

EJ Series

Sewage Centrifugal Pump

User Manual

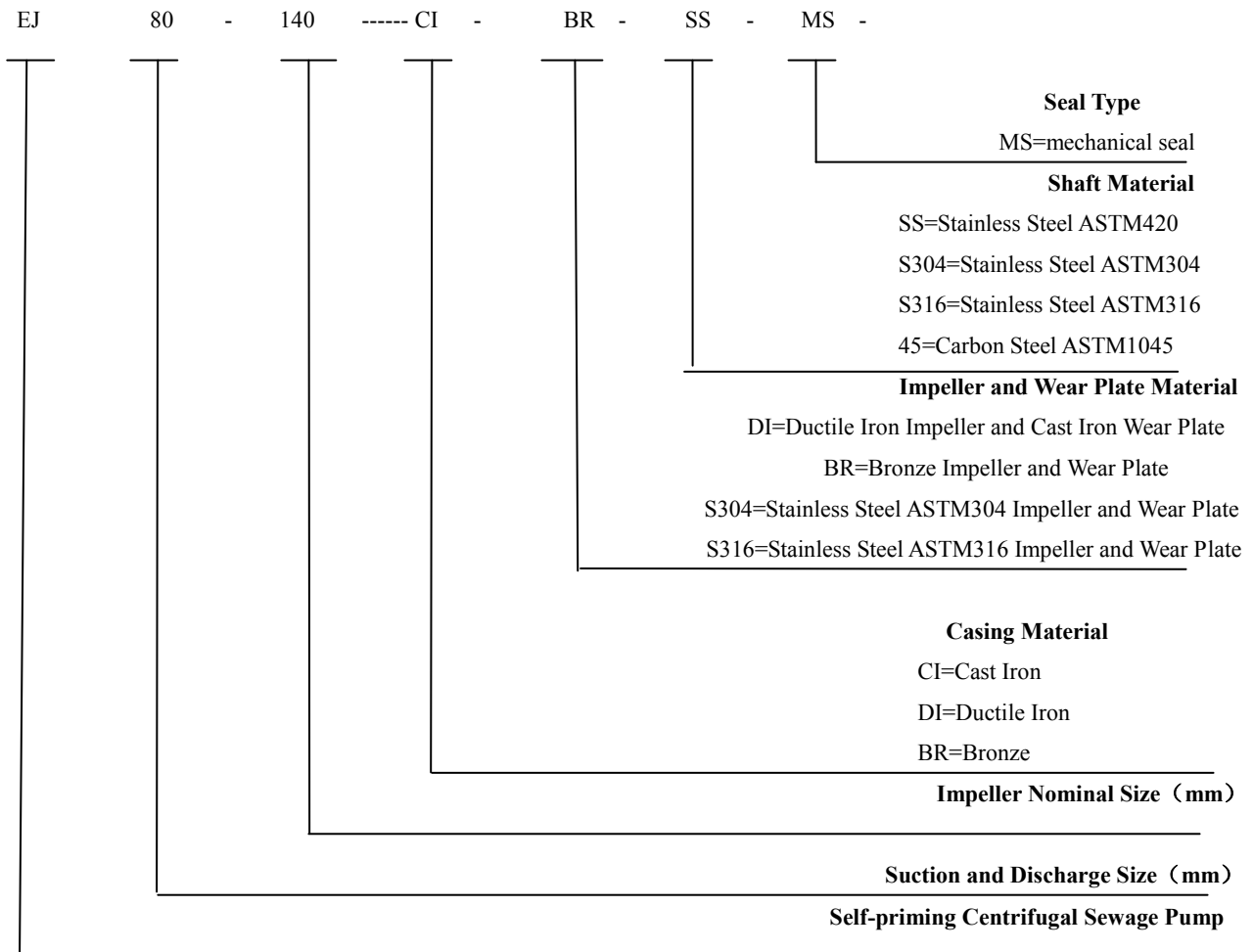
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1. Brief Description

Model Form

For example:



EJ series brief description

EJ pump is designed referring to the European standard of performance and dimensions.

