	600	670	585	557	400	31	459	1497	182	765
	5	Y315M-2	132	380														350	420	600	670	629	557	400	75	547	1585	182	765
	6	Y315L1-2	160	380														350	420	600	670	585	557	580	27	635	1673	182	945
	7	Y315L2-2	200	380														350	420	600	670	629	557	580	71	723	1761	182	945
	8	Y3551-2	220	6000														350	420	600	670	581	557	760	27	811	1849	182	1125
	9	Y3552-2	250	6000														350	420	600	670	625	557	760	71	899	1937	182	1125
DG155-30	5	Y315S-4	110	380	8-φ26	8-φ22	4-φ30	300	250	211	203	150	300	250	211	203	150	350	430	600	670	524	435	680	-50	660	1547	175	1030
	6	Y315M-4	132	380														350	430	600	670	524	435	680	7.5	775	1662	175	1030
	7	Y315L1-4	160	380														350	430	600	670	524	435	680	65	890	1777	175	1030
	8	Y315L1-4	160	380														350	430	600	670	524	435	1025	-50	1005	1892	175	1375
	9	Y315L2-4	200	380														350	430	600	670	524	435	1025	7.5	1120	2007	175	1375
	10	Y315L2-4	200	380														350	430	600	670	524	435	1025	65	1235	2122	175	1375
DG155-67	3	Y315M-2	132	380	8-φ33	8-φ33	4-φ30	345	280	242	203	150	345	280	242	203	150	350	420	600	670	541	557	400	13	371	1407	182	765
	4	Y315L2-2	200	380														350	420	600	670	585	557	400	31	459	1495	182	765
	5	Y3551-2	220	6000														350	420	600	670	629	557	400	75	547	1583	182	765
	6	Y3553-2	280	6000														350	420	600	670	585	557	580	27	635	1671	182	945
	7	Y3555-2	355	6000														350	420	600	670	629	557	580	71	723	1759	182	945
	8	Y3555-2	355	6000														350	420	600	670	581	557	760	27	811	1847	182	1125
	9	Y4001-2	450	6000														350	420	600	670	625	557	760	71	899	1935	182	1125
DG280-43	3	Y315L1-4	160	380	12-φ30	12-φ23	4-φ30	375	320	282	259	200	341	295	-	265	200	400	450	740	810	618.5	491	300	62.5	509	1459	152.5	605
	4	Y315L2-4	200	380														400	450	740	810	583.5	491	500	27.5	639	1589	182.5	865
	5	Y35541-4	250	6000														400	450	740	810	648.5	491	500	92.5	769	1719	182.5	865
	6	Y3556-4	315	6000														400	450	740	810	608.5	491	710	52.5	899	1849	207.5	1125
	7	Y4001-4	355	6000														400	450	740	810	673.5	491	710	117.5	1029	1979	207.5	1125
	8	Y4002-4	400	6000														400	450	740	810	618.5	491	950	62.5	1159	2109	217.5	1385
	9	Y4003-4	450	6000														400	450	740	810	683.5	491	950	127.5	1289	2239	217.5	1385

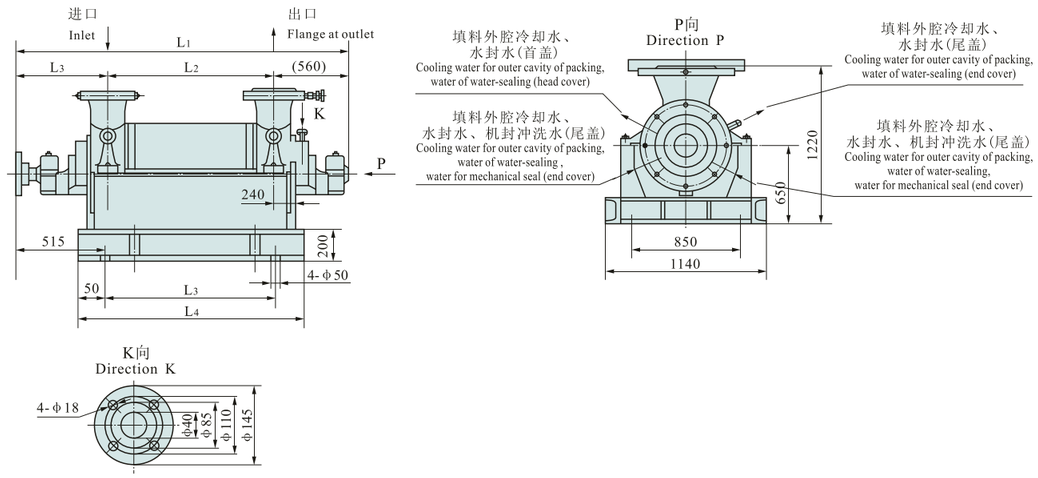
DG25–80、DG45–80型泵外形安装尺寸图 DG25–80、DG45–80 pump installation dimensions



