



Roto Pumps Ltd., Manufacturing Plant, India



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Manchester Office & Warehouse



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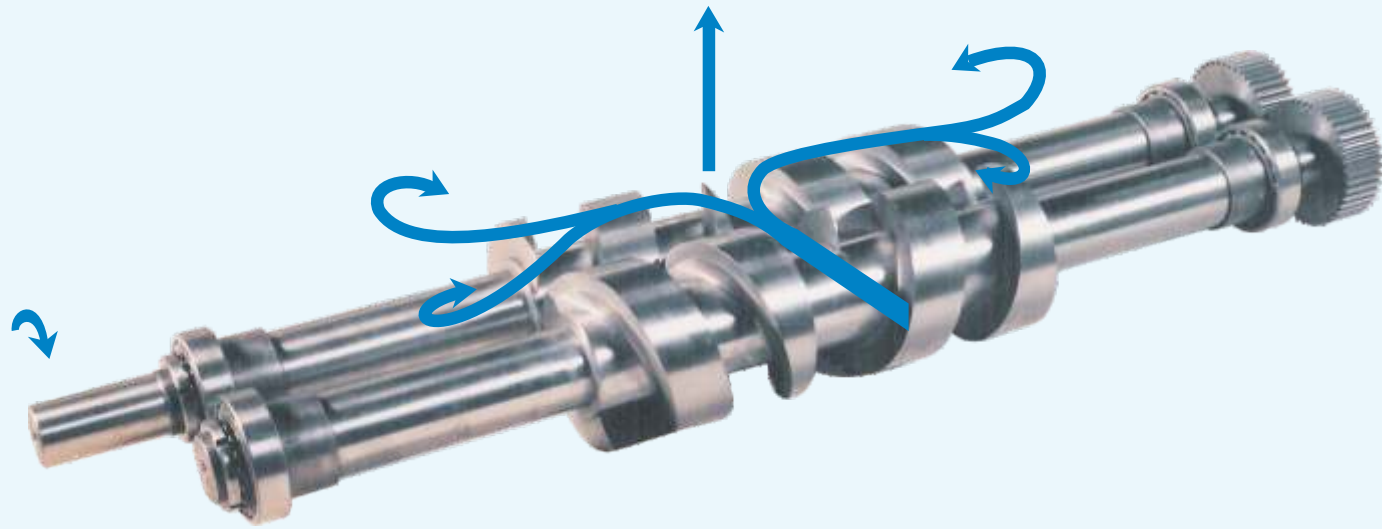
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TWIN SCREW PUMP RANGE



PUMPING PRINCIPLE



The pumping element comprises of two intermeshing screws rotating within a stationary housing. The pumping elements are supported by the bearings. The clearances between the screws are maintained by a pair of timing gears. Intermeshing rotating screws in the pump casing and liner form transfer chambers, that transfer the fluid axially from the extreme ends to the center of the casing or viceversa, depending upon the direction of rotation of the screw spindles.

SALIENT CHARACTERISTICS

LONG AND TROUBLE-FREE SERVICE LIFE

Due to absence of metal to metal contact between the pumping elements. Can even run dry for limited period of time.

NO AXIAL THRUST

Dual flow of liquid in opposite direction balances axial thrust.

HIGHER VOLUMETRIC EFFICIENCY

Due to special double profile of screw flanks.

HIGH CAVITATION FREE SUCTION LIFT

Due to low NPSH[®].

SELF-PRIMING AND CAPABLE OF HANDLING ENTRAPPED AIR/VAPOUR/GAS

Due to positive displacement action and being inherently self-priming.

UNIFORM METERED FLOW

Being a positive displacement pump, head developed is independent of speed and capacity, is approximately proportional to speed.

CAPABLE OF HANDLING WIDE VARIETY OF FLUIDS

Lubricating/non-lubricating as well as aggressive liquids can be handled due to choice of different designs and material of construction.

SAFE TO OPERATE

Has in-built relief valve designed to bypass upto 100% capacity.

WIDER CONFORMITY TO API 676, 3RD EDITION



INDUSTRIES & APPLICATIONS



Oil and Gas production and processing

Crude oil, Naptha, Vacuum residue, Light Fuel, Fuel oil, Light Diesel oil, Low Sulphur Heavy Stock, High Speed Diesel, Turbine oil, Furnace oil, Lubricating oil, Bitumen, Residual Fuel oil.



Power Plant

Fuel oil, Light Diesel oil, Low Sulphur Heavy Stock, High Speed Diesel, Turbine oil, Furnace oil, Lubricating oil, Residual Fuel oil.



Marine and Ship Building

Fuel oil, Striping duty, Bitumen, Pitch, Molasses, Glycol, Vegetable oils, Chemicals, Main Engine Lube oil, HFO transfer, Hydraulic oil, Marine Diesel oil.



