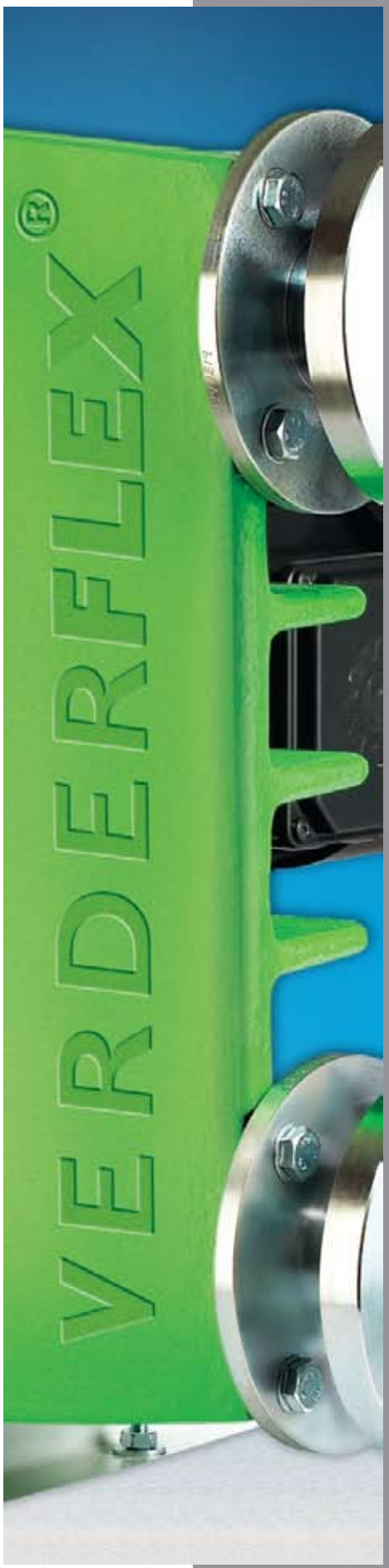
# VERDERFLEX®

## Industrial hose pumps




VERDER

Solutions in Pumping Technology

# Verderflex Industrial hose pumps

CERTIFIED EHEDG HYGIENIC ENGINEERING & DESIGN GROUP EUROPEAN
TYPE EL
MAY 2001

**The Verderflex range of industrial hose pumps are a high quality family of peristaltic pumping solutions. These pumps reduce downtime, minimise maintenance costs and provide easy to operate and reliable solutions in difficult pumping situations.**

## Advantages of Verderflex industrial hose pumps

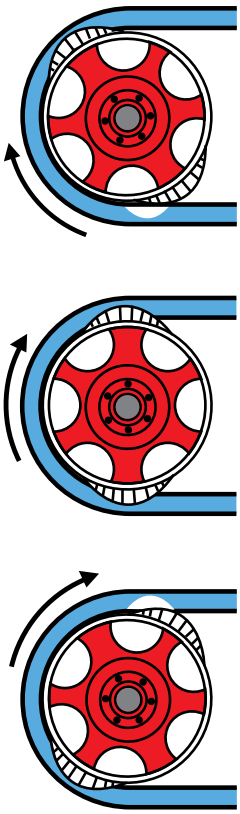
- Operating pressures to 16 bar and flow rates to 90m$^3$/hr / 390 US GPM
- Specially designed hose construction to reduce fatigue, resulting in longer hose service life
- Simplified disaster proof hose connection for easy maintenance
- Close coupled drive design or long coupled option with bearing housing
- Dry running - the pump will run dry without damage
- Certified to EHEDG Standards for use in the food & drinks industry, pharmaceutical industry and other sanitary related applications
- Rigid pump housing design for heat dissipation and strength
- All pumps are supplied with a 2 year warranty covering any defects in workmanship and material under normal use

## How does a peristaltic pump work?

The principle of the peristaltic hose pump is based on alternating compression and relaxation of the hose drawing the contents into the hose, operating in a similar way to our throat and intestines.

The medium to be pumped does not come into contact with any moving parts and is totally contained within a robust, heavy-duty hose, which consists of an inner layer, 2-6 reinforcement layers and an outer layer. A rotating shoe passes along the length of the hose compressing it totally closed and upon restitution of the hose a strong vacuum is formed which draws the product in and along the hose without any product slip.

This pumping action makes the pump suitable for accurate dosing applications and pressure ratings up to 16 Bar.



Without any seals, or valves a Verderflex peristaltic pump is ideal for handling:

- Abrasive fluids
- Corrosive fluids
- Viscous fluids
- Shear sensitive fluids
- High density fluids
- High Solid content fluids


## The Verderflex pump range consists of:

| | |
|---|---|
| Mini pumps: | VF5, VF10, VF15 and VF20 |
| Small heavy-duty pumps: | VF25, VF32, VF40 and VF50 |
| Medium heavy-duty pumps: | VF65 and VF80 |
| Large heavy-duty pumps: | VF100 and VF125 |

## Materials of construction:

| | |
|---|---|
| Pump housing | VF5-VF20 - Aluminium, VF25-VF125 - Cast Iron |
| Rotor | VF5-VF20 - Aluminium, VF25-VF125 - Cast Iron |
| Rotor shoe | Aluminum (stainless Steel as option) |
| Inserts | Stainless Steel, PP, PVDF |
| Base plate | Carbon Steel |
| Lubricant | Specially formulated mixture - VERDERLUBE (Silicone-based oil as option - VERDERSIL) |
| Hose | NR, NBR, EPDM, NBRF and CSM (Hypalon®) |

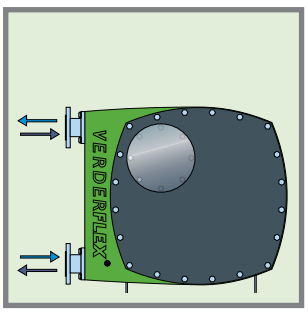
## Options

The following options can be supplied with the pump:

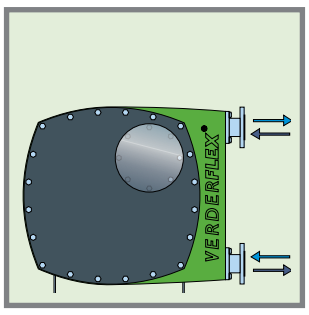
- Cast Iron housing and rotor for the mini pumps
- Stainless Steel rotor shoes, base plates and fasteners
- Vacuum installation to improve suction capability
- Pulsation dampeners
- Hose leakage detector
- DIN, ANSI or JIS flanges or hygienic compliant connections
- Hose tail connections on VF5, VF10, VF15 and VF20
- Customised coatings for pump and/or rotor e.g. Nickel
- Alternative colours

**“ the hose is the only part to come into contact with the fluid circulating through the pump”**

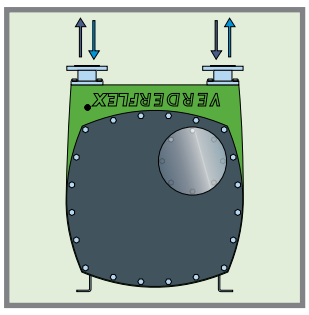
## Mounting positions



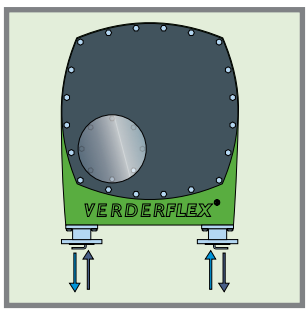

*position 1*




*position 2*




*position 3*




*position 4*

- Food processing - Pumping food sauces

- Brewing - Pumping shear sensitive yeast

- Water treatment - Dosing hypochlorite

- Water treatment - Lime dosing

## Application areas

The unique design of Verderflex peristaltic pumps makes them ideally suited to a wide range of applications, for example:

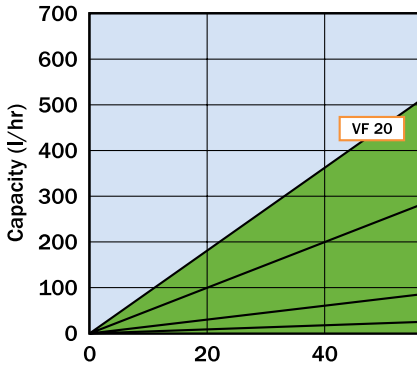
- Abrasive and highly corrosive products - abrasion is not a limiting factor for the hose and no seals or rotating parts are in contact with the product.
- Shear sensitive applications - the very gentle pumping action does not damage the product.
- Highly viscous products - the positive displacement action enables high viscosity liquids to be pumped.
- Crystallising media – there are no valves or glands where crystals or product can build up and clog the pump.
- Dosing requirement – the absence of product slip in the hose gives a 100% volumetric efficiency.
- High maintenance situations - the hose is the only wearing part, and with a rapid changeover, downtime is minimal.
- Self-priming applications - the pump can run dry without damage to the hose.
- Products with high concentration of solids - 80% Inorganic solids can be pumped, e.g. in mining applications.
- Potential blockages at suction port - pump can run dry and be reversed to unblock the suction line.
- Explosives - no metal to metal contact in the pump.

