

# HGZ 型 高效无堵塞无泄露纸浆泵

*HGZ Type High-Efficiency Non-Clogging  
and Non-Leaking Pulp Pump*



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## 一、概述 Summary

HGZ 型高效无堵塞无泄漏纸浆泵是在消化吸收国外先进泵类产品的基础上，结合国内造纸、制浆企业用泵要求而研制开发的新一代纸浆泵产品，具有明显的高效，防堵塞性能好及运行时无泄漏，安装维修方便等优点，广泛应用于造纸、制浆企业纸浆介质的输送，同时也适用于企业制糖、淀粉加工、化工原料等介质的输送。

The HGZ high-efficiency non-clogging and leak-proof pulp pump is a next-generation pump product developed through the integration of advanced foreign pump technologies with domestic requirements for papermaking and pulp production enterprises. Featuring exceptional efficiency, superior anti-clogging performance, leak-free operation, and convenient installation and maintenance, it is widely used in pulp medium transportation within papermaking and pulp processing industries. The pump also demonstrates applicability in conveying media for sugar production, starch processing, and chemical raw material handling processes.

## 二、应用领域 Application Area

- ★ 制浆造纸 Pulp and Papermaking
- ★ 制糖淀粉 Sugar Starch
- ★ 化工原料 Chemical Raw Material
- ★ 环保工程 Environmental Protection Engineering
- ★ 市政工程 Public Works
- ★ 工业污水 Industrial Sewage

## 三、性能范围 Performance Range

- ★ 流量 Flow : 40-3300m<sup>3</sup>/h
- ★ 扬程 Head : 5-100m
- ★ 纸浆浓度 Pulp concentration ≤ 6%
- ★ 工作温度 Working temperature ≤ 120°C

## 四、型号说明 Demonstration of the Type

HGZ 100 265 A 6

HGZ.....	山矿高效纸浆泵 High-efficiency pulp pump for mountain mines
100.....	泵的出口直径 The outlet diameter of the pump
265.....	叶轮名义直径 Impeller nominal diameter
A.....	叶轮要第一次切割 The impeller requires initial cutting
6.....	叶片数：三叶片时省略 3，六叶片时则写上 6 Number of blades: omit 3 for three-blade configurations, and specify 6 for six-blade configurations.

## 五、结构特点 Structural Characteristics

1、该泵为后开门结构，维修时不必拆卸管路。

The pump features a rear-opening door structure, eliminating the need for pipeline disassembly during maintenance.

2、泵的进出口法兰按 1.6MPa 压力设计。

The inlet and outlet flanges of the pump are designed for a pressure of 1.6 MPa.

3、叶轮采用三叶片(或六叶片)，敞开式叶轮，效率很高且不需要轴向推力补偿，易于维修，堵塞机会低。

The impeller adopts a three-blade (or six-blade) open-type design, featuring high efficiency without requiring axial thrust compensation, easy maintenance, and low risk of clogging.

4、泵轴由使用油润滑且重载耐磨擦的进口 SKF 圆柱滚子轴承和径向推力球轴承(角接触球轴承)组合支承，圆柱滚子轴承安装在泵端，径向推力球轴承则面对面安装在传动端 5、轴封主要有标准单端面机械密封、前后排列的机械密封、双机械密封、填料密封、动态密封共五种型式，用户可根据要求和实际使用工况选用。

The pump shaft is supported by imported SKF cylindrical roller bearings and radial thrust ball bearings (angular contact ball bearings) that utilize oil lubrication and provide heavy-load wear resistance. Cylindrical roller bearings are installed at the pump end, while radial thrust ball bearings are mounted face-to-face at the drive end. 5. Shaft seals are available in five main types: standard single-end mechanical seals, front/rear arranged mechanical seals, double mechanical seals, packing seals, and dynamic seals. Users may select the appropriate type based on operational requirements and actual working conditions.

5、叶轮采用失蜡精密铸造并作动平衡校验。

The impeller is manufactured through lost-wax precision casting and undergoes dynamic balance verification.

6、材料有铸铁、铸钢、普通不锈钢、双相不锈钢四种。

The materials include cast iron, cast steel, ordinary stainless steel, and duplex stainless steel.

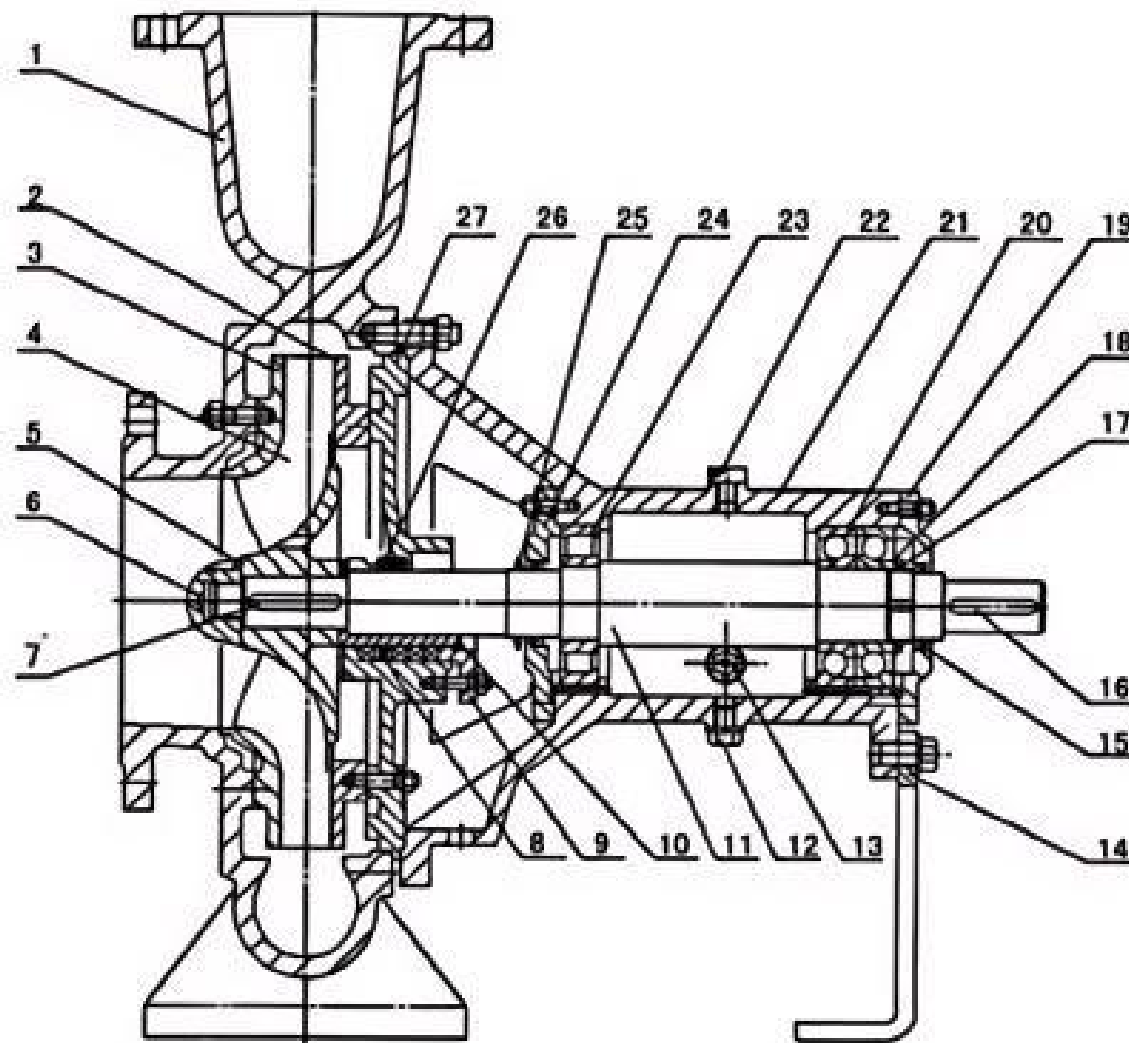
## 六、性能参数表 Performance Parameter Table

pump type		Flow		Head	Speed	Power	Efficiency	Impeller diameter
泵型号		流量		扬程	转速	功率	效率	叶轮直径
		M <sup>3</sup> /h	L/s	m	r/min	KW	(%)	mm
HGZ80-265		180	50	52.9	2900	55	60	265
	A	160	44.4	51.5		45	60	255
	B	154	42.8	44.9		37	60	245
	C	140	38.8	40.8		37	60	235
	D	130	36.2	36.7		30	60	225
	E	120	33.4	32.7		22	60	215
		70	19.4	15	1450	5.5	60	265
	A	60	16.6	12		4	60	245
	B	50	13.8	11		3	60	225
	C	40	11	9		2.2	60	205
HGZ100-265		220	61.5	42	2900	45	68	230
	A	210	58.3	39		45	68	225
	B	195	54.2	33		37	67	215
	C	180	50	29		30	66	205
	D	170	47.2	25		22	65	195
	E	165	45.8	20		18.5	62	185
		100	27.8	17	1450	11	66	265
	A	90	25	14		7.5	67	245
	B	80	22.2	11		4	65	225
	C	70	19.4	8.5		3	63	205
HGZ125-265		185	51.5	15.2	1450	15	74	265
	A	175	48.6	13.8		11	70	255
	B	165	45.8	12.5		11	70	245
	C	150	41.7	11		7.5	65	235
	D	140	38.9	9.3		7.5	65	225
	E	125	34.7	8		5.5	60	215
HGZ100-350		280	77.8	72	2950	110	65	310
	A	275	76.4	65		90	67	300
	B	270	75	59		75	70	290
	C	260	72.2	54		75	71	280
	D	250	69.4	48		55	72	270
		120	33.3	28	1450	15	65	350
	A	110	30.6	25		15	69	330
	B	100	27.8	23		11	72	310
	90	25	18		11	70	290	
HGZ125-350		400	111.1	59	2950	110	72	280
	A	380	105.6	55		110	71	270
	B	360	100	46		90	65	260
	C	330	91.7	40		75	60	250
	D	300	83.3	36		75	55	240
		200	55.6	32	1450	30	69	350
	A	175	48.6	28		22	68	330
	B	150	41.7	25		18.5	66	310
	C	125	34.7	21.5		15	65	290

