

FRAMO RBP300 Reversible Propeller Pump

Frank Mohn AS, Norway - Type RBP300-31S040F500V28/17

Fornæs reference: VP258

Manufacturer	Frank Mohn AS, Norway
Brand	FRAMO
Type	RBP300-31S040F500V28/17
Serial No.	73346
Year of manufacture	2006
Fornæs reference	VP258
Medium	Water

General description

The FRAMO RBP300-31S040F500V28/17 is a heavy-duty reversible, single-stage in-line propeller pump manufactured by Frank Mohn AS in Norway.

The pump is designed primarily for applications where a high water flow at relatively low differential pressure is required. Its reversible design allows the pump to transfer water efficiently in either direction without changing the piping arrangement.

This type of FRAMO pump is commonly associated with marine anti-heeling, ballast and seawater transfer systems, where large volumes of water must be moved rapidly between tanks or sections of a vessel. FRAMO describes its anti-heeling pumps as in-line reversible propeller pumps designed for high capacity in both flow directions.

The supplied unit is fitted with an ABB electric motor type M3AA 250 SMB2. According to the available information for this specific pump, the motor is rated at 86 kW, 660/380 V, 85/147 A, 60 Hz and approximately 3570 rpm.

Pump design

The FRAMO RBP300 series is based on a compact in-line pump arrangement with the electric motor mounted above the pump body on the vertical version.

The electric motor drives the propeller through a flexible coupling and a 90-degree bevel gearbox. Different gearbox ratios were available from FRAMO in order to adapt the pump to the required combination of flow capacity and differential pressure.

The propeller is positioned directly in the main flow passage. This arrangement provides a very high volume flow relative to the physical size of the pump and makes the design particularly suitable for ballast and anti-heeling service.

Because the pump is reversible, changing the direction of rotation changes the direction of water flow. This allows water to be transferred from port to starboard or vice versa in an anti-heeling system without the need for two separate pumps.

Typical applications

Anti-heeling systems
Ballast water transfer
Seawater transfer
Transfer between port and starboard ballast tanks
High-volume marine water circulation
Other applications requiring large flow rates at relatively low pressure

FRAMO anti-heeling systems are widely used on container vessels, RoRo vessels, ferries and cruise vessels. The system is designed to react quickly to vessel loading conditions by transferring water between heeling tanks.

Electric motor

The pump offered as Fornæs VP258 is equipped with the following ABB electric motor:

Manufacturer	ABB
Motor type	M3AA 250 SMB2
Rated power	86 kW
Voltage	660 / 380 V
Current	85 / 147 A
Frequency	60 Hz
Motor speed	Approx. 3570 rpm

Construction and materials

According to available FRAMO technical documentation for the RBP300-3 series, the pump uses marine-grade materials selected for seawater operation. Typical RBP300 construction includes:

Pump housing: Stainless steel
Gear housing: Cast bronze
Propeller: Nickel-aluminium bronze
Corrosion protection: Zinc sacrificial anode
Gear lubrication: Oil-filled gearbox

FRAMO documentation also describes a vented cofferdam between the pumped water and the gearbox. A mechanical seal separates the water side from the cofferdam, while lip seals separate the cofferdam from the oil-filled gearbox. This arrangement allows leakage to be detected before water reaches the gearbox.

Gearbox and lubrication

For the RBP300-3 series, available FRAMO documentation states an approximate gear oil capacity of 1.3 litres and recommended oil viscosity ISO VG 68.

The bevel gearbox reduces the high motor speed to a suitable propeller speed. FRAMO offered different gear ratios depending on the required pump performance.

Connections

Available FRAMO documentation for the RBP300-3 series lists possible flange arrangements including ISO DN300 PN10 and, depending on the specific version, JIS A300 5K.

The exact flange standard fitted to VP258 should therefore be physically verified before ordering or installation, as the complete FRAMO type designation may correspond to a particular flange and gearbox configuration.

Approximate pump weight

FRAMO documentation for the RBP300-3 series lists an approximate pump weight of about 230 kg excluding the electric motor, with an approximate propeller weight of 13.6 kg. The complete assembled weight will be considerably higher because of the electric motor.

Capacity and pressure

The exact certified performance curve for RBP300-31S040F500V28/17, serial no. 73346, has not been confirmed from the available documentation.

However, comparable FRAMO RBP300 anti-heeling pumps are designed for very high flow rates. A closely related FRAMO model, RBP300-3JIS40F500V28/17, is documented in a vessel operating manual with a rated capacity of approximately 1,000 m³/h at 1.7 bar. That particular installation was equipped with a 99 kW, 440 V, 3569 rpm motor, and therefore this figure should not be considered a confirmed performance rating for VP258. It is provided only as an indication of the performance range associated with similar FRAMO RBP300 configurations.

For the actual pump offered here, the original FRAMO performance curve or pump specification should be consulted if an exact duty point is required.

Operating principle

During operation, the electric motor transfers power through the flexible coupling to the bevel gearbox. The gearbox drives the propeller shaft, causing the propeller to generate axial water flow through the pump housing.

By reversing the electric motor rotation, the propeller also reverses its pumping direction. This allows essentially the same pump installation to transfer water in both directions.

This operating principle is particularly beneficial in an anti-heeling installation, where rapid transfer between port and starboard tanks is required.

Condition and identification

The available unit is identified as FRAMO / Frank Mohn AS, type RBP300-31S040F500V28/17, serial no. 73346, year 2006. The available VP258 documentation shows the complete vertical pump assembly including pump casing, propeller and ABB electric motor, as well as the original Frank Mohn identification plate and ABB motor plate.

Summary of available specifications

Specification	Data
Manufacturer	Frank Mohn AS, Norway
Brand	FRAMO
Type	RBP300-31S040F500V28/17
Serial number	73346
Year	2006
Pump principle	Reversible single-stage propeller pump
Installation	Vertical
Medium	Water / seawater
Motor manufacturer	ABB
Motor type	M3AA 250 SMB2
Motor power	86 kW
Voltage	660 / 380 V
Current	85 / 147 A
Frequency	60 Hz
Motor speed	Approx. 3570 rpm
Typical connection for RBP300	DN300 PN10 / JIS A300 5K depending on configuration
Typical gear oil capacity	1.3 litres
Typical gear oil	ISO VG 68
Typical pump weight excl. motor	Approx. 230 kg
Typical propeller weight	Approx. 13.6 kg
Typical pump housing material	Stainless steel
Typical gearbox material	Cast bronze
Typical propeller material	Nickel-aluminium bronze
Typical application	Anti-heeling / ballast / seawater transfer

IMPORTANT DISCLAIMER

The information above is compiled from the pump identification plates, available Fornæs documentation and technical information found from publicly available sources on the Internet.

Fornæs Ship Recycling / Fornæs ApS does not guarantee that all technical information, dimensions, capacities, pressures, materials or other specifications are correct or applicable to this exact pump.

In particular, capacity and pressure data from similar FRAMO RBP300 pumps must be regarded as indicative only unless confirmed by the original manufacturer documentation or an original performance curve for this specific serial number.

All specifications must be verified by the buyer before purchase, installation or operation.

Errors and omissions excepted.

Sources / reference basis

Fornæs VP258 data sheet and identification plate photographs supplied with the item.

FRAMO / Frank Mohn publicly available technical information concerning RBP anti-heeling pumps.

Publicly available third-party copies of FRAMO RBP300 technical documentation and vessel operating manuals used only as indicative references for generic RBP300-series data.

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