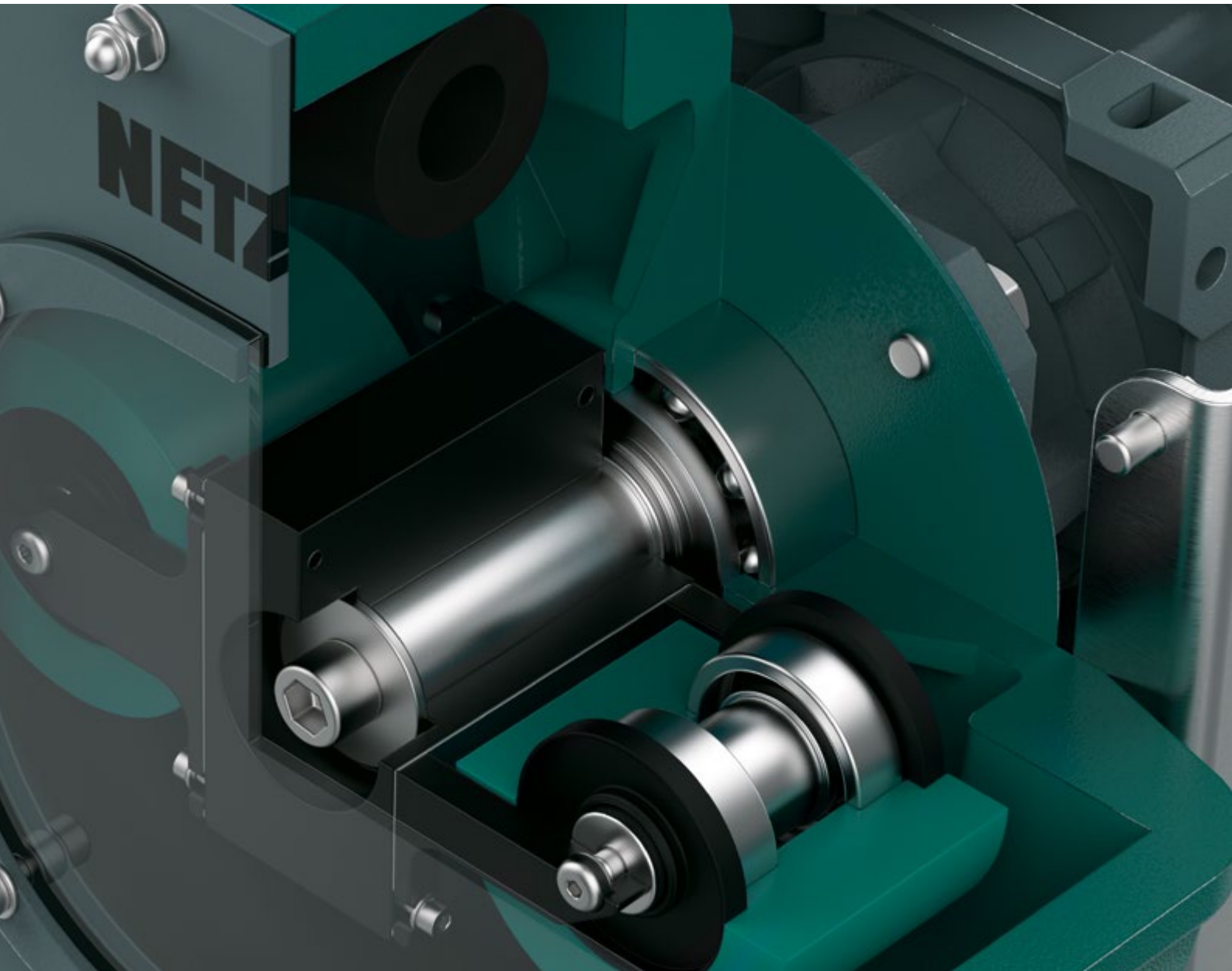


NETZSCH

Proven Excellence.