pump type	Flow		Head	Speed	Power	Efficiency	Impeller diameter		
泵型号	流量		扬程	转速	功率	效率	叶轮直径		
	M <sup>3</sup> /h	L/s	m	r/min	KW	(%)	mm		
HGZ150-330		410	113.9	24	1450	37	78	330	
	A	400	111.1	21.5		37	78	320	
	B	380	105.6	20		30	75	310	
	C	360	100	17.5		30	70	300	
	D	350	97.2	15		22	70	290	
	E	330	91.7	12		18.5	70	280	
HGZ125-400		440	122.2	95	2950	160	85	330	
	A	420	116.7	88		132	88	320	
	B	410	113.9	82		132	86	310	
	C	400	111.1	77		110	82	300	
	D	370	102.8	68		110	80	290	
	E	360	100	62		90	78	280	
		225	62.5	40	1450	45	72	400	
	A	200	55.6	36.5		37	73	380	
	B	175	48.6	33		30	74	360	
	C	150	41.7	30		22	73	340	
		400	111.1	40		1450	75	77	400
	A	390	108.3	38			55	76	390
B	375	104.2	34	55	76		380		
C	360	100	32	45	75		370		
D	350	97.2	29	37	75		360		
E	340	94.4	27	37	74		350		
HGZ150-400		200	55.6	19.6	960	22	68	400	
	A	183	50.8	17		15	67	380	
	B	167	46.4	10		11	66	360	
	C	150	41.7	13		11	65	340	
		690	191.7	32		1450	90	82	380
	A	650	180.6	29.5			75	80	370
B	620	172.2	28	75	80		360		
C	600	166.7	26	55	75		350		
D	550	152.8	24	55	75		340		
E	525	145.6	23	45	70		330		
HGZ200-380		368	102.2	15.5	960	22	74	380	
	A	335	92	13.5		22	72	360	
	B	300	83.3	12		15	69	340	
	C	268	74.4	10.5		15	66	320	
		530	147.2	53		1450	110	78	470
	A	500	138.9	47			90	78	450
B	480	133.3	42	90	76		430		
C	450	125	37	75	70		410		
D	420	116.7	32	55	70		390		
E	400	111.1	28	45	70		370		
HGZ150-470		335	93	24.5	960	30	72	470	
	A	300	83.3	19		22	71	430	
	B	268	73.9	14.5		15	71	390	
	C	235	65.3	11		11	69	350	

pump type		Flow		Head	Speed	Power	Efficiency	Impeller diameter	
泵型号		流量		扬程	转速	功率	效率	叶轮直径	
		M <sup>3</sup> /h	L/s	m	r/min	KW	(%)	mm	
HGZ200-470		780	216.7	50	1450	160	80	470	
	A	700	194.4	47		132	75	450	
	B	650	180.6	42		110	75	430	
	C	600	166.7	37		90	75	410	
	D	550	152.8	32		75	75	390	
	E	500	138.9	28		55	70	370	
		400	111	25	960	45	73	470	
	A	468	102.2	20		30	73	430	
	B	335	93	15.5		22	71	390	
	C	300	83.3	11		15	67	350	
		1150	319.4	40		1450	200	80	430
	A	1070	297.2	35			160	75	410
B	1000	277.8	30	132	75		390		
C	950	263.9	25	110	70		370		
D	900	250	21	90	70		350		
E	800	222.2	19	75	70		330		
	670	186	19	960	45	73	430		
A	600	166.7	14		30	71	390		
B	535	148.8	10		22	68	350		
C	468	130	8		15	63	320		
	1600	444.4	44		1450	280	84	470	
A	1450	402.8	40			250	82	450	
B	1400	388.9	36	200		82	430		
C	1300	361.1	32	185		75	410		
D	1200	333.3	28	160		75	390		
E	1100	305.6	21	132		75	370		
	1000	277.8	20	960	75	80	470		
A	950	264	15		55	78	430		
B	900	250	11.5		45	71	390		
C	850	236	9		37	70	350		
	2600	722.2	28.5		960	280	85	600	
A	2400	666.7	26			250	83	575	
B	2200	611.1	21	220		80	550		
C	2000	555.6	22	185		80	525		
D	1900	527.8	19	160		75	500		
E	1800	500	18	132		75	475		
	1950	514.7	16	750	110	81	600		
A	1650	458.3	13.5		90	78	550		
B	1500	416.7	12		75	78	525		
C	1350	375	10		55	71	475		

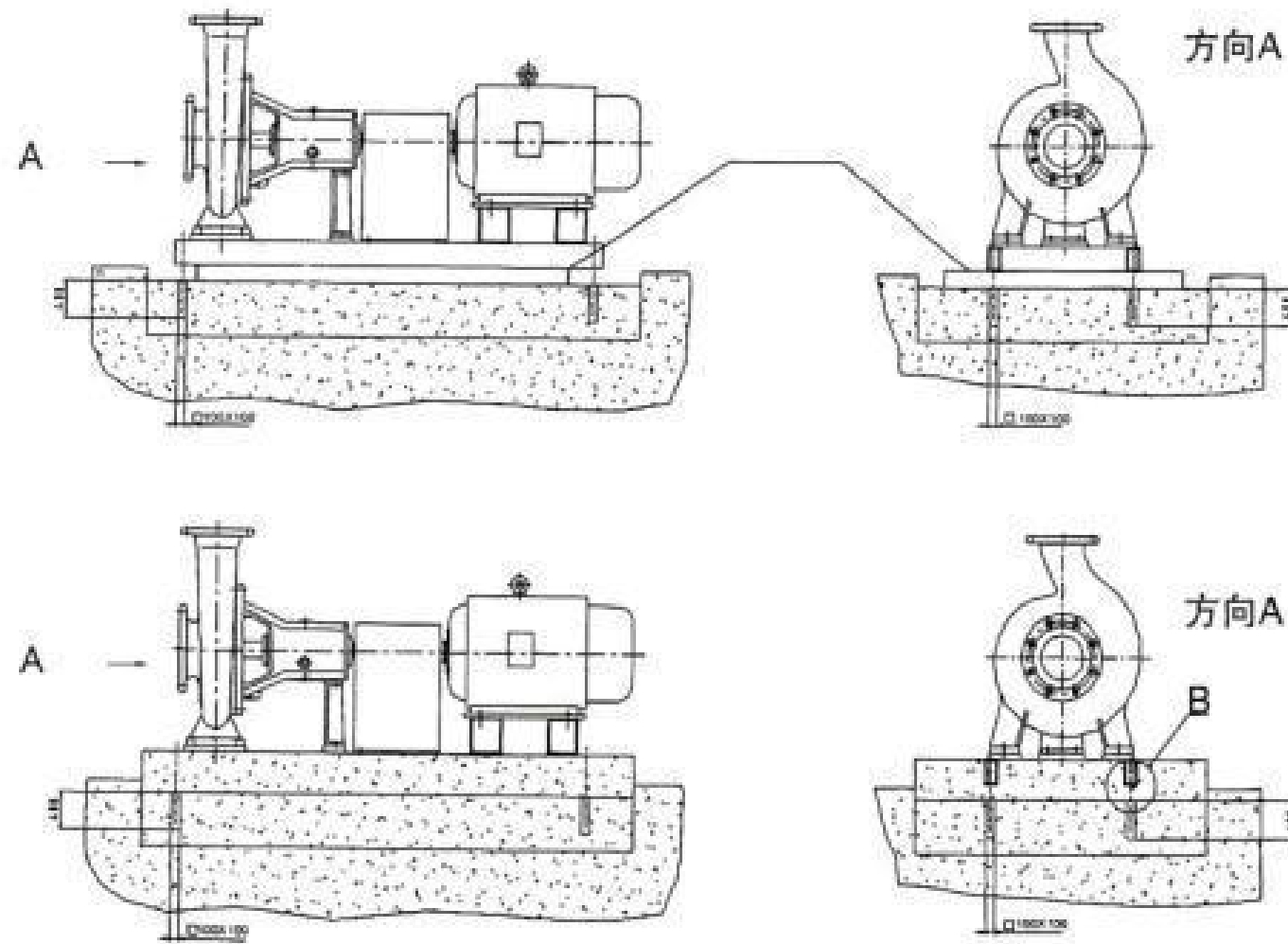
## 七、泵结构简图 Pump Structural Schematic Diagram



