NOVA ROTORS
Progressing cavity Pumps

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OIL & GAS INDUSTRY

Nova Rotors: Engineered for the Oil and Gas Industry

Founded in 1990, Nova Rotors is a national and international leading company in the manufacture and sale of progressive cavity pumps, twin screw pumps and floating stator pumps.

The company is based in north-east of Italy, one of Europe's highest productivity areas, and enjoys a modern factory equipped with new facilities for the production and testing of pumps, taking advantage of the best available technologies.

ISO 9001:2015 and ISO 45001:2018 certified and strongly customer-oriented, Nova Rotors bases its organization on "lean thinking", making use of the PLM (Product Life-Cycle Management) method, so as to ensure product quality and accurate and timely service.

Nova Rotors is a leading manufacturer of progressive cavity pumps (PCPs) designed specifically for the demanding environments of the oil and gas industry. With decades of experience and a relentless commitment to engineering excellence, we have developed a line of PCPs that set the standard for efficiency, durability, and performance.

At Nova Rotors, we understand the critical importance of adhering to industry-leading standards and regulations in the oil and gas sector. That's why our progressive cavity pumps (PCPs) are engineered to meet the stringent requirements of API (American Petroleum Institute) Standard 676. This globally recognized standard sets the benchmark for the design, materials, and performance of positive displacement pumps used in demanding oilfield applications.

By designing our PCPs to API 676 specifications, our customers can be confident that our equipment is manufactured to the highest quality and safety standards. From the materials used in the rotor and stator construction to the precision tolerances and sealing mechanisms, every aspect of our PCPs is meticulously engineered to ensure reliable, long-lasting operation even in the most challenging environments. This commitment to API-compliant design is a key part of our mission to deliver unparalleled performance and efficiency to our clients in the oil and gas industry.

Challenges and Innovations:

The oil and gas industry constantly faces challenges related to safety, efficiency, and environmental sustainability. To address these challenges, there's a continuous drive for innovation in rotating equipment technology. Advancements such as predictive maintenance, enhanced materials for improved durability, and the development of more efficient pump design are revolutionizing the industry.

Pumps are utilized to transport liquids such as crude oil, natural gas liquids (NGLs), and water throughout the production and refining processes.

Available for a wide range of onshore and offshore applications, Nova Rotors pumps meets the main needs of the oil and gas industry:

- It has a wide range of products, services and expertise to find the most suitable configuration based on the customer's specific requirements. This allows you to be able to select the appropriate pump considering factors such as fluid properties, pressure, temperature and flow rates to ensure optimal performance and reliability.
- Meets the most stringent maintenance requirements. This allows to prevent breakdowns and ensure uninterrupted operations. Factors such as accessibility for maintenance, spare parts availability, and reliability play a significant role in equipment selection. We know this, and that is why we have developed a structure that ensures efficiency, flexibility and quick response to the customer requests so be the best possible partner. Nova Rotors Oil & Gas teams are ready to provide you with highly responsive, custom tailored services, including engineering and design, project management, Quality assurance and Quality control system, field services and training.
- The progressive cavity design of our pumps provides precise, variable-speed flow control, allowing operators to fine-tune flow rates to match production requirements. This flexibility ensures efficient use of energy and minimizes waste, contributing to the overall cost-effectiveness of our customers' operations.

We take care to understand the needs of your applica-tions in order to apply our designs correctly. We don't just sell pumps. We sell pumps that work in complex systems and understanding how our equipment interacts can be the difference between failure and success.

Low Maintenance and Troubleshooting

With simple construction and easy access for service, Nova Rotors' pumps minimize downtime and maintenance costs.

The pumps' modular design allows for quick and easy access to critical components for maintenance and repair. High-quality materials and precision engineering ensure the pumps' long-lasting performance and minimal downtime and maintenance costs for our customers.

API 676 Compliance

API 676 covers a diverse range of positive displacement rotary pumps, including progressive cavity pumps used across various industries, from oil and gas to chemical processing and beyond.

While establishing comprehensive guidelines, API 676 allows for flexibility in design to accommodate specific customer needs and operating conditions.

As an internationally recognized standard, API 676 is widely adopted worldwide, promoting quality, safety, and interoperability in positive displacement rotary pump systems.

Nova Rotors' progressive cavity pumps are engineered to fully comply with the API 676 standard, ensuring the highest levels of safety, performance, and reliability in demanding applications.