## Market segments

- Mining industry - dosing process reagents, polymers and slurry transfer
- Water works - Lime, Hypochlorite, Polymer, Ferric Chloride dosing; transfering sludges and filter press feeds
- Chemical industry - corrosive acids, bases and hydroCarbons
- Paints and coatings - Dosing of inks
- Textile industry - Dosing of dyes
- Ceramic industry - Pumping abrasive slip
- Paper and pulp - Pulp, dyes
- Cosmetics
- Recycling
- Food and beverage - Breweries, wineries, dairies, sugar refining, bakery, abattoirs and fish processing
- Agriculture - Feed additives, animal vaccines and waste transfer

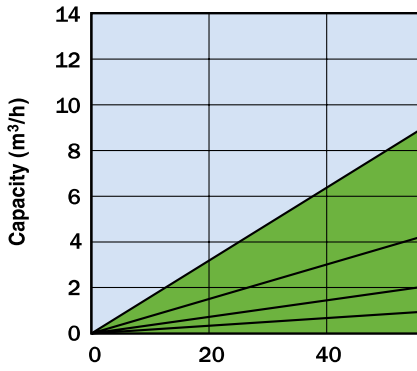
## Technical information

### Mini pumps




"...abrasion resistant - t
abrasive qualities

### Small heavy duty pumps

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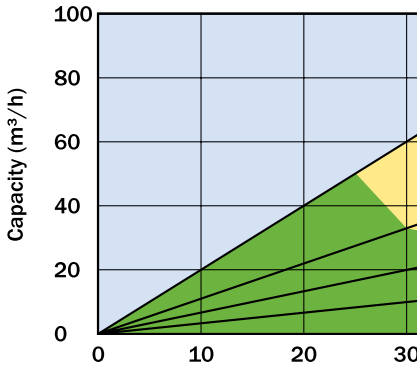
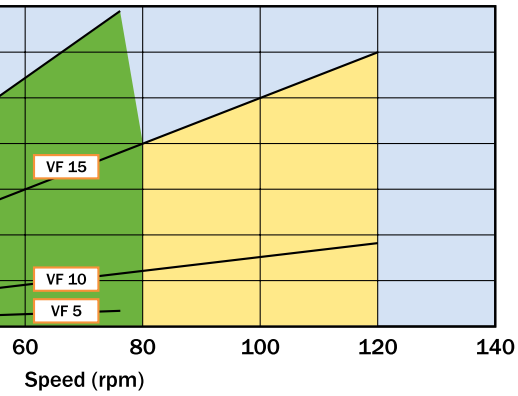
### Medium and large heavy duty



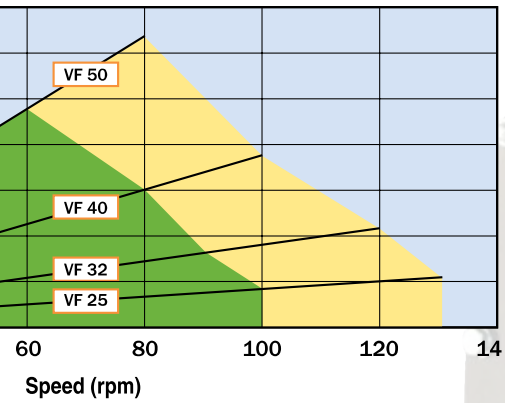

Continuous use

## Technical information



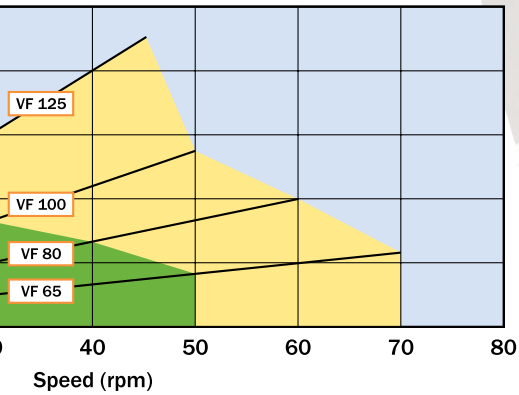

| Model | displacement l/rev | Max. speed rpm | Max. power kW | Max. pressure bar |
|---|---|---|---|---|
| VF5 | 0.0067 | 120 | 0.37 | 7.5/16 |
| VF10 | 0.025 | 120 | 0.37 | 7.5/16 |
| VF15 | 0.083 | 120 | 0.55 | 7.5/16 |
| VF20 | 0.145 | 75 | 0.55 | 7.5 |
| VF25 | 0.28 | 130 | 2.2 | 16 |
| VF32 | 0.60 | 120 | 3.0 | 16 |
| VF40 | 1.25 | 100 | 4.0 | 16 |
| VF50 | 2.67 | 80 | 5.5 | 16 |
| VF65 | 5.67 | 70 | 11 | 16 |
| VF80 | 11.1 | 60 | 15 | 16 |
| VF100 | 18.3 | 50 | 22 | 16 |
| VF125 | 33.3 | 45 | 37 | 16 |

**he hose life is unrelated to the of the product being pumped..."**




**ducts with h concentration of solids..."**

**pumps**




*Intermittent use*

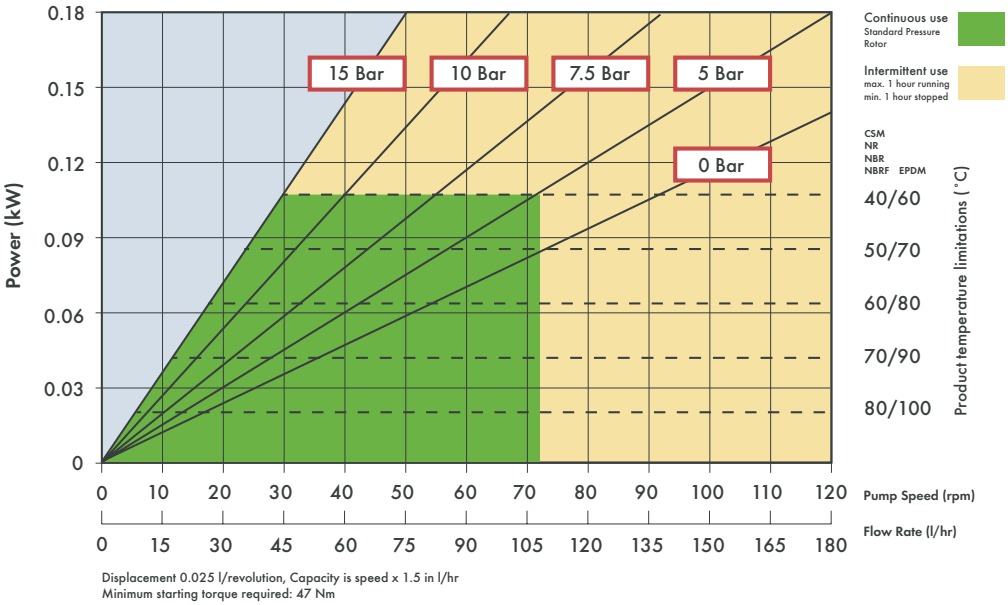
*Max. 1 hour running*
*Min. 1 hour stopped*

CLOSE COUPLED

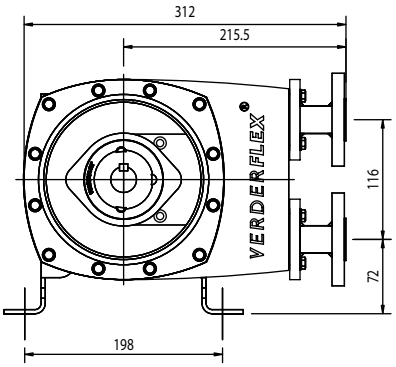
LONG COUPLED

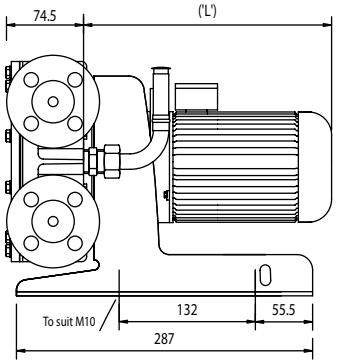
The pump casing is half-filled with our specially formulated Verderlube or Verdersil, to lubricate and cool the pump to lengthen the life of the hose.

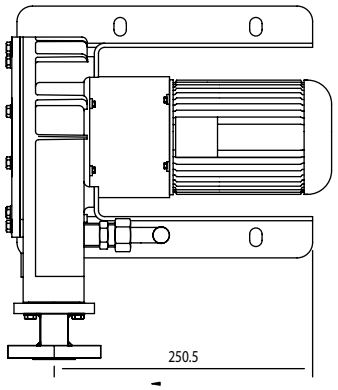
# Verderflex Peristaltic pumps, model VF10




Displacement 0.025 l/revolution, Capacity is speed x 1.5 in l/hr
Minimum starting torque required: 47 Nm



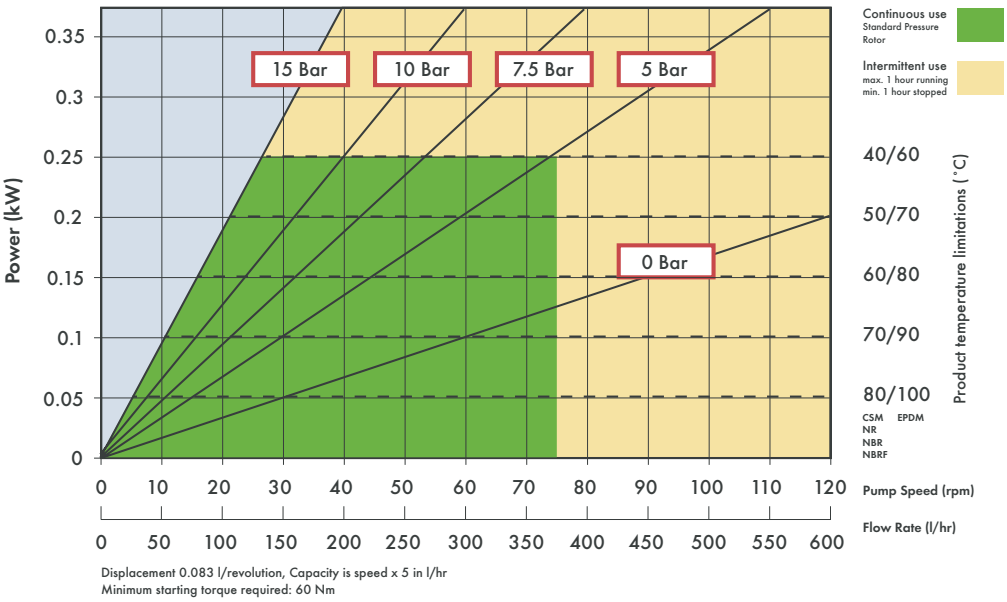

Optional:
Verderflex VF5: a VF 10 pump with adjusted hose dimensions to be able to work in the lower speed and lower flow ranges

