VERDERPRO®

VERDERPRO

Progressing Cavity Pumps

VERDER
passion for pumps

Verderpro

There is almost no limitation in high viscous products

Verderpro
Progressing Cavity Pumps

The new series of eccentric progressing cavity pumps from Verder is called Verderpro. It is the result of 30 years experience with positive displacement pumps. We can offer the best progressing cavity pump for your application.

The Verderpro programme includes a comprehensive series of progressing cavity pumps, macerators and accessories. There are special series for the food industry and (waste) water treatment to name but a few. Dosing units, vertical pumps and feed hopper pumps. Our wide range of seals and sophisticated accessories enable us to supply the best possible solution for almost any application.

Features and advantages

- Low pulsation, continuous flow
- Excellent self-priming, up to 8.5 mwc
- Installation in all positions
- Reversible direction of rotation
- Exceptional suitable for viscous products
- Multiple combinations of rotor and stator materials

Progressive cavity pumps are being used in a wide range of industrial areas:

Food industry
Milk and dairy, fruit and vegetable processing, brewing industry and distilleries, poultry and meat processing.

Pulp & Paper
Production of endless paper, paper coating.

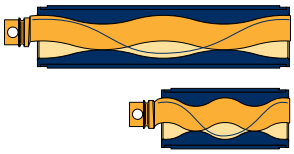
Chemical & Biochemical industry
Aggressive, highly viscous, toxic and shear sensitive materials, explosive flammable gases and dusts with air.

Environmental industry
Metering of chemical additives, waste water and sludge treatment, sludge dewatering, dewatered sludge treatment.

Working principle

The eccentric pump type is part of the positive displacement pump group. The most important parts of the system are the moving part, the rotor and the fixed part, the stator, in which the rotor rotates.
The rotor can be viewed as being a screw with an extremely high speed, great eccentric movement and a small diameter. The stator has one worm thread more than the rotor and twice the thread of the pitch. Consequently, there are continuously shift spaces ("progressing cavities") between the rotor and the stator.

Elements
An eccentric progressing cavity pump includes a number of fundamental basic elements:



The rotor is a helical worm that makes a rotary eccentric movement (via a connecting rod, couplings, drive shaft and engine).

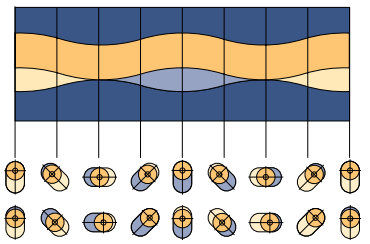
The stator is the second base pump element. The stator does not rotate and it has the same internal form and geometric measurements as the rotor with the exception that it has a double 180° shifted double thread and twice the pitch.

Couplings
The simplest coupling for the connecting rod is the easy to assemble pin coupling. These wear-resistant and hardened couplings consist of the following parts: a coupling rod bush, a coupling rod pin and two guides. These elements are attached to the rotor and pin shaft head through a coupling sleeve. The coupling is then filled with a special lubricant and a cuff/packing seal is slid over the entire element. The cuff/packing seal is kept in place with claming strips.

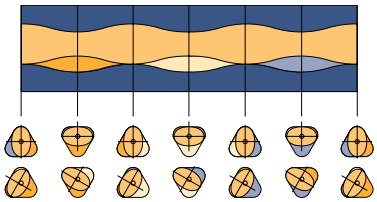
Pin shaft connection There is a pin shaft connection between the pump and the drive on the bearing housing, enabling easy maintenance and easy exchange of the rotor and shaft seal. The drive or bearing housing does not need to be disassembled.

Shaft seals Verderpro progressing cavity pumps have a wide range of sealing possibilities. The most common ones are:
- Great variety of gland packings
- Mechanical seals (single, double, back-to-back, with barrier fluid, etc.)

Geometries



L- geometry When compared to conventional geometry designs, the rotor of the L-geometry has an enhanced pitch with a smaller diameter and lower eccentricity. The sealing line is, therefore, longer and the rubbing speed is reduced by approximately 20%. This considerably extends the service life. Even with fast-wearing media, the flow and working pressure are kept constant for a longer period.



T- geometry The T geometry originates from the experiences gained with the L-geometry. The flow is increased by 50% when the speed remains constant. The dual speed rotor has an elliptic section that rotates in a triangular stator with the same geometric ratio. Compared with the rotor, the number of screws of the stator is 1.5 times as many. The screws are rotated 120° and have 1.5 times the pitch length, creating the extra discharge channel, which provides for the above mentioned 50% delivery increase.

OVERVIEW OF PUMP MODELS

Model VPS *Multi-functional pump for most applications*
The VPS model is the standard Verderpro progressing cavity pump model. An excellent, economically attractive pump for thin flowing to viscous products with or without solids.

Flow range	50 l/h - 500 m³/h
Pressure	up to 48 bar

Model VPR *Feed hopper pumps for high viscosity and non-fluidising products*
These pumps are equipped with a feedhopper and feeding screw to facilitate a better flow of the product to be pumped. These pumps are used for pumping high viscous or non-fluidising products.

Flow range	100 l/h - 350 m³/h
Pressure	up to 48 bar

Model VPH *The food pump*
Specially developed for the food industry: the VPH model. The obvious choice too if you want an excellent pump for use in the pharmaceutical, cosmetic and chemical industries. The CIP and SIP cleanable pumps meet the strict requirements of the food processing industry according to 3A and EHEDG with regards to pumping, hygiene, cleaning and sterilisation procedures.

Flow range	30 l/h - 130 m³/h
Pressure	up to 24 bar

Model VPD *Pulse-free dosing*
The VPD model has been specially developed for pulse-free pumping and dosing of smaller flow ranges. For low to high viscous fluids containing solids and for pumping aggressive fluids. A high dosing accuracy (<1%) can be achieved.

Flow range	0.1 - 1,000 l/h
Pressure	up to 24 bar

Model VPI *Emptying drums*
For emptying tanks, drums, settling ponds and settlement tanks. Space saving. Suitable for pumping both low and high viscous products with or without solids. For application in all industries.

Flow range	50 l/h - 250 m³/h
Pressure	up to 12 bar

Model VPM *Macerators*
Macerators are mainly used for industrial wastewater processing and utility companies. They reduce solid and fibrous elements in wastewater and sludge. This guarantees trouble-free operation of the Verderpro pumps and, therefore, extends their service life. The substances are cut, not torn, which makes the device exceptionally cost-effective.

Flow range	2-150 m³/h
Pressure	up to 12 bar

Comprehensive programme control equipment
For controlling and monitoring Verderpro progressing cavity pumps. Protection against overpressure and dry running, dosing units, frequency converters, measuring equipment, complete operating systems. We will be happy to tailor these to your needs.

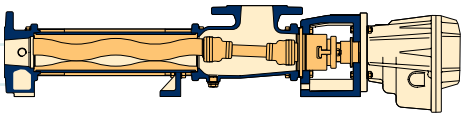
VERDERPRO® MODEL VPS

The VPS series is the basic form of our comprehensive Verderpro pump range. These pumps can be equipped with various rotor/stator geometries and are used in almost all branches of industry for pumping low to high viscous media with or without solids. This pump is of exceptionally high quality and extremely cost effective.

VPS Type

- Short, compact construction directly coupled
- Maintenance friendly due to the pin shaft connection
- Economical design. No bearing housing, no elastic coupling, no foundation plate

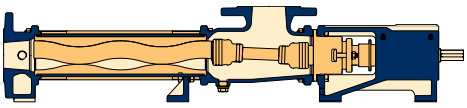
Flow range	50 l/h - 500 m³/h
Pressure	up to 48 bar

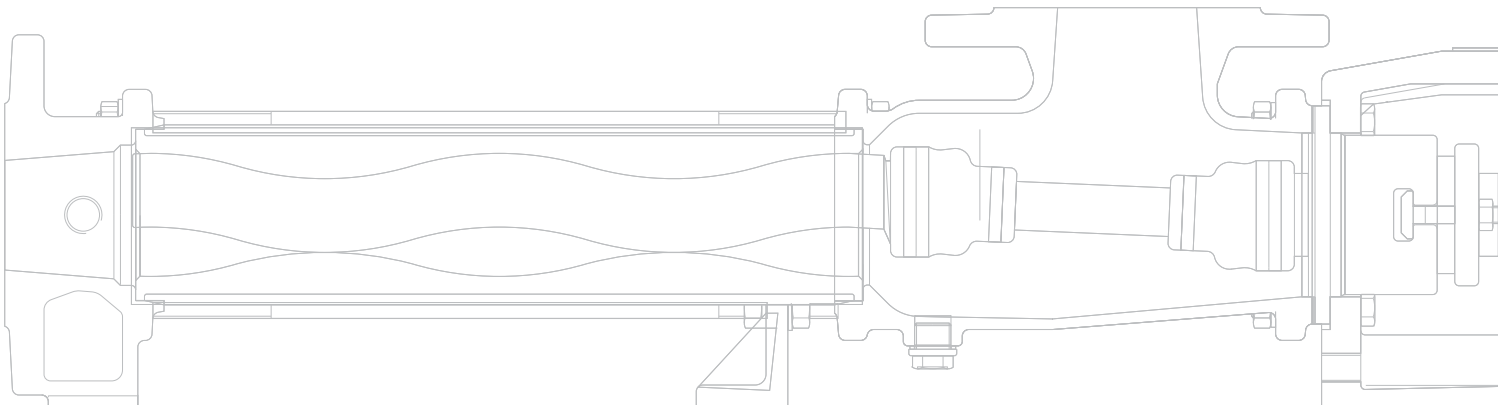


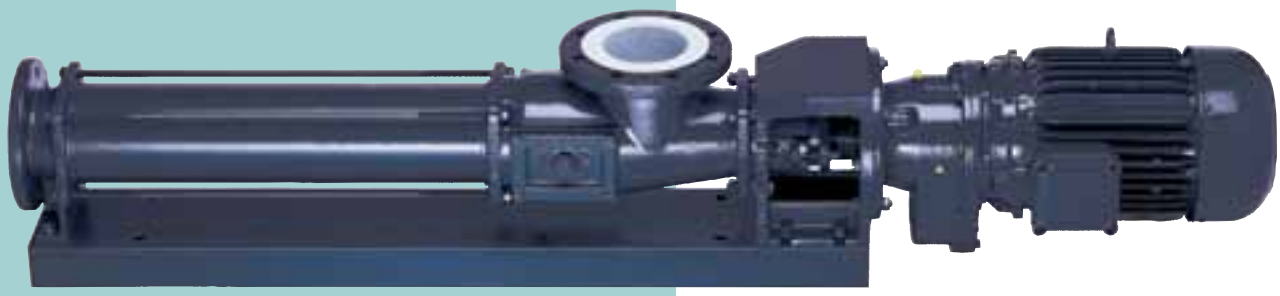
VPSL Type

- Free shaft end; various drives possible with an elastic coupling or V-belt
- Drive shaft with ball bearings that can be re-lubricated
- Maintenance friendly due to the pin shaft connection

Flow range	50 l/h - 500 m³/h
Pressure	up to 48 bar



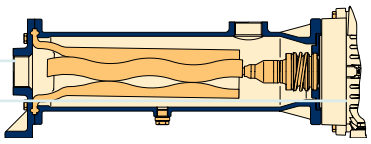




VPW Type

- Short, compact construction directly coupled
- Partially tightened flexible stator without steel casing
- Quick disassembly of parts due to the simple pump construction

