NOVA ROTORS® srl

Progressing cavity Pumps

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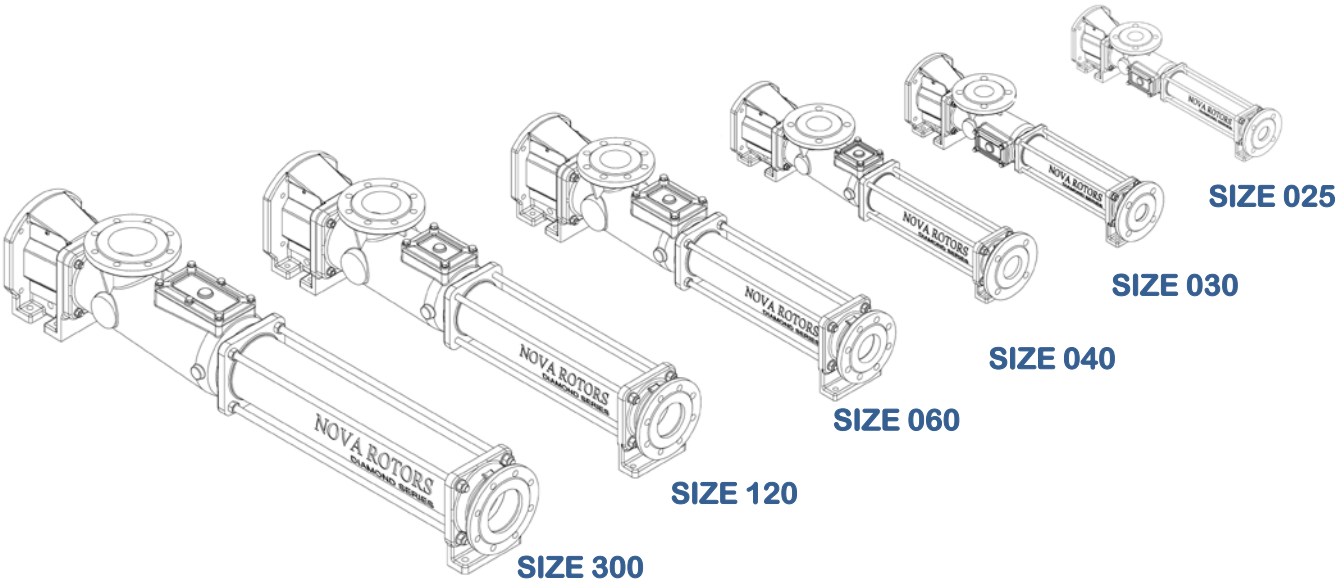
DIAMOND SERIES

With DHS Advantages

www.novarotors.com

DIAMOND SERIES

Nova Rotors presents its new range of progressing cavity pumps called the Diamond Series.
Completely renewed mechanics to increase the performance with a new aggressive design. These pumps are completely reversible. Available a wide pumps range.



- One stage stator with long pitch geometry to improve the performance.
- Reversible flow up to 3 bar as standard: Up to 12 bar with hydraulic balance.
- Pump fixed to motorization with a pin to permit the reversibility.
- Joints: strong and compact with geometry and dimensions projected to enable the max NPSH.
- Transmission shaft with universal pin joint patented pending with bushing guide and transmission guide to enable long endurance and reliability . This is to reduce to a minimum wearing of the pin.
- The bush prevents the substitution of the transmission shaft, reducing maintenance costs and times.
- Rubber sleeves: designed to increase the long activity, with special geometry. Suitable in case of sharp solids in the medium.
- The universal joint is the same for all the range both for cast iron and SS versions. Only difference is the dimensions and materials.
- The rotating parts are in SS. Can also be produced in other materials.
- Is easy to maintenance but not expensive. Fewer components of smaller dimension under wearing.
- The stator seal is integrated at both ends. No O-ring needed.
- stator positioned to prevent rotation, thanks to the body parts.
- Large cross section between stator and body, with smooth design, to increase medium suction
- The standard version has a single mechanical seal. Large spectrum of seal solutions: packing seal, double mech.seal and cartridge.
- Modular bearing housing with taper roller bearings. With blocking nut to regulate the perfect preload.
- Easy maintenance of the bearing, considering the compact dimensions. Integrated lubrication system easy and efficient.
- Large solution range for the pump body, outlet flange in order to insert any measuring devices.
- Rotor: available coating and thermal treatments for the management of heavy applications.
- Certifications: Atex and API; food grade EHEDG certif. within next year.
- Rational codes for Diamond series refer to the capacity at 400rpm.
- Compact design with a good relationship quality/price. Easy installation thanks to the reduced dimensions.

