

SHIMGE[®]
----- *for better life*

SERVICE MANUAL

VERTICAL CENTRIFUGAL PUMP

Model:YS



Warning

- Before operation, make sure that electric pump is grounded reliably and leakage protection device is equipped.
- Don't touch electric pump while it is running.
- Don't run electric pump without water.

25025000304
SYS21-1-1.0



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SHIMGE PUMP INDUSTRY (ZHEJIANG) CO., LTD.

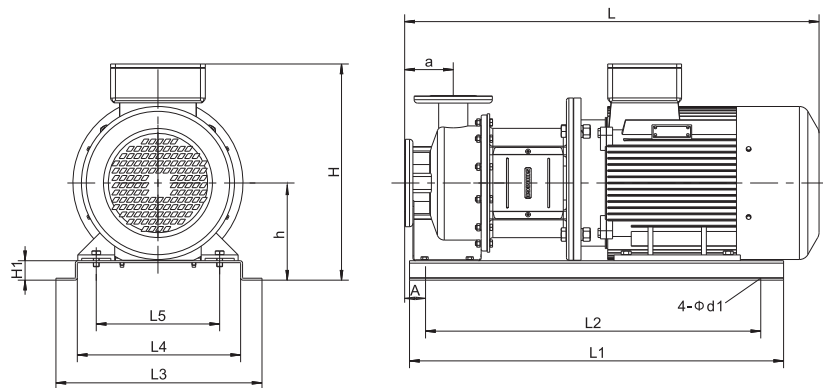
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Type	Power (kW)	Q (m ³ /h)	n (r/min)	H (m)	Lift range (m)	I (A)
50-32-160/1.5	1.5	12.5	3000	20	18~22.5	3.34
50-32-160/2.2	2.2	12.5	3000	25	22.5~28	4.58
50-32-200/3	3	12.5	3000	32	28.9~34.9	6.02
50-32-200/4	4	12.5	3000	42	37.7~45.7	7.83
50-32-200/5.5	5.5	12.5	3000	54	48.5~58.5	10.7
65-40-125/1.5	1.5	25	3000	13	11.3~15.5	3.34
65-40-125/2.2	2.2	25	3000	18	15.2~20	4.58
65-40-125/3	3	25	3000	24	20.3~25.7	6.02
65-40-160/4	4	25	3000	28	24.5~30	7.83
65-40-200/5.5	5.5	25	3000	36	33.3~37.4	10.7
65-40-200/7.5	7.5	25	3000	46	43.3~48	14.4
65-40-200/11	11	25	3000	62	59~64	20.6
65-50-125/3	3	50	3000	13	10~18	6.02
65-50-125/4	4	50	3000	18	14.8~24.2	7.83
65-50-160/5.5	5.5	50	3000	25	21.5~31.6	10.7
65-50-200/7.5	7.5	50	3000	32	29.6~36.3	14.4
65-50-200/9.2	9.2	50	3000	40	37.5~43.5	17.7
65-50-200/11	11	50	3000	48	45.6~51.5	20.6
65-50-200/15	15	50	3000	58	53~59.7	27.9
65-50-200/18.5	18.5	50	3000	68	64~70.2	34.2
80-65-125/5.5	5.5	100	3000	13	9.7~19.3	10.7
80-65-125/7.5	7.5	100	3000	18	14.1~24.5	14.4
80-65-125/9.2	9.2	100	3000	23	18.3~28.1	17.7
80-65-160/11	11	100	3000	27	20.7~33.9	20.6
80-65-160/15	15	100	3000	36	31~41.8	27.9
80-65-200/18.5	18.5	100	3000	45	40.2~51	34.2
80-65-200/22	22	100	3000	53	48.2~57.7	40.5
80-65-200/30	30	100	3000	66	61.4~70.2	54.9
100-80-160/11	11	160	3000	15	9.7~23.8	20.6
100-80-160/15	15	160	3000	22	16.1~32.3	27.9
100-80-160/18.5	18.5	160	3000	28	21.5~36.2	34.2
100-80-200/22	22	160	3000	33	24.9~43.5	40.5

Note: The figures in this manual are all schematic diagrams, and the product performance is also constantly updated. The purchased products (including appearance, color, etc.) shall be subject to the actual products.