PERIPRO Peristaltic Pumps

Heavy duty construction for demanding applications

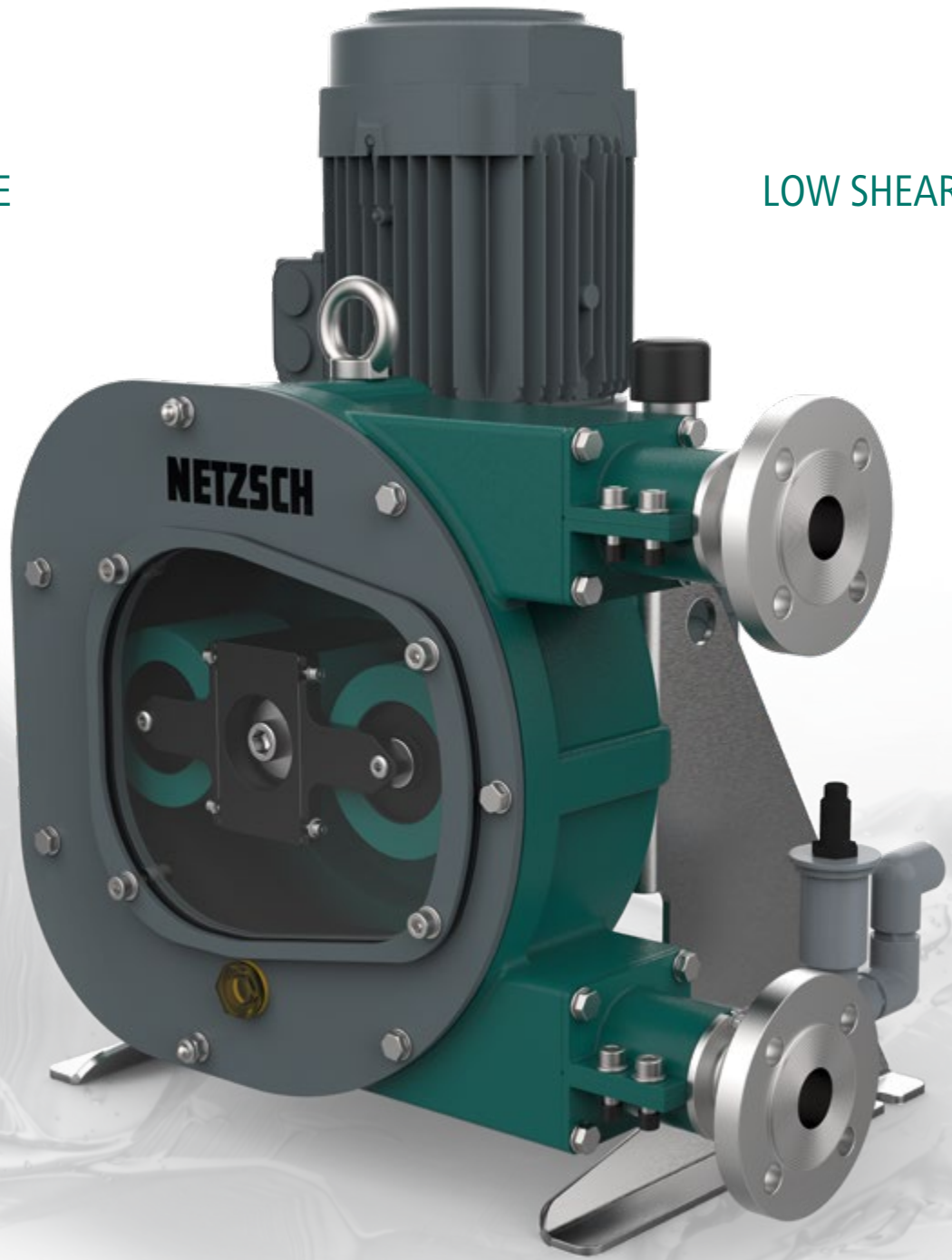
Pumps & Systems

NETZSCH PERIPRO Pumps

HEAVY DUTY PERISTALTIC PUMPS WITH LARGE ROLLERS FOR LONGER SERVICE LIFE

SMALL VOLUME
OF LUBRICANT

LOW SHEAR



ABRASIVE MEDIA

ROBUST PUMP TECHNOLOGY

NETZSCH technology for peristaltic pumps

- Excellent resistance to abrasion
- Extremely high suction capability
- Indefinite dry running
- No valves or mechanical seals
- Low shear and reversible pumping
- Full dosing control
- Industrial, corrosion resistant and food versions
- Dosing accuracy of $\pm 1\%$
- Up to 70 % solids in conveyed media

Advantages of PERIPRO pumps compared with peristaltic pumps with shoe technology

- Energy savings of up to 30 %
- 90 % less lubricant required
- Ease of hose replacement
- Wide range of operation
- Low starting torque

Ideal for difficult media

- Abrasive products: Lime milk, activated carbon, sludges and slurries, among others
- Corrosive products: Sodium hypochlorite, ferric chloride, hydrochloric acid, etc.
- Viscous products: Water-based glues, greases, creams, resins, etc.
- Delicate products: Latex, polymers and flocculants, food products, etc.

Within the PERIPRO peristaltic pumps product family, we offer hose pumps. This product is available in three different versions: industrial, chemical, and food.

HARDLY ANY WEAR-PARTS

LOWER ENERGY COSTS

UNMATCHED PUMP LIFE AND EXCELLENT PERFORMANCE

INSENSITIVE TO DRY RUNNING

The Design of PERIPRO

WHY IS THE SERVICE LIFE OF THIS PUMP UNMATCHED?

1 Latest technology of peristaltic pumps

The materials used are compatible with many media and in many applications. The performance under abrasion, corrosion and temperature requirements are excellent.

2 Saving on hose consumption and ease of installation

High quality hose with unique manufacturing process: extruded inner layer with high-density textile reinforcement and precisely machined outer layer. Thanks to controlled tolerances, the hose ensures optimal compression and fast installation.

3 Robust construction for the most demanding applications up to 10 bar

Integrated oversized bearings for radial loads, large metal rollers with oversized bearings, safe and reliable connection system and extremely robust construction materials optimises the pump for demanding applications.

4 XXL roller technology for fewer energy costs and more efficiency

Due to the size of the rollers, the hose is optimally compressed, eliminating the friction of a fixed shoe. This leads to more efficiency, low energy consumption and a better hose life. The starting torque is minimal, the operation simple.

In summary, the PERIPRO pump offers excellent energy savings, more hours of operation, longer hose life, and is easy to use.





The Small Models of the PERIPRO Pumps

Accurate dosing with the robust and compact pumps in industrial version

The smaller models of the PERIPRO are compact, heavy duty pumps in vertical design with XXL bearings. The bearings installed between the rotor and gearbox fully absorb all radial loads. Freed from fatigue, their service life is maximized.

This is because the quality of the materials used in the production of the hoses is very high, and all components that play a role in the compression of the hose are manufactured very precisely.

