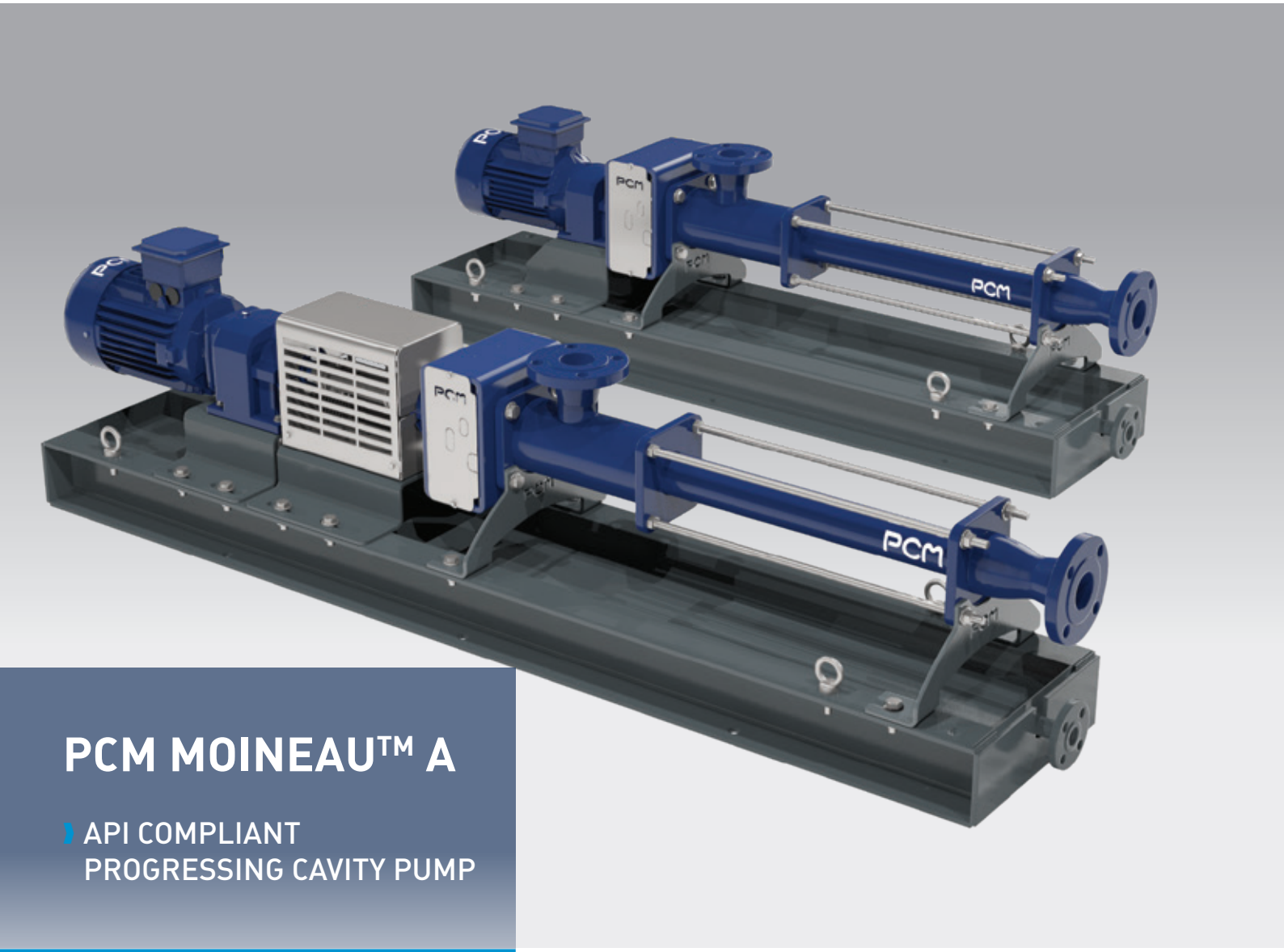


PCM MOINEAU™ A

API COMPLIANT PROGRESSING CAVITY PUMP

www.pcm.eu

PCM | keep it moving

"THE PERFECT COMBINATION OF API STANDARDS AND PCM EXPERTISE"

The **PCM Moineau™ A** series pump is a culmination of our unrivalled industry expertise and our unwavering commitment **to provide the best fluid handling solutions**.

PCM has been serving the Oil & Gas industry for over 40 years, and we brought **the first Progressing Cavity Pump to the world in 1932**. Named after its inventor, the Moineau™ pump became widely used as a surface pump, especially for **the pumping of viscous mixtures in many applications** where traditional pumps are too inefficient.

THE PCM MOINEAU™ A SERIES PUMP COMPLIES WITH API 676

The American Petroleum Institute leads the development of standards for materials & equipment for use in the Oil & Gas industry. Its standards have been adopted worldwide for decades with the aims of enhancing technical integrity, improving safety, reducing environmental impact and business efficiencies resulting in reduced costs for end users.