Type	L (mm)	A (mm)	a (mm)	H (mm)	H1 (mm)	h (mm)	L4 (mm)	L1×L3 (mm)	L2×L5 (mm)	4-Φd1 (mm)	WT (kg)
65-50-200/11	963	50	100	540	40	200	380	770×420	690×332	4-Φ14	161
65-50-200/15	963	50	100	540	40	200	380	770×420	690×332	4-Φ14	171
65-50-200/18.5	963	50	100	540	40	200	380	810×420	730×332	4-Φ14	188
80-65-125/5.5	690	50	100	413	40	200	330	660×370	590×282	4-Φ14	79
80-65-125/7.5	690	50	100	413	40	200	330	660×370	590×282	4-Φ14	83
80-65-125/9.2	690	50	100	413	40	200	330	660×370	590×282	4-Φ14	87
80-65-160/11	790	50	100	456	40	200	380	770×420	690×332	4-Φ14	163
80-65-160/15	790	50	100	456	40	200	380	770×420	690×332	4-Φ14	173
80-65-200/18.5	830	50	100	476	40	200	380	810×420	730×332	4-Φ14	190
80-65-200/22	880	50	100	500	40	200	415	860×455	780×367	4-Φ14	220
80-65-200/30	950	50	100	550	40	200	455	930×495	850×407	4-Φ14	292
100-80-160/11	830	50	125	476	40	200	380	810×420	730×332	4-Φ14	163
100-80-160/15	830	50	125	476	40	200	380	810×420	730×332	4-Φ14	173
100-80-160/18.5	870	50	125	476	40	200	380	850×420	770×332	4-Φ14	185
100-80-200/22	920	50	125	500	40	200	415	890×455	810×367	4-Φ14	220



Thanks for choosing our product, READ our service instructions carefully before installation and using. Make sure this manual in your safekeeping.

⚠ WARNINGS :

⚠ Warnings for Children

1. Any child or any adult who has any physical, sensory or mental defects or lacks of the relevant experience or knowledge, if supervised or given the method on safe use of this product as well as knowing the dangers involved, may use this product.

2. No child shall play with this product as a toy.

3. Without supervision, no child shall be allowed to clean or maintain this product.

⚠ Pressure Warning

1. The system where a pump lies shall be able to withstand the maximum pressure of the pump.

⚠ Electricity Warning

1. The electric power system may be used only when it has the safety protection measures specified by the existing provisions of the country where the product is installed.

⚠ Modification-related Warning

1. Where any electric pump is tampered, modified and/or operates outside the recommended operating scope or goes against any other instruction given in this manual, the manufacturer will not guarantee the correct operation of the electric pump or be responsible for any loss which might be caused by the electric pump.

2. The manufacturer refuses to undertake any responsibility for any error which might appear in this manual due to misprint or misreplication. The manufacturer reserves the right to make any modification to the product, which, in its opinion, is necessary or useful, without affecting basic features of the product.

I. General

YS series centrifugal pump (afterwards called pump). This product boasts characters of high efficiency, low noise, steady operation, etc. which makes a compact whole, its installation easy, its operation and maintenance convenient.

II. Working Condition

2.1 Medium temperature: -20°C~+100°C.

2.2 Ambient temperature: +40°C, Relative air humidity: Maximum 95%.

2.3 Max working pressure of pump system : 1.0MPa.

2.4 Altitude should be lower than 1000 meters above sea level.

2.5 Advisable to use motor of higher power in case that the density or viscosity of medium is above that of water.

III. Applications

The pumps are designed to circulate hot or cold water in for instance

- heating systems
- air-conditioning systems
- central heating systems for blocks of flats
- cooling systems

in residential, institutional and industrial applications.