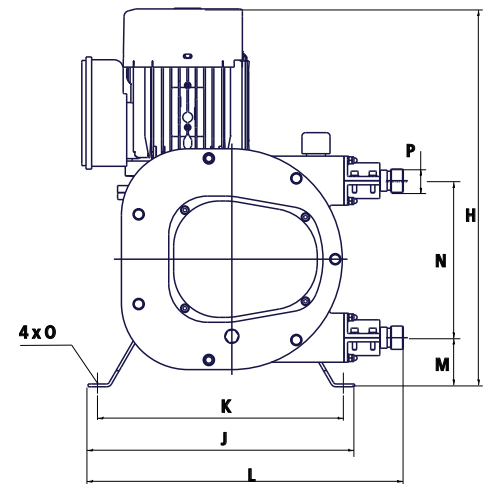
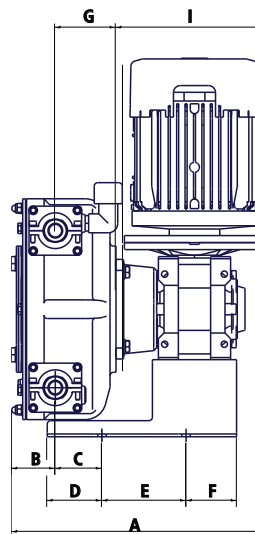
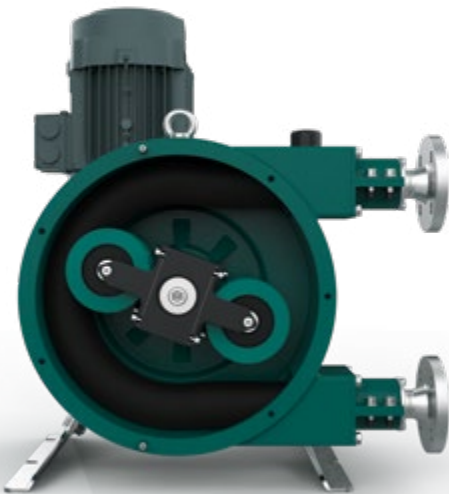
The small NETZSCH PERIPRO models 10/0.1, 10/0.3 and 10/0.7 cover a flow rate range between 5 and 1,000 l/h. These robust pumps are ideal for dosing applications for all types of abrasive, corrosive, viscous or sensitive media with delivery pressures of up to 10 bar.

The main application of PERIPRO pumps is dosing. With low flow and maximum flow control, these pumps achieve maximum process

efficiency. Installation and maintenance are easy.

Media

- Chemicals
- Additives
- Lime milk
- Activated carbon and polymers

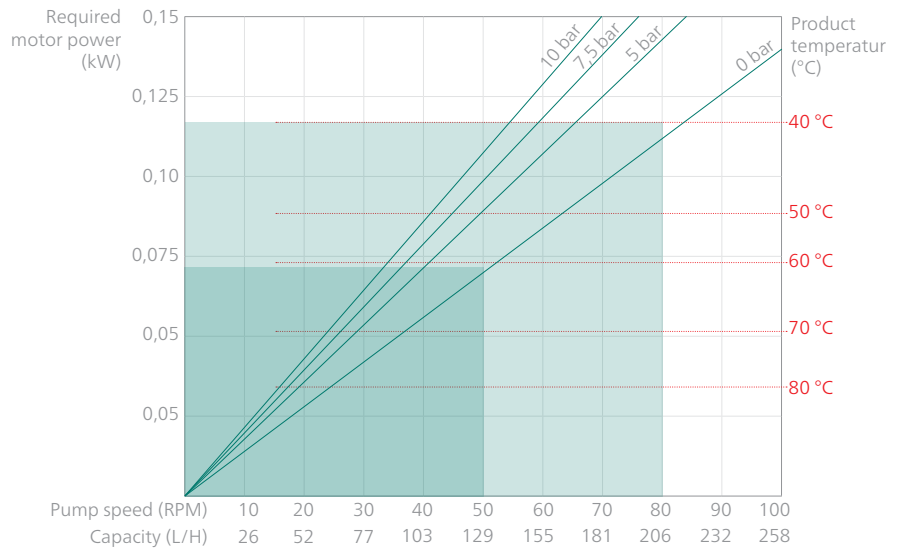


| Model | A* | B | C | D | E | F | G | H | I* | J | K | L | M | N | O | P |
|--------|-------|------|------|------|-----|------|------|-------|-----|-----|-----|-------|----|-----|----|----------|
| 10/0.1 | 240,3 | 47,5 | 50 | 54,3 | 80 | 32,8 | 55,8 | 367 | 137 | 265 | 235 | 305 | 62 | 116 | 12 | BSP 3/8* |
| 10/0.3 | 292,1 | 55,6 | 61 | 79,5 | 120 | 25,5 | 66,5 | 436,5 | 170 | 320 | 285 | 377,6 | 63 | 195 | 12 | BSP 3/4* |
| 10/0.7 | 360,6 | 62,1 | 66,5 | 78 | 120 | 72 | 86,5 | 488 | 212 | 380 | 350 | 449,5 | 70 | 224 | 12 | BSP 1* |

*Depending on the driver, dimensions could change.

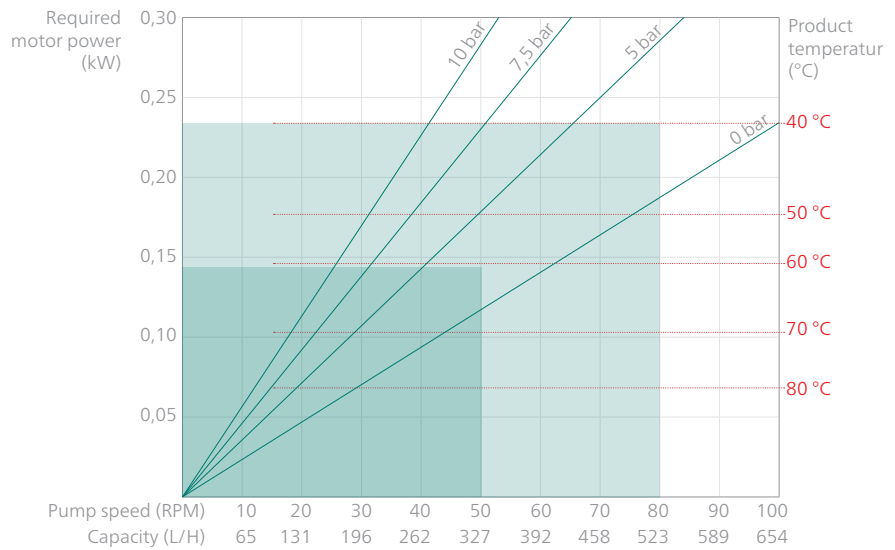
Technical specification model 10/0.1

- Max. flow (continuous): 205 l/h
- Capacity: 0,043 l/rev
- Max. discharge pressure: 10 bar
- Max. temperature: 80 °C
- Inner diameter: 13 mm
- Hose material: NR, EPDM, NBR (food) & Hypalon®
- Connections: AISI-316, PP, PVDF (PTFE)



