OUR POWER, YOUR SATISFACTION

NOVA ROTORS®

Progressing cavity Pumps

BIOGAS INDUSTRY

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The utilization of organic matter through fermentation to produce low-cost, renewable energy has long been a cornerstone of modern society's sustainability objectives. The establishment of biogas plants for electricity generation directly addresses this growing demand.
From an environmental standpoint, biogas systems offer multiple advantages: the by-product of the anaerobic digestion process within the digester—known as digestate—serves as an excellent natural fertilizer, which can be applied more rapidly than the original organic material. Moreover, the heat generated during electricity production can be recovered and reused, facilitating the development of efficient cogeneration systems that further enhance energy sustainability.

The first plants to appear, mostly in Germany, immediately brought to light various problems arising from the transfer of organic materials which can have very different, specific characteristics. The biomass used in these plants can derive from waste products, process waste (such as for example animal wastes, agro-industrial wastes or wastewater, agricultural processing waste, liquid manure) or from specially cultivated plants called “energy crops”. These fluids that do not derive from controlled processes very often contain foreign matter and solids that could cause the system to break down if appropriate measures are not taken.

Currently, these plants are proliferating throughout Europe and in emerging countries like China and are incentivised by policies aimed at renewable energy sources and to the recent use of biogas which if properly treated can generate biomethane. This is then generally used to fuel vehicles or to generate electricity.

Should read? Progressive cavity pumps perform best in the stages involving the transfer of the organic matter as they ensure effective and reliable performance which are of vital importance for a production plant, considering the high costs incurred by downtime. In terms of consumption, a biogas plant must guarantee the lowest possible operating costs to avoid affecting the overall production, progressive cavity pumps can guarantee higher output levels compared to other pumping systems and are therefore the preferred pump type for these applications.

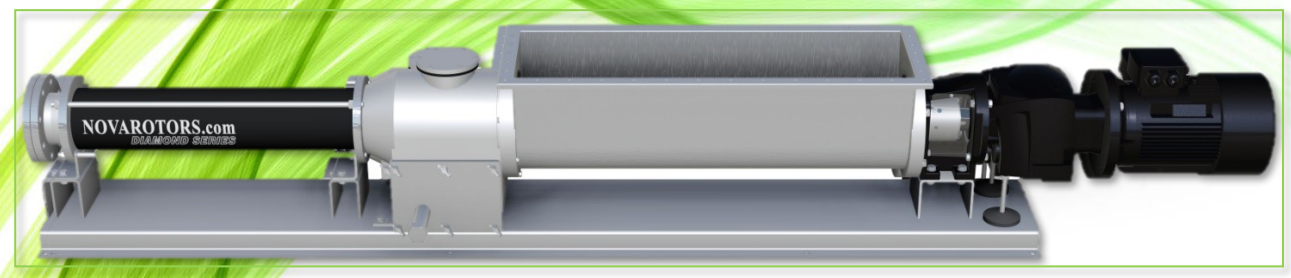
WHY CHOOSE NOVA ROTORS?

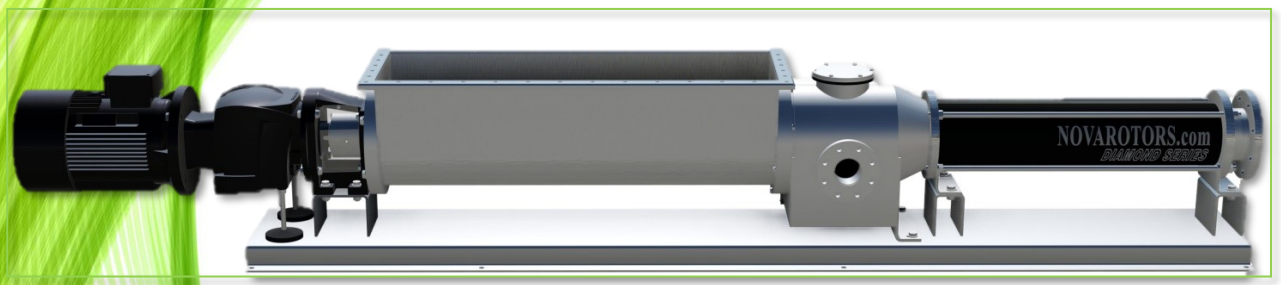
Nova Rotors has been operating in the biogas industry for over ten years providing the best possible solutions, a wide range of products, services and expertise to find the most suitable configuration based on the customer’s specific requirements. The various testimonials received from our customers both in Italy and from around the world over the years attest to the commitment of a dynamic company focussed on meeting constantly growing market demands.