This is a series of self-priming sewage pumps. Pump has maintenance holes outside the casing which enable convenient maintenance and cleaning; meanwhile, the other one advanced device-wear plate would greatly prolong the whole service life.

EJ pumps are used for pumping mixtures containing abrasive solids up to a viscosity of 50mm²/s. They can be applied in many fields, such as industry, civil engineering, marine, waste treatment and so on. They also can deal with different neutral, alkali liquids clean and dirty: liquids mixed with sand, mud or other caustic soda and waste water resulted from washing, cooling, circulation, purification or emergency.

Pump performance can be adjusted into different levels by speed (Rpm) to meet different requirements.

Design: Performance and Dimensions referring to the European standard

Structure: Semi-open Impeller, Horizontal, Axial End-Suction, Single-Stage, Single-Suction, Self-priming Centrifugal Pump

Flange: Edison Flange for Size < 100mm

Nonstandard Flange for Size ≥ 100 mm

Rotation: Clockwise viewing from the drive side

Material

Casing – Cast Iron Standard, Ductile Iron, Bronze optional

Impeller – Ductile Iron standard, Bronze, ASTM304, ASTM316 optional

Shaft – ASTM1045 standard, ASTM304、ASTM316, ATSM 420 optional

Shaft Seal – Mechanical Seal (Sic—Sic/Viton)

Operating Data

Flow Rate (Q): 4-480m³/h ;

Head (H): 4-40m

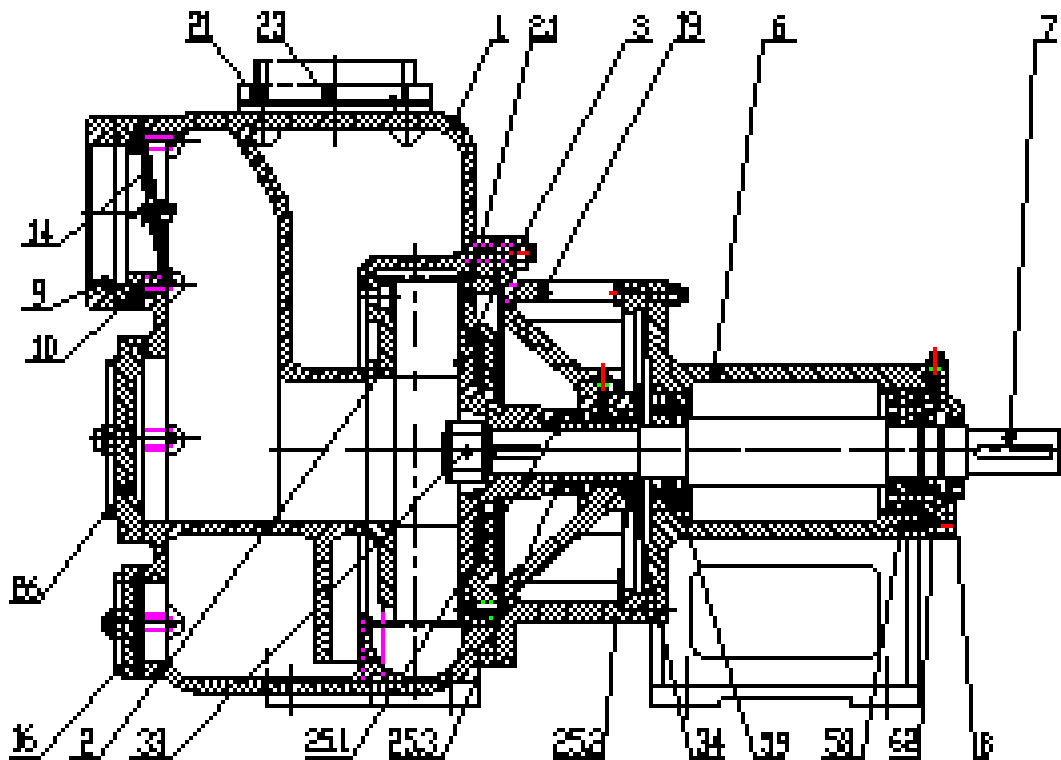
Speed: 1450-2900rpm(50HZ) , 1750-3500rpm (60HZ);

