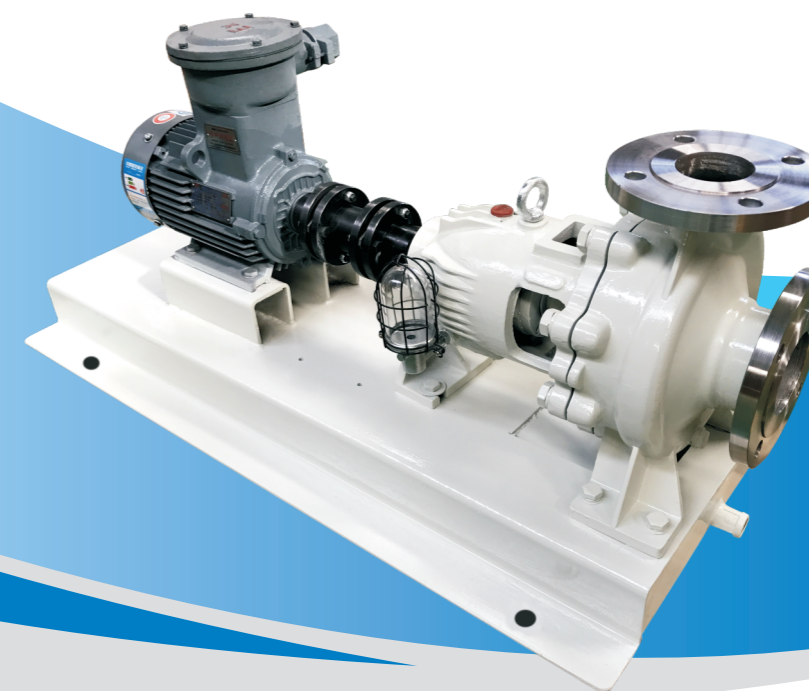


请详阅手册内容并善加保存
Please read and save this manual

GH 化工流程泵

CHEMICAL PROCESS PUMP



产品说明书

PRODUCTS SPECIFICATION

⚠ 重要/IMPORTANT

操作人员在使用本产品前，请务必仔细阅读产品说明书，以确保操作安全。
Please ensure that these instructions are read and understood by machine operators before using the product.

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1 概述

1.1 LGH 型化工流程泵是单级单吸 (轴向吸入) 悬臂式离心泵, 供输送不含固体颗粒、具有腐蚀性、粘度类似水的液体。LGH 系列产品的设计符合国际标准 ISO5199 和 ISO2858 标准, 设计标准 API 标准第十版。

LGH 型 (API-OH1 泵型) 化工流程泵输送介质温度为 -20 ~ 120 , 需要时采用密封改装及冷却措施可输送更高温度的介质, 适用于化工、环保、石油、冶金、电力、造纸、食品、废水净水处理、制药和合成纤维等行业用于输送各种腐蚀性的或不允许污染的类似于水的介质。

LGH 型系列泵的性能范围 :

结构 : OH1
流量 Q : 375~460m³/h
扬程 H : 45~132.5m
转速 n : 200~1450r/min
配带功率 : 0.55~110kw
进口直径 : 25~300mm
压力 : 1.6MPa

1.2 泵型号意义 :

例 : LGH150-125-315GKA
LGH - 端吸单级离心式流程泵
150 - 泵入口直径 (mm)
125 - 泵出口直径 (mm)
315 - 叶轮名义直径 (mm)
G - 高温型
K - 开式叶轮
A - 叶轮经第一次切割

2 泵的结构 (见图 1)

2.1 LGH 型泵是采用 API 标准 610 第十版 (技术等同于 ISO13709: 2003 标准) 设计的系列产品, 其主要由泵体、叶轮、叶轮螺母、泵盖、密封部件、轴、悬架部件等组成。

2.2 泵的结构特点 (见图 1) :

泵的结构特点是 : 泵盖通过止口固定在悬架体上, 然后通过泵体与悬架体止口的联接把泵盖夹紧在中间, 泵体是轴向吸入, 径向排出, 脚支承式, 可直接固定在底座上。悬架部件通过止口固定在悬架支架上, 并用悬架支架支撑在底座上。这是国际上通用的一种结构型式。

1 Brief introduction

1.1 LGH chemical process pump is a single-stage single suction (axial suction) cantilever centrifugal pump for conveying solid particles with liquid, corrosive, viscosity similar to water. LGH series of products are designed to meet the international standards ISO5199 and ISO2858 standards, design standard API 610 standard tenth edition.

LGH (API-OH1) pump type chemical process pump delivery medium temperature of -20 ~ 120 . The additional measurements in mechanical seal and cooling measurement can ensure transportation of higher temperature of medium . It is widely used at the industries to transport k i r o f t s o r r o e s i u m a n d t h e m e d i u m s i m i l a r t o w a t e r i c h m u s t b e m i m u n e t o p o l l u t i o n s u c h a s p e t r o l u m , c h e m i s t r y , m e a t l i n g , s y n t h e t i c f i b e r , p h a r m a c y , f o o d s t u f f y a t e a n d t h e a n d t h e

Performance range of LGH pump:

Structure OH1
Flow Q: 375~460m³/h
Lift H: 45~132.5m
Rotation speed: 200~1450r/min
Power P: 0.55~110kw
Inlet diameter: 25~300mm
Maximum working pressure: 1.6MPa

1.2 Model explanation

(LGH150-125-315GKA example)
LGH - End suction single stage centrifugal flow pump
50 - diameter of pump suction (mm)
32 - diameter of pump outlet (mm)
160 - nominal diameter of impeller (mm)
G - high temperature type
K - open impeller
A - First time of cutting the diameter of impeller

2 Pump structure (see fig. 1)

2.1 LGH pump is the API standard 610 version tenth (technology equivalent to the ISO13709 2003 standard) design of the series of product consists of pump body, impeller, impeller nut, pump cover, seal part, shaft and pendant part, etc.

2.2 Structure features (see fig. 1):

The structure features of the pump are: the pump cover is fixed to the suspension bracket through the stop part. And the pump cover is clamped in the middle by the connection of pump body and the stop part of body suspension. The pump body is axial suction, radial discharge, foot support type, can be directly fixed on the base. The suspension bracket can be fastened at the base. The suspension bracket can be fastened at the base by the stop part and be supported at the base by the support. It is a common structure type.

2. 泵的旋转方向：泵通过加联轴器由电动机直接驱动，从电动机端看，按顺时针方向旋转。

2. 泵的轴封型式：

填料密封：泵盖内设填料函，采用软填料密封，填料函内可通入有一定压力的水，供密封冷却、润滑、清洗用。

机械密封：单端面机械密封和双端面机械密封两种型式，密封腔内通入一定压力的水，冲洗摩擦端面，同时起冷却作用。

泵的密封型式采用ISO 2104中规定的机械密封和密封系统，由用户根据需要选用，同时根据需要允许采用适合于ISO 3069规定的密封空腔尺寸的其他结构的轴封型式，如带波纹管机械密封、填料密封或机械密封和付叶轮密封等等。

2.5 泵的材质：泵的过流部件均采用不锈钢材料。用户可根据所输送介质对泵腐蚀的情况，选用相适应泵的过流部件（即泵体、叶轮螺母、泵盖、叶轮和密封部件）材料（见表1）所示：

2.3 Pump rotation: The pump rotates under the drive of motor by lengthened shaft coupling. The rotation is clockwise when the observation point is at the motor.

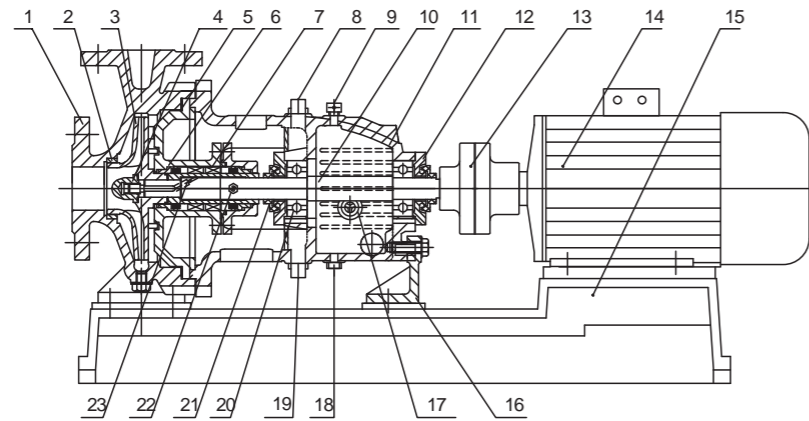
2.4 Shaft seal mode of pump

Filler seal: There is stuffing box at the pump cover. The pressurized water can be filled the stuffing box to cool, lubricate and clean the seal.

Mechanical seal: There are two modes for mechanical seal, single-ter m f i a n a t w o - t e r m f i a n a t . The seal cavity is filled with pressurized water to clean the frictional t e r m f i a n a t .

Seal type pump using the ISO 2104 specified in the mechanical seal and the sealing system, selected by the user according to the needs, at the same time according to the need to allow the use of shaft seal type suitable for sealing the cavity size of the ISO 3069 provisions of other structures, such as bellows mechanical seal, packing seal or mechanical seal and seal impeller etc.