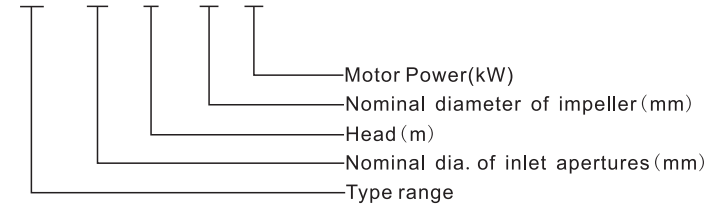
in addition, the pump range is used for liquid transfer and water supply in for instance

- industrial systems in general
- domestic hot water systems

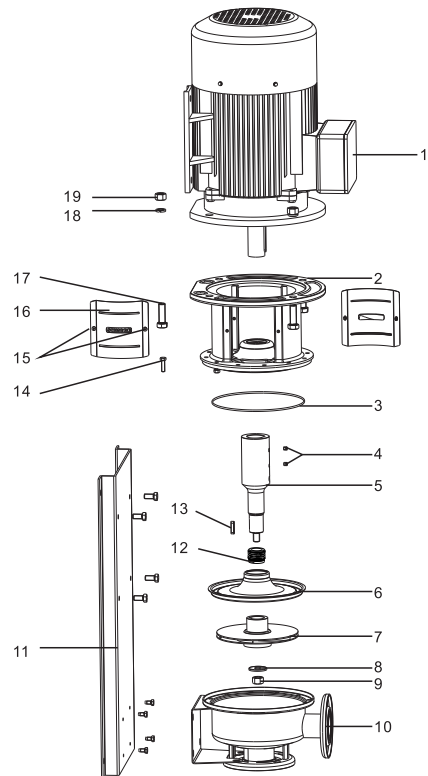
To ensure optimum operation, the dimensioning range of the system must fall within the performance range of the pump.

IV. Specifications

YS 65 - 50 - 200/11.0



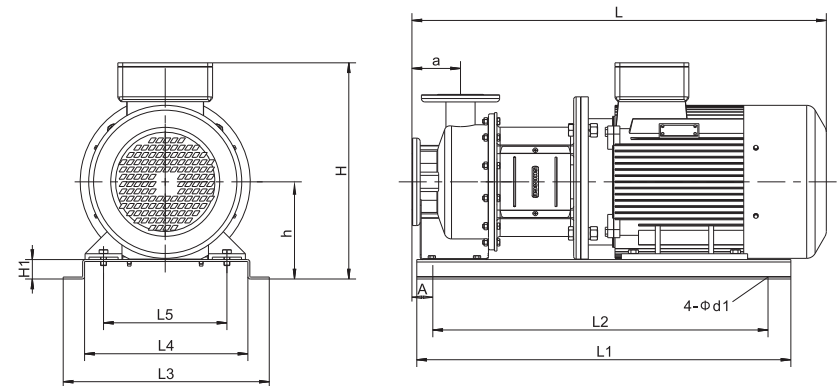
V. Exploded View



- 1、 Motor
- 2、 Motor stool
- 3、 O-ring
- 4、 Set Screw
- 5、 Stub shaft
- 6、 Pump cover
- 7、 Impeller
- 8、 Impeller washer
- 9、 Impeller nut
- 10、 Pump casing
- 11、 Base
- 12、 Mechanical seal
- 13、 Flat key
- 14、 Hex bolt
- 15、 Screw
- 16、 Coupling guard
- 17、 Hex bolt
- 18、 spring washer
- 19、 Nut