**All dimensions are in mm.**
All dimensions and weights are for guidance only, for construction installation and foot mounting drawings please contact your local authorised Verderflex® distributor.

| Part | Material | Weight | Paint |
|---|---|---|---|
| Pump housing | Aluminium (LM25) | 3.0(7*) | RAL 6018 (green) |
| Front cover | Clear Polycarbonate | 0.3 | |
| Rotor | Aluminium (BS.1490:1988 LM25M) | 0.4 (1*) | |
| Flanges | Mild Steel (BS EN.10.025 FE430A) | 1.5 each | |
| Inserts | SS 316L | 0.1 | |
| | PP | | |
| | PVDF | | |
| Base frame | Carbon Steel | 2.0 | RAL 7035 (grey) |
| Lubricant | Verderlube - Glycerine based compound | 0.25 litres | |
| | Verdersil - Silicone-oil | | |
| Tubing | NR, NBR, NBRF, CSM and EPDM | 0.45 | - |
| Aluminium | Flat pack, close coupled | 11 | |
| Cast Iron | Flat pack, close coupled | 16 | |

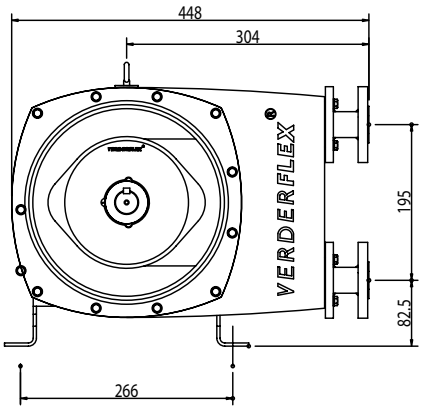
* *Cast Iron option*

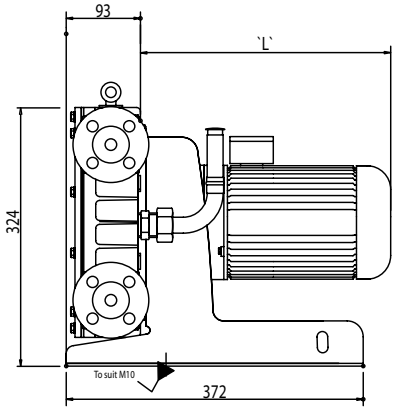
# Verderflex Peristaltic pumps, model VF15

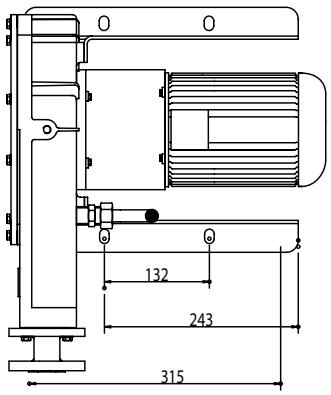



Displacement 0.083 l/revolution, Capacity is speed x 5 in l/hr
Minimum starting torque required: 60 Nm

**Please Note:** For operating pressures above 7.5 bar, the pumps require a high pressure rotor to be fitted.




**All dimensions are in mm.**
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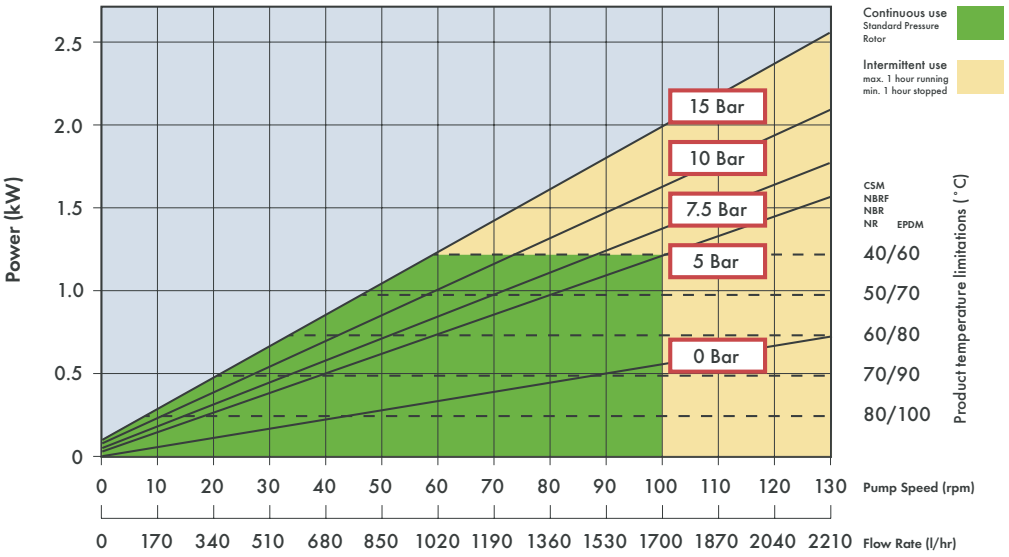
Optional:
Verderflex VF20: a VF 15 pump with adjusted hose dimensions to be able to work in upgraded speed and higher flow ranges

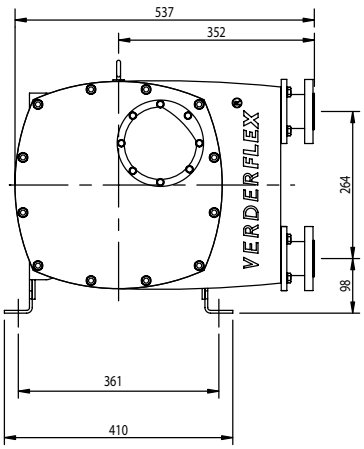
| Part | Material | Weight | Paint |
|---|---|---|---|
| Housing | Aluminium (LM25) | 7.0(15*) | RAL 6018 (green) |
| Cover | Clear Polycarbonate | 0.7 | |
| Rotor | Aluminium (BS1490:1988 LM25M) | 0.4 (4*) | |
| Flanges | Mild Steel (BS EN.10.025 FE430A) | 1.5 each | |
| Flange inserts | SS 316L | 0.15 | |
| | PP | | |
| | PVDF | | |
| Base frame | Carbon Steel | 3.0 | RAL 7035 (grey) |
| Lubricant | Verderlube: Glycerine based compound | 0.5 litres | |
| | Verdersil: Silicone oil | | |
| Tube | NR, NBR, NBRF, CSM and EPDM | 0.7 | |
| Aluminium | Flat pack, close coupled | 20 | |
| Cast Iron | Flat pack, close coupled | 27 | |

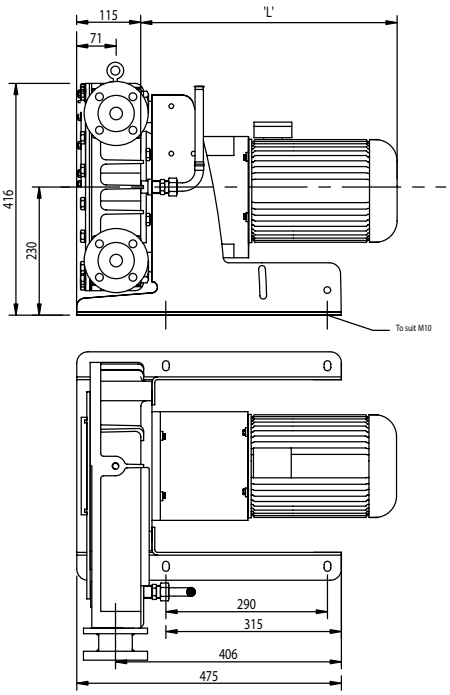
* *Cast Iron option*

# Verderflex Peristaltic pumps, model VF25




Displacement 0.28 l/revolution, Capacity is speed x 17 in l/hr
Minimum starting torque required: 115 Nm
Maximum peak power +4%




