

NETZSCH

Proven Excellence.



PERIPRO™ Peristaltic Pumps

Heavy duty construction for demanding applications

Pumps & Systems

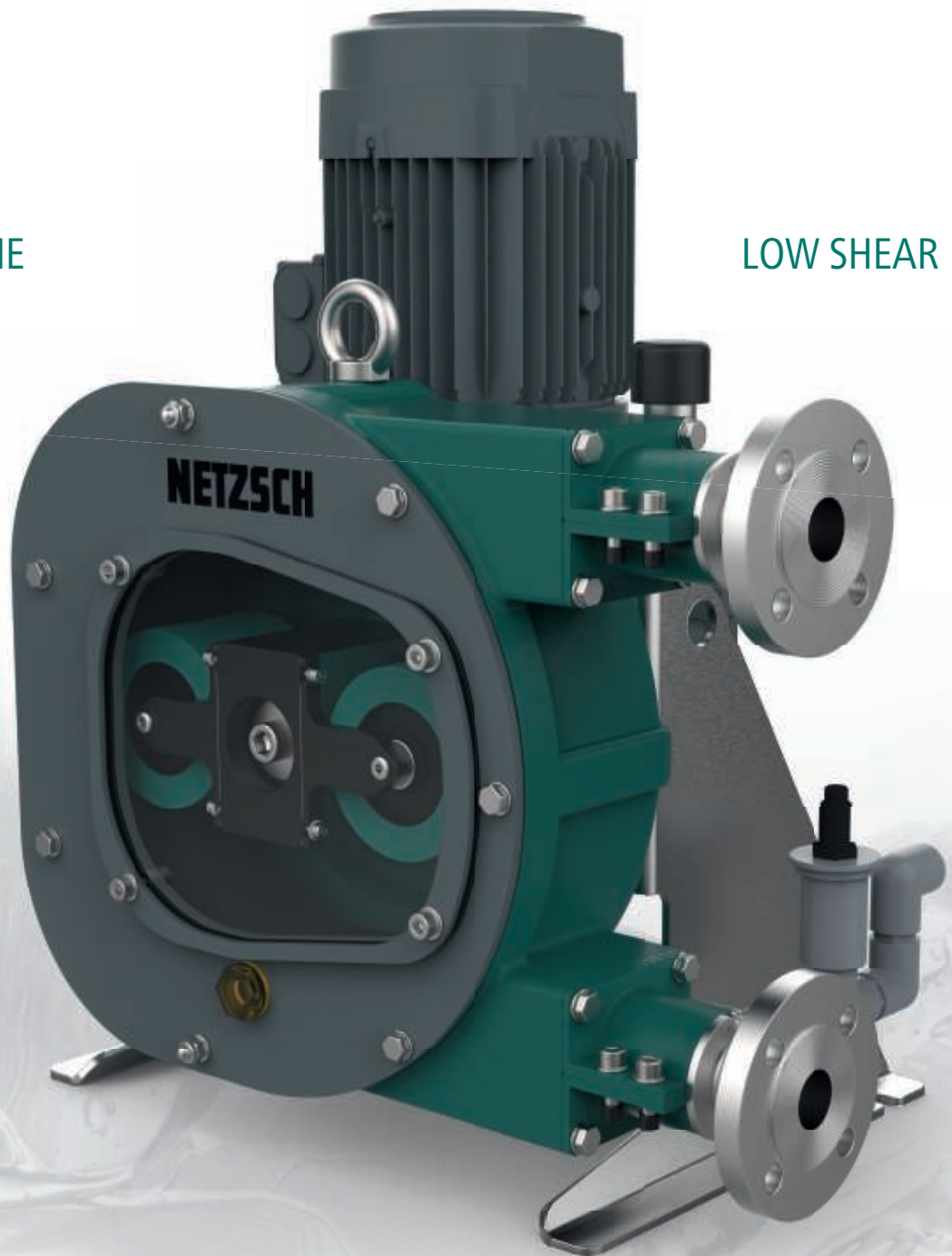
NETZSCH PERIPRO™ Peristaltic Pump

HEAVY DUTY HOSE PUMPS WITH LARGE ROLLERS FOR LONGER SERVICE LIFE

SMALL VOLUME
OF LUBRICANT

LOW SHEAR

IDEAL FOR
ABRASIVE
FLUIDS



ROBUST PUMP TECHNOLOGY

NETZSCH technology for peristaltic pumps

- Excellent resistance to abrasion
- High suction capability
- Insensitive to dry running
- No valves or mechanical seals
- Low shear and reversible pumping
- Full metering control
- Industrial, Chemical and Food versions
- Metering accuracy of $\pm 1\%$
- Up to 70 % solids in conveyed product

Advantages of PERIPRO™ pumps

- No need for mechanical seals
- Product only contacts elastomer
- High volumetric efficiency
- Heavy duty large rollers
- Ease of hose replacement

The unlimited dry running and the suction capacity of up to 13.5 psi (9.5 mWc) complement the advantages of the PERIPRO™ pumps.

