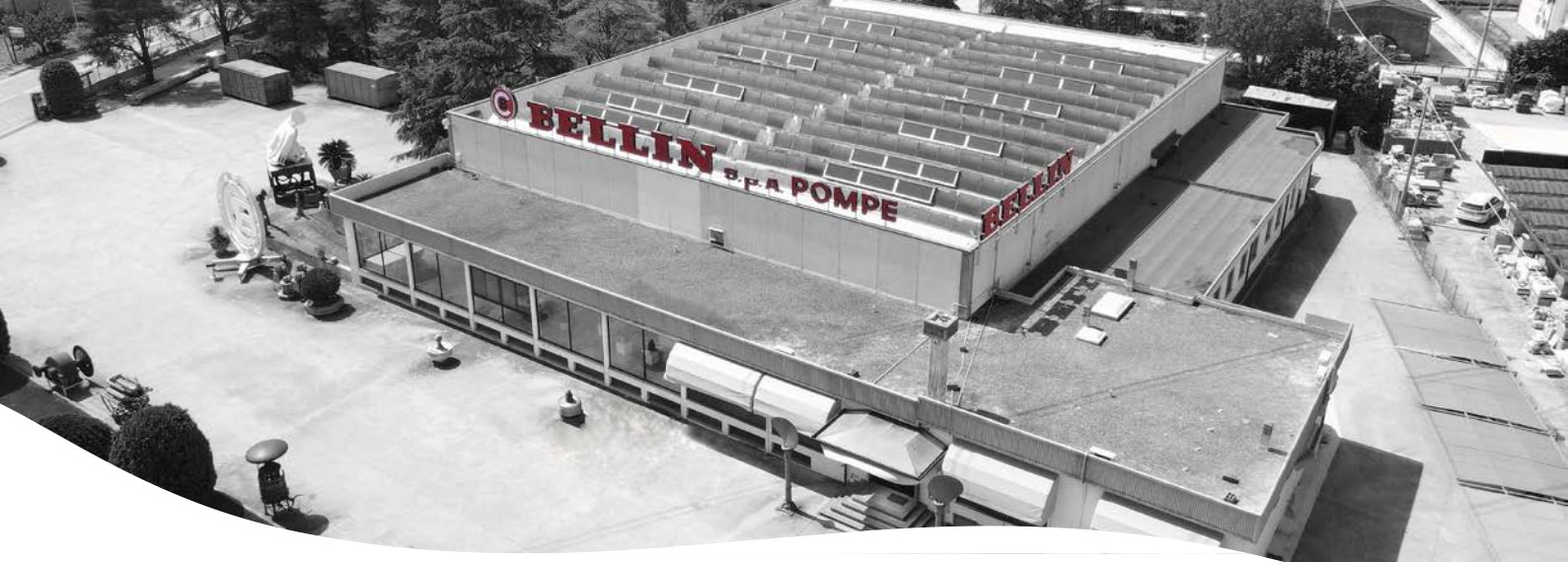
BELLIN
The Power of Experience

Progressing Cavity Pumps Rotary Lobe Pumps

"Global Solutions for Pumping Problems"



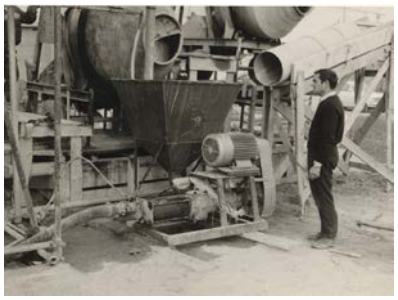
About us

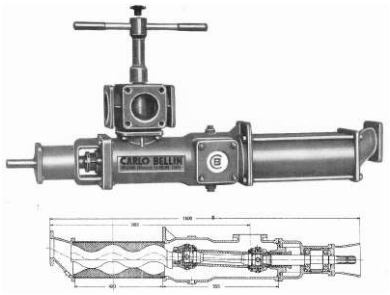
The Origins

BELLIN company was established closed to Berici Hills in Orgiano (Vicenza) in the 1950s thanks to the intuition and entrepreneurial vision of Giovanni Carlo Bellin. Initially, the company focus was the agricultural sector, with the production of tractor trailers and irrigation tankers.

Industrialization: Progressing Cavity Pumps

The real industrialization process of BELLIN took place at the end of the 1970s with the engineering and devolopment of the progressing cavity pump (first in Italy), and the subsequent establishment of BELLIN S.p.A. From an initially agricultural application field, the company then extends its presence to industry, waste water treatment, wine and agri-food industries.





New Lobe Pumps

In the 90s the company, in search of more advanced technological innovations, designed and developed the new line of SERIES PL lobe pumps.
This extension of the product range permited to offer a wide range of solutions to various pumping problems, becoming BELLIN one of the few companies in the world to have these two types of complementary pumps.

Quality and Customer Service

BELLIN grants a constant support to its customers to select the most suitable pump type for their specific requirements. The production process, starting from internal design, extends to the creation of every single component of the pump, with constant control of both “product” and “process” quality. The company make us of latest generation machine tools, such as Machining Center and CNC, in the different steps of the production process.

High investment in high volumes of wear parts, ensures their almost immediate availability. This approach allows BELLIN to quickly resolve its customers' problems, avoiding long and expensive plant downtime.

Company Mission

We consider ourselves and we are a family company, and we believe this is still one of our great strengths. Now, the presence of the 3rd generation in the company is a sign of continuity in the tradition, but with a view to the future.

Applications

Waste Water Treatment

To feed centrifugs, belts press, filter presses, to dose lime milk, flocculants, to convey primary sludge, digested sludge, dewatered sludge (up to a dry content solids of 30-35%), waste water and much more.

Biogas, Agriculture and Livestock

To convey digestate, corn silage and biomass, for the evacuation of animal waste from stables and much more.

Disposal and recovery of Waste Oils

For collection and transfer of waste oils from industries, workshops, commercial activities and various collection centers.
They can be installed on trucks tank disposal.

Paper, Chemical and Ceramic industries

Pumping of clay sludge, lime, ceramic slip, acids, resins, caustic soda, soda lye, sulphates, cellulose, glues, patinas, kaolin, various types of starches and much more.