2.5 Pump material: The part in contact with the liquid is made of stainless steel. The user can select the material of the parts in contact with the liquid such as pump body, impeller nut, pump cover and seal part. (See table 1)



1、泵体 Pump body	2、密封环 Seal ring	3、叶轮 Impeller	4、叶轮螺母 Impeller nut	5、密封垫 Seal pad	6、泵盖 Pump cover	7、机械密封 Mechanical Seal	8、轴承冷却管(进) Bearing cooling pipe (inlet)
9、加油孔 Refueling hole	10、泵轴 Shaft	11、悬架体 Suspension body	12、轴承压盖 Gland of bearing	13、联轴器 Coupling	14、电机 Motor	15、底座 Base	16、悬架支架 Suspension bracket
17、油镜 Oil lens	18、放油螺栓 Oil drain bolt	19 轴承冷却管(出) Bearing cooling pipe (outlet)	20、轴承 Bearing	21、防尘盘 Deflector	22、双密封冷却管(进) Double sealed cooling pipe (inlet)	23、双密封冷却管(出) Double sealed cooling pipe (Exit)	

图 1 LGH型化工泵结构图 (Fig.1 Structure diagram of LGH chemical pump)

材料及代号表(Material & code table)

表1(Table 1)

材料 (Material)	ZG1Cr18Ni9	ZG0Cr18Ni9	ZG1Cr18Ni9Ti	ZG0Cr18Ni12Mo2Ti
代号 (Code)	303	304	305	306
材料 (Material)	ZG1Cr18Ni12Mo2Ti	ZG0Cr17Ni12Mo2	ZG00Cr17Ni14Mo2	ZG1Cr18Mn13Mo2CuN
代号 (Code)	307	316	316L	402

注：除上表所列材料外，用户如需要选用其它特殊材料，请于订货时事先提出。
Note: Except the above material, the client should tell us ahead for specific material.

3 泵的性能参数(见表2)

3 Pump parameter(See table 2)

表2(Table 2)

型号 Model	转速 n Speed Rotational (r/min)	流量 Q Flow Rate		扬程 H Total Head(m)	效率 Efficiency (%)	功率 Power(KW)		必需汽蚀余量 Net positive suction head (NPSH)r(m)	泵重量 Pump Weight(kg)
		(m³/h)	(L/S)			轴功率 Shaft power	电机功率 Motor power		
LGH50-32-125	2900	7.5	2.08	23	43	1.09	2.2	2	45
		12.5	3.47	20	51	1.33		2	
		15	4.17	18	49	1.50		2.5	
	1450	3.75	1.04	5.75	36	0.16	0.55	2	
		6.3	1.75	5	45	0.19		2	
		7.5	2.08	4.5	44	0.21		2.5	
LGH50-32-125A	2900	6.8	1.89	18.8	40	0.87	1.5	2	45
		11.3	3.14	16.4	50	1.01		2	
		13.6	3.78	14.7	47	1.16		2.5	
	1450	3.4	0.94	4.7	33.3	0.13	0.55	2	
		5.7	1.58	4.1	43	0.15		2	
		6.8	1.89	3.7	42	0.16		2.5	
LGH50-32-160	2900	7.5	2.08	34.5	33	2.13	3	2	48
		12.5	3.47	32	46	2.37		2	
		15	4.17	30	50	2.45		2.5	
	1450	3.75	1.04	8.6	29	0.3	0.55	2	
		6.3	1.75	8	40	0.34		2	
		7.5	2.08	7.5	43	0.36		2.5	
LGH50-32-160A	2900	6.8	1.89	28.5	30	1.76	3	2	48
		11.3	3.14	26.4	44	1.85		2	
		13.6	3.78	24.8	48	1.91		2.5	
	1450	3.4	0.94	7.1	25.9	0.25	0.55	2	
		5.7	1.58	6.6	37.1	0.28		2	
		6.8	1.89	6.2	41	0.28		2.5	
LGH50-32-200	2900	7.5	2.08	51.8	28	3.78	5.5	2	58
		12.5	3.47	50	39	4.36		2	
		15	4.17	48	43	4.56		2.5	
	1450	3.75	1.04	12.9	23	0.57	1.1	2	
		6.3	1.75	12.5	33	0.65		2	
		7.5	2.08	12	36	0.68		2.5	
LGH50-32-200A	2900	6.8	1.89	42.7	25	3.16	4	2	58
		11.3	3.14	41	38	3.24		2	
		13.6	3.78	39.5	41	3.57		2.5	
	1450	3.4	0.94	10.6	20	0.49	0.75	2	
		5.7	1.58	10.3	31	0.52		2	
		6.8	1.89	9.9	34	0.54		2.5	

续表2(Following table 2)

型号 Model	转速 n Speed Rotational (r/min)	流量 Q FlowRate		扬程 H Total Head(m)	效率 Efficiency (%)	功率 Power(KW)		必需汽蚀余量 Netpositive suction head (NPSH)r(m)	泵重量 Pump Weight(kg)
		(m³/h)	(L/S)			轴功率 Shaftpower	电机功率 Motorpower		
LGH50-32-250	2900	7.5	2.08	82	23	7.28	11	2	92
		12.5	3.47	80	33	8.25		2	
		15	4.17	78.5	36.5	8.79		2.5	
	1450	3.75	1.04	20.5	17	1.23	2.2	2	
		6.3	1.75	20	27	1.27		2	
		7.5	2.08	19.6	31	1.29		2.5	
LGH50-32-250A	2900	7	1.94	71.9	20	6.84	11	2	
		11.7	3.25	70	32	6.97		2	
		14	3.89	68.8	34	7.71		2.5	
	1450	3.51	0.98	18	15.4	1.12	1.5	2	
		5.9	1.64	17.5	25	1.25		2	
		7.02	1.95	17.2	27.9	1.18		2.5	
LGH50-32-250B	2900	6.6	1.83	63.6	20	5.71	7.5	2	
		11	3.06	62	30	6.19		2	
		13.2	3.67	60.9	33	6.64		2.5	
LGH65-50-125	2900	15	4.17	21.3	47	1.85	3	2	46
		25	6.94	20	62	2.2		2	
		30	8.33	18.6	63	2.41		2.5	
	1450	7.5	2.08	5.4	44	0.25	0.55	2	
		12.5	3.47	5	55	0.31		2	
		15	4.17	4.5	56	0.33		2.5	
LGH65-50-125A	2900	13.6	3.78	17.6	44	1.48	2.2	2	
		22.7	6.31	16.5	61	1.67		2	
		27.3	7.58	15.4	59.9	1.91		2.5	
	1450	6.8	1.89	4.5	41	0.20	0.55	2	
		11.3	3.14	4.1	54	0.23		2	
		13.6	3.78	3.7	53	0.26		2.5	
LGH65-50-160	2900	15	4.17	34.2	44	3.18	5.5	2	52
		25	6.94	32	57	3.82		2	
		30	8.33	30	59	4.15		2.5	
	1450	7.5	2.08	8.55	39	0.45	0.75	2	
		12.5	3.47	8	51	0.53		2	
		15	4.17	7.5	52.5	0.58		2.5	
LGH65-50-160A	2900	13.6	3.78	28.4	41	2.56	4	2	
		22.7	6.31	26.5	56	2.93		2	
		27.3	7.58	24.8	56	3.29		2.5	
	1450	6.8	1.89	7.09	35.5	0.37	0.55	2	
		11.3	3.14	6.6	49.6	0.41		2	
		13.6	3.78	6.2	49.9	0.46		2.5	

续表2(Following table 2)

型号 Model	转速 n Speed Rotational (r/min)	流量 Q FlowRate		扬程 H Total Head(m)	效率 Efficiency (%)	功率 Power(KW)		必需汽蚀余量 Netpositive suction head (NPSH)r(m)	泵重量 Pump Weight(kg)
		(m³/h)	(L/S)			轴功率 Shaftpower	电机功率 Motorpower		
LGH65-40-200	2900	15	4.17	53.2	41	5.3	11	2	62
		25	6.94	50	52	6.55		2	
		30	8.33	47.6	53.5	7.27		2.5	
	1450	7.5	2.08	13.3	35	0.78	1.5	2	
		12.5	3.47	12.5	46	0.93		2	
		15	4.17	11.9	47.5	1.02		2.5	
LGH65-40-200A	2900	13.6	3.78	43.9	38	4.28	7.5	2	
		22.7	6.31	41	50	5.07		2	
		27.3	7.58	39.3	51	5.73		2.5	
	1450	6.8	1.89	11	31.8	0.64	1.1	2	
		11.3	3.14	10.3	44	0.72		2	
		13.6	3.78	9.8	44.8	0.81		2.5	
LGH65-40-250	2900	15	4.17	81.2	34	9.76	15	2	98
		25	6.94	80	46	11.84		2	
		30	8.33	78.4	50	12.8		2.5	
	1450	7.5	2.08	20.3	28	1.48	3	2	
		12.5	3.47	20	39	1.75		2	
		15	4.17	19.6	43	1.86		2.5	
LGH65-40-250A	2900	14	3.89	74.8	31	9.21	15	2	
		23.4	6.5	71	45	10.1		2	
		28	7.78	68.6	47	11.13		2.5	
	1450	7	1.94	17.8	25	1.35	2.2	2	
		11.7	3.25	17.5	37.9	1.47		2	
		14	3.89	17.2	40	1.64		2.5	
LGH65-40-250B	2900	13.2	3.67	62.8	31	7.29	11	2	
		22	6.11	61.8	44	8.42		2	
		26.4	7.33	53	45	8.45		2.5	
LGH65-40-315	2900	15	4.17	126.8	28	18.51	30	2	115
		25	6.94	125	39	21.8		2	
		30	8.33	124	42.5	23.85		2.5	
	1450	7.5	2.08	32.4	22	3.03	5.5	2	
		12.5	3.47	32	33	3.3		2	
		15	4.17	31.7	37	3.5		2.5	
LGH65-40-315A	2900	14	3.89	111.2	25	16.97	22	2	
		23.4	6.5	109.5	38	18.36		2	
		28	7.78	108.8	40	20.75		2.5	
	1450	7	1.94	28.4	22	2.46	4	2	
		11.7	3.25	28	33	2.71		2	
		14	3.89	27.8	37	2.87		2.5	

续表2(Following table 2)