**All dimensions are in mm.**
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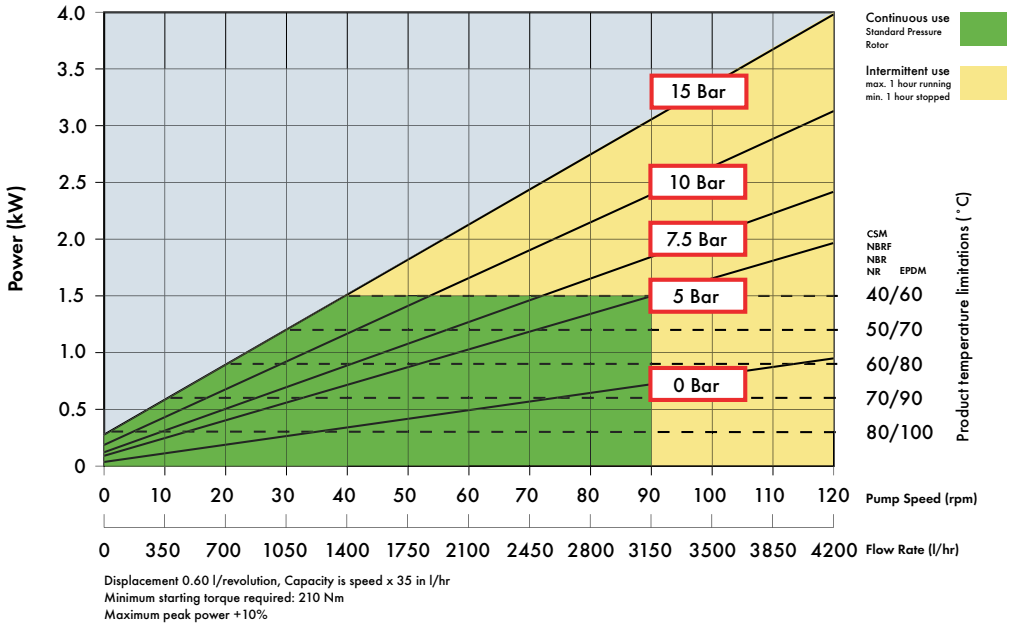
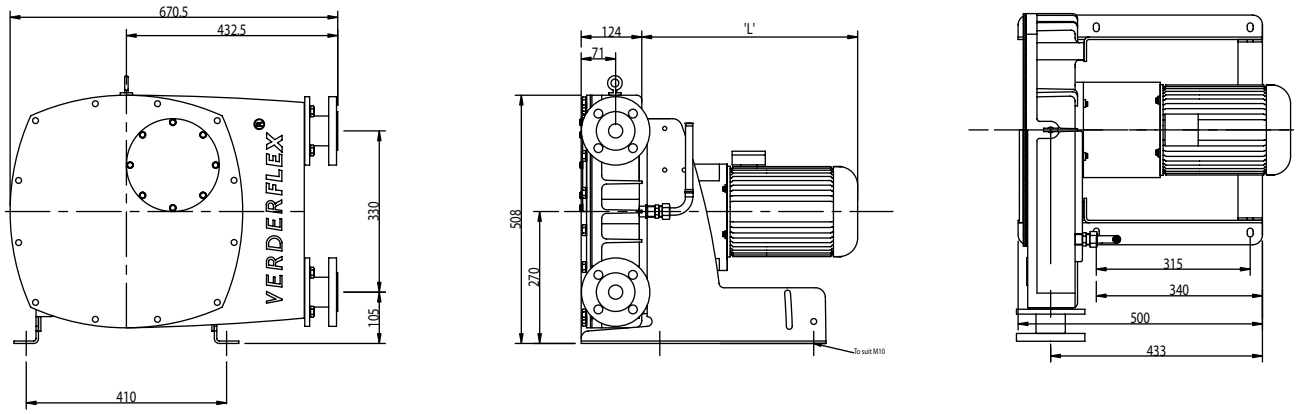
| Part | Material | Weight | Paint |
|---|---|---|---|
| Housing | Cast Iron (GG25) | 40 | RAL 6018 (green) |
| Front cover | Mild Steel (BS.4360 grade 43A) | 6 | RAL 7021 (black) |
| Rotor | Cast Iron (GG25) | 8 | |
| Rotor shoes | Aluminium (6082T6) | 1 | |
| Flanges | Mild Steel (BS EN.10.025 FE430A) | 4.5 | |
| Inserts | Stainless Steel 316L<br>PP<br>PVDF | 0.4 | |
| Base frame | Carbon Steel | 15 | RAL 7035 (grey) |
| Lubricant | Verderlube; Glycerine based compound<br>Verdersil; Silicone oil | 2 litres | |
| Tube | NR, NBR, NBRF, CSM and EPDM | 2.1 | |
| Close coupled | Flat pack | 85 | |

# Verderflex Peristaltic pumps, model VF32




Displacement 0.60 l/revolution, Capacity is speed x 35 in l/hr
Minimum starting torque required: 210 Nm
Maximum peak power +10%




**All dimensions are in mm.**
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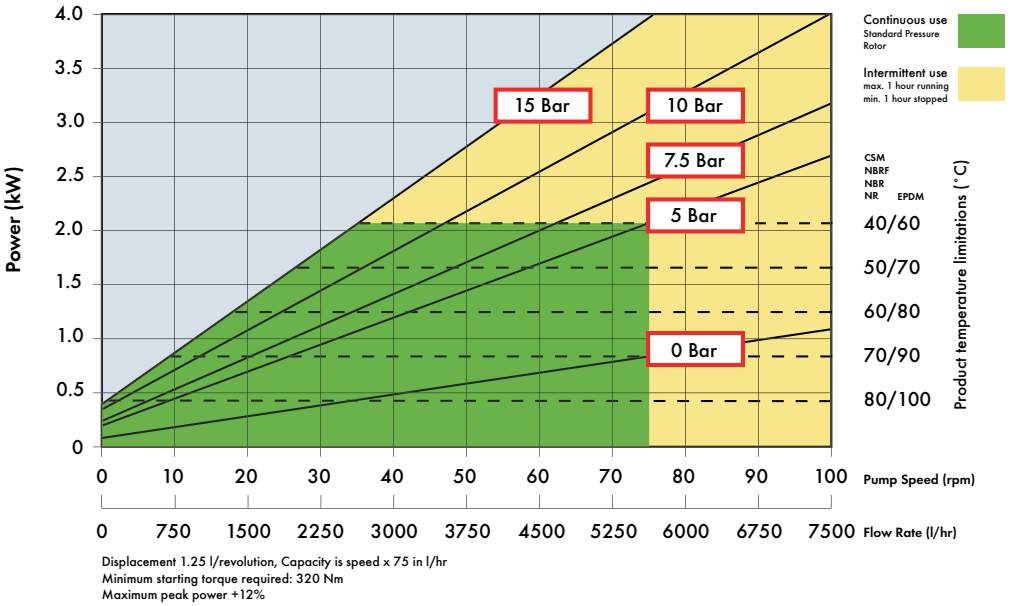
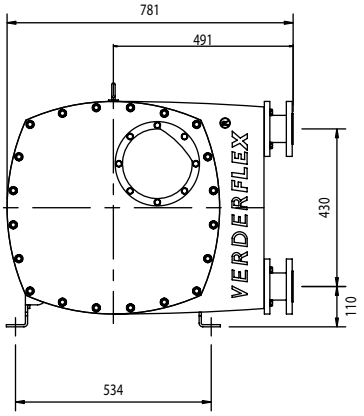
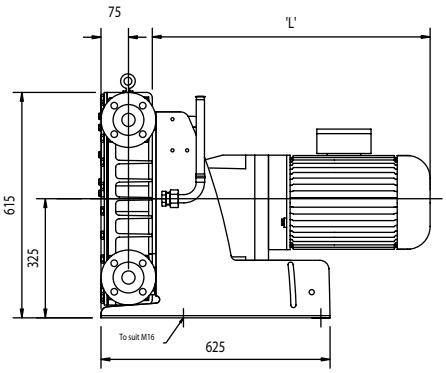
| Part | Material | Weight | Paint |
|---|---|---|---|
| Pump housing | Cast Iron (GG25) | 49 | RAL 6018 (green) |
| Front cover | Mild Steel (BS EN10.025:1993/5275 | 10 | RAL 7021 (black) |
| Rotor | Cast Iron (GG25) | 9 | |
| Rotor shoes | Aluminium (6082T6) | 2 | |
| | Stainless Steel (304) | | |
| Flanges | MIld Steel (BSEN.10.0025 FE430A) | 4.5 | |
| Inserts | Stainless Steel 316L | 0.4 | |
| | PP | | |
| | PVDF | | |
| Base frame | Carbon Steel | 10 | RAL 7035 (grey) |
| Lubricant | Verderlube- Glycerine based compound | | - |
| | Verdersil: Silicone oil | 2.5 litres | |
| Hose | NR, NBR, NBRF, CSM and EPDM | 3.5 | |
| Close coupled | Flat pack | 106 | |

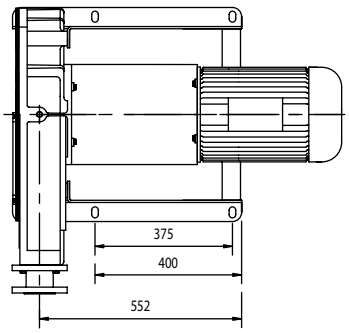
# Verderflex Peristaltic pumps, model VF40




Displacement 1.25 l/revolution, Capacity is speed x 75 in l/hr
Minimum starting torque required: 320 Nm
Maximum peak power +12%