编号 number	备件名称 repair parts line item	编号 number	备件名称 repair parts line item
1	泵体 pump body	15	骨架油封 skeleton oil seal
2	后耐磨衬 postwear liner	16	键(联油器端)bonded oil coupling end
3	前耐磨衬 pre-wear lining	17	圆螺母 round nut
4	叶轮 impeller	18	止退垫片 stopper gasket
5	防松垫片 check washer	19	轴承盖(联轴器端)bearing cover (coupling end)
6	叶轮螺母 impeller nut	20	角接触球轴承 angular contact ball bearing
7	键(泵端)Key (pump end)	21	悬架 suspension
8	填料环 packing ring	22	通气塞 breather plug
9	填料压盖 stuffing box gland	23	圆柱滚子轴承 cylindrical roller bearing
10	轴套 axle sleeve	24	轴承盖(泵端)bearing cover (pump side)
11	轴 axle	25	挡水圈 water retaining ring
12	放油螺塞 drain plug	26	机封 AK5M 型 AK5M Type Machine Gun
13	油标 oil ga(u)ge	27	泵盖 pump bonnet
14	支架 bracket		

## 八、泵的安装与管道的连接

### Installation of Pumps and Connection to Pipelines



#### 泵的安装步骤 Installation steps for the pump :

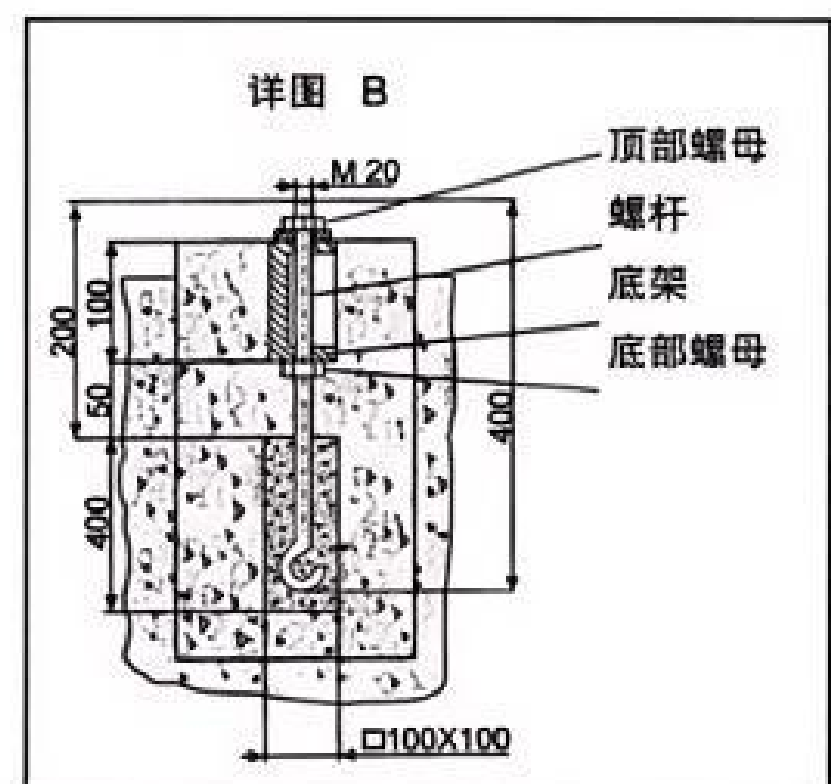
- 在设备安装前,必须按设备基础图和实物对基础作校核, 确认设备基础无误。

- Prior to equipment installation, the foundation must be verified against both the design drawings and physical measurements to ensure its accuracy.

- 设备安放到位, 把地脚螺栓穿进底架孔, 在底架上面和下面各上一螺母。在泵底架下垫置支承轨(h=50mm), 把泵进口法兰与吸入管法兰对正

- After positioning the equipment, insert the anchor bolts into the base frame holes and install nuts on both the top and bottom surfaces of the base frame. Place a support rail (h=50mm) beneath the pump base frame, and align the pump inlet flange with the suction pipe flange.

- 用出口法兰从纵横两个方向粗调泵的水平。把水平仪放在泵的出口上, 用垫铁放在泵底架下, 调整垫铁使之调整到泵处水平状态(即水平仪的气泡在中央)。

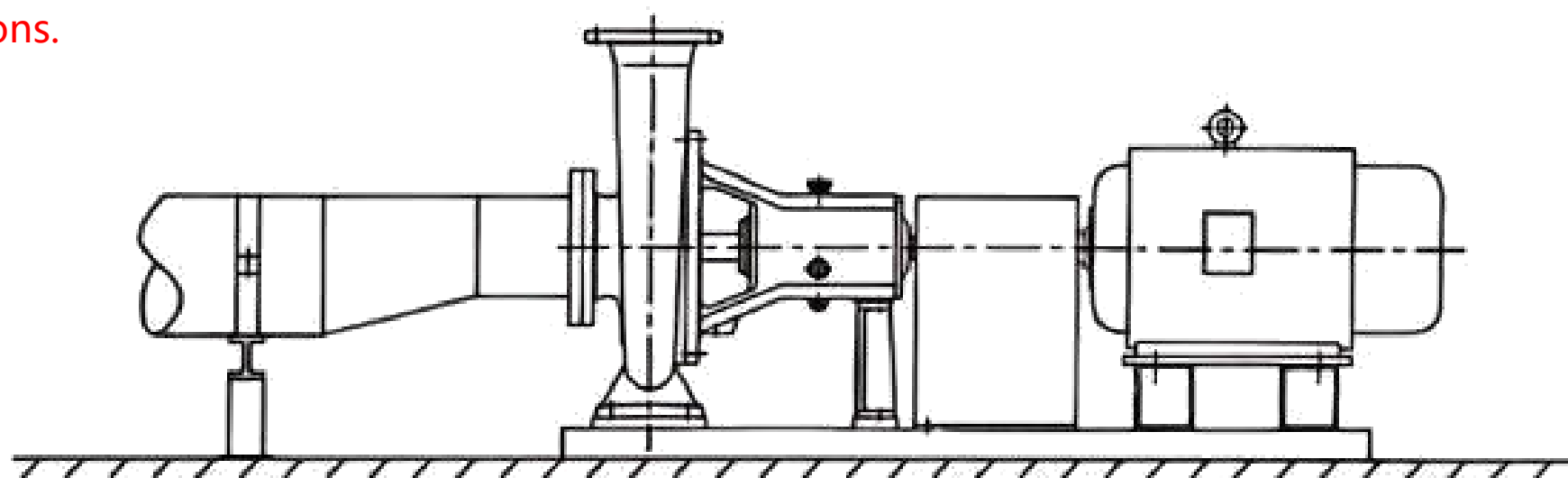


- Adjust the pump's horizontal position using the outlet flange in both longitudinal and transverse directions. Place the level instrument on the pump outlet and position the shims beneath the pump base frame. Adjust the shims until the pump reaches a level state (i.e., the bubble of the level instrument is centered).
- 第一次灌浆，灌浆时注意不得碰动设备，地脚螺栓在基础中竖起放置。
- During the first grouting operation, avoid touching the equipment. The anchor bolts should be vertically installed within the foundation.
- 混凝土完全固化后，均匀上紧底架上、下螺母，撤去底架下支承轨，开始精工作。用底架上、下螺母调校泵的水平度，把水平仪放在出口法兰上，从纵横两个方向检查，注意不要弄弯底架。
- After the concrete has fully cured, uniformly tighten the upper and lower nuts on the base frame, remove the lower support rail of the base frame, and commence precision work. Use the upper and lower nuts to adjust the pump's levelness. Place the level gauge on the outlet flange and inspect both longitudinal and transverse directions, taking care not to bend the base frame.
- 第二次灌浆，灌至底架上表面，固化后上紧螺母。把螺杆多余部分切除(螺杆外露 5mm)，螺母和螺杆喷漆防锈。
- During the second grouting operation, inject grout to the upper surface of the base frame. After curing, tighten the nut. Remove excess screw rod material (allowing 5mm of exposed screw rod), and apply anti-corrosion paint to both the nut and screw rod.
- 如果电机没有与泵联接，则安装电机，把半联轴器装到电机轴上，使联轴器端面与电机轴末端齐平，并上紧紧定螺丝。吸入和输送管(尽可能)笔直地连接完毕后，再次检查设备的找正情况，并用手转动放置部件。连接密封水管。如果吸入管的截面改变了，就使用偏心异径管(特殊配件)或偏心管头。
- If the motor is not connected to the pump, install the motor and mount the half coupling onto the motor shaft, ensuring the coupling end face aligns flush with the motor shaft end. Tighten the securing screws firmly. After completing the straight connection of suction and delivery pipes (as straight as possible), recheck the equipment alignment and manually rotate the positioning components. Connect the sealing water pipes. If the cross-section of the suction pipe needs adjustment, use an eccentric reducer (special fitting) or eccentric pipe end.