型号 Model	转速 n Speed Rotational (r/min)	流量 Q Flow Rate		扬程 H Total Head(m)	效率 Efficiency (%)	功率 Power(KW)		必需汽蚀余量 Net positive suction head (NPSH)r(m)	泵重量 Pump Weight(kg)
		(m³/h)	(L/S)			轴功率 Shaftpower	电机功率 Motorpower		
LGH65-40-315B	2900	13.2	3.67	98	24	14.69		2	115
		22	6.11	96.5	37	15.63	22	2	
		26.4	7.33	95.9	39	17.67		2.5	
LGH80-65-125	2900	30	8.33	23.2	60	3.16		3	51
		50	13.89	20	69	3.95	5.5	3	
		60	16.67	17.6	67	4.29		4	
	1450	15	4.17	5.8	54	0.44		2.5	
		25	6.94	5	64	0.53	0.75	2.5	
		30	8.33	4.4	62	0.58		3	
LGH80-65-125A	2900	27.2	7.56	19.1	57	2.48		3	51
		45.3	12.58	16.5	67	3.04	4	3	
		54.4	15.11	14.5	64	3.36		4	
	1450	13.6	3.78	4.8	51	0.35		2.5	
		22.6	6.28	4.1	62	0.41	0.55	2.5	
		27.2	7.56	3.6	59	0.45		3	
LGH80-65-160	2900	30	8.33	36	57	5.16		2	56
		50	13.89	32	67	6.51	11	2.3	
		60	16.67	28.4	65	7.14		3.3	
	1450	15	4.17	9	50	0.74		2	
		25	6.94	8	62	0.88	1.5	2.3	
		30	8.33	7.2	62	0.95		3.3	
LGH80-65-160A	2900	27.2	7.56	29.7	54	4.08		2	56
		45.4	12.61	26.4	65	5.02	7.5	2.3	
		54.4	15.11	23.4	62	5.59		3.3	
	1450	13.6	3.78	7.4	47.3	0.58		2	
		22.7	6.31	6.6	60	0.68	1.1	2.3	
		27.2	7.56	5.9	59	0.74		3.3	
LGH80-50-200	2900	30	8.33	55.2	53	8.51		2	64
		50	13.89	50	63	10.81	15	2.5	
		60	16.67	45.2	62	11.92		3.2	
	1450	15	4.17	13.5	44	1.25		2	
		25	6.94	12.5	57	1.49	2.2	2	
		30	8.33	11.5	58	1.62		2.5	
LGH80-50-200A	2900	27.2	7.56	45.4	50	6.73		2	64
		45.3	12.58	41	61	8.29	11	2.5	
		54.4	15.11	37.2	59	9.35		3.2	

续表2(Following table 2)

型号 Model	转速 n Speed Rotational (r/min)	流量 Q Flow Rate		扬程 H Total Head(m)	效率 Efficiency (%)	功率 Power(KW)		必需汽蚀余量 Net positive suction head (NPSH)r(m)	泵重量 Pump Weight(kg)
		(m³/h)	(L/S)			轴功率 Shaftpower	电机功率 Motorpower		
LGH80-50-200A	1450	13.6	3.78	11.1	41	1		2	64
		22.7	6.31	10.3	56.1	1.14	2.2	2	
		27.2	7.56	9.5	55	1.28		2.5	
LGH80-50-250	2900	30	8.33	84	43	16		2	102
		50	13.89	80	53	20.57	30	2.5	
		60	16.67	75	54	22.71		3.2	
	1450	15	4.17	21	40	2.15		2	
		25	6.94	20	50	2.72	4	2	
		30	8.33	18.8	51	3.01		2.5	
LGH80-50-250A	2900	27.2	7.56	69	42	12.18		2	102
		45.3	12.58	65.7	52	15.61	22	2.5	
		54.4	15.11	61.6	52	17.57		3.2	
	1450	13.6	3.78	17.3	40	1.6		2	
		22.7	6.31	16.4	49	2.07	3	2	
		27.2	7.56	15.4	50	2.28		2.5	
LGH80-50-315	2900	30	8.33	128	38	27.54		2.5	110
		50	13.89	125	50	34.1	45	2.5	
		60	16.67	123	53	37.94		3	
	1450	15	4.17	32.5	37	3.59	7.5	2.5	
		25	6.94	32	48	4.54		2.5	
		30	8.33	31.5	52	4.94		3	
LGH80-50-315A	2900	27.2	7.56	105	37	21		2.5	110
		45.3	12.58	102.6	48	26.4	37	2.5	
		54.4	15.11	101	50	29.94		3	
	1450	13.6	3.78	26.3	36	2.71		2.5	
		22.7	6.31	25.7	46	3.46	5.5	2.5	
		27.2	7.56	25.2	50	3.74		3	
LGH100-80-125	2900	60	16.67	23.7	65	5.96		3	56
		100	27.78	20	73	7.47	11	4.2	
		120	33.33	16.3	69	7.72		4.8	
	1450	30	8.33	5.7	58	0.8		3	
		50	13.89	5	69	0.99	1.5	3.4	
		60	16.67	4.1	68	0.99		3.7	
LGH100-80-125A	2900	55	15.28	19.4	62	4.68		3	56
		91.8	25.5	16.8	71	5.92	7.5	4.2	
		109	30.28	13.7	67	6.07		4.8	

续表2(Following table 2)

型号 Model	转速 n Speed Rotational (r/min)	流量 Q Flow Rate		扬程 H Total Head(m)	效率 Efficiency (%)	功率 Power(KW)		必需汽蚀余量 Net positive suction head (NPSH)r(m)	泵重量 Pump Weight(kg)
		(m³/h)	(L/S)			轴功率 Shaftpower	电机功率 Motorpower		
LGH100-80-125A	1450	27.5	7.64	5	56	0.67	1.1	3	56
		45.9	12.75	4.2	67	0.78		3.4	
		54.5	15.13	3.4	65	0.78		3.7	
LGH100-80-160	2900	60	16.67	37	60	10.1	15	3.8	86
		100	27.78	32	73	11.9		4.3	
		120	33.33	28	73	12.54		5	
	1450	30	8.33	9.25	58	1.3	2.2	3	
		50	13.89	8	69	1.58		3.4	
		60	16.67	7	68	1.68		3.7	
LGH100-80-160A	2900	54.6	15.17	30.6	57	7.98	15	3.8	86
		91	25.28	26.5	71	9.25		4.3	
		109.2	30.33	23.2	70.4	9.85		5	
	1450	27.3	7.58	7.66	55.3	1.03	1.5	3	
		45.5	12.64	6.6	67	1.22		3.4	
		54.6	15.17	5.8	65.3	1.32		3.7	
LGH100-65-200	2900	60	16.67	56	63	14.53	22	3.4	95
		100	27.78	50	72	18.92		3.9	
		120	33.33	44	71	20.26		5.2	
	1450	30	8.33	14	60	1.91	4	2.5	
		50	13.89	12.5	68	2.5		2.5	
		60	16.67	11	63	2.85		3	
LGH100-65-200A	2900	54.6	15.17	46.5	60.1	11.51	18.5	3.4	95
		91	25.28	41.5	70	14.7		3.9	
		109.2	30.33	36.6	68	16		5.2	
	1450	27.3	7.58	11.6	57	1.51	3	2.5	
		45.5	12.64	10.3	66	1.93		2.5	
		54.6	15.17	9.1	60.1	2.25		3	
LGH100-65-250	2900	60	16.67	88	57	25.24	37	3	114
		100	27.78	80	68	32.06		3.6	
		120	33.33	74	67	36.12		4.5	
	1450	30	8.33	22	50	3.63	5.5	2.5	
		50	13.89	20	63	4.33		2.5	
		60	16.67	18.5	64	4.73		3	
LGH100-65-250A	2900	56.1	15.58	77	54	21.8	37	3	114
		93.5	25.97	70	65	27.44		3.6	
		112.2	31.17	64.7	64	30.91		4.5	

续表2(Following table 2)

型号 Model	转速 n Speed Rotational (r/min)	流量 Q Flow Rate		扬程 H Total Head(m)	效率 Efficiency (%)	功率 Power(KW)		必需汽蚀余量 Net positive suction head (NPSH)r(m)	泵重量 Pump Weight(kg)
		(m³/h)	(L/S)			轴功率 Shaftpower	电机功率 Motorpower		
LGH100-65-250A	1450	28	7.79	19.2	47	3.12	5.5	2.5	114
		45.5	12.64	17.4	61	3.53		2.5	
		56	15.56	16.2	60.9	4.06		3	
LGH100-65-250B	2900	52.7	14.64	67.9	53.3	18.29	30	3	114
		87.8	24.39	61.7	64	23.1		3.6	
		105.4	29.28	57	62.9	26.03		4.5	
		2900	60	16.67	132	48		44.96	
100	27.78		125	62	54.94	3.2			
120	33.33		119	64	60.8	4.2			
LGH100-65-315	2900	30	8.33	33.5	44	6.22	11	2	165
		50	13.89	32	58	7.52		2	
		60	16.67	30.5	60	8.31		2.5	
	1450	56.1	15.58	115.5	45	39.2	55	2.8	
93.5		25.97	109	61	45.53	3.2			
112.2		31.17	104	61	52.13	4.2			
LGH100-65-315A	2900	28	7.789	29.3	41	5.46	11	2	165
		46.5	12.92	28	56	6.33		2	
		56	15.56	26.7	57	7.15		2.5	
	1450	52.7	14.64	102	44	33.29	55	2.8	
88		24.44	97	60	38.77	3.2			
105.4		29.28	92	60	44.04	4.2			
LGH125-100-200	2900	120	33.33	61	68	29.33	45	4.5	98
		200	55.56	50	77	35.39		5	
		240	66.67	41	70	38.3		5.8	
	1450	60	16.67	15.25	64	3.89	7.5	2.5	
		100	27.78	12.5	73	4.66		2.9	
		120	33.33	10.25	66	5.08		3.6	
LGH125-100-200A	2900	109.1	30.31	50.5	64.9	23.13	37	4.5	98
		182	50.56	41.4	75	27.38		5	
		218.2	60.61	34	67.1	30.13		5.8	
	1450	54.7	15.19	12.6	61	3.08	5.5	2.5	
		91	25.28	10.3	71	3.6		2.9	
		109.4	30.39	8.5	63	4.02		3.6	
LGH125-100-250	2900	120	33.33	90	62	47.48	75	3.7	150
		200	55.56	80	75	58.13		4.5	
		240	66.67	73	74	64.52		5.5	