Flow range	up to 2.4 m³/h
Pressure	up to 4 bar

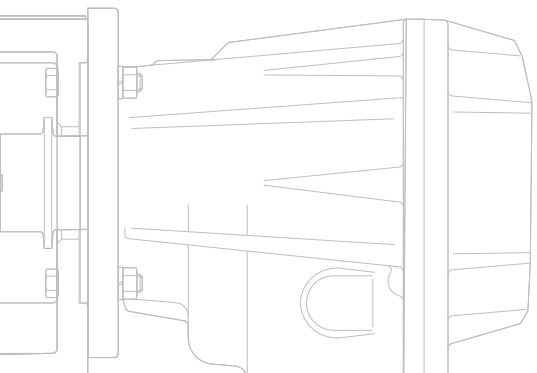


Features and advantages

- Maintenance friendly due to the pin shaft connection
- Quick disassembly of parts due to the simple pump construction
- Drive shaft with ball bearings that can be re-lubricated (VPSL)
- Partially tightened flexible stator without steel casing (VWP)
- Short, compact construction directly coupled (VPS & VPW)

Applications

- Wastewater and slurry treatment
- Pharmaceutical and cosmetic industries
- Oil, gas and petrochemical industry
- Dairy and food processing industry
- Galvanics



Construction VPS

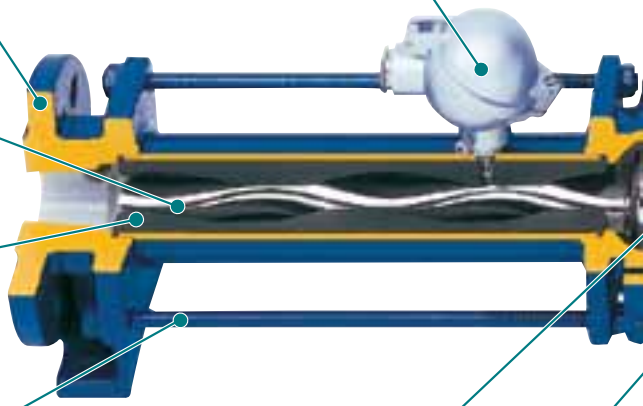
Discharge branch Flange connections in DIN or ANSI. With a connection for pressure/ vacuum gauge.

Rotor With standard geometry, wear resistant, corrosion proof. Optional: surface treatment.

Stator With standard geometry, the end seals are an integrated element of the elastomeric stator. The stator tube never comes into contact with the fluid. Corrosion is limited to a minimum.

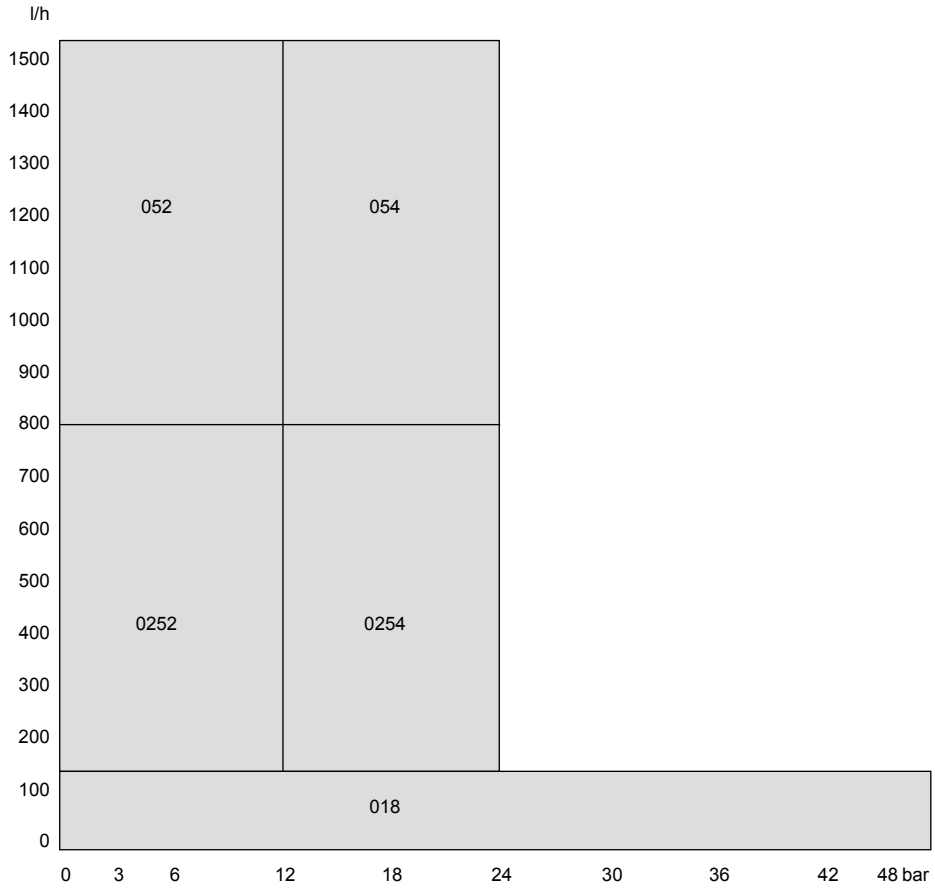
Tie bolts/screws Corrosion proof (options include stainless steel).

Dry running protection TSE (thermoelectronic) (option) Prevents the stator from being damaged by dry running.



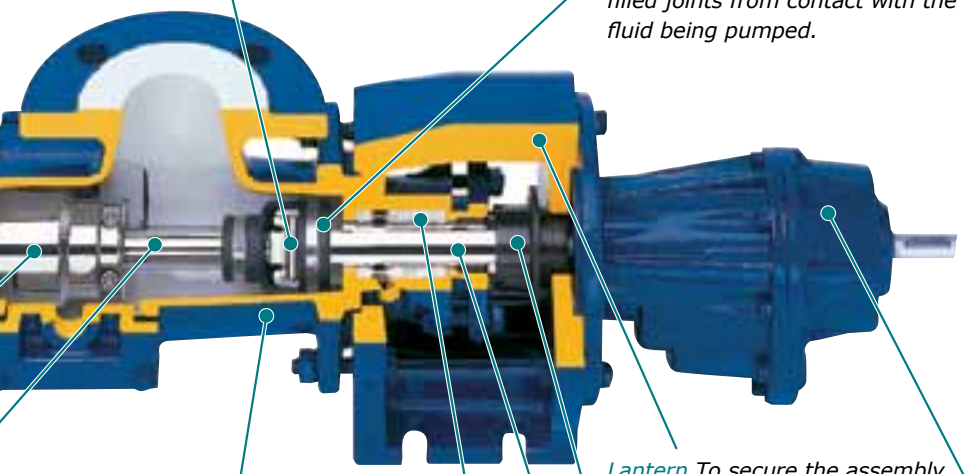
Universal joint sleeve protection in stainless steel Protects from mechanical damage by large solids.

Coupling rod Improved design for effective power transmission. Optional: inspection ports.



Joint Connection Wear resistant, hardened and replaceable joint, consisting of only five parts.

Universal Joint sleeve with holding bands Streamlined design to reduce the NPSHr. To protect the grease filled joints from contact with the fluid being pumped.



Suction casing Flange connections in DIN or ANSI (optional 90° rotated). Large cross section for smooth flow conditions. Drain plug and connections for pressure/vacuum gauge.

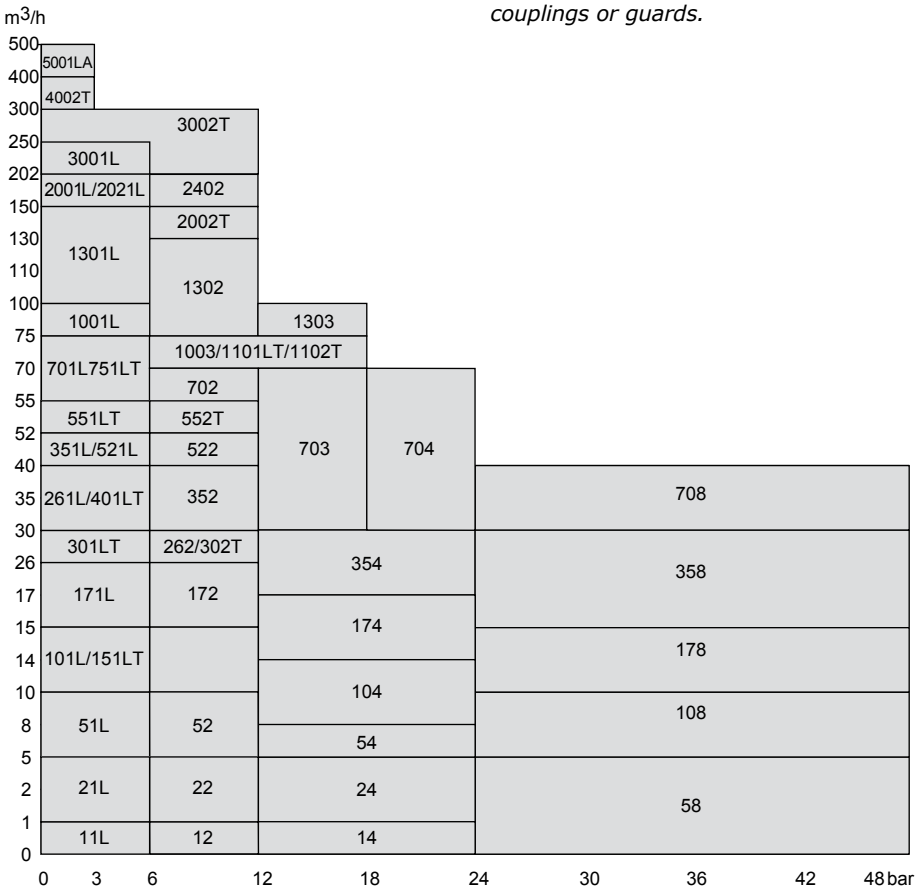
Shaft seals Single or double mechanical seal or gland packing.

Plug-in shaft Standard with gland packing, the plug-in shaft is used as a shaft protection sleeve. Optional: wear resistant coating.

Lantern To secure the assembly to base plate or foundation and for connection of pump and drive.

Plug-in-shaft-connection Ease of use: quick assessment for disassembly, repair and maintenance of pump, drive, rotating parts and shaft seals. With plug-in shaft pin and splash ring seal to secure the plug-in shaft connection and protect the bearing from contamination and/or leakage.

Drives Gear boxes, variable speed drives or hydraulic motors of all manufacturers, directly flanged to the pump without additional couplings or guards.



MODEL VPS

Seals

- Standard gland packing with 6 packing rings
- Gland packing with internal barrier chamber ring
- Gland packing with internal barrier chamber ring and labyrinth gasket with prefitted bearings
- Gland packing with external barrier chamber ring
- Gland packing with external barrier chamber ring, 2 connections
- Gland packing with external grease chamber
- Single mechanical seal in various options
- Double acting mechanical seal
- Cartridge mechanical seal

Accessories

- Dry running protection
- Pressure protection
- Overpressure protection with bypass
- Universal coupling guard
- Adjustable stator spanner
- Impeller - Dosing unit
- Feed screw
- Lantern ring
- Gasket shield
- Barrier feeder system
- Pressure line adapter
- Lubricant injection device

Material selection

We select the best material for the pump and the various parts depending on your application.

