Submersible Pump

HYF Series



INSTALLATION，OPERATION & MAINTENANCEMANUAL

Contents

HYF (FYS) type fluoroplastic alloy submersible pump

I. Overview

II. Pump model meaning explanation

III. Structural description

IV. Corrosion resistance of fluoroplastic alloy

V. Main performance parameter table

VI. Possible failures and elimination methods

VII. Installation and use

VIII. Outlet installation dimensions

IX. Structural drawing and whole machine installation dimensions

I. Overview

HYF (FYS) corrosion-resistant submersible pump is made of neon plastics such as FEP and PVDF. It has unique technology and excellent performance, ideal service life, and can replace any type of corrosion-resistant submersible pump. HYF (FYS) submersible pump has beautiful appearance, light weight, stable operation, low vibration, low noise, and easy disassembly and assembly. Since the pump body is submerged in the liquid, it has the advantages of no shaft seal leakage, no bottom valve, and no need for filling and water diversion.

HYF (FYS) corrosion-resistant submersible pump is suitable for conveying almost all chemical media in chemical industry, medicine, coinage, dyeing, metallurgy, environmental protection, pesticide and other industries. (Except a few media such as molten metal cones, sodium, potassium, trichloride, etc.).

II. Meaning of pump model

For example:

25	Pump suction port diameter, mm
HY	Corrosion-resistant submersible pump
F	Pump contact part material code
- 41	Total designed head of the pump at basic speed, m

III. Structural Description

The HYF submersible pump is mainly composed of pump body, pump cover, impeller, shaft, elastic coupling, pipe flange, guide bearing, intermediate pipe, liquid outlet pipe, bearing frame, bottom plate, motor frame and other parts.

The suction port of the pump is along the axis direction, and the outlet is parallel to the axis.

The pump rotates in the direction of the needle when viewed from the suction port to the motor end.

The vertical motor of this pump is bolted to the motor base, and is directly driven by the pump through the elastic coupling. The pump body, intermediate pipe, pump frame, liquid outlet pipe, pipe flange, are connected by bolts to form a whole and fixed on the bottom plate. The whole pump is installed on the container through the bottom plate. Except for the liquid-contacting parts, the other main parts of the HYF pump, such as the motor base and pump frame, are cast iron. The bottom plate is made of polypropylene.

The axial force and radial force of the pump (including the water pressure generated during the operation of the pump, the weight of the impeller and the rotor, etc.) are all borne by the one-way thrust ball bearing, single-row radial ball bearing installed in the bearing box; and the sliding guide shaft to ensure the safe and normal operation of the pump. The bearings are lubricated with butter, and the guide bearings are lubricated with the liquid being transported. Therefore, the liquid level must be higher than the center line of the impeller during operation.

In addition, the HYF type corrosion-resistant submersible centrifugal series is divided into an intermediate guide bearing structure and a structure without an intermediate guide bearing due to the different lengths of the length L extending into the container.

IV. Corrosion resistance of fluoroplastic alloys

Chemical media	Operating temperature	Chemical media	Operating temperature
Acetic acid	Boiling Point	Diethyl ether	Boiling Point
Hydrochloric acid	Boiling Point	Diisobutyl adipate	Boiling Point
Hydrogen acid	Boiling Point	Uneven dimethylhydrazine	Boiling Point
Hydrogen peroxide	66℃	Para-oxyhexacyclopentane	Boiling Point
Nitric acid	Boiling Point	Acetate	Boiling Point
Potassium hydroxide	Boiling Point	Fluorobenzene	Boiling Point
Potassium permanganate	Boiling Point	Fluorinated nitrobenzene	Boiling Point
Sodium hydroxide	Boiling Point	Furan	Boiling Point
sulfuric acid	Boiling Point	Hexachloroethane	Boiling Point
acetone	200℃	Hydrazine	Boiling Point
acetophenone	Boiling Point	Methyl ethyl ketone	Boiling Point
phenylamine	Boiling Point	Phenol	Boiling Point
benzoyl chloride	Boiling Point	Nitrobenzene	Boiling Point
benzyl alcohol	Boiling Point	Nitrogen tetroxide	Boiling Point
cresol	Boiling Point	Perfluoroxylene	Boiling Point
cyclohexanone	Boiling Point	Phenol	Boiling Point
Dibutyl sebacate	Boiling Point	Perchloroethylene	Boiling Point
Aromatic aliphatic solvents	200℃	Phosphoric acid	Boiling Point
Pinene	Boiling Point	Carbon chlorate	94℃
Pyridine	Boiling Point	Cyclohexane	150℃
Soap, detergent	Boiling Point	Dibutyl phthalate	200℃
Sodium hypochlorite	Boiling Point	Dimethylformamide	150℃
Sodium peroxide	Boiling Point	Ethanol	200℃
Tetrabromoethane	Boiling Point	Ethylene bromide	100℃
Trichloroacetic acid	Boiling Point	Ethylene glycol	150℃
Trichloroethylene	Boiling Point	Formic acid	100℃
Abietic acid	182℃	Kerato	94℃
Anhydrous acetic acid	150℃	Animal and vegetable oils	200℃
Liquid ammonia	26℃	Ozone	26℃
Bromine	94℃	Phosphorus pentachloride	94℃
Butylamine	150℃	Piperidine	105℃
Butyl acetate	127℃	Chloroform	63℃
Carbon disulfide	46℃	Stannic chloride	200℃
Hexadecane	52℃	Xylene	139℃
Chlorine	94℃	Trimethylol phosphite	150℃