Mining, Building and Drilling industries

To transfer flotation sludge, lime milk, silt, settled and clarified sludge, aggregates, flocculants, mortar, light concrete, plaster, marble mud, cement slurry, drilling cooling water, raw bentonite and much more.

Sugar Processing

To convey beet and sugar cane products, molasses, alcohol, ethanol, for extracting various juices and much more.

Oenology

To convey wine and must, to feed filters, to transfer crushed and/or fermented grapes, or even for the transfer of whole grapes.

Olive Oil industry

To feed of crusched olive paste to decanters, for transferring second extraction pomace, biogas pomace waste, olive oil.

Various industries

Pumping of many different products such as bilge water, sea water, meat and fish waste and entrails, silage, vegetable oils, blood and much more.

ATEX

To transfer products in ATEX potentially explosive environments according to directive 2014/34/EU II2GD Ex h IIB T4 Gb.

Progressing Cavity Pumps

operating principle and advantages

Operating principle

Progressive cavity pumps are rotary positive displacement pumps whose main components that allow their operation are the rotor and stator.

The rotor is a screw with helical geometry that rotates eccentrically inside the stator around its longitudinal axis. The stator, which is not a mobile component, is made up of a steel cylinder with an elastomer vulcanized internally through an injection process; this elastomer has a double helix internal profile with a pitch double that of the rotor.

Through the rotation of the rotor, "closed cavities" are created, spaced 180° apart and delimited by the profile of the rotor and the stator, which move axially from the suction to the discharge of the pump.

The flow rate, in addition to being a function of the rotation speed, is directly proportional to three design constants: the diameter of the rotor cross section, its eccentricity and its pitch.

The pressure that the pump is able to generate depends on the number of stages of the rotor, each stage is conventionally made to correspond to a pressure of 6-7 bar.

Why choose progressive cavity pumps

Personalized solutions

Our progressive cavity pumps are configured according to the specific needs of the customer, depending on the context and type of application, in order to guarantee the best performance and a longer life.

Wide field of use

There are many field of applications and they can be used for example in wastewater treatment, in biogas plants, in the drilling industry, in the wine and olive oil industries and much more.

High performance

- self-priming up to 8 meters depth.
- flow rates from few l/h up to 260 m3/h.
- pressures that can reach up to 50 bar.
- constant and pulsation-free pumping, with a flow rate almost proportional to the rotation speed of the pump.

Pumping of difficult fluids

Progressive cavity pumps are used to transfer many difficult mediums, such as high density and abrasive muds, containing solid particles, viscous fluids, thixotropic and dilating fluids, oils and emulsions, corrosive mediums and much more.

Efficient

With minimal and easy maintenance, absence of valves and low noise, our progressive cavity pumps are the best solution to transfer a multitude of mediums.

Heavy-duty construction

With their simple design and heavy-duty construction, our progressive cavity pumps are the best assurance for a long and reliable life, wear resistance in case of abrasive and corrosive fluids.






Technical details of progressing cavity pump

1 Rotor

Rotor is available in many materials depending on the type of application: carbon steel hard chrome plated, AISI 304 (1.4301) stainless steel, AISI 316 (1.4401) stainless steel and other.

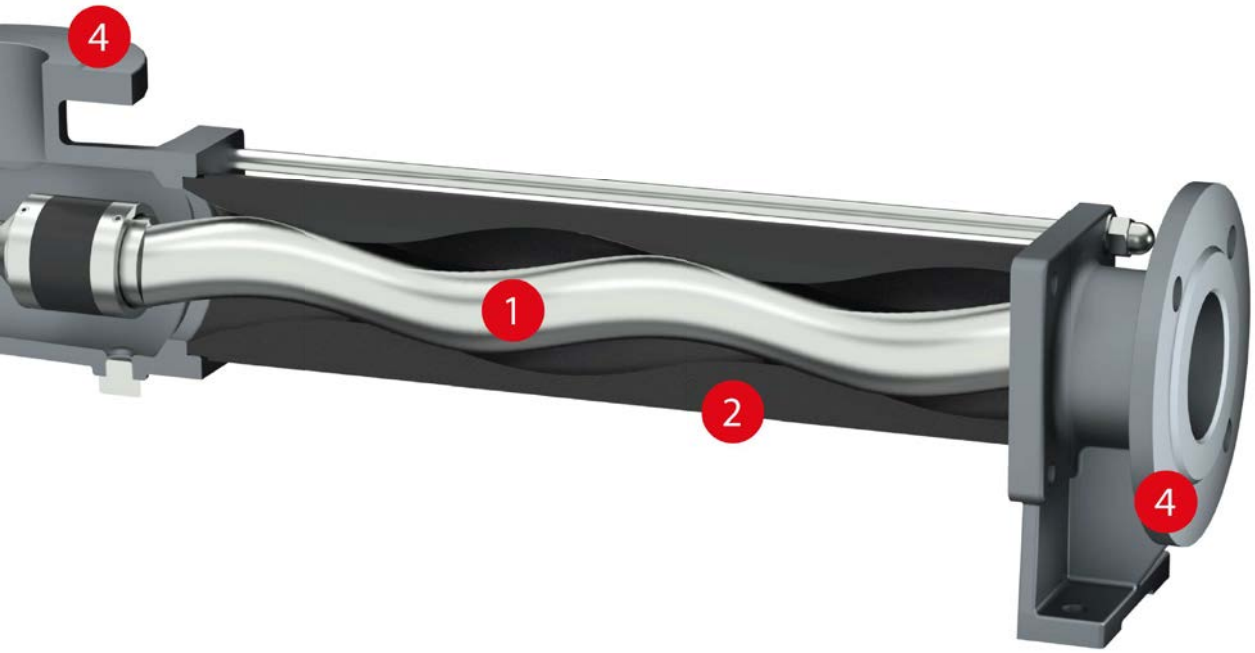
Avaible on standard geometry and, for some models, on "long pitch" geometry.

2 Stator

Stator is made of vulcanized rubber inside a steel tube, with integral seals on both sides and with a wide range of possible elastomers (NBR, HNBR, EDPM, FPM and more on request). It is possible to have the stator with conical inlet to improve feeding of the product.