Ideal for complex fluids

- 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.

The PERIPRO™ peristaltic pumps are available in three different versions: Industrial, Chemical, and Food.

Advantages of PERIPRO™ pumps compared with shoe technology

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

VERY FEW 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 products and in many applications. Several options for materials of construction increase the range of application. 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. Due to controlled tolerances, the hose ensures optimal compression and fast installation.

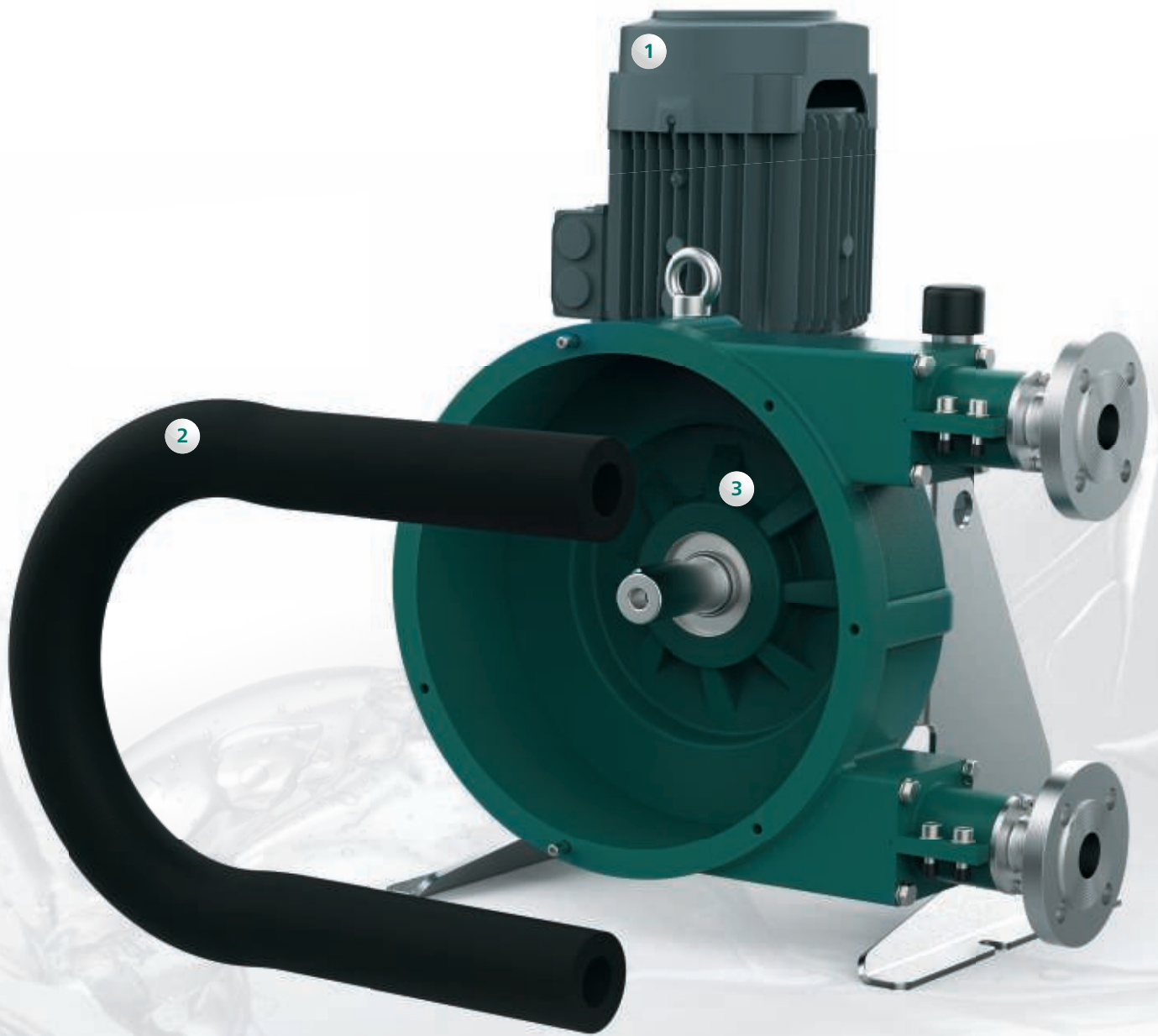
3 Robust construction to support up to 145 psi / 10 bar

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

4 XXL roller technology reduces energy consumption and so increases efficiency

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





The Small Size PERIPRO™ Pumps

Accurate metering from 0.02 to 4.4 gpm (5 to 1,000 l/h)

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 the radial loads. Freed from fatigue, the hose's service life is maximized.