续表2(Following table 2)

型号 Model	转速 n Speed Rotational (r/min)	流量 Q FlowRate		扬程 H Total Head(m)	效率 Efficiency (%)	功率 Power(KW)		必需汽蚀余量 Netpositive suction head (NPSH)r(m)	泵重量 Pump Weight(kg)	
		(m³/h)	(L/S)			轴功率 Shaftpower	电机功率 Motorpower			
LGH 125-100-250	1450	60	16.67	22.5	59	6.23	11	2	150	
		100	27.78	20	72	7.56		2.3		
		120	33.33	18.25	71	8.4		3		
LGH 125-100-250A	2900	112	31.11	78	59	40.35	75	3.7		
		186.5	51.81	69.5	73	48.35		4.5		
		224	62.22	63.5	71	54.59		5.5		
	1450	56	15.56	19.5	56	5.31	11	2		
		93	25.83	17.4	70	6.29		2.3		
		112	31.11	15.9	68	7.13		3		
LGH 125-100-250B	2900	105.5	29.31	69	58	34.2	55	3.7		
		175.5	48.75	61.5	71	41.42		4.5		
		211	58.61	56	69.9	46.06		5.5		
LGH 125-100-315	2900	120	33.3	132.5	52.6	82.37	110	4	165	
		200	55.6	125	72	94.62		4.5		
		240	66.7	120	75	104.64		5		
	1450	60	16.7	33.5	53	10.33	22	2.5		
		100	27.8	32	65	13.42		2.5		
		120	33.3	30.5	66	15.11		3		
LGH 125-100-315A	2900	112	31.1	115.2	52	67.63	90	4		165
		186.5	51.81	108.7	71	77.81		4.5		
		224	62.22	104.3	72	88.42		5		
	1450	56	15.56	28.8	52	8.45	15	2.5		
		93	25.83	27.2	64	10.77		2.5		
		112	31.11	26.1	65	12.25		3		
LGH 125-100-400	1450	60	16.67	52	48	17.71	30	2.5	210	
		100	27.78	50	55	24.77		2.5		
		120	33.33	48.5	62	25.58		3		
LGH 125-100-400A	1450	56	15.56	45	43	15.97	30	2.5		
		93	25.83	43.2	54	20.27		2.5		
		112	31.11	41.9	60	21.31		3		
LGH 150-125-250	1450	120	33.33	24.8	66	12.29	18.5	2.5		164
		200	55.56	20	77	14.16		2.8		
		240	66.67	15	68	14.43		3.5		
LGH 150-125-250A	1450	109.1	30.28	20.5	62.5	9.75	15	2.5		
		182	50.56	16.5	75	10.91		2.8		
		218.2	60.61	12.4	65.2	11.31		3.5		

续表2(Following table 2)

型号 Model	转速 n Speed Rotational (r/min)	流量 Q FlowRate		扬程 H Total Head(m)	效率 Efficiency (%)	功率 Power(KW)		必需汽蚀余量 Netpositive suction head (NPSH)r(m)	泵重量 Pump Weight(kg)	
		(m³/h)	(L/S)			轴功率 Shaftpower	电机功率 Motorpower			
LGH 150-125-315	1450	120	33.33	36.3	63	18.84	30	2.5	195	
		200	55.56	32	75	23.25		2.8		
		240	66.67	28.5	72	25.89		3.8		
LGH 150-125-315A	1450	109.1	30.28	30	60	14.85	22	2.5		
		182	50.56	25.5	73	17.32		2.8		
		218.2	60.61	23.5	69	20.23		3.8		
LGH 150-125-315B	1450	99	27.5	24.7	59	11.29	18.5	2.5		
		165	45.83	22	72	13.74		2.8		
		198	55	19.4	69	15.17		3.8		
LGH 150-125-400	1450	120	33.33	57.5	61	30.82	55	2		237
		200	55.56	50	70	38.93		2.5		
		240	66.67	44	63	45.68		3		
LGH 150-125-400A	1450	109.1	30.28	47.5	58	24.35	37	2		
		182	50.56	41	68	29.94		2.5		
		218.2	60.61	36.5	60	36.17		3		
LGH 150-125-400B	1450	99	27.5	39.1	57	18.51	30	2		
		165	45.83	34	67	22.82		2.5		
		198	55	29.9	58	27.81		3		
LGH 200-150-250	1450	240	66.67	23	70	21.49	37	2.5	194	
		400	111.11	20	79	27.59		2.8		
		460	127.78	18	80	28.2		3		
LGH 200-150-250A	1450	218.2	60.61	18.9	67	16.77	30	2.5		
		363	100.83	16.5	79	20.66		2.8		
		418	116.1	14.8	78	21.61		3		
LGH 200-150-315	1450	240	66.67	35.6	67	34.75	55	3		268
		400	111.11	32	79	44.15		3.5		
		460	127.78	29.4	77	47.86		4		
LGH 200-150-315A	1450	218.2	60.61	29.4	64	27.31	45	3		
		363	100.84	25.5	77	32.76		3.5		
		418	116.11	24.3	74	37.4		4		
LGH 200-150-315B	1450	197.7	54.92	24.1	63	20.61	37	3		
		329	91.39	21.6	76	25.48		3.5		
		378.8	105.22	19.7	73	27.86		4		
LGH 200-150-400	1450	240	66.67	55.8	67	54.47	90	3	289	
		400	111.11	50	78	69.87		3.5		
		460	127.78	47	75	78.55		4		

续表2(Following table 2)

型号 Model	转速 n Speed Rotational (r/min)	流量 Q Flow Rate		扬程 H Total Head(m)	效率 Efficiency (%)	功率 Power(KW)		必需汽蚀余量 Net positive suction head (NPSH)(m)	泵重量 Pump Weight(kg)
		(m³/h)	(L/S)			轴功率 Shaft power	电机功率 Motor power		
LGH200-150-400A	1450	218.2	60.61	46	64	42.74	75	3	289
		363	100.83	41	76	53.36		3.5	
		418	116.11	38.8	72	61.38		4	
LGH200-150-400B	1450	197.7	54.92	37.7	63	32.24	55	3	
		329	91.39	33.8	75	40.4		3.5	
		378.8	105.22	31.8	71	46.23		4	

注：上表所列的轴功率是按介质为水配的功率，可根据用户输送介质的重量和粘度不同，选用不同功率的电机。
Note: The shaft power listed on above table is the power with water as medium. Electric machine of different power may be adopted according to the media of different weight and viscosity delivered by users.

4 泵的型谱图(见表2)

4 Pump performance diagram
(See fig. 2)

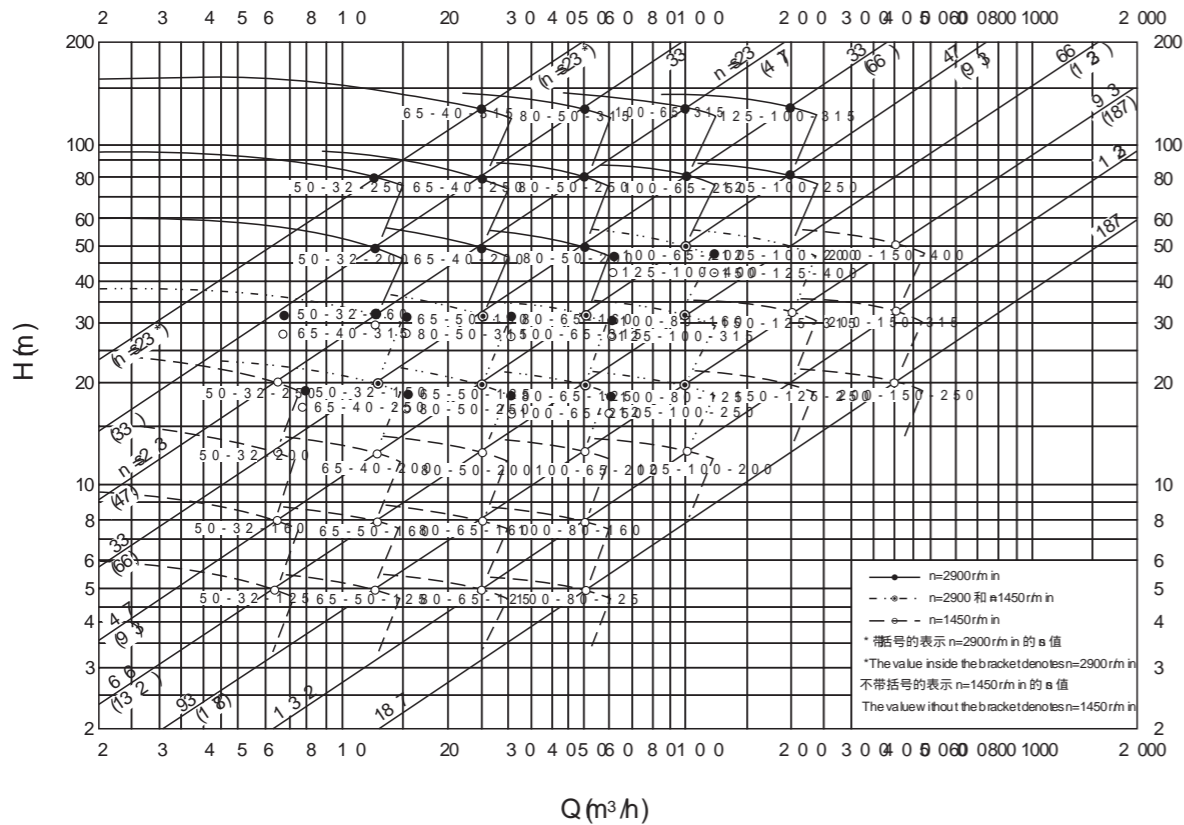


图2 (Fig.2)

5 泵的外形图及尺寸(见图3及表3)