The material options* for the VPS model are:

Housing material

- GG 25
- AISI 304
- AISI 316
- AISI 316 Ti

Rotating parts material

- AISI 316 Ti
- AISI 304
- GG25

Rotor material

- AISI D6 tool steel
- AISI 316
- AISI 316 Ti
- AISI 304
- AISI C45 tool steel

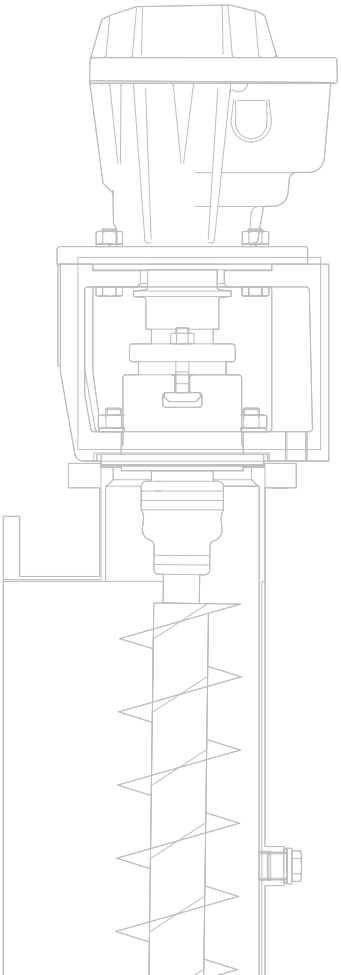
Stator material

- Buna-N

** not all materials can be combined.*

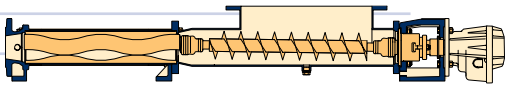
VERDERPRO® MODEL VPR

The Verderpro VPR model wide throat progressing cavity pumps are excellent pumps for pumping difficult flowing, non-fluidising or high viscous media. The feed hopper and the feed screw ensure a perfect flow. We will be happy to test your product in our testing facility.



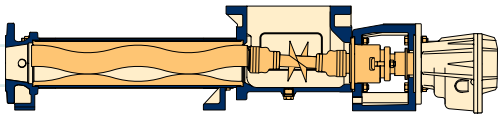
VPR type
- Rectangular feed hopper where the length can be adapted to the application
- Cylindrical/conical compression zone giving optimal filling conditions
- With bare shaft or "close coupled"

Flow range	100 l/h - 300 m³/h
Pressure	up to 36 bar



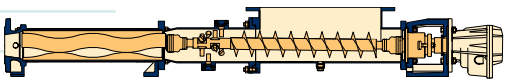
VPRSQ type
- For medium to high viscous media that are non-flowable
- Square hopper with inspection holes on both sides
- Closed coupled, compact construction
- Optional available with bare shaft

Flow range	50 l/h - 100 m³/h
Pressure	up to 24 bar



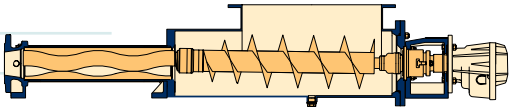
VPRK type
- Specially designed for pumping fruits and vegetables
- Rectangular feed hopper where the length can be adapted to the application
- Extended feed hopper. Macerators have been fitted around the cylindrical compression zone
- The feeder has an extended compression zone with integrated macerators that is easy to disassemble

Flow range	0.25 m³/h - 130 m³/h
Pressure	up to 24 bar



VPRE type
- For pumping viscous to airtight media that do not have a tendency to form bridges
- Rectangular feed hopper where the length can be adjusted to the application
- With bare shaft end or "close coupled"
- The cylindrical compression zone with enlarged feeder facilitates optimum feeding of the medium

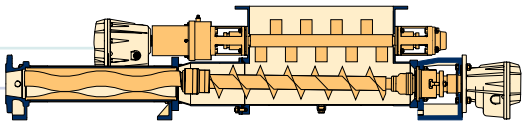
Flow range	0.5 m³/h - 100 m³/h
Pressure	up to 36 bar



VPRP type

- For pumping viscous to very compact media with a tendency to form bridges
- Bridge breaker with two rotating paddle shafts and separate drive
- Rectangular feed hopper where the length can be adapted to the application
- The cylindrical compression zone with enlarged feeder opening facilitates optimum feeding of the medium
- Compression zone can be disassembled for maintenance
- With bare shaft end or "close coupled"

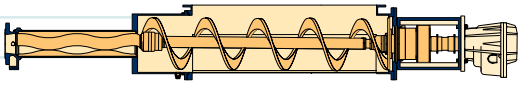
Flow range	100 l/h - 130 m³/h
Pressure	up to 36 bar



VPRR type

- For pumping viscous to airtight and shear-sensitive media with a tendency to form bridges
- Separate driven jacketed feed screw that rotates concentrically on the corners
- The screw speed can be adjusted by a separate drive
- Rectangular feed hopper with vertical walls where the length can be adjusted to the pump application
- Cylindrical/conical compression zone with optimal filling conditions
- Compression zone can be disassembled for maintenance

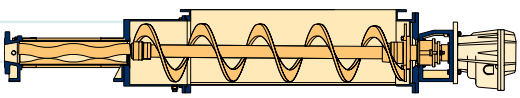
Flow range	0.5 m³/h - 130 m³/h
Pressure	up to 36 bar



VPRRE type

- For pumping viscous to airtight media with a tendency to form bridges
- Equipped with a ribbon feed screw that rotates concentrically on the corners
- Rectangular feed hopper with vertical walls. The length can be adjusted to the pump application
- Cylindrical/conical compression zone with enlarged cross section with optimal filling conditions
- Compression zone can be disassembled for maintenance

Flow range	0.5 m³/h - 130 m³/h
Pressure	up to 36 bar



Features and advantages

- With bare shaft or "close coupled"
- Fast pin shaft insert between rotor and drive
- Integrated feeder with hopper
- Feed screw adapted to the product to be pumped
- This pump series offers a good solution for almost all viscosities and specific product properties

Applications

- Construction
- Waste water and sludge treatment
- Sludge dewatering
- Dewatered sludge treatment
- Textile industry

See next page for type VPRSI and VPREP

Construction VPR

Bridge breaker drive Prevents bridge forming with a geared motor or variable speed drive, elastic coupling and guard. Foot mounting design.

Discharge branch Flange connections in DIN or ANSI. With a gauge connection.

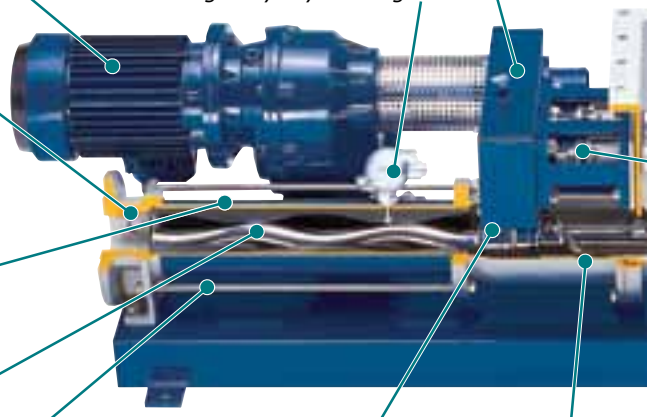
Moulded-to-size stator with 1L or conventional geometry. Bonded in a metal tube with moulded external seals at both ends to prevent product from contacting the metal tube and to safeguard against rotating. Optional: re-adjustable version.

Rotor with 1L or conventional geometry. Wear resistant and corrosion proof. Optional: surface treatments.

Tie bolts/screws Corrosion proof. (options include stainless steel)

Power divider Completely enclosed with lubricating device for timing the paddle shafts.

Dry running protection TSE (thermoelectronic) (option) Prevents the stator from being damaged by dry running.

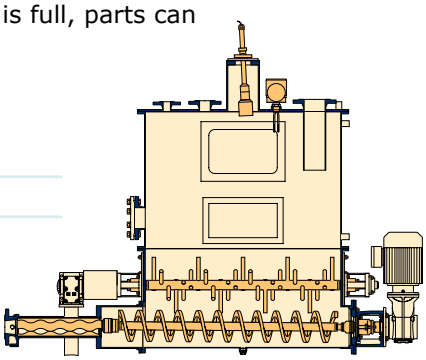


Universal joint sleeve protection (SS) Protects from mechanical damage by large and sharp solids.

Compression zone - Pump inlet For quick dismantling when replacing the rotor; flanges at both ends. (option: hand hole) Large cross section for smooth flow conditions. Drain plug and connections for pressure/vacuum gauge.

VPRSI type

- For emptying viscous to airtight media from silos
- Rectangular feed hopper optimised for adjustment to silos
- Minimised measurements to prevent bridge forming
- Cylindrical/conical compression zone with enlarged cross section with optimal filling conditions
- Compression zone can be disassembled for maintenance
- Integrated shut-off system; when a silo is full, parts can be exchanged if necessary
- Flange-mounted drive



Flow range	0.5 m³/h - 130 m³/h
Pressure	up to 24 bar

VPREP type

- For pumping viscous to airtight media with a tendency to form bridges
- Bridge breaker/mixing unit with rotating paddle shaft and a separate drive
- Hollow feed screw
- Rectangular feed hopper where the length can be adapted to the application
- Supply tank for liquid buffer
- Universal pin guard

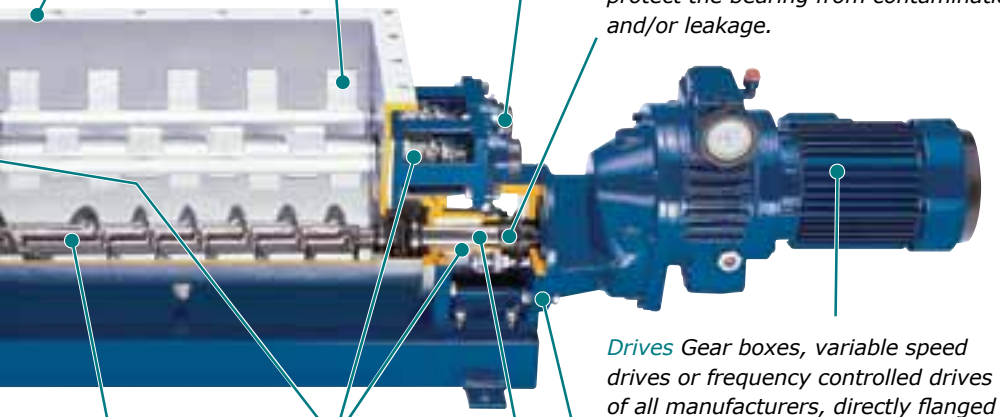
Flow range	0.5 m³/h - 100 m³/h
Pressure	up to 36 bar

Paddle shaft bearing with lubricating device. Sealed design.

Feed hopper Length according to your specs. Rectangular design.

Paddle shafts For controlled addition and mixing of additives. Counter rotating to prevent bridge forming.

Plug-in-shaft-connection Ease of use: quick assessment for disassembly, repair and maintenance of pump, drive, rotating parts and shaft seals. With plug-in shaft pin and splash ring seal to secure the plug-in shaft connection and protect the bearing from contamination and/or leakage.