The unique design and the use of high quality materials during the manufacturing process, allow the compression of the hose to be very precise.

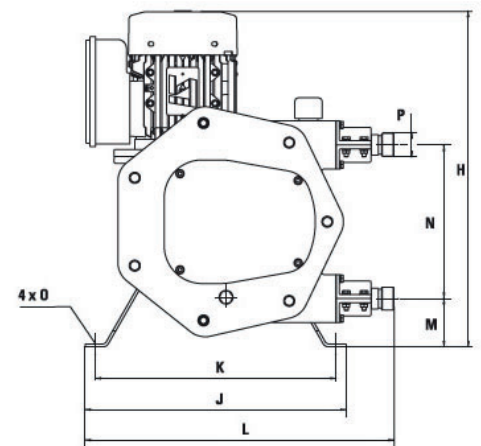
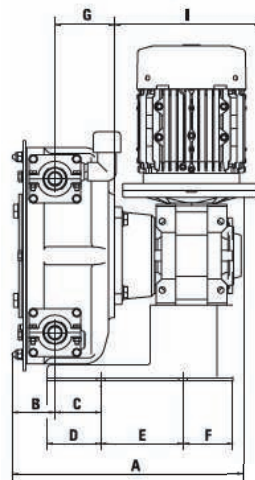
The small NETZSCH PERIPRO™ models 10/0.1, 10/0.3 and 10/0.7 cover a flow rate range between 0.02 and 4.4 gpm (5 and 1,000 l/h). These robust pumps are ideal for metering applications for abrasive, corrosive, viscous or sensitive products with discharge pressures of up to 145 psi (10 bar).

The main application of the small PERIPRO™ pump models is metering. With low flow and maximum

flow control by using a variable speed driver, these pumps achieve higher efficiencies for the process with a simple maintenance design. These pumps achieve maximum process efficiency. Installation and maintenance are easy.

Product

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

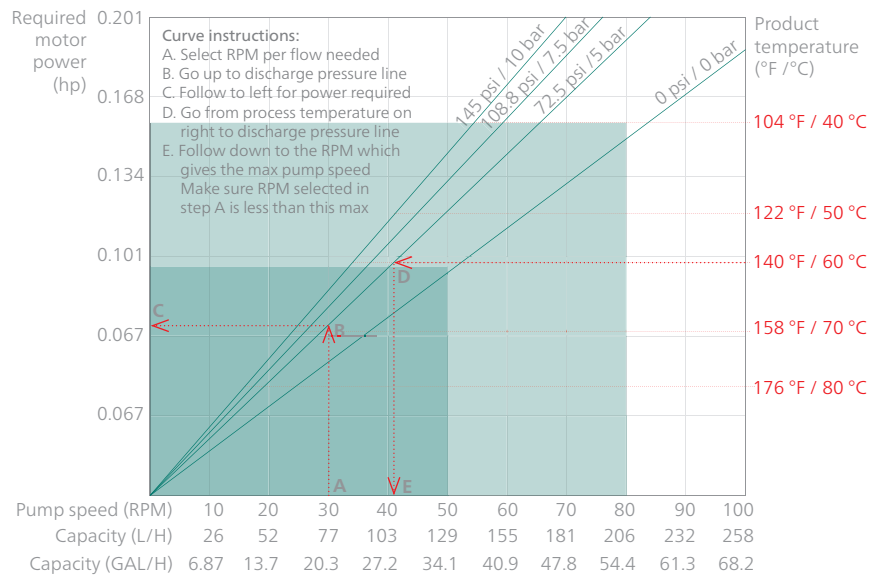


Model		A*	B	C	D	E	F	G	H	I*	J	K	L	M	N	O	P*
10/0.1	in	9.46	1.87	1.97	2.14	3.15	1.29	2.19	14.44	5.39	10.43	9.25	12.01	2.44	4.57	0.47	3/8" (NPT)
	mm	240.3	47.5	50	54.3	80	32.8	55.8	367	137	265	235	305	62	116	12	
10/0.3	in	11.5	2.19	2.40	3.13	4.72	1.00	2.62	17.18	6.69	12.6	11.22	14.86	2.48	7.68	0.47	3/4" (NPT)
	mm	292.1	55.6	61	79.5	120	25.5	66.5	436.5	170	320	285	377.6	63	195	12	
10/0.7	in	14.20	2.44	2.62	3.07	4.72	2.83	3.40	19.21	8.35	14.96	13.78	17.70	2.76	8.82	0.47	1" (NPT)
	mm	360.6	62.1	66.5	78	120	72	86.5	488	212	380	350	449.5	70	224	12	

*Depending on the driver, dimensions could change.