Temperature: -10°C ~ 80°C ;

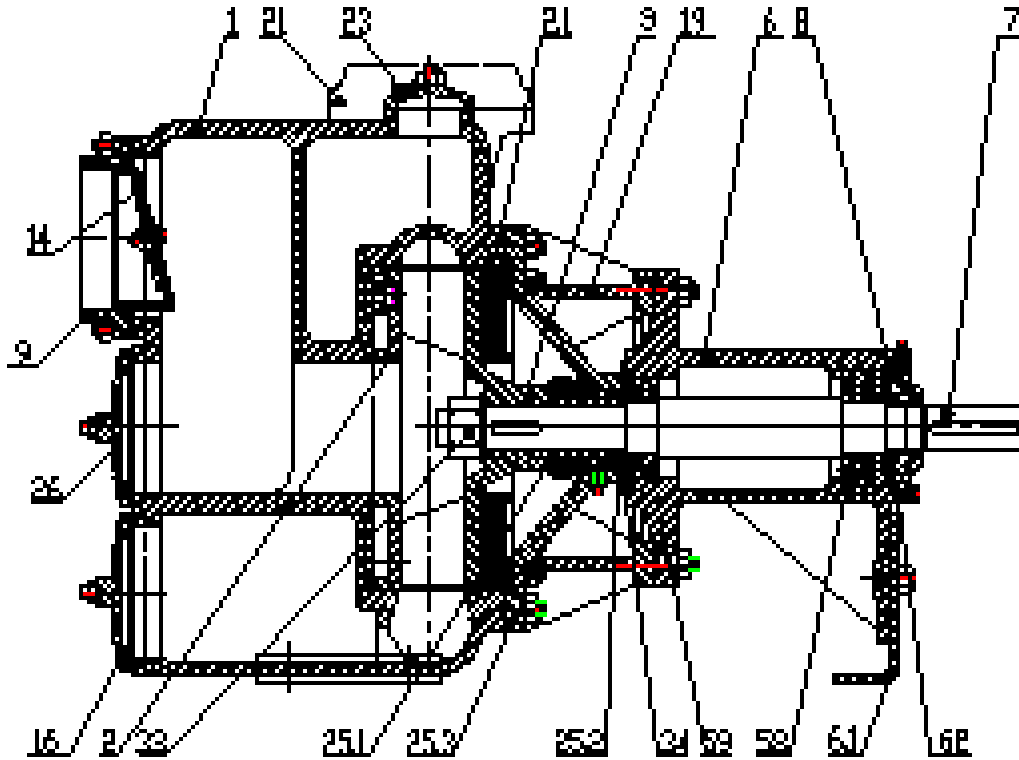
Working Pressure: 6Bar

Max Solids: 76mm

Structure Drawing



1 (EJ40-110, EJ50-120, EJ80-215, EJ100-160)



2 (EJ80-140, EJ100-250, EJ150-250, EJ150-400, EJ200-300)

Spare Part Name

No.	name	No.	name	No.	name
1	Casing	2	Front Wear Plate	2.1	Back Wear Plate
3	Impeller	6	Bearing Housing	6.1	Support Foot
7	Shaft	8	Bearing Cover	9	Suction Flange
10	Check Valve Seat	14	Check Valve	16	Maintenance Cover
19	Casing Cover	21	Discharge Flange	23	Maintenance Cover
25.1	Shaft Sleeve	25.2	Oil Seal	25.3	Mechanical Seal
26	Maintenance Cover	33	Impeller Nut	34	Slinger
58	Front Bearing	59	Back Bearing	62	Lock Nut

2. Assembly and Disassembly

The main shaft should be clean. Main shaft and bracket bearing should be smeared the lubricating grease and press the bearing into it. EJ80-215、EJ100-160、EJ100-250、EJ150-250、EJ200-300 tighten the nut tongued washer.

