



Stators and Rotors for Progressing Cavity Pumps
Performance through Precision in Design and Production





Progressive cavity pumps have considerably expanded the range of pumping systems available today. They represent a reliable, economical, and energy-saving solution for a wide array of pumping applications.

Pumping difficult Medium

Progressive cavity pumps are used successfully for applications that exceed the technical capacities of conventional pumps, such as displacing highly viscous, abrasive, and/or corrosive substances. Artemis supplies a broad standard selection of compounds that are able to handle a large number of materials. Artemis has its own, comprehensive compound development and production facilities. This enables us to respond in a superior and flexible manner to our customers' needs.

Parameters for reliable operation

The degree of efficiency and service life of pumps are determined by the precision sealing line between the rotor and the stator. Leaks lead to losses in pressure. On the other





hand, excessive compression between the rigid rotor surface and the flexible rubber geometry of the stator leads to increased energy consumption, part of which is converted to heat and leads to premature wear. Using cutting-edge 3D systems, the engineers who create our application technology design stator and rotor geometries with flawless mutual adjustment, and also perform simulations of operational performance.

State-of-the-art tool equipment

Tool design and manufacture including core production at our own company ensure utilization of all acquired expertise, and provide rapid, streamlined solutions.

Continuous quality assurance

We place the highest priority on complying with the function-dependent, narrow dimensional tolerances for the stators we produce. This is guaranteed by our company's own laboratory, in which the compound and final products we make are subjected to precision testing. Monitoring of product dimensions during the production process itself ensures continuous quality assurance. Of course, Artemis is certified in accordance with DIN EN ISO 9001:2000 and undergoes audits on a regular basis.

Machining systems

Thanks to its extensive array of different production machines, our company can produce small, medium, and large-scale series for nearly every stator size at the most favorable component prices.





SPIRA stators

Artemis also produces stators with uniform rubber wall thicknesses, including under the TWISTER brand name for mortar pumps and the SPIRA brand name for the petroleum sector. All these stators can be used for the same applications as conventional cylindrical stators, but with better results. Thanks to their properties, they also expand the range of applications for progressive cavity pumps.

Application advantages of SPIRA stators include the following

- Greater pump degree of efficiency
- Better heat dissipation
- Longer service life
- No premature drop in volumetric displacement at higher feed pressures
- Higher overall feed pressure (30-50% higher per stator stage as compared to conventional stators)
- Or instead, shorter pumps

Artemis stators have been used successfully by leading pump manufacturers in a wide range of applications for many years:

Wood product processing / Cellulose production

At paper plants, papermaking stock, wood pulp, glue, and dyes all have to be transported. These materials can have crumbly consistencies, medium to high viscosity, and/or aggressive chemical properties. Artemis stators play a major role in the durability of pumps used for these applications.

Food industry

Progressive cavity pumps are replacing the old manual processes used in harvesting grapes, other fruit, and olives. Mash and must are pumped with care from vat to vat.





Equipment used in the food industry has to comply with the strict legislation that regulates this sector. In the sweets industry, for example, many very pasty substances are pumped, such as chocolate, marzipan, and dough. The dairy sector: Progressive cavity pumps used at dairies must feature high operational availability and reliability. If breakdowns occur, raw milk products can spoil very quickly.

Chemical industry

In this sector, the elastomer has to meet the highest durability demands. All manner of materials are transported, including filter cake which has hardly any liquid properties, slurry, and many other chemical substances. Our engineers support our customers in selecting the right compounds to meet their many different needs. A helpful starting point here is our durability list.

Construction industry

Pumps for plaster and mortar have to handle extremely abrasive substances. Sharp-edged quartzes and synthetic particles in plasters lead to high levels of wear. Yet pumps at construction sites have to meet high demands for operational availability. Their ability to do so is determined in large measure by the reliability and service life of their stators.

Artemis provides stators of different designs, with rubber or plastic coatings, or with a slit steel tube for variable adjustment. Compounds developed specifically for the construction industry feature especially long service lives.





Petroleum

Progressive cavity pumps are used successfully for petroleum. Down-hole pumps are very economical compared to traditional pumping systems. Thanks to their simple installation and maintenance, good controllability, and high degree of efficiency under difficult conditions, they are being used for a growing number of applications worldwide. The service life and functioning of down-hole pumps depend largely on the right combination of stator and rotor. Down times due to premature failure of pump components lead to high costs. ARTEMIS has therefore developed special materials for the stators used in down-hole pumps. They are highly resistant to wear and have long operating lives, even when the substances they pump contain carbon dioxide and hydrogen sulfides.

Artemis rotor production

We produce single, dual, and multiple-lobe rotors for all pumping needs – adjusted for a wide range of different substances. For example, we can easily produce components of up to 8 meters in length.

Together with our customers, we develop new rotor geometries with special heads, using continuously updated 3D design software.

We can do all new developments, prototype generation, and adjustments for subsequent series production in-house and completely independently of external suppliers. This ensures the highest degree of security, including for our customers' innovations.





For our standard rotors we use stainless steel 1.4571 or AISI 316 Ti as well as tool steel 1.2436 vacuum-hardened to 61 HRC. Of course we also work with other materials if required.

Rotors are often used at high temperatures, for which we naturally adjust the rotor dimensions in accordance with the respective expansion.

In order to ensure the maximum operating life even under the toughest conditions in ever expanding areas of application, we offer comprehensive coating technologies such as hard chrome-plating and carbide coating (e.g. tungsten carbide, chromium carbide).

To ensure our demonstrated long-term quality, we use cutting-edge 3D coordinate measurement systems. Our machinery guarantees the highest level of precision in accordance with DIN EN ISO 9001:2000.

Tell us what you need and what challenges you are facing. We'll put our expertise and long-term experience at your disposal, and work together with you to find concrete solutions.





Artemis stators and rotors offer:

Flexible solutions thanks to in-house compound development.

Perfect mutual adjustment between stator and rotor thanks to cutting-edge 3D systems and subsequent operational simulation.

In-house development/production of cores and tools.

Innovative machine technology for producing all stator designs at optimum component cost.

Continuous quality assurance thanks to state-of-the-art production monitoring and testing processes.

Artemis makes Products for a wide range of applications:

- Molded rubber parts
- Rubber-metal molded parts
- Transportation Belts
- Feed belting for wood sanding machines
- Ball plugs
- Billiard cushions
- Systems for the agricultural industry/Belted chains



Artemis Kautschuk- und Kunststoff-Technik GmbH

Rothwiese 4

30559 Hannover, Germany

Tel. +49 (0) 511 95928-0

Fax +49 (0) 511 95928-55

www.artemis-kautschuk.de

info@artemis-kautschuk.de