3 Transmission shaft

Different types of joints and transmissions are available to satisfy various applications: cross joint, cross-cover joint, hygienic open joint , homokinetic joint and/or cross cardan joint, homocardanic joint.



4 Pump housing and outlet

Different types of process connections are available according to international standards (EN, DIN, ANSI, GAS and others) or in special designs. Different types of materials (e.g. CAST IRON, STAINLESS STEEL and others) are possible depending on application contexts.

5 Shaft seals

There are various types of seals: gland packing, gland packing with flushing, single mechanical seal, single mechanical seal with protected springs, single mechanical seal with additional quench, back to back mechanical seal, mechanical seal suitable for food grade products, external mechanical seal.

6 Coupling

Drive is direct coupled to the flanged pump lantern. These means compact dimensions, low total weight, easy maintenance and economic advantages. Pump execution with independent bearing support allows connection with any type of drive via an flexible coupling.

Flanged progressing cavity pumps

Flanged progressing cavity pumps are ideal for transferring a wide range of fluids, such as low and medium viscosity products, with or without suspended solids, even abrasive ones.

By reducing aeration and agitation of fluids, they ensure the gentle product conveyance without altering their organoleptic characteristics.

SERIES L

monoblock with direct coupling

Applications

Applications in waste water treatment, biogas and agriculture, chemical, paper and ceramic industry, mining, building and drilling, sugar factories, wine and beverage industry, olive oil industry.

Performance

Flow rates up to 180 m3/h and pressures up to 24 bar.

Technical features

Compact monoblock structure for limited space requirements, self-priming suction without foot valve, low pulsations, abrasion resistance thanks to the possible low rotational speeds.

SERIES N

with independent bearing support

Applications
Applications in waste water treatment, biogas and agriculture, chemical, paper and ceramic industry, mining, building and drilling, sugar factories, wine and beverage industry, olive oil industry.

Performance
Flow rates up to 260 m3/h and pressures up to 50 bar.

Technical features
Strong execution with bearing support and flexible coupling for high pressures and particularly heavy-duty applications, self-priming suction without foot valve, low pulsations, abrasion resistance thanks to the possible low rotational speeds.

SERIES E

dosing monoblock

Applications
Applications in waste water treatment, chemical, paper and ceramic industries, mining, building and drilling, sugar factories and others.

Performance
Flow rates up to 3000 l/h and pressures up to 14 bar.

Technical features
Compact version for limited space requirements, flow rate proportional to the rotational speed for precise dosing, low pulsations with continuous flow and minimal turbulence.

Hopper progressing cavity pumps

Hopper progressing cavity pumps are suitable to transfer no-flowable medium with high viscosity, with or without solids in suspension, even abrasive ones.

This pump configuration has a hopper design equipped with infeed screw permitting easy inlet of the product into the stator.

SERIES T/LT

monoblock hopper or with bearing support

Applications
Applications in waste water treatment, biogas and agriculture, chemical, paper and ceramic industries, mining, building and drilling, sugar factories.

Performance
Flow rates up to 260 m3/h and pressures up to 40 bar.

Technical features
Suitable for thick, viscous and abrasive products, easy inlet of the product by gravity loading, low pulsations, abrasion resistance thanks to the possible low rotational speeds.

SERIES T/LT-BB

hopper with integral bridge-breaker system

Applications
Applications in waste water treatment and other industries for the treatment of dewatered sludge up to 35% SST.

Performance
Flow rates up to 260 m3/h and pressures up to 40 bar.

Technical features
Suitable for high viscous, abrasive and non-friable products with high percentages of solids with the tendency to create "bridges", easy inlet of the product by gravity loading, the bridge-breaker system avoids the formation of “bridges cake” above the infeed screw, low pulsations, abrasion resistance thanks at possible low rotational speeds.

SERIES TM/LTM

hopper with oversized infeed screw

Applications
Applications in waste water treatment, biogas and agriculture, chemical, paper and ceramic industries, mining, building and drilling, sugar factories.

Performance
Flow rates up to 260 m3/h and pressures up to 40 bar.

Technical features
Suitable for high viscous and density products, easy inlet of the product by gravity loading, low pulsations, abrasion resistance thanks to the possible low rotational speeds.

Agri-food progressing cavity pumps

Agri-food progressing cavity pumps can be both flanged and hopper pumps, and are mainly used in the wine and olive oil production industries.

They are particularly suitable for pumping crushed/destemmed grapes, fermented grapes, wine, must, olive pomace, olive paste, olive oil and more.

SERIES LTS

monoblock hopper

Applications

Applications in the wine and beverage industry, olive oil industry, sugar factories.

Performance

Flow rates up to 110 m3/h and pressures up to 14 bar.

Technical features

Suitable for transferring crushed/destemmed grapes, fermented grapes and olive pomace, easy to clean thanks to the smooth surfaces, easy to move thanks to installation on a trolley, easy inlet of the product by gravity loading.

Avaible in flanged execution (without hooper) for trasferring of wine, must, olive pomace, juice and more.

SERIES U

monoblock flanged

Applications

Applications in the olive oil industry.

Performance

Flow rates up to 5 m3/h and pressures up to 12 bar.

Technical features

Compact version ideal for the olive oil industry, abrasion resistance thanks to the possible low rotational speeds, self-priming suction without foot valve, low pulsations.

SERIES H

monoblock flanged

Applications

Special execution, avaible for some pumps size range, for applications in the chemical and biological industry, hygienic-food industry.

Performance

Contact our sales department.

Technical features

MOCA certification on all components in contact with the product, low pulsations for the transfer of delicate liquids, abrasion resistance thanks to the possible low rotational speeds.