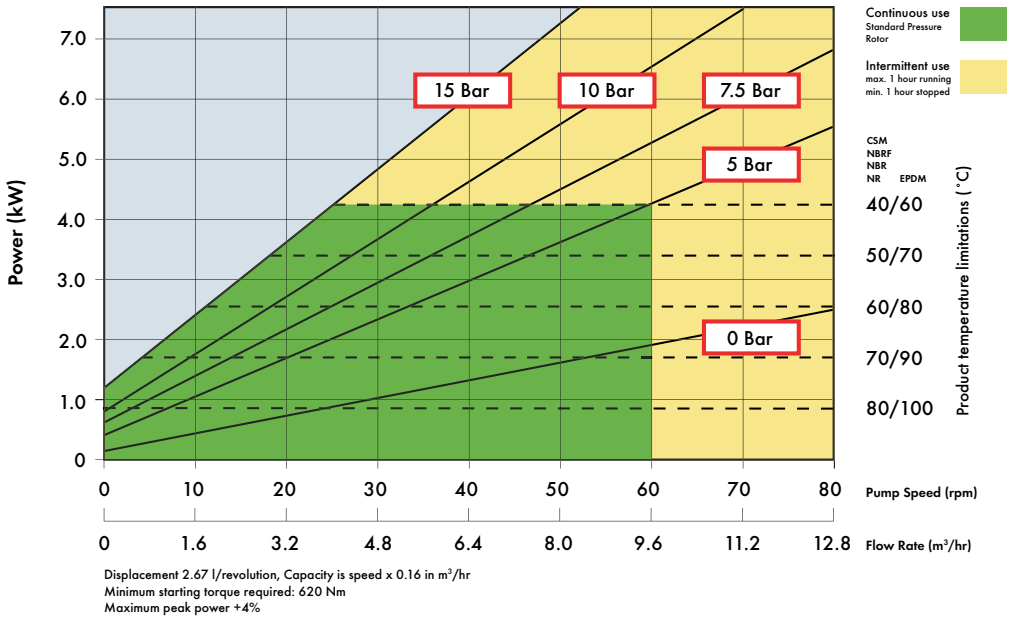



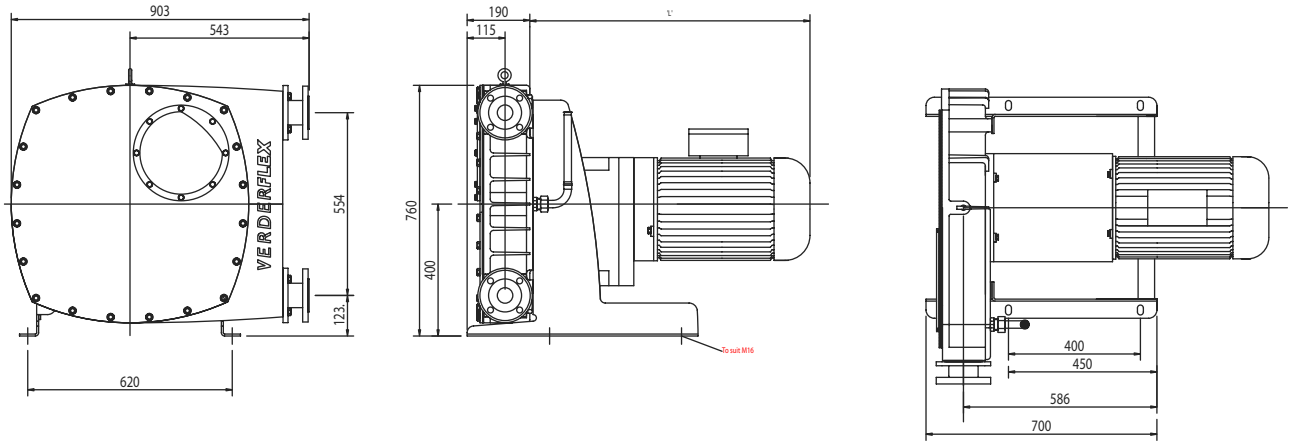

**All dimensions are in mm.**
All dimensions and weights are for guidance only, for construction installation and foot mounting drawings please contact your local authorised Verderflex® distributor.

| Part | Material | Weight | Paint |
|---|---|---|---|
| Housing | Cast Iron (GG25) | 110 | RAL 6018 (green) |
| Front cover | Mild Steel (BS EN10.025;1993/5275) | 12 | RAL 7021 black) |
| Rotor | Cat Iron (GG25) | 16 | |
| Rotor shoes | Aluminium (6082T6) | 3 | |
| Flanges | Mild Steel (BS EN.10.025 FE430A) | 6 | |
| Inserts | Stainless Steel 316L<br>PP<br>PVDF | 0.5 | |
| Base frame | Carbon Steel | 22 | RAL 7035 (grey) |
| Lubricant | Verderlube; Glycerine based compound<br>Verdersil: Silicone oil | 5 | |
| Tube | NR, NBR, NBRF, CSM and EPDM | | |
| Close coupled | Flat pack | 180 | |

# Verderflex Peristaltic pumps, model VF50




Displacement 2.67 l/revolution, Capacity is speed x 0.16 in m³/hr
Minimum starting torque required: 620 Nm
Maximum peak power +4%




**All dimensions are in mm.**
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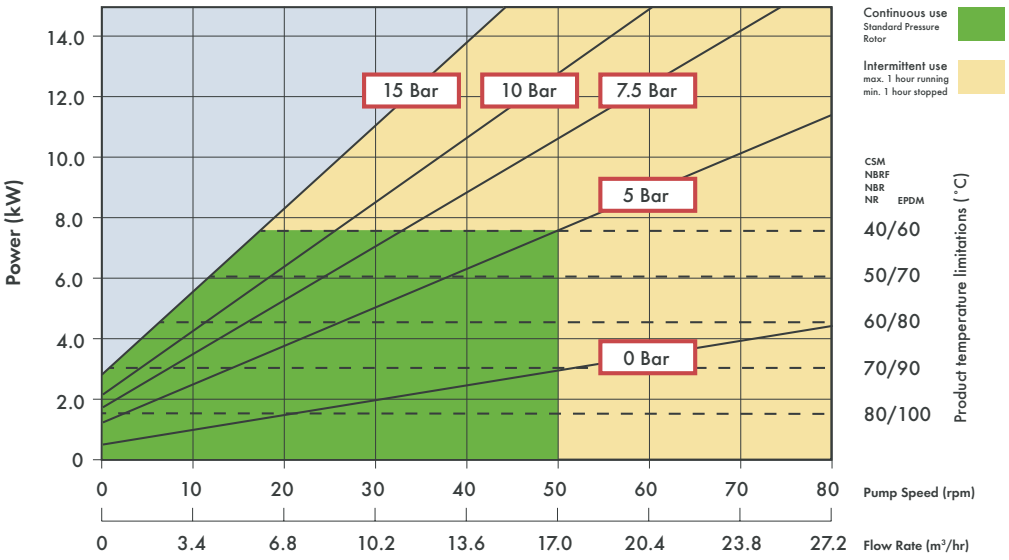
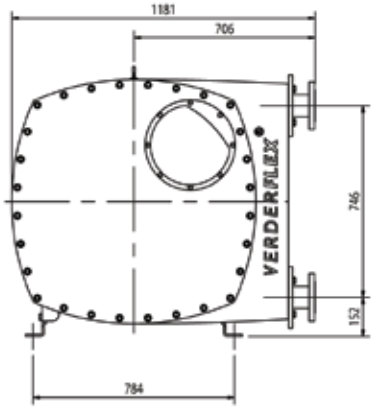
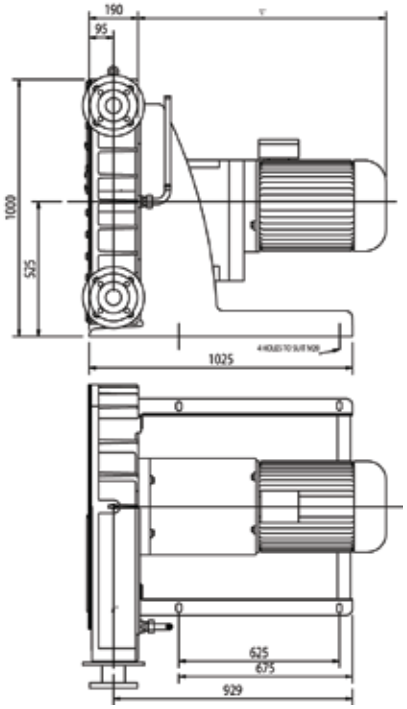
| Part | Material | Weight | Paint |
|---|---|---|---|
| Pump housing | Cast Iron (GG25) | 160 | RAL 6018 (green) |
| Front cover | Mild Steel (BS EN10.025:1993/5275) | 20 | RAL 7021 (black) |
| Rotor | Cast Iron (GG25) | 28 | |
| Rotor shoes | Aluminium (6082T6) | 7 | |
| Flanges | Mild Steel (BS EN10.025 FE430A) | 8 | |
| Inserts | Stainless Steel 316L | 0.6 | |
| | PP | | |
| | PVDF | | |
| Base frame | Carbon Steel | 38 | RAL 7035 (grey) |
| Lubricant | Verderlube: Glycerine based compound | 10 litres | |
| | Verdersil: Silicone oil | | |
| Tubing | NR, NBR, NBRF, CSM and EPDM | 6.5 | |
| Close coupled | Flat pack | 283 | |

# Verderflex Peristaltic pumps, model VF65




Displacement 5.67 l/revolution, Capacity is speed x 0.34 in m³/hr
Minimum starting torque required: 1150 Nm
Maximum peak power +20%