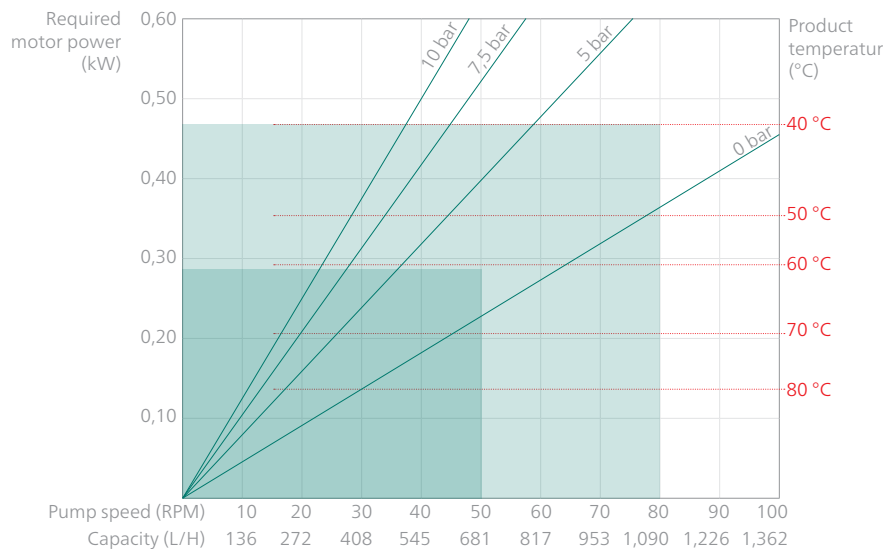
Technical specification model 10/0.3

- Max. flow (continuous): 500 l/h
- Capacity: 0,109 l/rev
- Max. discharge pressure: 10 bar
- Max. temperature: 80 °C
- Inner diameter: 16 mm
- Hose material: NR, EPDM, NBR (food) & Hypalon®
- Connections: AISI-316, PP, PVDF (PTFE)



Technical specification model 10/0.7

- Max. flow (continuous): 1,100 l/h
- Capacity: 0,227 l/rev
- Max. discharge pressure: 10 bar
- Max. temperature: 80 °C
- Inner diameter: 22 mm
- Hose material: NR, EPDM, NBR (food) & Hypalon®
- Connections: AISI-316, PP, PVDF (PTFE)



PERIPRO Pumps for Medium Flow Applications

A robust pump with a strong performance for difficult media in industrial version

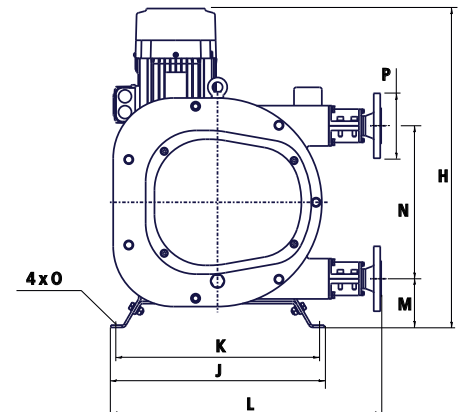
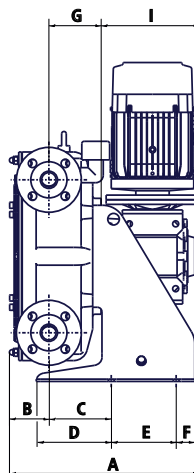
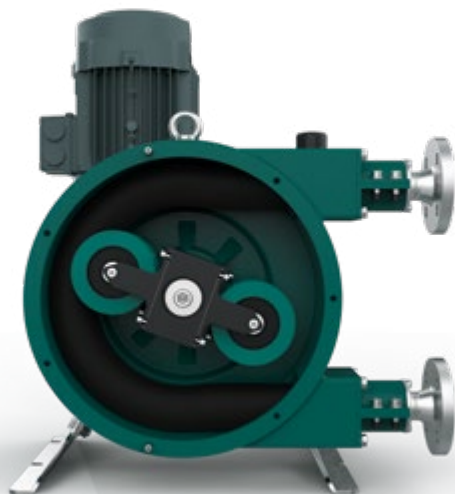
The range of medium flow rates between 250 and 3,500 l/h is perfectly covered with the NETZSCH PERIPRO pump models 10/1.4 and 10/2.7.

These product lines are highly efficient and heavy-duty machines. The hose compression system offers the highest accuracy, effectiveness and durability. The absence of valves and mechanical seals, dry running capacity, and high pumping speed make the NETZSCH PERIPRO pump ideal

for dosing or conveying highly abrasive, shear sensitive, viscous or corrosive products.

Like the smaller PERIPRO pumps, these two models have the same compact, vertical design with a hose compression system with XXL rollers. This hose compression system with maximum surface contact, together with a differentiated and technically advanced manufacturing process, maximizes service life and minimises maintenance and operating costs.

The robustness of the pumps is based on a compact and a simple mounting system as well as on very robust construction materials that are treated with the latest hardness and corrosion protection processes.