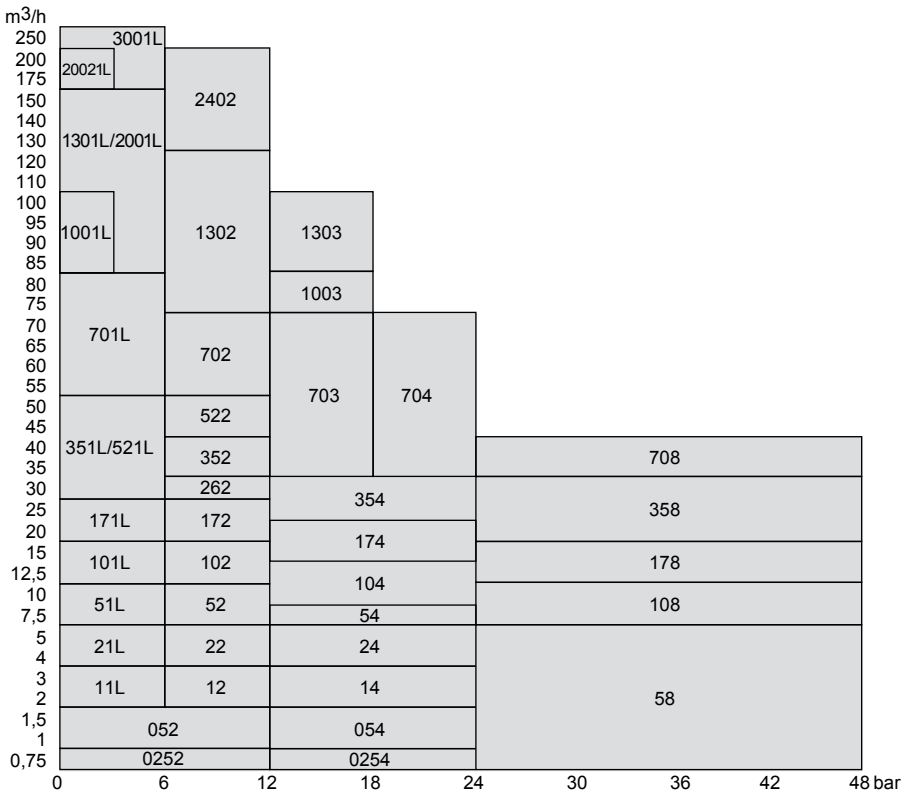
Drives Gear boxes, variable speed drives or frequency controlled drives of all manufacturers, directly flanged to the pump without additional couplings or guards.

Shaft seals Gland packing or seal cage ring or grease chamber ring.

Lantern To secure the assembly to base plate or foundation and for connection of pump and drive.

Coupling rod Auger feed screw with progressive pitch for power transmission and feeding of viscous products.

Plug-in shaft Standard with gland packing, the plug-in shaft is used as a shaft protection sleeve. Optional: wear resistant coating.



MODEL VPR

Seals

- Standard gland packing with 6 packing rings
- Gland packing with internal barrier chamber ring
- Gland packing with internal barrier chamber ring and a labyrinth gasket prefitted with bearings
- Gland packing with external barrier chamber ring
- Gland packing with external barrier chamber ring, 2 connections
- Gland packing with external grease chamber
- Single mechanical seal in various options
- Double acting mechanical seal (also back-to-back)
- Cartridge mechanical seal
- Mechanical seal with quench

Accessories

- Dry running protection
- Pressure protection
- Overpressure protection with bypass
- Universal coupling guard
- Adjustable stator spanner
- Dosing unit
- Lantern ring
- Gasket shield
- Pressure line adapter
- Injection system
- Feed hopper buffer
- Ribbon screw
- Silo shut-off system
- Stone catcher

Material selection

Material selection for the VPR model:

Housing material

- GG 25
- ST 37-2
- AISI 304
- AISI 316 Ti

Rotor material

- AISI D6 tool steel
- AISI 304
- AISI 316
- AISI 316 Ti
- AISI C45 tool steel

Stator material

- Buna-N

Rotating parts material

- AISI 304
- AISI 316 Ti
- AISI 420
- ST 37-2
- ST 52-3

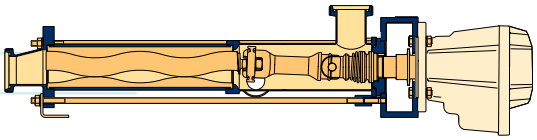
VERDERPRO® MODEL VPH

The Verderpro VPH model progressing cavity pumps are specially designed for the food processing, pharmaceutical, cosmetic and chemical industries. These pumps can be cleaned according to CIP and SIP. They meet the strict requirements of the food processing industry according to 3A and EHEDG with regards to pumping hygienic, cleaning and sterilisation procedures.

VPHO type

- Aseptic fork coupling consisting of only two parts
- Newly developed open pin coupling for higher pressure and better flows
- Built conform 3A, EHEDG and FDA food standards

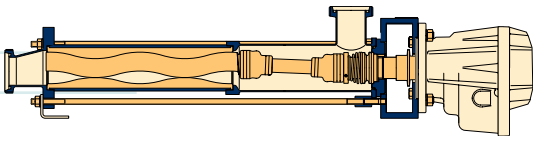
Flow range	30 l/h - 130 m³/h
Pressure	up to 24 bar

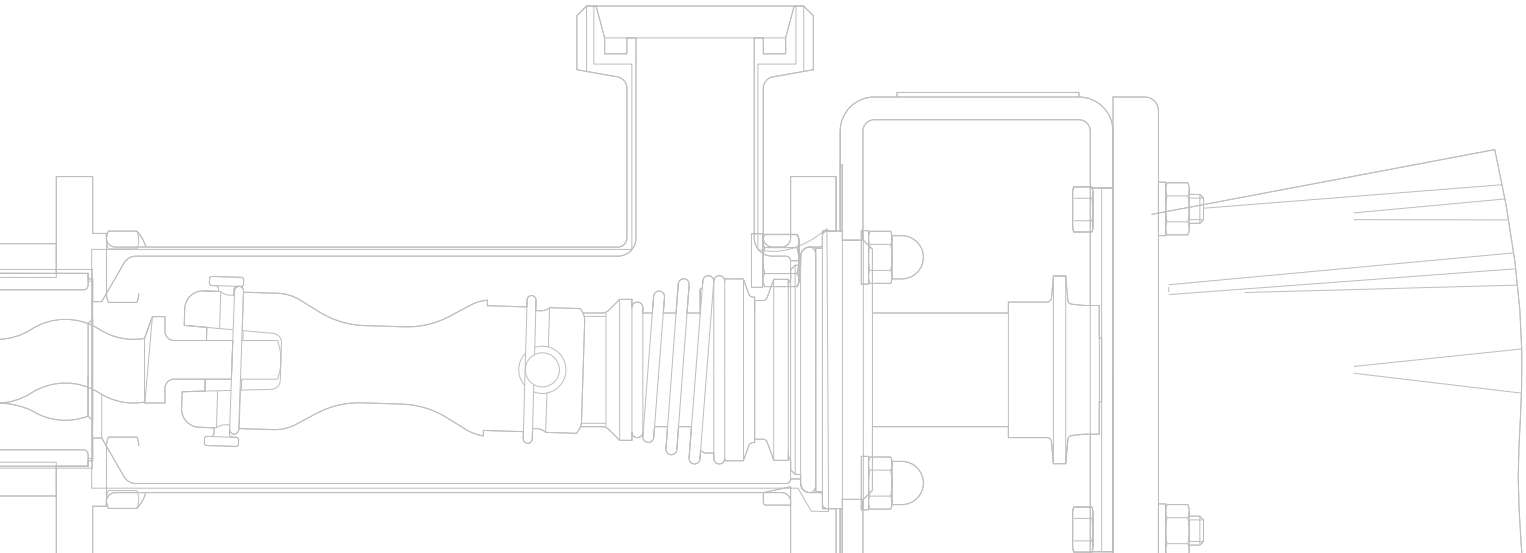


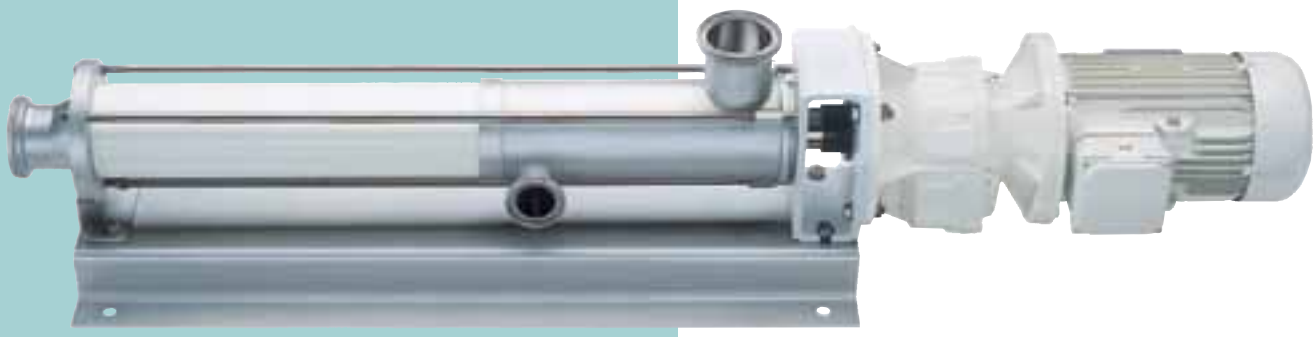
VPHC type

- Cost effective pin coupling with hardened, wear resistant and exchangeable pins and bushes
- Lubricated according to food grade requirements
- Completely sealed with sleeve and clamping strips

Flow range	30 l/h - 130 m³/h
Pressure	up to 24 bar



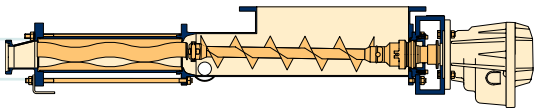




VPHR type

- For pumping high viscous and non-fluidising products
- Aseptic fork coupling consisting of only two parts
- Newly developed open pin coupling for higher pressure and better flows
- Built conform 3A, EHEDG and FDA food standards

Flow range	30 l/h - 130 m³/h
Pressure	up to 24 bar

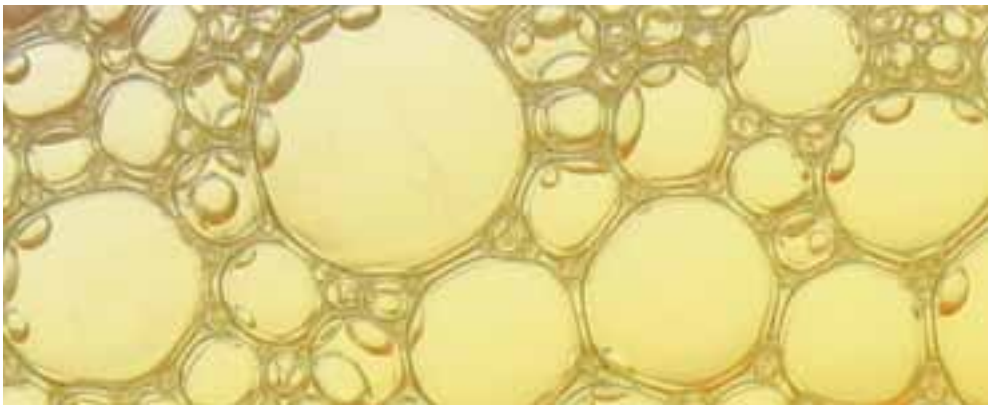


Features and advantages

- Close coupled, short and compact construction
- No dead zones for optimal CIP and SIP cleaning
- Wetted parts have all been polished to the food processing industry quality standard
- Hygienic mechanical seals
- Comprehensive choice of FDA approved elastomers
- CIP cleaning
- SIP cleaning with steam with regular rotating pump
- Pin shaft connection between rotor and drive; extremely maintenance friendly. No special tools required for assembly and disassembly