DG25–80、DG45–80安装尺寸表 DG25–80、DG45–80 pump installation dimensions table

泵型号 Model	总长 Total L	泵部分 Pump part								电机部分 Motor part									
		L_1	L_2	L_3	L_4	L_5	L_6	L_7	H	l_1	l_2	l_3	l_4	b_1	b_2	b_3	h	h_1	K_1	K_2
DG25-80x5	2378	1388	449	447	432	1032	643	5	880	985	368	535	330	457	550	410	680	280	24	38
DG25-80x6	2507	1467	528	447	432	1032	643	5	880	1035	419	586	330	457	550	410	680	280	24	38
DG25-80x7	2736	1546	607	447	432	1032	643	5	880	1185	406	610	356	508	635	530	845	315	28	45
DG25-80x8	2925	1625	686	447	595	1195	643	5	880	1295	457	660	356	508	635	530	845	315	28	45
DG25-80x9	3004	1704	765	447	595	1195	643	5	880	1295	457	660	356	508	635	530	845	315	28	45
DG25-80x10	3083	1783	844	447	827	1427	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG25-80x11	3162	1862	923	447	827	1427	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG25-80x12	3241	1941	1002	447	827	1427	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x7	2846	1505	615	439	432	1032	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x8	2925	1574	694	439	595	1195	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x9	3004	1663	773	439	595	1195	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x10	3288	1742	852	439	827	1427	643	5	880	1500	560	750	394	610	730	655	1010	355	28	52
DG45-80x11	3367	1821	931	439	827	1427	643	5	880	1500	630	750	394	610	730	655	1010	355	28	52
DG45-80x12	3446	1900	1010	439	827	1427	643	5	880	1500	630	750	394	610	730	655	1010	355	28	52

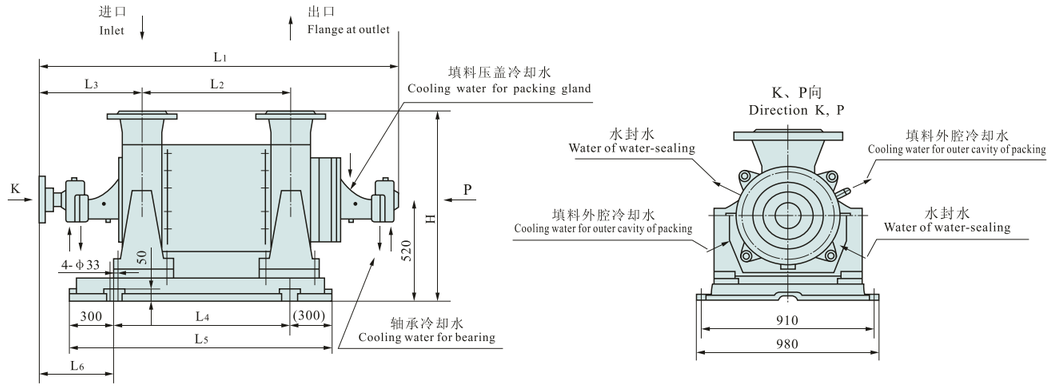
DG150-100、DG280-100型泵外形安装尺寸图 DG150-100、DG280-100 Installation dimensions



