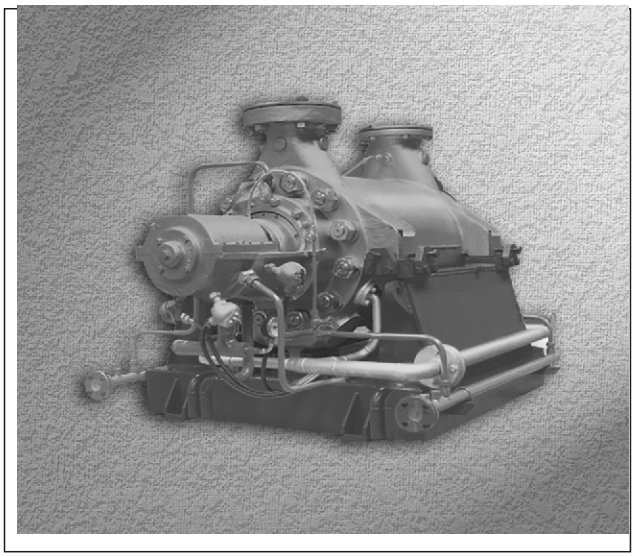
D G 系 列 锅 炉 给 水 泵

DG Series Boiler Water Supply Pump

使用说明书 operation instruction



安装、使用产品前，请仔细阅读使用说明书

Please carefully read the operation instructions before use of the product.

湖南中大节能泵业有限公司

Hunan Zhongda Energy saving Pump Industry Co., Ltd

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：3.75～185m^3/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：15～300m^3/h　　配套功率：75～1250kW

扬程：390～1050m　　进口直径：65～200mm

执行标准：GB/T 5657 离心泵 技术条件(III类)

JB/T 8059 高压锅炉给水泵 技术条件

GB3216 回转动力泵 水力性能验收试验

Ⅰ级和Ⅱ级，产品生产许可证编号：XK06-216-01823

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: 3.75~185m^3/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: 15~300m^3/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(m^3/h)	Flow (m^3/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，轴封一定要接水封水。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。冷却水和水封水均为常温清水。冷却水水压为1.5~3 Kg/cm^2，水封水压力要高于密封腔压力0.5~1Kg/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工业水，压力为2~3kg/cm^2。机械密封的冲洗水为软化水，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.

The shaft seal should perform to hold water and seal water.

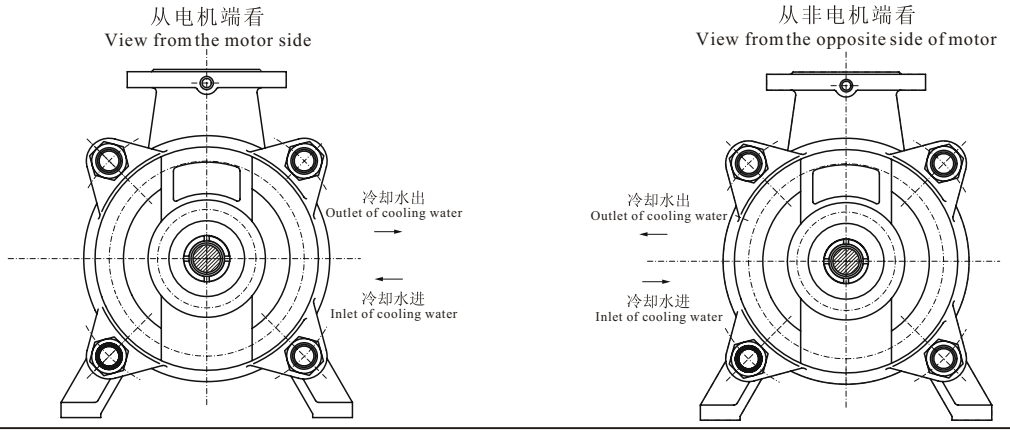
When temperature of the liquid transferred is above 80℃, cooled water should be filled to the water cooling packing gland and shaft seal cooling chamber. Cooled water and seal water should be clean water in normal degree. The pressure of cooled water should be 1.5~3Kg/cm^2, pressure of seal water should be more than 0.5~1 Kg/cm^2 of the seal chamber. 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 industrial 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.

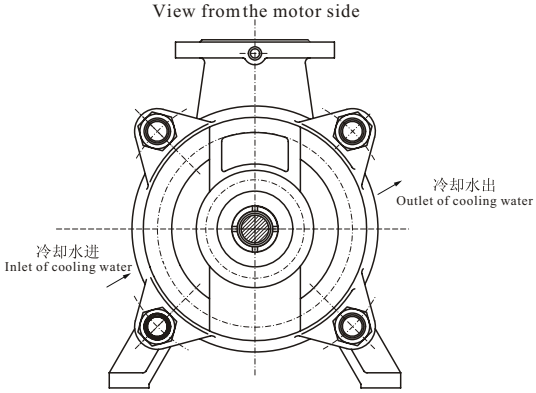
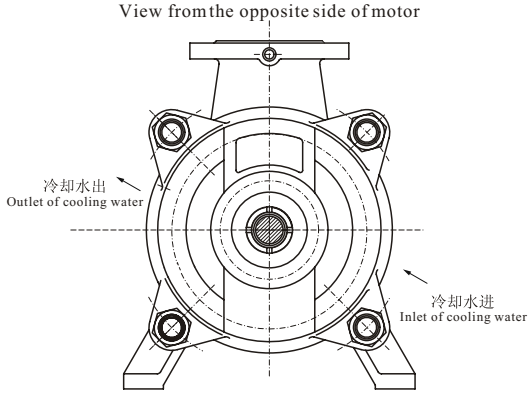
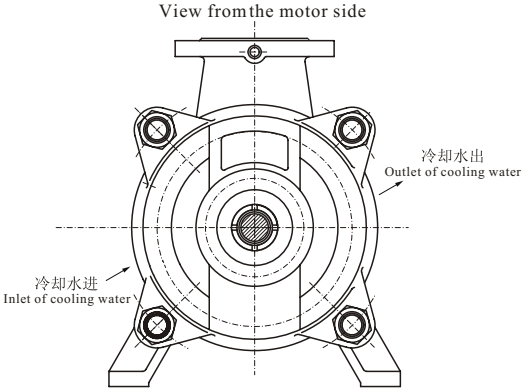
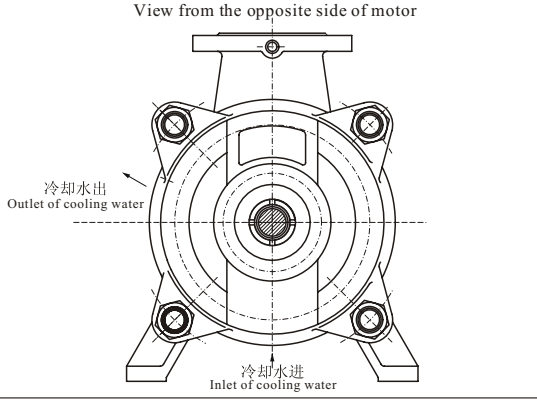
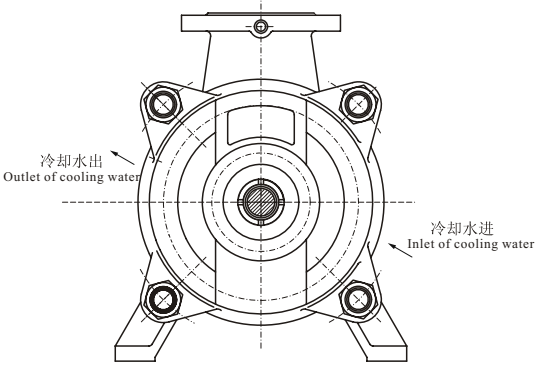
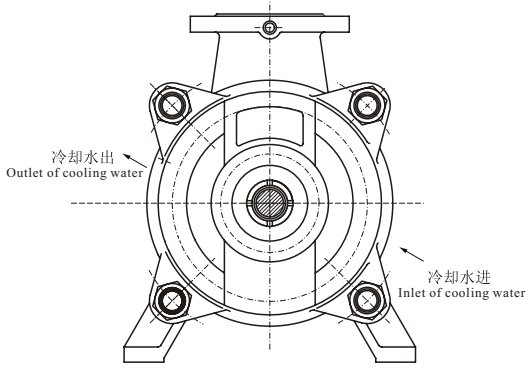
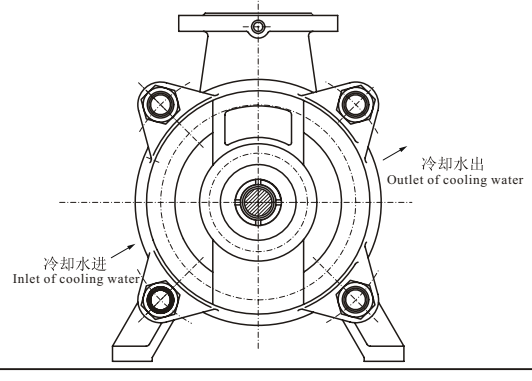
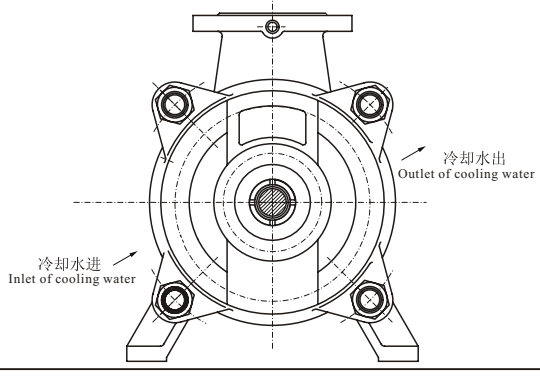
DG25-30