Applications

- Pharmaceutical industry
- Cosmetic industry
- Beverage industry
- Food industry

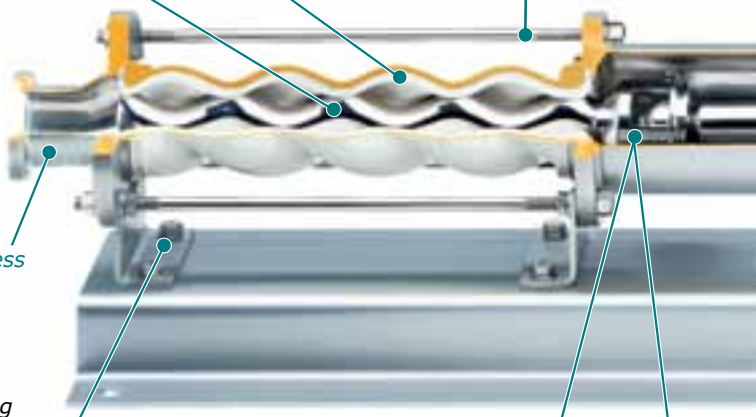


Construction VPH

Moulded-to-size stator Moulded in a metal tube with moulded seals at both ends to prevent product contact to the metal tube. Optional: available with stainless steel stator.

Rotor 1L geometry. Optional: additional surface treatments.

Tie bolts/screws Corrosion proof, stainless steel.



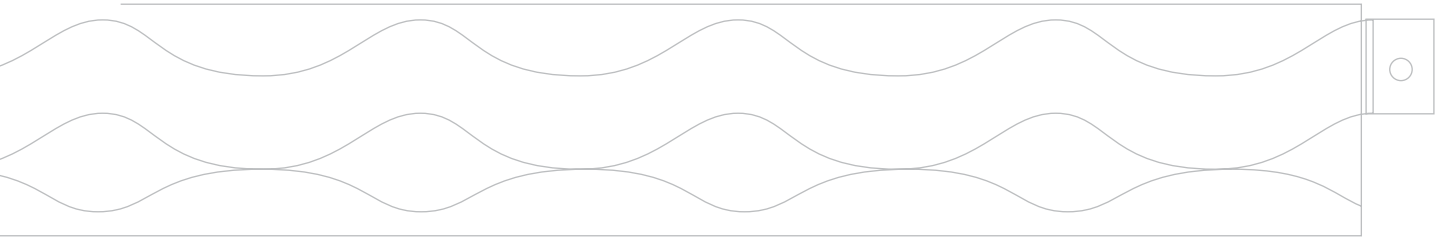
Discharge branch (stainless steel) Internal polished finish and external satin finish. Free flow with horizontal off set bottom, to allow complete draining and to avoid dead zones. DIN 11851, 11864 or Tri Clamp.

Support (SS) Satin finish for high corrosions cleaning.

Open fork Joint For power transmission. Open hygienic joint versions for optimum cleaning, as well as highest wear resistance. No special tools required to assembly.

Open pin joint Designed for higher pressures and flow range.

Suction housing (stainless steel) Internally polished, externally satin finished. No dead zones. CIP through the entire casing, through design with suction connection above the mechanical seal. Options available for off set CIP or complete drainage. Heat jacketed versions available. According to DIN 11851, 11864 or Tri Clamp.

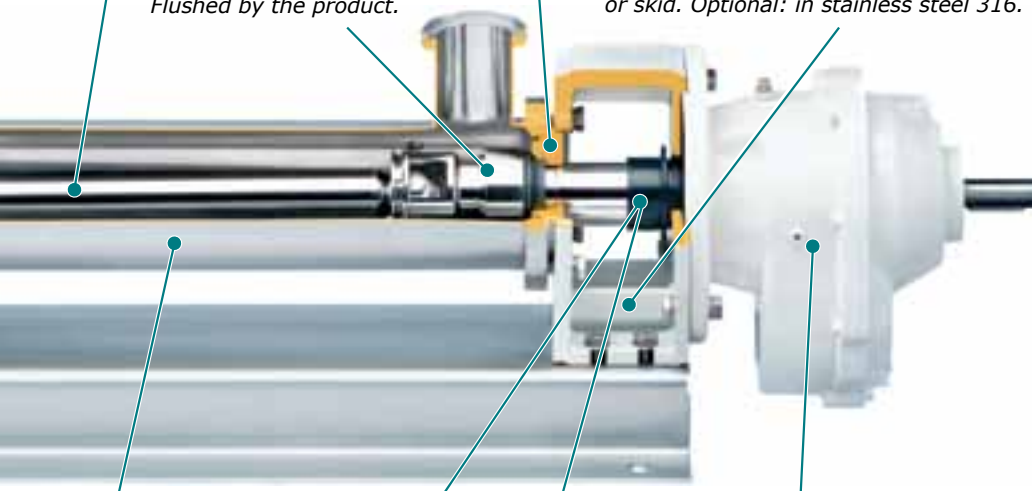


Coupling rod (300 series SS)
For power transmission. Optional: with propellers or feed screw.

Single acting mechanical seal
Positioned inside suction area for optimal cleaning. Flushed by the product.

Mechanical seal housing (300 series stainless steel) Available with quench.

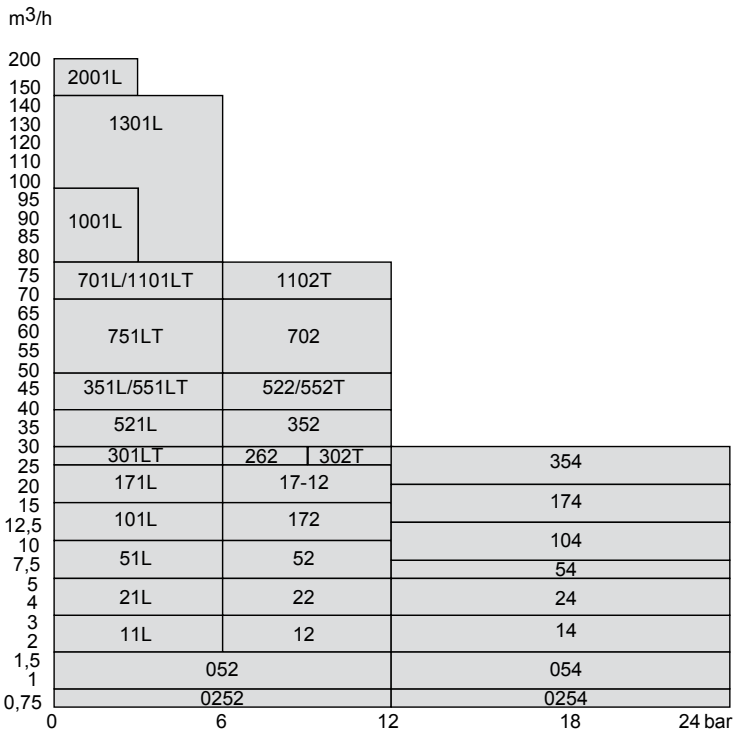
Lantern Corrosion resistant design. For connection of pump and drive and to secure the assembly to the base plate or skid. Optional: in stainless steel 316.



Plug-in-shaft-connection
Ease of use: quick assessment for disassembly, repair and maintenance of pump, drive, rotating parts and shaft seals. The plug-in shaft pin and splash ring seal secures the connection and protects the bearing from contamination.

Drives Gear boxes, variable speed drives or frequency controlled from all manufacturers, directly flanged to the pump without additional couplings or guards. Optional: cover in stainless steel.

Plug-in shaft (300 series stainless steel) Open design for quick CIP. Designed to mount the mechanical seal.



MODEL VPH

Seals

- Single mechanical seal in various options
- Mechanical seal with quench

Accessories

- Dry running protection, food grade
- Overpressure protection with bypass
- Adjustable stator spanner
- Impeller
- Dosing unit
- Feed screw
- Lantern ring
- CIP connection

Material selection

We select the best material for the pump and the various parts depending on your application.

The material options* for the VPH model are:

Housing material

- AISI 316
- AISI 316 Ti

Rotor material

- AISI 316 Ti

Stator material

- Buna-N light

Rotating parts material

- AISI 316 Ti

** not all materials can be combined.*

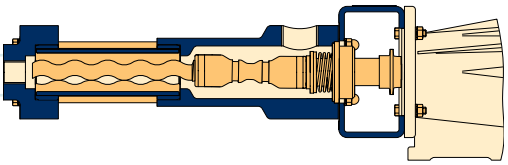
VERDERPRO® MODEL VPD

The Verderpro VPD model dosing pumps are applied in all branches of industry especially for dosing smaller volumes. The pumps are non-pulsating and dose fluids from low to high viscosity with or without solids including aggressive chemical fluids. Dosing accuracy of <1%. The modular design of these pumps enables components such as the rotor and stator to be interchangeable therefore the best solution can always be found.

VPD type
- Close coupled, short and compact construction
- Easy maintenance because of pin shaft
- Material options in stainless steel or non-metallic materials

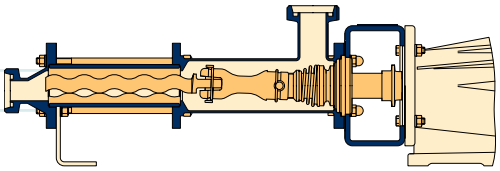
Optional: rotor and stator (non-metallic) are manufactured (patented) out of one piece; a good alternative from a price perspective

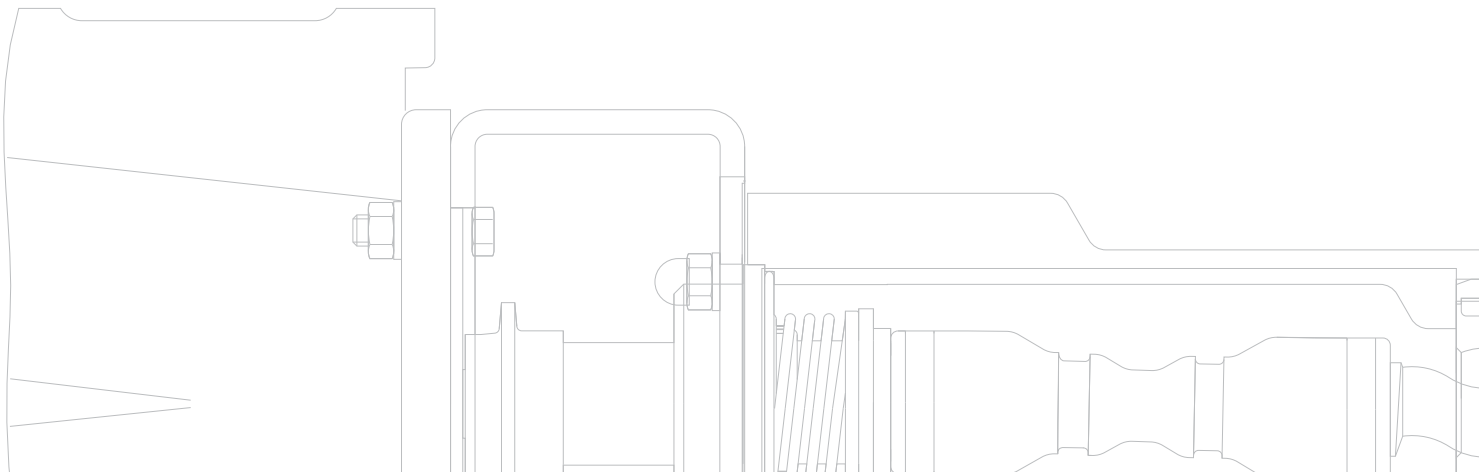
Flow range	up to 1000 l/h
Pressure	up to 24 bar

