EG Series
Vertical In-line Pump
User Manual

Content

GPT CO

Gol Pumps Technology Company

Supply, Import, Export Water Pumps

1. Brief Description

Model Form

For example,

EG products are a series of vertical in-line pumps designed according to the European Standard BS EN733/ DIN24255.

As in-line pumps they are used for pumping clean water or liquids with characteristics similar to water, with wide application ranging from plants, mines, city water supplies, air-conditioning, to firefighting, cooling, environmental machinery, irrigation, and so on.

Pump performance can be adjusted into different levels through impeller trimming. Motor shaft is to be inserted into pump shaft for driving. This way of close-coupling ensures the alignment of pump and motor; meanwhile, pump impeller runs in good balance both dynamically and statically, therefore pump would be kept very well in operation. EG S pump uses IEC standard motor and pump can be assembled separately without motor. EG E pump requires a special motor with extra-long shaft. EG pumps are designed with air-bleeding device, advanced in structure, compact in size, less room-required for installation and easy to maintain.

Design	Performance referring to BS EN733/ DIN24255 standard
Structure	Vertical, Single-Stage, Single-suction, Volute Casing, In-line, Centrifugal Pump
Flange	DIN2501 (ISO7005.2 / GB/T17241.6 PN1.6) standard, ANSI B16.5 Class150lb optional
Rotation	Clockwise viewing from the drive side

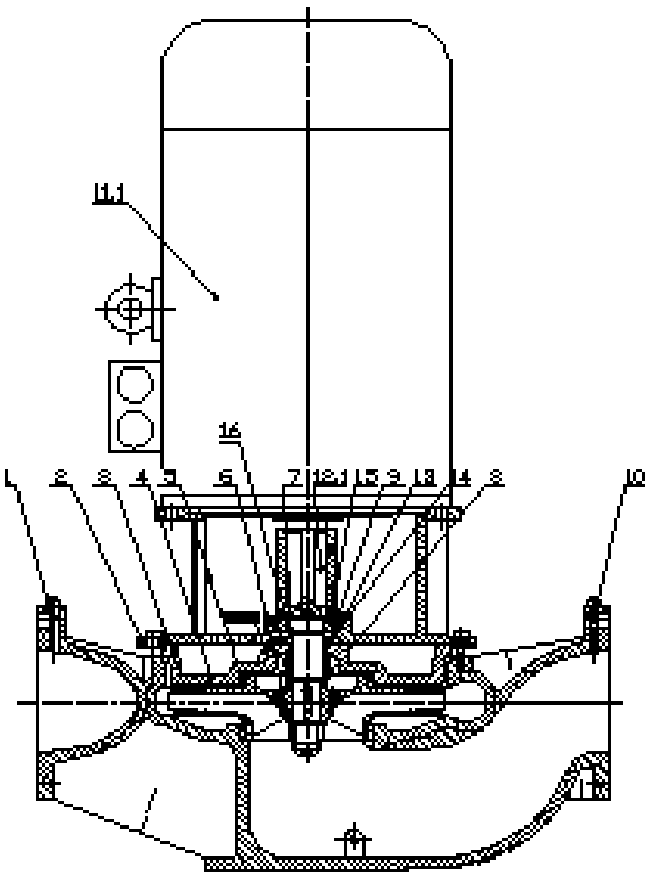
Material

Casing	Cast Iron standard, Ductile Iron optional
Impeller	Bronze standard, Cast Iron, Stainless Steel optional
Shaft	ASTM 420 standard, ASTM 304, ASTM 316, ASTM 1045 optional
Shaft Seal	Mechanical Seal (Caron-Sic/Viton standard)