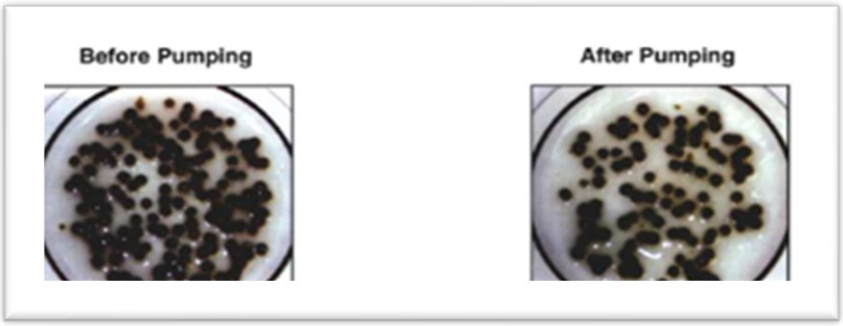
Advantages

Nova Rotors pumps offer superior efficiency, low pulsation, and gentle handling of delicate fluids, making them the optimal choice for industries such as oil and gas, food processing, and mining.

Oil and gas applications often involve the handling of fluids with high particulate content, such as sand, scale, and other abrasive solids. Nova Rotors' progressive cavity pumps are designed to handle these challenging materials without compromising performance or durability, ensuring reliable operation even in the most demanding pumping scenario.

With the ability to handle a diverse array of fluids, including highly viscous, abrasive, and solids-laden materials, Nova Rotors' PCPs are the ideal choice for the most demanding oil and gas applications. Our pumps seamlessly adapt to changing process conditions, ensuring optimal productivity and minimizing the need for costly equipment.

The pumps' low-shear design ensures delicate fluids are transferred without degradation or separation.



The Nova Rotors pump ensures a high efficiency of the separator, causing almost no damages to the oil droplets and no risk of creating emulsions that are hard to separate.

There is no need for additional auxiliary devices as our pumps are fully self priming.

The NPSH requirement of our pumps is very low. This is useful when considering vessel emptying applications such as closed drain drums, flare knock-out (KO) drums, or any application with high vapour pressure liquids.

Our field-proven technology can effectively handle a wide range of hydrocarbons. Nova Rotors pumps provide a constant, smooth and non-pulsating flow. The volume practically remains unaffected by viscosity changes which ensures accurate flow readings downstream and eliminates the need for costly pulsation dampeners (which are a requirement in combination with reciprocating pumps).

MEC

The pump requirements are extremely high because it must accommodate a wide range of crude oil types and properties such as various temperature, different API grades gravity oil, presence of entrained gases (H2S, CO2), contaminants, corrosive and deposits.Unlike many other rotary positive displacement pumps, such as gear or external screw pumps, Nova Rotors progressing cavity pumps have only one mechanical seal, which is located on the low pressure, suction side of the pump. In addition, Nova Rotors progressing cavity pumps have no close metal-to-metal clearances or internal bushings, and operate at low speeds with lower shear and NPSH requirements. Repairs are easier and less expensive with only one major wearing part, the rubber stator.

HYDRAULIC REQUIREMENTS

Nova Rotors pumps are developed with strict hydraulic design criteria to optimize pump efficiency, flow characteristics, and overall performance, ensuring reliable operation in demanding applications. Hydraulic design takes into account for the specific properties of the fluid being pumped, such as viscosity, corrosiveness, and sensitivity, to prevent issues like cavitation or leakage.

MATERIALS OF CONSTRUCTION

We carefully select high-quality materials. which meet the requirements of API 676 4th edition, NACE MR0175, MR0103, NORSOK and many more, that can stand up to the highly corrosive substances often encountered in Upstream, Midstream and Downstream environments. Our pumps feature specialized coatings, linings, and seals that protect critical components from the ravages of acids, salts, and other aggressive fluids, ensuring consistent operation and extended service life.

INSPECTION AND TESTING

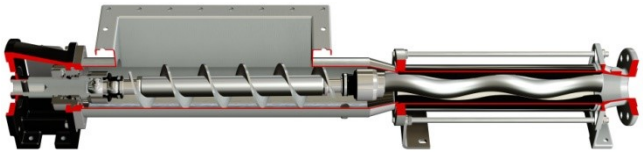
API 676 mandates a comprehensive inspection and testing regime to ensure the safety, reliability, and performance of positive displacement rotary pumps. This includes rigorous quality checks, material verification, and functional testing to validate the pump's design and construction against the standard's stringent requirements. From dimensional inspections and non-destructive examinations to hydrostatic pressure tests and performance trials, the Nova Rotors inspection and testing process thoroughly verifies the pump's mechanical integrity, hydraulic efficiency, and overall adherence to the API 676 specifications.