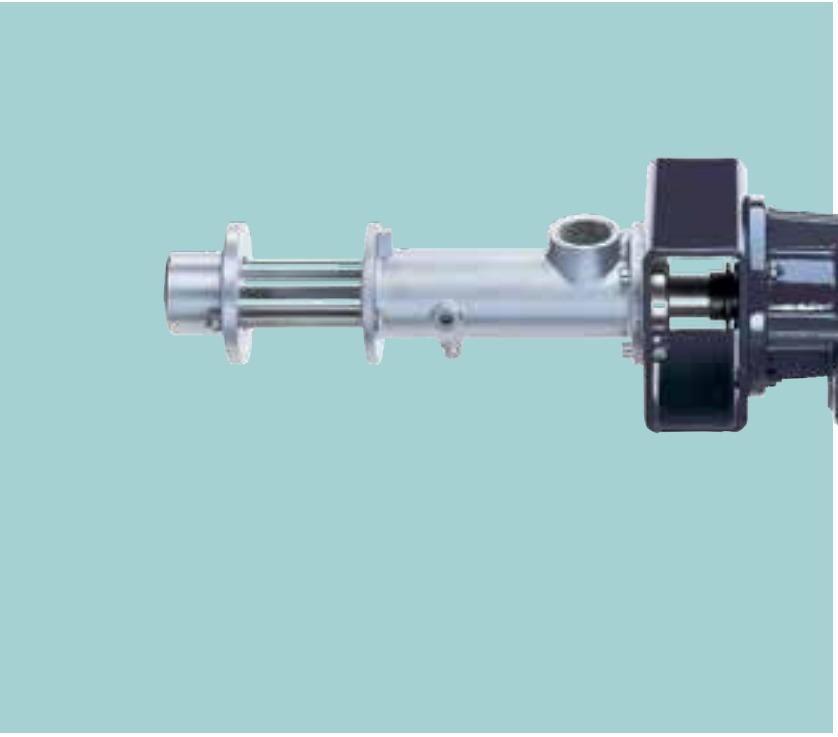


VPDR / VPDH type
- Built conform 3A, EHEDG and FDA food standards
- Extremely anti-corrosive and wear resistant (rotor AISI 316 Ti, stator in white silicone)
- Newly designed open pin coupling consisting of only two elements for higher pressure and better flow range

Flow range	up to 1000 l/h
Pressure	up to 24 bar



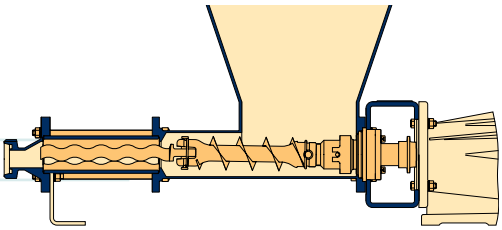




VPDHR type

- For pumping high viscous, non-fluidising products
- Pin shaft connection between rotor and drive; extremely maintenance friendly. No special tools required for assembly and disassembly
- Built conform 3A, EHEDG and FDA food standards
- Extremely anti-corrosive and wear resistant (rotor AISI 316 Ti, stator silicone free)
- Newly designed open pin coupling, comprising of only two elements

Flow range	up to 1000 l/h
Pressure	up to 24 bar



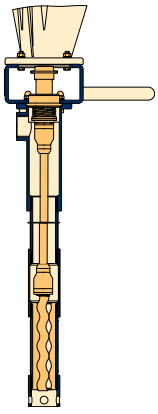
Features and advantages

- Modular system for a simple and rapid inter-conversion of the diverse sizes
- Low pulsation
- High dosing accuracy (<1%)
- Plug-in connections between rotating unit and drive for easy service

VPDB type

- For pumping thin flowing to viscous fluids
- Suitable for open and closed drums, 2" opening
- Mobile unit, lightweight
- Equipped with a carrying handle

Flow range	up to 1000 l/h
Pressure	up to 24 bar



Applications

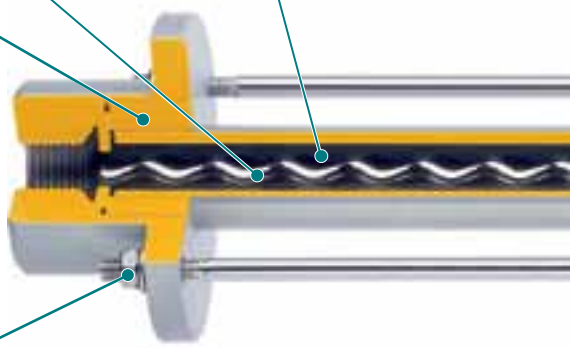
- Slurry drainage
- Water treatment
- Agriculture
- Bakeries
- Ceramic industry

Construction VPD

Stator *In 1L or standard geometry. Vulcanized in the tube with a seal on both ends to prevent leakage and product contamination. Optional: material NBR.*

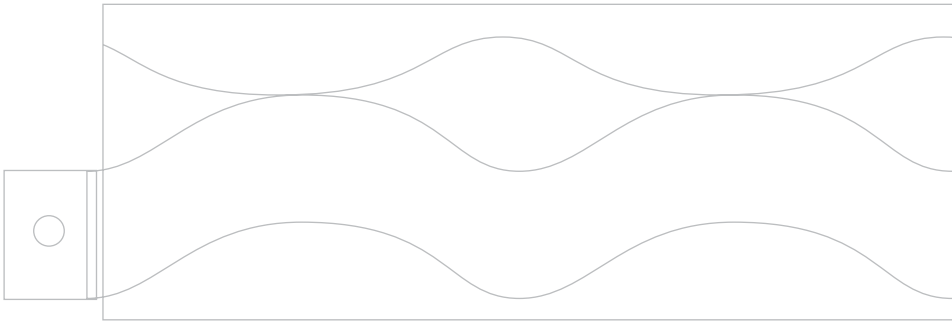
Rotor *In 1L and standard geometry. Optional: material 1.4571 / AISI 316 Ti.*

Stator adapter (stainless steel)
One size fits all (housing and drive).



Tie bolts/screws connections
Stainless steel.

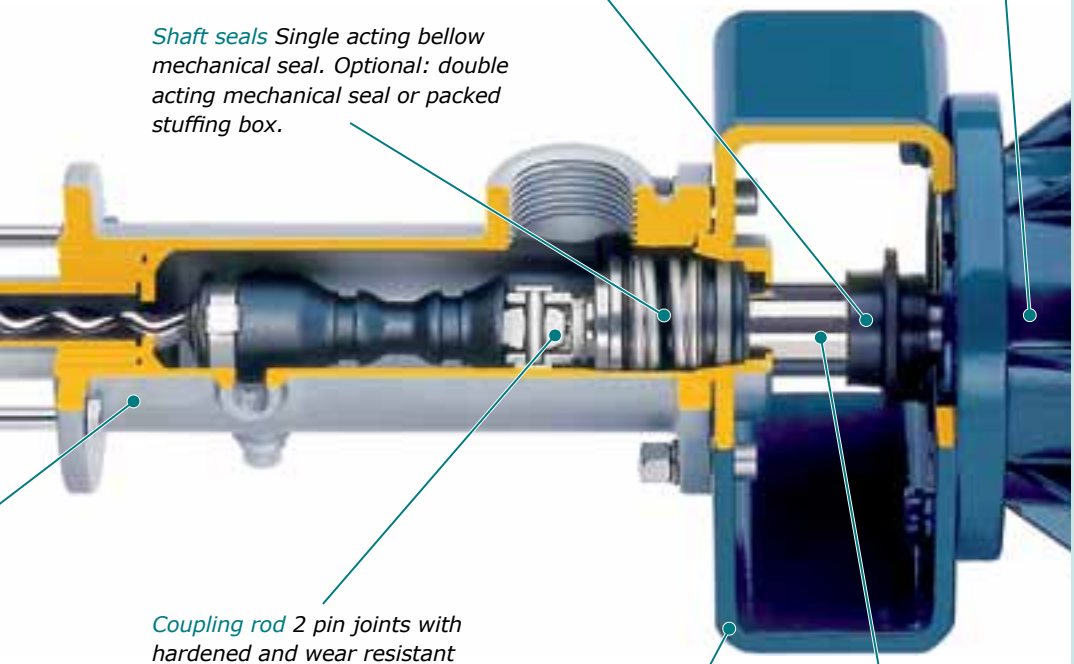
Suction housing (stainless steel)
Standard 1" connection to DIN ISO 228 or NPT, can be rotated in steps of 90°, with a drain plug, and with gauge or flushing connections.
Options:
- *Suction casing, pressure branch and stator area with jacket*
- *Connection NPT 0005-24 (NPT materials: PE (RCH-1000) Polypropylene or AISI 316 stainless steel*



Plug-in-shaft-connection *Ease of use: quick assessment for disassembly, repair and maintenance of pump, drive, rotating parts and shaft seals. The plug-in shaft pin and splash ring seal secures the connection and protects the bearing from contamination.*

Drives *Gear boxes, mechanical variable speed drives or drives with frequency control from all manufacturers, directly flanged to the pump without additional couplings or guards.*

Shaft seals *Single acting bellow mechanical seal. Optional: double acting mechanical seal or packed stuffing box.*



Coupling rod *2 pin joints with hardened and wear resistant components, easily assembled, grease lubricated, positively sealed with elastomer sleeves and 2 clamp bands.*
Options:
- Hydraulically balanced joint
- Material optional in AISI 316 Ti

Lantern *For connection of pump and drive.*

Plug-in shaft *To connect the drive shaft and the joint. At the same time it is a replaceable shaft sleeve. Standard with gland packing, the plug-in shaft is used as a shaft protection sleeve. Optional: wear resistant coating.*

MODEL VPD

Seals

- Single mechanical seal in various options
- Double acting mechanical seal, various options
- Mechanical seal with quench

Accessories

- Dry running protection
- Dry running protection, food grade
- Overpressure protection with bypass
- Impeller
- Dosing unit
- Lantern ring
- CIP connection

Material selection

Depending on your application, we select the best material for the pump and the various parts.