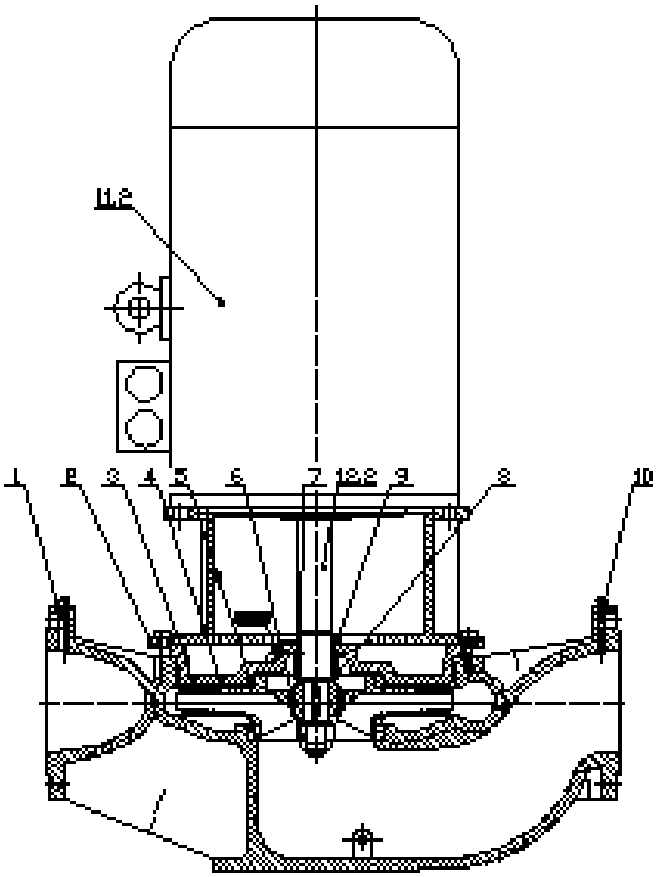
Operating Data:

Flow Rate (Q)	2-450m^3/h
Head (H)	2-150m
Speed	1450 or 2900 rpm (50Hz) 1750 or 3500 rpm (60Hz)
Temperature	-10℃ to 105℃
Working Pressure	16 Bar standard

Structure Drawing



1. EG S



2. EG E

No.	Part Name	No.	Part Name	No.	Part Name
1	Volute Casing	7	Mechanical Seal	12.1	Pump Shaft
2	Adapter	8	Seal Seat	12.2	Motor Shaft
3	Impeller	9	Slinger	13	Bearing Cover
4	Casing Cover	10	Screw Plug	14	Flexible Washer
5	Wear Ring	11.1	IEC Standard Motor	15	Bearing
6	Impeller Nut	11.2	Extra-long Shaft Motor	16	Circlip for Shaft

2. Assembly and Disassembly

1) Part Assembly

1.1) Pump body assembly

1.1.1) Screw on plug for pressure-testing hole and drain hole;

1.1.2) Screw on bolts for pump casing;

1.1.3) Grease and drive wear ring into pump body;

1.2) Shaft assembly (EG E skip this step)

1.2.1) Clean up the shaft, in the case that the inner hole of bearing cover is smaller than shaft Max. Diameter, put on bearing cover first;

1.2.2) Grease bearing position, push bearing inside;

1.2.3) Vise the locking ring(circlip for shaft) by caliper, then block it into the shaft ring clasp bed;

1.2.4) Wear flexible gasket onto bearing;

1.3) Casing cover assembly

1.3.1) Drive back wear ring into pump cover, screw on air-bleeding hole plug;

1.3.2) Grease the edge of pump cover, put paper washer onto casing cover;

1.3.3) Grease mechanical seal position on casing cover, press in mechanical seal static ring. Pay attention not to scratch static ring surface, pad rubber or plastic plate first before press in the static ring;

2) General assembly

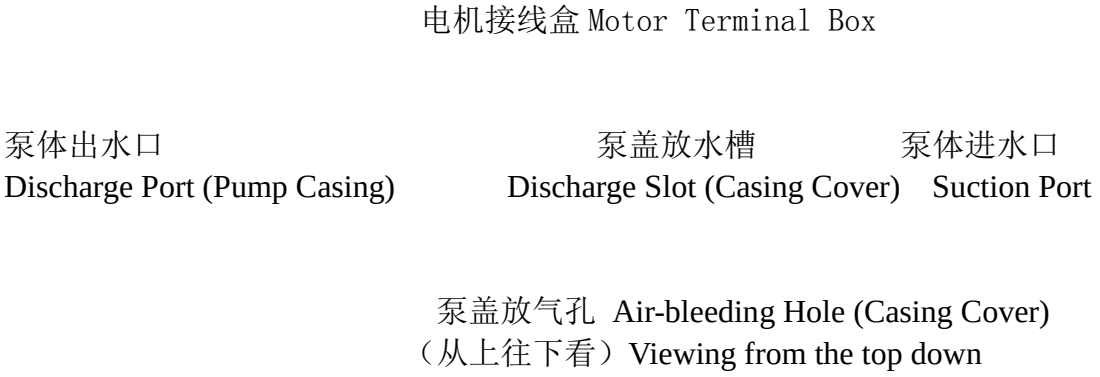
2.1) Grease adapter’s bearing position (EG E skip this step);

