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概述 General Specification

BP(R)系列渣浆泵（图 1）为立式液下离心泵，浸入液下，用于输送腐蚀性、粗颗粒、高浓度渣浆，广泛应用在冶金、矿山、电厂、化工、建筑等行业。

Series BP(R) slurry pump(Picture 1) is centrifugal vertical sump pump, work under fluid. It widely used for delivery abrasive, high density slurry with large particle in the metallurgy, mine, power plant, chemical, and other industry.

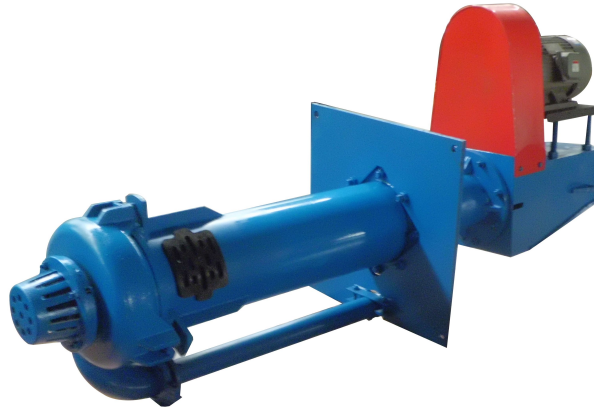


图 1(Picture 1)

性能范围 Performance Range

流 量：17~1267m³/h

扬 程：4~40m

出口压力：4 Bar

出口尺寸：40~300mm

Flow rate: 17~1267m³/h

Head: 4~40m

Outlet pressure: 4Bar

Outlet flange: 40~300mm

曲线图谱（图 2）

Performance Chart(Picture 2)

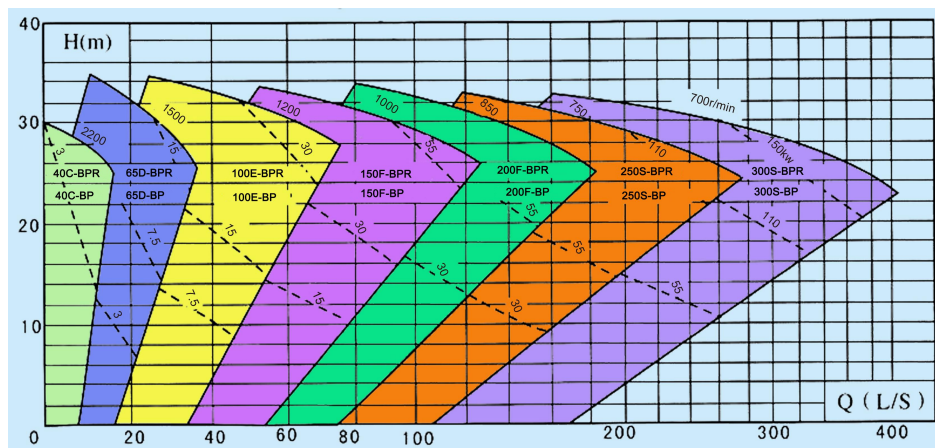


图 2(Picture 2)

型号 Model

型号意义 Model Meaning

注：具体型号意义参看图 3。

Note: The specific meaning of the models please refer Picture 3.

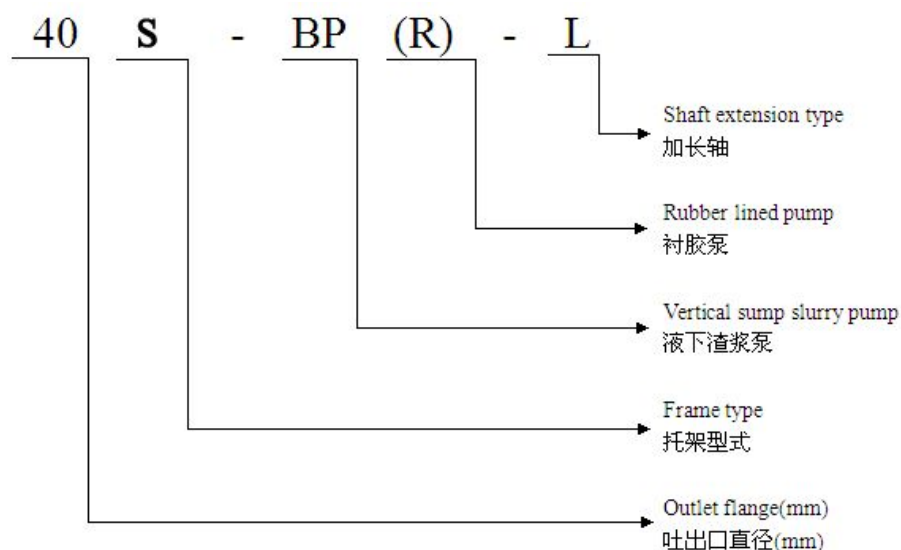


图 3(Picture 3)

型号列表 Models Sheet

注：具体型号请参看表 1

Note: The specific models please refer Sheet 1.

型号 Models	
金属泵(Metal Pump)	胶泵(Rubber Pump)
40C-BP	40C-BPR
65D-BP	65D-BPR
100E-BP	100E-BPR
150F-BP	150F-BPR
200F-BP	200F-BPR
250S-BP	250S-BPR
300S-BP	300S-BPR

表 1(Sheet 1)

应用领域 Application

选矿及尾矿
碳浸采金
事故浆液回流
选煤
沙子及砂砾
化工生产
废水处理

Minerals processing and Tailing delivery
CIL (Carbon-In-Leaching) gold processing
Accident slurry return
Coal preparation
Sand and gravel discharging
Chemical processing
Effluent handing



矿山泵站 In the mine site pump station



排泥现场 Drainage slurry working condition

图 4(Picture 4)

设计特点 Designing Features

1. 材质结构可选（图 5）

BP: 耐磨金属结构

BPR: 耐腐橡胶外衬结构

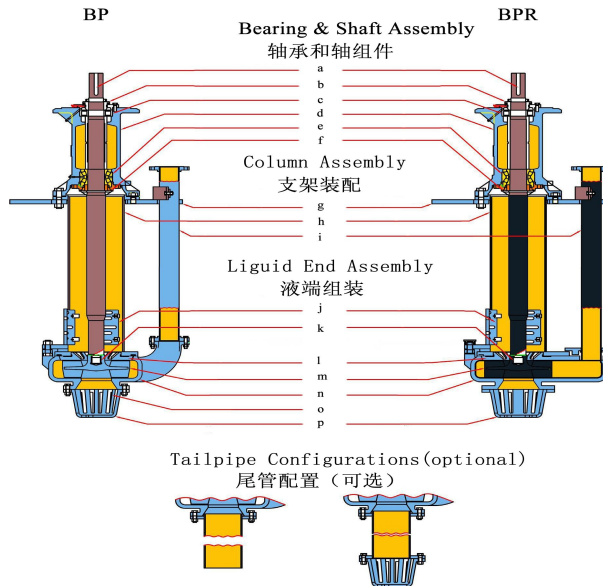


图 5(Picture 5)