EJ80-215、EJ100-160、EJ100-250、EJ150-250、EJ200-300 reelup the felted wool into the bearing cover. Put the bearing cover gasket and cover the bearing cover and then tighten the bolts.

Pay more attentions to EJ200-300 which has internal bearing cover must be invaginated the 42X19 shaft sleeve and then install the internal bearing cover. Tighten the stud bolts in the casing

and put the wear plate in it, tight the bolts. Assembling suction check valve flexible gasket and check valve gasket. Put on the assembled inflow check valve components, cover the suction flange and tight the nut. Put on the discharge flange gasket, cover the discharge flange and tighten the nut. Put on the maintenance cover gasket, cover the maintenance cover and then tighten the nut . Then press the oil seal (casing cover seal cavity should be filled in some lubricating grease) Press the mechanical stationary seal ring, and the stationary seal ring shouldn't be scratched while assembled. You can cushion the rubber plate or plastic plate and press in.

EJ80-215、EJ100-250、EJ150-250、EJ200-300 put into the back wear plate, tighten the bolts and telescope the thrower. EJ100-250、EJ150-250 not contain thrower. Smear some lubrication oil on the shaft, telescope the shaft sleeve, mechanical seal ring in turn and hit in the flat key. (You should twine proper PTFE TAPE when telescope the shaft sleeve to prevent the shaft sleeve inner leaking.) put on the casing cover and tighten the nut. Check the casing cover seam allowance bounce. Press in the impeller and put in the flat key, tighten the locknut. Roll the spindle and check whether it rub stuck or not. Smear some lubricating grease on the casing cover seam allowance and put in the casing cover paper washer. Check the gap between the wear plate and impeller should be 0.3-0.6mm. Put on the casing and fasten the nut.

EJ80-140、EJ100-250、EJ150-250、EJ8-300 assemble the support foot and adjust it to horizontal, then tighten the nut.

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.

Mounting and adjusting

- 1). Remove all the dust and dirt on base plate then place it onto ground foundation.
- 2). Check foundation level by level meter, iron wedge or steel shims can be used for adjustment.
- 3). Pour concrete into baseplate and foundation bolts holes.
- 4). Check foundation bolts to see if it is loose or not after concretion, and then tighten the bolts, check level again.
- 5). Make sure the clearance between couplings is left from 2-4mm. The centerline of pump should be in alignment with that of motor, axial and radial tolerance is 0.2mm. Shims are available for alignment.

4. Starting, Checking, Stopping, Running and Maintenance

4.1. Starting

- 1).Check that the direction of the motor rotation corresponds to the direction arrow on the pump casing before joint pump and motor together. Ensure that the pump is running freely without seizure or friction.
- 2).Turn down discharge valve.
- 3).Fill the pump with liquid or priming with a vacuum pump.
- 4).Switch on power, gradually turn up discharge valve after pump operation runs normally to achieve the target performance.

Caution: 3 minutes is the Max. continuous working time for a pump to operate with closed

discharge valve.

4.2 Checking

- 1). Check direction of pump rotation, which should be clockwise viewing from the drive side.
- 2). Check alignment of the couplings both of pump and motor before using. Over-tolerance will damage flexible elements in a short time, and also cause over standard vibration as well as noise.
- 3). Check leakage of gland packing and tightness of gland cover; make them adequate to the job. If it is fitted with mechanical seal, make sure that the pump is operating with water inside; otherwise the dynamic and stationary rings would be worn out in dry operation
- 4). Be careful to make sure that the bearings are filled with grease.

4.3 Stopping

- 1). Turn down discharge valve gradually, switch off the power.
- 2). Drain away water left inside the pump to avoid frost crack while the temperature is below 0°C.
- 3). To keep a pump out of use for a long time, disassemble it into spare parts, store them in an appropriate place after lubrication.

