



## DIAMOND SERIES

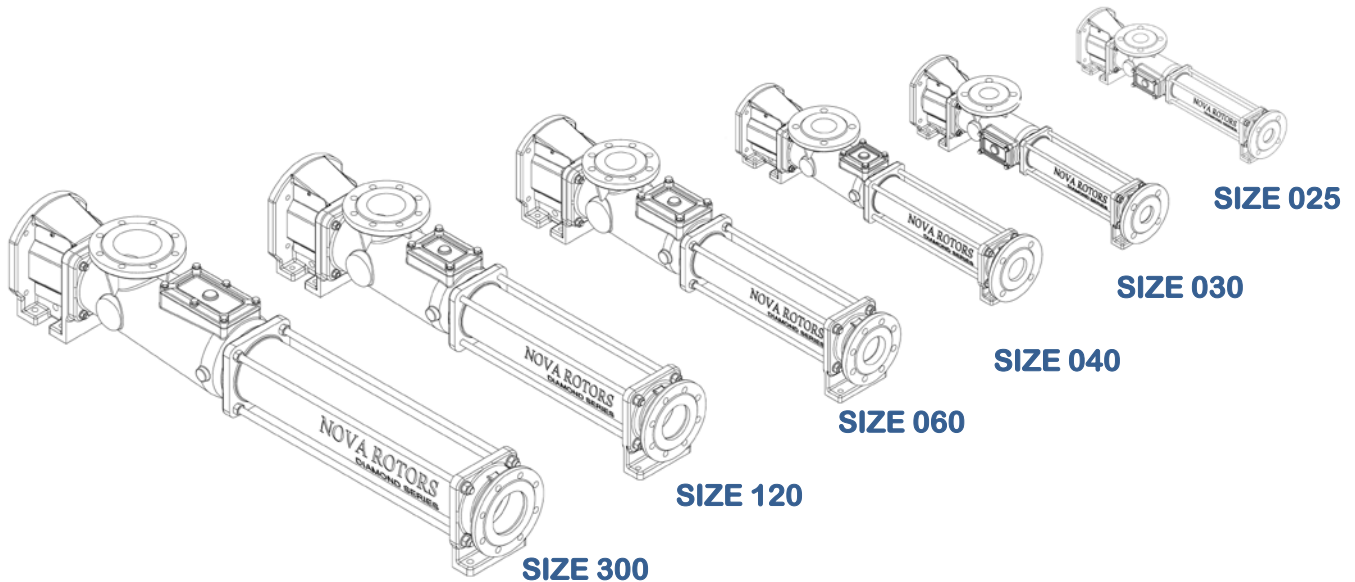
*With DN/DH Advantages*

# D

## DIAMOND SERIES

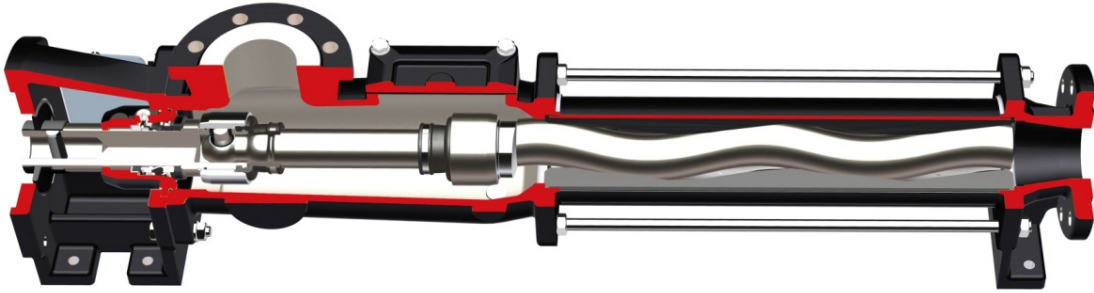
*Nova Rotors presents its new range of progressing cavity pumps called the Diamond Series.*

*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

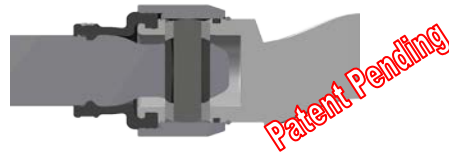


## STATOR

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).