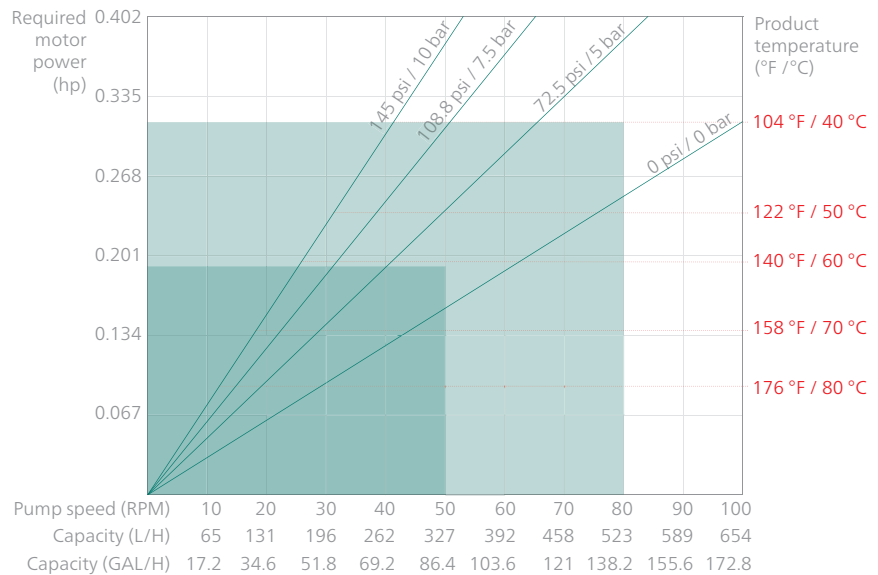
Technical specification model 10/0.1

- Max. flow (continuous): 54 gal/h (200 l/h)
- Capacity: 0.011 gal/rev (0.043 l/rev)
- Max. discharge pressure: 145 psi (10 bar)
- Max. temperature: 176 °F (80 °C)
- Inner diameter: 13 mm
- Hose material: NR, EPDM, NBR (FDA approved) & Hypalon®
- Connections: AISI 316 Stainless Steel, PP, PVDF (PTFE)



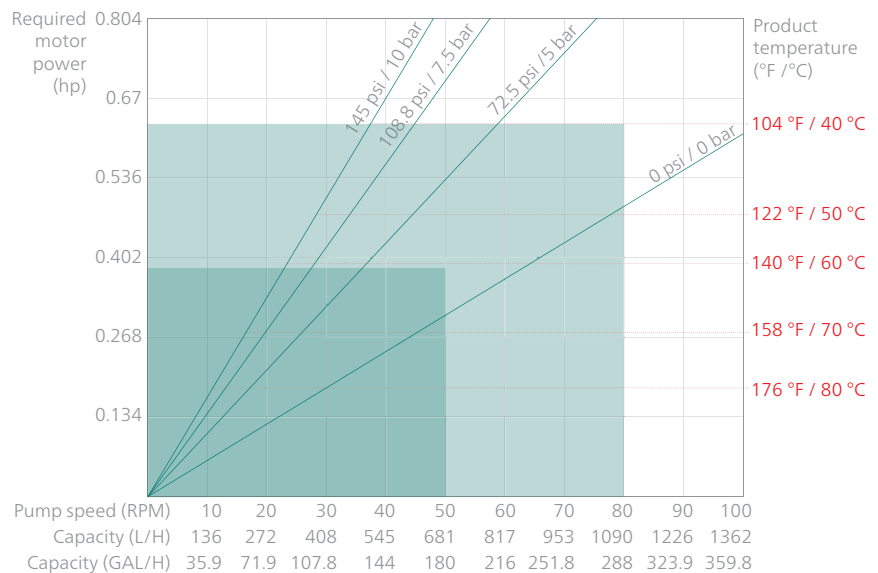
Technical specification model 10/0.3

- Max. flow (continuous): 137 gal/h (520 l/h)
- Capacity: 0.029 gal/rev (0.109 l/rev)
- Max. discharge pressure: 145 psi (10 bar)
- Max. temperature: 176 °F (80 °C)
- Inner diameter: 16 mm
- Hose material: NR, EPDM, NBR (FDA approved) & Hypalon®
- Connections: AISI 316 Stainless Steel, PP, PVDF (PTFE)