1. Material construction optional(Picture 5)

BP: abrasion resisting metal construction

BPR: anti-corrosive rubber construction



BP series pump

BPR series pump

图 6(Picture 6)

序号(No.)	零件名称	Part Name
a	BP-金属轴/BPR-衬胶轴	BP-Metal shaft/BPR-Elastomer coated shaft
b	上平行滚轴密封	Upper parallel roller seal
c	上平行滚珠轴承	Upper parallel roller bearing
d	轴承体	Bearing housing
e	下层双圆锥滚子轴承	Lower bearing-double roller taper
f	下层轴承密封-唇口密封圈	Lower bearing sel-lip seal & flinger
g	BP-金属安装板/BPR 底部衬胶	BP-Metal mounting plate/BPR-Elastomer coated on bottom
h	BP-金属支架/BPR 衬胶支架	BP-Metal column/BPR-Elastomer coated column
i	BP-金属排出管/BPR 衬胶排出管	BP-Metal outlet pipe/BPR-Elastomer coated outlet pipe
j	聚乙烯上滤网	Poly molded upper strainer
k	叶轮螺柱密封	Impeller thread seal
l	BP-金属后板/BPR 衬胶后板	BP-Metal back liner/BPR-Elastomer coated back liner
m	BP-金属叶轮/BPR 衬胶叶轮	BP-Metal impeller/BPR-Elastomer impeller
n	BP-金属泵体/BPR 衬胶泵体	BP-Metal casing/BPR-Elastomer coated casing
o	搅拌器 (BP)	Agitator(Only for BP)
p	BP-金属下滤网/BPR 聚乙烯下滤网	BP-Metal low strainer/BPR-Poly lower strainer

表 2 (Sheet 2)

2. 不需要任何轴封和轴封水，在吸入量不足的工况下也能正常工作

2. Do not need any shaft seal or sealing water.
Also worked well under insufficient suction duty.

3. 型号中加“L”的为加长轴系列的液下泵，适用于液位较深的工况。这种泵在标准泵的基础上增加了导轴承结构，运转更平稳，适用更广泛。导轴承部位需要附设冲洗水。（图 8）

3. The type with “L” is the pump with extension shaft. It suitable to deep condition. It has guid bearing. So it more stable and used more wide. However the flushing water is necessary on the guide bearing part.(Picture 8)

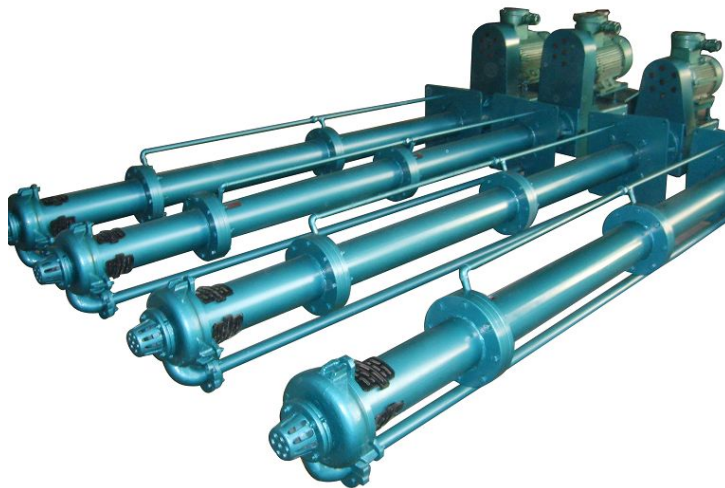


图 8(Picture 8)

4. 可以安装搅拌器（图 9）
可以根据要求选择安装搅拌器与否

4. The agitator is available(Picture 9)
We can assembly the agitator as requirements.



图 9(Picture 9)

性能参数表 Performance Data Sheet

型号 Model	流量 Flow	扬程 Head	效率 Eff	轴功率 Shaft power	转速 Speed	电机功率	驱动 形式 Drive	出口	重量
	Q	H	η	P	n	Motor power		Outlet	Weight
	m ³ /h	m	%	KW	r/min	KW		mm	Kg
40C-BP	7.2	5.5	30	0.36	1000	1.1	BD	40	285
	12.6	5	36	0.48					
	18	4.3	36	0.59					
	9	8	30	0.65	1200	1.1			
	15.12	7.4	36	0.85		1.5			
	21.6	6.4	36	1.05					
	10.08	10.9	30	1	1400	1.5			
	18	10	36	1.32		2.2			
	24.84	8.7	36	1.63		3			
	10.44	11.5	30	1.09	1420	1.5			
	18	10.5	36	1.39		2.2			
	25.2	9	36	1.72		3			
	10.8	12.7	30	1.25	1500	2.2			
	18.72	11.3	36	1.56		3			
	26.64	10	36	2.02		4			
	11.52	14.4	30	1.51	1600	2.2			
	19.8	13	36	1.89		3			
	28.08	11.2	36	2.38		4			
	12.24	16.4	30	1.82	1700	3			
	21.24	15	36	2.34		4			
	30.24	12.9	36	2.95		5.5			
	13.32	18.2	30	2.2	1800	3			
	22.68	16.8	36	2.8		4			
	32.04	14.5	36	3.51		5.5			
	14.04	20.5	30	2.61	1900	4			
	24.12	18.7	36	3.32		5.5			
	34.2	16	36	4.14		7.5			
	14.76	22.5	30	3.01	2000	4			
	25.2	20.6	36	3.82		7.5			
	36	17.6	36	4.79		5.5			
	16.2	27.4	30	4.03	2200	7.5			
	28.8	24.6	36	5.21		5.5			
	39.6	21.4	36	6.41		11			

