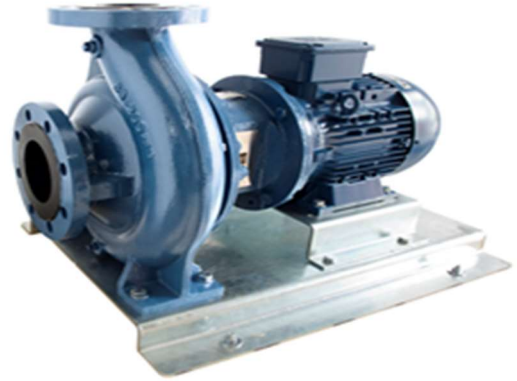




Be sure to issue operation personnel with copies of this manual.

EBARA Close Coupled End Suction Motor Pump - Model GSD. Operation & Instruction Manual



Introduction

Thank you for choosing the EBARA Model GSD close coupled end suction volute pump. EBARA takes every caution in manufacturing the product for safe use by the customer. However, handling this pump in an inappropriate manner may reduce its functional capacity and result in an accident.

This operation manual explains the proper procedures concerning the installation, operation, and maintenance of the product. This manual should be read before the pump is installed, initial start-up and conducting any operational and maintenance/inspections on the pump.

Installation personnel must provide copies of this manual to the customer's pump operation, maintenance and inspection personnel. Keep this manual in a safe place where it can be consulted at any time.

To installation personnel

When your pump is delivered, check the following immediately.

1. The pump and accessories

- a) *Check that the pump is as ordered, by referring to the nameplate (Fig.1)*
- b) *Confirm that no damage has occurred during transportation.*
- c) *Check all nuts and bolts to confirm that they are not loose.*
- d) *Confirm that all accessories have been delivered.*
- e) *Remove pump protective covers from suction and discharge ports/flanges before installation to pipework.*

2. Nameplate

The basic specifications of the pump are listed on the nameplate. Read the data on the nameplate to check that the pump is the product that you ordered. When ordering parts or requesting technical information always quote pump model and serial number in full.

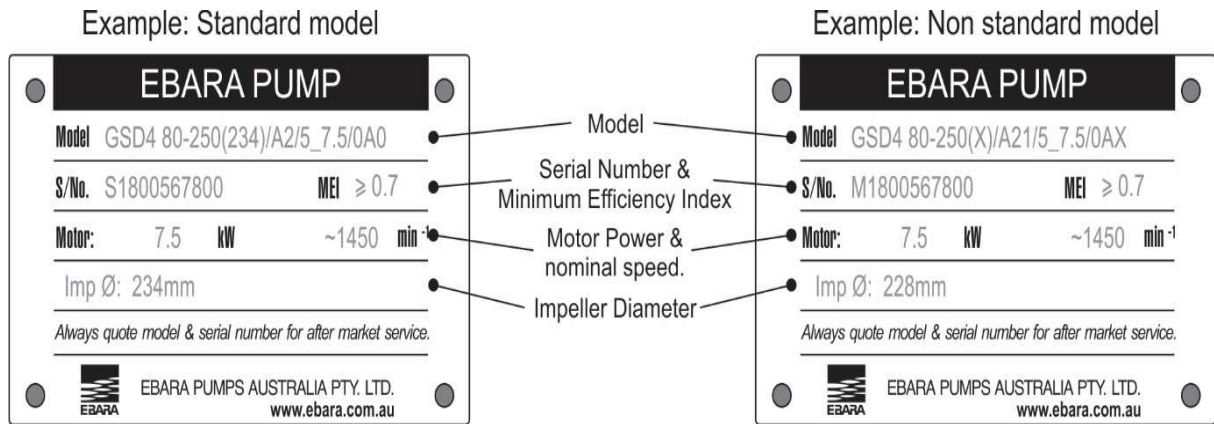
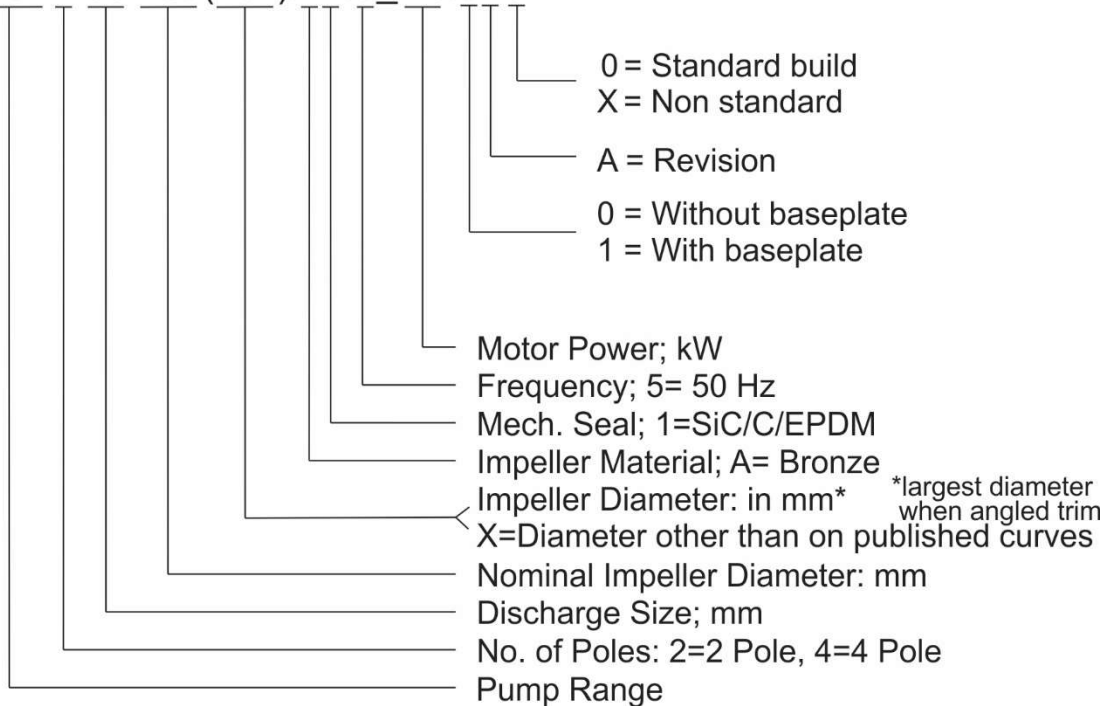