DG150-100、DG280-100型泵安装尺寸表 DG150-100、DG280-100 installation dimensions table

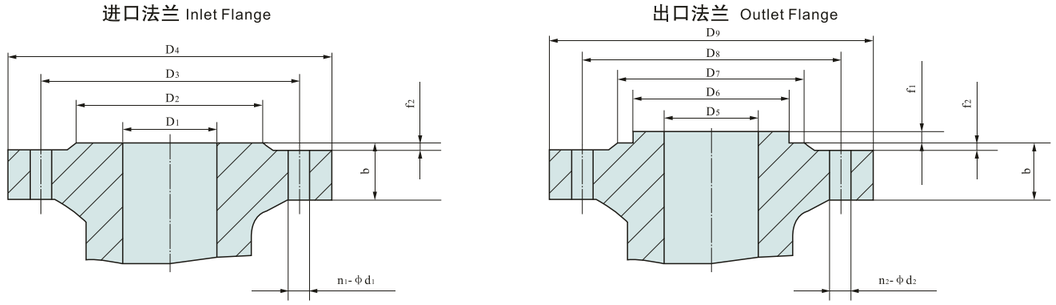
泵型号 Model	L1	L2	L3	L4	L5	L6	H1	H2	B1	B2
DG150-100x6	2052	795	642	1085	1185	507	650	1220	850	1140
DG150-100x7	2157	900		1190	1290					
DG150-100x8	2262	1005		1295	1395					
DG150-100x9	2367	1110		1400	1500					
DG150-100x10	2472	1215		1505	1605					
DG280-100x4	1861	600	663	930	1030	498	585	1085	870	1130
DG280-100x5	1981	720		1050	1150					
DG280-100x6	2101	840		1170	1270					
DG280-100x7	2221	960		1290	1390					
DG280-100x8	2341	1080		1410	1510					
DG280-100x9	2461	1200		1530	1630					
DG280-100x10	2581	1320		1650	1750					

DG85-80型泵外形安装尺寸图 DG85-80 installation dimensions



DG85-80型泵外形安装尺寸表 DG85-80 installation dimensions table

泵型号 Model	L1	L2	L3	L4	L5	L6	H1	H2	B1	B2
DG85-80x7	1700	630	543	432	1032	643	520	880	910	980
DG85-80x8	1780	710		595	1195					
DG85-80x9	1860	790								
DG85-80x10	1940	870		827	1427					
DG85-80x11	2020	950								
DG85-80x12	2100	1030								



进、出口法兰尺寸图
Figure of the inlet and outlet flange dimensions

法兰尺寸表 Flange dimensions table

泵型号	进口法兰 Inlet Flange							出口法兰 Outlet Flange								
	D1	D2	D3	D4	f2	b	n1-φd1	D5	D6	D7	D8	D9	f1	f2	b	n2-φd2
DG25-80	65	118	145	185	3	20	4-φ18	65	110	138	170	220	4	3	32	8-φ25
DG45-80	80	135	160	195	3	22	8-φ18	65	109	138	170	220	4	3	32	8-φ25
DG85-80	100	155	180	220	3	22	8-φ18	100	149	172	210	265	4	3	38	8-φ30
DG150-100	200	278	310	360	3	36	12-φ25	150	203	250	290	350	4.5	4.5	50.5	12-φ34
DG280-100	200	278	310	360	3	36	12-φ26	150	203	250	290	355	4.5	3	50	12-φ33

DG 型高压锅炉给水泵
DG TYPE HIGH-PRESSURE BOILER WATER FEED PUMP

用 途 Application

DG型高压锅炉给水泵可作为高压锅炉给水或作为其它高压清水泵用。

DG型高压锅炉给水泵使用温度可达170℃。

流量范围：120-1100m³/h

总扬程范围：967-2500m

Type DG high pressure boiler feed pumps are used for feeding high pressure boiler or pumping high pressure clean water.

The temperature of pumped media is not more than 170°C.

Range of capacity:120-1100m³/h

range of total head:967 to 2500m

型号意义 Model meaning

1 DG - 12

- 12 泵级数 — Pump stage
- DG 多级锅炉给水泵 — Multi-stage boiler pump
- 1 泵设计序号 — Pump design No.