型号 Model	流量 Flow	扬程 Head	效率 Eff	轴功率 Shaft power	转速 Speed	电机功率	驱动 形式 Drive	出口	重量
	Q	H	η	P	n	Motor power		Outlet	Weight
	m3/h	m	%	KW	r/min	KW		mm	Kg
65D-BP	19.08	6.7	40	0.87	700	3	BD	65	432
	34.2	6	50	1.12					
	48.6	5	50	1.32					
	20.16	7	40	0.96	710	2.2	DC		
	34.92	6.4	50	1.22		3			
	49.68	5.4	50	1.46		3			
	21.6	8.9	40	1.31	800	3	BD		
	39.6	7.9	50	1.7		4			
	55.08	6.8	50	2.04		4			
	24.48	11.1	40	1.85	900	4			
	43.2	9.9	50	2.33		5.5			
	61.2	8.5	50	2.83		5.5			
	26.28	12.8	40	2.29	960	3	DC		
	46.8	11.4	50	2.91		4			
	65.88	9.8	50	3.52		5.5			
	30.24	16.6	40	3.42	1100	7.5	BD		
	54	14.8	50	4.35		11			
	75.6	12.8	50	5.27		11			
	32.4	19.6	40	4.32	1200	7.5			
	57.6	17.7	50	5.55		11			
	81.72	15.2	50	6.77		15			
	35.28	31.1	40	5.55	1300	7.5			
	61.2	20.8	50	6.93		11			
	88.2	17.8	50	8.55		15			
	37.8	26.7	40	6.87	1400	11			
	66.6	24	50	8.71		15			
	95.4	20.5	50	10.65		18.5			
	39.6	29.3	40	7.9	1470	18.5	DC		
	70.2	26.1	50	9.98		22			
	100.0	22.7	50	12.37		22			
	40.32	30.8	40	8.45	1500	15	BD		
	72	27.4	50	10.75		18.5			
	102.6	23.5	50	13.13	1500	22			

型号 Model	流量 Flow	扬程 Head	效率 Eff	轴功率 Shaft power	转速 Speed	电机功率	驱动 形式 Drive	出口	重量		
	Q	H	η	P	n	Motor power		Outlet	Weight		
	m3/h	m	%	KW	r/min	KW		mm	Kg		
100E-BP	41.5	6.2	40	1.75	500	3	BD	100	867		
	75.6	5.9	52	2.34		4					
	111.6	5.1	56	2.77		5.5					
	50.4	9	40	3.09	600	5.5					
	90	8.5	52	4.01		7.5					
	129.36	7.6	56	4.79		11					
	57.6	12.2	40	4.78	700	7.5					
	104.4	11.5	52	6.29		11					
	151.2	10.2	56	7.5		15					
	61.2	13.4	40	5.58	730	11	DC				
	111.6	12.7	52	7.42		15					
	162	11.2	56	8.82		18.5					
	64.8	16	40	7.06	800	11	BD				
	122.4	15	52	9.62		15					
	176.4	13.2	56	11.32		18.5					
	68.4	18	40	8.38	850	15				BD	
	129.6	17	52	11.54		18.5					
	187.2	15	56	13.66		22					
	75.6	20.3	40	10.45	900	15					BD
	136.8	19	52	13.61		22					
	198	16.9	56	16.27		30					
	82.8	24	40	13.53	980 (970)	30	DC				
	147.6	22.5	52	17.39		37					
	214.3	20	56	20.83		45					
	82.8	25	40	14.09	1000	30	BD				
	151.2	23.4	52	18.53		37					
	219.6	20.8	56	22.21		18.5					
	86.4	27.7	40	16.29	1050	30					
	158.4	25.7	52	21.32		37					
	230.4	22.8	56	25.55		45					
	91.8	30.3	40	18.94	1100	30					
	165.6	28.2	52	24.46		37					
	239.4	25.2	56	29.34		45					
	95.4	33	40	21.43	1150	30					
	25.2	27.5	56	33.7		45					
	100.8	36	40	24.71	1200	37					
	180	33.8	52	31.86		45					
	259.2	30	56	37.82							

型号 Model	流量 Flow	扬程 Head	效率 Eff	轴功率 Shaft power	转速 Speed	电机功率	驱动 形式 Drive	出口	重量
	Q	H	η	P	n	Motor power		Outlet	Weight
	m3/h	m	%	KW	r/min	KW		mm	Kg
150F-BP	115.2	9	45	6.27	500	11	BD	150	1737
	201.6	8	53	8.29		15			
	288	6.7	53	9.91					
	129.6	10.8	45	8.47	550	15			
	223.2	9.7	53	11.12		18.5			
	316.8	8	53	13.02		22			
	140.4	12.9	45	10.96	600	15			
	244.8	11.4	53	14.34		22			
	345.6	9.6	53	17.05		30			
	151.2	15.2	45	13.91	650	22			
	262.8	13.5	53	18.23		30			
	374.4	11.4	53	21.93		37			
	165.6	17.5	45	17.54	700	30			
	280.8	15.7	53	22.65		37			
	396	13.2	53	26.86		45			
	169.2	19	45	19.46	730 (740)	30	DC		
	295.2	17	53	25.79		37			
	417.6	14.5	53	31.11		45			
	187.2	22.9	45	25.94	800	37	BD		
	324	20.4	53	33.96		55			
	457.2	17.1	53	40.17					
	201.6	25.5	45	31.11	850	45			
	345.6	22.9	53	40.67		55			
	486	19.3	53	48.2		75			
	212.4	28.9	45	37.15	900	55			
	518.4	21.7	53	57.8		90			
	223.2	31.4	45	42.41	940	75			
	381.6	28	53	54.9		90			
	540	23.5	53	65.21					
	226.4	33.5	45	47.13	980	75	DC		
	396	30.2	53	61.45		90			
	561.6	25.4	53	73.3					
	230.4	35.7	45	50.56	1000	75	BD		
	403.2	31.9	53	66.09		90			
	576	26.8	53	79.32					

型号 Model	流量 Flow	扬程 Head	效率 Eff	轴功率 Shaft power	转速 Speed	电机功率	驱动 形式 Drive	出口	重量
	Q	H	η	P	n	Motor power		Outlet	Weight
	m ³ /h	m	%	KW	r/min	KW		mm	Kg
200F-BP	183.6	8.2	50	8.2	400	11	BD	200	2100
	262.8	7.5	60	8.9		15			
	388.8	6.5	64	10.7		18.5			
	201.6	10.2	50	11.7	450	15			
	291.6	9.5	60	12.6		22			
	432	8.4	64	15.4		30			
	219.6	12.9	50	18.4	500	15			
	327.6	12	60	17.8		22			
	475.2	10.4	64	21		30			
	237.6	15.5	50	20	550	37			
	360	14.4	60	23.5					
	525.6	12.5	64	27.9		45			
	270	18.5	50	22.7	592	45			
	392.4	17.2	60	30.6					
	576	15	64	36.8		55			
	295	21.7	50	34.9	650	55			
	428.8	20.2	60	38.9					
	630	17.5	64	46.9		75			
	309.6	25.2	50	42.5	700	55			
	453.6	23.5	60	48.4					
	673.2	20.5	64	58.7		75			
	334.8	29	50	52.9	750	75			
	489.6	27	60	60					
	727.2	23.5	64	72.7		90			
	360	33	50	64.7	800	110			
	518.4	30.8	60	72.5		132			
	774	26.8	64	88.3		160			
	378	37	50	76	850	132			
	550.8	34.5	60	85		160			
	828	30.2	64	106		185			