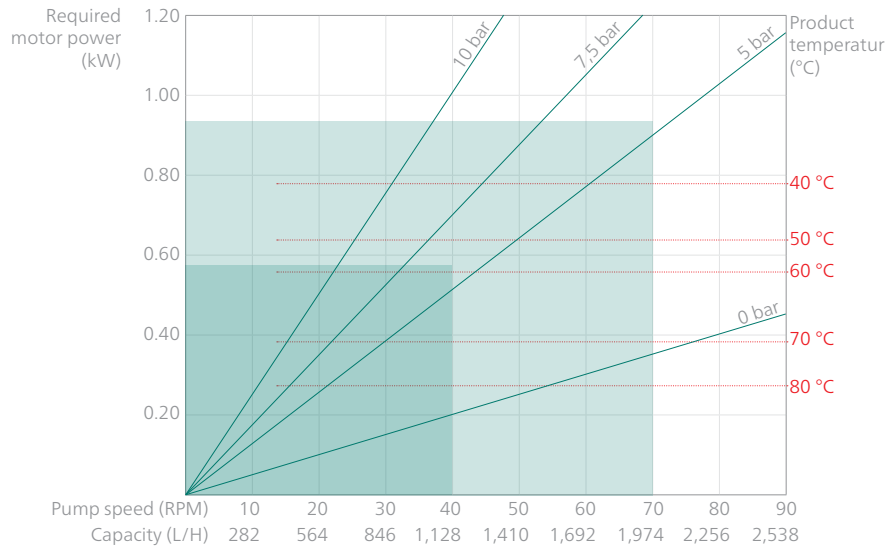


| Model | A* | B | C | D | E | F | G | H | I* | J | K | L | M | N | O | P |
|--------|-------|------|-------|-------|-----|----|-------|-----|-----|-----|-----|-----|-----|-----|----|-------|
| 10/1.4 | 382,3 | 75,6 | 100 | 132,3 | 140 | 40 | 96 | 627 | 211 | 410 | 390 | 517 | 98 | 264 | 12 | DN-25 |
| 10/2.7 | 408,6 | 85,1 | 135,5 | 161,8 | 140 | 40 | 112,5 | 677 | 211 | 460 | 440 | 583 | 105 | 330 | 12 | DN-32 |

*Depending on the driver, dimensions could change.

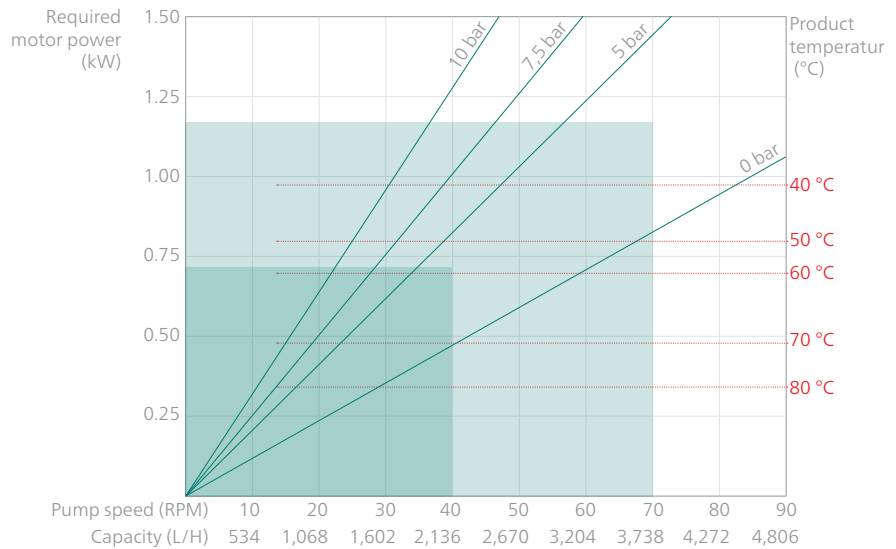
Technical specification model 10/1.4

- Max. flow (continuous): 1,900 l/h
- Capacity: 0,47 l/rev
- Max. discharge pressure: 10 bar
- Max. temperature: 80 °C
- Inner diameter: 28 mm
- Hose material: NR, EPDM and NBR (food)
- Connections: AISI-316, PP, PVDF (PTFE)



Technical specification model 10/2.7

- Max. flow (continuous): 3,600 l/h
- Capacity: 0,89 l/rev
- Max. discharge pressure: 10 bar
- Max. temperature: 80 °C
- Inner diameter: 35 mm
- Hose material: NR, EPDM and NBR (food)
- Connections: AISI-316, PP, PVDF (PTFE)



The Bigger Models for Larger Flows

The robust and efficient response to difficult media

The 10/5.1 and 10/11.1 models complete the PERIPRO peristaltic pump line in industrial version with a flow rate between 1,000 and 17,000 l/h. This can be extended by using a double-head pump up to 34,000 l/h.

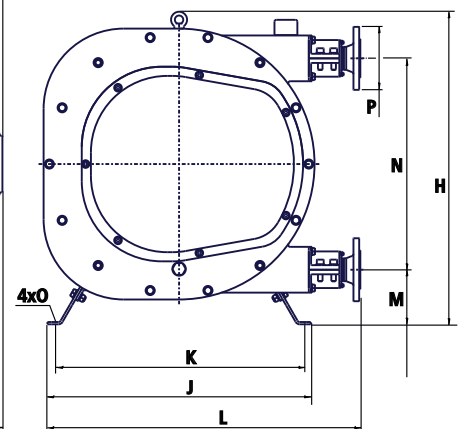
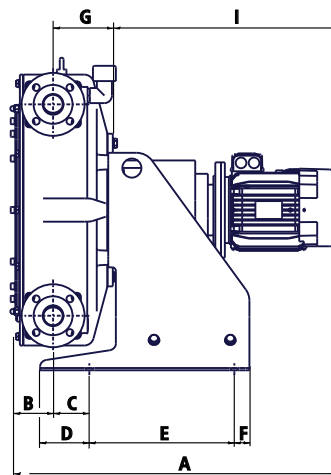
These two models are also suitable for dosing all types of products. Thanks to the excellent flow rate control, accuracy of up to $\pm 1\%$ is achieved. The flow rate remains constant; the conveying is low shear.

The absence of valves and mechanical seals, as well as the robust and horizontal monoblock design with bearing box make the PERIPRO peristaltic pump a compact and robust option for every difficult conveying task.

The installation of the bearing in the pump housing ensures perfect alignment and complete absorption of the loads on the transmission shaft. The bearing housing consists of a central hub that supports the reinforced and oversized bearings as well as the pump shaft.

This design gives the pump unbeatable robustness and strength, even under the most severe conditions with pressures up to 10 bar and in continuous operation applications.

The unlimited dry running and the suction capacity of up to 9.5 mWc complement the advantages of the PERIPRO pumps.