Technical specification model 10/0.7

- Max. flow (continuous): 290 gal/h (1,100 l/h)
- Capacity: 0.059 gal/rev (0.227 l/rev)
- Max. discharge pressure: 145 psi (10 bar)
- Max. temperature: 176 °F (80 °C)
- Inner diameter: 22 mm
- Hose material: NR, EPDM, NBR (FDA approved) & Hypalon®
- Connections: AISI 316 Stainless Steel, PP, PVDF (PTFE)



- Continuous operation
- Intermittent operation

PERIPRO™ Pumps for Medium Flow Applications

A robust pump for flows up to 15 gpm (3,500 l/h)

The range of product flow rates between 1.1 and 15 gpm (250 and 3,500 l/h) is covered with the NETZSCH PERIPRO™ pump line in models 10/1.4 and 10/2.7.

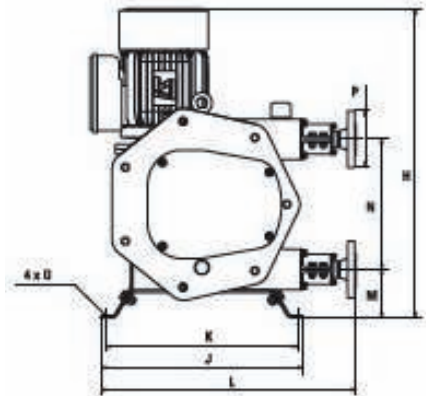
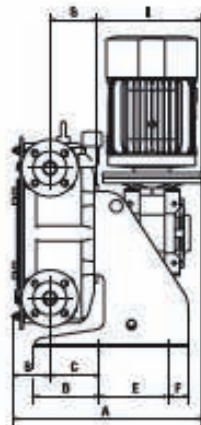
The NETZSCH PERIPRO™ does not require valves nor mechanical seals.

Like the smaller PERIPRO™ pumps, these two models have a 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 minimizes maintenance and operating costs.

The robustness of the pumps is based on a compact and a simple mounting system as well as on

the unique design and precision of the component's construction materials that are protected against corrosion and hardened to support extra loads.



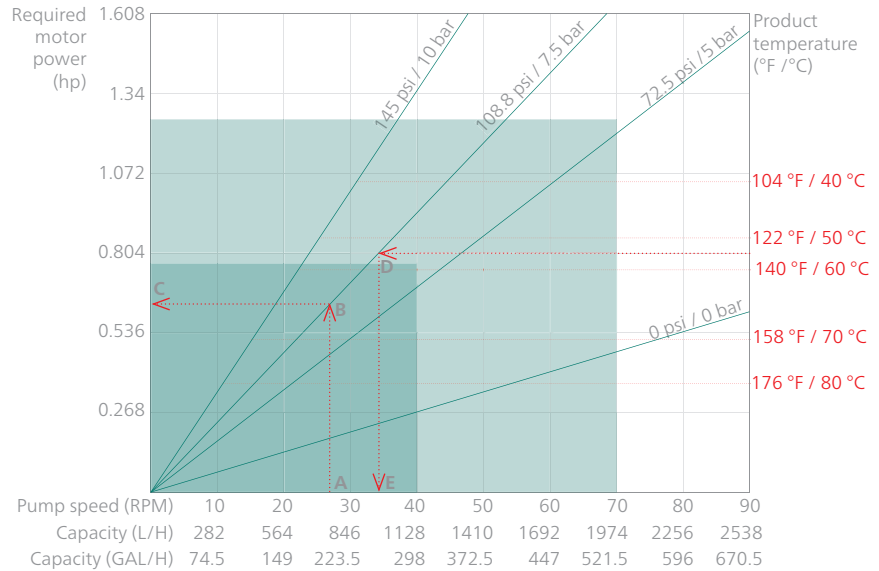
Model		A*	B	C	D	E	F	G	H	I*	J	K	L	M	N	O	P*
10/1.4	in	15.05	2.98	3.94	5.21	5.51	1.57	3.78	24.68	8.31	16.14	15.35	20.35	3.86	10.39	0.47	1" (ANSI)
	mm	382.3	75.6	100	132.3	140	40	96	627	211	410	390	517	98	264	12	
10/2.7	in	16.08	3.35	5.33	6.37	5.51	1.57	4.43	26.65	8.31	18.11	17.32	22.95	4.13	12.99	0.47	1-1/4" (ANSI)
	mm	408.6	85.1	135.5	161.8	140	40	112.5	677	211	460	440	583	105	330	12	

*Depending on the driver, dimensions could change.