型号 Model	流量 Flow	扬程 Head	效率 Eff	轴功率 Shaft power	转速 Speed	电机 Motor	出口 Outlet
	Q	H	η	P	n	功率 Power	
	(m ³ /h)	(m)	%	KW	r/min	KW	
250S-BP	363.6	9	60	14.8	400	22	250
	522	8		18.9		30	
	630	7.1		20.3		37	
	410.4	11.5		21.4	450	30	
	583.2	10.4		27		37	
	720	9.2		30		45	
	450	14.1		28.7	500	45	
	648	12.6		37		55	
	792	11.2		40.3		75	
	504	17.3		39.6	550	55	
	720	15.5		50.6		75	
	882	13.5		54		90	
	540	20		49	590	75	
	781.2	17.7		62.8		90	
	936	15.5		65.8		110	
	604.8	24		65.8	650	110	
	853.2	21.5		83.2		132	
	1044	19.1		90.5		160	
	648	27.8		81.7	700	132	
	918	25		104.1		160	
	1116	20		111.4		185	
	669.6	31		94	740	160	
	972	27.9		119		185	
	1188	24.9		134		200	

型号 Model	流量 Flow	扬程 Head	效率 Eff	轴功率 Shaft power	转速 Speed	电机 Motor	出口 Outlet
	Q	H	η	P	n	功率 Power	
	(m ³ /h)	(m)	%	KW	r/min	KW	
300S-BP	385.2	7.8	50	16.4	350	30	300
	583.2	6.8		21.6		37	
	745.2	5.5		22.3		45	
	446.4	10.2		24.8	400	45	
	662.4	8.8		31.7		55	
	846	7.2		33.1		75	
	504	12.8		35.1	450	55	
	738	11.1		44.6		75	
	954	9.2		47.8		90	
	558	16		48.6	500	75	
	820.8	14.8		66		90	
	1054.4	11.4		65.7		110	
	612	19.2		64	550	90	
	892.8	17.8		86.5		90	
	1170	13.6		86.7		110	
	666	23		83.4	600	132	
	990	20		107.8		160	
	1278	16.5		114.8		185	
	720	22		86	650	160	
	1062	32.5		135.9		185	
	1386	19.1		144		220	
	792	31.2		134.5	700	200	
	1152	27.2		170.6		220	
	1492	22.1		179.8		250	

注意：
具体参数请进一步确认

Note:
Please further confirm the specific date.

结构 Construction

结构图(Construction Drawing)

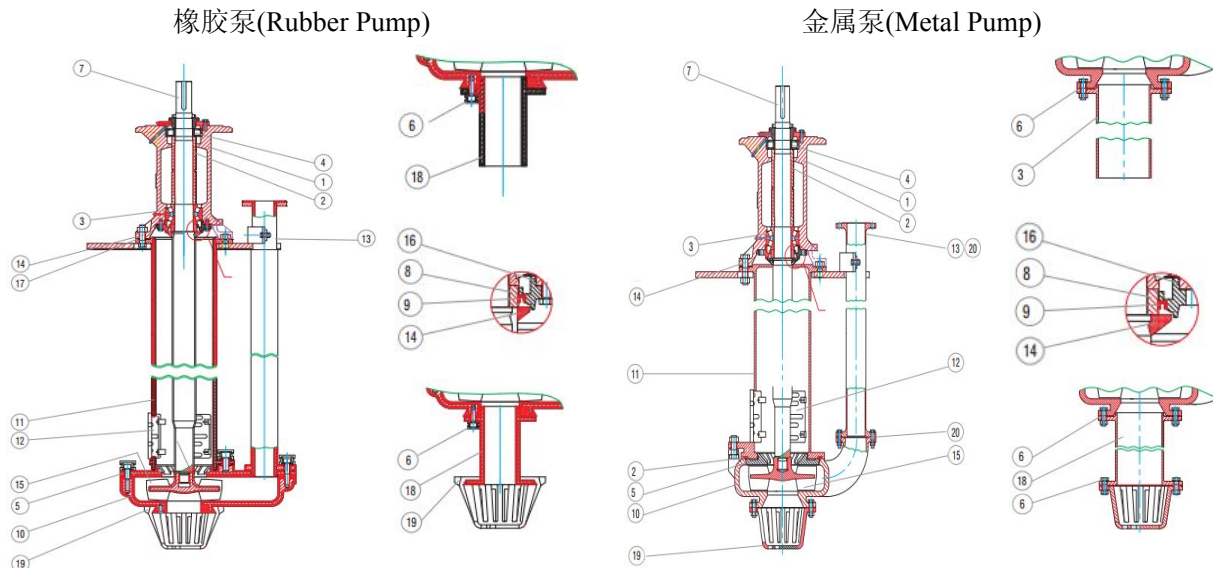


图 10(Picture 10)

零件表(Parts Sheet)

编号(No.)	零件名	Part Name	零件号(Part No.)
1	轴承体	Bearing housing	004
2	轴承套	Bearing sleeve	008
3	轴承	Bearing	009
4	轴承	Bearing	009D
5	后护板	Back liner	041
6	吸入口密封垫	Suction joint	060
7	轴	Shaft	073
8	轴承推顶环	Shaft sleeve ejector	077
9	轴承密封	Bearing seal	089
10	泵体	Casing	092
11	支架	Column	102
12	滤网	Strainer	116
13	吐出管	Discharge pipe	154
14	甩油环	Flinger	184
15	叶轮	Impeller	206
16	O 形圈	O-ring	217
17	垫片	Spacer set	290
18	吸入管	Suction pipe	322
19	下滤网	Lower strainer	1162
20	吐出口密封垫	Discharge pipe joint	204