Fig. 1 Data on pump nameplate.

Construction Code

GSD4 80-250(234)/A2/5_7.5/0A0



3. Table 1 Standard Specifications

Description		Standard
		2 poles 4 poles
Liquid	Temperature	-10°C to 120°C
	Density	To be discussed each time
	Viscosity	
Max. Operating Pressure		Up to 16bar (1.6MPa) for standard flange DIN-PN16
Construction	Impeller	Closed
	Shaft seal	Mechanical Seal
	Flushing	N/A
	Bearing	Electric Motor Bearings
Flange Standard		EN1092-2
Material	Casing	Casting iron
	Impeller	Bronze
	Shaft	420 Stainless steel
	Case wear ring	Bronze
	Shaft sleeve	N/A
	O-ring	NBR

4. Installation

General

- a) The pump should be located as close as possible to the liquid source.
- b) Minimize the length of the suction pipe work and suction lift where possible. Always check the pump NPSHR with any suction lift or high water temperature.
- c) Suction piping to be the same size or larger than the pump inlet.
- d) Suction piping must be free from air leaks.
- e) Pump and its close coupled motor should be mounted on a suitable baseplate and located to a firm foundation (and anchor devices) that is sufficient to withstand the weights and forces of the close coupled motor pump and its baseplate in operation.
- f) Standard motor protection IP55 should be checked against installation requirements.
- g) All electrical works to be undertaken by a suitably qualified licensed electrical worker and all national and local electrical codes must be observed.
- h) Motor starter and overloads must be fitted at correct rating and trip setting.
- i) The pump is designed to run in an anti-clockwise direction when viewed from the inlet of the pump or clockwise from the motor end. Before operating the pump for the first time check rotation is correct.
- j) Do not run the pump dry as the shaft seal will be severely damaged!



5. Piping

The pump should be installed to piping by **Fig 2**.