Nova Rotors - Oil & Gas pump solutions

N SERIES

Flanged industrial series ideal for heavy duty applications. It is the best solution for the industrial sector for pumping a vast range of fluids; available with UNI, DIN and ANSI flanged and GAS BSP threaded connections.

H SERIES

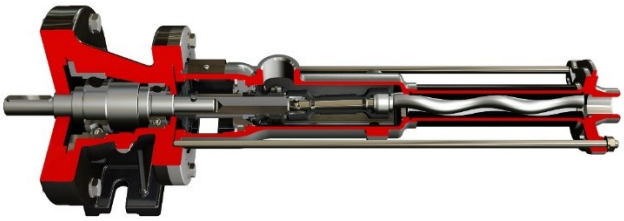


Standard model equipped with hopper and auger feed screw to move the product to the hydraulic part. Suitable to convey the Bentonite and Drilling Mud, as well as Cuttings.

V SERIES

Vertical Series developed for pumping from tanks and wells immersed directly in the product to be pumped. The length can be adapted to suit the installation requirements. The stainless steel version (AISI 304 or AISI 316) is supplied with a stator jacket as standard to prevent corrosion of the stator. Two standard configuraions are available: the short version and the long version with split casing and bottom mounted guiding cone.

M SERIES



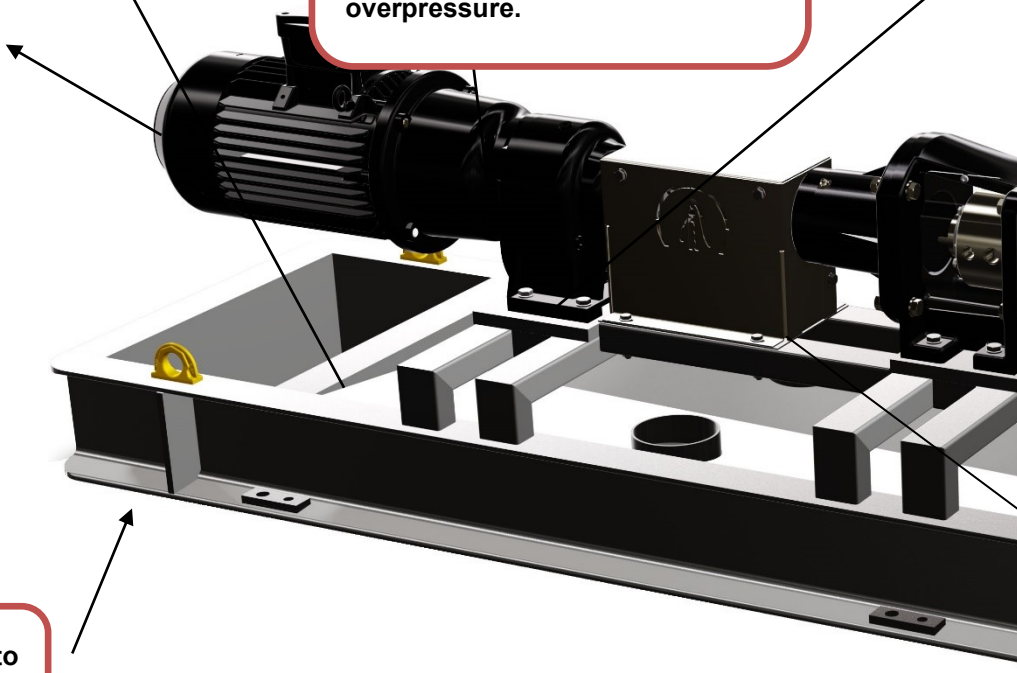
Dosing pumps are used for pumping and dosing small quantities.

Used also for accurate chemical metering (p.e. flocculant metering to assist the separation process), to provide lubrication fluid in controlled doses to the multiphase pump and to add chemicals to control pH and inhibit corrosion.

