Roto pumps®

since 1968

innovative
efficient
reliable
efficient
innovative
reliable
innovative
reliable
innovative
reliable
innovative
efficient
reliable
innovative
reliable

pumping solutions for the

oil & gas industry

delivering excellence with advanced pumping solutions

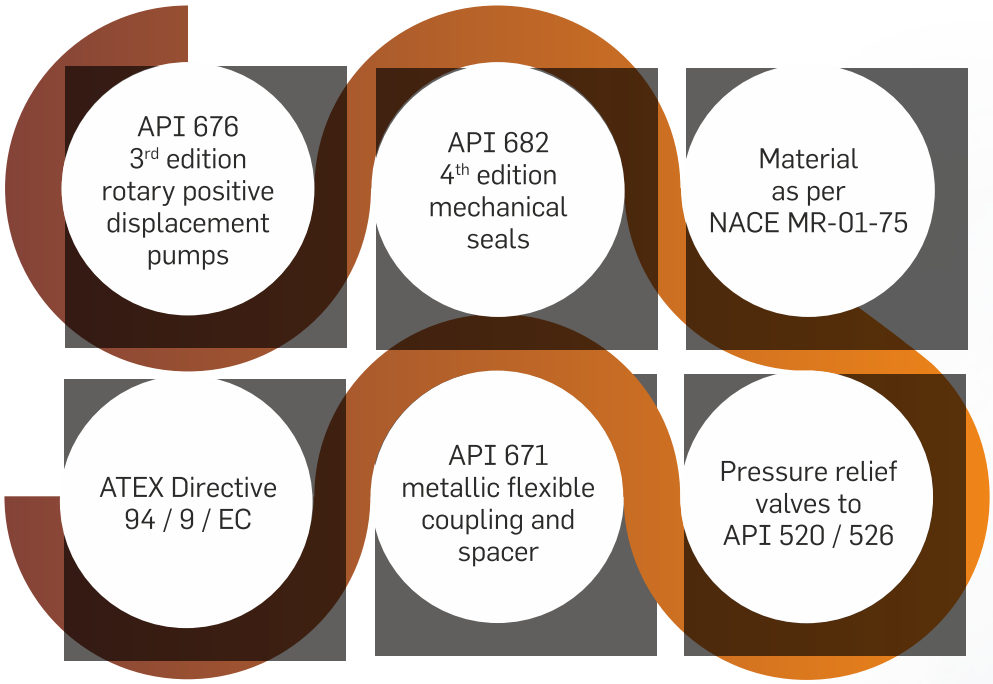
Roto Pumps carries with it a rich legacy of 50 years in providing fluid handling solutions to varied industries.

Mr. Ram Ratan Gupta, Founder of Roto Pumps pioneered in 1968, a unique process for manufacturing of Progressive Cavity Pumps (PCPs) in India.

The company believes in 'in-house' development of products and manufacturing technology and continuously invests in R&D to produce quality products confirming to international standards.

The company has strong foothold in the oil & gas industry, both offshore and onshore. It offers wide range of products that cater to the increasing demand of the industry. Roto Pumps products are built as per API 676 standards to give customers the promise of quality and reliability.

Roto Pumps conform to the following standards



our customers are **our partners in success***

IndianOil	HP	Oil India Limited	Bharat Petroleum
ONGC	Reliance Industries Limited	Cairn	GASCO
TAKREER	ADNOC	ADGAS	Petroleum Development Oman
Qatar Petroleum	PETRONAS	EGPC Egyptian General Petroleum Corporation	Abu Dhabi Water & Electricity Authority

*Note: We are the trusted pumping partners of the aforementioned customers. Any requirement to prove our association with them will be supported by legitimate evidence.

delivering momentum through structured processes

Exploration

Well Services

Drilling mud transfer

Decanter centrifuge feeding

Oily mud transfer

Waste management

Enhanced Oil Recovery

Water injection

Polymer transfer

Surfactant transfer

Fracking

Viscous liquids with suspended solids

Shear-sensitive media

Crude oil with suspended solids

Production

Oil & Gas Processing

Open & closed drains transfer

Flare KO drum emptying

Crude oil transfer

Hydrocarbon condensate transfer

Rich MEG / Glycol reclamation

Hydrocarbon sludge

Produced Water Management

Produced water treatment

Skimmed oil transfer

Transportation

Transfer Services

Crude oil transfer from group gathering stations to processing units through pipelines