2.2) Insert shaft assembly into adapter (EG E joint adapter with motor and fasten);

2.3) Lock bearing cover with bolts (EG E skip this step);

2.4) Wear slinger onto shaft;

2.5) Set in casing cover, ensure air-bleeding hole is aligned with adapter;
2.6) Grease shaft then fit mechanical seal ring;
2.7) Press down seal seat with regular strength, make sure the spring can pop-up;
2.8) Put on the key, press impeller, place lock washer, tighten up impeller nut, then bend over lock washer;
2.9) Set every assembly into pump casing according to drawing, lock up pump nut tightly.



3.) Motor Mounting (EG E skip this step)
3.1) Put the pump horizontally. Mount on motor key;
3.2) Hoist the motor by cranes, put motor shaft into pump shaft slowly, pay attention to the alignment of the two shafts. If it is hard to get coupled, deburr keyway into smooth, note that beating is absolutely prohibited.
3.3) Tighten blots and nuts.
3.4) Screw on the clamping blots.

3. Installation

Correct way of pump installation makes great sense of stable performance and long service life. All the procedure of mounting and adjusting should be carried out carefully. For outline and dimension, see the outline picture and dimension table. Remove all the dust and dirt on base plate then place it onto ground foundation. Check foundation level by level meter, iron wedge or steel shims can be used for adjustment. Dig foundation bolts holes. Check foundation bolts to see if it is loose or not after concretion, and then tighten the bolts, check level again.

4. Starting, Checking, Stopping, Running and Maintenance

Starting

Check motor rotation before joint pump and motor together. Ensure that the pump is running freely without friction. Turn down discharge valve. Fill the pump with liquid or priming with a vacuum pump. Switch on power, gradually turn up

discharge valve and adjust to the required operating performance..

Caution: The operationg time should not be more than 3 minutes while the outlet valve being closed.

Checking

Check pump rotation direction: clockwise viewing from the drive side.

Stopping

Turn down discharge valve gradually, switch off the power. Drain away water left inside the pump to avoid frost crack while the temperature is blew 0℃. To keep a pump out of use for a long time, disassemble and store them in an appropriate place after proper lubrication and packing.

Running and Maintenance

Check the readings by the meters in starting and running to make sure that the bearing heating, mechanical seal leakage and heating, pump vibration and noise or other operation issues are under control. Abnormal cases should be handled immediately. Bearings are not allowed to work at the temperature 40℃ higher than the ambient temperature with the temperature not exceeding 80℃. Lubrication should be 4# Calcium Base Grease or SAE20W Oil. Pumps working at 2900 rpm should be replenished with new oil or grease every period of 2500 working hours, 1450 rpm ones should be replenished every 5000 working hours. Ball bearings should be dismantled and replaced by the new ones every 10000 working hours, the chamber should be thoroughly cleaned out and filled with fresh lubrication.

5. Troubleshooting

Defects	Causes	Solutions
Pump not primed, both the hands of vacuum gauge and manometer switches violently	Not enough water filled in the pump Air leakage in the pipe or meters	Filled with water again Fix the leakage
Pump not primed and high degree vacuum indicated on the vacuum gauge	Foot valve not open or clogged Suction resistance too high or suction lift too high	Check or replace the foot valve Clean or replace the inlet pipe Reduce the suction lift
No water discharged while outlet pressure is pointed by the manometer	Wrong direction of rotation Impeller clogged	Check or shorten the pipe Check the motor rotation Remove the pipe joint and clean the impeller
Lower capacity than	Pump clogged	Clean pump and pipes

specified value	Wear ring worn out	Replace the wear ring
Too much power consumed by pump	Packing too tight Stuffing box too hot Impeller worn out Too large flow that the pump is working in.	Loosen gland packing Replace impeller Turn down discharge valve to reduce flow
Abnormal noise inside the pump Pump not primed	Flow too large Resistance too high in the inlet pipe Suction lift too high Air leakage into the inlet pipe Liquid temperature too high	Turn down discharge valve Reduce flow Fix leakage Lower liquid temperature
Bearings over-heart	Short of lubricant or lubricant too dirty Pump shaft not in alignment to that of the motor Bearing worn out	Filled with clean oil or grease Align coupling centerline Replace bearing
Vibration	Pump shaft not in alignment to that of the motor	Align coupling centerline

6. EG S, EG E Installation Dimensions