DG 450 - 180

- 180 设计点名义扬程除以10 — Design point nominal head divide 10
- 450 设计点名义流量 — Design point nominal capacity
- DG 多级锅炉给水泵 — Multi-stage boiler pump

结 构 Construction

1、DG型高压锅炉给水泵是单壳体节段式多级离心泵，吸入口及吐出口均为垂直向上，用穿杆把中段、吸入及吐出段联接成一体，各段之间的静止密封面靠金属面密封，同时有O型圈为辅助密封。

2、DG型泵的轴封采用软填料密封，用冷却水冷却。可根据用户要求采用机械密封。

3、泵转子由泵两端的滑动轴承来支承，轴承采用强制润滑，泵本身配带油系统。转子的轴向推力用平衡盘平衡，且带有止推轴承。用于承受由于工况变化而产生的残馀轴向力。在平衡室体和吸入管之间装有回水管。

1.The pumps are cectional casing,multi-stage centrifugal pumps. The suction casing, stage casing and discharge casings are figidly held together by tie bolts. The joints between these casings are primarily sealed by means of metal-metal contact. Simultaneously,O-rings are used as auxiliary seals.

2.The shafts of these pumps are sealed by soft-packing and cooling water. Mechanical seal can be used according to the client's requirement.

3.The rotating assembly is supported by sliding bearings on both ends of the pump shaft. Bearings of pump are forced-lubricated. The oil system is equiped for type DG pump. The axial thrust of rotor osis balanced by balance disc. And the thrust bearing is also provided which is rsed to bear resi-dral axial force caused by the change of working conditions.

传 动 Drive

泵通过弹性联轴器由电动机驱动，也可以根据用户需要配带齿型联轴器，膜片联轴器，液力偶合器。原动机可采用小汽轮机或电动机驱动。

从传动方向看，泵为顺时针方向旋转。

The pump is dirven by the motor through the coupling. The gear, menbrane coupling and hydraulic coupling can be used according to client's requirements. The pump can be driven by turbine or motor.

The rotating direction of pumps are clockwise when viewed from the driving end.

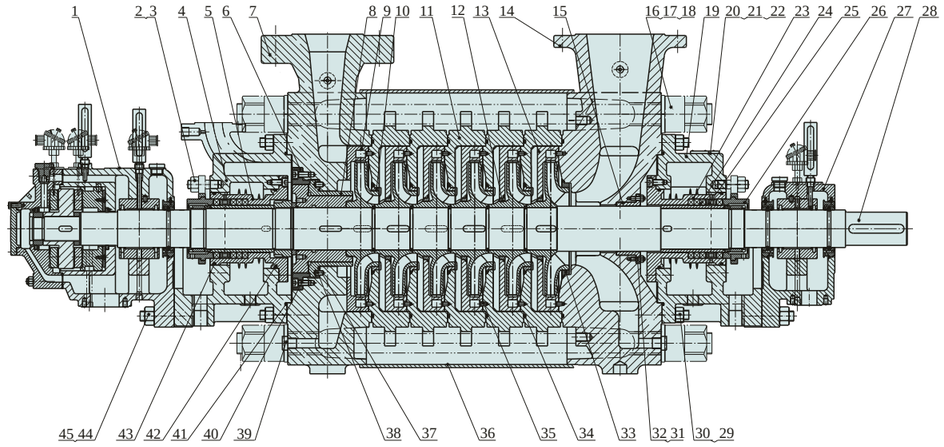
材 料 Material

吸入段、吐出段、导叶、叶轮：碳钢或铬钢。

轴、密封环、导叶套：铬钒钢或铬钢。

Suction casing,discharge casing, diffuser, and impeller: carbon steel or chrome steel shaft,wear ring and diffuser bush: chromic alum steel or chrome steel.