API standard 676 provides the minimum standards for rotary positive displacement pumps for use in Oil & Gas applications, and whose function is **key to successful operations.**

OPERATING PRINCIPLE

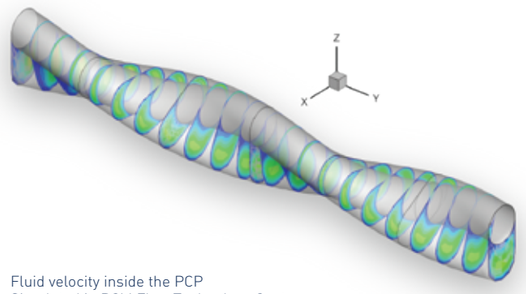
A Moineau™ pump consists of a helical rotor turning inside a helical stator. The metallic rotor is machined to a high degree of precision, and the stator is moulded in a resilient elastomer.

The geometry and the dimensions of these parts are such that when the rotor is inserted into the stator, a double chain of watertight cavities is created. When the rotor turns inside the stator, the cavity progresses spirally along the axis of the pump without changing either shape or volume.

PCM MOINEAU™ TECHNOLOGY

The PCM Moineau™ progressing cavity pump technology brings multiple benefits:

- Gently conveys fluids, with low shearing effect
- Transfers viscous fluids
- Lowest NPSH of all positive displacement pumps
- Performs across a range of viscosities
- Handles fluids with suspended solids such as sand
- Handles fluids with free gas
- Easy to maintain
- Reversible
- Flow rate proportional to running speed



Fluid velocity inside the PCP
Simulated in PCM Flow Technology Center

PCM ELASTOMERS EXPERTISE

Elastomers are very unique materials that play a critical role in the operational efficiency of progressing cavity pumps.

To ensure that our pumps always feature the highest quality and use the most compatible elastomers, we manufacture our own. Over 80 years of experience developing, mixing and producing our own elastomers has given us unparalleled expertise in this domain. We have an extensive database of elastomer formulas and fluid compatibilities.

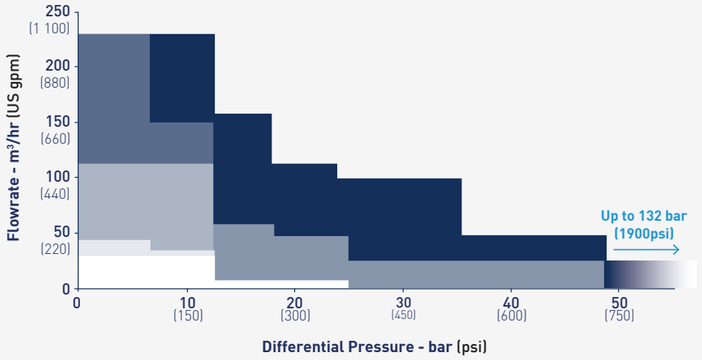
PCM MOINEAU™ A PERFORMANCE

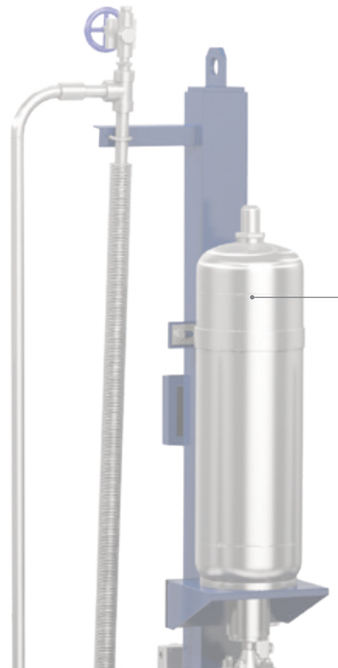
PCM's API 676 pump features a modular design that makes installation, operation and service easier in many applications.

Maximum fluid temperature*	130°C / 265 °F
Minimum fluid temperature*	-12 °C / 10 °F
Maximum fluid viscosity*	10 000 cP
Ambient temperature range	-40 °C to + 55 °C / -40 °F to + 130 °F

*During pump operation

For applications exceeding above limits, a variety of pump designs are available at PCM. Please contact your PCM representative.





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

Coupling with Spacer + Guard: (Bearing design only). Flexible coupling to API 610/ AGMA 9000.

Gear Unit : helical gear reducer, minimum service factor 1.5 (AGMA).

Shaft Seal: single or double cartridge mechanical seal. API 682 (cat 1) compliant and seal support system options.

Connections ANSI/ ASME B16.5 flange connections designed for API dynamic nozzle loading limits.

Stator: available in nitrile (NBR) or fluorocarbon (FKM) elastomer.