DG46-30

DG12-25



DG SERIES BOILER WATER SUPPLY PUMP

DG6-25 DG280-100 DG150-100	从电机端看 View from the motor side  从非电机端看 View from the opposite side of motor 
DG25-50 DG46-50	从电机端看 View from the motor side  从非电机端看 View from the opposite side of motor 
DG85-45 DG85-67 DG155-67	从电机端看 View from the motor side  从非电机端看 View from the opposite side of motor 
DG25-80 DG45-80 DG85-80	从电机端看 View from the motor side  从非电机端看 View from the opposite side of motor 

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

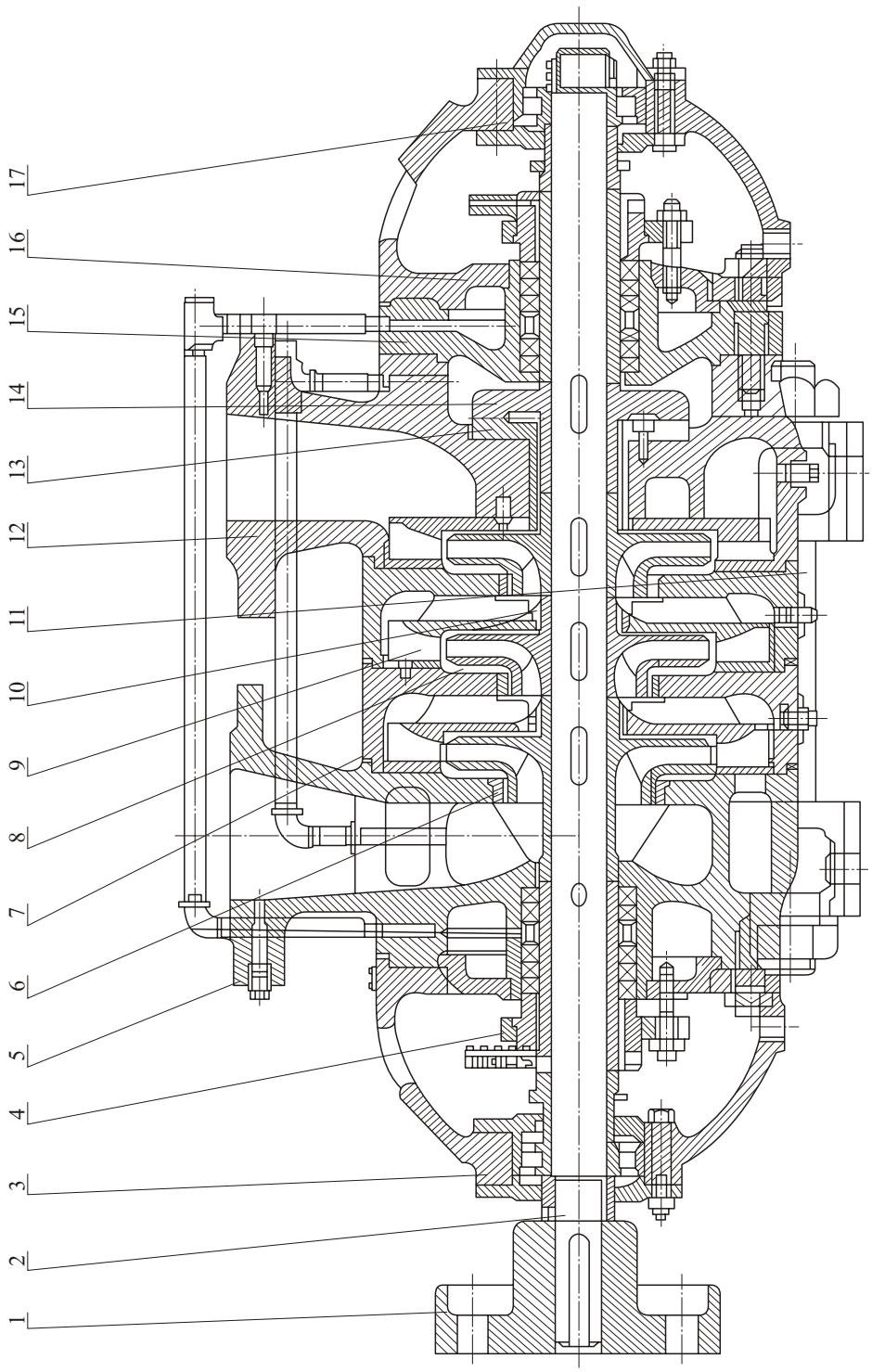


图1 fig.1

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

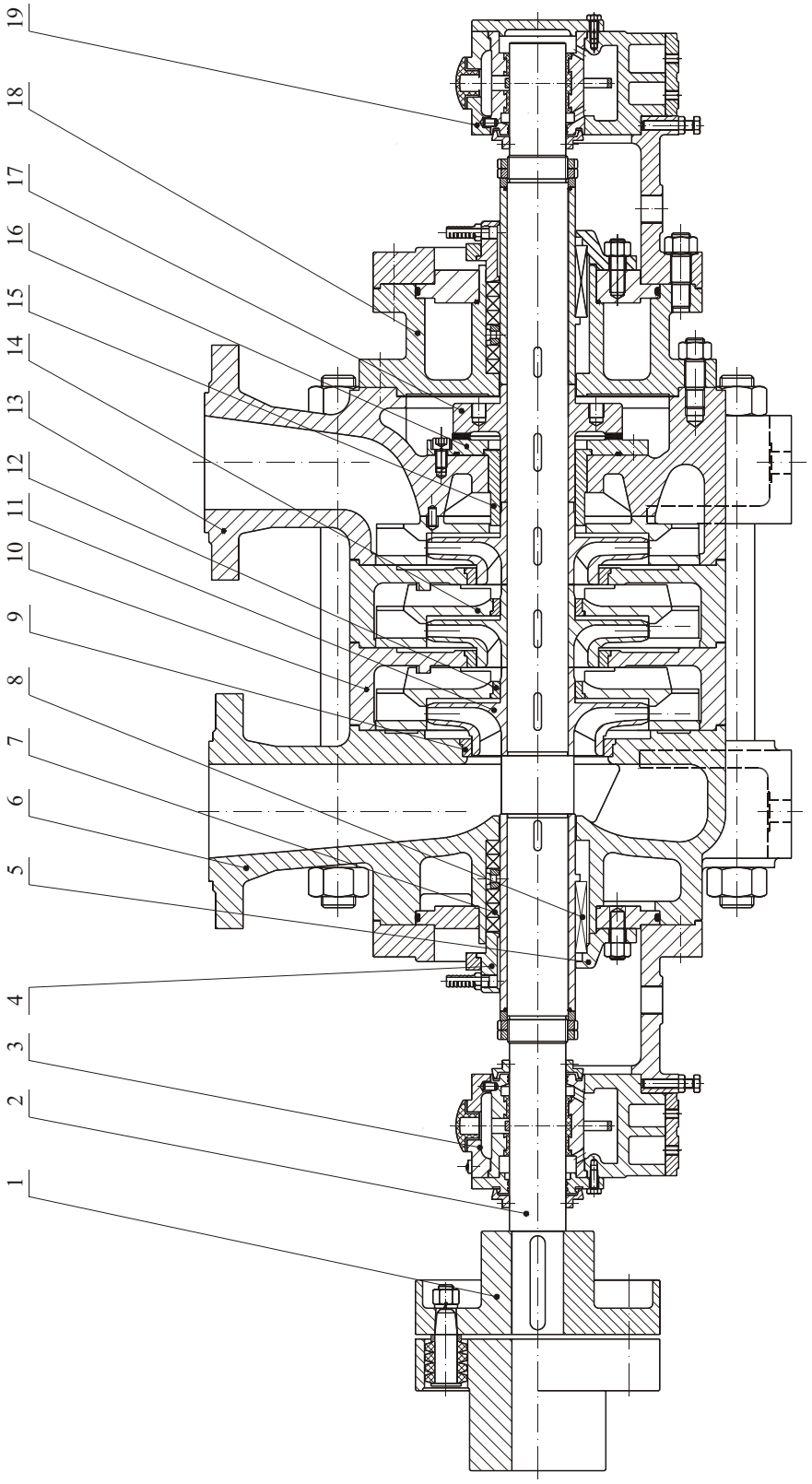


图2 fig.2

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	叶轮 Impeller	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	填料函体 Stuffing content	19	后轴承部件 Bearing part		