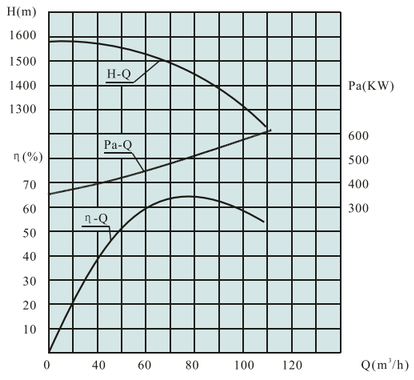
DG型高压锅炉给水泵结构图 Standard construction of type DG pumps



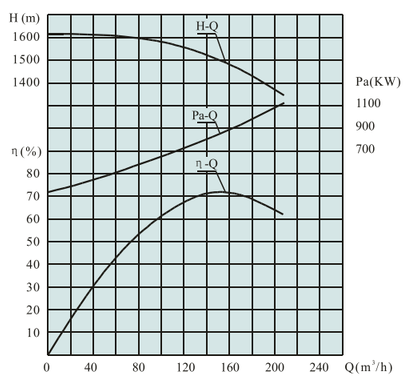
1	后轴承部件 Rear bearing part	13	导叶 Guide vane	25	填料环 Packing ring	37	O型密封圈 O-seal ring
2	螺柱 Stud	14	吸入段 Suck-in section	26	填料压盖部件 Packing gland part	38	销 Pin
3	螺母 Nut	15	进水段衬套 Bush of water inlet section	27	前轴承部件 First bearing part	39	丝堵 Wire-jam
4	尾盖 Tail cover	16	穿杠 Through handspike	28	转子部件 Rotor part	40	螺钉 Screw
5	尾盖衬套 Bush of tail cover	17	螺母 Nut	29	螺柱 Stud	41	O型密封圈 O-seal ring
6	平衡套压环 Press-ring of balancing sleeve	18	垫圈 Washer	30	螺母 Nut	42	O型密封圈 O-seal ring
7	吐出段 Spitting section	19	首盖 Head cover	31	螺柱 Stud	43	O型密封圈 O-seal ring
8	平衡套 Balancing sleeve	20	标牌 Label	32	螺母 Nut	44	螺柱 Stud
9	末段导叶 End-section guide vane	21	转向牌 Rotating direction plate	33	吸入段密封环 Suck-in section seal-ring	45	螺母 Nut
10	中段密封环 Mid-section seal-ring	22	铆钉 Rivet	34	O型密封圈 O-seal ring		
11	中段 Mid-section	23	首盖衬套 Bush of head cover	35	螺钉 Screw		
12	导叶套 Guide vane sleeve	24	填料 Packing	36	泵罩部件 Pump cover part		