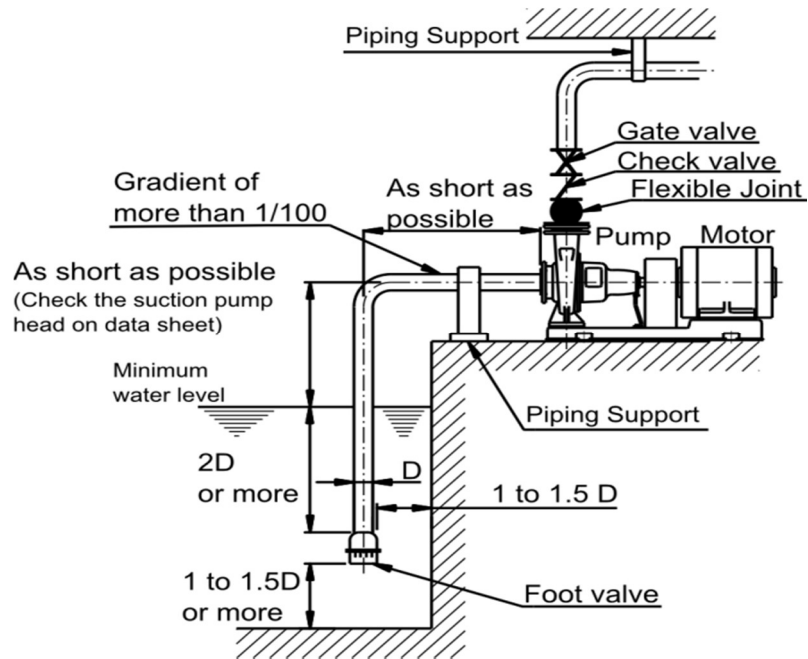


Fig 2 Installation view

- Install piping and pipe supports so the casing is not taking the strain of the suction and/or discharge piping.
- A foot valve or similar should be fitted to the pump when operating on a suction lift as outlined in fig 2.
- Avoid air pockets in discharge lines and if unavoidable fit air vent valves to relevant areas.
- Suitable isolation valves, non-return valves and flexible joints should be fitted to discharge piping.
- Isolation valves, strainers and where required flexible joints should be fitted to the suction line when operating on a flooded or positive suction head.

6. Starting

- Make sure the suction line and pump casing is full of water (prime pump). Any suction valves are to be fully opened.
- Close the discharge valve.
- Check direction of rotation.
- Allow pump to reach full speed and once pressure increases in discharge line, slowly open the discharge valve until the pump maintains its duty point pressure and is pumping the required flow of liquid.
- Check for leaks (mechanical seal and piping) and any unusual vibration or noise.

7. Trouble Shooting

Failure to deliver water or required pressure whilst the pump is operating.




- a) Turn the pump off!
- b) Check suction line and strainer is free from debris or blockages.
- c) Check pump has not lost its prime.
- d) Check for air leaks and that the suction pipe and/or suction lift is not excessive.
- e) Discharge head greater than the pumps rating.
- f) Valve closed on either the suction or discharge lines.
- g) Incorrect direction of rotation.
- h) Speed too low or incorrect impeller size.


High power consumption.

- a) Check direction of rotation.
- b) Total head is lower than estimated, pumping more water and using more power.
- c) Larger impeller than design.
- d) Specific gravity of liquid greater than 1.0
- e) Speed greater than design.

Excessive vibration.

- a)  Turn the pump off!
- b) Worn or faulty bearings.
- c) Impeller partially clogged, causing imbalance.
- d) Check pump rotation
- e) Check pump and motor are properly secured to suitable baseplate and foundation.

Noisy operation.

- a)  Turn the pump off!
- b) Check electric motor bearings.
- c) Check suction conditions that may be causing the pump to cavitate.
- d) Pump not properly primed.
- e) Impeller jammed with foreign body.
- f) Impeller binding on pump casing.

Excessive internal wear of pump.

- a) Cavitation.
- b) Abrasion caused by solid particles.
- c) Corrosive attack from liquid pumped.

8. Lubrication and Maintenance (Motor Bearings)

Electric motor bearings up to frame size 132M and some 160M are sealed for life type. Motor sizes 160/180 and larger are fitted with greasable bearings. Please refer to the WEG motor plate for exact bearing type fitted (sealed or greasable).

A suitable high grade lithium based rolling contact bearing grease should be used for normal ambient conditions. For applications outside cooling air temperatures of -20°C to $+55^{\circ}\text{C}$ refer to your specialist lubricant supplier.