## 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
SIZE025	2L1	6,9	6	1000
	1K2	3,4	12	1000
	05K4	1,5	24	800
SIZE030	4L1	11	6	800
	2K2	5,6	12	800
	1K4	2,2	24	600
	05K8	1	48	500
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

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



Alternative with Bearing Housing



**NOVA ROTORS<sup>®</sup> srl**  
Progressing cavity Pumps



Easy and versatile connection

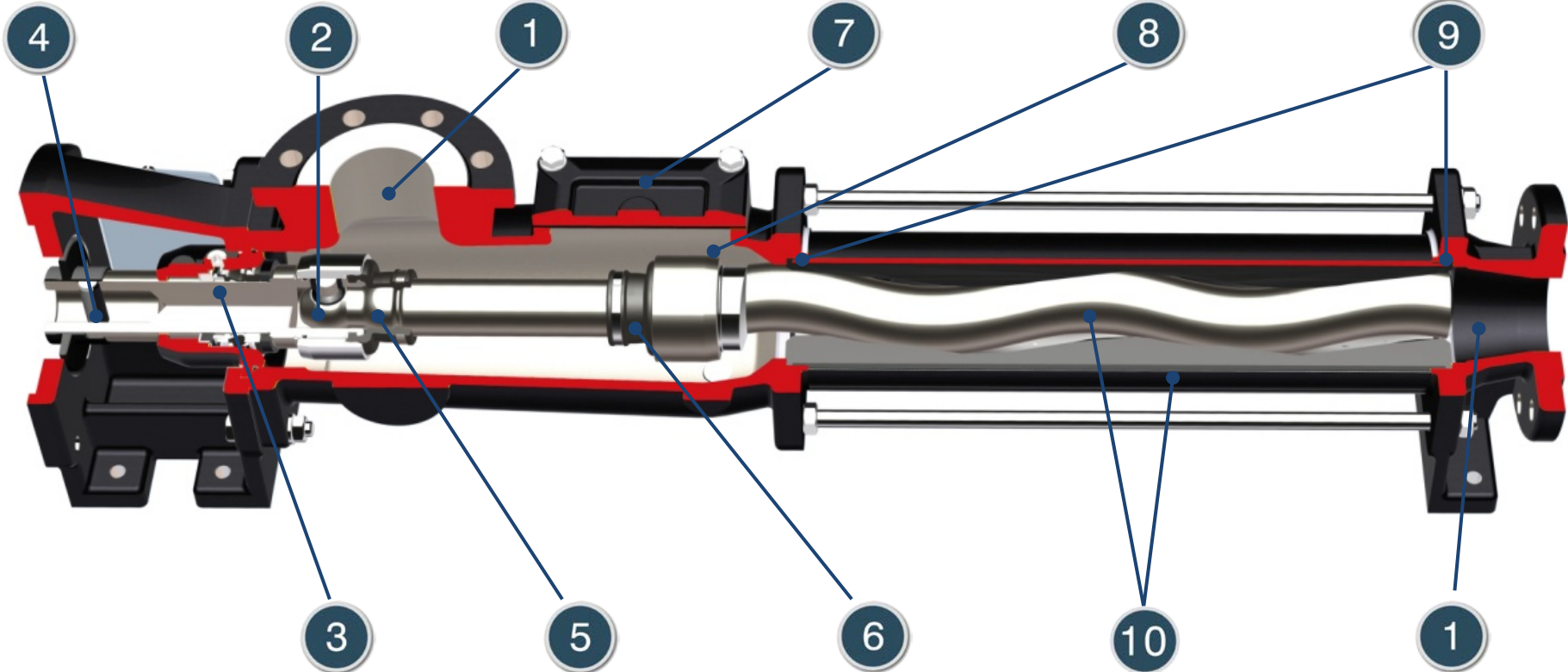
High performance universal joint

Large suction section

Large inspection port

Optimized geometry for smooth flow conductions

Integrated stator seal zone



Wide seal possibility

Stainless steel rotating unit

Durable joint sleeve

Rotor and stator highly resistant to corrosion and abrasion

Large discharge section





## GENERAL FEATURES OF THE "DN" SERIES

The new "DN" 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.

## COMPOSANTS DE LA SERIE "DN"

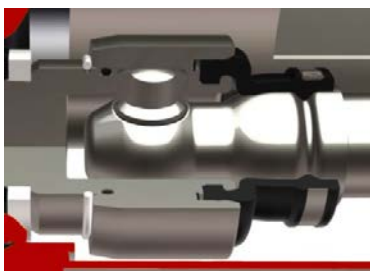
1



Large intake sections enable priming and improve pumping quality. This permits pumping products having up to 10-12% solids content with an extremely compact pump construction.

Pump body and outlet flange body are designed and built in compliance with API Standard 676, consequently they present resistance qualities that are far superior to standard products.

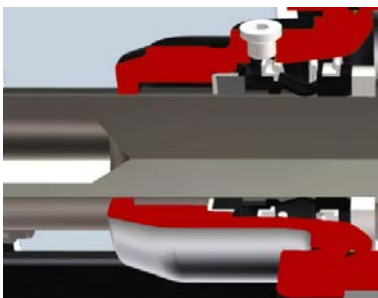
2



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.