PUMP COMPONENTS

ROTOR

It's a screw shape rotating into the stator, allows the pumping of the fluid. The pressure of the pump depends on the number of stages. Every stage gives a pressure of 6 bar. Nova Rotors has two types of rotors: standard and long peach geometry that, considering the same diameter and eccentricity, doubles the capacity increasing pump performance.

MATERIALS: steel Aisi 420B, st.steel 304/316 and st.steel 304/316 HCP, hardened steel, ceramic steel, duplex.

ROTOR STANDARD

LONG PITCH GEOMETRY

STATOR

It is the fixed part of vulcanized rubber, contained or less on the metal tube, shaped like a circular screw quarry where rotates the rotor. Rubber type: NBR, EPDM, NBR or EPDM food grade, FKM, H-NBR NATURAL, PTFE and other on request.

SHAFT AND PIN JOINT

The new state-of-the-art transmission, supports the axial force and the transmitted torque between the rotor connection and the drive. They are completely reversible (pin joint Patent pending). MATERIALS: AISI 304, AISI 316, 420B (duplex, super duplex hastelloy).

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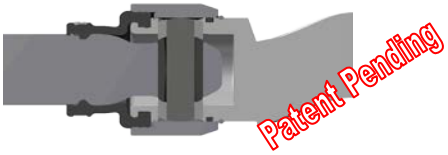


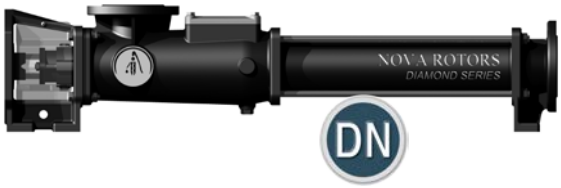
PUMP BODY

Made of stainless steel 304/316 or in cast iron G25, it is the principal part of the pump, where the fluid is pumped.

COUPLING

There are two possible coupling types: close coupled and bearing housing modular type.

Close coupled "D"



Bearing housing "J"

PROGRESSING CAVITY PUMP PERFORMANCE

MATERIAL

Cast iron

Body pump / outlet flange: cast iron G25
- Inspection ports standard in all the sizes cast iron
Available connection:
- Flanges UNI 2278 (UNI-EN 1092-1 / DIN 2501)
- Flanges ANSI RF150 / 300 / 600 lbs.
- Spherical connections

Stainless steel and Duplex (special alloys at request)

Body pump / outlet flange: S.S. 304 / S.S: 316 / F51
- Inspection ports :
standard in all S.S. casting sizes
at request in the other S.S. sizes

- CIP on request

Available connections:
- BSP (Gas)
- Flanges UNI 2278 (UNI-EN 1092-1 / DIN 2501)
- Flanges ANSI RF150 / 300 / 600 lbs.
- DIN 11851
- SMS
- RJT (BMS)
- Macon
- Clamp
- Other if requested

MOTOR COUPLING:
CLOSE COUPLED TYPE "D"
- Flange diam. 160 / 200 / 250 / 300 mm related to the pumps sizes
- Female drive shaft S.S. Aisi 304 / Aisi 316 / 420B
- Diam.19 /24 /30 /35 /40 /50 mm related to the pumps sizes
BEARING HOUSING FLEXIBLE JOINT TYPE "J"