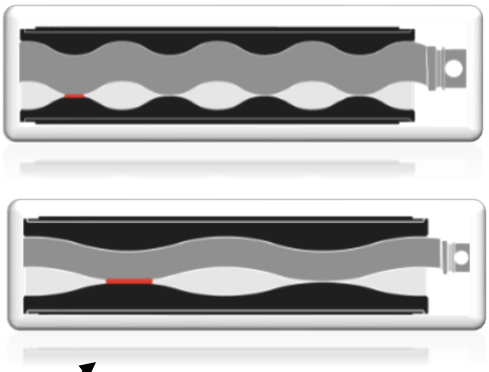
Standard or even wall stators for high pressures and temperatures, available in NBR, HNBR and FKM elastomer material For each application, for each usage. The results: maximum output, high reliability, long life and minimum risk of failure.

Stator Security System Protects the stator against dry running. Safety relief valve on request. Protects the installation against overpressure.

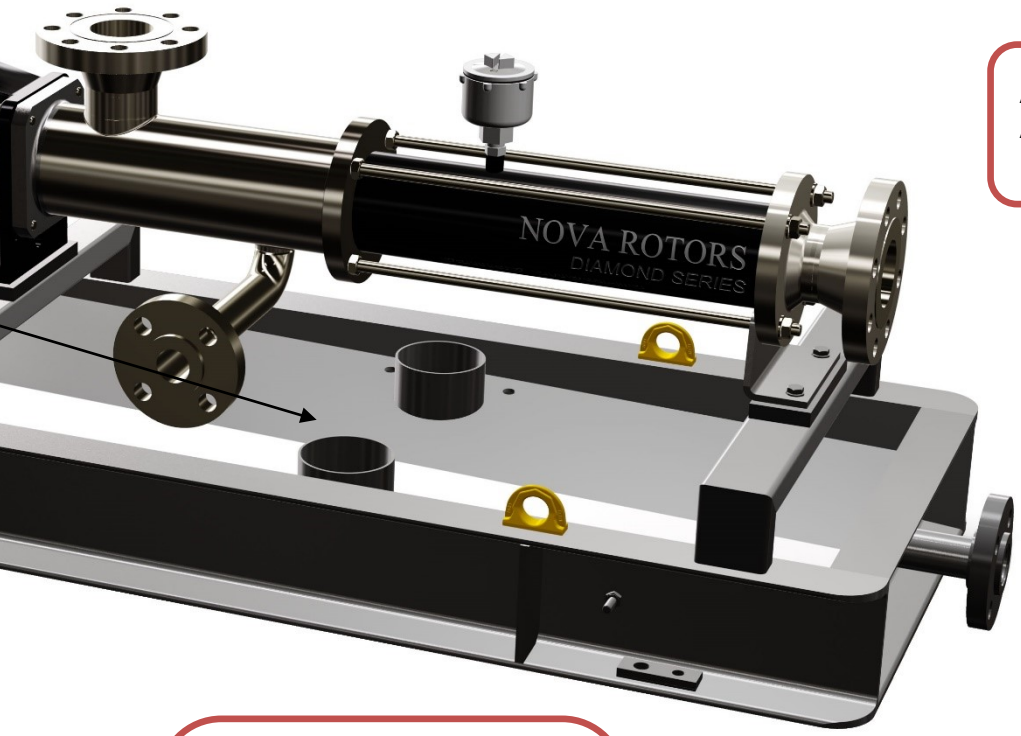
Electric motors according to NEMA or IEC



Baseplate skid according to API 676 standard.



Short-pitch and long-pitch rotors for multi-stage or maximum flow pumps. Available in materials and with surface treatments for wear and corrosion resistance.



ANSI/ASME flange according to API 676 standard.

Body pump according to API 676 standard, with 90° flanged drain connection with ball valve. Available in a range of materials including carbon steel, stainless steel, duplex steel and super duplex steel.

The shaft seals are available according to API 682. Stuffing-box packing, lip seals, single-acting mechanical seals with and without quenching, dual-acting mechanical seals (back-to-back or tandem). Thermosyphon systems according to API 682 plans designs.

Proven Track Record in the Field

At Nova Rotors, our progressive cavity pumps (PCPs) have an meaningful track record of reliable performance in the most challenging oil and gas environments. Deployed across a diverse range of upstream, midstream, and downstream applications, our pumps have consistently demonstrated their ability to handle the rigors of demanding oilfield operations, earning the trust of industry leaders worldwide.

From the scorching deserts of the Middle East to the frozen tundra of the Arctic, Nova Rotors' PCPs have proven their resilience and adaptability time and time again. Our pumps have successfully navigated the complexities of high-pressure, high-temperature, and abrasive fluid applications, delivering exceptional efficiency and reliability that has translated to significant cost savings and productivity gains for our customers.