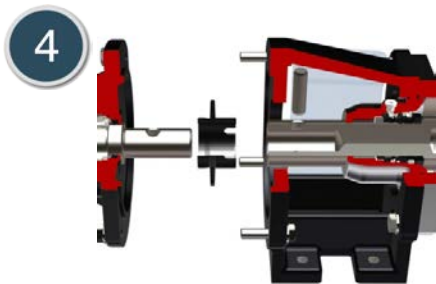
3



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.



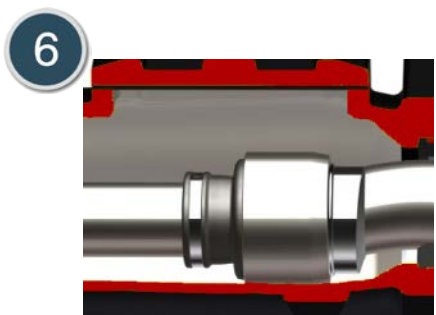
Connection to the motor drive system is through a coupling flange and pin coupled to the shaft. This system is the most economical, versatile and reliable, as it minimizes manufacturing costs and times. The pin on the shaft has the added advantage of presenting the same resistance qualities in both rotating 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.



Standard the rotating parts are in stainless steel. The production technology enables execution with various materials, according to application needs, with a margin on cost less impact than in the past, thanks to the attention to minimize the size and mechanical processing.

Furthermore, the choice of the material of the rotating part does not affect the life of the coupling due to the use of bushings for high resistance.

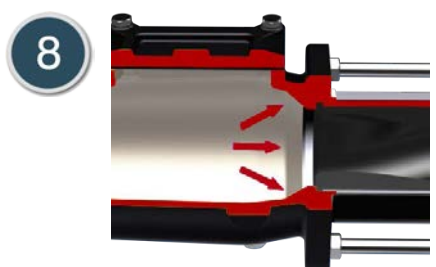


The joint protection sleeve has a minimal surface that comes into contact with the product and it is positioned so that it is only slightly exposed to any possible solid and/or sharp bodies.

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.



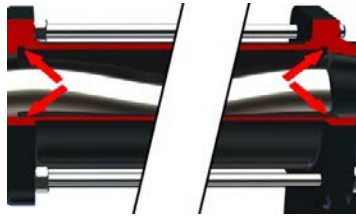
The pump housings in cast iron version have an inspection port with large dimensions, particularly useful in purification and biogas, cleaning and maintenance of the pump at the entrance to the stator.



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.

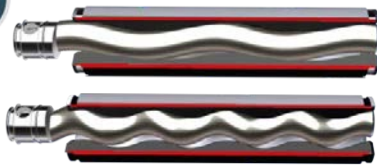


9



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.

10



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.