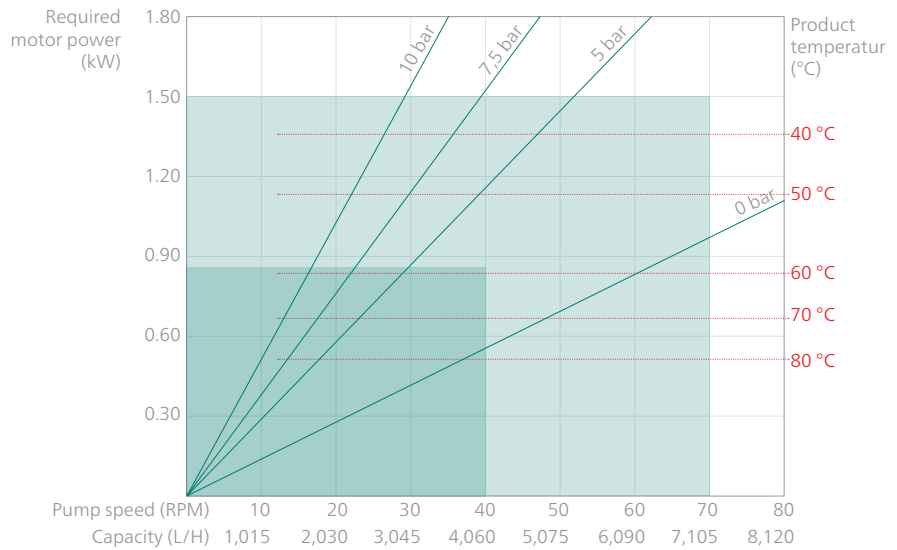


| Model | A* | B | C | D | E | F | G | H | I* | J | K | L | M | N | O | P |
|---------|-------|------|-----|-------|-----|------|-------|-----|-----|-----|-----|-----|-----|-----|----|-------|
| 10/5.1 | 800,6 | 96,6 | 102 | 148,5 | 250 | 50 | 142 | 655 | 564 | 580 | 550 | 700 | 110 | 430 | 16 | DN-40 |
| 10/11.1 | 947,1 | 107 | 95 | 129 | 380 | 39,5 | 156,5 | 820 | 684 | 690 | 660 | 820 | 143 | 554 | 16 | DN-50 |

*Depending on the driver, dimensions could change.

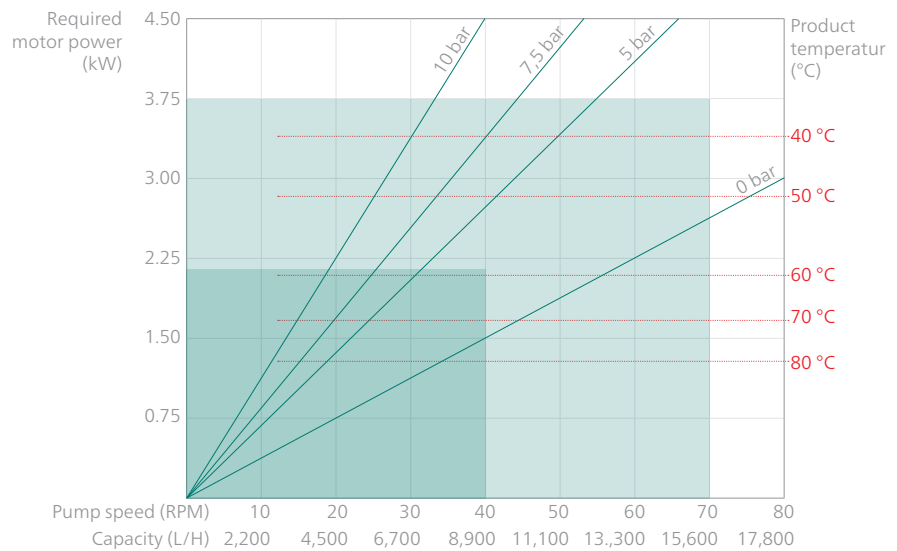
Technical specification model 10/5.1

- Max. flow (continuous): 7,000 l/h
- Capacity: 1,69 l/rev
- Max. discharge pressure: 10 bar
- Max. temperature: 80 °C
- Inner diameter: 43 mm
- Hose material: NR, EPDM and NBR (food)
- Connections: AISI-316, PP, PVDF (PTFE)



Technical specification model 10/11.1

- Max. flow (continuous): 13,000 l/h
- Capacity: 3,71 l/rev
- Max. discharge pressure: 10 bar
- Max. temperature: 80 °C
- Inner diameter: 55 mm
- Hose material: NR, EPDM and NBR (food)
- Connections: AISI-316, PP, PVDF (PTFE)



CHEMICAL VERSION

The best solution for dosing corrosive products

The chemical version of the PERIPRO pump is a fully protected unit that is resistant to the attack of highly corrosive acids and all kinds of difficult chemicals.

This version is made up of:

- The latest generation peristaltic hose in NR or EPDM
- Pump casing and front cover coating in TEFZEL®
- Plastic connections in polypropylene or PVDF
- Hose leakage sensor
- Drainage system
- Connections available in plastic or stainless steel

As result of these specifications, we achieve fully corrosion resistant, very strong and heavy duty pumps at a very competitive price. Without doubt, the best option for a corrosion resistant peristaltic pump on the market.

Typical applications for the chemical version

- Sodium hypochlorite dosing
- Ferric chloride dosing
- Hydrochloric acid dosing
- Sulphuric acid dosing



FOOD VERSION

A new concept for pumping food-grade products

The food version of the PERIPRO peristaltic pumps is optimised for hygienic applications. It is compatible with food and beverages as well as cosmetic products and complies with current specifications and regulations.

This version is made up of:

- The latest generation peristaltic hose in FDA food Nitrile
- DIN 11851 or Tri-clamp connections
- Easy and quick to remove the front cover to aid CIP cleaning processes
- Front removal roller
- Stainless steel base plate and cover

With this version, you can simplify your cleaning processes and improve efficiency. The innovative manufacturing process for peristaltic hoses offers additional temperature resistance and extends the service life. This minimises your downtime and reduces maintenance costs.