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

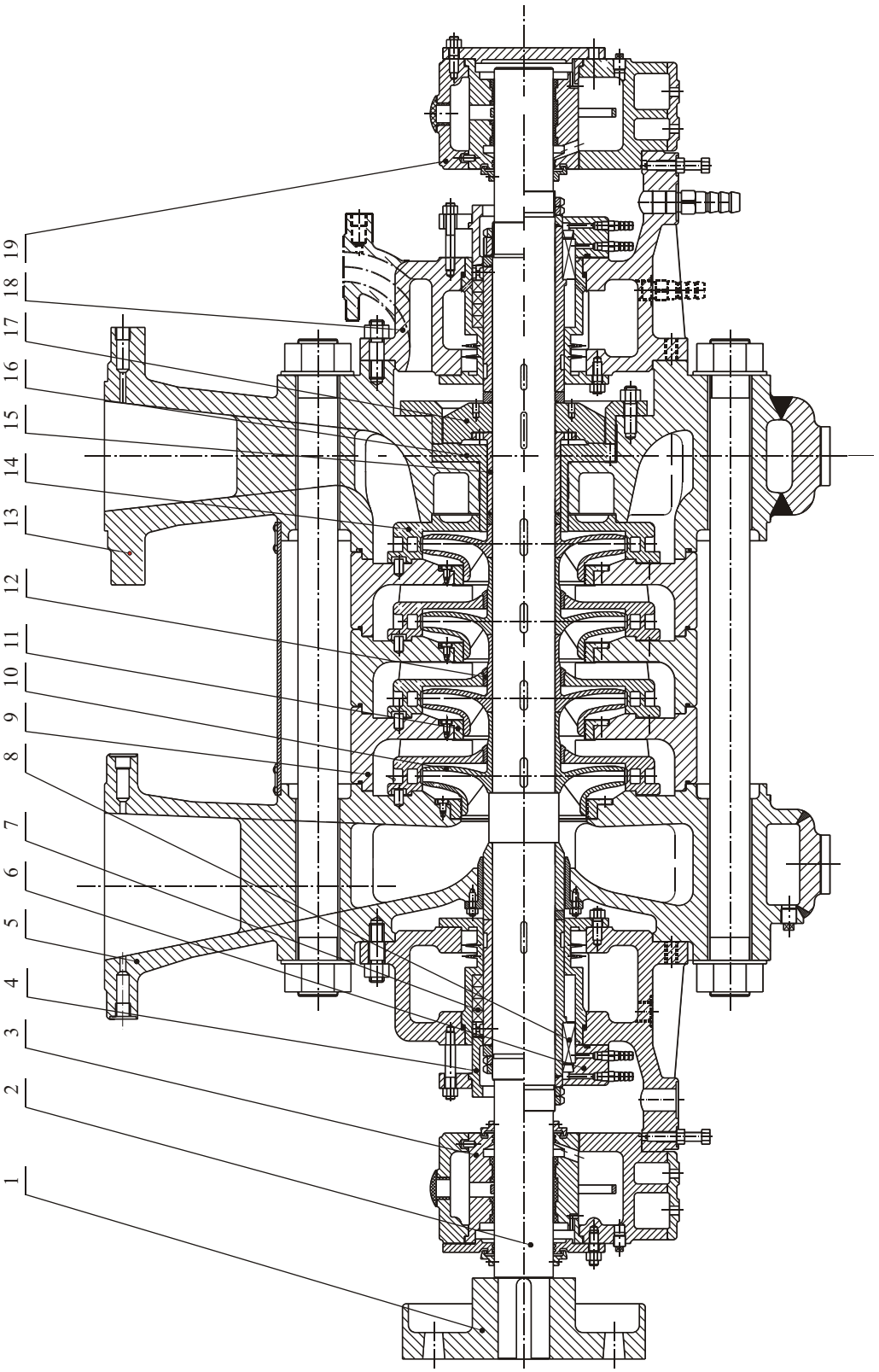


图3 fig.3

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 6.3 7.5	76.5 75 73.5	2.37 2.86 3.19	4.0	33 45 47	2 2 2.5
	4		3.75 6.3 7.5	102 100 98	3.16 3.81 4.26	5.5	33 45 47	2 2 2.5
	5		3.75 6.3 7.5	127.5 125 122.5	3.95 4.77 5.32	5.5	33 45 47	2 2 2.5
	6		3.75 6.3 7.5	153 150 147	4.73 5.72 6.39	7.5	33 45 47	2 2 2.5
	7		3.75 6.3 7.5	178.5 175 171.5	5.52 6.67 7.45	7.5	33 45 47	2 2 2.5
	8		3.75 6.3 7.5	204 200 196	6.31 7.63 8.52	11	33 45 47	2 2 2.5
	9		3.75 6.3 7.5	229.5 225 220.5	7.1 8.58 9.58	11	33 45 47	2 2 2.5
	10		3.75 6.3 7.5	255 250 245	7.89 9.53 10.65	15	33 45 47	2 2 2.5
	11		3.75 6.3 7.5	280.5 275 269.5	8.68 10.5 11.71	15	33 45 47	2 2 2.5
	12		3.75 6.3 7.5	306 300 294	9.47 11.44 12.78	15	33 45 47	2 2 2.5
DG12-25	3	2950	7.5 12.5 15	84.6 75 69	3.93 4.73 5.32	5.5	44 54 53	2 2 2.5
	4		7.5 12.5 15	112.8 100 92	5.24 6.3 7.09	7.5	44 54 53	2 2 2.5
	5		7.5 12.5 15	141 125 115	6.55 7.88 8.89	11	44 54 53	2 2 2.5
	6		7.5 12.5 15	169.2 150 138	7.85 9.46 10.64	15	44 54 53	2 2 2.5
	7		7.5 12.5 15	197.5 175 161	9.16 11.0 12.41	15	44 54 53	2 2 2.5
	8		7.5 12.5 15	225.6 200 184	10.41 12.61 14.18	15	44 54 53	2 2 2.5
	9		7.5 12.5 15	253.8 225 207	11.78 14.18 15.95	18.5	44 54 53	2 2 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 12.5 15	282 250 230	13.09 15.76 17.73	18.5	44 54 53	2 2 2.5
	11		7.5 12.5 15	310.2 275 253	14.4 17.34 19.5	22	44 54 53	2 2 2.5
	12		7.5 12.5 15	338.4 300 276	15.7 18.9 21.3	22	44 54 53	2 2 2.5
DG12-50	3	2950	7.5 12.5 15	162 150 139.5	8.8 10.6 11.9	18.5	37.8 48 48	2 2 2.5
	4		7.5 12.5 15	216 200 186	11.7 14.1 15.9	22	37.8 48 48	2 2 2.5
	5		7.5 12.5 15	270 250 232.5	14.6 17.7 19.8	30	37.8 48 48	2 2 2.5
	6		7.5 12.5 15	324 300 279	17.6 21.3 23.7	30	37.8 48 48	2 2 2.5
	7		7.5 12.5 15	378 350 325.5	20.4 24.8 27.7	37	37.8 48 48	2 2 2.5
	8		7.5 12.5 15	432 400 372	23.3 28.4 31.7	37	37.8 48 48	2 2 2.5
	9		7.5 12.5 15	468 450 418.5	26.3 31.9 35.7	45	37.8 48 48	2 2 2.5
	10		7.5 12.5 15	540 500 465	29.2 35.5 39.6	45	37.8 48 48	2 2 2.5
	11		7.5 12.5 15	594 550 511.5	32.1 39.0 43.5	55	37.8 48 48	2 2 2.5
	12		7.5 12.5 15	648 600 558	35.0 42.6 47.8	75	37.8 48 48	2 2 2.5
DG25-30	3	2950	15 25 30	102 90 82.5	8.33 9.88 10.7	15	50 62 63	2.2 2.2 2.6
	4		15 25 30	136 120 110	11.1 13.1 14.26	18.5	50 62 63	2.2 2.2 2.6
	5		15 25 30	170 150 137.5	13.89 16.47 17.83	22	50 62 63	2.2 2.2 2.6
	6		15 25 30	204 180 165	16.67 19.17 21.4	30	50 62 63	2.2 2.2 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
DG46-30	5	2950	30	170	21.7	37	64	2.4
			46	150	26.85		70	3
			55	135	29.74		68	4.6
	6		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

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	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
	4		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
DG155-67	3	2950	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