The material options* for the VPD model are:

Housing material

- HD PE (RCH 1000)
- AISI 316
- AISI 316 Ti
- St 37-2 mild steel

Rotor material

- AISI 316 Ti
- PVDF

Stator material

- Buna-N
- Silicone light

Wetted parts, material

- AISI 316 Ti
- PVDF

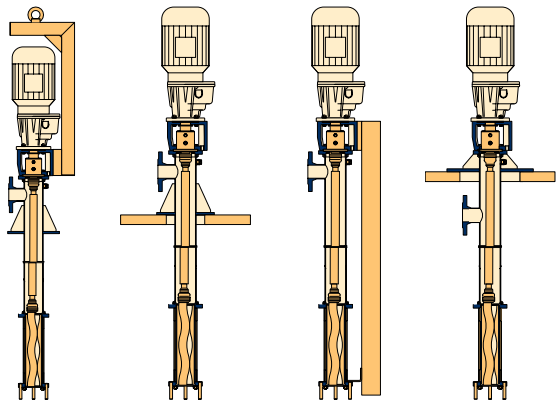
Rotating parts material

- AISI 316 Ti

** not all materials can be combined.*

VERDERPRO® MODEL VPI

Verderpro submersible progressing cavity pumps. This vertically designed eccentric progressing cavity pump pumps abrasive and aggressive fluids troublefree even when there is little space to place the pump. High efficiency and maintenance friendly. The Verderpro submersible pumps are a price-technically attractive alternative for drum emptying pumps.



VPI type
This model has four submersible output types: crane suspension, wall mounting, manhole connector (above or below).
The submersible depth is approx. 6 m. This pump type is space saving.

Flow range	50 l/h - 250 m^3/h
Pressure	up to 12 bar

Features and advantages
- Self priming
- No cavitation
- Pumping shear-sensitive products
- Steady, low-pulse flow
- Increase of the NPSHa

Applications
- Chemistry and biochemistry
- Fruit and vegetable processing
- Shipping
- Galvanics

MODEL VPI

Seals
- Single mechanical seal in various options
- Double acting mechanical seal in various options
- Cartridge mechanical seal

Accessories
- Universal coupling guard
- Dosing unit
- Lantern ring
- Encapsulated stator
- Suspension bracket
- Extension for the suction line
- Filter to prevent solids on the inlet side

Material selection
We select the best material for the pump and the various parts depending on your application.

The material options* for the VPI model are:

Housing material
- ST 37-2
- AISI 304
- AISI 316 Ti

Rotor material
- AISI D6 tool steel
- AISI 316 Ti

Stator material
- Buna-N

Parts material
- ST 37-2
- AISI 304
- AISI 316 Ti

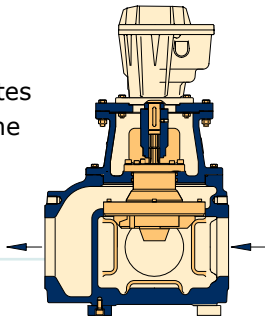
** not all materials can be combined.*

VERDERPRO® MODEL VPM

Verderpro VPM model macerators ensure that wastewater treatment proceeds smoothly. Fibrous and solid substances in the wastewater and in the sludge are cut and reduced ensuring the trouble-free operation of the pump.

VPMI type

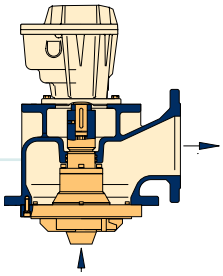
- The cartridge design enables the cutting device to be replaced in one step
- Can be directly connected or can be built in
- Three product feed positions
- Size reduction using various types of cutting plates
- Two large cleaning openings with integrated stone catcher



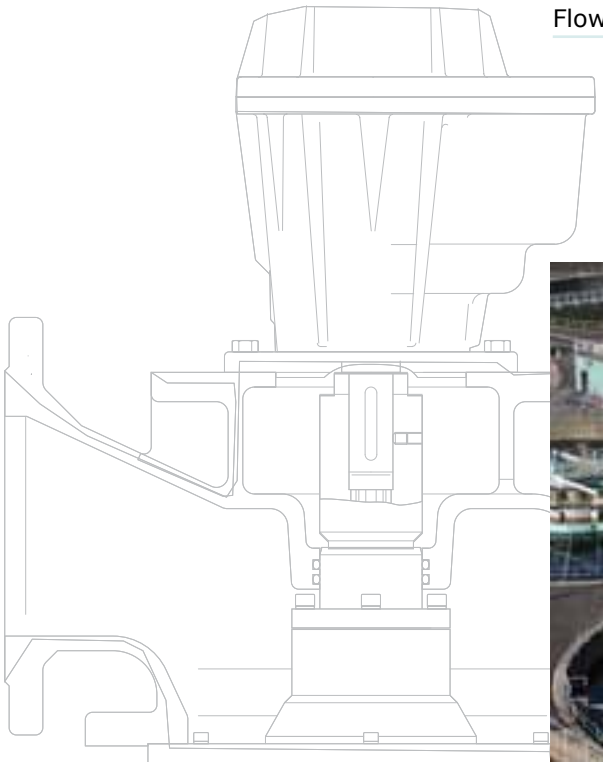
Flow range up to 150 m^3/h

VPMU type

- The cartridge design enables the cutting device to be replaced in one step
- Size reduction using various types of cutting plates
- Standard execution; product feeding at the bottom
- Separate stone catcher with base plate



Flow range up to 150 m^3/h



Sealing possibilities

The Verderpro pump series VPS (standard) VPR (feed hopper) and VPH (food grade) are in standard execution supplied with gland packed seals. Of course also mechanical seals are available. For the VPH models (food grade pumps) there is a special program of sealing options. Please contact us to select the best possible sealing option for your application. Underneath you find more detailed information about the sealing options.

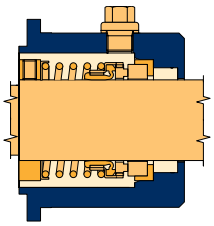
Gland Packing *Features*
- Universal in use
- Economical choice
- Longer life time
- Easily maintained
- Replacement without disassembling

Mechanical Seals *Features*
- Technically leak free
- Maintenance free
- Less wear than gland packing
- High load capacity (at pressure or vacuum)
- Safe pollution free seals for hazardous products

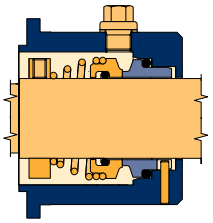
Standard Gland Packing with 6 packing rings
- Working pressures without solids (clean): -0.5 up to +2 bar (seal area)
- Working pressures with solids (abrasive): -0.3 up to +0.3 bar (seal area)

Gland Packing with internal lantern ring
- Working pressures with solids (abrasive): -0.5 up to +2 bar
- Flushing liquid pressure required to exceed the housing pressure by min. 0.5 - 1 bar
- This prevents product to flush migration in the stuffing box, ensures lubrication between packing and shaft and reduces wear
- Optional: shaft with Ductile coating

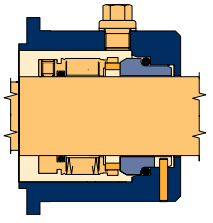
Type 1 ***Single acting mechanical seal***
- Elastomer bellows, rotation reversible, unbalanced
- Suitable for low up to high viscosities
- Working pressures (seal area) with solids (abrasive) -0.15 up to +12 bar
- Suitable for the food industry domestic water and industrial sewage water, and food industry



Type 2 ***Single acting mechanical seal***
- Conical spring, rotation not reversible, unbalanced
- Suitable for low to medium viscosities
- Working pressures (seal area) without solids (or low solids content)
- 0.15 up to +10 bar
- Economical choice; standard seal. Also suitable for food applications



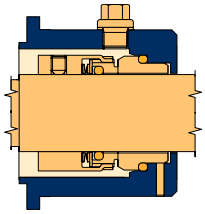
Type 3 ***Single acting mechanical seal***
- Metal bellows, rotation reversible, balanced
- Suitable for low to high viscosities
- Working pressures (seal area) high solids content (abrasive) -0.15 up to +25 bar
- For domestic and industrial sewage treatment. Paint and lacquer and chemical industry



See type 6,7,8,9 and 10:
** Flushing liquid connections of the seal housings*

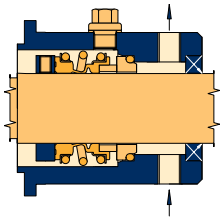
Pump Size	***Connection***
0015 to 171L	*G 1/8"*
171L to 2021L	*G ¼"*
2402 to 3501L	*G 3/8"*

For special applications additional seals are available such as cartridge mechanical seals, external mechanical seals and double acting mechanical seals in tandem.



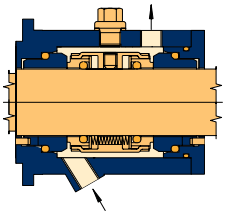
Type 4 ***Single acting mechanical seal***

- Single acting, wave spring/multiple spring, rotation reversible, fixed stationary seat, unbalanced
- Suitable for low to medium viscosities
- Working pressures (seal area) no solids up to low solids -0.15 up to +25 bar
- For the chemical and pharmaceutical industry



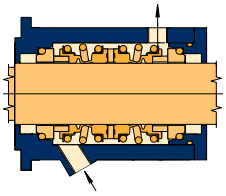
Type 5 ***For Type 1– Type 4 design mechanical seal with quench***

- For adhesive and crystallizing products
- For technical details and working pressures please see the data under HB – HE
- Vacuum up to -0.5 bar
- Quench without pressure using suitable liquid, lubricated in case of vacuum and vertical installation



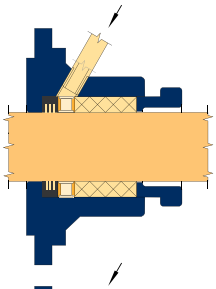
Type 6 ***Double acting mechanical seal***

- Wave spring/multiple spring, rotation reversible, fixed stationary seat, unbalanced
- Suitable for low to high viscosities, with or without solids, abrasive, adhesive, crystallizing, aggressive toxic liquids
- Working pressures (seal area) -1 up to +16 bar
- Flushing liquid* must exceed pressure to be sealed off by at least 1.5 bar. Flushing liquid must be compatible with the product being pumped



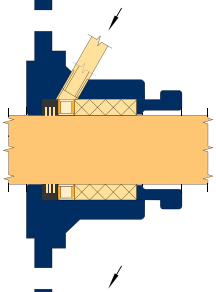
Type 7 ***Back-to-back mechanical seal***

- Elastomer bellows, rotation reversible, unbalanced
- Suitable for low to high viscosities, with or without solids, abrasive, adhesive, crystallizing, aggressive toxic
- Working pressures (seal area) -1 up to +12 bar
- Flushing liquid* must exceed pressure to be sealed off by at least 1.5 bar. Flushing liquid must be compatible with the product being pumped



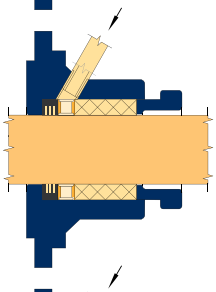
Type 8 ***Gland packing with internal lantern ring and labyrinth seal***

- For solids and abrasives
- Working pressures (seal area) 0 up to +2 bar
- Flushing liquid* pressure to exceed the housing pressure by min. 0.5 – 1 bar
- Flushing liquid flow can be controlled and adjusted
- Optional: shaft with Ductile coating



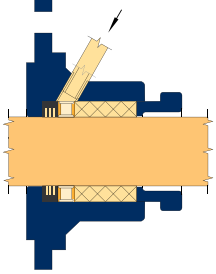
Type 9 ***Gland packing with external lantern ring***

- For products with or without solids
- Working pressures (seal area) 0.85 up to +1 bar
- Flushing liquid* pressure to exceed the housing pressure by min. 0.5 – 1 bar
- Reduced flushing liquid flow for vacuum operation



Type 10 ***Gland packing with external lantern ring and 2 connections***

- For heat and shear sensitive, without or with solids
- Working pressures (seal area) 0.85 up to +1 bar
- Flushing liquid* pressure to exceed the housing pressure by min. 0.5 – 1 bar
- Friction heat is carried off through second connection



Type 11 ***Gland packing with external grease lantern ring***

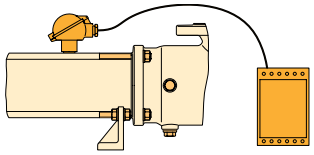
- For solids, abrasive
- Working pressures (seal area) -0.5 up to +0.5 bar
- Used if the flushing liquid supply is not available. Lubrication through automatic grease cartridges or grease pump

General accessories

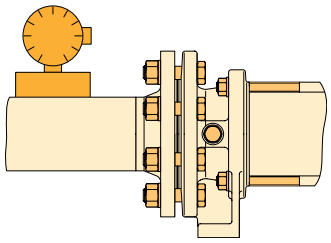
Verderpro progressing cavity pumps are excellent pumps for pumping (high) viscous media and other fluid mixtures. Verder offers a comprehensive programme of accessories and sealing possibilities to provide safe operation and expansion of the application areas.