外形尺寸 Measurement

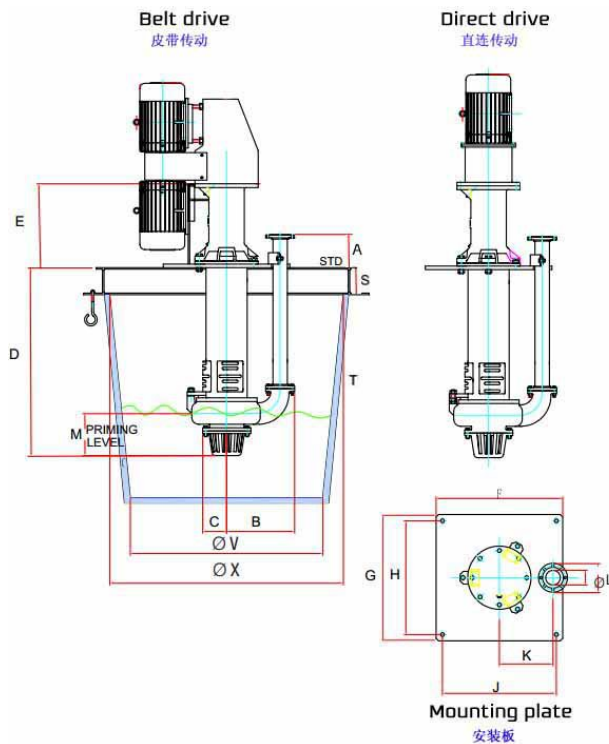


图 11(Picture 11)

注意:

1. 不能用于建筑设计除非经过确认
2. 不要随便缩放, 非标尺寸会根据需要提供
3. 排出管应该单独支撑

表 5(Sheet 5)

Note:

1. Do not use for construction unless certified.
2. Do not scale. Other dimensions be offered on request.
3. Discharge pipe supported independently.

Model 型号	A	B	C	E	F	G	H	J	K	φL	Wkg 重	Sump(Typical) 坑 (典型)			
												S	T	φV	φX
40C-BP	137	285	153	380	500	500	450	450	205	127	285	280	695	550	1000
40C-BPR	140*	165	175	380							250				
65D-BP	227	399	231	492	680	680	620	620	285	178	432	350	925	800	1400
65D-BPR	230*	380	260	498							386				
100E-BP	250	538	317	662	1000	870	800	930	400	229	867	350	1225	1000	1750
100E-BPR	266*	535	332	668							773				
150F-BP	390	670	365	875	1100	1100	1030	1030	500	280	1737	350	1525	1250	2150
150F-BPR	395	670	400	883							1523				
200F-BP	450	805	440	878	1300	1200	1100	1200	600	343	3090	350	1525	1500	2400
200F-BPR											2727				

装配注意事项 Notes when assembly

1. 轴承组件装配

轴承装配时需预热轴承组件，温度不允许超过120。下部轴承采用双列圆锥滚子轴承，其内圈、外圈、定位套等是成套组件，不允许与同类轴承的相应零件互换。在安装轴承下端盖时需注意下端盖凹槽内唇口密封圈的唇口面应向外，甩油环等必须符合装配图中的位置。安装迷宫环时需注意迷宫环的开口在直径方向上应错开。虽然轴承本身已保证了轴向间隙，故液下泵的轴承组件在组装中不需调整间隙。但组装好后，建议按照下表列出的值检查安装的端面间隙。

1. assembly of bearing assemblies

When assembly, the bearing assemblies must be preheated and the temperature must not be more than 120C. Double rows, tapered, roller bearing are adopted for the lower bearing and their inner ring, outer ring and position sleeve is assembled in set, which can not be interchangeable with corresponding parts of the same kind of bearings. When the lower end cover of bearing is assembled, it must be noted that the surface of lip seal in recess of lower end cover should be outward at the direction of diameter. Because axial clearance has been ensured by bearings themselves, the clearance of the bearing assembly of the sump pump should not be adjusted in the assembly. But after assembly, it is suggested that the end face clearance in installation should be checked according to the following values in Table 1.

Table 1

Bearing assemblies 轴承组件	End face clearance (mm) 端面间隙
C	0.074-0.160
D	0.114-0.208
E	0.084-0.211
F	0.064-0.206
S	0.127-0.259

2. 支架、安装板和泵体的安装

将轴承组件与支架用螺栓联接，在支架圆周外装上对开的安装板，用双头螺柱固定在支架上，然后装入后护板、叶轮、泵体。装配时需注意轴承体、支架、安装板与泵体之间的相对位置，以保证出水管和油嘴的相对位置，参看图 2。加长轴 SP 和 SPR 型泵增加了导轴承部分和上支架。

2. Installation of support, mounting plates and pump casing

The bearing assembly and support is connected by bolts. The split mounting plates are assembled around the circle of support and fixed on support with studs. Then back liner, impeller and pump casing is assembled. When assembling it must be noted that the relative position among bearing body, support, mounting plates and pump casing must be corresponding to the following figure to ensure the relative position of discharge pipe and oil nozzle. See in figure 2.

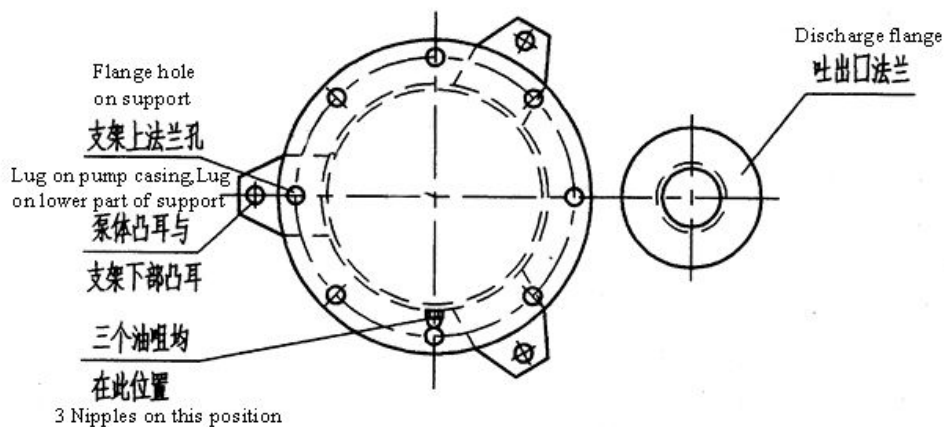


figure 2.

注意:

支架与泵体的联接螺栓必须拧紧。检查叶轮转动是否平稳。若有摩擦，则可以在轴承体和支架连接螺栓处加垫调整。最后安装上、下滤网和吐出管。吐出管上方用螺钉固定在安装板上。

Note:

The connection bolts between support and pump casing must be Smoothly locked. Check whether the impeller rotates stably (If there is friction, put an insert at connecting bolts between bearing body and support to adjust it.). At last, the upper & lower strainer and discharge is installed, the upper part of discharge is fixed on the mounting plate by screws.