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)
DG155-67	5	2950	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	5	2980	15	433.0	55.00	75.0	32	3.2
			25	400.0	60.50		45	3.5
			30	390.0	72.10		44	5
	6		15	519.6	66.00	90.0	32	3.2
			25	480.0	72.60		45	3.5
			30	468.0	86.52		44	5
	7		15	606.2	77.00	110.0	32	3.2
			25	560.0	84.70		45	3.5
			30	546.0	100.94		44	5
	8		15	692.8	88.00	132.0	32	3.2
			25	640.0	96.80		45	3.5
			30	624.0	115.36		44	5
	9		15	779.4	99.00	132.0	32	3.2
			25	720.0	108.90		45	3.5
			30	702.0	129.78		44	5
	10		15	866.0	110.00	160.0	32	3.2
			25	800.0	121.00		45	3.5
			30	780.0	144.20		44	5
	11		15	952.6	121.00	200.0	32	3.2
			25	880.0	133.10		45	3.5
			30	858.0	158.62		44	5
	12		15	1039.2	132.00	200.0	32	3.2
			25	960.0	145.20		45	3.5
			30	936.0	173.04		44	5
DG45-80	7	2950	36	585.2	114.8	180	50	3.9
			45	560.0	124.6		55	4
			62	477.4	143.5		56	5.5
	8		36	668.8	131.2	200	50	3.9
			45	640.0	142.4		55	4
			62	545.6	164.0		56	5.5
	9		36	752.4	147.6	220	50	3.9
			45	720.0	160.2		55	4
			62	613.8	184.5		56	5.5
	10		36	836.0	164.0	250	50	3.9
			45	800.0	178.0		55	4
			62	682.0	205.0		56	5.5
	11		36	919.6	180.4	280	50	3.9
			45	880.0	195.8		55	4
			62	750.2	225.5		56	5.5
	12		36	1003.2	196.8	280	50	3.9
			45	960.0	213.6		55	4
			62	818.4	246.0		56	5.5
DG85-80	7	2950	54	616	170.9	250	53	4.5
			85	560	199.3		65	4.4
			108	490	218.4		66	5.3
	8		54	704	195.3	280	53	4.5
			85	640	227.8		65	4.4
			108	560	249.6		66	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	9	2950	54	792	219.8	355	53	4.5
			85	720	256.3		65	4.4
			108	630	280.7		66	5.3
	10		54	880	244.2	355	53	4.5
			85	800	284.8		65	4.4
			108	700	311.9		66	5.3
	11		54	968	268.6	400	53	4.5
			85	880	313.2		65	4.4
			108	770	343		66	5.3
	12		54	1056	293	450	53	4.5
			85	960	341.7		65	4.4
			108	840	374.3		66	5.3
DG150-100	6	2950	120	630	307	450	67	3.4
			150	600	353		70	4.8
			180	540	368		72	5.5
	7		120	735	359	500	67	3.4
			150	700	412		70	4.8
			180	630	429		72	5.5
	8		120	840	410	630	67	3.4
			150	800	470		70	4.8
			180	720	491		72	5.5
	9		120	945	461	630	67	3.4
			150	900	518		70	4.8
			180	810	552		72	5.5
	10		120	1050	512	800	67	3.4
			150	1000	588		70	4.8
			180	900	613		72	5.5
DG280-100	4	2950	250	420.0	386.4	450	74	5.1
			280	400.0	396.0		77	5.6
			300	392.0	416.0		77	5.9