Sealed Bearings – For motor frames 132M (some 160M) and lower, in most applications the replacement interval for sealed bearings is determined by operating temperature, operating speed and the period operating in the preferred pump operating region (POR). Please check ISO 281:2007 to calculate expected bearing life.

Greasable Bearings – For motor frames 180M motor/pump bearings fitted are greasable type, please review to the following chart (Fig 3) for recommended lubricant service intervals or refer to motor nameplate for WEG recommended lubricant service intervals.

Please check ISO 281:2007 to calculate expected bearing life.

More information on motor bearing details are available -www.weg.net/au

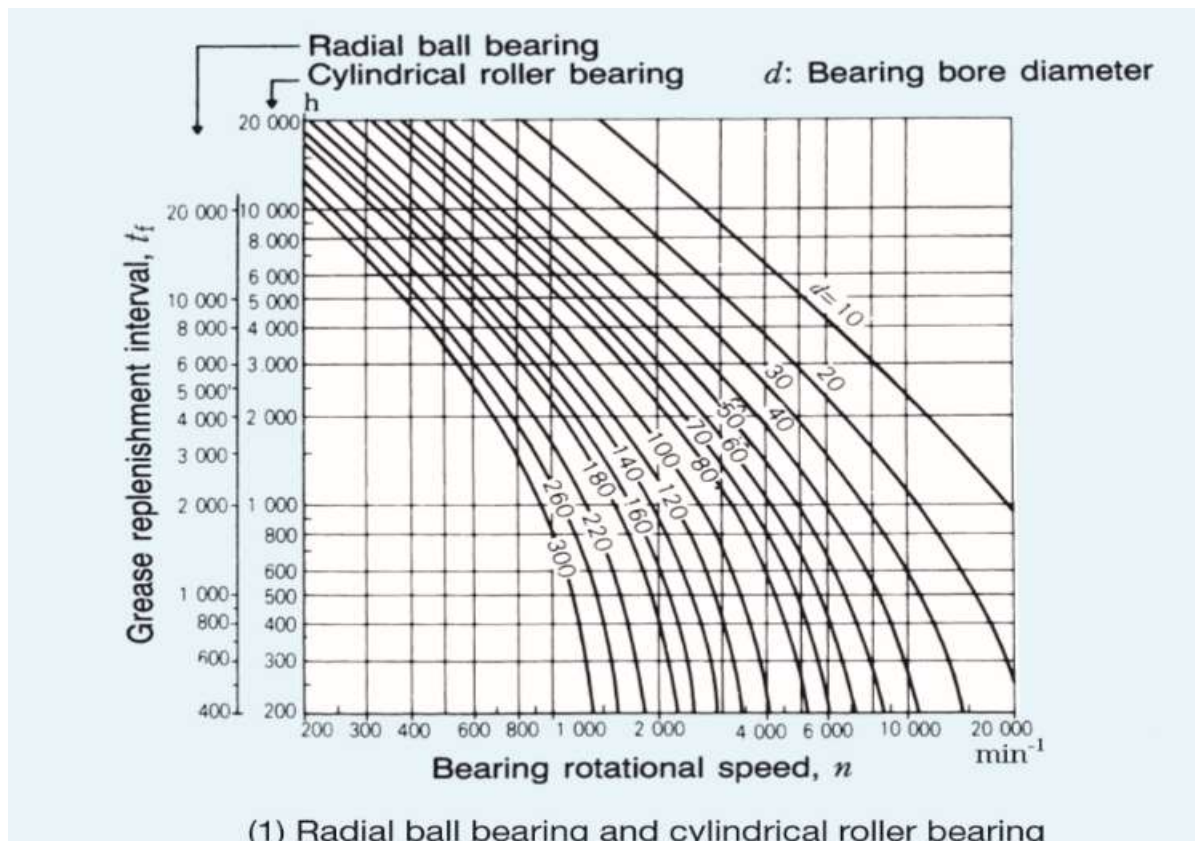
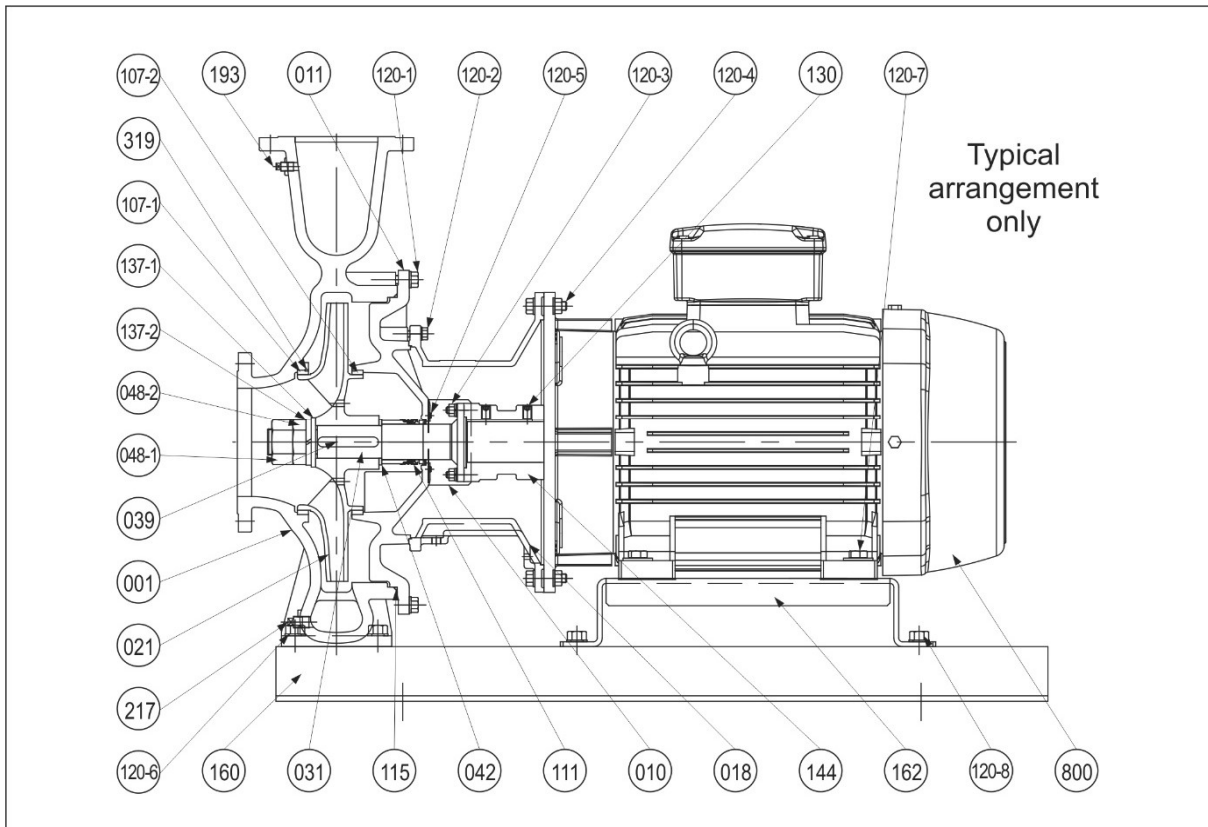