操作说明 Operational Manual

1. 启动

开始运行前请按以下步骤检查机组。

- A. 泵应安放在牢固的基础上,以承受泵的全部重量,消除震动,拧紧全部地脚螺栓。
- B. 管道和阀门应分别支撑。泵法兰处有密封垫,拧紧联接螺栓时应注意泵法兰的密封面高度,螺栓不应拧得过紧,以免损坏密封面。
- C. 用手按泵转动方向转动轴,轴应能带动叶轮转动,不应有摩擦,否则应调整叶轮的间隙。
- D. 检查电机的转向,要保证泵按泵体上所标出的箭头方向转动。注意泵不允许反向转动,否则叶轮螺纹会脱扣,以致造成泵的损坏。
- E. 直联传动时,泵轴和电机轴应精确对中,三角带传动时泵轴和电机轴应平行,并调整槽轮位置,使三角带与槽轮垂直,以免引起剧烈的振动和磨损。
- F. 最后再次检查所有螺母是否拧紧,轴是否转动灵活。

2. 运行

运行时注意观察各种仪表,检查泵转速、流量和电流。若运行中发生流量下降,功率降低,出口压力减小或不出水,均可能是有大颗粒堵塞滤网,吸入口。当大颗粒大量集中在吐出管时也可能发生堵塞,造成泵不能正常工作,要注意及时清理堵塞物。泵如安装不平稳则会引起泵的振动。

3. 停泵

如有可能,在停泵前使泵输送一会清水,以清除泵及管路中的渣浆。先停泵然后关掉阀门。注意:为了防止轴承进水,使用时液面高度不能超过安装板位置。

1. Starting

Check pump set before start as following.

- A. Place pump in a firm base to sustain its weight, eliminate vibration, fasten foundation bolts.
- B. Support pipe & valve separately. Note the flange seal surface height when fasten bolts. No fasten too tight, avoid damaging seal surface.
- C. Run shaft as pump direction, impeller should be driven. If have friction, adjust gap of impeller.
- D. Check motor rotation, make sure run as arrow in pump. The thread of impeller will be flattened if rotation in opposite, and damaging pump.
- E. Direct coupled, shafts of pump & motor must accurate alignment. V-belt driving, shafts should be in parallel. Adjust pulley, ensure belt & pulley in 90 angle, avoid intense vibration or wear.
- F. At last recheck if all the bolts are fastened in tight, and if the shaft is rotating freely.

2. Operation

Check all instruments, pump speed, capacity and electric current. If capacity, power, outlet pressure decreased or no discharge, maybe the filter, or inlet blocked by large particle. Clear the pump when the pump can not work for lots of large particles mess in the discharge pipe. The pump will vibrate if not installed steadily.

3. Off-shop

If possible, keep pumping clean water before stop, to cleaning the slurry in the pipeline. First stop pump, then shut up the valve.

Note: Liquid height can not exceed the mounting plate to prevent the water leak to the bearing.

4. 三角带预紧力的调整

介绍我公司推荐的调整方法，供参考。

1) 首先计算预紧力 Q

$$Q = 510 \times (2.5 - C_1) \times P \times C_2 / C_1 \times Z \times V + MV^2 \text{ (牛顿)}$$

2) 根据预紧力和三角带型号在曲线上查出 e 值，见图 4。

3) 通过公式求出 f

$$f = e \times L' / 100$$

4) 在表 3 中查出对应三角带型号的 R 值。按图 5 中所示方法通过调整两轮的中心距，达到要求的预紧力 Q。一般在施加 R 牛顿力时，悬段总压下量不大于 f 时，即达到了要求的预紧力 Q。

式中：Q — 每根三角带静态下悬段的最小预紧力，单位：牛顿

f — 三角带悬段总压下量，单位：mm

C₁ — 角度系数约为 0.9

C₂ — 工作系数约为 1.4

L' — 槽轮中心距

P — 电机额定功率，单位：KW

Z — 三角带根数

V — 线速度，单位：米 / 秒

m — 离心力系数（差表 2）

e — 每 100mm 悬段长度上的压下量，见图 4

4. Adjusting the pretension of Vee-belt

We only introduce our recommendation adjustment method as follows for reference.

(1) Firstly calculate pretension Q.

$$Q = 510 \times (2.5 - C_1) \times P \times C_2 / C_1 \times Z \times V + MV^2 \text{ Newton}$$

(2) e value can be looked up from the cuEe based on pretension and Vee-belt type.

(3) Through formula:

$$f = e \times L' / 100$$

(4) R value related with the type of Vee-belt can be looked up in Fig. 3. According to the method in Fig.3 and the center distance between two pulleys, the required prevention will be reached.

Where: Q—Minimum pretension of suspended distance of each Vee-belt at static (Newton)

f---total pressed amount in suspended distance.

C₁---Angle coefficient (0.9 about)

C₂---working coefficient (1.4 about)

L---Center distance of pulley.

P---Motor rated power (kw)

Z---Piece number of Vee-belt.

V---Linear velocity (m/s).

m---Centrifugal force coefficient (seen in Table 2)

e---pressed amount e (mm) in 100mm length of suspended distance (seen in Fig.4).

Table 2

Type	PA	PB	PC	PZ
R(N)	60	90	120	30
m	0.12	0.20	0.38	0.08

注意:

三角带调整到最终的预紧力应使三角带在载荷最大时，预紧力最小。当成组使用三角带时，各三角带的周长应基本一致，以保证各三角带在工作时受力相等。

Note:

Adjustment of Vee-belts pretension to the end pretension had better to obtain min. pretension at max. Load.

