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pumping solutions for the  
**oil & gas industry**



## delivering excellence with advanced pumping solutions

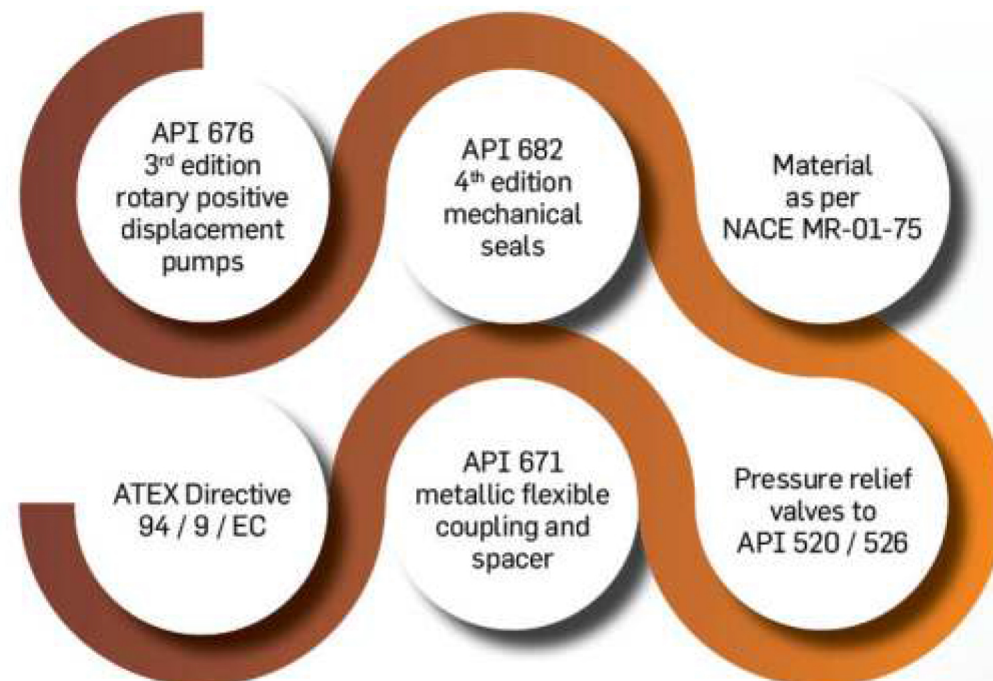
Roto Pumps carries with it a rich legacy of 50 years in providing fluid handling solutions to varied industries.

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 conforming 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. The 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	 Hudoba Development Group
 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
- Stop 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
- Stop 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