4.4 Running and Maintenance

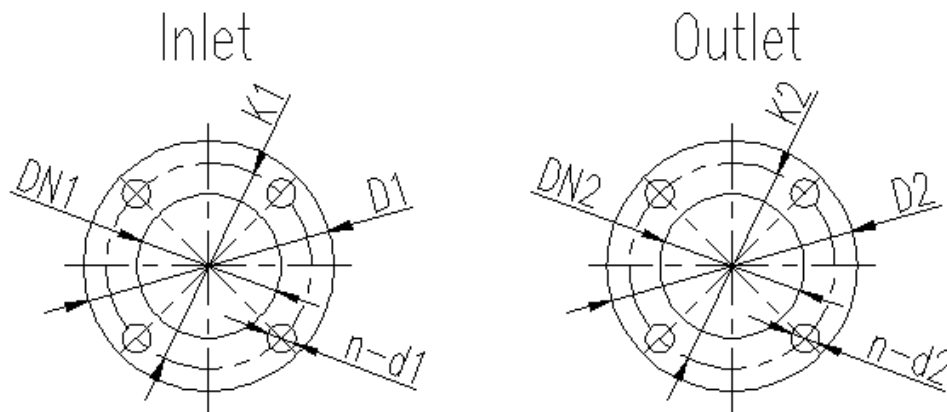
- 1). Readings by the meters are very important in starting and running. Care must be taken to heating, leakage, vibration and noise. Abnormal cases should be handled immediately on discovery.
- 2). Bearings are not allowed to work at the temperature 40°C higher than the temperature around, and the Max. temperature is 80°C.
- 3). In normal cases, a steady drip from the gland should be in a small amount, at about 60 drops per minutes while almost non-leakage from mechanical seal.
- 4). 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, and also oil cup should be thoroughly cleaned out and filled with fresh lubrication.

5. Troubleshooting

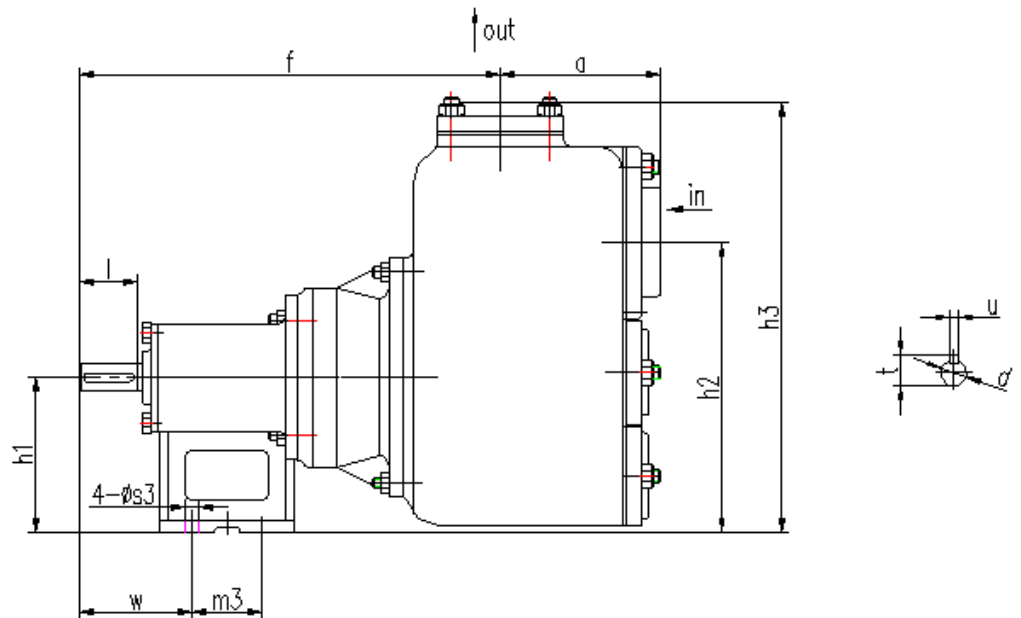
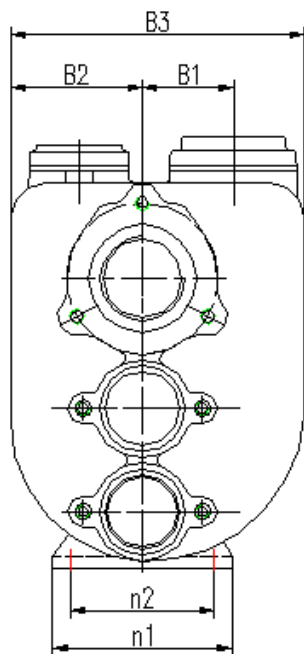
Defects	Causes	Solutions
1.No water discharged	<ol style="list-style-type: none">1. Inlet and outlet valve not open, pipeline blocking, passageway impeller blocking.2. Motor operate orientation error, motor lacking phase, speed very slow.3. Into pipe leaks gas4. Air leakage in the pump body5. The water supply in the suction is not enough	<ol style="list-style-type: none">1. Check and wipe off the tamper.2. Adjust the direction of the motor and tighten the motor terminal3. Fasten every sealing face to keep the air leak4. Open the back plate or open the outlet valve to drain the air5. Stop to check and adjust