5 Outline diagram & size(See fig.3 & table 3)

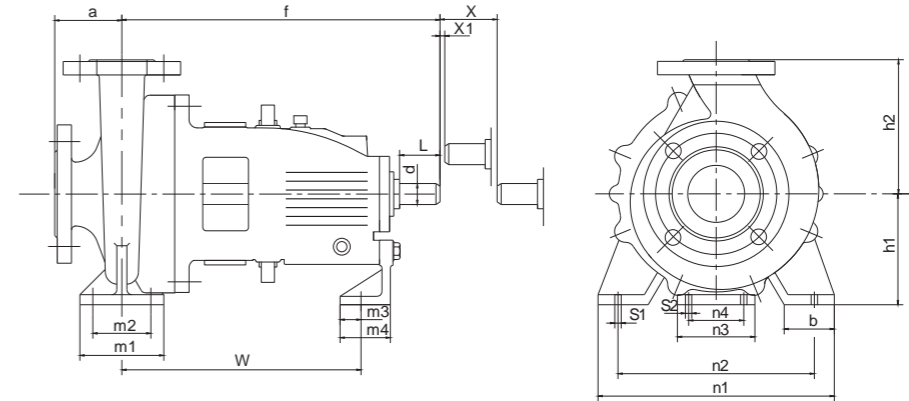


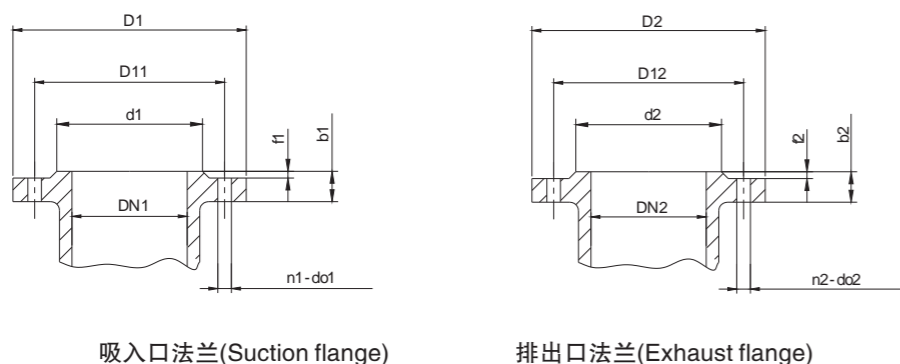
图3 (Fig.3)

表3(Table 3)

产品型号 Product model	泵		泵座												W	螺栓孔		轴端		间隔				
	a	f	h1	h2	b	m1	m2	m3	m4	n1	n2	n3	n4	K1		K2	S1	S2	d	L	X	X1		
LGH50-32-125			112	140						190	140													
LGH50-32-160	80	385	132	160	50	100	70	19	60	240	190	145	110	12	10	285	14	14	24	50	100	2		
LGH50-32-200			160	180																				
LGH50-32-250	100	500	180	225	65	129	95	25	65	320	250			16	14	370			32	80		2		
LGH65-50-125	80		112	140						210	160													
LGH65-50-160		385	132	160	50	100	70	19	60	240	190	145	110	12	10	285	14	14	24	50	100	2		
LGH65-40-200			160	180						265	212													
LGH65-40-250	100		180	225	65	125	95	25	65	320	250			16	14	370			32	80		2		
LGH65-40-315	125	500	200	250	65	125	95	25	65	345	280			16	14	370			32	80		2		
LGH80-65-125			132	160						240	190													
LGH80-65-160	100	385	160	180	50	100	70	19	60	265	212	145	110	12	10	285	14	14	24	50	100	2		
LGH80-50-200			200																					
LGH80-50-250	125	500	180	225	65	125	95	25	65	320	250			16	14	370			32	80		2		
LGH80-50-315			225	280						345	280													
LGH100-80-125		385	160	180				19																
LGH100-80-160	100		200	200	65	125	95	24	60	280	212	145	110	12	10	285	14	14	24	50	100	2		
LGH100-65-200		500	180	225						320	250			16	14	370			32	80		2		
LGH100-65-250			200	250						360	280			16	14	370			32	80		2		
LGH100-65-315	125	530	225	280	80	160	120	28		400	315			18		370			42	110		2		
LGH125-100-200	125	500	200					25		360	280			16					32	80		2		
LGH125-100-250			225	280	80	160	120												32	80		2		
LGH125-100-315	140	530	250	315				28	65	400	315	145	110	20	14	370	18	14	42	110	140	2		
LGH125-100-400			280	355	100	200	150			500	400								22			3		
LGH150-125-250			250		80	160	120			400	315								18			2		
LGH150-125-315	140	530	280	355				28	65	500	400	145	110	20	14	370	22	14	42	110	140	3		
LGH150-125-400			315	400	100	200	150												22			3		
LGH200-150-250		530	280	375				28	65	500	400	145	110		14	370			14	42		2		
LGH200-150-315		160		400	100	200	150												22	18	48	110	180	3
LGH200-150-400			450					38	80	550	450	200	140	20	30	500	22	18	48	110	180	3		

6 泵进出口法兰示意图及尺寸
(见图4及表4)

6 Diagram & Size of suction flange & Outlet flange(See fig.4 & table 4)



吸入口法兰(Suction flange)

排出口法兰(Exhaust flange)

图4 (Fig.4)

表4(Table 4)

产品型号 Product model	吸入口法兰尺寸 (Suction flange size)							排出口法兰尺寸 (Exhaust flange size)						
	DN1	D1	D11	d1	b1	fl	n1-do1	DN2	D2	D12	d2	b2	fl	n2-do2
LGH50-32-125	50	165	125	99	20	3	4-18	32	140	100	76	18	2	4-18
LGH50-32-160														
LGH50-32-200														
LGH50-32-250														
LGH65-50-125	65	185	145	118	20	3	4-18	50	165	125	99	20	3	4-18
LGH65-50-160														
LGH65-40-200														
LGH65-40-250														
LGH65-40-315	80	200	160	132	20	3	8-18	65	185	145	118	20	3	4-18
LGH80-65-125														
LGH80-65-160														
LGH80-50-200														
LGH80-50-250	100	220	180	156	22	3	8-18	80	200	160	132	20	3	8-18
LGH80-50-315														
LGH100-80-125														
LGH100-80-160														
LGH100-65-200	125	250	210	184	22	3	8-18	100	220	180	156	22	3	8-18
LGH100-65-250														
LGH100-65-315														
LGH125-100-200														
LGH125-100-250	150	285	240	211	24	3	8-22	125	250	210	184	22	3	8-18
LGH125-100-315														
LGH125-100-400														
LGH150-125-250														
LGH150-125-315	200	340	295	266	24	3	12-22	150	285	240	211	24	3	8-22
LGH150-125-400														
LGH200-150-250														
LGH200-150-315														
LGH200-150-400														

7 泵的拆卸与装配

7.1 泵的拆卸顺序

7.1.1 拆下泵体上的放液管堵和悬架上的放液管堵，放净泵内液体及悬架内储油室的存油。如外引液密封管路的亦应拆下。

7.1.2 拆下泵体悬架体联接螺栓，将悬架部件、密封部件等全部转子组件从泵体中取出（在此之前应先拆出加长联轴器的中间联接件，设有中间联接件，要拆下电机。

7.1.3 松开叶轮螺母，取出叶轮和键。

7.1.4 将泵盖连同轴套、机械密封端盖及机械密封等组合件一起从轴上取下。此时应注意勿使轴套与泵盖等相对滑动，然后再拆下机械密封端盖，将机械密封连同轴套一起取出，再把轴套和机械密封拆开。如果是软填料密封，可先从泵盖上取下轴套，再顺次拆下填料压盖、填料和填料环等。对结构特殊的机械密封，要注意其不同的拆装方法。

7.1.5 拆下悬架体。

7.1.6 拆下泵联轴器及键。

7.1.7 拆下悬架两端的防尘盘和轴承的前、后盖，再把轴连同轴承一起从悬架体内取下。

7.1.8 拆开轴承和轴。

7.2 泵的装配

泵的装配顺序基本上可按照拆卸顺序的反方向进行。但装配时要注意检查各密封面垫片应完好。

8 泵的安装

8.1 泵的安装是否合理，对泵的正常运行和使用寿命有重要影响，所以安装和校正必须仔细进行，泵的外形及安装尺寸（见图5和表5）

8.2 安装泵的地点，应便于巡回检查和检修。

8.3 开箱后检查泵和电机，如果证实没有任何因装、卸和运输过程中造成的损坏和紧固联接件松动，泵没有尘土、污物等进入泵内，则可不必重新拆卸和装配，直接送到使用现场去安装。

7 Assembly & Disassembly

7.1 The order of pump disassembly

7.1.1 Disassemble the liquid exhaust pipe at the pump body and the liquid exhaust pipe at the suspension. Clean the liquid inside the pump and the oil in the oil storage chamber of the suspension. The outer seal pipe line should also be disassembled.

7.1.2 Disassemble the connection bolt at the body suspension of pump body and the suspension body including the seal part of the pump body. (It is necessary to disassemble the medium connection part of the lengthened shaft coupling ahead). Equipped with the middle connector, and remove the motor part.

7.1.3 Loosen the impeller nut, and take out the impeller and key.

7.1.4 Take off the pump cover, shaft sleeve, mechanical seal end cover and mechanical seal together from the shaft. At this time, attention should be paid to prevent the shaft sleeve and pump cover from relative sliding. Then remove the mechanical seal end cover, and take off the mechanical seal and shaft sleeve together. If it is soft packing seal, you can first take off the shaft sleeve from the pump cover, and then remove the packing cover, packing and packing ring in order. For special mechanical seal, pay attention to its different disassembly method.

7.1.5 Disassemble the suspension body.

7.1.6 Disassemble the pump coupling and key.

7.1.7 Remove the dust disc and bearing front and back covers at both ends of the suspension, and then take off the shaft and bearing together from the suspension body.

7.1.8 Disassemble the bearing and shaft.

7.2 Pump assembly

The assembly order is basically the reverse order of disassembly. But it is necessary to check the seal surface gaskets are good.