Typical applications for the food version

- Transfer of juices and sauces
- Dosing of additives, colourings, flavourings and enzymes
- Pumping of food products such as drinks, dairy and confectionery
- Yeast pumping
- Oil pumping
- Wine transfer





Application

WATER TREATMENT

For water treatment, we offer you PERIPRO in two different versions: the industrial for non corrosive media, and the chemical for corrosive media. These peristaltic pumps minimise downtimes thanks to optimised design. This advantage is very important in continuous work applications typical in this sector. Dosing of highly corrosive media such as sodium hypochlorite or ferric chloride is perfectly compatible using the chemical version of the PERIPRO pumps.

Sludges, slurries and products with a high solids content or that are very abrasive such as lime milk are not a problem for the PERIPRO pump. Its robustness is achieved with the use of very strong materials, integrated bearings, large-size rollers and a system of reliable and very secure connections that prevent the appearance of leaks during its operation.

Your benefits

- High resistance to abrasion during the transfer of sludges and slurries and in the dosing of highly abrasive products such as lime milk and activated carbon
- Suction capacity of up to 9.5 mWc and optimal flow rate control for sampling applications
- Ease of maintenance and operation for continuous work applications (24 h/7 days) due to the design and robustness of the equipment
- Low shear pumping for dosing of polymers and flocculants
- Maximum process efficiency
- Chemical version with materials that are resistant to highly concentrated acids
- Pumping of gaseous products without problems for indefinite periods

Typical applications in water treatment

- Dosing of sludges and slurries
- Dosing of activated carbon and lime milk
- Dosing of sodium hypochlorite and ferric chloride
- Dosing of polymers and flocculants
- Sampling

Application

CHEMICAL INDUSTRY

The chemical industry demands equipment with high technical performance and materials with good durability. Excessive downtime for maintenance is always a problem, and that's what the PERIPRO solves for the chemical industry.

In the chemical version, special attention is paid to the robustness and ease of maintenance of the PERIPRO. It offers a special assembly version for highly corrosive products because it includes a high quality NR or EPDM hose, a front cover and a pump casing coating made of TEFZEL®, plastic connectors and a hose leakage sensor. This makes this pump particularly resistant to difficult chemical products, abrasion and corrosion. Operating conditions in the limit range, such as high suction capacity, dry running, high viscosity or gas content are possible. For non corrosive applications in the chemical industry PERIPRO industrial version is also used.

Your benefits

- Resistance to corrosion thanks to the use of hoses and connections compatible with the great majority of process products
- No mechanical seals or valves for pumping of difficult, viscous, sticky products or that contain solids
- Ease of maintenance and operation for continuous work applications (24 h/7 days) due to the design and robustness of the equipment
- Chemical version with materials that are resistant to highly concentrated acids
- Pumping of gaseous products without problems for indefinite periods

Successful applications in the chemical industry

- Dosing of pigments and water-based paints
- Transfer of highly abrasive products such as titanium dioxide
- Dosing of resins
- Dosing of detergents, creams and water-based glues
- Dosing of all types of acid or base corrosive chemicals





Application

MINING INDUSTRY

In mining, you are always looking for improved productivity, including reducing water usage during metal extraction and separation. With its robust design, the PERIPRO pump is designed to handle media with high solids content. Downtime and repair costs are reduced with PERIPRO.

PERIPRO peristaltic pumps optimise these mining processes because their robustness and abrasion resistance allow them to pump media with high solids concentrations. The water consumption for the processes of separation and recycling is thus reduced. The PERIPRO hoses contribute to this resistance with strong textile reinforcement layers and an inner extruded layer. In this way, maintenance costs are optimised, and production downtime is reduced.

Low shear pumping and precise dosing control ensure maximum efficiency in polymer dosing. This reduces the cost of this sensitive raw material, which is often used in mining.

Your benefits

- Excellent resistance to abrasion in the pumping of products with high solid content
- Ease of maintenance and operation for continuous work applications (24 h/7 days) due to the design and robustness of the equipment
- Low shear pumping for dosing of polymers and flocculants
- Maximum process efficiency
- Pump with no valves or mechanical seals
- Indefinite dry running
- Reversible pump

Typical applications in the mining industry

- Transfer of mineral slurries
- Dosing of cyanide and xanthate
- Transfer or dosing of polymers
- Dosing of reagents

Application

FOOD, BEVERAGE AND COSMETICS

The food, beverage and cosmetics industries demand hygienic design. The materials touched by the media must not contaminate them. Current specifications and regulations must be strictly adhered to. Therefore NETZSCH developed PERIPRO food version.

PERIPRO food version is a peristaltic pump for sensitive media suitable for pumping food and cosmetics. Their design is based on the use of special peristaltic hoses made of food grade nitrile (FDA). Hygienic connections according to DIN 11851 or Tri-Clamp and a design that facilitates CIP cleaning through simple disassembly round off this construction. The inner extruded layer of the peristaltic hose increases the life of this component, thus reducing the consumption of spares and maintenance operations. At the same time, it improves the performance of the cleaning process with temperatures of up to 80 °C.

Your benefits

- Ease of maintenance and operation
- Food version of the pump with the hose in FDA food Nitrile, hygienic connections, easy and quick removal of front cover and front removal roller
- Food internal lubricant
- Low shear fluid pumping
- Maximum process efficiency
- Self-priming pump
- Full control of dosing: $\pm 1\%$ accuracy

Typical applications in the food & beverage and cosmetic industry

- Pumping of diatomaceous earth
- Transfer of viscous juices and sauces or with solid pieces in the mixture
- Various additives, colourings and flavourings for food
- Feeding to filling machines





Application

CERAMICS AND CONSTRUCTION INDUSTRY

Both in the ceramics and construction industries, all types of highly abrasive fluids are pumped all day long. This is why pump wear and high spares consumption are the order of the day. With the use of PERIPRO hose pumps in the industrial version, you choose a robust unit that has been designed with extremely resistant materials.

In the case of liquid wetted components, the quality of the hose as well as high quality stainless steel fittings are important because of the abrasion resistance. With PERIPRO industrial version you improve your spare parts consumption and reduce downtime and maintenance times. This optimises your overall plant efficiency. Production costs are reduced, and product waste is also minimised.