Nova Rotors progressive cavity pumps are meticulously engineered in full compliance with the highest hygiene and industrial standards, ensuring outstanding quality, reliability, and durability.
They offer optimal solutions for all stages of storage, feeding, and discharge in biogas plants, effectively handling both low- and high-viscosity fluids, fibrous materials, sticky or lubricating substances, and products with variable temperatures.
Special attention has been given to selecting the most suitable pump configurations and constructions for each specific stage of the plant, ensuring maximum efficiency and performance in every transfer operation.

DHS-T

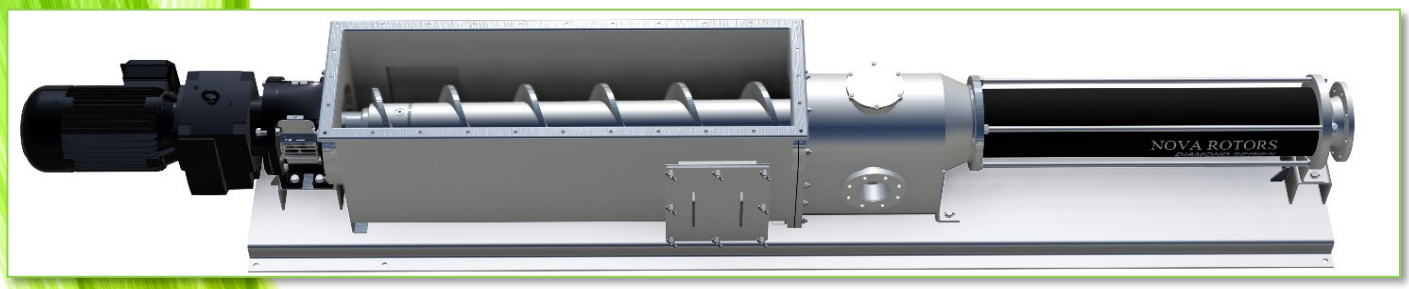
Pump with hopper design, used for pumping silage and for direct liquid injection into a silo (e.g. liquid manure or digestate).