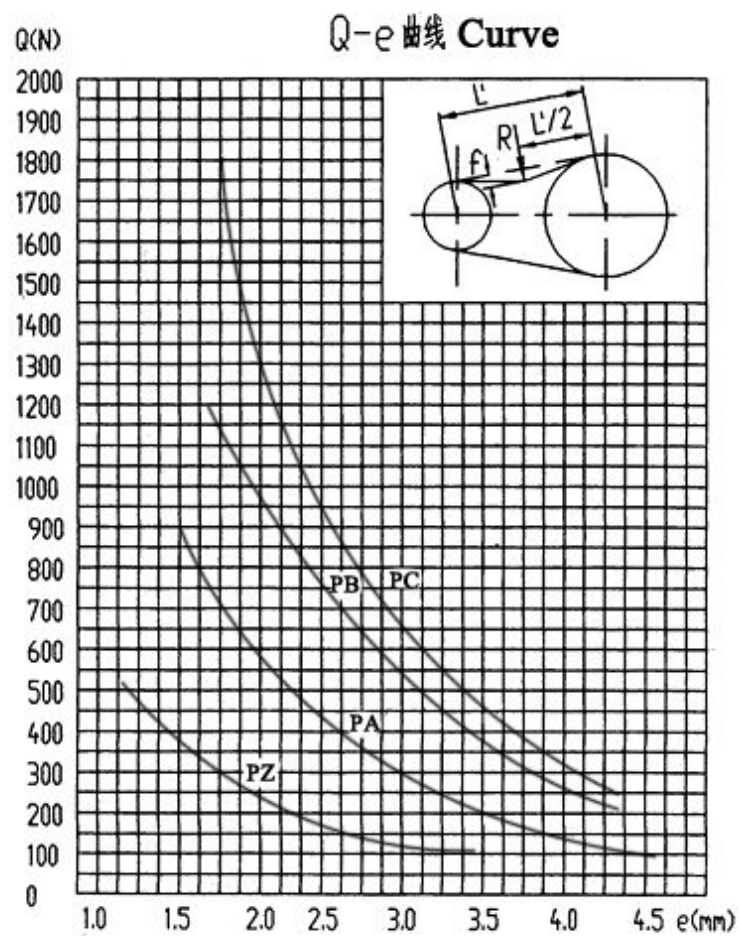


Fig.3

维修和保养 Maintenance Tips

1. 叶轮的调整和更换

叶轮和泵体之间的间隙应保持在 0.5 到 1 毫米左右（可通过调整轴承座与支架之间的垫片来调整间隙），使泵高效运行。当叶轮和泵体磨损到泵的性能和效率严重下降，以致于不能满足使用要求时，应更换磨损的零件。

1. Impeller adjustment and replacement

Gap between impeller and pump casing should be in 0.5-1mm (adjusting the gasket between bearing base and column), to make the pump run in high efficiency. Replace the broken parts when pump can not meet the working condition for performance and efficiency drop badly due to wear of impeller and pump casing.

2. 轴承的润滑

轴承在组装时，已加入适量的润滑脂。在运转中可定期通过轴承体上的两个油嘴加入润滑脂。润滑脂的注入量不能过多，过多会引起轴承发热。加润滑脂的周期和注入量随运转工况不同，变化较大。在使用中应逐步积累经验，应注意润滑脂必须保持清洁，不允许进入脏物。在连续运转的正常情况下，轴承润滑周期可参考表 1。轴承润滑脂建议采用锂基润滑脂 2#和 3#。最初装配时每盘轴承使用的润滑脂量可参考表 4。

2. The lubrication of bearing

When assembly, the bearing has been appropriately lubricated. While running, it can be lubricated via two nozzles on the bearing body. It can not be too much. Otherwise, it will cause the bearing heating. The time and volume vary significantly as working condition. Accumulate experiences via operation. The grease must keep clean, not allowed dirty stuff. Under normal operating conditions, lubrication cycle may refer to Table 1. The lithium base grease 2# and 3# be suggested. When prime assembly, Grease volume for each bearing may refer to Table 2.

3. 备用

备用泵长时间放置不用时，建议每周用手转动 1/4 周，使滚动轴承均匀受载。

3. Spare Pump

When the back-up sump pump is placed in idle, it should be rotated a quarter weekly and make the rolling bearing is loaded equally.

Table 3

BEARING ASSEMBLY 轴承组件	DRIVING END GRAMS 驱动端（克）	PUMP GRAMS 泵端（克）
C	60	90
D	130	225
E	300	450
F	400	550
S	450	2200

Table 4

建议泵端（下）和驱动端（上）轴承润滑油配给量-（小时）

Suggested lube ration inteEal both pump(lower) and drive end(upper) bearings-(hours)

Frame 托架		Bearing 轴承	Add gram per brg 添加量（克）	Pump speed（rpm）泵转速（每分钟转数）									
				400	600	800	1000	1200	1400	1600	1800	2000	2200
Pump end 泵端	C	P009	30	-	-	-	1700	1400	1200	1000	900	800	750
	D	Q009	55	-	-	1800	1400	1100	900	750	-	-	-
	E	R009	85	3200	2000	1400	1100	800	-	-	-	-	-
	F	S009	115	2600	1500	1000	700	-	-	-	-	-	-
	S	T009	250	2000	1200	700	-	-	-	-	-	-	-
Driving end 驱动端	C	P009D-1	15	-	-	-	8500	7000	6000	5000	4500	3500	3000
	D	Q009D-1	25	-	-	9000	7500	6000	5000	4000	-	-	-
	E	R009D-1	40	16000	10000	7500	6000	4000	-	-	-	-	-
	F	S009D-1	60	14000	8000	6000	4000	-	-	-	-	-	-
	S	T009D-1	120	12000	6000	4000	-	-	-	-	-	-	-

常见问题解答 Frequently Asked Questions (FAQ)

Q ₁	泵不吸水	Can not suck fluid
A	转向不对, 叶轮损坏 吸入管堵塞	Rotation is reversed, Impeller damaged Suction pipe is blocked
S	检查转向, 更换新叶轮 排除堵塞	Check the rotation, Replace new impeller Eliminate the blocking
Q ₂	轴功率过大	Shaft power is too big
A	泵内产生摩擦或轴承损坏 驱动装置皮带过紧 泵流量偏大或转速偏高 电机轴与泵轴不对中或不平行	Friction in pump or Bearing is damaged Belt is too tight Flow rate is too high or speed is too fast Shafts of motor and pump not in parallel
S	消除摩擦, 更换轴承, 调整皮带 调节泵的运行工况, 调节转速 调整电机轴和泵轴	Eliminate friction, Replace bearing, Adjust belt Adjust the pump performance, Adjust speed Adjust shafts
Q ₃	轴承过热	Bearing is overheated
A	轴承润滑脂过多或过少 润滑脂中有杂物, 轴承损坏	Lubricating grease is too much or less Have stuff in grease, Bearing is broken
S	加润滑脂要适量 更换新润滑脂, 更换新轴承	Add appropriate grease Replace new grease, Replace new bearing
Q ₄	轴承寿命短	Bearing service life is too short
A	电机轴与泵轴不对中或不平行或弯曲 泵内有摩擦或叶轮失去平衡 轴承内进入异物或润滑脂量不当 轴承装配不合理	Shafts of motor & pump not in parallel or twisted Friction in pump or impeller is not balanced Have stuff in bearing or inadequate grease Bearing installation is inappropriate
S	调整电机轴和泵轴 更换轴 消除摩擦, 更换新叶轮 清洗轴承, 调整润滑脂量 更换轴承或重新装配轴承	Adjust the shafts Replace shaft Eliminate friction or replace new impeller Clean bearing, adjust grease Replace bearing, or reinstall
Q ₅	泵振动, 噪声大	Violent vibration and great noise
A	轴承损坏, 叶轮不平衡 流量不均匀, 使泵抽空	Bearing is damaged, Impeller is not balanced Pump feed is no uniform, result to vacuumed
S	更换新轴承, 更换新叶轮 改善泵进料情况	Replace new bearing, Replace new impeller Improve the feed.
说明 Note:		
Q: 问题 Question, A: 原因 Answer, S: 解决方案 Solution		