Refining

Refinery & Petrochemical

Vacuum residue
Visbreaker feed
Catalytic reforming unit feed
Delayed coker unit feed
Catalyst slurry
Bitumen
Asphalt
Black oils
White oils
Industrial fuel oil
Lubricating oil
Slop oil
Sludge transfer
Oily water treatment

Distribution

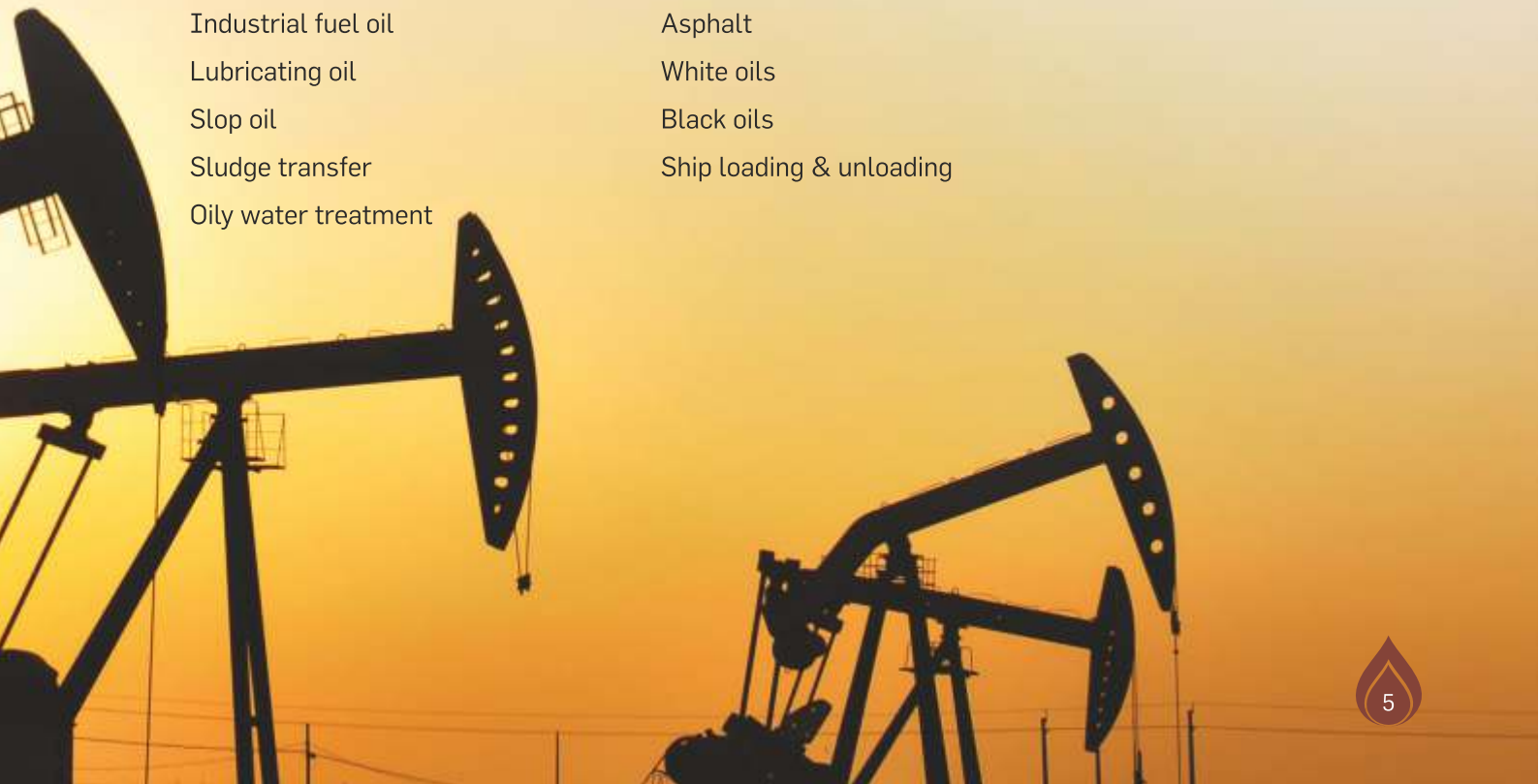
Storage & Distribution

Crude oil transfer
Tank stripping
Oily sludge
Railway wagon unloading
Road tanker unloading
Export pumps
Sump emptying
Slop oil
Bitumen
Asphalt
White oils
Black oils
Ship loading & unloading