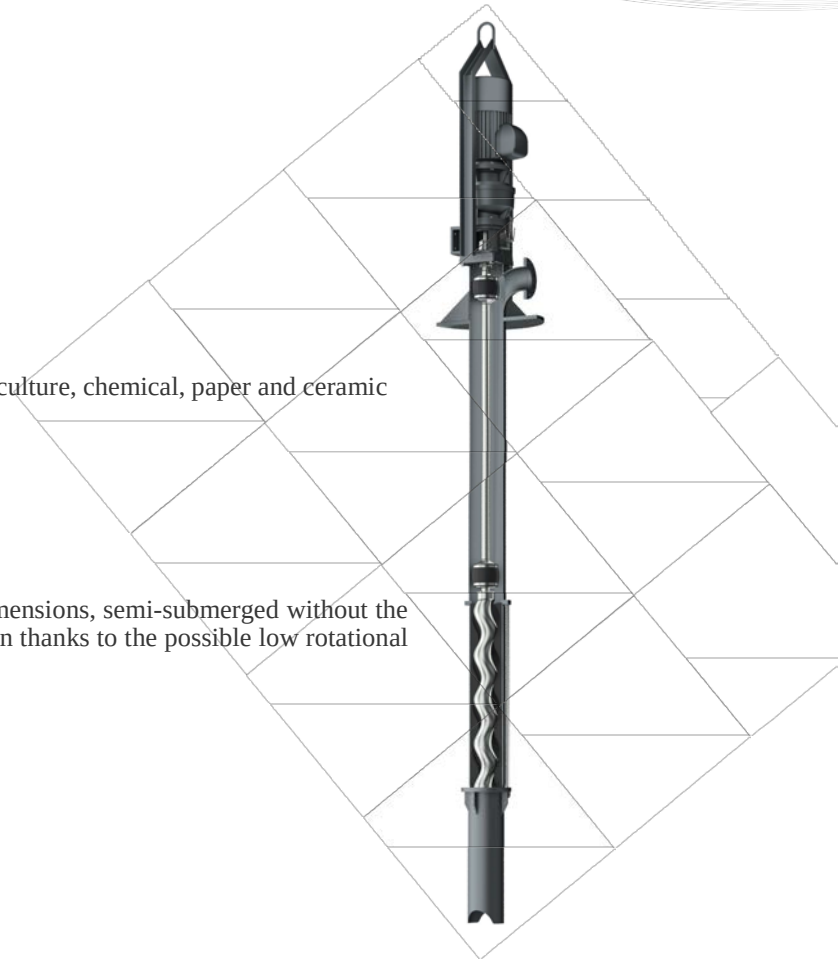
Vertical progressing cavity pumps

Vertical progressiving cavity pumps are semi-submersible pumps; therefore, the pump can be partially submerged in the product, and is suitable for transferring products with a high degree of viscosity.

These pumps are suitable for uses where there is a high risk of cavitation, or where NPSH values are very low. Immersion depth up to 6 mt.

SERIES V

vertical monoblock



Applications
Applications in waste water treatment, biogas and agriculture, chemical, paper and ceramic industries, mining, building and drilling.

Performance
Flow rates up to 180 m3/h and pressures up to 12 bar.

Technical features
Suitable for emptying tanks and wells with limited dimensions, semi-submerged without the risk of cavitation, low pulsations, resistance to abrasion thanks to the possible low rotational speeds.

Performance of progressing cavity pumps

With a wide range of sizes and executions, we are able to satisfy the most varied flow rate and working pressure requirements.

PERFORMANCE TABLE OF PROGRESSING CAVITY PUMPS

MODEL	Max flow rate @0 bar	Max pressure	Max speed	MODEL	Max flow rate @0 bar	Max pressure	Max speed	MODEL	Max flow rate @0 bar	Max pressure	Max speed
	m^3/h	bar	r.p.m.		m^3/h	bar	r.p.m.		m^3/h	bar	r.p.m.
50	0,035	28	1000	450C	25	6	600	1000M	45	6-7	500
100	0,09	12-14	1000	500M	5,5	9	500	1200M	55	8-9	500
120	0,25	12	1000	500L	5,5	20	500	1200L	45	12-14	400
150C	0,75	6-7	1000	500AL	15	6	600	1200L2	35	24-28	300
150M	0,75	12-14	1000	500AL2	12	12	500	2000M	70	6-7	450
200C	1,5	6-7	1000	530L	9	24	400	3000M	100	6-7	450
210C	3	6-7	1000	550C	15	6-7	600	3000L	80	12-14	400
200M	1	12-14	600	550M	12	12-14	500	3000L2	60	24-28	280
200L	0,8	24-28	500	550L	10	24-28	400	3500M	110	6-7	350
300C	4	6-7	700	570L	6,5	40	400	4000M	130	6-7	350
300M	3,5	12-14	600	600C2	25	6-7	500	4000L	110	12-14	300
300L	2,8	24-28	500	600M	25	9	500	4000L2	110	24	300
400C	7,5	6-7	600	600M2	25	12-14	500	5000M	180	6-7	300
400B	6	12-14	500	600L	20	24	400	5500L	240	12	300
400L	2	20	500	800M	30	8	500	6000M	260	5-6	300
400AL	3	6	200	800L	22	20	400				

Accessories for progressing cavity pumps

Progressing cavity pumps can be equipped with various accessories that guarantee high operating safety, avoiding costly and inconvenient plant downtime.

- Temperature sensor in the stator to avoid dry running;
- Contact pressure gauge to avoid delivery overpressure;
- On-board frequency converter for independent management of pump speed;
- Medium presence sensor to avoid dry running;
- Minimum and maximum pressure transducer to avoid outlet overpressure and dry running;