8 Installation of pump

8.1 The reasonable installation can play a key role for normal operation and life. So the installation and correction must be carried out carefully. The appearance and installation dimensions (see Fig.5 and Table 5)

8.2 The installation site of the pump should be convenient for inspection and maintenance.

8.3 After opening the box, check the pump and motor. If it is confirmed that there is no damage and loose fasteners caused by loading, unloading and transportation, and there is no dust or impurities entering the pump, it can be directly sent to the use site for installation.

8.4 安装泵的基础平面应用水平仪找平，待基础水泥凝固后，将泵安放基础上，并用水平仪检查泵和电机轴的水平情况，如不水平，应用垫铁调正，直到水平为止。然后通过灌浆孔用水泥浇灌底座和地脚螺栓孔眼。

8.5 水泥干固后，应检查底座和地脚螺栓孔眼是否松动，合适后拧紧地脚螺栓，重新检查水平度。

8.6 在电机、泵和底座重新安装情况下，应严格检查泵轴和电机的同轴度。测量联轴器的外圆上下左右的差异不得超过 0.1 毫米，两联轴器端面间隙一周上最大和最小的间隙差不得超过 0.3 毫米。

8.7 泵的吸入管路和吐出管路应有各自的支架，不允许管路的重量直接由泵来承受，以免把泵压坏。

8.8 泵的安装位置高于液面（在泵的吸程允许范围内）时，应在吸入管路端部装上底阀，并在排出管路上设置灌液螺孔或阀门，供起动前灌泵之用。泵的安装位置低于液面（灌注情况）时，应在吸入管路上装上控制阀门和过滤装置，以防杂物吸入泵内。

8.9 本 LGH 型系列泵均按 1.6MPa 规格设计，所以选择管路法兰时应与之相匹配。

9 泵的使用（起动、运行和停车）

9.1 起动

9.1.1 准备必要的工具。

9.1.2 起动前要把泵和现场清理干净。

9.1.3 检查悬架体储油室的油位，油面应在油位计中心线 2 毫米左右。

9.1.4 未接联轴器前应检查原动机的转向，与泵的转向箭头一致后，接好联轴器。

9.1.5 用手转动联轴器，应感觉轻松且轻重均匀，并注意辨别泵内有无摩擦声和异物流动等杂音，如有则应设法排除。并将联轴器的防护罩装好。

9.1.6 泵的安装位置低于液面（灌注情况）时，起动前打开吸入管路的闸阀，使液体充满泵内。如泵的安装位置高于液面（真空情况），起动前要灌泵或抽真空，使泵内和吸入管内充满液体，排净泵内空气。

8. The base should be leveled after the cement is solid. If the level condition is not good, it must use iron cushion to make the level. Finally it must use cement to fill the base and foot screw holes.

8.5 After the cement is solid, it is necessary to check whether the base and foot screw holes are loose. After adjustment, check the level again.

8.6 In the case of re-assembly of the motor, pump and base, it is necessary to strictly check the concentricity of the pump shaft and motor shaft. The difference of the concentricity around the shaft coupling should be no more than 0.1mm. The maximum difference of the end face gap should be no more than 0.3mm.

8.7 The suction pipe line and outlet pipe line should have their respective support. It is not allowable that the pump bears the weight of the pipe line.

8.8 When the installation position of the pump is higher than the liquid level (within the suction head range), a bottom valve should be installed at the inlet of the suction pipe line, and a filling hole or valve should be installed at the outlet of the suction pipe line for filling the pump before starting. When the installation position of the pump is lower than the liquid level (injection case), a control valve and filter should be installed on the suction pipe line to prevent impurities from entering the pump.

8.9 The LGH series pumps are designed according to 1.6MPa specification, so the pipe flange should be matched.

9 Operation of pump(start, operation and stop)

9. Start

9.1.1 Prepare necessary tools.

9.1.2 Clean the pump and site before starting.

9.1.3 Check the oil level in the suspension body oil tank. The oil level should be 2mm above or below the center line of the oil level gauge.

9.1.4 Check the motor rotation before connection of shaft coupling. When the rotation is same as the pump rotation arrow, connect the shaft coupling.

9.1.5 Turn the coupling by hand, it should feel light and even. It is necessary to ensure there is no abnormal friction inside the pump. And it is to install the protection cover of the coupling.

9.1.6 When the installation position of the pump is lower than the liquid level (injection case), open the inlet valve of the suction pipe line to fill the pump with liquid before starting. When the installation position of the pump is higher than the liquid level (vacuum case), prime the pump or vacuum, fill the pump and suction pipe with liquid, and clean the air in the pump.

9.1.7 起动前检查基础螺栓有无松动。压盖是否歪斜。以及润滑油和冷却水的供应情况。

9.1.8 关闭进出口压力（或真空）表和出水阀门，（如有旁通管，此时也应关闭）同时打开冷却水阀门，将冷水在密封腔及原盖腔内进行循环后再起动机（最好先点动，确认泵转向正确后，才开始正式运行），然后打开进出口压力（或真空）表，当泵达到正常转速，且仪表指出相应压力时，再慢慢打开出水阀门，调节到需要的工况。在吐出管路关闭的情况下，泵连续工作的时间，不能超过 3 分钟。

9.1.9 起动过程中要时时注意原动机的功率读数及泵的振动情况。

9.1.10 密封情况：机械密封应无泄漏，发热现象，填料密封应呈连续滴流状态。

9.2 运行

9.2.1 经常检查泵和电机的温升情况，轴承的温升不应大于 35℃，极限温度不应大于 75℃。

9.2.2 注意悬架体储油室油位的变化，经常控制在规定范围内，为了保持油的清洁和良好的润滑，应根据现场使用的实际情况，定期更换新油。一般情况，每运转 1500 小时后，要全部更换新油一次。

9.2.3 在运转过程中，发现有不正常的声音或其他故障时，应立即停车检查，待排除故障后才能继续运转。

9.2.4 绝不允许用吸入管路上的闸阀调节流量，以免产生汽蚀。

9.2.5 泵不宜在低于 30% 设计流量下连续运转，低流量会产生高扬程，对密封腔产生过高压力使密封漏水或对使用主设备产生破坏，如果必须在该条件下连续运转，则应在出口处安装旁通管，排放多余流量。

9.3 停车

9.3.1 缓慢关闭吐出管路闸阀（如果泵在倒灌情况下使用，还要关闭吸入管路的闸阀），并关闭各种仪表的开关。

9.3.2 切断电源。

9.3.3 如果密封采用外部引液时，还要关闭外引液阀门。

9.3.4 如果环境温度低于液体凝固点时，要放净泵内液体，以防冻裂。

9.3.5 如果长时间停车不用，除将泵内的腐蚀性液体放净外，各零部件应拆卸清洗干净，尤其是密封腔。最好是将泵拆下清洗后重新装好，除涂油防锈处理和封闭泵进、出口外，还应定期检查。

Condition it is must to level the liquid fill the pump and pipe line.

9.1.7 Check whether the base screw relax and the gland is inclined and the supply condition lubrication and cooling water.

9.1.8 Close the inlet and outlet pressure (or vacuum) gauge and the outlet valve, (if there is a bypass pipe, it should also be closed) and open the cooling water valve, circulate the cold water in the seal chamber and the original cover chamber, then start the motor (it is best to start with point start, confirm the pump rotation direction is correct, then start the formal operation), then open the inlet and outlet pressure (or vacuum) gauge, when the pump reaches the normal speed, and the instrument indicates the corresponding pressure, then slowly open the outlet valve, adjust to the required working condition. In the case of closing the outlet pipe line, the continuous working time of the pump should be no more than 3 minutes.

9.1.9 It is must to track the motor power and the pump vibration.

9.1.10 Seal condition: mechanical seal should be immune to leakage, heating phenomenon, packing seal should be continuous dripping state.

9.2 Operation

9.2.1 It is must to check the temperature rise of the pump and motor, the bearing temperature rise should not be greater than 35℃, the limit temperature should not be greater than 75℃.

9.2.2 It is must to track the change of the oil level in the suspension body oil tank, regularly control it in the specified range, in order to keep the oil clean and good lubrication, according to the actual situation, regularly change the new oil. In general, after 1500 hours of operation, the oil should be completely replaced once.

9.2.3 During operation, once irregular sound or other fault appears, it is must to stop the pump and check it immediately, after the fault is eliminated, the pump can continue to operate.

9.2.4 It is absolutely prohibited to use the gate valve on the suction pipe line to regulate the flow, in order to avoid cavitation.

9.2.5 The pump should not run continuously at a flow rate below 30% of the design flow rate. Low flow rate will produce high head, which will produce too high pressure in the seal chamber, causing the seal to leak water or damage the main equipment. If it is necessary to run continuously under such conditions, a bypass pipe should be installed at the outlet to discharge the excess flow.

9.3 Stop

9.3.1 Slowly close the outlet valve of the outlet pipe line (if the pump is used in the reverse flow case, the inlet valve of the suction pipe line should also be closed), and close the switch of various instruments.

9.3.2 Power off.

9.3.3 If there is external liquid supply, it is must to close the external liquid supply valve.

9.3.4 If the ambient temperature is below the凝固 point of the liquid, clean the liquid inside the pump to prevent freezing.

9.3.5 In case of long-term stop, besides cleaning the corrosive liquid inside the pump and cleaning the parts, especially the seal chamber, it is best to disassemble the pump after assembly and clean it thoroughly. Besides cleaning and rust prevention and sealing the pump inlet and outlet, it is must to check regularly.