	6. The pipe line resistance is too high or chose an unsuitable pump model	6. Reduce the inflections of the pipe and choose a new pump to instead
2. Noise and vibration	<ol style="list-style-type: none"> 1. Pump foot is unsteady 2. Pump shaft bends 3. Cavitation phenomenon 4. A heavy wear in the bearing 5. Some blockage in the suction pipe line 6. Pump shaft not in alignment to that of the motor 	<ol style="list-style-type: none"> 1. fasten 2. Replace or adjust 3. adjust 4. replace 5. Eliminate the blockage 6. Align coupling center line
3. Inadequate discharged	<ol style="list-style-type: none"> 1. Press 1、 check the reason。 2. The impeller flow channel and the discharge are blockage, and the valve is opened inadequately 3. The impeller and the wear plate are worn too heavily 4. The power is low and the speed is too low 	<ol style="list-style-type: none"> 1. Press 1、 elimination。 2. Eliminate the blockage and readjust to open the valve 3. change 4. Increase up the power and adjust to the rated speed
4. Shaft power over consumption	<ol style="list-style-type: none"> 1. Exceed to use over the rated flow 2. suction head is too high 3. Bearing damaged 4. Shaft is bend 5. Flow channel in the pump is blockage or jammed 	<ol style="list-style-type: none"> 1. adjust the flow and turn down the discharge valve. 2. Reduce the level of installation 3. Replace a new bearing 4. Replace or adjust 5. Get out of the congestios
5. Motor heated	<ol style="list-style-type: none"> 1. The flow is too big and the motor is with a overload operation 2. Collision 3. Damage of the motor bearing 4. underpowered 	<ol style="list-style-type: none"> 1. Turn down the discharge valve 2. Check and remove 3. Replace the bearing 4. Keep the pressure stable
6. Pump leaking	<ol style="list-style-type: none"> 1. Mechanical seal worn 2. Porosity in the pump body or pump body burst 3. The seal level is out-of-flat 4. Screw bolts loosening 	<ol style="list-style-type: none"> 1. replace 2. Welding or replace 3. adjust 4. tighten