General accessories

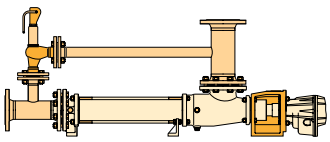
Dry running protection If the temperature limit value is exceeded, the control device switches off the pump drive and activates a failure message.



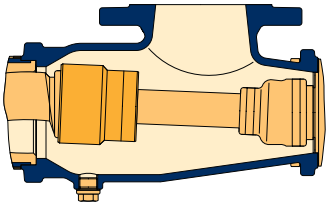
Overpressure/underpressure protection If the pump pressure set in the control device is exceeded, the pump drive switches off.



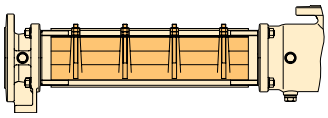
Overpressure protection with bypass and safety valve If the process requires a continuous feed flow and cannot be switched off during operation.



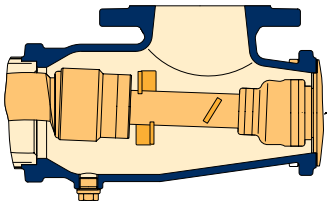
Gasket shield To prevent damage caused by coarse solid materials. If correctly applied, we guarantee 10,000 working hours.



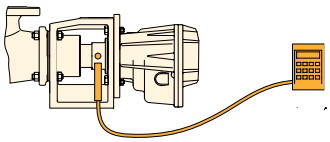
Stator re-tensioning installation For the re-tensioning of the worn stator back to the original clamping state.



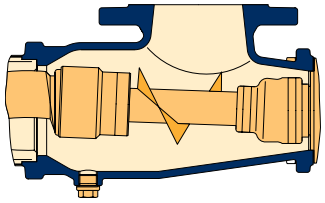
Impeller For correct mixing of non-fluidising media.



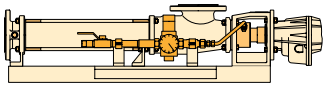
Dosing unit To control pumping volume when dosing.



Feed screw For a smooth flow of high viscous media.

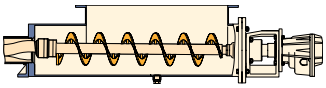


Barrier feeder system Feeding the barrier water to the shaft seal. Also available with a flowmeter.

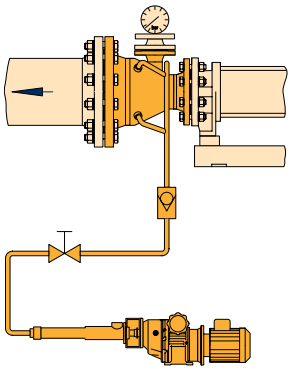


Feeder accessories

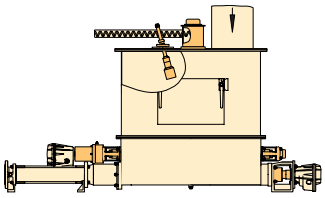
Hollow feed screw To prevent bridge forming when pumping slurry with a higher solid percentage.



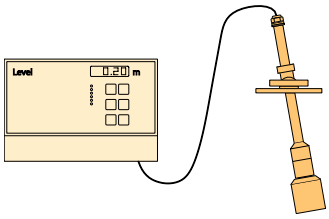
Pressure line adapter and lubricant injection system
For assembling a pressure line with a larger diameter on the discharge side. Lubricant injection. It is also possible to mount a pressure gauge converter or a bellow contact manometer. Application of a lubricant reduces the friction between the pressure line and the product and eases the working pressure. By lowering the pressure, less power transmission is required and the service life of the rotor and stator is considerably extended.



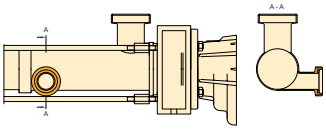
Add-on feeder For the easy feeding of product. Fits all pumps of the VPR series.



Ultrasonic level control An ultrasonic level sensor has been placed in the addon feeder. The control converter sends signals enabling optimal mixing of the auxiliary substances.



CIP connection For the thorough cleaning of the pump according to the standards set for the food industry. Available for all models of the VPH series.



APPLICATIONS-RELATED OPTIONS

Sewage sludge treatment

To maintain a constant sludge level in the feed hopper.
A frequency converter is used to control the pump speed.
- For switching the pump, lump crusher, lime dosing and lubricant injection on and off
- For the correct lime dosing in respect to the quantity of sludge
- Supplied with dry running protection, overpressure protection and temperature monitoring in the pressure line

Filter press

To set the filter pressure for filling the filter press chamber.
- For the controlled dosing of flocculants in relation to the quantity of sludge pumped
- Supplied with dry running protection, overpressure protection and pressure control

Applications

Beverage
Brewery sludge
Liquor
Cherry juice with whole cherries
Malt grains
Tomato juice
Beer
Wine
Juices
Whipp cream

Chemical industry
Adhesive with titanium dioxide
Sludge from dust scrubbers
Bentonite mixture with water, sand and coal dust
Bleach, chromate based
Sulfur sludge
Cast resin
Titanium dioxide
Ceramic waste slurry
Acids
Clay sludge
Aromats
Grease-water mixtures
Emulsions
Lime sulfate with gypsum
Etching
Magnesium hydroxide paste
Gelatine
Methyl cellulose pulp
Glue
Petroleum residue slurry
Latex
Phosphate slurry
Lyes
Nickel hydroxide sludge
Paste

Construction
Gypsum slurry
Mortar
Alabastine
Bitumen
Cement slurry
Concrete
Mud sludge
Plaster
Structure paint
Tar

Cosmetics
Hand cleanser
Tooth paste

Food industry
Animal feed
Apricots, raw, sliced
Baby food
Coconut masses
Cream
Egg whites
Fish, whole and pieces
Fruit mashes, dejuiced
Grain mashes
Meat/bone mixtures
Molasses
Plant extracts
Potato pulp
Rape mashes with oil
Sludge from sugar factories
Spinach puree
Starch
Sugar beets
Vegetables
Animal oils
Cheese
Chocolate
Compote
Honey
Ice cream
Molasses
Noodle dough
Nougat
Sausage stuffing
Vegetable oils applications

Mining
Mine sludge, thick

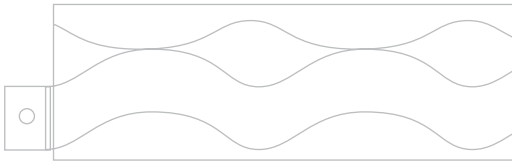
Paint, coatings and lacquer
Latex sludge
Paint paste
Acrylic potty
Acrylics
Dispersion lacquer
Dispersion paint
Hardeners
Potty
Resin
Silicons

Petrochemical industry
Fuel with coal dust
Slurry with butanol

Pharmaceutical industry
Soft soap
Blood
Cream
Dispersion
Emulsions
Enzymes
Paste Suspensions

Pulp and paper
Paper stock

Water and sewage treatment
Filter cake from vacuum filters
Sewage sludge, dewatered slibs
Slams
Slurries



Pump Coding System

VPS (1) - **35** (2a) **4** (2b) **L** (2c)

Example

1 Model Description

VPS	Standard pumps
VPS	Basic

VPR	Rectangular pumps
VPR	Standard
VPRK	K = Knifes
VPRE	E = Enlarged
VPRP	P = Paddle
VPRR	R = Ribbon Screw
VPRRE	R = Ribbon Screw
	E = Enlarged
VPRSI	SI = Silo pump
VPREP	E = Enlarged
	P = Paddle
VPRSQ	SQ = Open throat SQuare

VPH	Hygienic pumps
VPH	H = Hygienic pumps
VPHO	O = Open joint
VPHC	C = Closed joint
VPHR	R = Rectangular

VPD	Dosing pumps
VPD	D = Dosing
VPDH	H = Hygienic
VPDHR	H = Hygienic
	R = Rectangular
VPDR	R = Rectangular
VPDB	B = Barrel

VPI	Immersible pumps
VPI	I = Immersible

VPM	Macerators
VPMU	U = Standard
VPMI	I = Inline

2 Flow Range in m³ at 300 rpm / 2 bar followed by the number of pressure stages and the rotor geometry

- 2a 35 = Flow range at 300 rpm / 2 bar
- 2b 4 = 4 pressure stages (1 = 6 bar, 2 = 12 bar, 4 = 24 bar, 8 = 48 bar)
- 2c L = L geometry, T = Tri Cam geometry, V = Equal walls, R = Reduced, none = conventional geometry

** The pumps are standard supplied in "block" form. When a bearing housing is used, an "L" is put behind the type coding*

The Verder Group
Passion for pumps

Liquids handling is the original passion of the Verder Group. Its liquids handling companies supply a wide range of first-class pumps for a variety of industrial purposes.

Verder Liquids is active in many industrial sectors: chemical and process industry, food, pharmaceutical, water treatment, and environmental industries.

Within these industries pump requirements vary enormously and applications and needs change frequently. In order to ensure we provide the best solutions. We analyse and monitor industrial trends as well as maintaining close relationships with our customers.

International presence
The Verder Group Liquids division has affiliates in:
Austria - Belgium - China - Czech Republic - France - Germany
Great Britain - Hungary - The Netherlands - Poland - Romania
Slovakia - South Africa.

Your advantages
The advantages of working with us are clear, we offer you:

- single-source solutions: Verder's wide and complementary range of pumps allows you to source your entire pumping needs from one company, reducing your costs;
- expertise: years of providing pumping solutions to industry have given us valuable expertise and knowledge which we are able to use to supply the most appropriate and reliable pumps;
- international affiliated company: our size gives you the confidence that you are dealing with a powerful international pump company and if your project involves overseas work then you can profit from our international network of companies.

Contact Verder
If you would like to know more about our pumping solutions then please visit our website www.verder.com/liquidshandling.
You will find the full range of our pump ranges as well as application stories, latest news and the contact details of our local specialist.

Verderpro

There is almost no limitation

in high viscous products

Any questions? You may still have questions and/or comments after reading this brochure. Please feel free to contact us on +44 (0)1924 221 001. You can also respond via email to info@www.verder.co.uk For more information about Verderpro please visit our website www.verder.co.uk

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