DIAMOND SERIES RANGE

Size	Model	m3/h at 2 bar	BAR MAX	RPM MAX
DHS-JHS AVAILABLES SIZE				
SIZE 040	10L1	16,5	6	600
	4K2	8,5	12	600
	2K4	3,7	24	500
	1K8	1,5	48	400
	16L1	23,5	4	600
	8K2	12	8	600
SIZE 060	20L1	28	6	500
	10K2	14	12	500
	4K4	5,7	24	400
	2K8	2,6	48	350
	30L1	33	4	500
	16K2	16,5	8	500
SIZE 120	40L1	43	6	400
	20K2	20	12	400
	10K4	10	24	350
	4K8	5	48	350
	60L1	63,5	4	400
	30K2	32	8	400
SIZE 300	80L1	76	6	350
	40K2	38	12	350
	20K4	15,4	24	300
	10K8	8,5	48	300
	120L1	110	4	350
	60K2	55	8	350

ALL TYPES AVAILABLE

N	FLANGED	HE	OENOLOGICAL HOPPER
NY	NDUSTRIAL BY PASS	HB	BRIDGE BREAKER
NE	WINE TRANSFER	HP	HOPPER WITH PADDLE
NC	HEATING JACKET	HS	ENLARGED AUGER - HOPPER
H	HOPPER	V	VERTICAL

NOVA ROTORS® srl
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Easy and versatile connection