10 使用机械密封注意事项

本 LGH 型系列泵可根据不同的使用条件，安装不同形式的机械密封，（如内装单端面平衡型和非平衡型，双端面平衡型及非平衡型，外装式机械密封等。）密封形式不同，使用方法和注意事项也有所不同，具体情况应按照（机械密封安装使用说明书）中的规定去处理。下面仅提几点一般应注意的事项：

1 0 一般机械密封适用于清洁的，无悬浮颗粒的介质中，因此，对新安装的管路系统和储液罐，应认真冲洗干净，严防固体杂质进入机械密封端面而使密封失效。

1 0 在易结晶的介质中使用机械密封应注意经常冲洗。停车后重新启动前，要将机械密封上的结晶清洗干净。

1 0 拆卸机械密封应仔细，不许用手锤、铁器等敲击，以免破坏动、静环密封面。

1 0 如果有污垢拆不下来时，应设法清除污垢，冲洗干净后再进行了拆卸，以免损坏密封元件。

1 0 安装机械密封前，应检查所有密封元件是否有失效或损坏，如有则应重新修复或更换。

1 0 应严格检查动环与静环的相对摩擦密封面，不允许有任何细微的划痕、碰伤等缺陷。所有零部件，包括泵体、叶轮、密封腔等在装配前均应冲洗干净，尤其动、静环端面，要用清洁、柔软的布或棉纱认真擦拭干净，然后涂上一层清洁的油脂或机油。

1 0 装配中注意消除偏差，紧固螺钉时，要均匀拧紧，避免发生偏斜，使密封失效。

1 0 正确调整弹簧的压缩量，泵安装好以后，以手扳动转子时，应感觉到密封弹簧既有一定的压缩量，而不能轻快、灵活地转动没有咬紧感觉。如感觉太紧或盘不动，则适当调松一些。

1 0 对有外部冲洗的机械密封，启动前应先开启冲洗液，使密封腔内充满密封液。停车时，先停泵，后关密封冲洗液。

10 Note for use of mechanical seal

The series LGH pump can fit different type of mechanical seal in clean liquid. The different mechanical seal according to different operation condition. The different mechanical seal is subject to usage and note. It is must to deal according to the relevant operation manual. The following are some general items to be noted:

1 0 The general mechanical seal is suitable for clean medium without suspended particles. Therefore, the newly installed pipeline system and storage tank should be thoroughly cleaned to prevent solid impurities from entering the mechanical seal end face and causing seal failure.

1 0 In the medium which is easy to crystallize, the mechanical seal should be cleaned frequently. Before restarting after stop, the crystalline on the mechanical seal should be cleaned.

1 0 When disassembling the mechanical seal, be careful not to use hammer or iron tool to knock, so as to avoid damage to the dynamic and static seal ring.

1 0 If the dirt is not removed, the method should be used to clean the dirt, and then disassembled after cleaning, so as to avoid damage to the seal parts.

1 0 Before installing the mechanical seal, check whether all the seal parts are effective or damaged. If so, they should be repaired or replaced.

1 0 Strictly check the relative friction surface between the dynamic and static ring. It is strictly prohibited to have any slight scratches, impact damage or other defects on all parts, including pump body, impeller, seal chamber, etc. Before assembly, they should be thoroughly cleaned, especially the dynamic and static ring end face, which should be cleaned with clean and soft cloth or cotton wool, and then coated with a thin layer of clean oil or grease.

1 0 Pay attention to eliminate the deviation during assembly. When tightening the screws, they should be tightened evenly to avoid the seal ring from being tilted, so as to cause seal failure.

1 0 Adjust the spring compression correctly. After the pump is installed, when the rotor is turned by hand, it should be felt that the seal spring has a certain compression, but it cannot be turned lightly and flexibly without a tight feeling. If it is too tight or cannot be turned, it should be adjusted properly.

1 0 For the mechanical seal with external flush, the flush liquid should be opened before starting to make the seal liquid full of the seal chamber. When stopping, stop the pump first, then stop the flush liquid.

11 可能发生的故障、原因及消除方法

故障现象

故障的可能因素	产生振动及噪音	功率消耗过大	流量、扬程不足	泵输不出液体	密封处泄漏过多	轴封（包括填料函）发热	泵过份发热及转不动	轴承发热及轴承磨损	消除方法
泵内或吸入管内留有空气	○	○	○	○	○	○	○	○	重新灌泵排除空气
吸上扬程过高或灌注液不够	○	○	○	○	○	○	○	○	降低泵位，增加进口处压力
吸入管径过小或有杂物堵塞	○	○	○	○	○	○	○	○	加大吸入管径，清除堵塞
吸入管浸入深度不够或漏气	○	○	○	○	○	○	○	○	增大浸入深度或检修管路
转速过高或过低	○	○	○	○	○	○	○	○	按规定要求检查原动机转速
泵转向不对	○	○	○	○	○	○	○	○	调整转向
总扬程与泵扬程不符	○	○	○	○	○	○	○	○	降低吐出系统阻力或高度
介质重度与粘度与泵要求不符	○	○	○	○	○	○	○	○	应进行换算并调换合适功率电机
在流量过小时运转产生振动					○	○	○	○	加大流量或设旁通循环管
泵与电机轴线不一致或轴弯曲					○	○	○	○	校正
转动部分与固定部分有磨擦					○	○	○	○	检修泵或改善使用工况
轴承磨损严重或损坏						○	○	○	更换之
密封环磨损过多					○	○	○	○	更换之
轴套、填料或动静环磨损过多					○	○	○	○	更换之
填料（或机械密封）选用或安装不当					○	○	○	○	按使用要求重新选用或安装
转动部分不平衡引起振动					○	○	○	○	检查原因设法消除
油室量过多（或油过脏）					○	○	○	○	按油位要求计加油（或换新油）
管路或泵内有杂物堵塞	○	○	○	○	○	○	○	○	检查并排除
密封液压力不当					○	○	○	○	应按密封腔前的压力，加大 0.049-0.147MPa
填料压盖过紧或过松					○	○	○	○	适当调整之

11 Fault, cause and elimination

Cause	Fault							Elimination
	Appearance of vibration and noise	Too high power consumption	Inadequate flow and lift	No liquid out of the pump	Too severe leakage out of the seal	Shaft seal (including stuffing box) heating	Too heating pump and pump stop	
Air exists inside the pump and suction pipe	○	○		○				Refill pump to exhaust air
Suction lift too high or inadequate liquid fill	○	○		○				Lower pump position to increase inlet pressure
Too thin suction diameter or impurity block	○	○		○				Increase suction diameter and remove the block
Inadequate depth into the liquid of suction pipe or air leakage	○	○		○				Increase depth to immerse or repair pipe line
High or low rotation	○	○	○					Adjust to the nominal rotation
Wrong rotation	○	○						Change to right rotation
The general lift doesn't match with the pump lift	○	○	○					Lower the resistance or height of outlet system
The medium adhesion doesn't match with requirement	○	○	○					Use suitable motor
Vibration appears when the flow is too small				○		○	○	Increase flow or set by-pass cycle pipe
The axis of pump and motor doesn't align or the shaft bent				○	○		○	Adjust
There exists friction between rotation part and solid part				○	○		○	Check pump or improve operation condition
Severe abrasion or broken of bearing					○	○	○	Replace
Too abrasive seal ring		○	○					Replace
Too abrasive muff, filler or dynamic & static ring			○	○	○	○		Replace
Unappropriate choice or installation of filler (or mechanical seal)			○	○	○	○		Rechoice or reinstallation
Unbalance rotation to cause vibration				○	○	○	○	Elimination
Too much oil (or too dirty oil)				○	○		○	Fill oil according to oil level (or replace fresh oil)
There is impurity to block the pipe line or pump	○	○		○				Check and eliminate
Unappropriate seal liquid pressure					○	○		Add the pressure of 0.049-0.147MPa on the base of the pressure at the front of the seal cavity
Too tight or loose of filler gland				○	○	○		Adjust

表7 ZG1Cr18Ni9(305)钢的耐腐蚀性能表

介质	介质条件		腐蚀深度 (mm/a)	介质	介质条件		腐蚀深度 (mm/a)
	浓度 (%)	温度 ()			浓度 (%)	温度 ()	
硝酸	30	20	0.007	混合酸	H ₂ SO ₄ 78	20	0.003
	50-56	20	0		HNO ₃ 0.5		
	93	43	0.05		H ₂ SO ₄ 78	90	0.05
	95	37-55	0.03		HNO ₃ 0.5		
	97	55	0.76		H ₂ SO ₄ 78	20	0.0018
	99	55	1.25		HNO ₃ 1		
	99.67	55	< 10		H ₂ SO ₄ 78	90	0.0251
			HNO ₃ 1				
硫酸	2	50	0.016	氢氧化钾	20	20~沸	< 0.1
	2	100	3-6.5		50	20	< 0.1
	5	50	3-4.5		50	沸	< 0.1
	5	100-105	3.3-15		熔化的		> 10
醋酸	1~浓	20-40	< 0.1	氢氧化钠	~12	100	0.0044
	10		< 0.1		~35	100	0.008
	50		< 0.1	重铬酸钾	25	20~沸	< 0.1
	80		< 0.3	氯化锰	10-50	100	< 0.1
磷酸	10	80	0.01	过氧化钠	10	20~沸	< 0.1
	28		0.67	亚硫酸钠	25-50	沸	< 0.1
	45		0.1-1	硫酸钠	5~饱和	100	< 0.1
	60		1.7	熔化的	900	> 10	
柠檬酸	80	110	腐蚀深度过大	硝酸银	10	沸	< 0.1
	1-50	20	< 0.1	氯	干燥的	20	< 0.1
	5	140	< 1		干燥的	100	> 10
	50		< 10	漂白粉	潮湿的	40	0.48
硫	95	20-140	< 0.1	氯化氢	干燥的	20-100	< 1
	熔化的	130	< 0.1		干燥的	100-500	< 10
	熔化的	445	< 3				

12 泵与介质接触的主要零件材料耐腐蚀性能选择

12 Choice of anti-corrosive performance of main parts in pump in contact with medium

12.1 金属材料耐腐蚀性能通常用腐蚀深度（又称腐蚀速度）作为评定金属材料耐腐蚀性能的一项主要指标。

12.2 腐蚀深度是指金属材料在单位时间内腐蚀的金属深度，单位用“毫米/年（mm/a）”表示。

12.3 按照腐蚀程度的不同，通常分为：腐蚀深度小于 0.1mm/a 的材料，称为耐腐蚀性能材料；腐蚀深度为 0.1~1mm/a 称为尚耐腐蚀材料；腐蚀深度大于 1mm/a 称为耐腐蚀性不好的材料。