Alternative with Bearing Housing

# NOVA ROTORS<sup>®</sup> srl

Progressing cavity Pumps



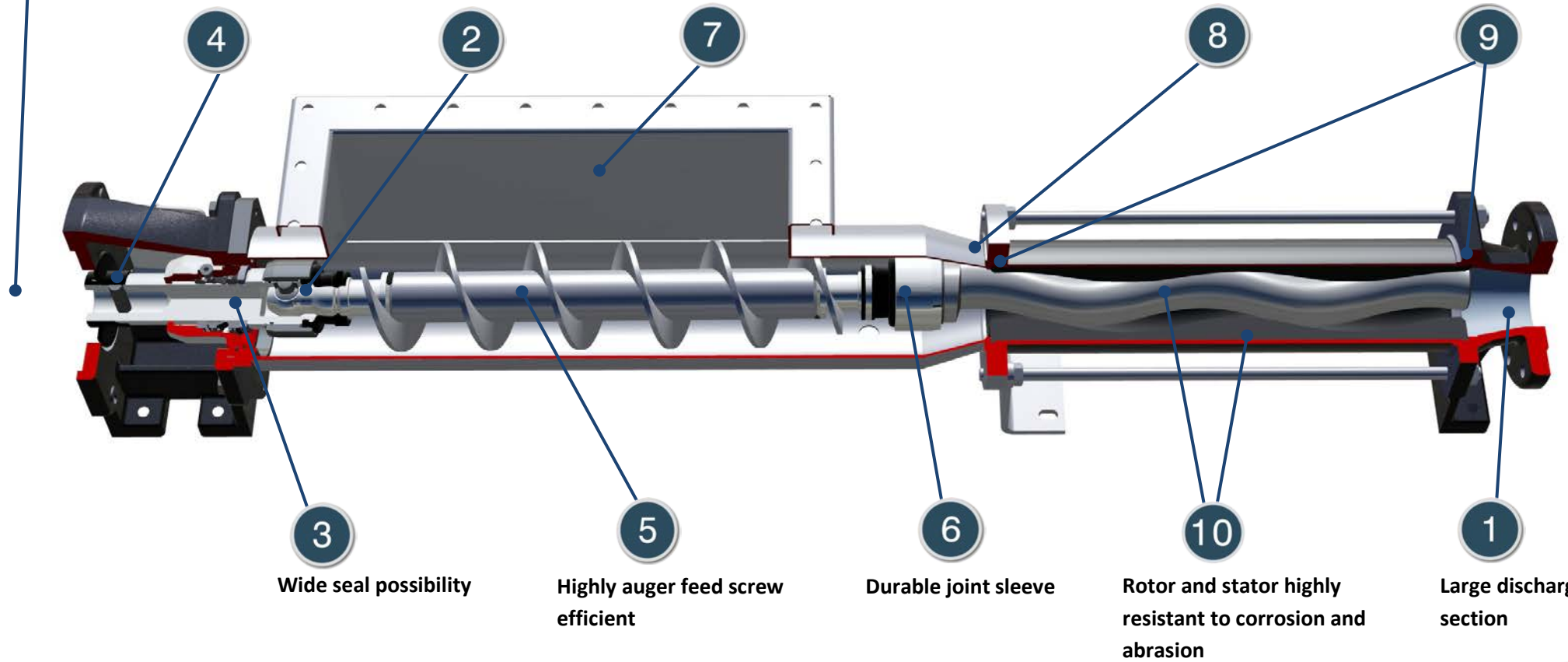
Easy and versatile connection

High performance universal joint

Customized rectangular hopper

Optimized geometry for smooth flow conductions

Integrated stator seal zone





## GENERAL FEATURES OF THE "DH" SERIES

The new "DH" 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.

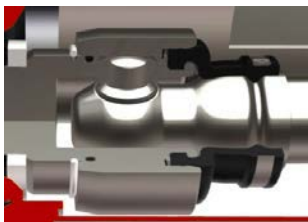
## "DH" SERIES COMPONENTS

1



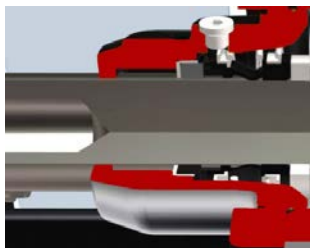
Large outlet section. This permits pumping products having up to 12-18% solids content with an extremely compact pump construction.

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.

3

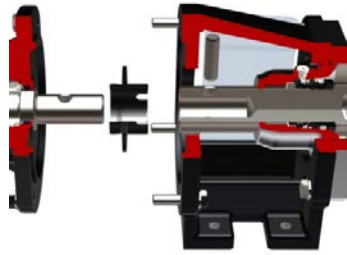


Standard construction with bi-directional single mechanical seal. The space between the shaft seal and the lantern is designed to house various types of seals such as single mechanical seals with quench, back-to-back or tandem double seals, gland packing systems with or without flushing.

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.

4



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.

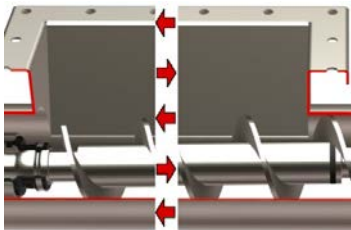
6



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.

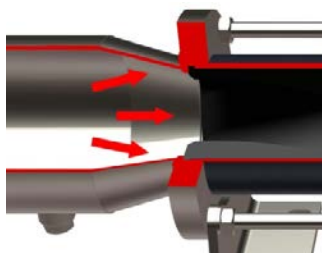
The special technique of sealing with the stainless steel joint cover not only guarantees perfect tightness of the joint at high pressures, but it also eliminates the need for a second clamp which is typically very strained in the type of solutions that are normally adopted.

7



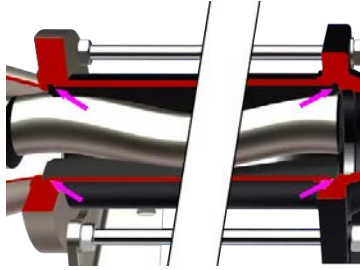
The dimensions of the collection tank are suitable for most applications, even for compact or viscous products. The dimensions can be easily tailored to customer's requirements.

8



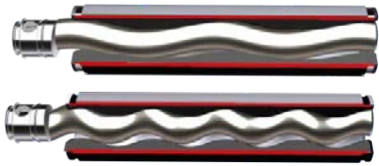
The inlet stator area is conical in shape with a large cross section. This, together with the compactness of the joint enables easy passage of the product, the NPSHr, and feed of products with large solids into the pumping part.

9



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.

10



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.