Curve instructions:
 A. Select RPM per flow needed
 B. Go up to discharge pressure line
 C. Follow to left for power required
 D. Go from process temperature on right to discharge pressure line
 E. Follow down to the RPM which gives the max pump speed
 Make sure RPM selected in step A is less than this max

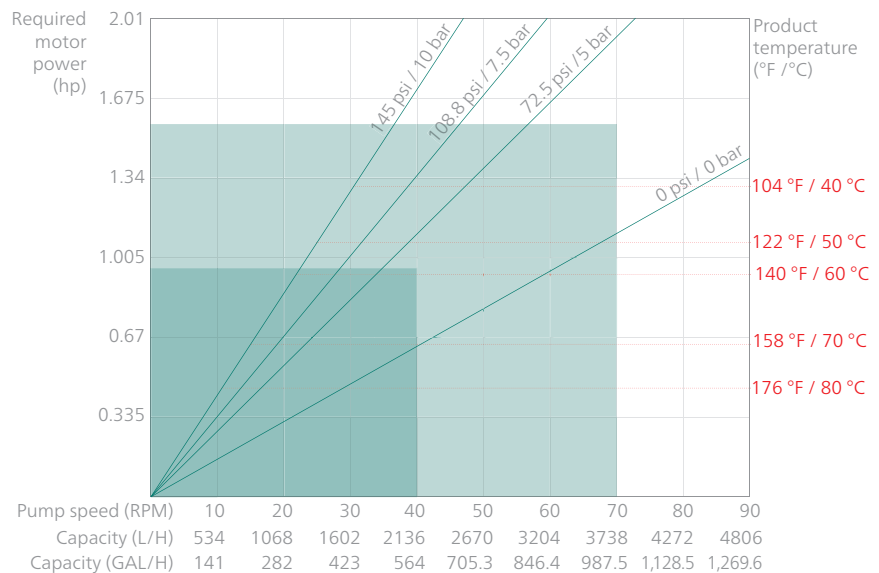
Technical specification model 10/1.4

- Max. flow (continuous): 500 gal/h (1,900 l/h)
- Capacity: 0.124 gal/rev (0.47 l/rev)
- Max. discharge pressure: 145 psi (10 bar)
- Max. temperature: 176 °F (80 °C)
- Inner diameter: 28 mm
- Hose material: NR, EPDM and NBR (FDA approved)
- Connections: AISI 316 Stainless Steel, PP, PVDF (PTFE)



Technical specification model 10/2.7

- Max. flow (continuous): 1,000 gal/h (3,738 l/h)
- Capacity: 0.235 gal/rev (0.89 l/rev)
- Max. discharge pressure: 145 psi (10 bar)
- Max. temperature: 176 °F (80 °C)
- Inner diameter: 35 mm
- Hose material: NR, EPDM and NBR (FDA approved)
- Connections: AISI 316 Stainless Steel, PP, PVDF (PTFE)



- Continuous operation
- Intermittent operation

Larger Size Pumps for Greater Flow Rates

The robust and efficient for flows up to 75 gpm (17,000 l/h)

The 10/5.1 and 10/11.1 sizes complete the industrial version of the PERIPRO™ peristaltic pump line with a flow rate between 4.4 and 75 gpm (1,000 and 17,000 l/h). The NETZSCH PERIPRO™ can extend the maximum flow up to 150 gpm (34,000 l/h) using a double head pump.

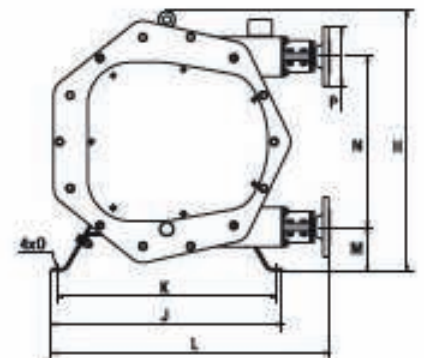
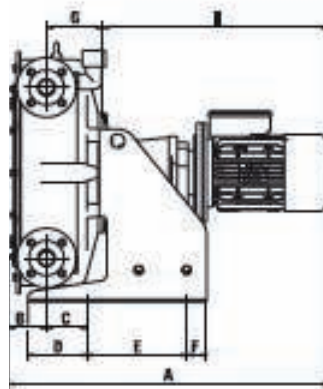
These two larger sizes are also suitable for metering all types of

products. As a result of the excellent flow rate control, accuracy of up to $\pm 1\%$ is achieved with a constant flow low shear.

The position of the bearing in the pump housing ensures perfect alignment and complete absorption of the loads applied to the shaft.