	5		250	525.0	483.0	630	74	5.1
			280	500.0	495.0		77	5.6
			300	490.0	520.0		77	5.9
	6		250	630.0	579.6	710	74	5.1
			280	600.0	594.0		77	5.6
			300	588.0	624.0		77	5.9
	7		250	735.0	676.2	800	74	5.1
			280	700.0	693.0		77	5.6
			300	686.0	728.0		77	5.9
	8		250	840.0	772.8	1000	74	5.1
			280	800.0	792.0		77	5.6
			300	784.0	832.0		77	5.9
	9		250	945.0	869.4	1120	74	5.1
			280	900.0	891.0		77	5.6
			300	882.0	936.0		77	5.9
	10		250	1050.0	966.0	1250	74	5.1
			280	1000.0	990.0		77	5.6
			300	980.0	1040.0		77	5.9

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).

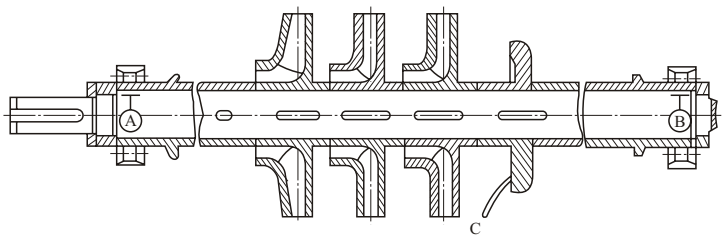


图 4 Fig. 4

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。

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

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.

6.Basis for the pump

6.1 The basis should be a concrete one of sufficient

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。

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；

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.

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、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)。

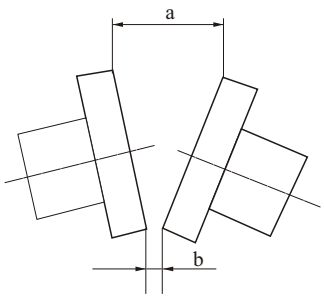
中心线对中是指泵和电机轴中心线的对正程度，应使c≤0.08(见图5)。

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)



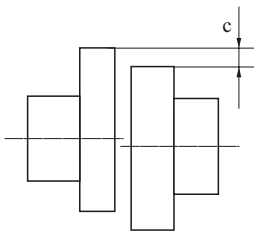


图5 fig5

10、主要管路的联接

泵灌浆后且紧固在地基上以后，在不受外力条件下对正且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成尽量大。

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

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过来。

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。

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(按前述步骤)；

b、打开泵的吸入阀和水封水管路的阀；

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.

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

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。

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.

泵的维修 REPAIR OF PUMP

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。

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 following 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，用千分表检查轴的不直度(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

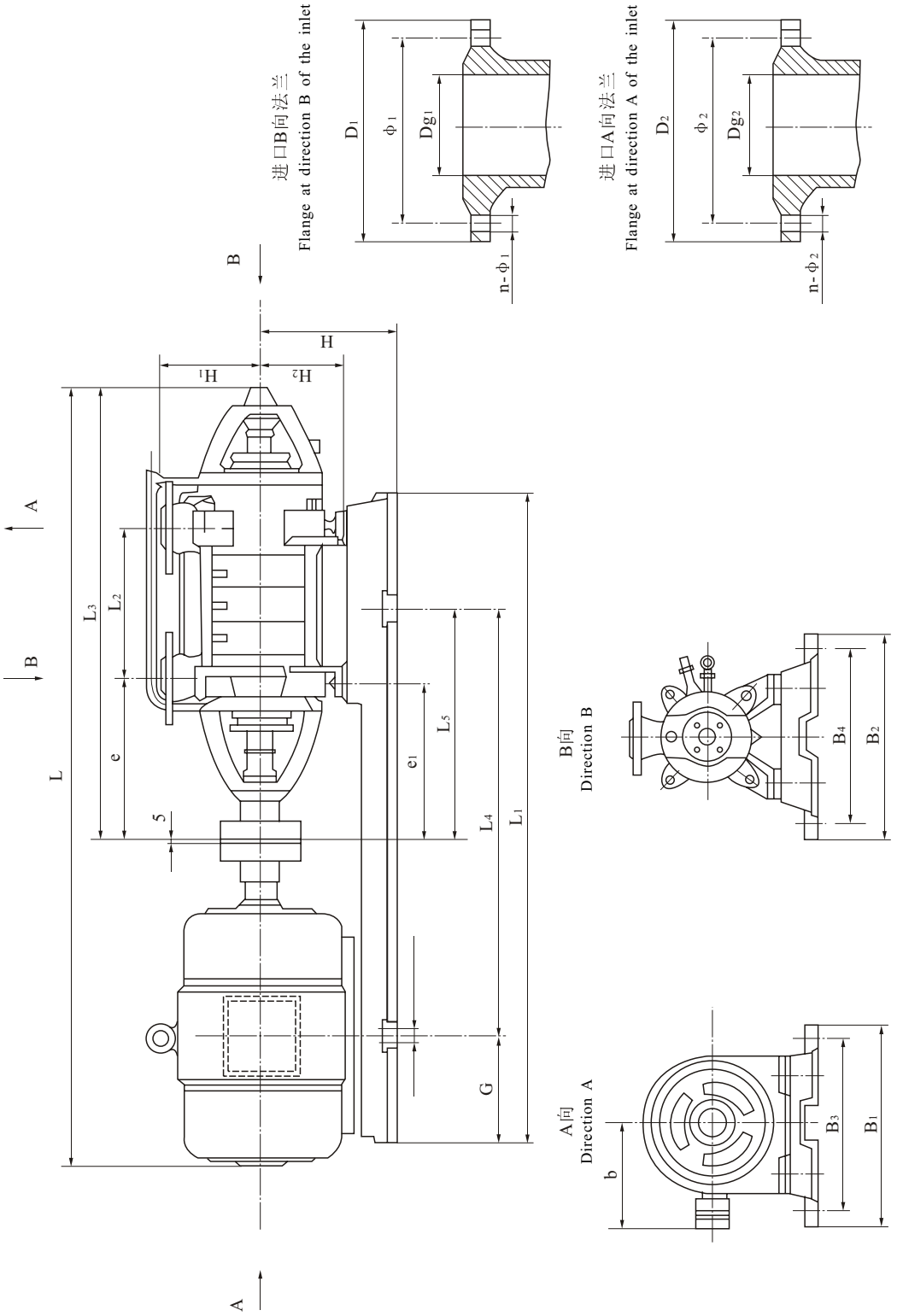
5.1 Clean all the parts with coal oil and let them dried in the air or with a cloth.