## 安装注意事项 Installation Notes :

➤ 绝不能让泵承受管道的重量，必须充分重视泵进、出口管道的支撑与固定，保证管道固定良好，避免因管道振动导致泵的振动。

➤ The pump must never bear the weight of the pipeline. It is essential to prioritize the support and fixation of the pump inlet and outlet pipelines, ensuring proper pipeline anchoring to prevent pump vibration caused by pipeline vibrations.



➤ 当罐在泵的上部时，吸入管是连续往下的，而在下部时则连续向上；应避免突然转弯，请使用 $\leq 90$ 度角的弯头和连接管，弯曲处尽量圆滑，不要太接近泵入口。

➤ When the tank is positioned above the pump, the suction pipe should be continuously downward-facing; when positioned below, it should be continuously upward-facing. Sudden turns should be avoided. Use elbows and connecting pipes with angles  $\leq 90$  degrees, and ensure that bends are as smooth as possible, avoiding proximity to the pump inlet.

➤ 泵入口管应尽量短，弯头数量尽量少。

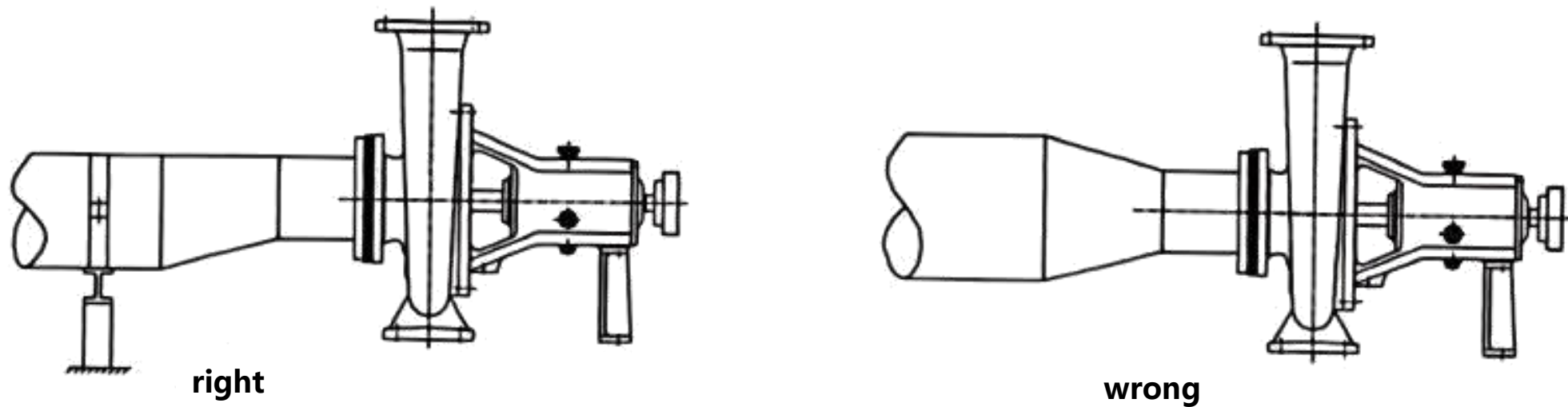
➤ The pump inlet pipe should be as short as possible, and the number of elbows should be minimized.

➤ 泵入口管和出口管径选择应根据流量要求，并尽量选择较大管径，建议流速选择时参照下表：

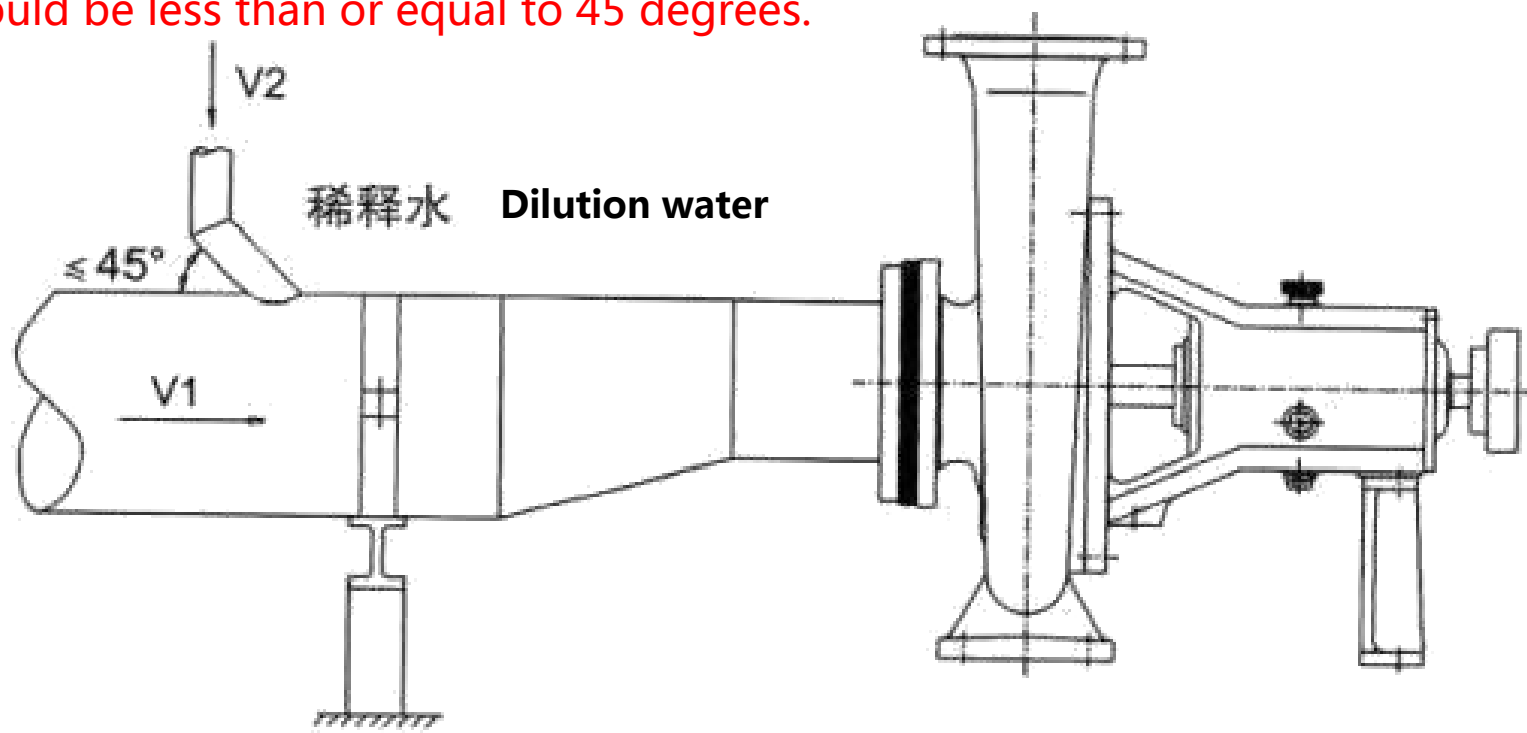
➤ The diameters of pump inlet and outlet pipes should be selected based on flow rate requirements, with larger diameters being preferable. It is recommended to refer to the table below when determining flow velocity:

纸浆浓度 Pulp concentration	泵出口管 (DN) Pump outlet pipe						泵入口管 (DN) Pumping intake piping						流速单位: m/s
	<65	80-100	125-150	200-300	300-400	>400	<65	80-100	125-150	200-300	300-400	>400	
<0.5%	2.0	2.5	3.0	3.0	3.5	3.5	1.5	2.0	2.0	2.5	2.5	2.5	
<1.5%	1.5-2	2.5	3.0	3.0	3.0	3.0	1.5	1.5	2.5	2.5	2.5	2.5	
<3%	1.0	1.5	2.0	2.0	2.5	2.5	0.5	0.8	1.5	1.5	1.5	1.5	
<4%	—	1.5	2.0	2.0	2.5	2.5	—	0.5	1.0	1.0	1.0	1.0	
<5%	—	1.5	2.0	2.0	2.5	2.5	—	0.5	1.0	1.0	1.0	1.5	
<6%	—	1.0	1.5	1.5	2.0	2.0	—	—	0.5	0.5	0.5	1.0	

- 尽量避免管内聚集空气，管道上端应保持在同一平面上。
- Avoid air accumulation within the tubing as much as possible, and ensure the upper end of the tubing remains on the same plane.