12.4 一般泵与介质接触的主要零件是材料选用在指定介质情况中，尚耐腐蚀性材料就可以。

12.5 为便于用户选用泵时，根据所输送介质条件，选择适宜泵的主要零件材料耐腐蚀性能，本说明书汇编了：ZG1Cr18Ni9(303)，ZG1Cr18Ni9Ti(305)，Q1Cr18Ni12Mo2Ti(306)，Q1Cr18Ni12Mo2Ti(307)，Q00Cr17Ni14Mo2(316L)，Q1Cr18Ni13Mo2CuN(402) 等材料耐腐蚀性能表（表 6- 表 10）供选泵时参考。

表8 ZG0Cr18Ni12Mo2Ti(306)钢的耐腐蚀性能表

介质条件			腐蚀深度 (mm/a)	介质条件			腐蚀深度 (mm/a)
介质	浓度(%)	温度()		介质	浓度(%)	温度()	
硝酸	1~5	20	< 0.1	氢氟酸	10	20	< 0.1
	1~5	80	< 0.1		10	100	1~3
	5	沸腾	< 0.1	氢氧化钠	10~20	沸	< 0.1
	20	20~80	< 0.1		30	100	< 0.1
	50	20~50	< 0.1		40	90	< 0.1
	50	80	< 0.1		50	90	< 0.1
	50	沸	< 0.1		50	100	< 0.1
	60	20~60	< 0.1		60	90	< 0.1
	60	沸	0.1~1		70	90	< 0.1
	65	20	< 0.1	草酸	2.5	20	< 0.1
	65	85	< 0.1		2.5	60	< 0.1
	65	沸	0.1~1		2.5	沸	< 0.1
	90	20	< 0.1		10	20	< 0.1
	90	70	0.1~1		10	沸	1~3
	90	沸	1~3	50	沸	0.1~1	
99	20	0.1~1	氢氧化钾	25	沸	< 0.1	
99	沸	3~10		50	20	< 0.1	
				50	沸	< 0.1	
硫酸	0.5	20	< 0.1	68	120	< 0.1	
	1	20	< 0.1	高锰酸钾	5~10	20	< 0.1
	3	20	< 0.1		10	沸	< 0.1
	40	20	< 0.1	盐酸	0.5		1~3
	80	20	0.1~1		3		< 0.1
	98	20	< 0.1		5		< 0.1
			10			0.1~1	
			30			3~10	
亚硫酸	2	20	< 0.1				
	20	20	< 0.1				

表9 ZG1Cr18Ni12Mo2Ti(307)钢的耐腐蚀性能表

介质条件			腐蚀深度 (mm/a)	介质条件			腐蚀深度 (mm/a)	
介质	浓度(%)	温度()		介质	浓度(%)	温度()		
硫酸	1	85	< 1	铬酸	10	沸腾	< 1	
	3	80	< 3		50	20	< 0.1	
	5	20	< 0.1	50	沸腾	< 3		
	5	80	1~3	氢氧化钠	10~30	20~ 沸腾	< 0.1	
	10	20	< 0.1		40~60	120	< 0.1	
	10	80	1~3		60	160	< 3	
	20	20	< 0.1		78	120	< 0.1	
	20	60	< 3		熔体	318	1~3	
	40	20	< 0.1		氢氧化钾	25~50	20~ 沸腾	< 0.1
	40	60	> 10			68	120	< 0.1
	80	20	< 1	熔体		300	1~3	
	亚硫酸	80	60	3~10	氯	干燥的	20	< 0.1
20		20	< 0.1	潮湿的		20	< 10	
饱和溶液		20	< 0.1	潮湿的		100	> 10	
潮湿气体		20	< 0.1	氯水		20	< 1	
饱和溶液		160~200	< 0.1	氯苯	钝的	沸腾	< 0.1	
磷酸	1~80	20	< 0.1	漂白粉	干燥中熔液	20	< 0.1	
	1~45	沸腾	< 0.1	熔液 +2% C1	20	< 0.1		
	1	140(0.3MPa)	< 0.1	氯化氢	干燥的气体	20~100	< 1	
	80	60	< 0.1	干燥的气体	200	< 10		
盐酸	80	110~ 沸腾	1~3	氯化铁	30~50	20	3	
	0.5	20	< 0.1	氯化铵	28~ 饱和溶液	100	< 0.1	
	0.5	沸腾	< 3	氯化钙	饱和溶液	100	< 0.1	
	1	20	< 0.1	碘	溶液	20	> 10	
	1	50	< 3	碘仿	蒸汽	60	< 0.1	
	5	20	< 0.1	溴化钾	溶液	20	< 0.1	
	5	60	< 3	亚硫酸酐	潮湿的	20	< 0.1	
	10	20	< 1		潮湿的	300	< 0.1	
	10	60	3~10		潮湿的	500	< 1	
	20	20	< 3		潮湿的	900	< 3	
	20	60	> 10	亚硫酸钠	50	沸腾	< 0.1	
	30	60	3~10	亚硫酸氢钠	50	沸腾	< 0.1	
铬酸	10	20	< 0.1	纤维素	纤维素蒸煮时	沸腾	0(190h)	
				尿素	溶液	20	< 0.1	

表10 ZG00Cr17Ni14Mo2(316L)钢的耐腐蚀性能表

介质条件			腐蚀深度 (mm/a)	介质条件			腐蚀深度 (mm/a)	
介 质	浓度 (%)	温度 ()		介 质	浓度 (%)	温度 ()		
硫 酸	0~30	25	< 0.3	甲酸+醋酸	20	沸腾	0.401	
	10	0	< 0.3		45			
	40	25	> 0.3	醋 酸	30	沸腾	0	
	85	25	< 0.3		50	沸腾	0.005	
	98	25~50	< 0.3		70	沸腾	0.018	
磷 酸	40	70~100	< 0.3	熔融尿素	99	沸腾	0.035	
	40	沸腾	< 0.3		尿素 32~34	190~150	0.065	
	50~60	70~100	< 0.3					CO ₂ 10~11
	50~60	沸腾	> 0.3					NH ₃ 35~36
	70	70~90	< 0.3	H ₂ O 19~21				
	70	100	> 0.3	熔融尿素	CO ₂ 35	170~180	0.024	
	80	70~80	< 0.3		NH ₃ 54~55			
80	> 80	> 0.3	H ₂ O 10					
粗 醋 酸	浓	81	2.2	熔融尿素	尿液 30	188	0.17	
		190	14		甲铵 30			
		沸腾	< 0.0005		NH ₃ 20			
70	沸腾	H ₂ O 20						
甲酸+醋酸	20	沸腾	0.26	注：深融尿素的压力=200				
	70	沸腾	0.26					

12.6 ZG1Cr18Mn13Mo2CuN (402) 无镍的不锈钢，在大多数化工介质中的耐腐蚀性相当或优于 ZG1Cr18Ni9Ti(305) 钢，尤其是在腐蚀性能与磨损并存的条件下比 ZG1Cr18Ni9Ti 更优，机械性能和铸造性能好，但气孔敏感性比 ZG1Cr18Ni9Ti 大，其耐腐蚀性能在此基础上可参照 ZG1Cr18Ni9Ti 耐腐蚀性能表。

13 成套供应范围和随机资料及订货须知

13.1 成套供应范围：

化工离心泵 1 台、电动机 1 台、底座 1 个、联轴器 套、普通联轴器罩 1 个。

13.2 随机资料

化工离心泵使用说明书 1 本，产品合格证 1 份，质量跟踪信誉卡 1 份。

13.3 备件

泵的备件主要有泵体、叶轮、轴套、密封部件等零部件（具体按订货合同供应）。

13.4 订货须知

13.4.1 用户在订货时要提供所输送介质的名称和密度、温度和浓度，性能（流量、扬程）要求、转速，以便作为泵的选型、选材料、配带电机时技术依据。

13.4.2 用户若采用机械密封或其它种类的密封型式，以及对机械密封材料选择有另外要求的，应在订货时注明具体型号和要求。

13.4.3 用户在需要其它特殊材料时，应在订货时事先提出。

13.4.4 泵在特殊使用场所，需要防爆电机的必须在订货时注明。

13.4.5 本厂实行微利经营，让利客户，欢迎客户前来公司直接洽谈订货。

13.4.6 在客户选用泵的性能参数和耐腐蚀材质恰当，并遵守说明书中的使用规定情况下，从发货之日起，1 个月内，运转不超过 6 个月（累计运转不超过 1500 小时），产品因制造质量不良而发生的损坏或不正常工作时，保证免费修理或更换损坏零件。但易损件的正常磨损和零件的正常腐蚀均不在此例。

13 Complete equipment list & must for order

13.1 Supply range

One chemical centrifugal pump, one electric motor, one base, one coupling, one coupling cover.

13.2 Information

One operation manual, one product qualification certificate, one quality tracking card.

13.3 Spare parts

The main spare parts include pump body, impeller, shaft sleeve, seal parts etc. (Specific parts according to the order contract).

13.4 Must for order

13.4.1 Please offer the medium and density, temperature and concentration, performance (flow, head) requirements, speed, in order to be used as the basis for pump selection, material selection, and motor selection.

13.4.2 Please specify the mechanical seal or other type of seal, and the material requirements for the mechanical seal, if there are other requirements for the mechanical seal material selection.

13.4.3 Please clarify the choice of the pump material with the factory in advance.

13.4.4 Please specify the explosion-proof motor if used in special use.

13.4.5 We operate on a micro-profit basis, and we welcome customers to negotiate directly with the factory.

13.4.6 The factory will ensure to replace or repair freely the broken parts for poor manufacture quality or abnormal operation within six months (total operation time no more than 1500h). But the normal abrasion of easy-to-abrasive part and normal corrosion are not included.