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

泵的安装尺寸 Installation dimension of pump(mm)

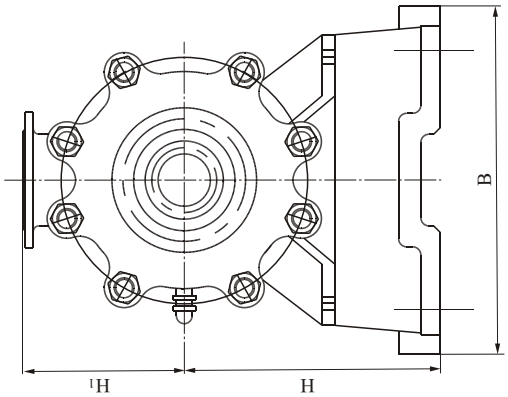
型号 Model	级数 No.of stage	L	L_1	L_2	L_3	L_4	L_5	e	e_1	B_1	B_2	B_3	B_4	b	H	H_1	H_2	G	n-d	进口法兰 Flange at inlet				出口法兰 Flange at outlet			
																				Dg_1	ϕ_1	D_1	n-ϕ_1	Dg_2	ϕ_2	D_2	n-ϕ_2
DG6-25	3	1198	885	180	718	600	358	261	266	440	440	390	390	210	230	170	150	148.5	4-ϕ25	40	100	130	4-ϕ13.5	40	110	150	4-ϕ17.5
	4	1248	985	230	768	650	408																				
	5	1298		280	818																						
	6	1350	1206	330	868	785	459			485	485	435	435	255	240			176									
	7	1400		380	918																						
	8	1573	1306	430	968	835	509																				
	9	1623		480	1018																						
	10	1673	1500	530	1068	935	584											195									
	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				165									
	7	1528		380	895																						
	8	1623	1430	430	945	920	501			530	460	480	410	270				210									
	9	1673		480	995																						
	10	1743	1490	530	1045	975	520			530	415	470	365	285	280			160									
	11	1793		580	1095																						
	12	1952	1640	630	1145	965	578			550	400	500	350	310	350			230									
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																				
	5	1650	1297	360	975	880	510							285	260			180									
	6	1825	1432	425	1045	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			210									
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-ϕ17.5	65	145	185	8-ϕ17.5
	4	1690	1312	295	910	850	443																				
	5	1755	1367	360	975	910	503			575		505		315	280			210									
	6	1820	1432	425	1040	935	528				530		460														
	7	1925	1532	490	1105	1010	580			615		545		345	305			220									
	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

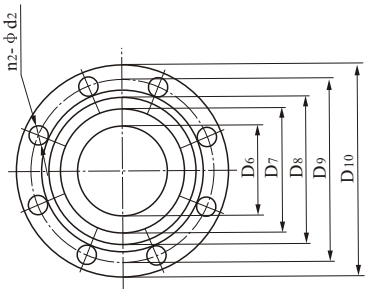
型号 Model	级数 No.of stage	泵的安装尺寸 Installation dimension of pump(mm)																								
		L	L_1	L_2	L_3	L_4	L_5	e	e_1	B_1	B_2	B_3	B_4	b	H	H_1	H_2	G	n-d	进口法兰 Flange at inlet				出口法兰 Flange at outlet			
																				Dg_1	ϕ_1	D_1	n-ϕ_1	Dg_2	ϕ_2	D_2	n-ϕ_2
DG12-50	3	1517	1230	248	852	845		319	315		490		490		250	230	200	250	4-ϕ27	50	135	175	4-ϕ23	50	135	175	4-ϕ23
	4	1597	1310	301	905	880																					
	5	1762	1650	354	958	990					545				280			247									
	6	1822		407	1011																						
	7	1882		460	1064																						
	8	1982	1750	513	1117	1305					610				310			190									
	9	2042		566	1170																						
	10	2204	1870	619	1223	1200																					
	11	2264		672	1276						670				350			350									
	12	2407	2000	725	1329	1300																					
DG25-50	3	1615	1228	245	940	830	506	351	318		550		480	285	360	270	210	188	4-ϕ24	65	160	205	8-ϕ23	65	160	205	8-ϕ23
	4	1780	1426	305	1000	935	509							315	390			219									
	5	1840		365	1060																						
	6	1940	1517	425	1120	985	547			620		550		345	410			229									
	7	2115	1679	485	1180	1100	581			670		600		385	420			263									
	8	2245	1811	545	1240	1180	620				550		480					302									
	9	2305	1931	605	1300	1280	625											307	6-ϕ24								
	10	2365		665	1360					720		650		410	450			307									
	11	2475	2102	725	1420	1420	646											328									
	12	2535		785	1480													328									
DG45-50	3	1720	1317	245	940	875	475.5	351	318	570	570	500	500	315	360	270	210	227	4-ϕ24	80	170	215	8-ϕ22	80	170	215	8-ϕ22
	4	1820	1415	305	1000	925	460.5			620		550		345				197									
	5	1995	1571	365	1060	1020	535.5			670		600		385				210									
	6	2125	1758	425	1120	1130	615.5								420			307									
	7	2185		485	1180					720		650		410													
	8	2295	1869	545	1240	1180	665.5											358									
	9	2575	2046	605	1300	1330	770.5											355.5	6-ϕ24								
	10	2665		665	1360					820		750		576	515												
	11	2765	2222	725	1420	1480	880.5											371.5									
	12	2825		785	1480																						
DG85-45	3	1945	1468	277	1010	1040	473	344	327	675	580	615	520	385	365	250	210	198	4-ϕ25	100	170	210	4-ϕ17.5	100	190	235	8-ϕ22
	4	2089	1615	351	1084	1060	505			730		670		410	395			280	6-ϕ25								
	5	2213	1740	425	1158	1120	549											315									
	6	2507	683	499	1232	303	430																				
	7	2651	757	573	1306	377								576	345				6-ϕ25								
	8	2725	831	647	1380	415																					
	9	2799	905	721	1454	525																					