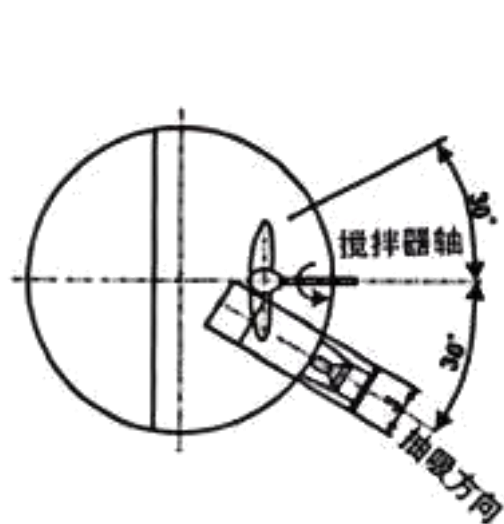
- 如果需要在入口管上连接一稀释水管。则稀释水的流速( $V_2$ )应大于或等于介质的流速( $V_1$ )，稀释水和入口间的连接角度则应小于或等于 45 度。
- If a diluent water pipe needs to be connected to the inlet pipe, the flow rate of diluent water ( $V_2$ ) should be greater than or equal to the flow rate of the medium ( $V_1$ ), and the connection angle between the diluent water and the inlet should be less than or equal to 45 degrees.



- 泵入口管轴抽吸的方向应与浆池内纸浆的流向保持一致。
- The suction direction of the pump inlet pipe shaft should be consistent with the flow direction of pulp in the pulp pool.

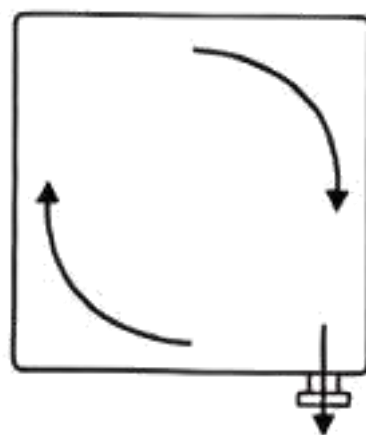
Round cylindrical pool (tower)  
圆形浆池 (塔)