9. 9. Installation dimensions and weight

Type	L (mm)	A (mm)	a (mm)	H (mm)	H1 (mm)	h (mm)	L4 (mm)	L1×L3 (mm)	L2×L5 (mm)	4-Φd1 (mm)	WT (kg)
50-32-160/1.5	503	37	82	296	20	152	240	500×280	430×192	4-Φ14	27
50-32-160/2.2	503	37	82	296	20	152	240	500×280	430×192	4-Φ14	29
50-32-200/3	538	40	82	386	40	200	290	530×330	460×242	4-Φ14	43
50-32-200/4	558	35	82	386	40	200	290	550×330	480×242	4-Φ14	48
50-32-200/5.5	769	32	82	498	40	200	330	660×370	580×282	4-Φ14	77
65-40-125/1.5	503	37	82	294	40	152	240	500×280	430×192	4-Φ14	23
65-40-125/2.2	503	37	82	267	40	152	240	500×280	430×192	4-Φ14	25
65-40-125/3	533	37	82	267	40	152	260	530×300	460×212	4-Φ14	37
65-40-160/4	553	37	82	267	40	152	290	550×330	480×242	4-Φ14	42
65-40-200/5.5	784	50	100	498	40	200	330	660×370	580×282	4-Φ14	78
65-40-200/7.5	784	50	100	498	40	200	330	660×370	580×282	4-Φ14	82
65-40-200/11	963	50	100	540	40	200	380	770×420	690×332	4-Φ14	161
65-50-125/3	533	41	86	338	40	200	290	530×330	468×262	4-Φ14	39
65-50-125/4	553	41	86	338	40	200	290	550×330	490×262	4-Φ14	44
65-50-160/5.5	784	50	100	498	40	200	330	660×370	580×282	4-Φ14	78
65-50-200/7.5	784	50	100	498	40	200	330	660×370	580×282	4-Φ14	82
65-50-200/9.2	963	50	100	540	40	200	330	660×370	580×282	4-Φ14	85



9.6. Sound pressure level/50Hz

Power (kW)	n(r/min)	3000r/min \bar{L}_{pA} -dB(A)
1.1		66
1.5		71
2.2		72
3		73
4		74
5.5		78
7.5		78
9.2		78
11		82
15		82
18.5		82
22		81
30		85

9.7. Pump flange size sheet/ISO7005---PN16

DN	D1	D2	n-Φd
32	Φ100	Φ140	4-Φ18
40	Φ110	Φ150	4-Φ18
50	Φ125	Φ165	4-Φ18
65	Φ145	Φ185	4-Φ18
80	Φ160	Φ200	8-Φ18
100	Φ180	Φ220	8-Φ18

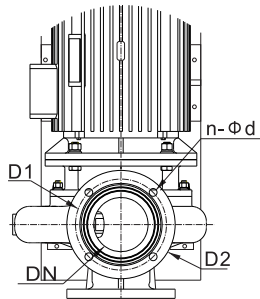


fig.6

9. 8. Model matching of wearing parts

● Bearing type

Power (kW)	n(r/min)	3000r/min front/Rear bearing
1.1		6204ZZ
1.5		6205ZZ
2.2		6205ZZ
3		6206ZZ
4		6306ZZ
5.5		6308ZZ
7.5		6308ZZ
9.2		6308ZZ
11		6309ZZ
15		6309ZZ
18.5		6309ZZ
22		6311ZZ
30		6312ZZ

● Mechanical seal type

Power (kW)	n(r/min)	3000r/min type
1.1~9.2		BIA-25-00A
11~30		108-40/51

VI. Installation Notes

⚠ Before installing and using the water pump, Please check whether the product is damaged or missing parts, if it is found, please contact the service personnel or manufacturers for replacement, then please read the following operation process carefully, so as not to damage the pump.

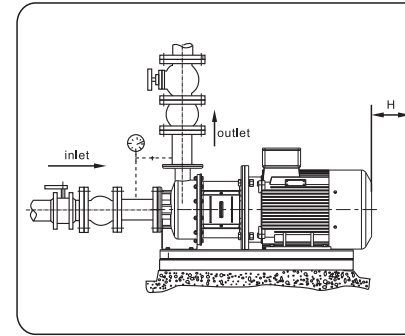


fig.1

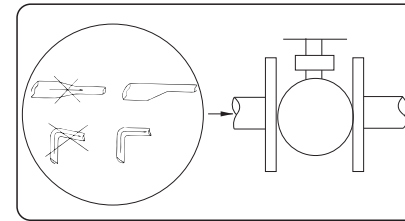


fig.2

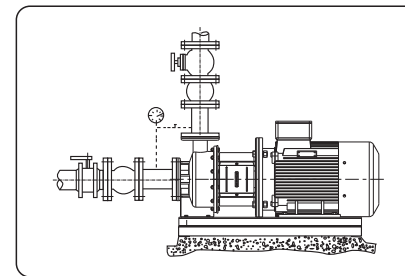


fig.3

See fig.1:

- 6.1 For inspection and motor/pump head removal, the following clearance is required above the motor:
 - 500mm for motors up to and including 4kW.
 - 1m for motors of 5.5kW and up.
- 6.2 pump should install on a concrete foundation, Note that the length and width of the foundation for pumps with motor size ≤ 30 kW Must be 200mm larger than the base plate. For pumps with motor size ≥ 37 kW, the length and width must always be $1.5 \times 1.5 (L \times B)$ meters
- 6.3 Install the pipes so that air locks do not occur, especially on the suction side of the pump.
- 6.4 Electrical connection should be carried out by an authorised electrician in accordance with local regulations. (See fig.2)

⚠ Before removing the terminal box cover and before removing/dismantling the pump, make sure that the power supply has been switched off and that it cannot be accidentally switched on.

- 6.5 Start the pump: Do not start the pump until it has been filled with liquid and vented. If the pump runs dry, the pump bearings and the shaft seal may be damaged. Vent the pump during starting by loosening the air vent screw in the motor stool until a steady stream of liquid runs out of the vent hole. (see fig.3)

⚠ Pay attention to the direction of the vent hole, and ensure that the escaping liquid does not cause injury to persons or damage to the motor or other components.

- 6.6 Condition adjustment: Based on the pump nameplate parameters, adjust to the corresponding flow and head, under this condition the pump operation is stable, high efficient. General pump flow in (0.7 to 1.2 times the rated point). If the customer make the pumps deviate this range of operation from, it may cause the pump efficiency decline or even damage the pump directly!
Note: The correct direction of rotation is clockwise.
- 6.7 Stop: when the pump stops, the outlet valve and the pressure gauge on the pipeline are slowly closed first, and then cut off the power supply.

VII. Maintenance and service

1. Maintenance of pump operation:

- A filter should be fixed on the pump inlet.
- Pump should be used in the suction environment, and fixed foot valve, specially, the outlet and inlet should not include crankle part, also make sure there's no leakage of water or air.
- Check the current value of the motor when the pump is in operation, try to keep the pump running without overloading;

2.Pumps which are not being used during periods of frost should be drained to avoid damage.

VIII. Common Fault (exclude) Table

⚠ Before opening the terminal box and pump, please make sure that the power supply has been disconnected and can not be opened accidentally.

Failure phenomenon	Analysis	Solution	Remark
Motor not running	a.Power failure b.Power overload c.Control circuit problem d.The fuse burned	a.Check power supply b.Check the system c.Check control circuit d.Change the fuse	Professional electrician check
Pump runs but give no water	a.Suction is too high b.Less water in pump cavity c.Inlet pipe or pump cavity with air	a.Lower installation height b.Increase water storage c.Exhaust air	
Pump operation with inadequate flow	a.The pump reversal b.Pipeline or impeller blocked c.Mouth ring wear serious d.Choose the wrong model e.The lower voltage	a.Adjust the motor wiring b.Clean the pipeline and impeller c.Change the impeller d.Re-select model e.Adjust the voltage	c.Do not allow users to remove by themselves
Power consumption is too large	a.Not use it at rated conditions b.Motor bearing damaged c.Pump cavity parts wearing	a.Adjust the operation conditions b.Change the motor bearing c.Change the spare parts	c.Do not allow users to remove by themselves
Pump running with noise and vibration	a. Installation is not stable b.The liquid with air c.Pump cavitation d.Damaged of the bearing or spare parts e.Motor overload operation	a.Fix the installation b.Adjust the high suction pressure and exhaust air c.Lower vacuum degree d.change the bearing or spare parts e.Adjust the normal operation	d.Do not allow users to remove by themselves
The pump water leakage	a.The mechanical seal damaged b.The O-ring damaged c.Casting with hole or broken	a.Change the mechanical seal b.Change the O-ring c.Change the spare parts	Do not allow users to remove by themselves

IX. Technical Data

9.1 Pump data

See pump nameplate.

9.2 Electrical data

See motor nameplate.