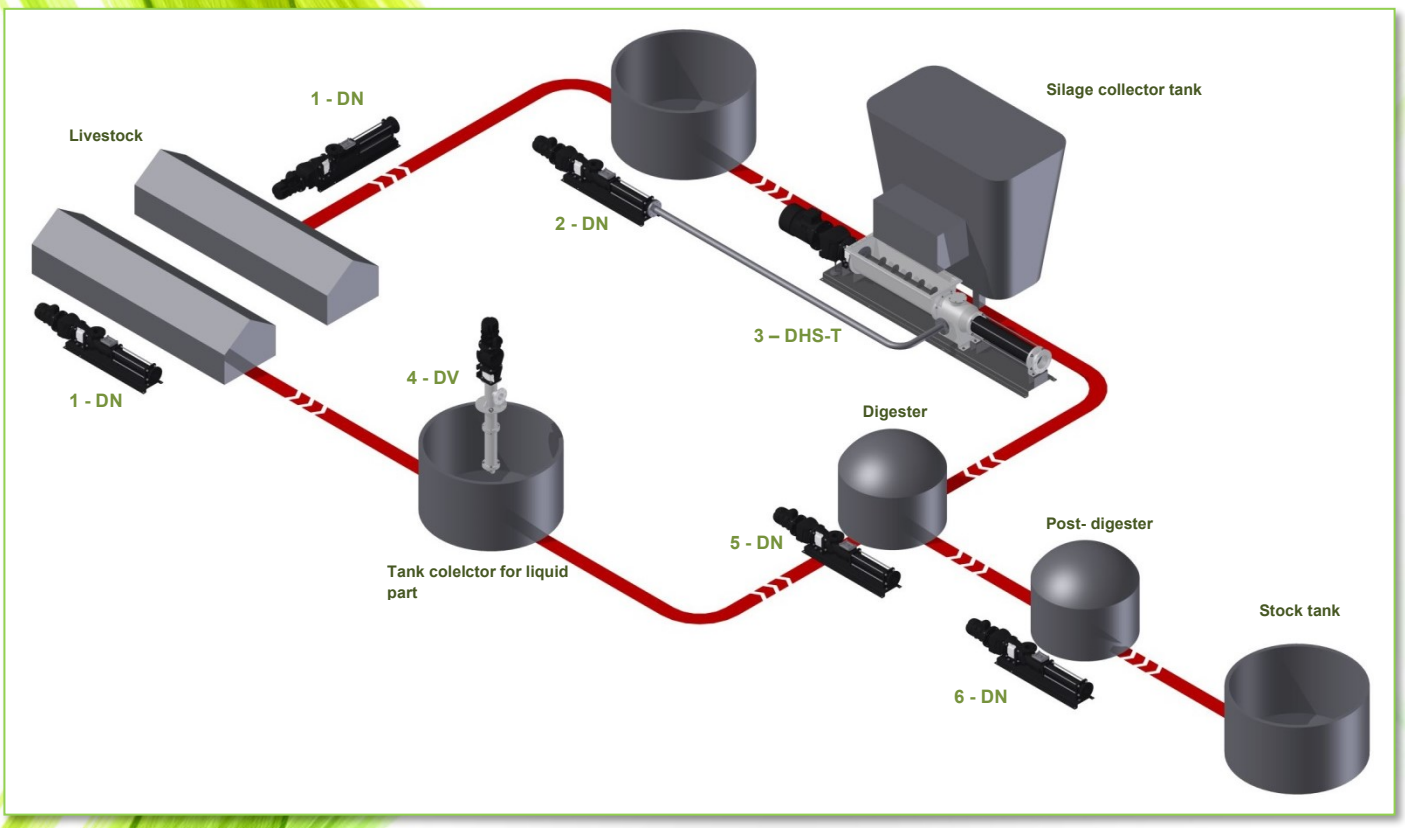
DHS-R

Hopper progressive cavity pump configured for pumping silage and liquid injection, equipped with a large rectangular collecting tank featuring multiple inspection doors for handling slurry or digestate.



FLOW CHART

Liquid sewage collector tank



Application (refer to the above diagram):

1. **DN:** pump designed specifically for heavy-duty applications, used for pumping liquid livestock manure to collection tanks
2. **DN:** pump used for injecting liquid manure from the collection tank to the DHS-T pump
3. **DHS-T:** feed pump for the digester from the biomass collection tank, manure is introduced by the DN pump to make the fluid pumpable
4. **DV:** for pumping animal waste from the collection tank to the digester
5. **DN:** for pumping partially fermented biomass from the main digester to the post-digester
6. **DN:** for pumping digestate from the post-digester to the final storage.

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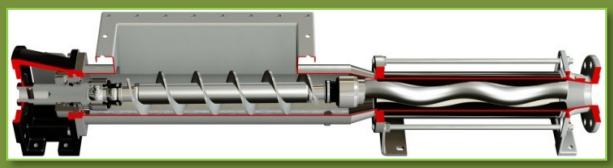
High-performance technology for the biogas industry

DN SERIES

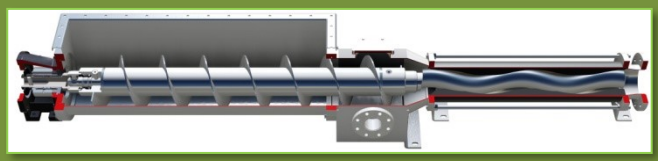
Flanged industrial series ideal for heavy duty applications. It is the best solution for the industrial sector for pumping a vast range of fluids; available with UNI, DIN and ANSI flanged and GAS BSP threaded connections.