At Nova Rotors, we understand that providing exceptional equipment is only one part of the equation. That's why we offer comprehensive technical support to ensure our customers get the most from their progressive cavity pump (PCP) investments.

Our team of experienced engineers and technicians are on hand to offer expert guidance and assistance in solving problems, whatever the challenge.Whether you need help selecting the right pump configuration for your specific application, require training for your operations staff, or need immediate support to diagnose and resolve an unexpected issue, our technical support specialists have the deep expertise and hands-on experience to provide tailored solutions that get your equipment back up and running quickly.

Pump Type: JN 160K4

Conveying product: Crude oil

Conveying capacity: 90 m3 /h

Pressure: 16 bar

Temperature: 85 °C

Installation: Venice Refinery, ITALY

Pump Type: JN 2K2

Conveying product: NAOH sodium solution

Conveying capacity: 3 m3 /h

Pressure: 12 bar

Temperature: 45– 160 °C

Installation: Ravenna Refinery, ITALY

Pump Type: DV 40L1 “Canned”

Conveying product: Hydrocarbon Condensat

Conveying capacity: 10 m3 /h

Pressure: 3,5 bar

Temperature: 47 °C

Installation: Selangor Refinery, MALAYSIA

Design Application - DV Pump canned (Open Drain / Closed Drain Pumps)

A canned DV pump designed for very low NPSHa.The NPSHr can be designed for 0.5m upon request.

Many others application…..

DH - Pump

Utilized for conveying cuttings at the drilling mud handling skid.

DN - Pump

Utilized for transferring the drilling mud to the high-pressure pump and for transferring the oil from the separator.

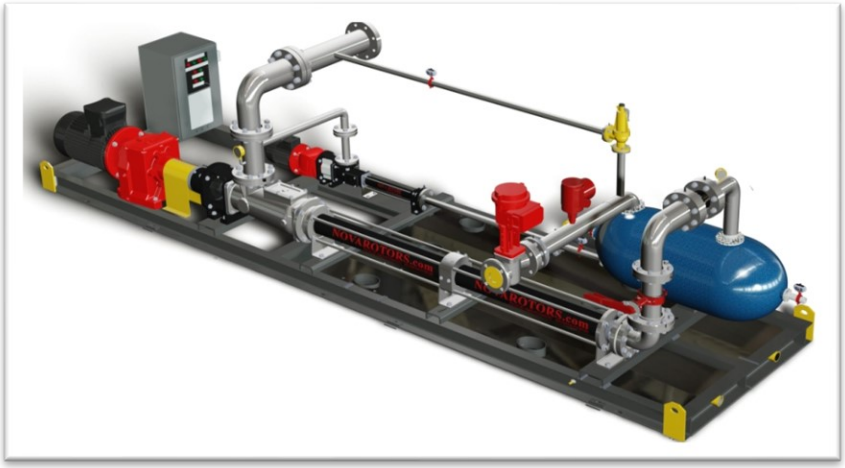
JN - Pump

MOL pumps transferring the Oil from the Gathering station.

Installed in Algeria, have to be controlled auto remote, it is an unmanned station in the desert. Failure is not an option.

Multiphase Boosting Pumps

JN pump Installation for Multiphase Boosting. The single well boosting increases the production and reduces the well head pressure.



Multiphase Pumps Skid

Multiphase Pump Skid including liquid hold-up tank and injection pump, suitable for Multiphase transferring with heavy oil, suitable to handle poor gas slugs of 30 minutes and more, manual or auto remote controllable.

CONTACT US FOR A CONSULTATION

At Nova Rotors, we are dedicated to providing our customers in the oil and gas industry with the most reliable and efficient progressive cavity pump solutions. If you are interested in learning more about how our industry-leading PCP technology can benefit your operations, we encourage you to **reach out to our team for a personalized consultation**. Our experts will take the time to understand your unique pumping requirements, operating conditions, and performance goals, and then work closely with you to design a custom PCP system that delivers maximum efficiency, durability, and cost-savings.

Whether you need assistance selecting the right pump configuration, guidance on integrating our equipment with your existing infrastructure, or support with ongoing maintenance and optimization, our technical support staff is available to provide the personalized, responsive service you need. Contact us today to schedule a consultation and discover how Nova Rotors can help take your oil and gas operations to new heights of productivity and profitability.

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