Lobe Pumps

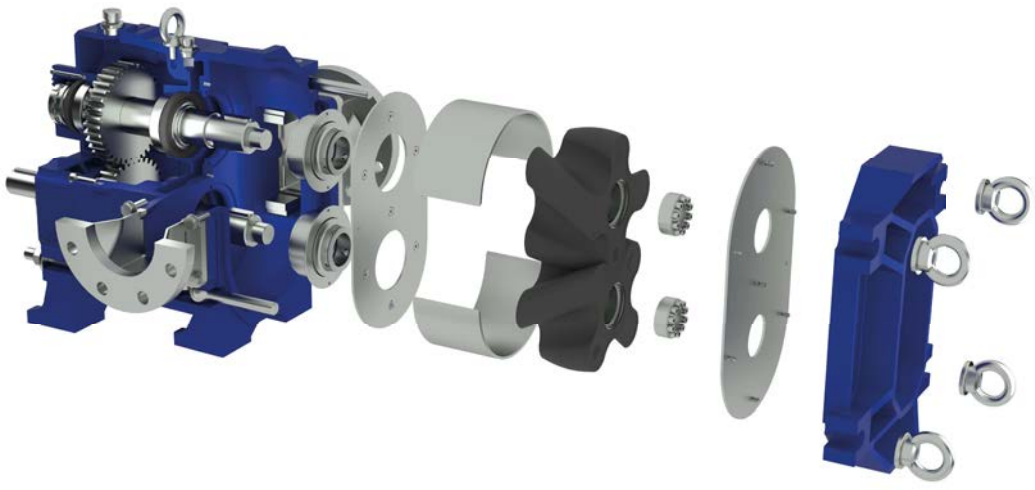
operating principle and advantages

Operating principle

Lobe pumps are self priming positive displacement pumps. Operating principle consists on two synchronized counter-rotating lobes inside a pump casing.

Chambers are created between the lobe vanes and the casing sorrounding them. Medium is displaced through the chambers from the inlet to the discharge side of the pump.

Through their symmetrical design, lobe pumps are reversible, allowing them to pump in both directions without restriction.



Why choose lobe pumps

Space saving

Maximum efficiency in minimal space.
Their compact dimensions allow them to be installed in very limited spaces, while ensuring high performance.

High flow rate

Lobe pumps grants reach capacity up to 500 m3/h with extremely limited dimensions.

High performance

- flow rates up to 500 m3/h.
- pressures up to 8 bar.
- self-priming up to 8 meters deep.
- possible short dry running.

Easy maintenance

Easy maintenance without dismantling pipes. Replacement of wear parts is possible by the removable frontal cover, with immediate access to pump casing.

Reversible flow

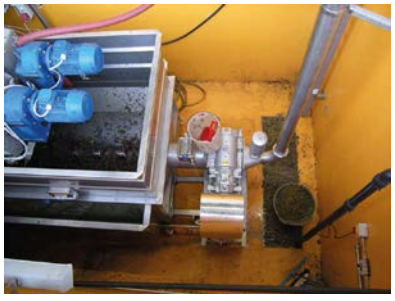
The flow is reversible in both directions, therefore lobe pumps are best solutions for reversing operation.

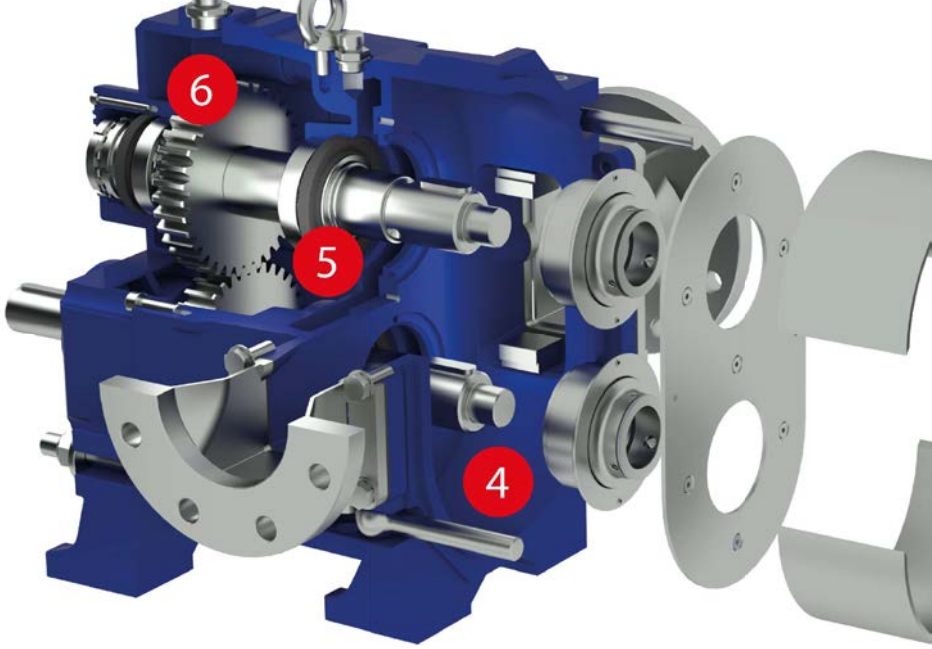
Self-lubricated seal system

Self-lubricated mechanical seal system ensure cooling even if without pumped medium.







Technical details of lobe pump

1 Front cover

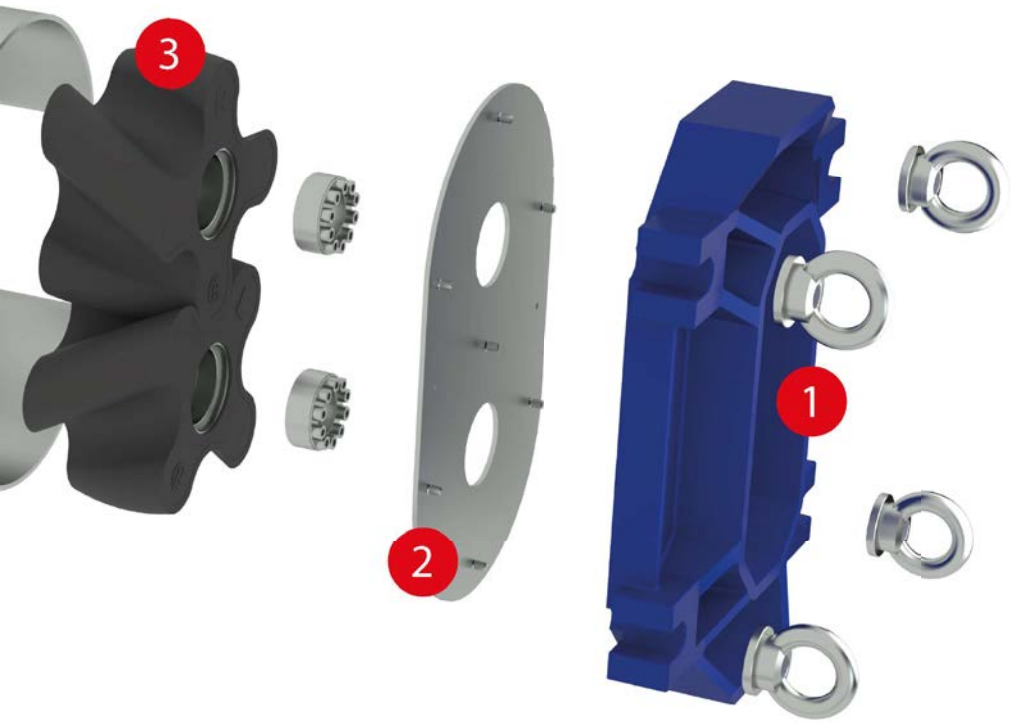
Lobes and wear plates can be easily replaced by removing the front cover, without dismantling pipe system and drive. The front cover can be supplied in cast iron or stainless steel.