9.3 Frequency of starts and stops

max100 times/h for motors up to and including 4kW,
max20 times/h for motors of 5.5kW and up.

9.4 Ambient temperature

Max+40°C. Ambient temperature above +40°C, or the electric machine is installed above the altitude 1000 meters, the motor output power will be reduced, In this situation, we must choose a higher output power of the motor. (see fig.4)

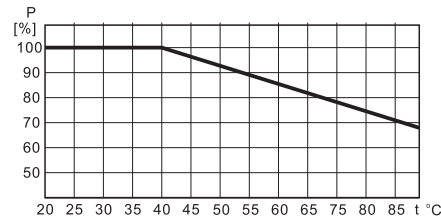


fig.4

9.5. Calculation of the Minimum Inlet Pressure

To ensure optimum and quiet pump operation, the inlet pressure (system pressure) must be adjusted correctly.

the maximum suction lift "H" in meters head can be calculated as follows:

$$H = P_b \times 10.2 - NPSH - H_f - H_v - H_s$$

P_b : Atmospheric Pressure (bar)

H_f : Frictional Resistance in the Inlet Pipe

H_v : Water Vaporization Pressure (Figure 3)

H_s : The safety allowance is usually rated as 0.5m

NPSH: Net Inlet Pressure (Q-NPSH)

If the value of H is positive value, the suction lift is H.

If it is negative, the amount of liquid being poured into the pump is H. (see fig.5)

Note: The calculation may be more than under normal circumstances, only when using the pump in the following cases H calculation:

1. A high media temperature,
2. Liquid flow rate exceeds the rating,
3. Improper high suction piping,
4. System pressure is too small,
5. Poor inlet conditions.

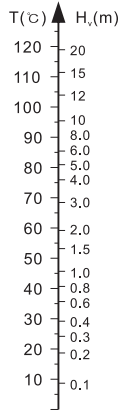
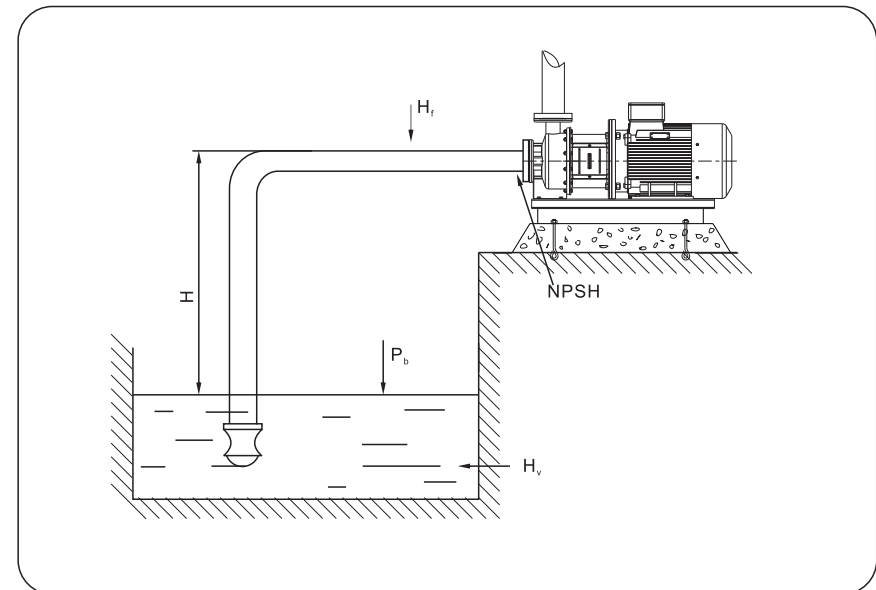


fig.5



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技术要求

- 1.说明书尺寸:折叠装订后210×142mm,误差2mm;
- 2.材质为:封面157克铜版纸,内页70克双胶纸;
- 3.周边不应有明显飞边;
- 4.文字大小和粗细应整齐醒目,排列匀称,不应断缺和模糊不清;
- 5.封面、封底彩色印刷,绿色为新界绿pantone 3272C;
橙色为C0 M60 Y100 K0;内页黑白印刷。