This design gives the pump robustness and strength, even under the most severe conditions and pressures up to 145 psi (10 bar) in continuous operation applications.

The unlimited dry running and the suction capacity of up to 13.5 psi (9.5 mWc) complement the advantages of PERIPRO™ pumps.



Model		A*	B	C	D	E	F	G	H	I*	J	K	L	M	N	O	P*
10/5.1	in	31.52	3.81	4.02	5.85	9.84	1.97	5.59	25.79	22.20	22.83	21.65	27.56	4.33	16.93	0.63	1" (ANSI)
	mm	800.6	96.6	102	148.5	250	50	142	655	564	580	550	700	110	430	16	
10/11.1	in	37.29	4.21	3.74	5.08	14.96	1.56	6.16	32.28	26.93	27.16	25.98	32.28	5.63	21.81	0.63	1-1/4" (ANSI)
	mm	947.1	107	95	129	380	39.5	156.5	820	684	690	660	820	143	554	16	

*Depending on the driver, dimensions could change.

CHEMICAL APPLICATIONS

Solution for metering 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 different fluid properties.

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

Typical applications for the chemical version

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



FOOD APPLICATIONS

A new concept for pumping food-grade products

The food version of the PERIPRO™ peristaltic pump is optimized 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 approved food Nitrile
- DIN 11851 or Tri-clamp connections
- Easy and quick to remove the front cover to aid CIP cleaning processes
- Front removal roller, support, base plate and covers
- Stainless steel base plate and cover

Typical applications for the food version

- Transfer of juices and sauces
- Metering of additives, colorings, flavorings 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 noncorrosive product, and the chemical for corrosive product. These peristaltic pumps minimize downtimes thanks to optimized design. This advantage is very important in continuous work applications typical in this sector. Metering of highly corrosive product 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 can be pumped with 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 metering of highly abrasive products such as lime milk and activated carbon
- Suction capacity of up to 13.5 psi (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 metering 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

- Metering of sludges and slurries
- Metering of activated carbon and lime milk
- Metering of sodium hypochlorite and ferric chloride
- Metering 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 as a result of 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

- Metering of pigments and water-based paints
- Transfer of highly abrasive products such as titanium dioxide
- Metering of resins
- Metering of detergents, creams and water-based glues
- Metering 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 product with high solids content. Downtime and repair costs are reduced with PERIPRO™ .

PERIPRO™ peristaltic pumps optimize these mining processes because their robustness and abrasion resistance allow them to pump product 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 optimized, and production downtime is reduced.

Low shear pumping and precise metering control ensure maximum efficiency in polymer metering. 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 metering 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
- Metering of cyanide and xanthate
- Transfer or metering of polymers
- Metering of reagents

Application

FOOD, BEVERAGE AND COSMETICS

The food, beverage and cosmetics industries demand hygienic design. The materials in contact with by the product must not contaminate the product. Current specifications and regulations must be strictly adhered to. Therefore NETZSCH developed PERIPRO™ food version.

PERIPRO™ food version is a peristaltic pump for sensitive product suitable for pumping food and cosmetics. Their design is based on the use of special peristaltic hoses made of food grade nitrile (FDA approved). 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 176°F (80 °C).

Your benefits

- Ease of maintenance and operation
- Food version of the pump with the hose in FDA approved food Nitrile, hygienic connections, easy and quick removal of front cover and front removal roller
- Food grade internal lubricant
- Low shear fluid pumping
- Maximum process efficiency
- Self-priming pump
- Full control of metering: $\pm 1\%$ 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, colorings and flavorings for food
- Feeding to filling machines





Application

CERAMICS AND CONSTRUCTION INDUSTRY

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

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

Your benefits

- High resistance to abrasion when transferring highly abrasive products
- Low spares consumption and optimization of the downtime processes
- Metering of very abrasive products such as barium carbonate and potassium permanganate
- Suction capacity of up to 13.5 psi (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

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

Application

PAPER INDUSTRY

The PERIPRO™ hose lines are abrasion resistant; the components are durable and easy to replace. Product 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™ pump, when compared with other technologies that clog up easily when pumping products with solids. Therefore, their capacity for pumping high density pulps is excellent.