2 Wear plates

Removable radial and frontal plates avaible in hard wear steel or AISI 316 stainless steel.

3 Lobes

Rubber coated lobes in a wide range of elastomers (NBR, EDPM, FPM). Avaible in linear trilobe or helical quadrilobe design.



4 Pump casing

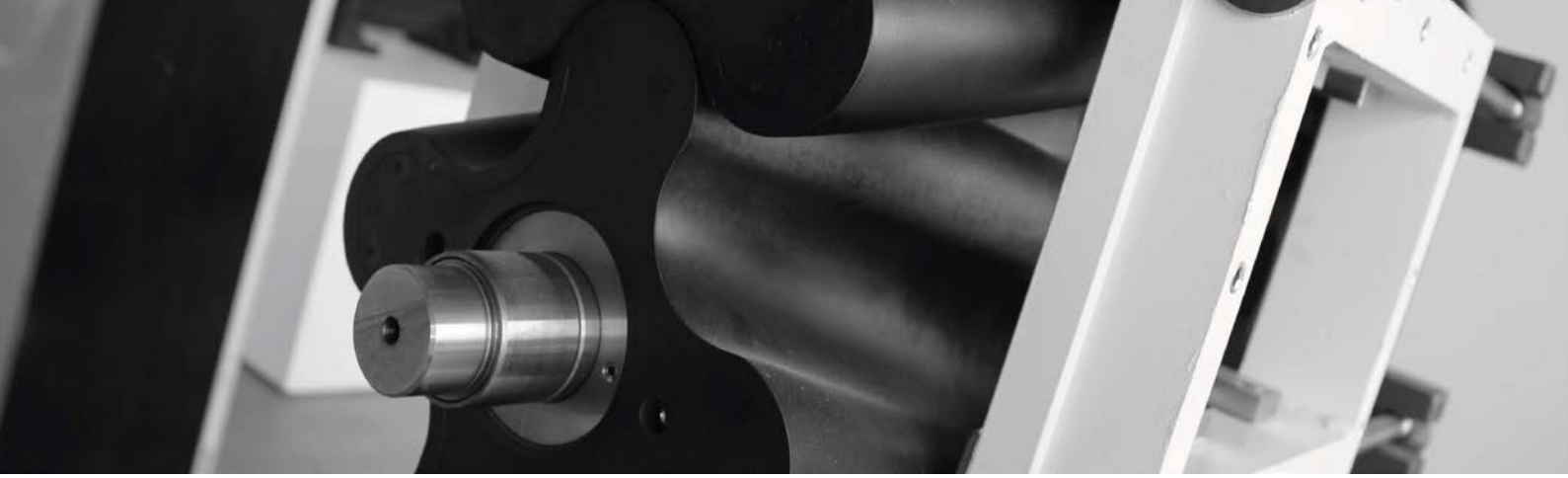
Different types of process connections are available according to international standards (EN, DIN, ANSI and others) or in special designs. The pump casing can be supplied in cast iron or AISI 316 stainless steel.

5 Shaft seals

Mechanical seals replaceable on-site without dismantling pump casing and pipes: in ceramic or tungsten carbide, oil self-lubrificated system ensure the possibility of dry running operation for short periods.

6 Gearbox

Synchronised precision gears with a 1:1 ratio allow concentric counter-rotation of the lobes. Pairs of high-strength tapered roller bearings. Depending on the version, there is the option of having a separation chamber between the pump compartment and the gearbox, eliminating the possibility of any product contamination and allowing constant lubrication of the mechanical seals.

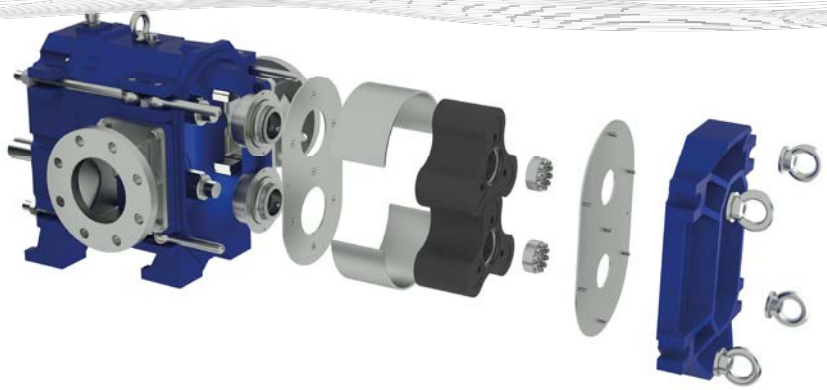


Industrial lobe pumps

Industrial lobe pumps are the perfect solution to transfer almost any kind of fluids. The compact dimensions allow to be installed in small spaces.

High interference lobes design permits a "dry" self-priming valvless up to 7 meters deep.

Reversible sense of rotation in both directions and easy maintenance without dismantling the pipework or disconnecting the drive. Self-lubricated mechanical seals allow dry running for short periods.