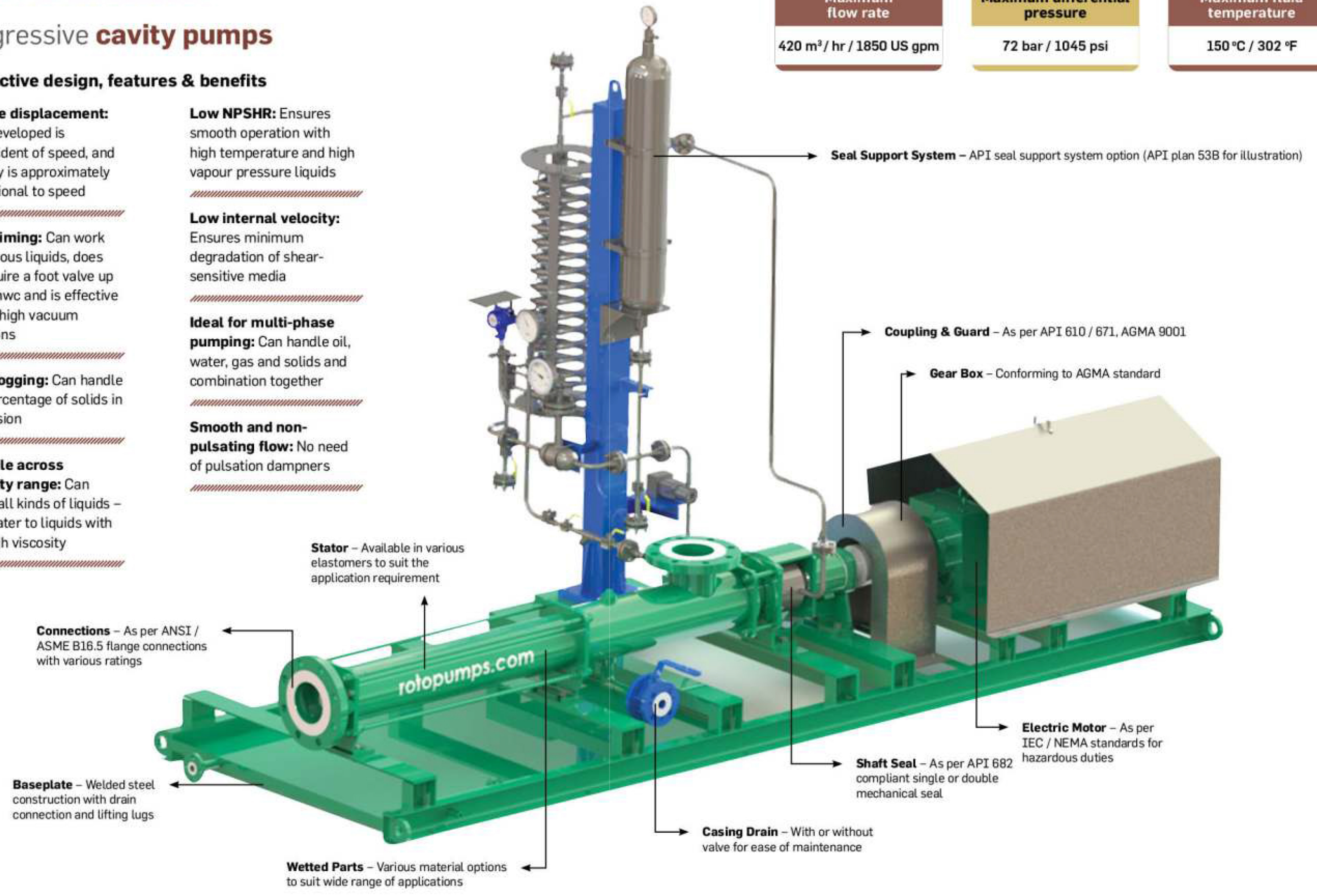
**Low internal velocity:** Ensures minimum degradation of shear-sensitive media

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

**Smooth and non-pulsating flow:** No need of pulsation dampers

### performance summary

Maximum flow rate	Maximum differential pressure	Maximum fluid temperature
420 m <sup>3</sup> / 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