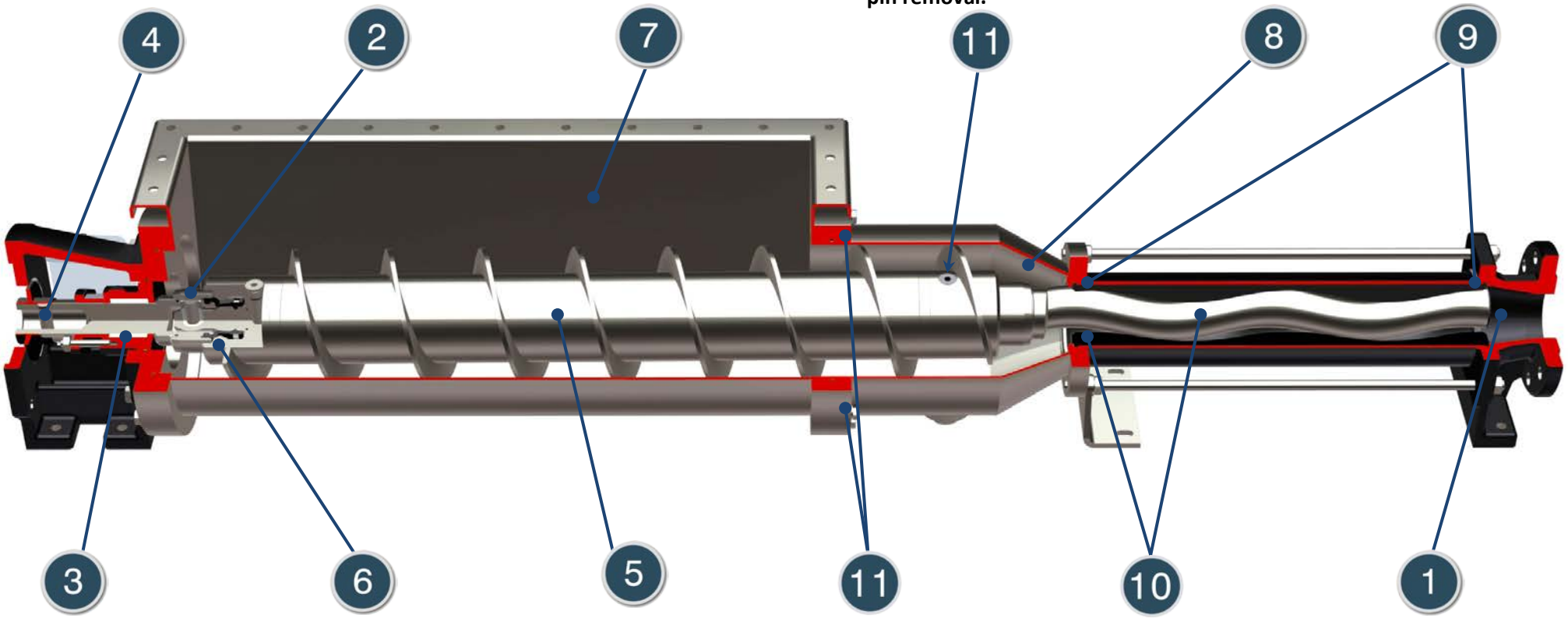
High performance universal joint

Hopper collection tank with Rectangular sides section Customizable in width

Easy and fast rotor unplug system, simple pin removal.

Optimized geometry for smooth flow conductions

Integrated stator seal zone



Wide seal possibility

The rubber of the joint sleeve is protect from the solid abrasive part

high load capacity auger screw

Reduction of maintenance thanks to a detachable separate entrance

Rotor and stator highly resistant to corrosion and abrasion

Large discharge section

DHS

DHS

NOVA ROTORS® srl
Progressing cavity Pumps

GENERAL FEATURES OF THE "DHS" SERIES

The new "DHS" pumps of the Diamond series can be used in a vast range of applications.

Their most impressive features include high flexibility of use, standard construction, modularity and efficiency.

The DIAMOND series boasts all those characteristics that make progressing cavity pumps indispensable in so many application sectors.
These characteristics include:
gentle, pulse-free pumping action
accurate dosing
pumping of high viscosity products, lubricant and abrasive, toxic and adhesive
resistance to corrosive environments and to chemically aggressive process fluids
sized to serve a wide range of capacity and pressure requirements
pumping of fluids with high solids content.

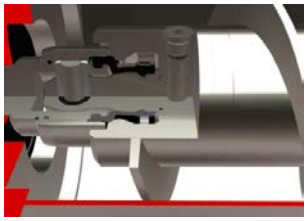
The DIAMOND series features a patented universal pin joint that ensures top performance and flexibility of use. The joint is designed for use in standard configurations which simplifies spare parts and maintenance management, without sacrificing reliability and long life.

"DHS" SERIES COMPONENTS

1

Large outlet section. This permits pumping products having up to 30-35% solids content with an extremely compact pump construction.
The discharge section is designed and manufactured in compliance with API 676. Therefore has qualities of resistance superior to standard products.

2



Patented high efficiency, robust, reliable pin joint.
Designed for easy and cost-effective part replacement; high strength bushes avoid costly parts replacement. The pin joints are constructed with a particular technology that guarantees long life, far exceeding the life of classic pin joints.

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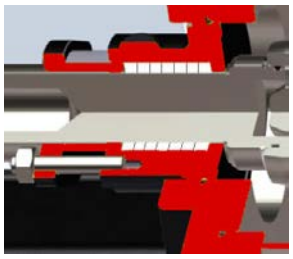

Standard construction with bi-directional single mechanical seal. The space between the shaft seal and the lantern is designed to house various types of seals such as single mechanical seals with quench, back-to-back or tandem double seals, gland packing systems with or without flushing.
The seals can also be balanced and made from a choice of materials to cover all applications.
In addition, single and double cartridge mechanical seals, also in compliance with API Standard 682, can be installed.

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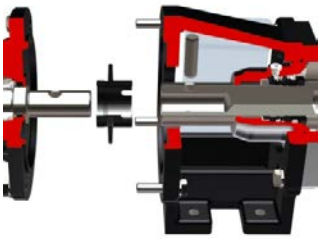

Connection to the motor drive system is through a coupling flange and pin coupled to the shaft. This system is the most economical, versatile and reliable, as it minimizes manufacturing costs and times. The pin on the shaft has the added advantage of presenting the same resistance qualities in both rotating directions yet without reducing the space available for the seal system.
The flanged coupling with oversized cross sections is unequalled in terms of compactness and ease of installation of the motor drive system.