Man Made Fibre

Viscose, Viscose Flakes, Pulp with NaOH, Bleaching Agents, Polymeric Resin.



Steel

Fuel oil, Light Diesel oil, Low Sulphur Heavy Stock, High Speed Diesel, Turbine oil, Furnace oil, Lubricating oil, Residual Fuel oil, Tar.



Paper

Fuel oil, Light Diesel oil, Low Sulphur Heavy Stock, High Speed Diesel, Turbine oil, Furnace oil, Lubricating oil, Black Liquor, Pine oil



Sugar

Fuel oil, Light Diesel oil, Low Sulphur Heavy Stock, High Speed Diesel, Turbine oil, Furnace oil, Lubricating oil, Molasses



Fertilizer

Fuel oil, Light Diesel oil, Low Sulphur Heavy Stock, High Speed Diesel, Turbine oil, Furnace oil, Lubricating oil.



Edible oil

Cooking oil, Soy Bean concentrate, Refined oil, Lecithin, De odorised oil, oil with wax, Fatty acids, Crude Palm oil, Bleached Palm oil, Mustard oil, Soap Stock.



ENGINEERED FOR HIGH PERFORMANCE

Robust Pump Housings

The pump housing are available in casted and fabricated options. The casings are designed to take care of the flange loads. The suction flange and the casing offer minimum resistance to the flow of liquid thus minimising the NPSH requirements within the pump.

Standard Pump casing are foot mounted and non-jacketed. Options are available for centre line mounting, sump heated and steam jacketed.

Shaft Sealing

These pumps can accommodate various types of shaft sealings like soft gland packing, single unbalanced, balanced, cartridge and double mechanical seals. Options are available for pumps fitted with mechanical seals conforming to API 682 standards. Various flushing and quenching plans are feasible.

Timing Gear

Timing gears are housed in the gear box. The gears are hardened steel helical gears located on the drive side, which are capable of transmitting higher torques and also capable of maintaining the clearances between the two screws resulting into longer service life. The gears are oil lubricated and far from the pumping liquid.

Heating and Cooling

The steam jacketed pumps are standard with steam jacketing, bearing cooling and gear box cooling. Electrical or steam tracing options are feasible. Auxillary piping options for carrying steam and cooling water available.

Screw Profiles

Vertically aligned screws with unique double profile of the screw flanks delivers a higher efficiency. The screw flanks are integral with the shaft. Various pitch sizes are available to offer optimised flow rates with high volumetric and mechanical efficiencies. These screws are also suitable for high pressure applications.

Built in Safety Relief Valve

To prevent the excessive pressure built up in the system, the built in safety relief valve is capable of 100% bypassing of fluid.

Spherical Roller Bearings

Fitted at both the ends, they are well suited for radial and axial loads arising out of hydraulic pressure and can also take care of the mis-alignments arising due to unforeseen working conditions at site. Bearing temperature monitoring options available.

Replaceable liner

Renewable liners are standard feature for non-cast iron pumps. They extend the service life of the pumps and also minimises the maintenance cost over a long period.

Material of Construction

Housing Components: Cast Iron, Cast Steel, Cast Stainless Steel

Liner: Cast Iron, Cast Stainless Steel

Screws : Alloy Steel, Nitrided Steel & Stainless Steel

Timing Gears: EN 36/EN 24

Gear Box: Cast Iron, Aluminium

Special Execution : In addition to the material construction listed above, Roto Twin Screw Pumps can also be supplied with pump body in welded steel construction along with renewable liners of suitable material. For abrasive and/or corrosive applications, the screw and the pump body can be supplied with special coating for better wear and corrosion resistance.

Roto also undertakes skid mounted pumping systems complete with piping and instrumentation.