注：DG85-45的2～5级为共同底座，6～9级为单独底座。

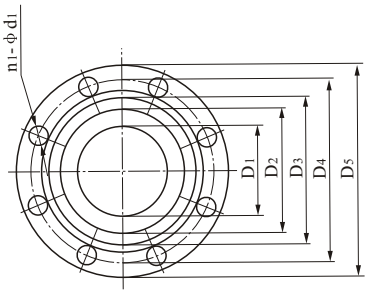
DG85-67、DG155-67、DG280-43型泵的外形及安装尺寸图 FIGURE OF THE OUT-FORM AND INSTALLATION DIMENSIONS OF MODEL DG85-67, DG155-67，DG280-43 PUMPS

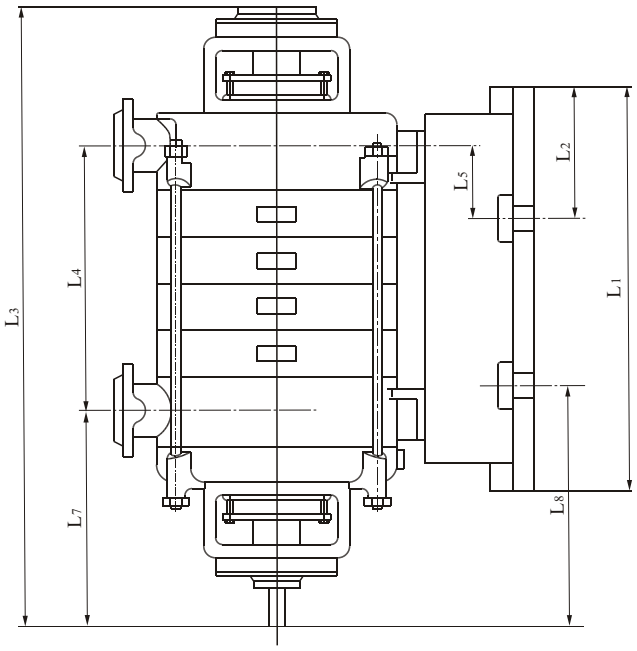


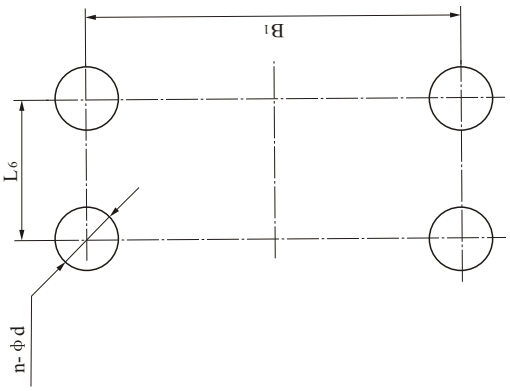
出口法兰
Flange at outlet



进口法兰
Flange at inlet



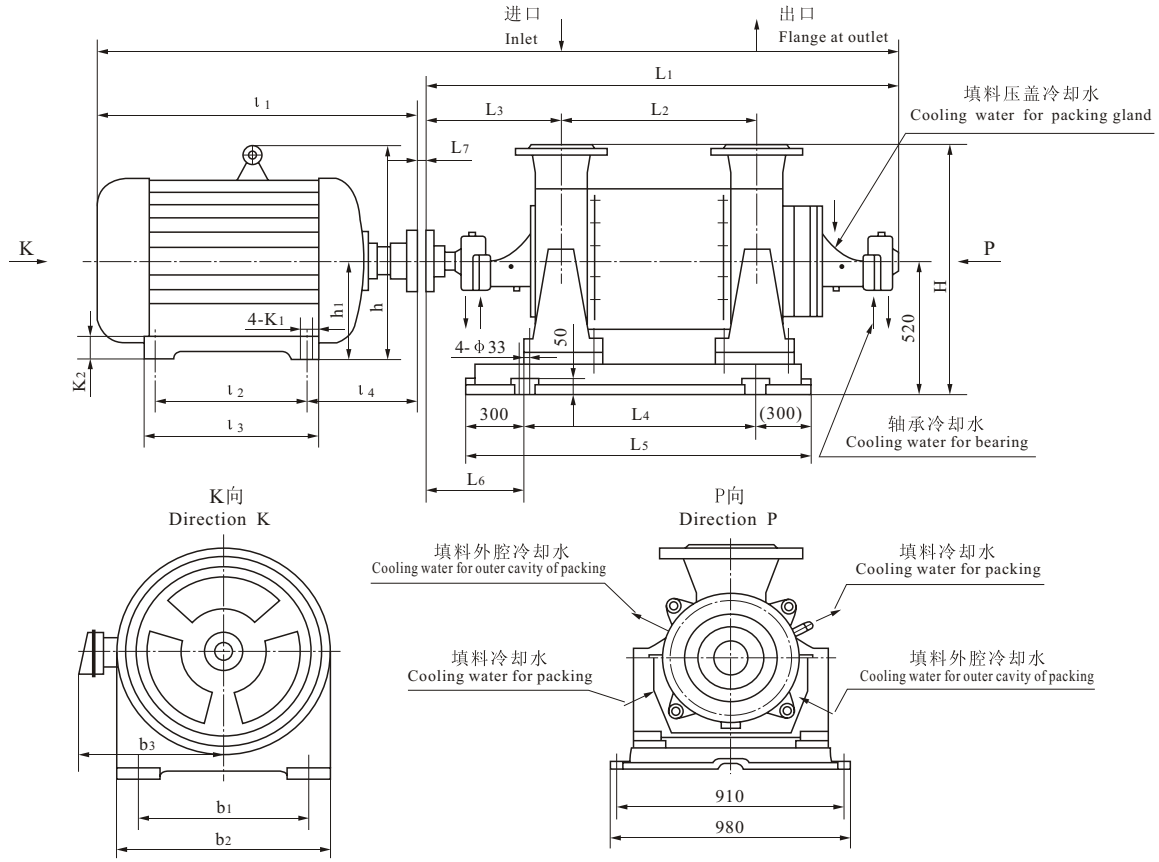




DG85-67、DG155-67、DG280-43型泵的外形及安装尺寸表 TABLE OF THE OUT-FORM AND INSTALLATION DIMENSIONS OF MODEL DG85-67, DG155-67, DG280-43 PUMPS