Consumer

Petrol Dispensing Units

Lubricating oil



pioneering solutions that deliver success

progressive **cavity pumps**

Distinctive design, features & benefits

Positive displacement: Head developed is independent of speed, and capacity is approximately proportional to speed

Self-priming: Can work on gaseous liquids, does not require a foot valve up to 9.5 mwc and is effective even in high vacuum conditions

Non-clogging: Can handle high percentage of solids in suspension

Versatile across viscosity range: Can handle all kinds of liquids – from water to liquids with very high viscosity

Low NPSHR: Ensures smooth operation with high temperature and high vapour pressure liquids

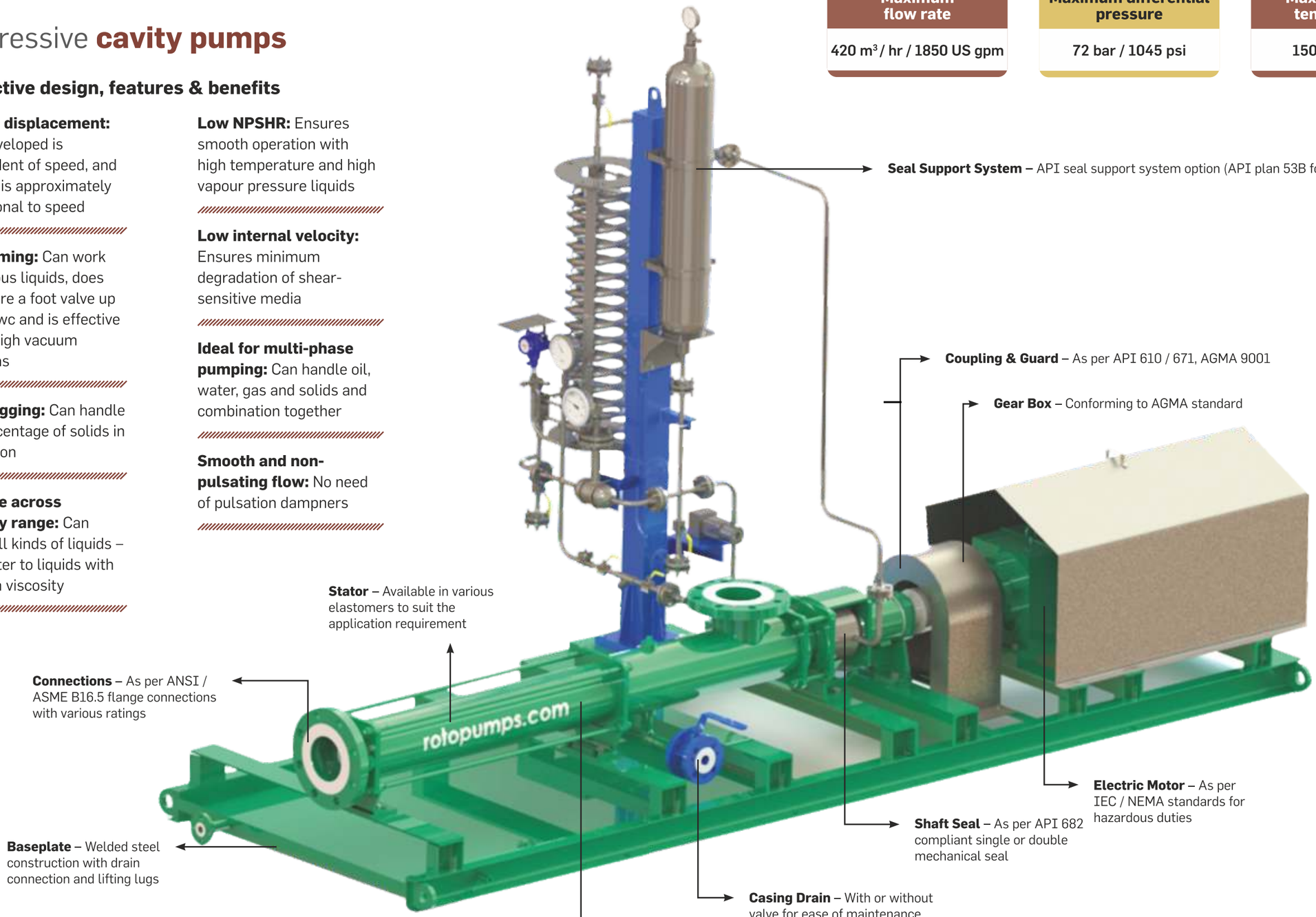
Low internal velocity: Ensures minimum degradation of shear-sensitive media