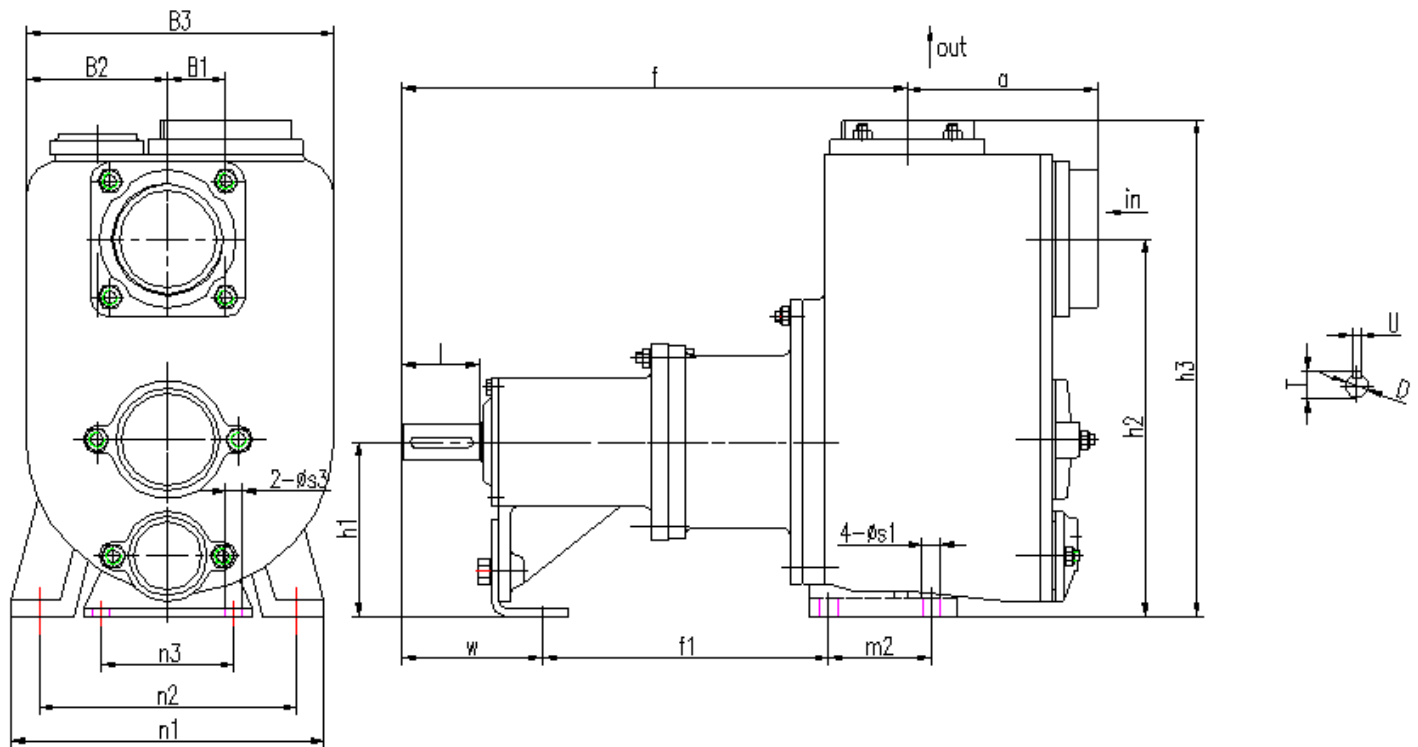
6. Outline Drawing & Installing Dimensions