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

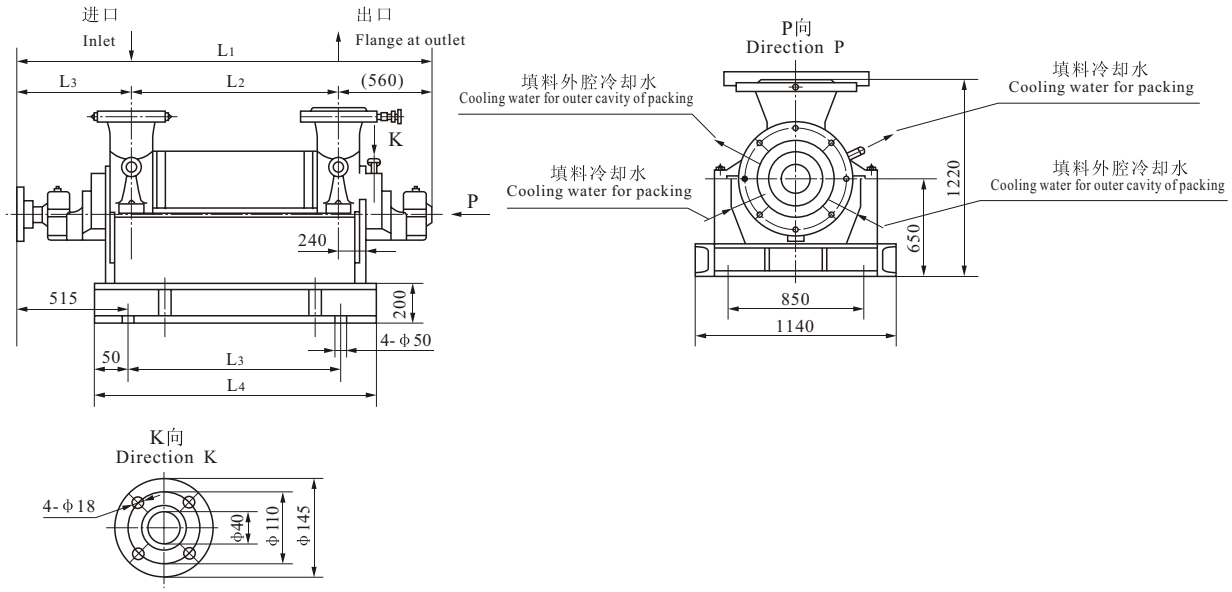
DG25-80、DG45-80型泵外形安装尺寸图 DG25-80、DG45-80 PUMP INSTALLATION DIMENSIONS



DG25-80、DG45-80安装尺寸表 DG25-80、DG45-80 PUMP INSTALLATION DIMENSIONS TABLE

泵型号 Model	泵部分 Pump part									电机部分 Motor part										
	L	L1	L2	L3	L4	L5	L6	L7	H	l1	l2	l3	l4	b1	b2	b3	h	h1	K1	K2
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	1546	615	439	432	1032	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x8	2925	1625	694	439	595	1195	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x9	3004	1704	773	439	595	1195	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x10	3288	1783	852	439	827	1427	643	5	880	1500	560	750	394	610	730	655	1010	355	28	52
DG45-80x11	3367	1862	931	439	827	1427	643	5	880	1500	630	750	394	610	730	655	1010	355	28	52
DG45-80x12	3446	1941	1010	439	827	1427	643	5	880	1500	630	750	394	610	730	655	1010	355	28	52

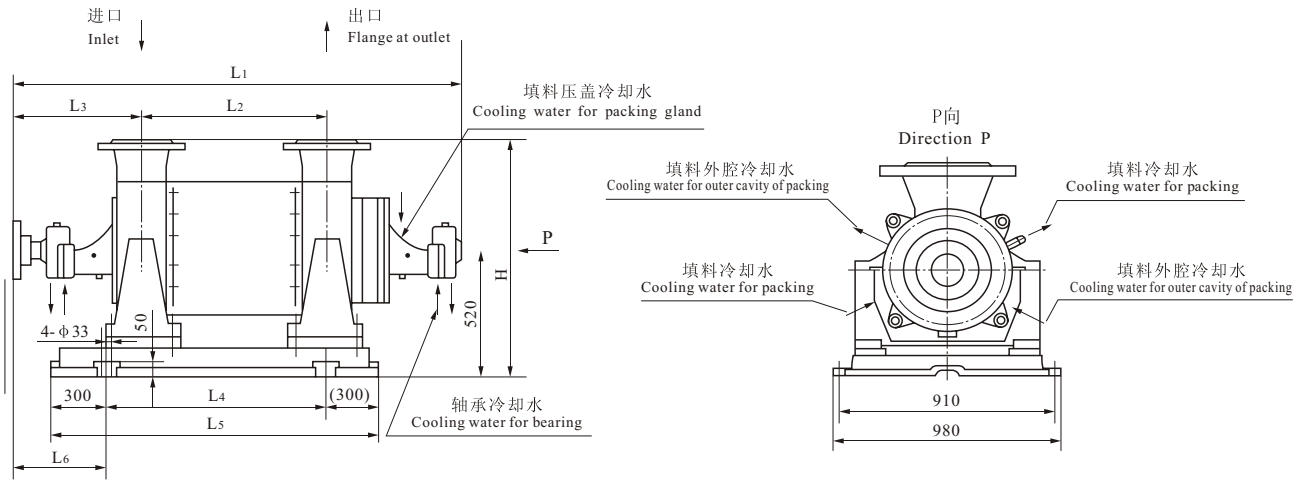
DG150–100、DG280–100型泵外形安装尺寸图 DG150-100、DG280-100 INSTALLATION DIMENSIONS



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					

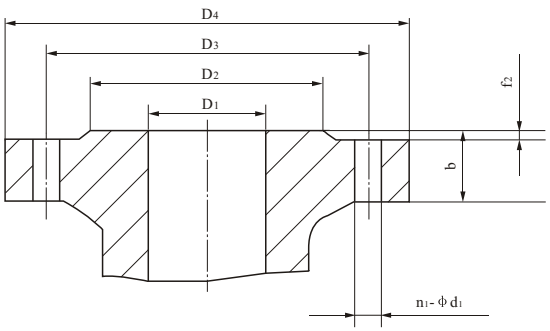
DG85–80型泵外形安装尺寸图 DG85-80 INSTALLATION DIMENSIONS



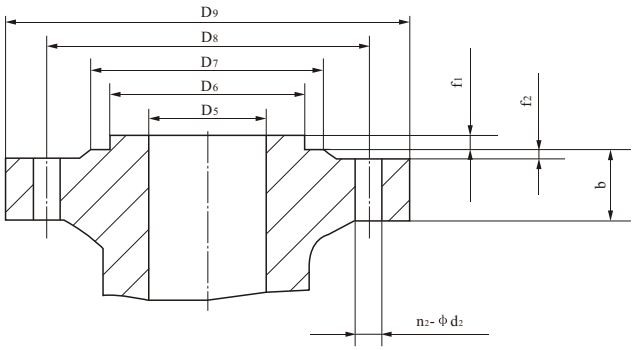
DG85-80型泵外形安装尺寸表 DG85-80 INSTALLATION DIMENSIONS TABLE

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								

进口法兰 Inlet Flange



出口法兰 Outlet Flange



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	110	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-φ26	150	203	250	290	355	4	3	50	12-φ33

由于我们在不断努力改进产品，我们保留样本数据更改的权利，敬请谅解。

As we are constantly endeavouring to improve the performance of our equipment.
The company reserves the right to make alteration from time to time and equipment differ from that detailed in this brochure.

湖南中大节能泵业有限公司

Hunan Zhongda Energy saving Pump Industry Co., Ltd

地址：湖南省醴陵市茶山镇转步口村
邮编：412200
电话：0731-23041888

Address: Zhuanbukou Village, Chashan Town, Liling City, Hunan Province
Postal Code: 412200
Phone: 0731-23041888

www.lllzdpump.com
hnzdpump@gmail.com

□ 印刷日期：30th.Nov.2007