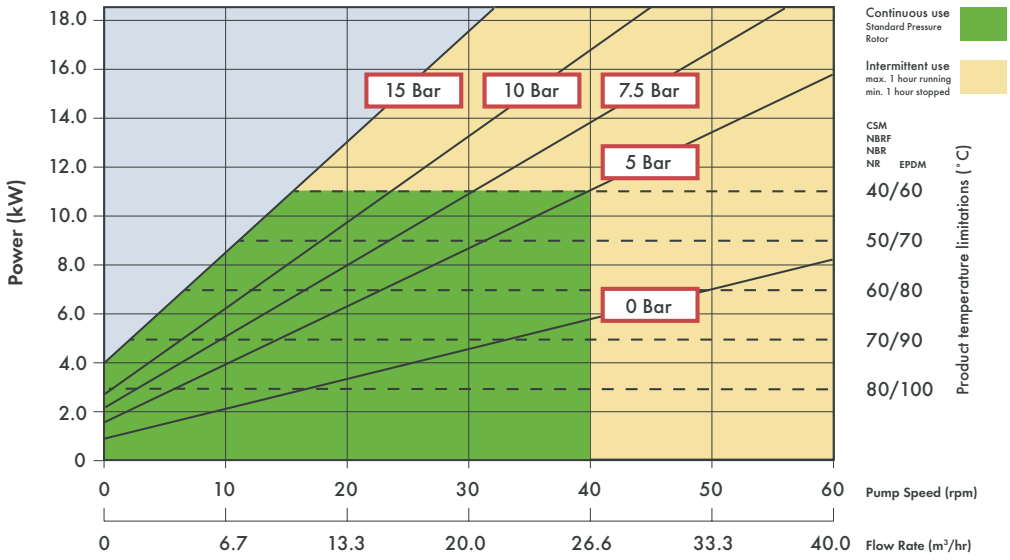


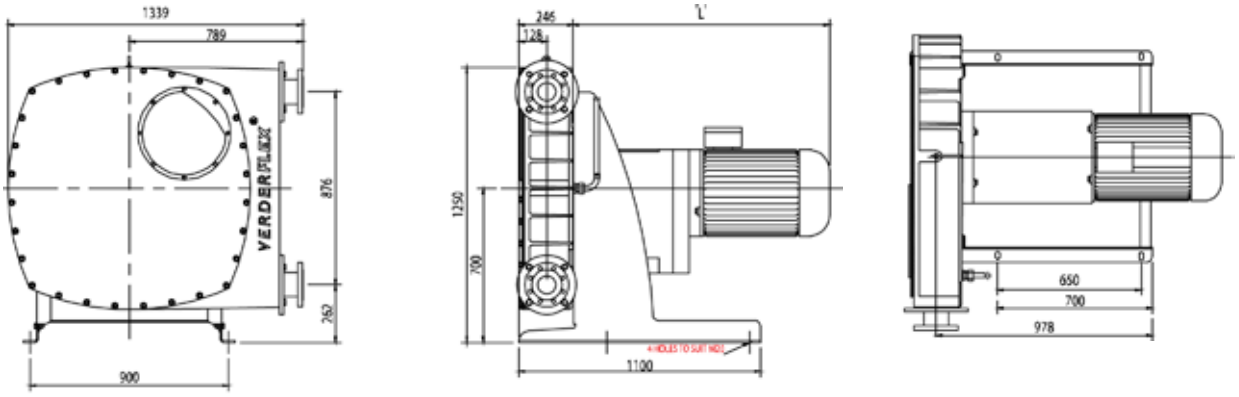

**All dimensions are in mm.**
All dimensions and weights are for guidance only, for construction installation and foot mounting drawings please contact your local authorised Verderflex® distributor.

| Part | Material | Weight | Paint |
|---|---|---|---|
| Pump housing | Cast Iron (GG25) | 470 | RAL 6018 (green) |
| Front cover | Mild Steel (BS EN10.025:1993/5275) | 40 | |
| Rotor | Cat Iron (GG25) | 75 | |
| Shoes | Aluminium (6082T6) | 10 | |
| Flanges | Mild Steel (BS EN10.025: FE430A) | 20 | |
| Inserts | Stainless Steel 316L<br>PP<br>PVDF | 0.8 | |
| Base frame | Carbon Steel | 75 | RAL 7035 (grey) |
| Lubricant | Verderlube; Glycerine based compound<br>Verdersil: Silicone oil | 25 | - |
| Tube | NR, NBR, NBRF, CSM and EPDM | 12.5 | - |
| Close coupled | Flat pack | 750 | |

# Verderflex Peristaltic pumps, model VF80



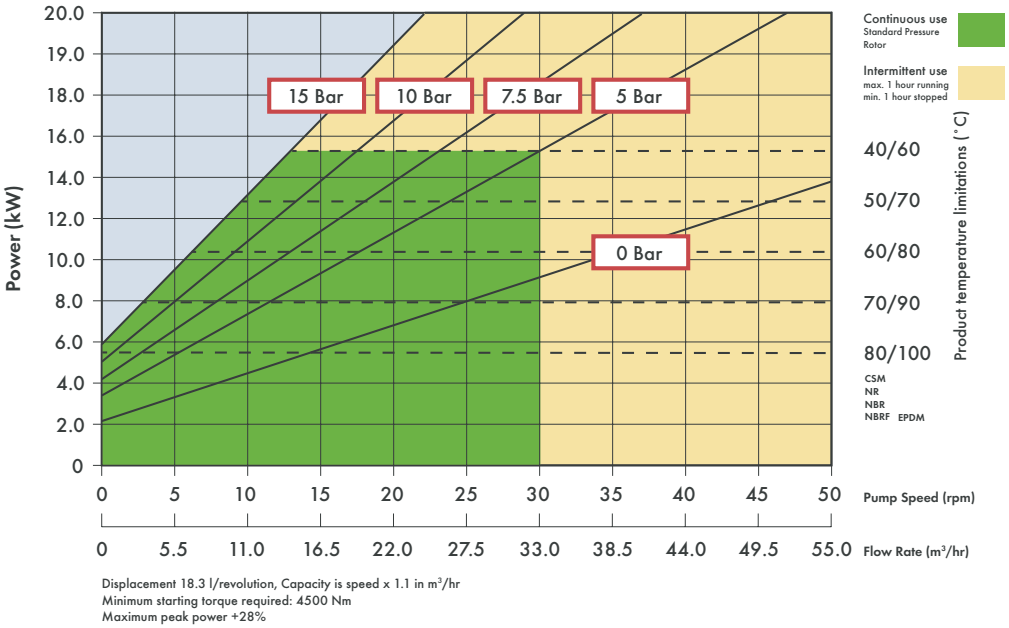

Displacement 11.1 l/revolution, Capacity is speed x 0.67 in m³/hr
Minimum starting torque required: 2000 Nm
Maximum peak power +9%



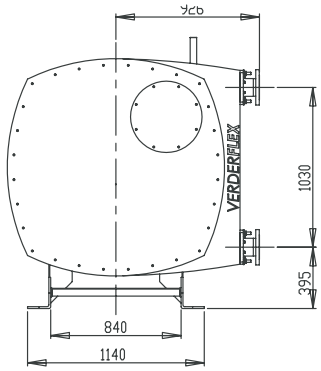

**All dimensions are in mm.**
All dimensions and weights are for guidance only, for construction installation and foot mounting drawings please contact your local authorised Verderflex® distributor.

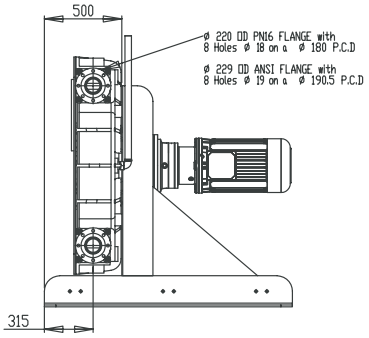
| Part | Material | Weight | Paint |
|---|---|---|---|
| Pump housing | Cast Iron (GG25) | 525 | RAL 6018 (green) |
| Front cover | Mild Steel (BSEN10.025:1993/5275) | 50 | RAL 7021 (black) |
| Rotor | Cast Iron (GG25) | 90 | |
| Shoes | Aluminium (LM4) | 15 | |
| Flanges | Mild Steel (BS EN10.025 FE430A) | 25 | |
| Inserts | Stainless Steel 316L<br>PP<br>PVDF | 1.0 | |
| Base frame | Carbon Steel | 66 | RAL 7035 (grey) |
| Lubricant | Verderlube: Glycerine based compound<br>Verdersil: Silicone oil | 35 | |
| Tube | NR, NBR, NBRF, CSM and EPDM | 12.5 | |
| Close coupled | Flat pack | 850 | |

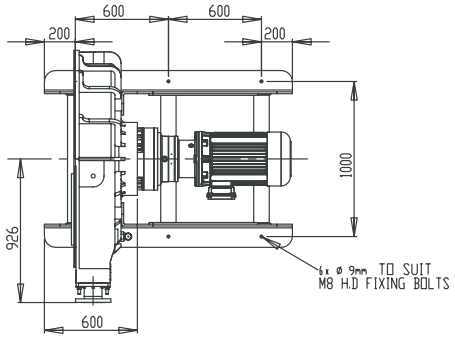
# Verderflex Peristaltic pumps, model VF100




Displacement 18.3 l/revolution, Capacity is speed x 1.1 in m³/hr
Minimum starting torque required: 4500 Nm
Maximum peak power +28%