性能曲线图 Performance curve figures

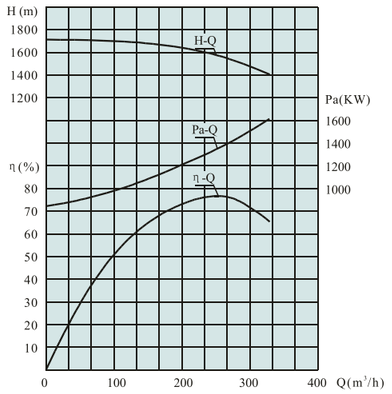
DG80-120×12



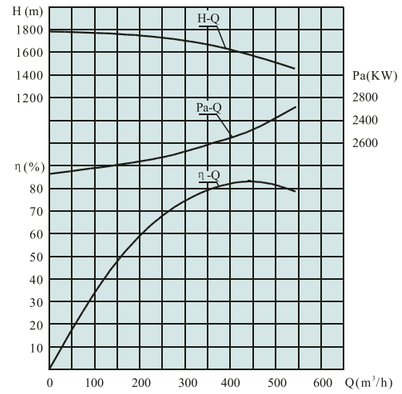
1DG-12



2DG-10

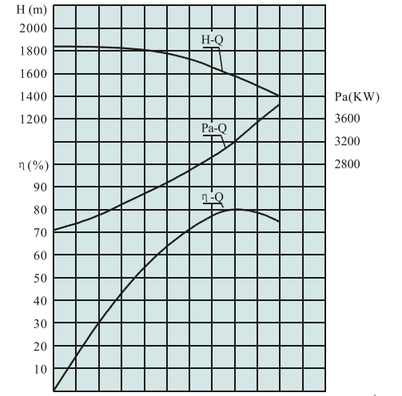


3DG-10

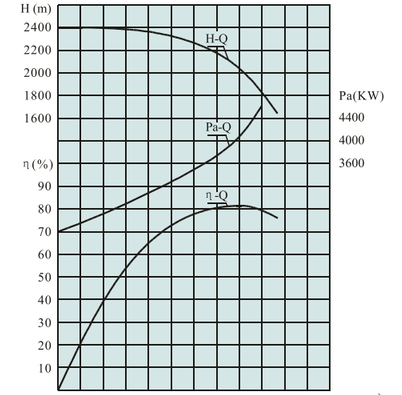


性能曲线图 Performance curve figures

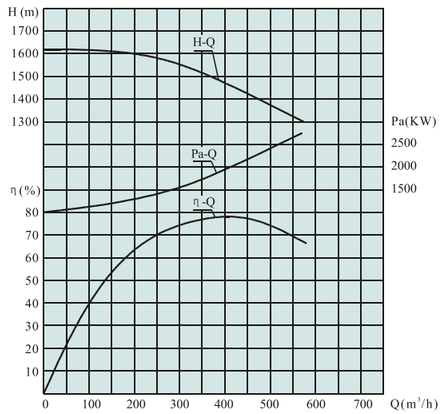
4DG-8C



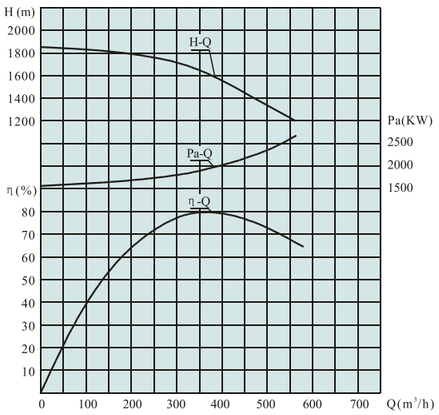
5DG-10



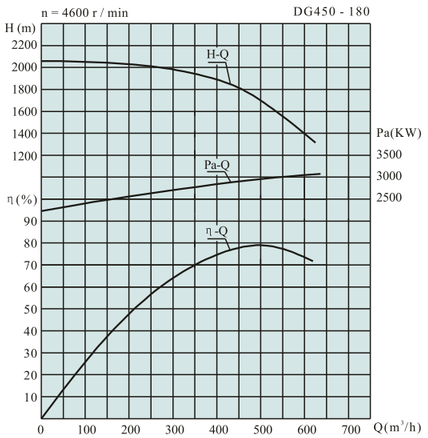
DG270-140B

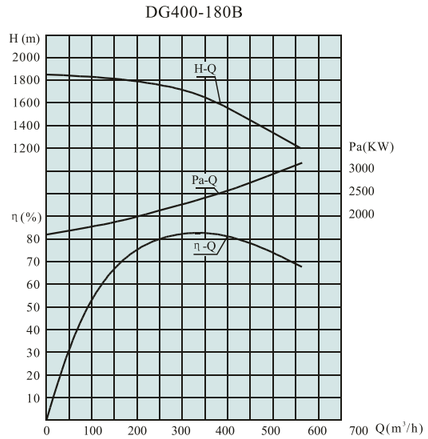


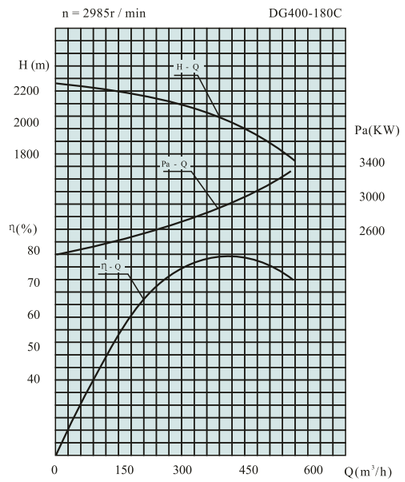
DG270-140C

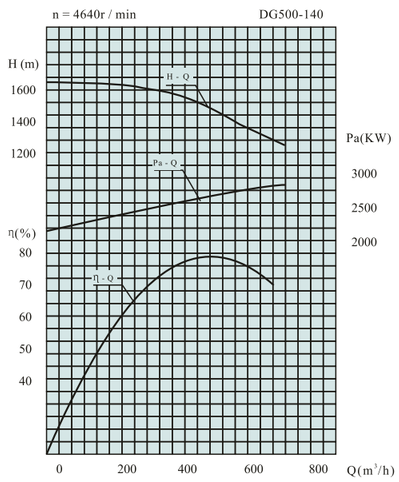


性能曲线图 Performance curve figures

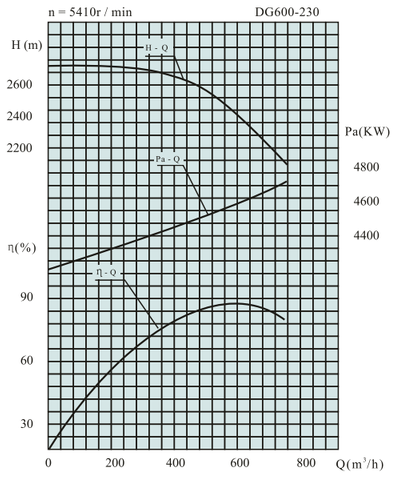


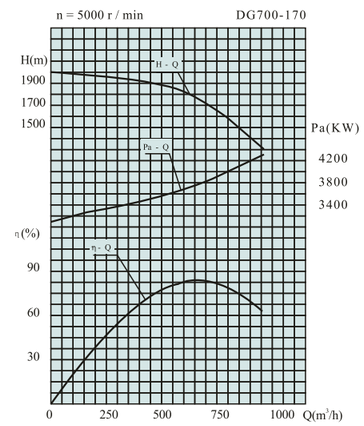


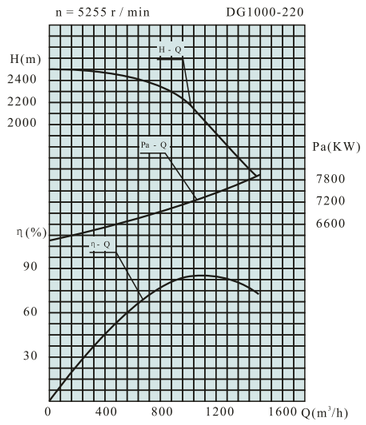




性能曲线图 Performance curve figures







DG型高压锅炉给水泵性能参数 DG type high pressure boiler feed pumps performance