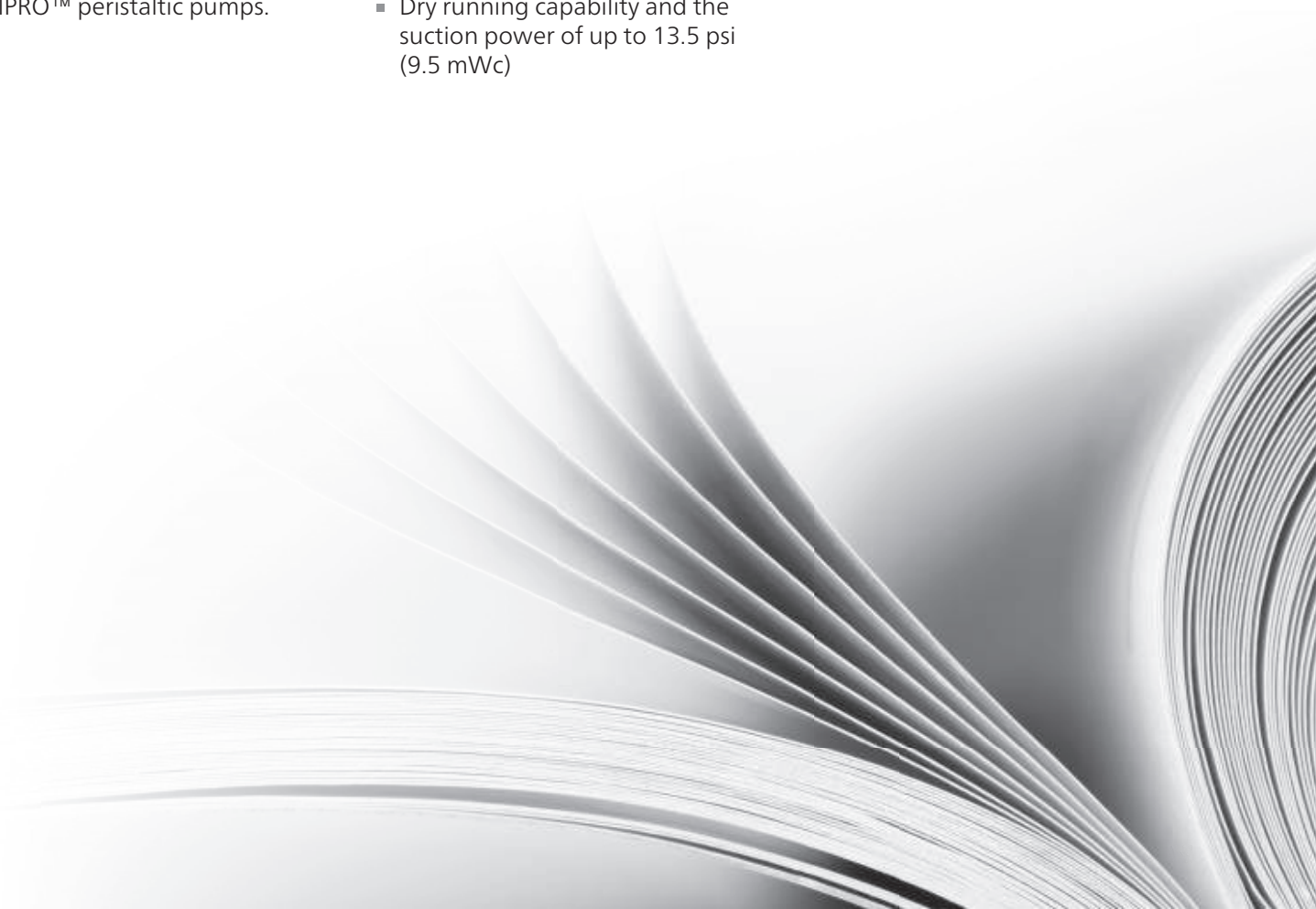
The low downtimes and the ease of installation and maintenance are other notable advantages of PERIPRO™ peristaltic pumps.


Your benefits

- Accurate and controlled metering 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 optimization of the downtime processes
- Dry running capability and the suction power of up to 13.5 psi (9.5 mWc)

Typical applications in the paper industry

- Metering of chemicals and paint
- Transfer of paper pulp
- Metering of lime milk
- Metering of additives and colorings
- Metering 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 3,800 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, metering technology and equipment custom built for challenging solutions for different applications globally.

Proven Excellence. ■

NETZSCH Pumps North America, LLC
119 Pickering Way
EXTON, PA 19341-1393
USA
Tel.: +1 610 363 8010
Fax: +1 610 363 0971
npa@netsch.com

NETZSCH Pumps North America, LLC
Houston
1511 FM 1960 Road
Houston, TX 77073
Tel.: +1 346-445-2400
npa@netsch.com

NETZSCH Canada, Incorporated
500 Welham Road
Barrie, ON L4N 8Z7
Canada
Tel.: 705 797 8426
Fax: 705 797 8427
ntc@netsch.com

NETZSCH®

www.netsch.com