SERIES PLG

linear trilobe

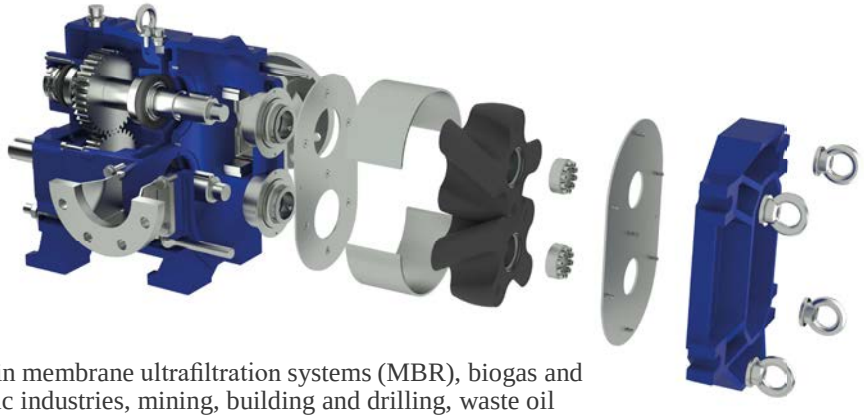
Applications
Applications in waste water treatment, biogas and agriculture, mining, building and drilling, waste oil disposal and recovery.

Performance
Flow rates up to 132 m3/h and pressures up to 8 bar.

Technical features
Compact dimensions space saving, easy replacement of wear parts without dismantling pipes, tolerance of dry running, self-priming valvless, reversible operation.

SERIES NPLG

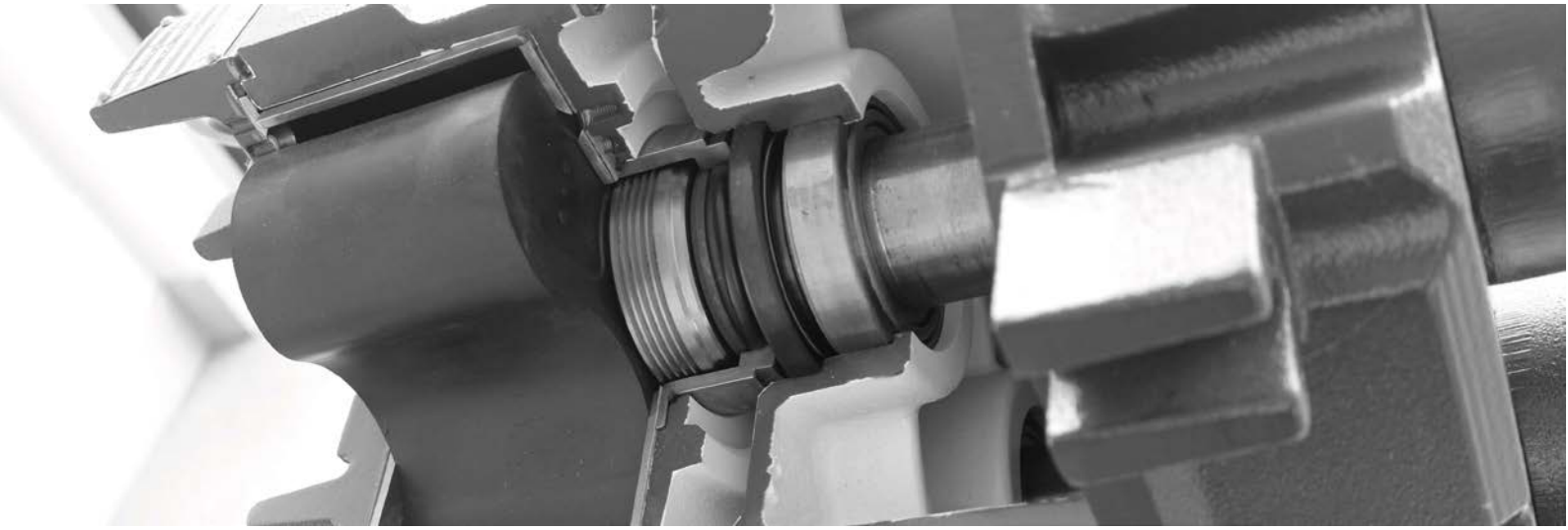
helical quadrilobes



Applications
Applications in waste water treatment, in membrane ultrafiltration systems (MBR), biogas and agriculture, chemical, paper and ceramic industries, mining, building and drilling, waste oil disposal and recovery, sugar factories.

Performance
Flow rates up to 500 m3/h and pressures up to 8 bar.

Technical features
Compact dimensions space saving, easy replacement of wear parts without dismantling pipes, low pulsations design due to helical lobes geometry, tolerance of dry running, self-priming valvless, reversible operation.



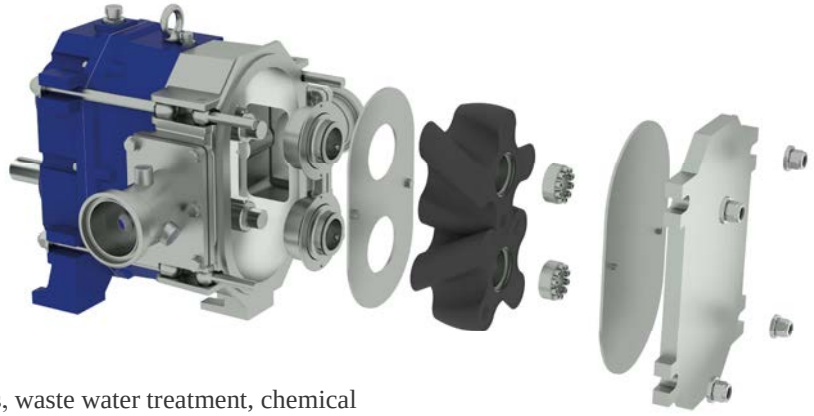
Agri-food lobe pumps

Agri-food lobe pumps SERIES NPLO and SERIES PLWX can be used to convey a wide range of liquid in wine industry and other food industries. Suitable for whole grapes, crushed grapes, fermented grapes, wine, must, olive paste, olive oil and others.

With stainless steel AISI 316 casing they find application also in waste water treatment and chemical industry.

SERIES NPLO

helical quadrilobes



Applications
Applications in wine industry, sugar refineries, waste water treatment, chemical industry, waste oil disposal and recovery.

Performance
Flow rates up to 200 m3/h and pressures up to 8 bar.