Square pond  
方形浆池



right

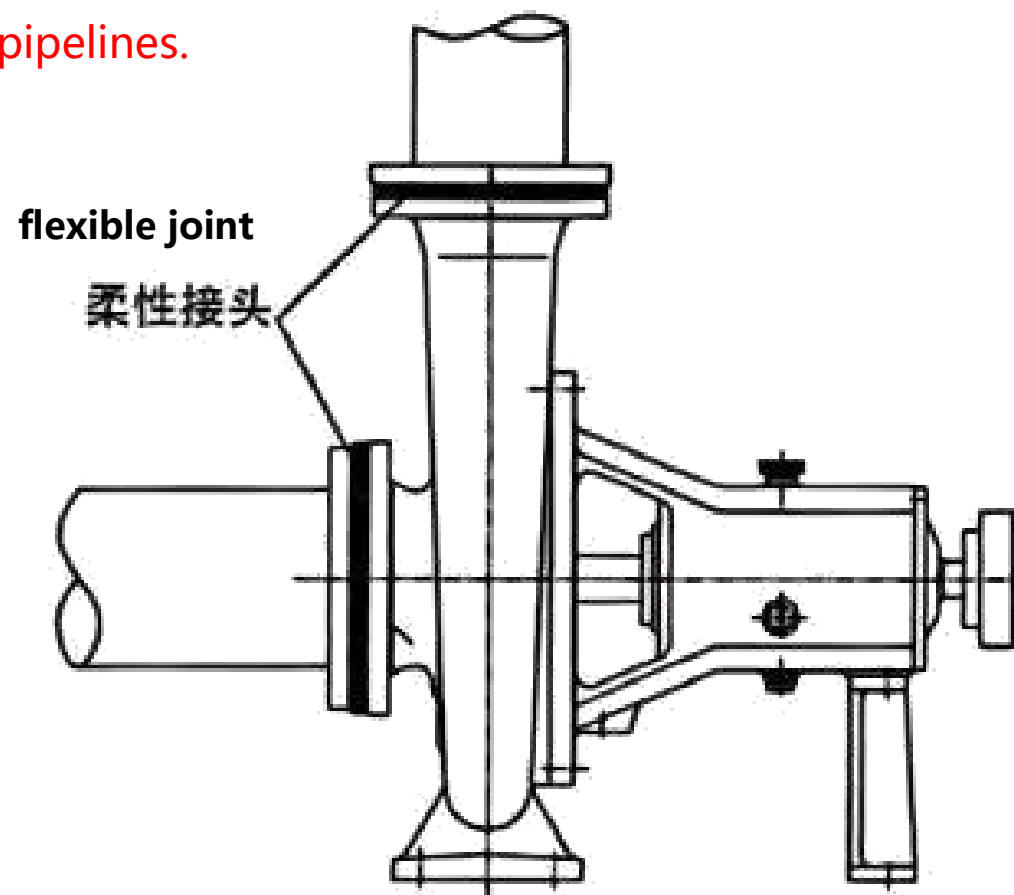
wrong



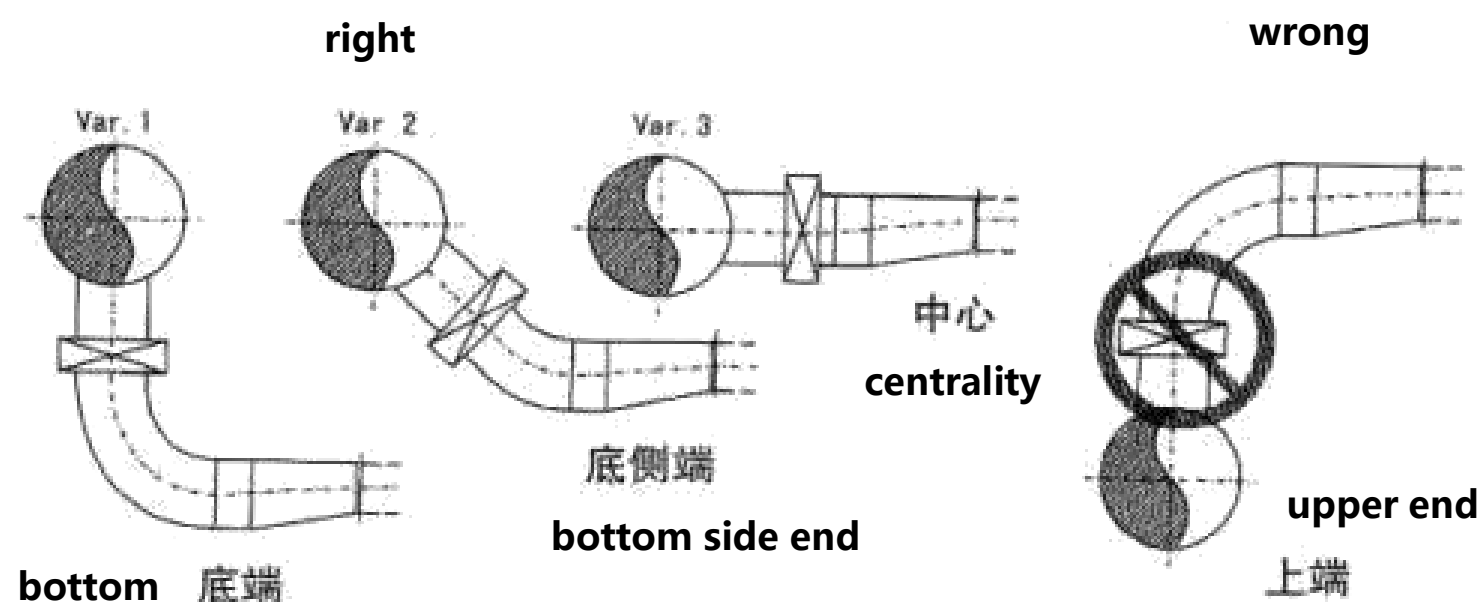
泵抽吸方向  
Pump suction direction

泵抽吸方向  
Pump suction direction

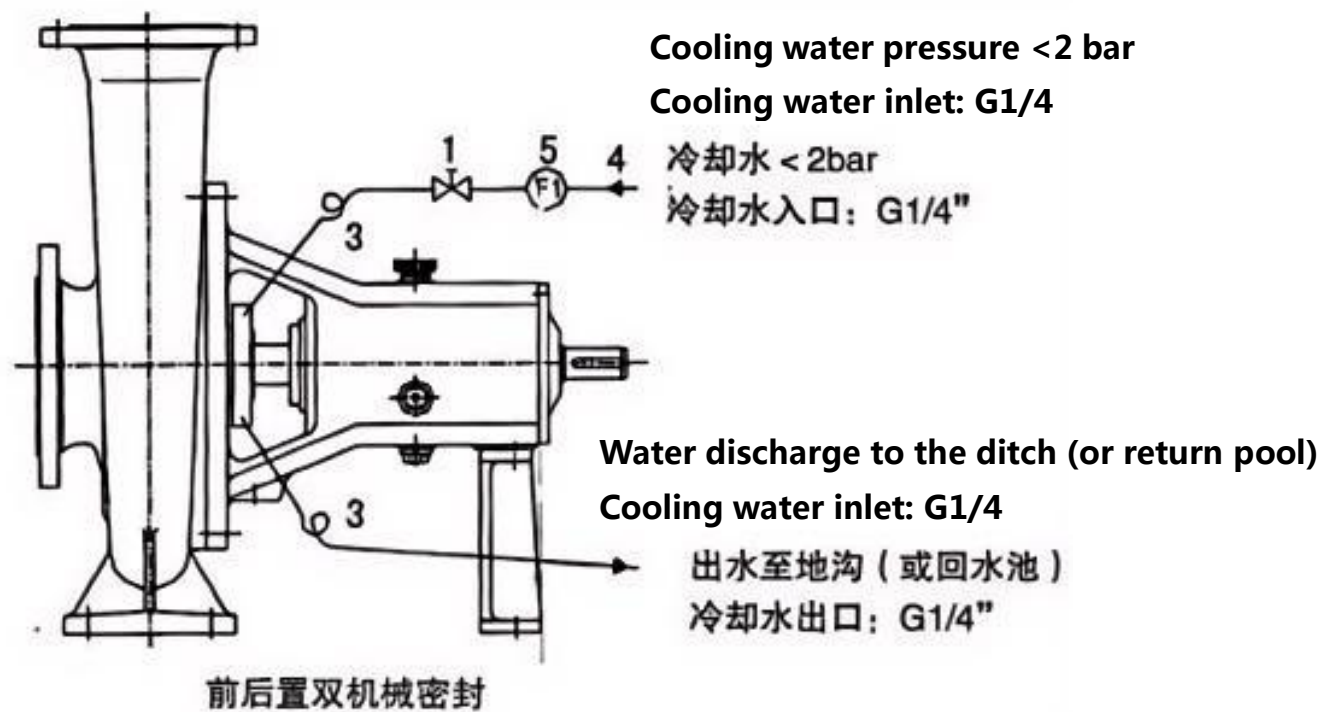
- 尽可能在泵的入口和出口管上安装柔性接头，以防止泵与管道间的震动传递。
- Flexible joints should be installed on the pump inlet and outlet pipes whenever possible to prevent vibration transfer between the pump and pipelines.



- 入口需要从一主管上分支时(或几台泵连接在同一主管时)，在主管上的连接点应在主管中心或中心线以下。
- When the inlet branches off from a main pipe (or when multiple pumps are connected to the same main pipe), the connection point on the main pipe should be located at or below the centerline of the main pipe.

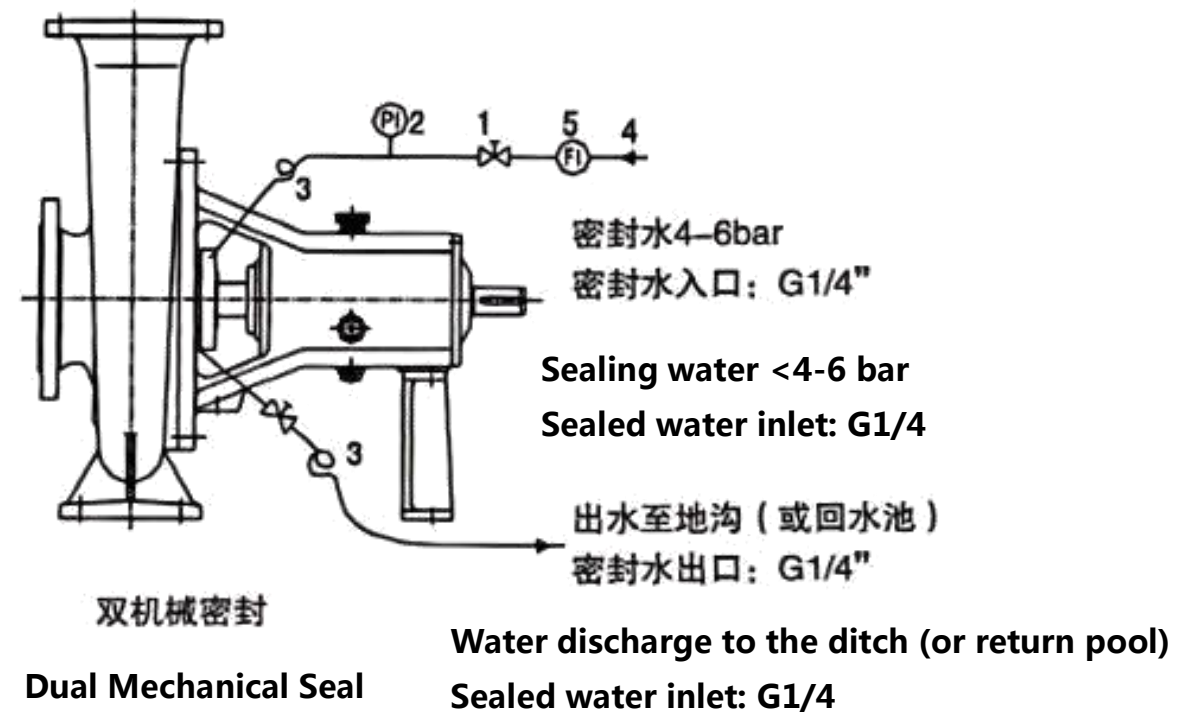
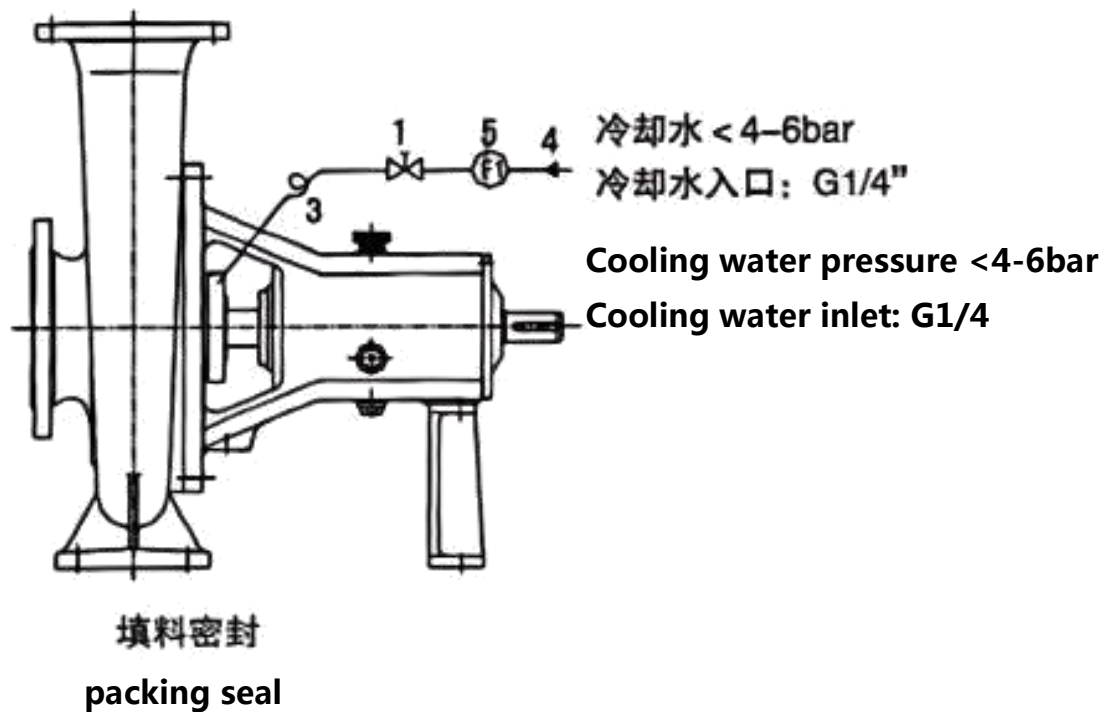


密封水 Sealing water	密封水的连接 Sealing water connection
单机械密封 Single mechanical seal	不需要连接密封水，通过介质进行润滑和冷却 No sealing water connection is required; lubrication and cooling are achieved through the medium.
前后置双机械密封 Dual mechanical seals for front and rear positions	需要接一低压冷却水管，出水至地沟(或回水池) A low-pressure cooling water pipe must be connected, with the outlet water directed to the drainage ditch (or return pool).
填料密封 Packing seal	需要接一高压密封水管 High-pressure sealed water pipe connection required
双机械密封 Dual Mechanical Seal	需要接一高压密封水管，出水经压力阀微开 A high-pressure sealed water pipe must be connected, with the outlet water passing through a pressure valve that is slightly open.



Dual mechanical seals for front and rear positions

- 1.....球阀 G4/2" G42 ball valve
- 2.....压力表 pressure gage
- 3.....软管 flexible pipe D1=10MM
- 4.....钢管 steel pipe D2=20MM
- 5.....流量计 flowmeter



### 密封水的流量和压力 Flow rate and pressure of sealing water

必须提供清水作填料密封水。供水管上需装上一个阀，便于控制水压。水量是 0.25-0.5 升/分，供水压力请参看表。  
必须提供清水作润滑和/或冷却标准型双机械密封。排水管上需装上一个阀，便于控制水压。要求的供水压力请参看下表：

Clean water must be provided as the sealing water for the filler. A valve should be installed on the water supply pipe to facilitate pressure control. The water flow rate is 0.25–0.5 liters per minute; refer to the table for water supply pressure.