泵型号 Type	流量 Q (m^3/h)	扬程 H (m)	转速 n (r/min)	轴功率 Pa (kW)	效率 η (%)	必需汽蚀余量 (NPSH)r (m)	配套功率 N (kW)
DG80-120×9	56 80 96	1143 1080 1017	2980	329 380 397	53 62 67	3.8	500
DG80-120×10	56 80 96	1270 1200 1130	2980	365 422 441	53 62 67	3.8	560
DG80-120×11	56 80 96	1397 1320 1243	2980	402 464 485	53 62 67	3.8	560
DG80-120×12	56 80 96	1524 1440 1356	2980	438 506.4 529.2	53 62 67	3.8	630
1DG-8	120 140 170	1040 1027 967	2980	500 544 631	68 75 71	4.5	710
1DG-9	120 140 170	1170 1155 1088	2980	563 612 710	68 72 71	4.5	800
1DG-10	120 140 170	1300 1283 1208	2980	625 680 788	68 72 71	4.5	800
1DG-11	120 140 170	1430 1412 1330	2980	688 748 867	68 72 71	4.5	1000
1DG-12	120 140 170	1560 1540 1450	2980	750 816 946	68 72 71	4.5	1000
2DG-8	200 270 280	1344 1213 1184	2980	990 1189 1221	74 75 74	5	1400
2DG-9	200 270 280	1512 1363 1330	2980	1114 1337 1371	74 75 74	5	1600
2DG-10	200 270 280	1680 1515 1480	2980	1237 1486 1524	74 75 74	5	1600