DH SERIES



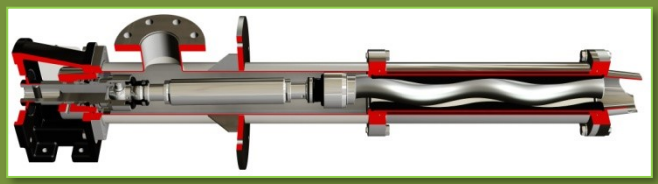
Standard model equipped with hopper and auger feed screw to move the product to the hydraulic part. Suitable for pumping materials with a low degree of flowability and prone to bridging.

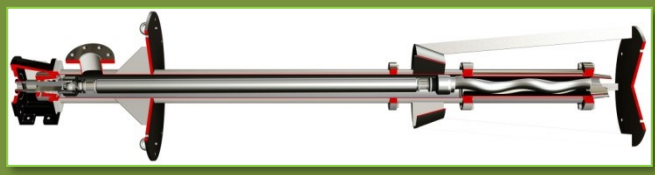
DHS-T SERIES



Model featuring a rectangular hopper, joint protection sleeves and enlarged auger feed screw to move the product to the hydraulic part designed for pumping silage in the Biogas sector. There are separate inlet features, a connection for the injection of liquids and a rectangular bottom for collecting any stones that might enter the hopper, with a large additional inspection hatch.

DV 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.

APPLICATIONS

DHS-T and DN pump

DHS-T pump for transferring biomass to the digester with phase liquid injection. The injection occurs via the DN pump that draws the liquid manure from the storage tank that is mixed with the biomass, usually consisting of solid materials with a high percentage of dry content such as corn, grass, fresh rye, vegetable waste and food waste.

DN pump

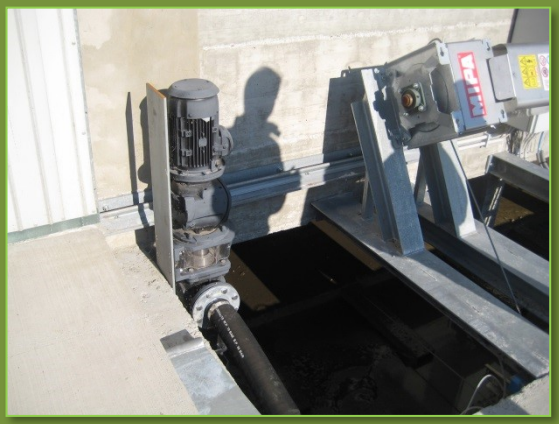
designed for pumping liquid manure in farms with slatted floors. The system is installed below ground to minimize surface footprint and optimize space usage. .

DN Pump

DN pump designed for the transfer of liquid manure combined with 5% dry matter silage, moving the mixture directly from the storage tank to the digester.

DV Pump

Vertical pump DV, installed in a tank containing liquid manure. The machine is immersed directly into the product therefore there is no need for suction pipes which reduces the footprint to the minimum.



DN Pump

DN being used to transfer digestate silage from a digester tank directly to the final stock collector tank.

FHS-R Pump

DHS-R is used to transfer digestate silage from the digester tank directly to the final storage tank.
It is equipped with a large inspection door that allows the removal of heavy foreign materials, such as stones and other dense debris, which may settle at the bottom.

CONTACT US FOR A CONSULTATION

At Nova Rotors, we are committed to delivering reliable and high-efficiency progressive cavity pump solutions for the biogas industry. Our pumps are engineered to handle the demanding conditions of anaerobic digestion, biomass processing, and liquid organic waste management.

If you're looking to optimize your biogas plant operations with durable and efficient technology, we invite you to contact our team for a personalized consultation. Our experts will take the time to understand your specific pumping challenges, material characteristics, and system goals, then work with you to design a custom PCP solution that ensures maximum reliability, energy efficiency, and long-term value.

Whether you need help selecting the right pump setup, integrating it with your existing plant infrastructure, or maintaining performance over time, our technical support team is here to provide responsive, expert assistance every step of the way.

Contact us today and discover how Nova Rotors can support your biogas operations with tailored, high-performance pumping solutions.

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