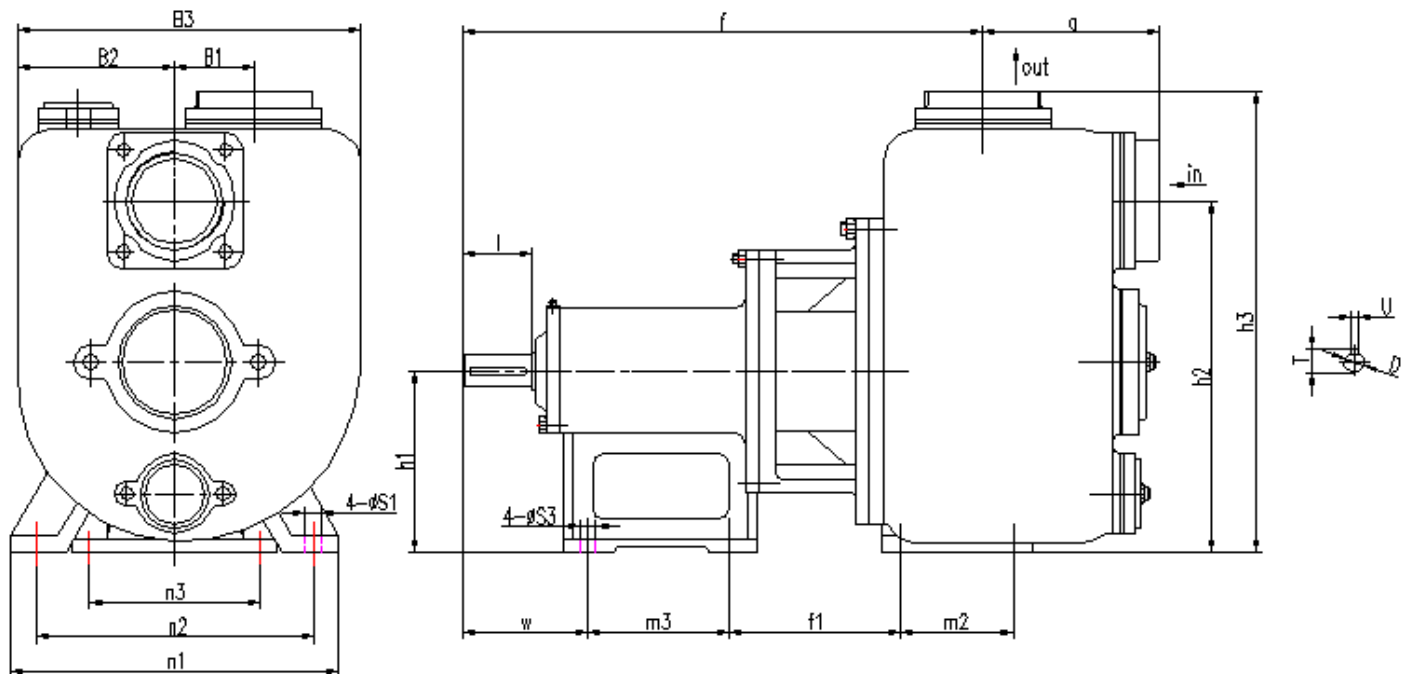
Model	Inlet Flange (mm)				Outlet Flange (mm)			
	DN1	K1	D1	n-d1	DN2	K2	D2	n-d2
EJ40-110	RP1 1/2	---	---	---	RP1 1/2	---	---	---
EJ50-120	RP2	---	---	---	RP2	---	---	---
EJ80-140	RP3	---	---	---	RP3	---	---	---
EJ80-215	RP3	---	---	---	RP3	---	---	---
EJ100-160	RP4	---	---	---	RP4	---	---	---
EJ100-250	RP4	---	---	---	RP4	---	---	---
EJ150-250	φ 150	φ 240	φ 276	6-φ 18	φ 150	φ 240	φ 276	6-φ 18
EJ150-400	φ 150	φ 240	φ 276	6-φ 18	φ 150	φ 240	φ 276	6-φ 18
EJ200-300	φ 205	φ 280	φ 320	8-φ 18	φ 205	φ 280	φ 320	8-φ 18



Model	B1	B2	B3	h1	h2	h3	n2	n1	f	a	l	w	m3	t	u	d	s3
EJ40-110	30	74.5	165	90	163	237	80	102	263	75	40	70	50	21.5	6	19	10
EJ50-120	36	94	210	110	206	326	103	128	300	114	40	80	50	21.5	6	19	12
EJ100-160	37	90	300	160	341	459	150	182	442.5	180	60	110	125	31	8	28	14



Model	B1	B2	B3	h1	h2	h3	n3	n2	n1	f	a	l	w	f1	m2	t	u	d	s1	s3
EJ80-140	43	110	240	135	290	383	90	200	243	390	148	60	109	222	80	31	8	28	14	14
EJ100-250	160	179	420	200	355	485	110	295	160	470	275	80	130	355	95	35	10	32	14	15
EJ150-250	90	220	480	250	455	590	110	350	410	570	280	80	130	330	170	35	10	32	18	15
EJ200-300	75	288	575	315	535	690	150	450	510	822	290	110	165	496	200	45	12	42	18	18
EJ150-400	280	280	705	350	645	795	150	450	510	700	374	110	180	477.5	200	59	16	55	18	18



Model	B1	B2	B3	h1	h2	h3	n3	n2	n1	f	a	l	w	m3	f1	m2	t	u	d	s1	s3
EJ80-215	70	164	302	160	310	410	150	245	290	458	155	60	110	125	150	100	31	8	28	14	14