Technical features
Gently transfer of medium due to low pulsations lobe design, compact dimensions space saving, easy replacement of wear parts without dismantling pipes, reversible operation.

SERIES PLWX

linear trilobe

Settori di impiego
Applications in wine industry.

Performance
Flow rates up to 140 t/h and pressures up to 3 bar.

Technical features
Gently transfer of medium, compact dimensions space saving, easy replacement of wear parts without dismantling pipes, reversible operation.

Performance of lobe pumps

With a wide range of sizes and executions, we are able to satisfy the most varied flow rate and working pressure requirements.

The greatest technical development was achieved on the SERIES NPL helical lobes, given to the requirement of high-capacity pumps from the market.

PERFORMANCE TABLE OF LOBE PUMPS PL			
	Max flow rate @0 bar	Max pressure	Max speed
	m³/h	bar	r.p.m.
PL 500	35	8	550
PL 1500	80	8	500
PL 2500	132	8	500
PLWXF 4000	70	5	200
S_PLWXF 7000	140	5	200

PERFORMANCE TABLE OF LOBE PUMPS N_PL			
	Max flow rate @0 bar	Max pressure	Max speed
	m³/h	bar	r.p.m.
N_PL 500	34	8	600
N_PL 1500	78	8	550
N_PL 2500	130	8	550
N_PL 35	200	6	500
N_PL 50	260	5	450
N_PL 70	350	3	450
N_PL 100	500	5	450

Accessories for lobe pumps

Lobe pumps can be equipped with various accessories that guarantee high operating safety, avoiding costly and inconvenient plant downtime.

- Temperature sensor in the pump housing to avoid long periods of dry running;
- Temperature sensor in the gearbox;
- On-board frequency converter for independent management of pump speed;
- “External” mechanical seal to avoid contact with medium that tend to crystallize or stick, with external control tank;
- Oblique suction/outlet connections;

Macerators

Macerators SERIES BM, by rotating cutting blades on a holed plate, allow to homogenize the pumped medium and improve the downstream process, protecting pumps from debris and fibers in solution.

The advantages of BM Macerators is to prevent damages of pumps and equipment caused by big solid corps related to lower management costs, better cutting performance, lower power require- ments, high performance, fewer wear parts, easy maintenance and reduction in ordinary mainte- nance times.

SERIES BM

with direct coupling

Applications

Applications in waste water treatment and various industries.

Performance

Flow rates up to 360 m3/h and pressures from -1 to +4 bar.

Technical features

Protection of pumps from solid corps, efficient cutting system that prevents clogging, integrated stone trap for depositing stones and metal objects, plates with different hole diameters for various applications.

Drives

Different drive units coupling possibilities are available, in order to satisfy many technical requirements.

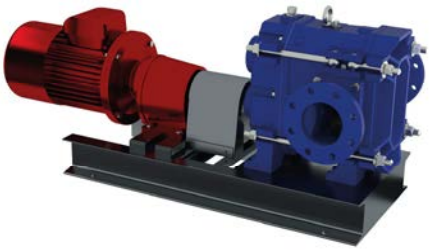
Execution with gearmotor.

Execution with mechanical speed variator.

Execution with gearmotor and electrical panel with frequency converter.

Execution with orbital hydraulic motor.

Execution with piston hydraulic motor.



Execution with gearmotor.

baseplate.

Execution with gearmotor by V-belt transmission on baseplate.

Case history

MODEL: Progressing Cavity Pump LQ 3000L

DESTINATION: Denmark

APPLICATION: feeding plate filter press for waste water treatment plant.
“Easy-line” execution with double removable ports to carry out maintenance on the pump without dismantling the suction pipes

PERFORMANCE: 70 m3/h @ 12 bar

MODEL: Lobe Pump S_PLWXF 7000

DESTINATION: Italy

APPLICATION: execution with preload hopper to transfer grapes to pneumatic presses

PERFORMANCE: up to 100 m3/h @ 4 bar

MODEL: Progressing Cavity Pump LG 1200M Macerator BMG 300

DESTINATION: Chile

APPLICATION: execution with additional macerator to protect the pump from solid corps

PERFORMANCE: 40 m3/h @ 3 bar

MODEL: Progressing Cavity Pump NG 1200L

DESTINATION: Italy

APPLICATION: injection of cooling water for drilling rigs

PERFORMANCE: up to 45 m3/h @ 14 bar

MODEL: Progressing Cavity Pump NG 3000L

DESTINATION: Romania

APPLICATION: transfer of sludge from clarifier with specific weight 1.35 up to 40% SST

PERFORMANCE: 65 m3/h @ 10 bar

MODEL: Progressing Cavity Pump NF 5500L

DESTINATION: France

APPLICATION: installation on drilling machine to pump bentonite sludge, driven by piston hydraulic motor

PERFORMANCE: 250 m3/h @ 12 bar

MODEL: Progressing Cavity Pump NF 3000L2

DESTINATION: Taiwan

APPLICATION: transfer of sedimented sludge from inert materials (mining sector)

PERFORMANCE: 60 m3/h @ 20 bar

MODEL: Lobe Pump N_PLGRH 1500

DESTINATION: Italy

APPLICATION: waste water treatment plant with membrane filtration (MBR) for use in the process and backwash cycle

PERFORMANCE: 70 m3/h @ 3 bar - suction up to -0.6 bar

MODEL: Progressing Cavity Pump LTF 4000M

DESTINATION: England

APPLICATION: execution with hopper and oversized screw for loading silage into a digester of a biogas plant

PERFORMANCE: 50 m3/h @ 100 rpm

MODEL: Progressing Cavity Pump EG 200C

DESTINATION: Holland

APPLICATION: polyelectrolyte dosing in the waste water treatment

PERFORMANCE: up to 1500 l/h @ 3 bar

MODEL: Lobe Pump PLG 2500

DESTINATION: Italy

APPLICATION: installation on vacuum truck for loading/unloading of waste oils

PERFORMANCE: 100 m3/h @ 2 bar

MODEL: Lobe Pump N_PLO 1500

DESTINATION: Italy

APPLICATION: transfer of wine in the different production phases

PERFORMANCE: 60 m3/h @ 5 bar

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Your Partner in Pumping Solutions

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