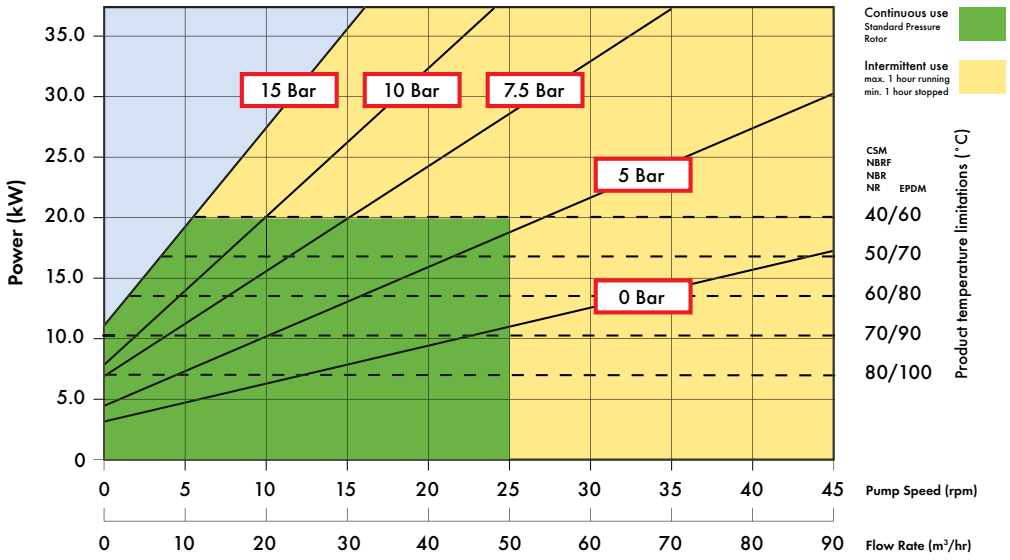



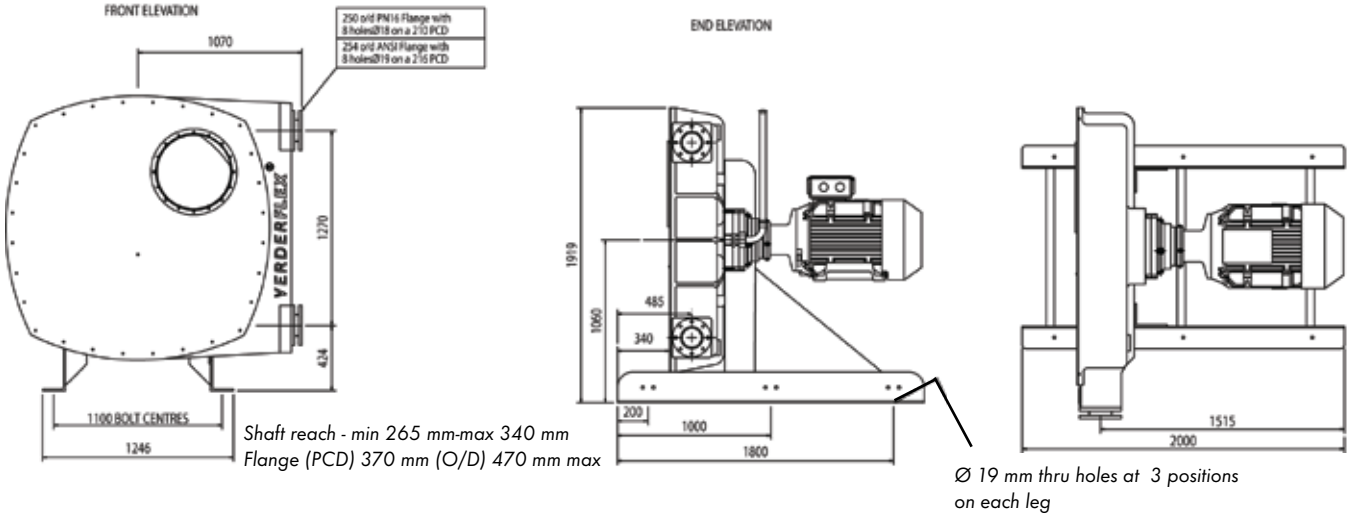

**All dimensions are in mm.**
All dimensions and weights are for guidance only, for construction installation and foot mounting drawings please contact your local authorised Verderflex® distributor.

| Part | Material | Weight | Paint |
|---|---|---|---|
| Pump housing | Cast Iron (GG25) | 845 | RAL 6018 (green) |
| Front cover | Mild Steel (BSEN10.025:1993/5275) | 114 | |
| Rotor | Cast Iron (GG25) | 223 | |
| Rotor shoes | Aluminium (6082T6) | 50 | |
| Flanges | Mild Steel (BSEN10.025 FE430A) | 100 | |
| Flange inserts | Stainless Steel 316L | 4 | |
| | PP | | |
| | PVDF | | |
| Base frame | Carbon Steel | 190 | RAL 7035 (grey) |
| Lubricant | Verderlube; Glycerine based compound | 60 | |
| | Verdersil: Silicone oil | | |
| Tube | NR, NBR, NBRF, CSM and EPDM | 35 | |
| Close coupled | Flat pack | 1700 | |

# Verderflex Peristaltic pumps, model VF125




Displacement 33.3 l/revolution, Capacity is speed x 2.0 in m³/hr
Minimum starting torque required: 7000 Nm
Maximum peak power +27%




*Shaft reach - min 265 mm-max 340 mm*
*Flange (PCD) 370 mm (O/D) 470 mm max*

*Ø 19 mm thru holes at 3 positions on each leg*

**All dimensions are in mm.**
All dimensions and weights are for guidance only, for construction installation and foot mounting drawings please contact your local authorised Verderflex® distributor.

| Part | Material | Weight | Paint |
|---|---|---|---|
| Pump housing | Cast Iron (GG25) | 1355 | RAL 6018 (green) |
| front cover | Mild Steel (BSEN10.025:1993/5275) | 140 | RAL 7021 (black) |
| Rotor | Cast Iron (GG25) | 277 | |
| Rotor shoes | Aluminium (6082T6) | 80 | |
| Flanges | Mild Steel (BS EN10.025 FE430A) | 150 | |
| Inserts | Stainless Steel 316L | 8 | |
| | PP | | |
| | PVDF | | |
| Base frame | Carbon Steel | 210 | RAL 7035 (grey) |
| Lubricant | Verderlube: Glycerine based compound | 80 litres | |
| | Verdersil: Silicone oil | | |
| Tube | NR, NBR, CSM and EPDM | 43 | |
| Close coupled | Flat pack | 2500 | |

# Verderflex Dura peristaltic pumps

With the introduction of the new Verderflex DURA range of pumps, The Verder Group has moved its range of peristaltic hose pumps to a new level.

The DURA series form a new generation of smaller hose pumps, namely the DURA10, DURA15 and DURA25, based on an innovative, close-coupled design. The features of this pump surpass all other hose pumps giving Verder the world's most reliable, robust pump with exceptional dosing features.

## DURA's Unique Design

Verderflex's contribution to your productivity with its new generation pumps, simply serves to highlight our commitment to solutions in pumping technology.

- The DURA series has an ultra-compact construction, which dramatically reduces required floor space by up to 70% in contrast to other comparable pumps.
- The DURA range of pumps are easy to install, virtually maintenance free and comply with ATEX standards. The hose and lubricant are the only components, which will eventually need to be replaced.
- A significant reduction in operating temperature leads to improved hose life when compared to an equivalent pump type.
- Improved frame design and a one-size-fits-all slotted flange solution, incorporating ANSI; JIS & DIN to connect the Verderflex DURA pump to the pumping station.

## Technical Information

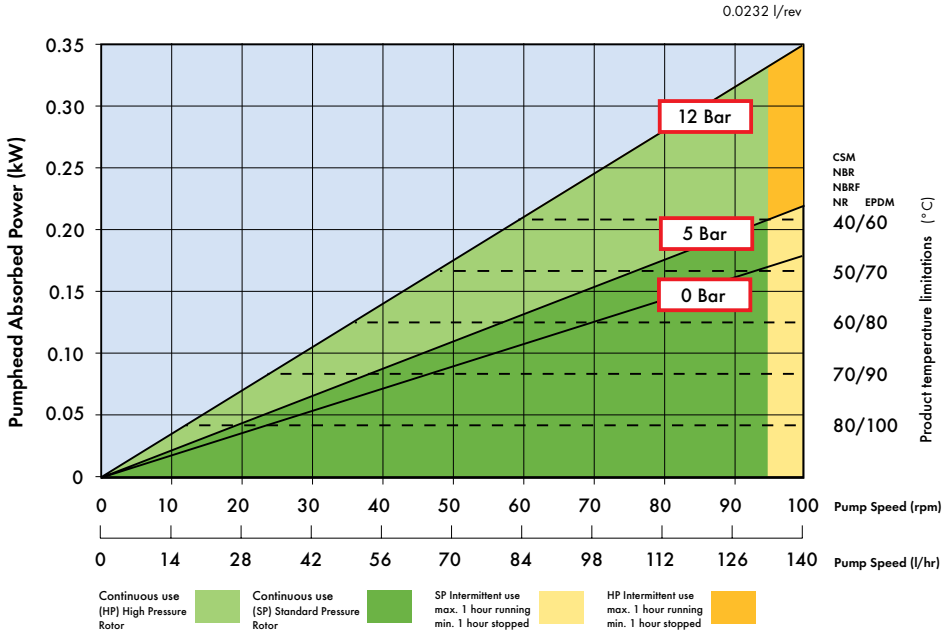
| | Max speed | Max power | Flow rates | | Max pressure | |
|---|---|---|---|---|---|---|
| | | (rpm | (kW)min (l/h) | | max (l/h) | (bar) |
| DURA 10 | 100 | 0.15 | 13.9 | 139.2 | 12 | |
| DURA 15 | 100 | 0.39 | 45.6 | 456.0 | 12 | |
| DURA 25 | 100 | 1.15 | 170.5 | 1705.2 | 12 | |

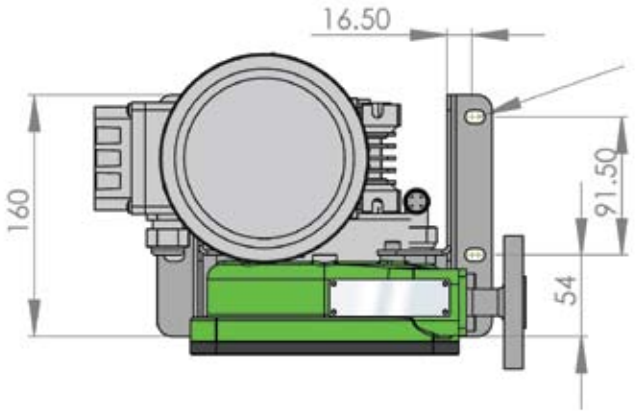
| Materials of construction | |
|---|---|
| Housing | Cast Steel ((RAL 6018 - green) |
| Front cover | Toughened Polycarbonate |
| Rotor | Cast Aluminium, option Cast Iron |
| Drive shaft | EN 24 Steel |
| Flange* (inc insert) | 316 Stainless Steel |
| Inserts (option) | PVDF |
| Base frame | Stainless Steel |
| Torque arm | Mild Steel (RAL 7035 - Grey) |
| Bearing | Stainless Steel |
| Shaft seal | NR / Viton / PTFE |
| Lubricant | Verderlube: Glycerine based lubricant |
| | Verdersil: Siliocon based lubricant |
| Tubing | NR, NBR, NBRF, EPDM and CSM |