Ideal for multi-phase pumping: Can handle oil, water, gas and solids and combination together

Smooth and non-pulsating flow: No need of pulsation dampners

performance **summary**

Maximum flow rate	Maximum differential pressure	Maximum fluid temperature
420 m^3 / hr / 1850 US gpm	72 bar / 1045 psi	150 °C / 302 °F



Seal Support System – API seal support system option (API plan 53B for illustration)

Coupling & Guard – As per API 610 / 671, AGMA 9001

Gear Box – Conforming to AGMA standard

Stator – Available in various elastomers to suit the application requirement

Connections – As per ANSI / ASME B16.5 flange connections with various ratings

Baseplate – Welded steel construction with drain connection and lifting lugs

Wetted Parts – Various material options to suit wide range of applications

Casing Drain – With or without valve for ease of maintenance

Shaft Seal – As per API 682 compliant single or double mechanical seal

Electric Motor – As per IEC / NEMA standards for hazardous duties

delivering high performance and results

twin **screw pumps**

Distinctive design, features & benefits

Long and trouble-free service life: Due to absence of metal-to-metal contact between the pumping elements & housing, the pump 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: Clear lubricating / non-lubricating as well as aggressive liquids can be handled due to choice of different designs and materials

Safe to operate: Has in-built relief valve designed to by pass up to 100% capacity

Wider conformity to API 676, 3rd edition

Seal System – API seal support system option

Shaft Seal – Single or double mechanical seal as per API 682 and with various flushing and quenching plans

Connections – ANSI / ASME B16.5 flange connections suitable for API

Timing Gear – Hardened & ground precision gears maintain the clearance between the screws and transmit high torque

Baseplate – Welded steel construction with drain connection and lifting arrangement

Replaceable Liner – Renewable liners are standard feature

Electric Motor – As per IEC / NEMA standards for hazardous duties

performance **summary**

Maximum flow rate	Maximum differential pressure	Maximum fluid temperature
1000 m^3 / hr / 4402 US gpm	40 bar / 580 psi	150 °C / 662 °F

customising solutions for every need

engineered solution for **closed / open drain oil vessels**

We offer best-in-class designs when it comes to customised pumps for closed / open drain oil & KO drum applications. Our products follow international design standards and are instrumental in lowering energy consumption levels, thus reducing maintenance costs. Higher operational safety ensure optimum utilisation of capacity and excellent performance.

sump and **vessel emptying**

The waste is collected from closed / open drains, produced water and mixture of oil and chemicals which need to be channelised into vessels to avoid harmful effect to the environment. Roto progressive cavity pumps deliver the perfect solutions for high vapour pressure and low NPSHA.

low **NPSH**

Due to very low NPSH requirement, conventional pumping technology does not solve the purpose.

Roto Pumps semi-submersible pumps are manufactured to suit specific requirements and overcome all problems. Our pumps are self-priming and capable of handling fluids with solids and gases.

Closed Drain Vessel Pumping Oil & Water at Group Gathering Station

vacuum **residue**

The highly viscous fractionated atmospheric residue is transported from the atmospheric distillation tower (ADU) to the vacuum distillation tower (VDU). A Twin Screw Pump is installed to boost this media. After vacuum tower, the residue is processed in the refiner unit where the fluid is heated prior to exporting it to the base of the vessel and the generated hot process stream is exposed to a hard vacuum. Because of low pressure, heavy materials are vapourised at temperatures under cracking conditions. High amount of light and middle fractions of gas oils, fuel oils and a residue (Vacuum Bottoms) are removed from the media resulting in increase in viscosity of vacuum residue feedstock. The thick stock is boosted either to the coking unit facility or the asphalt plant, where it is cooked to produce coke used for steel and aluminium production.

Roto **advantage**

Roto Pumps can handle highly viscous residual fluid even at elevated process temperatures and are capable of dealing with low NPSH / NPIP conditions due to the high vapour pressure of the process stream. The pumps and shaft seal housings are steam jacketed. These pumps are designed to run at rated speed. However, for meeting process requirements or to cope up with low NPSH conditions, these pumps are run at lower speed.

Pumping Vacuum Residue at Refinery

since 1968

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