Your benefits

- High resistance to abrasion when transferring highly abrasive products
- Low spares consumption and optimisation of the downtime processes
- Dosing of very abrasive products such as barium carbonate and potassium permanganate
- Suction capacity of up to 9.5 mWc
- Ease of maintenance and operation of continuous work applications (24 h/7 days) due to the design and robustness of the equipment

Typical applications in the ceramics and construction industry

- Dosing of very abrasive products such as barium carbonate and potassium permanganate
- Transfer of ceramic slurries
- Dosing of additives and colourings for the cement
- Transfer of low density cement

Application

PAPER INDUSTRY

In these cases, PERIPRO peristaltic pumps are an excellent solution. The PERIPRO hose lines are abrasion resistant; the components are durable and easy to replace. Media such as calcium hydroxide, which are often used for water treatment, are easy to pump because of the robustness of the machine.

Dry running and high solids capacity are two of the most notable advantages of the PERIPRO pumps, when compared with traditional technologies such as diaphragm or AOD pumps that clog up easily when pumping products with solids. Therefore, their capacity for pumping high density pulps is excellent. The low downtimes and the ease of installation and maintenance are other notable advantages of the PERIPRO peristaltic pumps.

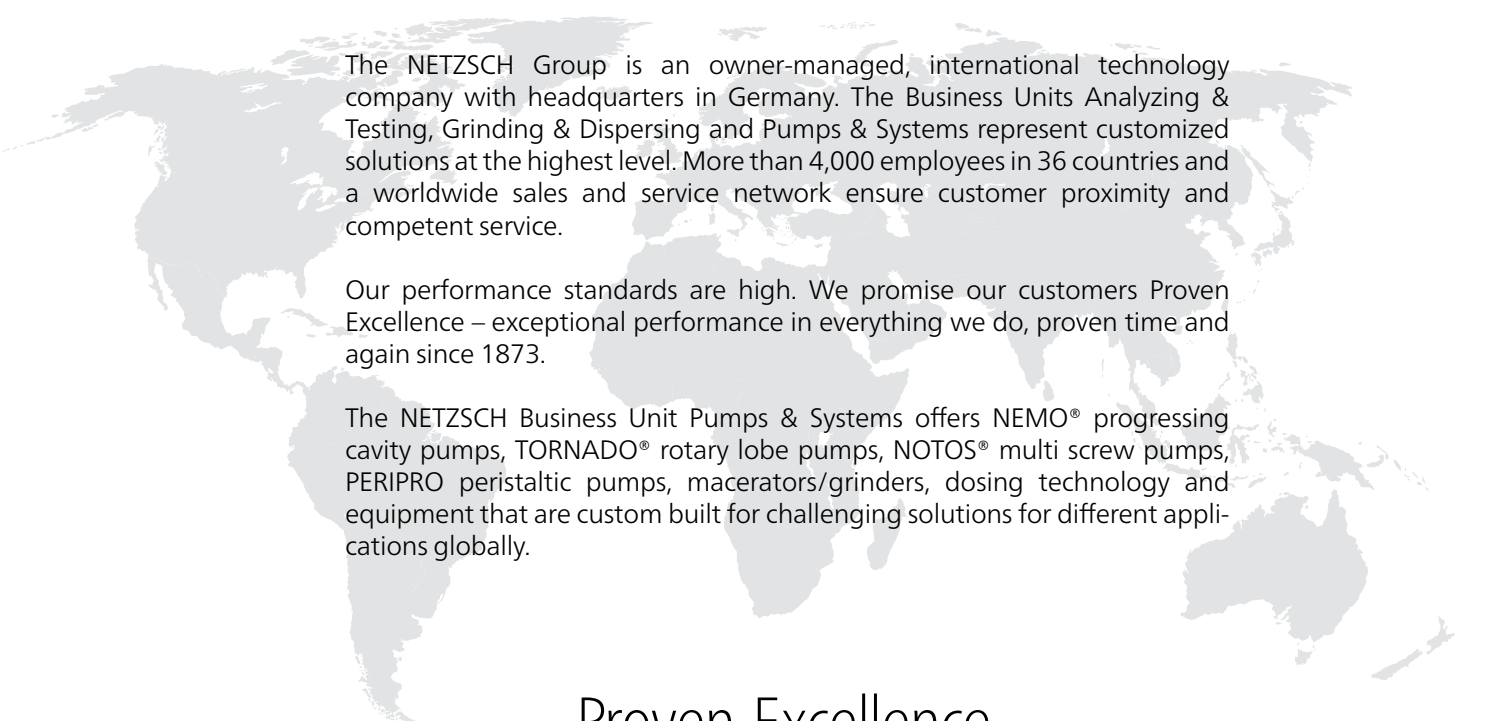
Your benefits

- Accurate and controlled dosing of chemical products
- High resistance to abrasion when transferring highly abrasive products
- Lack of problematic components such as mechanical seals and valves
- Low spares consumption and optimisation of the downtime processes
- Dry running capability and the suction power of up to 9.5 mWc

Typical applications in the paper industry

- Dosing of chemicals and paint
- Transfer of paper pulp
- Dosing of lime milk
- Dosing of additives and colourings
- Dosing and transfer of glues





The NETZSCH Group is an owner-managed, international technology company with headquarters in Germany. The Business Units Analyzing & Testing, Grinding & Dispersing and Pumps & Systems represent customized solutions at the highest level. More than 4,000 employees in 36 countries and a worldwide sales and service network ensure customer proximity and competent service.

Our performance standards are high. We promise our customers Proven Excellence – exceptional performance in everything we do, proven time and again since 1873.

The NETZSCH Business Unit Pumps & Systems offers NEMO® progressing cavity pumps, TORNADO® rotary lobe pumps, NOTOS® multi screw pumps, PERIPRO peristaltic pumps, macerators/grinders, dosing technology and equipment that are custom built for challenging solutions for different applications globally.

Proven Excellence.■

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