V. Main performance parameters table

No.	Model	Matching motor model	Flow Q		Head	EFF	Speed (rpm)
			m3/h	L1/S		%	
1	25HYF-41	Y112M-2B5 4KW	3.6	1	41	16	2900
2	25HYF-25	Y90L-2B5 2.2KW			25	21	
3	25HYF-16	Y90L-2B5 1.5KW			10	22	
4	40HYF-40	Y132S1-2B5 5.5KW	7.2	2	40	31	2900
5	40HYF-26	Y1OOL-2B5 3KW			26	35	
6	40HYF-16	Y90L-2B5 2.2KW			16	40	
7	SOHYF-40	Y132S2-2B5 7.5KW	14.4	4	40	42	2900
8	50HYF-25	Y112M-2B5 4KW			25	50	
9	50HYF-16	Y1OOL-2B5 3KW			16	53	
10	65HYF-40	Y160M1-2B5 11KW	25	8	40	52	2900
11	65HYF-25	Y132S1-2B5 5.5KW			25	55	
12	65HYF-16	Y112M-2B5 4KW			10	58	
13	BOHYF-38	Y160L-2B5 15KW	50	15	38	62	2900
14	BOHYF-24	Y160L-2B5 11KW			24	66	
15	BOHYF-15	Y132S2-2B5 7.5KW			15	68	
16	100HYF-57	Y200L2-2B5 37KW	100	28	57	63	2900
17	100HYF-37	Y1BOM-2B5 22KW			37	69	
18	100HYF-23	Y160L-2B5 18.SKW			23	70	

Notes:

1. The data in the table are the performance of clean water at room temperature. Please convert according to the actual situation when selecting.

2. Liquid depth (also known as pipe length).

3. A is the first cutting of the impeller and B is the second cutting.

4. Customization is required if high lift is required.

VI. Possible faults and solutions

Fault	Reason	Elimination method
Cannot pump liquid	1. The motor is not rotating in the right direction	1. Change the direction
	2. The liquid does not submerge the center line of the impeller	2. Adjust the immersion height
Insufficient flow	1. The impeller is seriously corroded	1. Replace the impeller
	2. The speed is insufficient	2. Increase the speed
	3. The gap between the impeller and the pump cover is too large	3. Readjust the gap
	4. The suction or pressure outlet is partially blocked	4. Eliminate the blocked part
Insufficient head	1. The liquid being transported contains gas	1. Reduce the liquid temperature and expel gas
	2. The impeller is severely corroded	2. Replace the impeller
	3. The speed is insufficient	3. Increase the number of revolutions
Power overload	1. Flow exceeds the use range	1. Operate within the pump's operating range
	2. Medium specific gravity is too large	2. Replace with a higher-power motor
	3. Mechanical friction is generated	3. Check for wear and tear, and adjust or replace worn parts
Bearing heating	1. The pump shaft is not concentric with the motor shaft	1. Adjust concentricity
	2. The bearing box is lacking oil or the oil is deteriorating	2. Add oil or change oil
Noise or vibration	1. The pump shaft is not concentric with the motor shaft	1. Adjust concentricity
	2. The conveyed liquid contains gas	2. Reduce liquid temperature and remove gas
	3. The rotor is unbalanced	3. Replace parts
	4. The nut is loose	4. Tighten nuts at various locations
	5. The water bearing and the journal are worn too much	5. Replace water bearing and restore journal

VII. Installation and Use

1. Installation

(1) The submersible pump should be installed vertically on the storage tank, and the position should be convenient for observation and maintenance. The distance between the lowest end of the pump suction port and the bottom of the storage tank should be greater than 10 cm.

(2) The pump outlet pipe should be supported by a separate bracket, and its weight should not be added to the pump body.