PUMP RANGE

Flow Rate: Up to 1500 m³/hr / 6600 GPM

Pressure: Up to 40 bar / 580 PSI

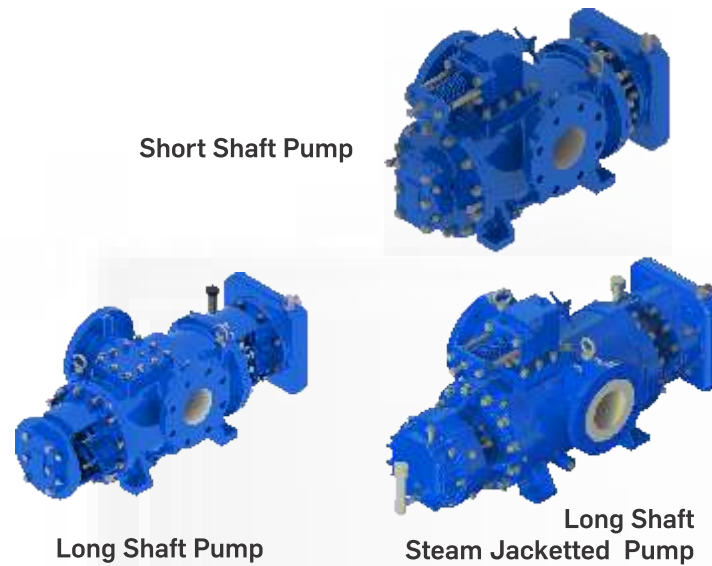
Viscosity: up to 100,000 cSt

Temperature: Up to 3500C/6620F

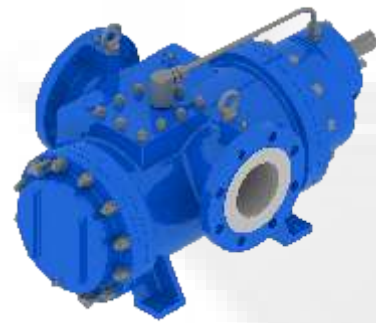
Horizontal External Bearing Pumps

Roto twin screw pumps are capable of handling non-lubricating as well as aggressive fluids.

These external bearing pumps are available with or without replaceable liner, in-line suction & delivery ports. The bearings are separately lubricated. These pumps can be supplied with in built safety relief valve. Shaft seals in gland packing or mechanical seals are available. Mechanical seal options are Single, duel, cartridge or API 682 compliant. Pumps with Sump Heating, Steam Jacketing, Electrical or Steam Tracing, Bearing and Gear Box Cooling options are available.



Horizontal Internal Bearing Pumps



Roto twin screw pumps are capable of handling lubricating fluids.

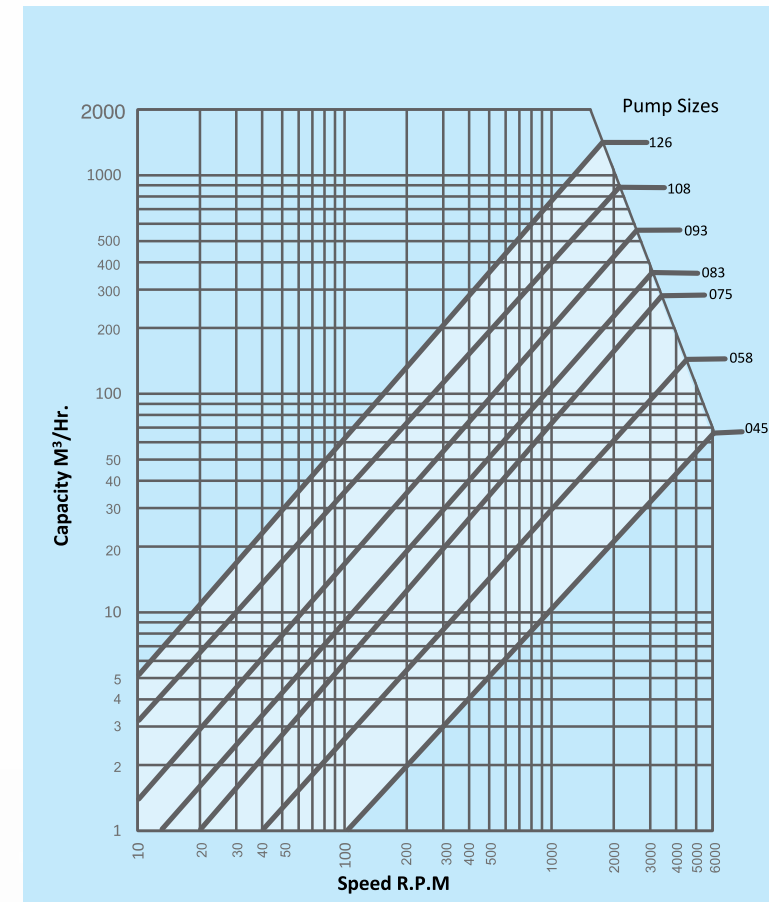
These internal bearing pumps are available with or without replaceable liner, in-line suction & delivery ports. The bearings and the timing gears are lubricated by the pumping liquid itself. These pumps can be supplied with in built safety relief valve. Shaft seals in gland packing or mechanical seals are available. Mechanical seal options are Single, duel, carriage or API 682 compliant. Pumps with Sump heating design are also available.

Vertical Twin Screw Pump

Twin Screw Pump in vertical execution for handling viscous oils and similar fluids are available in fabricated steel as a standard.

These pumps can be supplied with an renewable liner, inbuilt safety relief valve for 100% bypass and Shaft sealing by Gland Packing or mechanical Seal.

Internal bearing or External bearing options are available.



THEORETICAL PERFORMANCE CURVES

KEY INSTALLATION