Fig 3

9. Sectional Arrangement and Parts



Item No	Description	Item No	Description
001	Casing	120-4	Motor Bracket/Motor Bolt, Nut, Washer
010	Protector	120-5	Protector Bolts
011	Casing Cover	120-6	Casing/Baseplate Bolt, Nut, Washer
018	Motor Bracket	120-7	Motor/Baseplate Bolt, Nut, Washer
021	Impeller	120-8	Spacer/Baseplate Bolt, Nut, Washer
031	Shaft	130	Hub Grub Screws
039	Key (Pump Shaft)	137-1	Flat Washer
042	Mechanical Seal Spacer	137-2	Spring Washer
048-1	Impeller Nut (A)	144	Hub
048-2	Impeller Nut (B)	160	Baseplate
107-1	Casing Wear Ring (Front)	161	Pump Spacer (When Fitted)
107-2	Casing Wear Ring (Rear)	162	Motor Spacer (When Fitted)
111	Mechanical Seal	193	Plug (Air Vent)
115	Casing "O" Ring	217	Plug (Drain)
120-1	Casing/Cover Bolt	319	Spring Pin
120-2	Motor Bracket Bolt, Nut, Washer	800	Electric Motor
120-3	Shaft/Hub Stud, Nut, Washer		

When ordering parts always quote the pump serial number, model and construction code, this is available from the pump nameplate.

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