Clean water must be supplied for lubrication and/or cooling of standard dual mechanical seals. A valve should be installed on the drainage pipe to facilitate water pressure control. Refer to the table below for required water supply pressure:

Bearing housing specifications

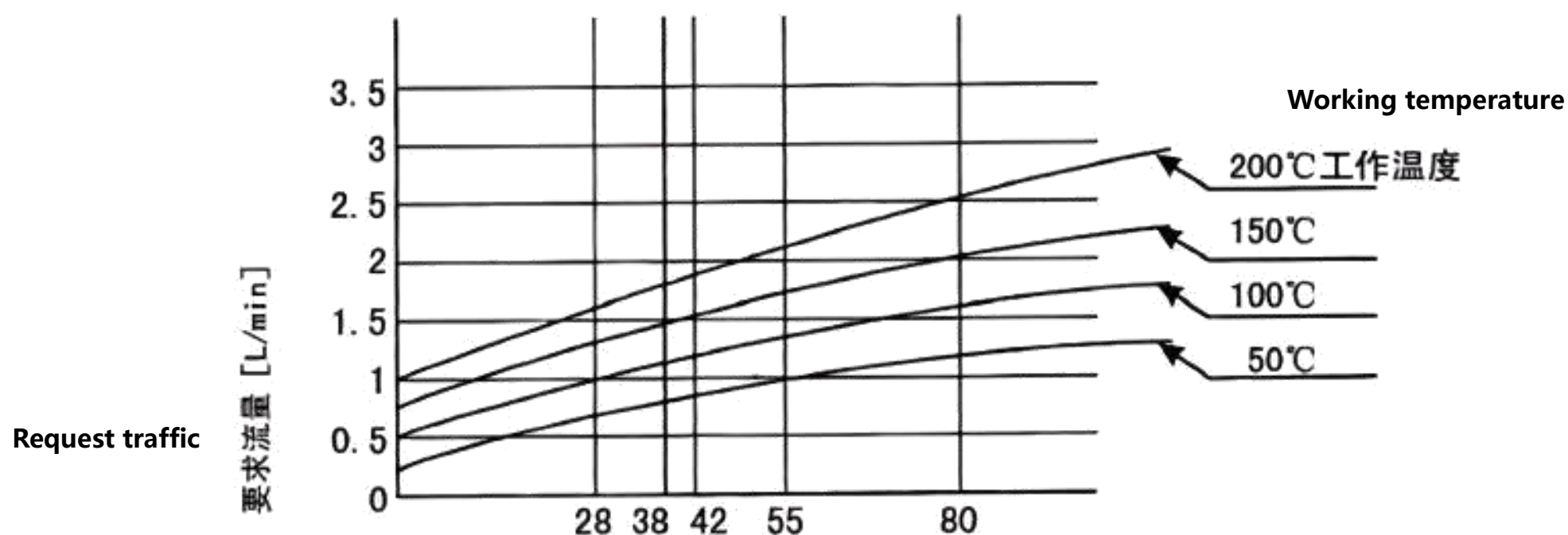
Water supply pressure

单位: bar

轴承座规格	供水压力 (n=1500)	供水压力 (n=3000)
HGZ28	2	5
HGZ38	3	6
HGZ42	3.5	7
HGZ55	4	-
HGZ80	4	-

标准型双机械密封要求的流量请参看下图：

For the flow rate requirements of standard dual mechanical seals, please refer to the figure below:



## 九、泵的开机和关机 Startup and Shutdown of the pump

### 1、开机 Starting up

- ★ 开机前检查泵内是否有异物(工具等), 避免损坏轴密封和叶轮;
- ★ Before startup, check for foreign objects (such as tools) inside the pump to avoid damage to the shaft seal and impeller.
- ★ 注入适量润滑剂;
- ★ Add an appropriate amount of lubricant;
- ★ 检查联轴器的对中情况;
- ★ Check the alignment of the coupling;

- ★ 打开进、出口管道阀门，让泵充满介质;
- ★ Open the inlet and outlet pipeline valves to allow the pump to fill with the medium.
- ★ 检查转向(注意，使用标准型单机械密封时不能干运转);
- ★ Check the steering mechanism (Note: Do not operate dry when using standard single mechanical seals).
- ★ 开电机。
- ★ Turn on the motor.

## 2、开机后 After startup

- ★ 检查密封(单机械密封、双机械密封、填料密封)是否泄露;
- ★ Inspect seals (single mechanical seal, double mechanical seal, packing seal) for leakage;
- ★ 当密封是填料密封时，必须保证填料处有水滴漏;
- ★ When the sealing is a packing seal, it must be ensured that water droplets leak at the packing area.
- ★ 检查轴承的温度和声音是否异常;
- ★ Check for abnormal temperature and noise in the bearing;
- ★ 检查泵进、出口管道是否充分支撑与固定;
- ★ Check whether the inlet and outlet pipelines of the pump are adequately supported and secured;
- ★ 检查泵进、出口管道是否有较大的振动;
- ★ Check whether there is significant vibration in the pump inlet and outlet pipelines;
- ★ 检查泵是否振动;
- ★ Check whether the pump is vibrating;
- ★ 如有异常现象，立即关机检查与处理，直至故障排除。
- ★ If any abnormal phenomena occur, immediately shut down the system for inspection and troubleshooting until the issue is resolved.

## 3、关机 Shut down

- ★ 关电机;
- ★ Shut-off motor.
- ★ 关闭泵的出口管阀门，以防管道出现真空导致倒流;
- ★ Close the outlet pipe valve of the pump to prevent vacuum formation in the pipeline that may cause backflow.
- ★ 如果停机时间较长，关闭密封水管，排空浆泵并冲洗干净;
- ★ If the downtime is prolonged, close the sealed water pipe, drain the slurry pump, and thoroughly rinse it

clean.

★ 泵回流时不能开电机。

★ The motor should not be started during pump reflux.

## 十、泵的维护 Maintenance of Pumps



进行维护工作前,注意电机不能在异常情况(例如总保险丝或电机保护开关脱落.....)下开机。

Before performing maintenance work, ensure the motor is not powered on under abnormal conditions (e.g., failure of the main fuse or motor protection switch...).

### 1、润滑 lubricating

#### a、油润滑 oiling

★ 在运行 200 小时后需进行首次换油，以后则按周期换油:

The first oil change should be performed after 200 hours of operation, followed by periodic oil changes thereafter :

Surface temperature of the bearing

Lubricating oil change cycle

轴承箱的表面温度	润滑油更换周期	
	motor speed $\leq 1500rpm$	motor speed $> 1500rpm$
$\leq 65^{\circ}C$	1 年	6 个月
$65^{\circ}C-75^{\circ}C$	6 个月	3 个月

★ 推荐合适的润滑油有 Recommended lubricating oils include :

BP/英国 BP 润滑油	BP/Energol HLP-HM 68
Esso/埃索	Teresstic 68
Mobil/美孚	D. T. E. Heavy Medium
Shell/壳牌	Shell Tellus Oil S 68
Castrol/嘉实多	Hyspin AWS 68

★ 所需油量 Required oil quantity :

Bearing housing specifications	Pump type	Oil mass
轴承座规格	泵型号	油量 [升]
GR28	HGZ 80-265	≈ 0.95
	HGZ 100-265	
	HGZ 125-265	
GR38	HGZ 100-350	≈ 1.0
	HGZ 125-350	
	HGZ 150-330	
GR42	HGZ 125-400	≈ 1.7
	HGZ 150-400	
	HGZ 200-380	
GR55	HGZ 150-470	≈ 3.0
	HGZ 200-470	
	HGZ 250-430	
GR80	HGZ 350-470	≈ 6.3
	HGZ 500-600	

注：油位处于油镜的中心线为宜，建议每周检查一次油位。

Note: The oil level should ideally be centered on the oil level indicator. It is recommended to check the oil level weekly.