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

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

**Casing Drain** – With or without valve for ease of maintenance

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



# 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

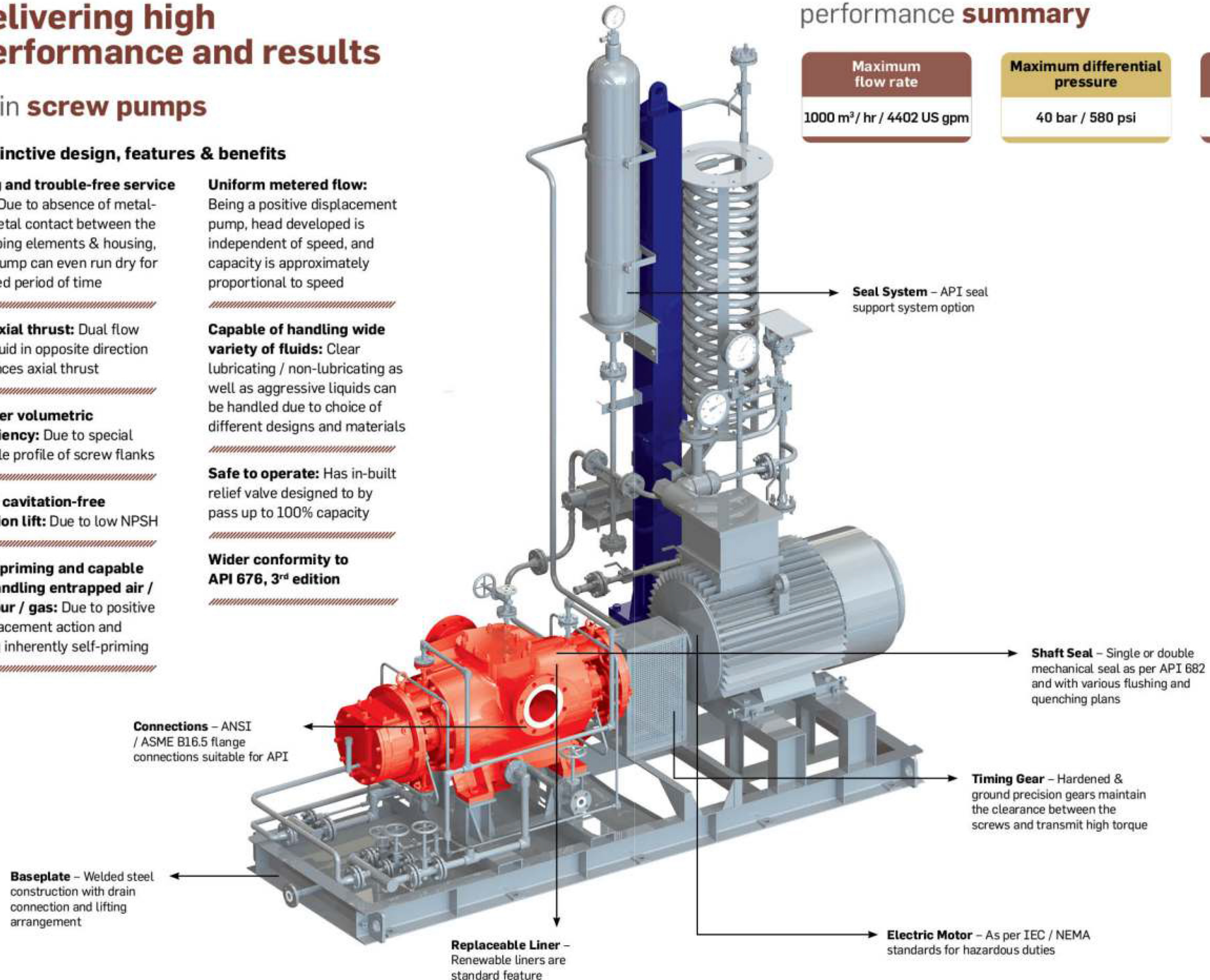
**Wider conformity to API 676, 3<sup>rd</sup> edition**

### performance summary

Maximum flow rate
1000 m <sup>3</sup> / hr / 4402 US gpm

Maximum differential pressure
40 bar / 580 psi

Maximum fluid temperature
150 °C / 662 °F



## customising solutions for every need

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

Mixture of Produced water, oil and solids are channelized into closed or open drains to avoid harmful effects to the environment. Due to very low NPSH requirement, variable viscosities and shear sensitivity of the product, conventional pumps are not suitable.

Roto semi-submersible pumps are self-priming and are capable of handling solids, liquids and gases all put together. We offer best-in-class designs when it comes to customized pumps for closed /open drain oil & KO drum applications. These pumps are custom designed for various sump depths up to 10 meters.



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). Due to very low pressure, heavy materials are vaporized 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 fluid, resulting in increase in viscosity of Vacuum residue feedstock. A twin screw pump is used at this location.

Roto Twin Screw Pumps can handle the highly viscous residual fluid even at the elevated process temperatures and are capable of dealing with low NPSH conditions due to the high vapor pressure of the process stream.

### material **of construction**

Material of Construction can vary from carbon steel to exotic materials like Duplex, Super Duplex, and Inconel etc. These pumps are fitted with mechanical seals as per API 682 with customized API seal support system as per the specifications. The coupling between the drive motor & pumps are conforming to API 610/671/ AGMA 9001.



Pumping Vacuum Residue at Refinery