Electric motor : IEC or NEMA design. Options for hazardous areas.

Baseplate : welded steel construction with sloping driptray and drain connection, earthing and lifting attachments.

Pressure wetted parts : welded construction with materials options to suit a wide range of applications.

Casing Drain : with optional valve to facilitate safe maintenance.

Bearing : long life antifriction roller bearings; sealed for life grease lubrication.

ACCESSORIES

A range of accessories are available to ensure safe and reliable operations:

- Dry running protection
- Overpressure protection & monitoring:
  - Pressure relief valves to API 520/526/527
  - Pressure transmitters with options for hazardous areas
- Variable speed drives
- Stator cladding for low ambient temperature applications.

Standard options for API seal plans:

- API plan 02/61 (standard for horizontal pumps), 65, 53A, 53B

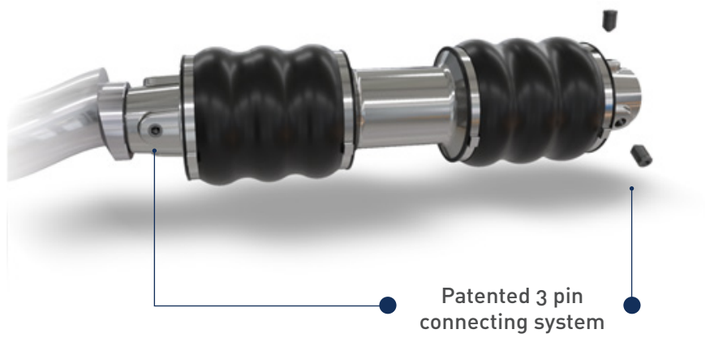
CONSTRUCTION

The **PCM Moineau™ A** pump incorporates a high strength articulated drive shaft to accommodate the eccentric motion of the rotor, and features a patented connecting system for **quick and easy removal of the rotor and stator** during maintenance.

Small distance required for pump maintenance.

The shaft design allows for a smaller diameter mechanical seal without compromising performance, leading to reductions in capital and operating costs for end users. **Up to 30% savings on replacement seals.**

The double universal joint ensures compact articulation and with fewer parts, and no wearing pins. High durability NBR or FKM elastomer sheaths protect the joints from aggressive fluids.



CONFIGURATIONS

The **PCM Moineau™ A** pump is available in two configurations.

Monobloc
Simplest and most compact design.

Bearing (Long coupled)
Remove the mechanical seal for maintenance without moving the drive or process piping.

FEATURES

The PCM Moineau™ A pumps are available with the following options:

- Multi-coat Epoxy paint system for harsh and corrosive environments (ISO12944, C3 or C5M environments).
- Cartridge mechanical seals for high performance, reliability and reduced maintenance costs.
- Bi-directional operation; discharge or suction at seal side options.
- Optional API682 cartridge mechanical seals.
- Optional API671 corrosion resistant metallic flexible coupling and spacer.
- Light, Medium and Heavy duty drive shaft designs to cover a wide range of torque and operating pressures.

QUALITY RECORDS

- Material certification to EN10204 3.1 for pressure wetted metallic parts.
- Optional materials and certification to NACE MR0175/ MR0103 for H2S containing applications.
- API inspection & testing options; performance, hydrostatic, NPSH, noise and vibration.
- API documentation options.

MATERIAL OPTIONS

A range of materials to suit a wide variety of applications:

- Pump casings in carbon steel, AISI 316 stainless steel, 22Cr duplex and 25Cr duplex stainless steels.
- Process wetted rotating parts in Halar® (ECTFE) coated AISI 4340 nitrided steel, AISI 316 stainless steel and 22Cr duplex stainless steel.
- Process wetted seals in AISI 316 stainless steel, 22Cr duplex and 25Cr duplex stainless steels.
- Hard wearing chromium plated rotors for low friction and abrasion resistance.
- Fluorocarbon (FKM) or Nitrile (NBR) elastomer stators, formulated by PCM elastomer experts and manufactured in house.

APPLICATIONS

Upstream

Multiphase Booster
- Boosting full well-stream (oil + water + gas) to a process facility

Oil & Gas processing
- Flare KO drum emptying
- Crude oil transfer
- Hydrocarbon condensate transfer
- Rich MEG / Glycol
- Hydrocarbon sludge

Enhanced oil recovery
- EOR polymer transfer
- Surfactant transfer

Well services
- Well Testing > Crude Oil Transfer
- Drilling mud > Decanter centrifuge feeding

Produced water management
- Produced water transfer
- Skimmed oil transfer

Downstream

Refinery & petrochemical
- Open & closed drains transfer
- Slop Oil
- Oily Water treatment
- Hydrocarbon Sludge
- Catalyst Slurry

Storage & Distribution
- Crude oil transfer
- Oily sludge

contact@pcm.eu