包装和运输 Packing And Shipping

包装 Packing



托盘 Tray



内部防水塑料布 Inner water proof plastic packing



外部木箱包装 Outer fumigated wooden case



提示标志 Warning mark

运输 Shipping



快递 Express



海运
By sea



空运
By air

运输 Shipping

配件 Spare Parts



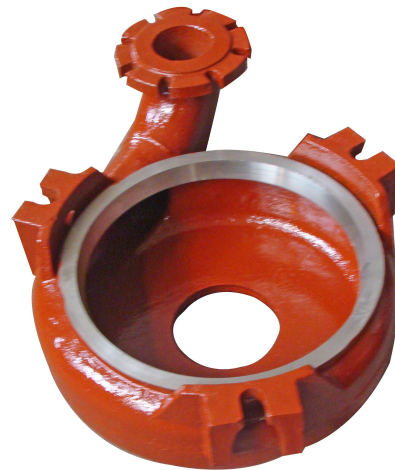
铬合金叶轮 Chrome alloy impeller



胶叶轮 Rubber impeller



胶泵体 Rubber pump body



金属泵体 Metal pump body



下滤网 Lower strainer



轴承 Bearing

质量保证体系 QAS(quality assurance system)

具有可靠完备的质量保证体系，确保了过硬的产品质量。产品通过“采用国际标准”认证，按国标、部标和行业标准制造，生产的全过程推行全面的质量管理，严格按照工艺文件加工，各种检测手段齐全。

本公司有达到 GB3216-89 要求的国家 B 级精度《离心泵、混流泵和旋涡泵试验方法》清水试泵站应用计算机进行试验数据监控。厂内设有物理化学实验室、金相分析室，可对材质性能进行多方面的检测。

本公司对出厂的产品进行全检测，确保所有产品受控。

本公司通过了 ISO9001 质量保证体系认证。

1. 质量方针

崇尚质量是企业的生命力,孜孜以求，追求卓越

2. 质量目标

产品合格率 98%，出厂合格率 100%

3. 质量承诺

- 1) 我们将不断地提高全员的质量意识,严格执行 GB/T19001-2000 质量保证模式标准,满足合同规定的各项技术要求,不仅对供货主机负责,同时对配套件、外协件、外购件的质量负责。
- 2) 保证及时交货严格履行合同,按合同规定的期限交货。

Reliable and comprehensive quality assurance system ensures the excellent quality of our products. We have got the “International Standard” certification, manufactured according to GB, Department of superscript, and industry standards, we implement a comprehensive quality management during the entire process of production, accordance with the process file processing strictly, and a variety of detection methods etc.

We have meet the requirements of GB3216-89 national Class B accuracy, <<Centrifugal pump, mixed flow pump and vortex pumps test method >>, computer test data monitoring of water test pumping station application. There are physical chemistry laboratory, metallographic analysis room in our factory, for testing material properties in different respects.

Shijiazhuang An Pump Machinery Co., Ltd has got the ISO 9001 quality assurance system certification.

1. Quality Policy

Advocates quality is the life of enterprise, assiduous, the pursuit of excellence

2. Quality objectives

qualified products rate 98%, factory qualified pass rate: 100%

3. Quality Commitment

1) We will continue to improve the awareness of quality, implementing as GB/T19001-2000 quality assurance model standard, meeting technical requirements stipulated in the contract. We are not only discharge for the supplier host, but also for the quality of spare parts, external assistance products etc.

2) We promise the delivery time stipulated in the contract.

检测设备 Testing Equipment

编号 Item	设备名称 Equipment	编号 Item	设备名称 Equipment
1	J09A 测长机 J09A Measuring machine	13	Hr-4B 高速自动分析仪 Hr-4B High-speed automatic analyzer
2	G72A 光学天平 G72A Optical balance	14	HLN-11 里氏硬度计 HLN-11 Leeb hardness tester
3	JGA 平行度检测仪 JGA Parallel detector	15	HR-150A 硬度计 HR-150A Hardness tester
4	BJ-3 百分表检测仪 BJ-3 Dial indicator detection instrument	16	M20-1 制样机 M20-1 sampling machine
5	500×280 偏置检测仪 500×280 Offset detector	17	TNC-17 试验台 TNC-17 Test Bench
6	JDY-2 万能测长仪 JDY-2 Omnipotent length measurement device	18	WZ-60 万能试验机 WZ-60 Universal testing machine
7	M-2 金相检测仪 M-2 Metallographic detector	19	197A 万能显微镜 197A Universal microscope
8	P-2 金相检测仪 P-2 Metallographic detector	20	DL4310 示波器 DL4310 Oscilloscope
9	Q-2 金相检测仪 Q-2 Metallographic detector	21	S0910 轴承震动测量仪 S0910 Bearing vibration measuring instrument
10	LG-1 光学计 LG-1 Optical meter	22	Dxy100k 试压泵 Dxy100k Hydraulic test pump
11	722 光栅分光分度计 722 Grating spectral dividing plan	23	磨损试验仪 Wear tester
12	HCA-313 锰磷硅自动分析仪 HCA-313 Silicon manganese phosphorus automatic analyzer	24	200（500）研磨机 200（500）Grinding machine

工厂生产设备 Factory Production Equipments

设备类别 Equipment	数量 Qty	备 注 Note	设 备 类 别 Equipment	数 量 Qty
金切 Metal cutting	18 台	精、大、稀 金切设备 16 台 进口设备 2 台 6 metal cuttings, 2 imported ones	起重设备 Lifting equipment	3 台
铸造设备 Casting equipment	16 台	铸造机械化生产线一套, 熔炼机械化生产线一套 1 casting mechanized production line 1 melting mechanized production line	运输设备 Transport equipment	4 辆
			动力设备 Power Equipment	12 台
工业炉窑 Industrial kilns	4 座	远红外炉 2 座, 退火窑 1 座 2 far infrared furnaces 1 annealing kiln	检测设备 Testing equipment	24 台
热处理设备 Heat Treatment Equipment	6 台	高显微机控制炉一台 1 High microscopic control furnace	其它 Others	2 台