**b、脂润滑 lipid lubrication**

当轴承室表面温度低于 60°C 请使用以下润滑脂:

Use the following grease when the bearing chamber surface temperature is below 60°C:

Esso/埃索	HGZ 150-470
Mobil/美孚	HGZ 200-470
Shell/壳牌	HGZ 250-430
SKF/SKF	HGZ 350-470
FAG/FAG	HGZ 500-600

轴承的首次润滑和周期润滑：

Initial lubrication and periodic lubrication of bearings:

轴承室型号	首次润滑 (g)		周期润滑 (h)		润滑周期 (h)			
	叶轮端	联轴器端	叶轮端	联轴器端	740rpm	980rpm	1480rpm	2950rpm
GR28	30	50	20	15	16,000	12,000	8,000	3,000
GR38	55	85	25	25	14,000	10,000	6,500	3,500
GR42	85	135	20	30	12,000	8,000	6,000	3,000
GR55	180	300	30	50	10,000	7,500	5,000	—
GR80	250	420	45	65	8,500	6,000	3,500	—

注：轴承的寿命的长短基于您是否使用了清洁的正确牌号的润滑剂，请注意使用干净和正确牌号的润滑剂。

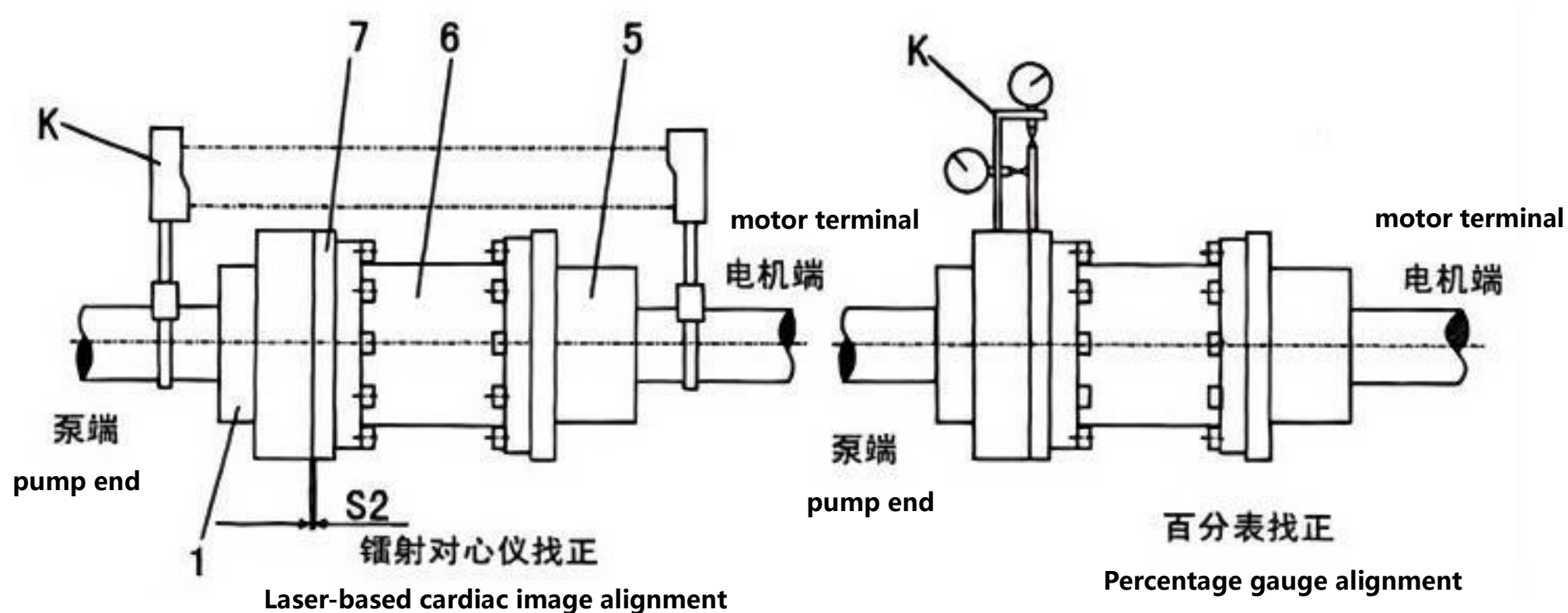
Note: Bearing lifespan depends on whether you use clean lubricant of the correct grade. Always ensure proper lubricant selection and application.

## 2、联轴器的找正 Coupling alignment

联轴器的找正对泵的运行非常重要，如果找正精度未达到要求，将对泵的联轴器、轴承、机封等的运行和寿命有直接的影响。

Coupling alignment is critical for pump operation. Failure to meet alignment accuracy requirements will directly impact the performance and lifespan of the pump's coupling, bearings, and mechanical seals.

### ★ 弹性联轴器的找正 Alignment of elastic coupling



#### a、用百分表找正联轴器 Aligning coupling using dial gauge

- 初步找正:用刀口尺或钢直尺依次放在联轴器外周的四点(0°, 90°, 180°, 270°), 检查联轴器的偏差状况, 通过在电机下垫薄垫片来调整电机, 使之在人目测下, 联轴器基本对中。
- initial alignment: Position a knife-edge ruler or steel straightedge sequentially at four points (0°, 90°, 180°, 270°) around the coupling's outer circumference to inspect its misalignment. Adjust the motor by placing thin shims beneath it until visual inspection confirms the coupling is essentially aligned.
- 精调:将两个百分表表座放稳, (按图示位置固定在联轴器上), 同时检测联轴器的轴向与径向偏差。调整之前, 必须保证两个百分表的触点处于正常的工作状态, 接着通过在电机下垫薄垫片, 将联轴器找正到合格的偏差范围。
- Precision adjustment: Secure the two dial gauge bases firmly (fix them on the coupling according to the diagram), while simultaneously measuring the axial and radial deviations of the coupling. Prior to adjustment, ensure the contacts of both dial gauges are in normal working condition. Then, by placing thin washers under the motor, align the coupling to meet the specified deviation tolerance range.

## b、用播射对心仪找正联轴器 Using a hammer to align the coupling for the target heart

若使用播射对心仪找正联轴器，请参阅播射对心仪的使用说明书，将联轴器找正到合格的偏差范围。找正精度按下表和上图。

If using the hammer shot to align the coupling for your equipment, refer to the hammer shot operation manual and adjust the coupling to within the approved tolerance range. Refer to the table and diagram below for alignment accuracy specifications.

联轴器型号 H	10	16	25	40	63	100	160	200	250
S2 (MM)	5-6	5-6	5-6	5-6	6-7	6-7	6-7	6-7	7-8
最大轴向偏差 K (MM)	0.1	0.1	0.1	0.1	0.2	0.2	0.25	0.25	0.3
最大径向偏差 H (MM)	0.1	0.1	0.1	0.1	0.2	0.2	0.25	0.25	0.3

**注：联轴器必须要求安装联轴器安全罩；必须定期检查弹性块的磨损情况，以便及时更换磨损的弹性块以保护联轴器。**

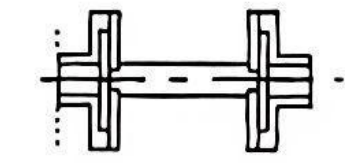
**Note: A coupling safety cover must be installed on the coupling. Regular inspection of the elastic block wear condition is required to ensure timely replacement of worn elastic blocks for coupling protection.**

### ★ 膜片联轴器的找正 Alignment of diaphragm coupling

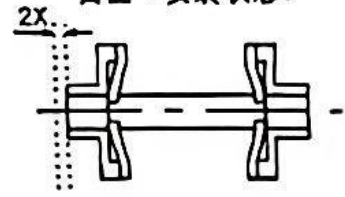
膜片联轴器的找正原理与弹性联轴器的找正原理相同。在对膜片联轴器找正时，需将膜片和中间轴取出，使用百分表或播射对心仪对联轴器进行轴向，径向和角度偏差进行调整(参见下图)，找正精度按下表：

The alignment principle for diaphragm couplings is identical to that of elastic couplings. During alignment, the diaphragm and intermediate shaft must be removed, followed by adjustment of axial, radial, and angular deviations using a dial indicator or laser tracker (see figure below). The required alignment accuracy is specified in the table below:

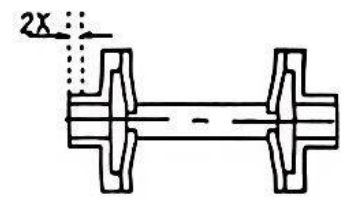
Coupling Specifications	Axial deviation	Radial deviation	Angular deviation
联轴器规格	轴向偏差 (2X)	径向偏差 (Y)	角向偏差 (θ)
JM1J7	1mm	0.4mm	0.5°
JM1J8	1mm	0.45mm	0.5°
JM1J9	1.25mm	0.5mm	1°
JM1J	1.5mm	0.5mm	1°
10JM1J11	1.5mm	0.5mm	1°



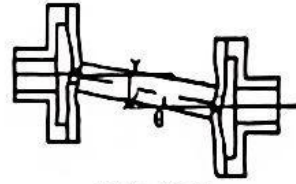
自由 (安装状态)



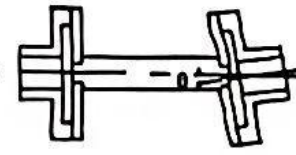
轴向压缩



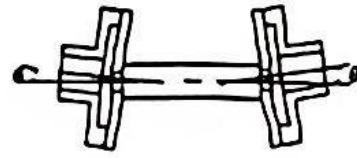
轴向伸长



径向偏差



单角偏转



双角偏转

2X—轴向位移  
2X—Axial Deviation

Y—径向偏差  
Y—Radial Deviation

$\Delta\theta$ —角向位移  
 $\Delta\theta$ —Angular Deviation

JM1J型接中间轴整体式膜片联轴器，  
它能在不移动主机的情况下单独装拆