(3) The pump casing of the submersible pump should be completely immersed in the liquid. It is not recommended to pipe the suction pipe at the suction port.

(4) After installation, the mounting plate should be fixed firmly with bolts, and the rotating coupling should rotate flexibly without any unpleasant feeling.

(5) After installation, start the motor and determine the direction, then start the pump.

(6) After running for 3 to 4 hours, stop and check. If there is no unpleasant phenomenon, the installation is qualified.

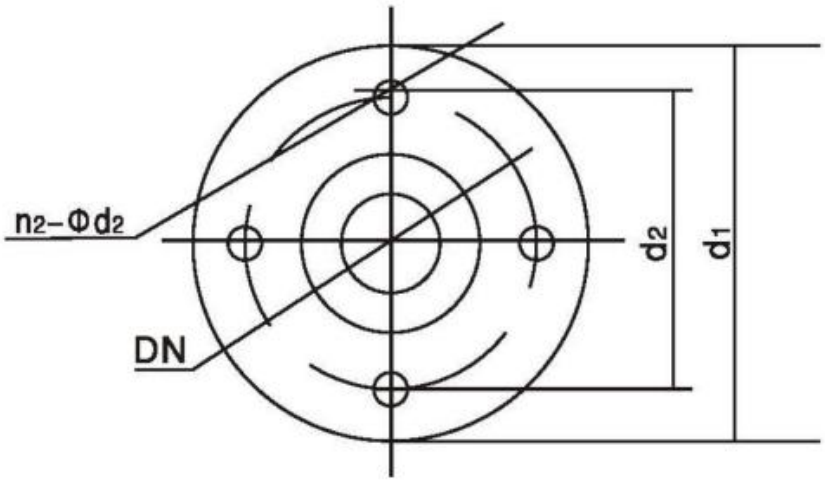
2. Use

(1) Close the valves and instruments on the outlet pipe before starting, wait for about 1 minute of normal operation, and then slowly open the valves and instruments.

(2) During operation, pay close attention to the motor power reading and vibration. If any abnormality is found, it should be eliminated in time or stopped for inspection.

(3) When stopping, close the outlet valve first, then stop the motor and turn off the pressure gauge.

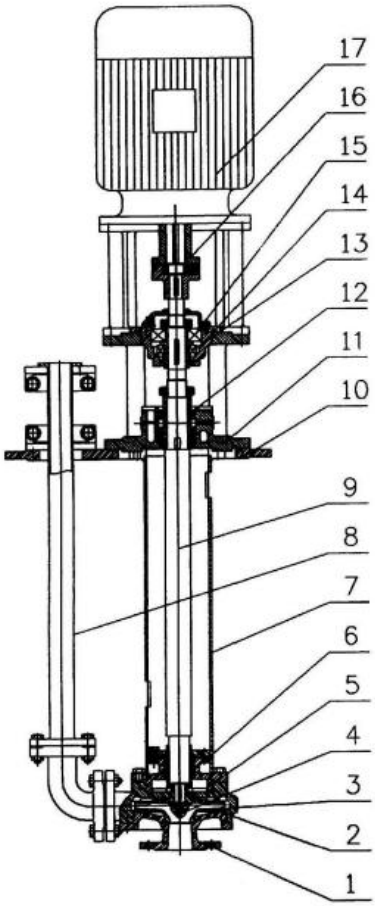
VIII. Outlet installation dimensions



DN	25	32	40	50	65	80	100
d1	130	130	130	130	160	160	160
d2	110	110	110	110	130	130	130
n2-ϕd2	4-ϕ 14					4-ϕ18	4-ϕ8

IX. Structural drawing and installation dimensions

No	Parts name
1	Front pump cover
2	Pump body
3	Impeller
4	Impeller nut
5	Pump cover
6	Bushing
7	Intermediate pipe
8	Liquid outlet pipe
9	Shaft
10	Base plate
11	Bearing frame
12	Upper bushing
13	Bearing
14	Bearing box
15	Bearing
16	Coupling
17	Motor



Model	D1	D2	D3	D4	D5	n-ϕ d1	E1	E2	E3
25HYF	500	500	/	/	460	8-ϕ 18	180	60	210
40HYF	500	500	/	/	460	8-ϕ 18	180	60	210
80HYF	500	500	/	/	460	8-ϕ 18	180	60	210
	650	500			/				
65HYF	650	500	150	150	/	12-ϕ 18	180	80	260
80HYF	650	500	150	150	/	12-ϕ 18	180	80	260
100HYF	700	500	150	150	/	12-ϕ 18	200	80	260