泵型号 Type	流量 Q (m^3/h)	扬程 H (m)	转速 n (r/min)	轴功率 Pa (kW)	效率 η (%)	必需汽蚀余量 (NPSH)r (m)	配套功率 N (kW)
3DG-10	360 440 496	1660 1560 1470	2985	2033 2270 2453	80.1 82.4 81	8	2500
4DG-8C	500 550 600	1670 1630 1580	2985	2953 3090 3227	77 79 80	10	3400
5DG-10	500 572 620	2210 2150 2100	2987	3764 4087 4327	80 82 82	10	4800
DG270-140B	270 320 440	1570 1500 1422	2985	1560 1721 2186	74 76 78	5	2300
DG270-140C	270 320 440	1750 1610 1460	2985	1705 1999 2244	75.5 79 78	5	2300
DG400-180B	245 385 415	1940 1910 1800	4640	2279 2444 2513	80 82 81	12	3200
DG400-180C	400 450 500	1975 1900 1815	2985	2778 2949 3131	77 79 79	12	4000
DG450-180	400 450 500	1920 1825 1700	4640	2790 2869 2932	75 78 79	23.5	3200
DG500-140	450 504 550	1540 1470 1400	4640	2518 2588 2656	75 78 79	23.5	3200
DG600-230	540 597 650	2500 2381 2260	5410	4486 4557 4655	82 85 86	23.5	4800
DG700-170	600 671 740	1810 1730 1640	5000	3699 3811 3937	80 83 84	23.5	4500
DG1000-220	900 1014 1100	2320 2213 2100	5255	6939 7194 7319	82 85 86	23.5	8000

注：1、以上性能参数表为水温20℃时试验换算所得。
2、水泵不允许在最小流量小于额定流量30%的情况下运行。
3、其它级数性能按比例换算。

Note: 1. The above performance parameter table is made by converting the test with the water temperature at 20℃.
2. It is not allowed for the pump to run when the minimum flow is less than the rated one by 30%.
3. The performance of other stages shall be calculated per proportion.

成套供应范围 Range of completed supply

气动给水泵组的成套供应范围包括：
■其入口滤前置泵(根据具体要求)及给水泵
■前置泵驱动电动机，电动机与前置泵共用底座
■给水泵出口逆止阀
■最小流量装置，包括再循环阀、截止阀以及流量测量装置
■联轴器及其它附件
■稀油站

电动给水泵组的成套供应范围包括：
■给水泵、前置泵及其入口滤网
■电动机
■液力偶合器及工作油、润滑油冷油器
■给水泵出口逆止阀
■最小流量装置，包括再循环阀、截止阀以及流量测量装置
■联轴器及其它附件
■稀油站

其中电动机、再循环阀、液力偶合器、稀油站、逆止阀、前置泵、截止阀、及流量测量装置等配套设备也可由客户自行采购，我公司负责技术协调。

The completed supply of steam-powered water supply pump group includes:
☐ Its inlet filtering pre-pump(upon the real requirement) and water supply pump
☐ Actuating motor for the pre-pump,motor and prepump mutually used foundation
☐ Check valve at the outlet of the water supply pump
☐ Minimum flow device: includes recycling valve, stop valve and flow measurer
☐ Clutch and other accessories
☐ Oil thinnig station

The completed supply of electric water supply pump group includes:
☐ Water supply pump, pre-pump and its inlet filtering screen
☐ Motor
☐ Hydraulic coupler and oil cooler for both working and lubricating oils
☐ Check valve at the outlet of the water supply pump
☐ Minimum flow device: includes recycling valve, stop valve and flow measurer
☐ Clutch and other accessories
☐ Oil thinnig station

Of which the motor, recycling valve, hydraulic coupler, oil thinning station, check valve,pre-pump, stop valve and flow measurer can also be purchased by clients and this Co.will be in charge of technical coordination.

订货须知 Notice at order

客户订购我公司产品，需提供以下参数：
给水泵出口、抽头(增压级)流量
给水泵出口、前置泵入口压力(或泵组扬程)
给水温度
泵组形式(气动泵或电动泵)
安装尺寸订货时根据合同要求提供

Please provide the following parameters when to order the product of this Co.:
Flows at the outlet of the water supply pump and the tap (boosting class)
Pressures(or the pump group's head) at the outlet of the water supply pump and the inlet of the pre-pump
Water supply temperature
Pump group's type(steam-powered or electric pump)
The installation dimensions are to be provide at order upon the contract requirement