5

The auger feed screw is designed to optimally feed the hydraulic part consisting of rotor and stator.
The capacity and size of the feed screw enable pumping of compact and high viscosity products. The use of high strength bushes permits separate management of spare parts between joint and auger which considerably reduces maintenance costs.

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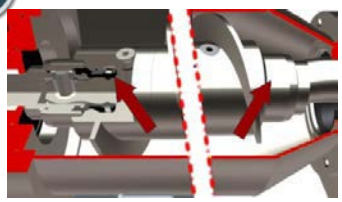

The joint protection sleeve has a minimal surface that comes into contact with the product and it is positioned so that it is only slightly exposed to any possible solid and/or sharp bodies.
The special technique of sealing with the stainless steel joint cover not only guarantees perfect tightness of the joint at high pressures, but it also eliminates the need for a second clamp which is typically very strained in the type of solutions that are normally adopted.

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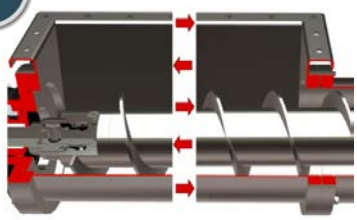

The dimensions of the collection tank are suitable for most applications, even for compact or viscous products. The dimensions can be easily tailored to customer's requirements.

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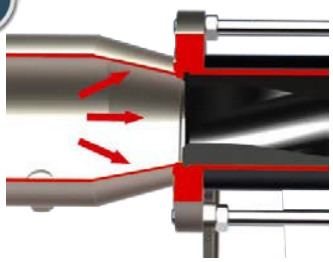

The inlet stator area is conical in shape with a large cross section. This, together with the compactness of the joint enables easy passage of the product, the NPSHr, and feed of products with large solids into the pumping part.

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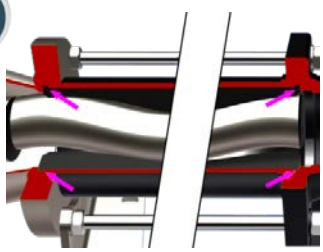

The two sides of the stator are fitted with integrated seal systems which avoid the use of additional O rings, and also prevent the body and flange from rotating if the rotor and stator jam during pump start up.

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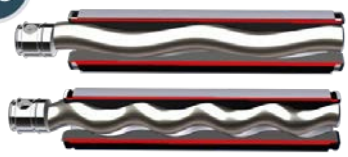
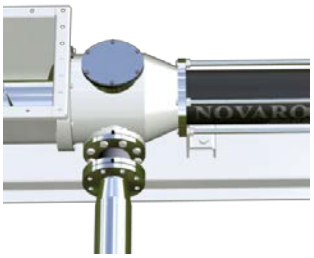


The rotors are manufactured with the utmost attention to finishing details and precision in order to achieve very low levels of roughness which maximizes pump efficiency by reducing the risk of jamming at start up. The rotors can be constructed from various materials and with different treatments and coatings to ensure the ideal solution for specific processing applications.
The stators are made of high quality elastomers and they are controlled according to strict parameters in order to guarantee optimal coupling with the rotor.
Long pitch geometry guarantees hydraulic performance that is not possible with traditional geometry, even while reducing axial load and thereby maximizing joint life.

11

Detachable separate entrance to unplug the rotors.
Thanks to the possibility of detaching the body hopper side from the separate entrance body, the rotor can be unplugged without unmounting all the rest of the transmission, with a reduction of maintenance time.



Removable inlet equipped with a large inspection door.
At request in the pumps for biogas, is supplied with a flange for inlet for slurry/digestate, in order to make pumpable the silage at low concentration of moisture, improving the degree of homogenization. This is better in respect to what would occur with standard mixing in a collection tank. The homogenization reduces the delivery pressure and therefore consumption. In addition, the power supply from the entrance also limits the risk of compaction of the product that would create an obstruction such as to prevent a proper pumping of the same.

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