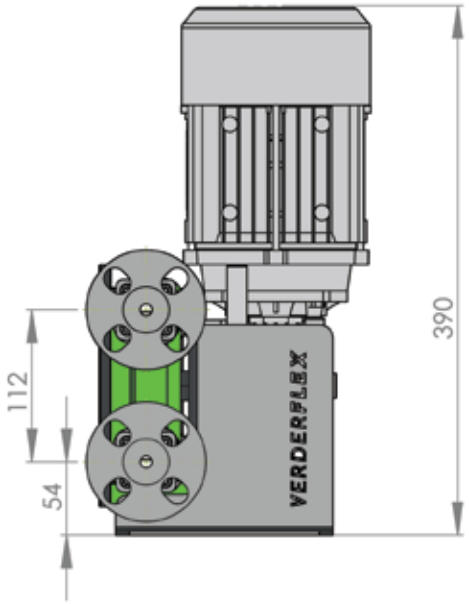
*Flange coating option: Halar*

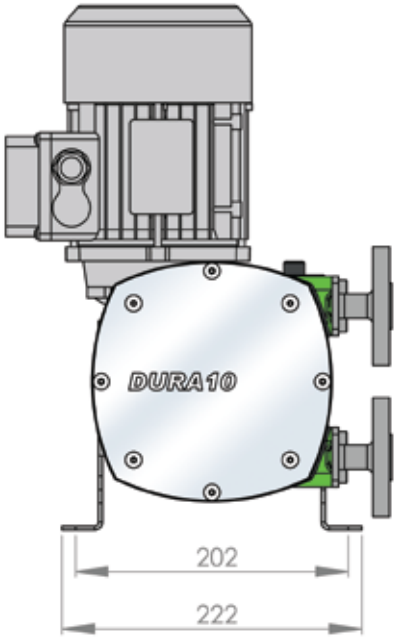
| Weight | |
|---|---|
| DURA 10 | 19 kg |
| DURA 15 | 30 kg |
| DURA 25 | 49 kg |
| | |
| Inverter | 3 kg |

# Verderflex Dura peristaltic pumps, model 10

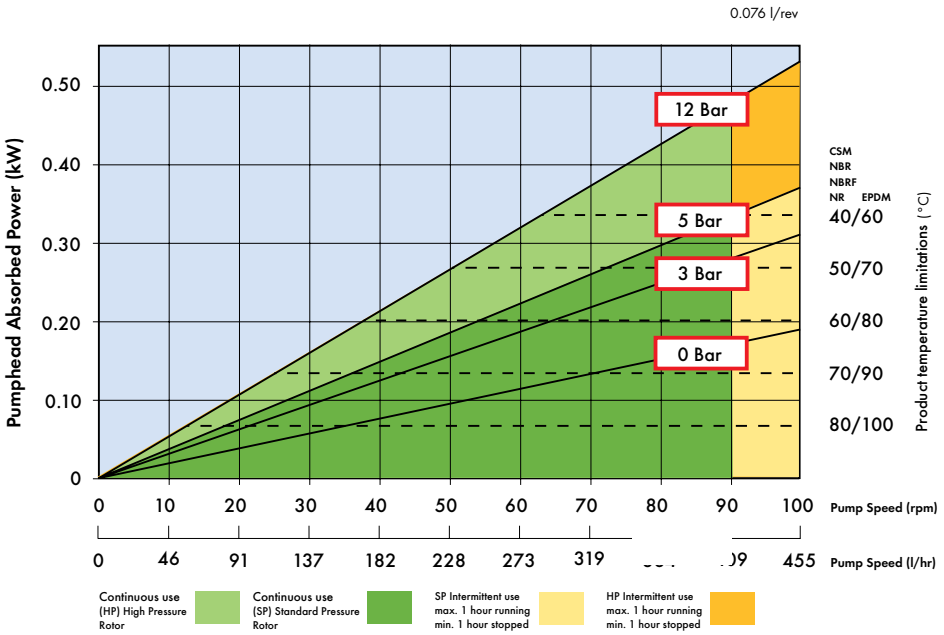


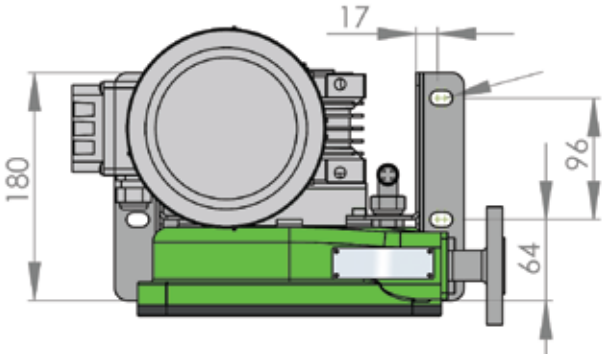



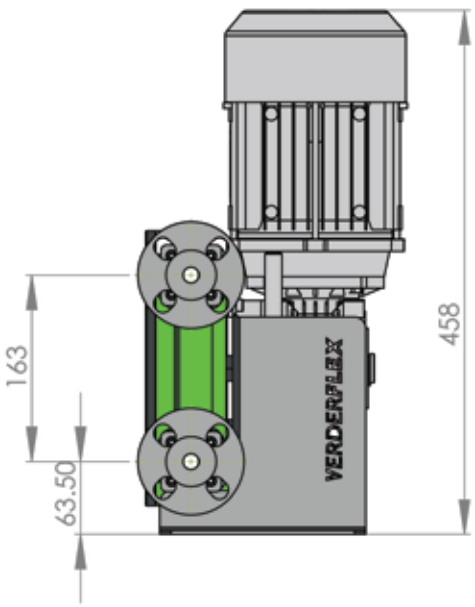



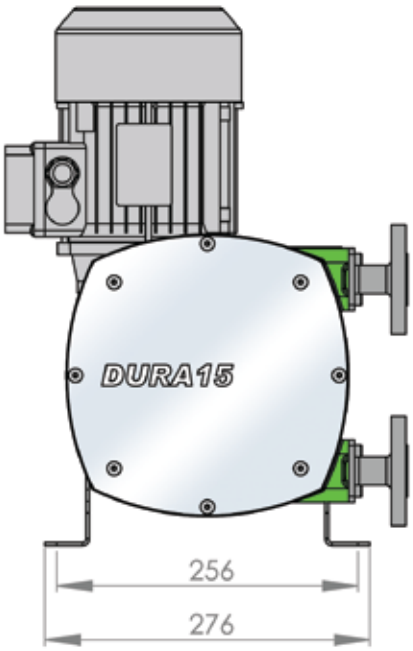



# Verderflex Dura peristaltic pumps, model 15

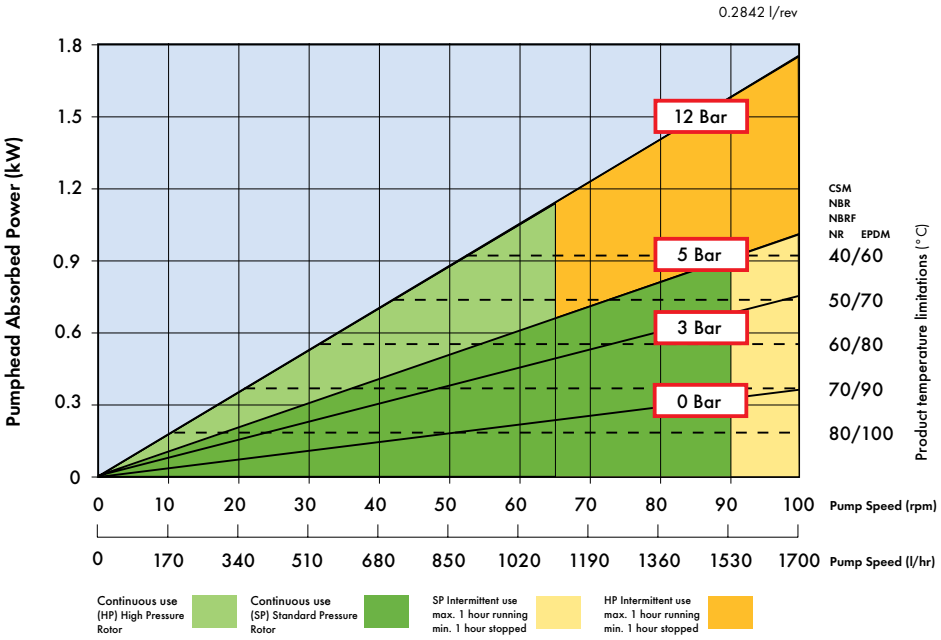


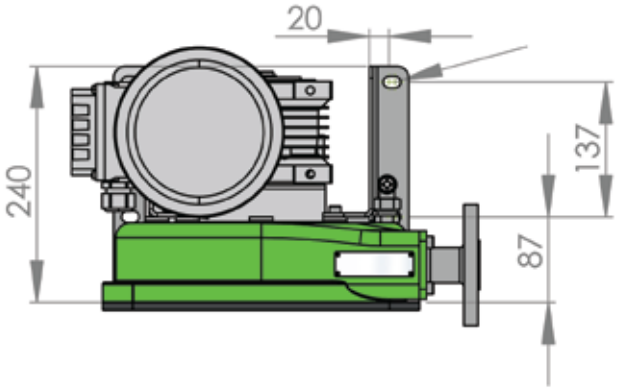



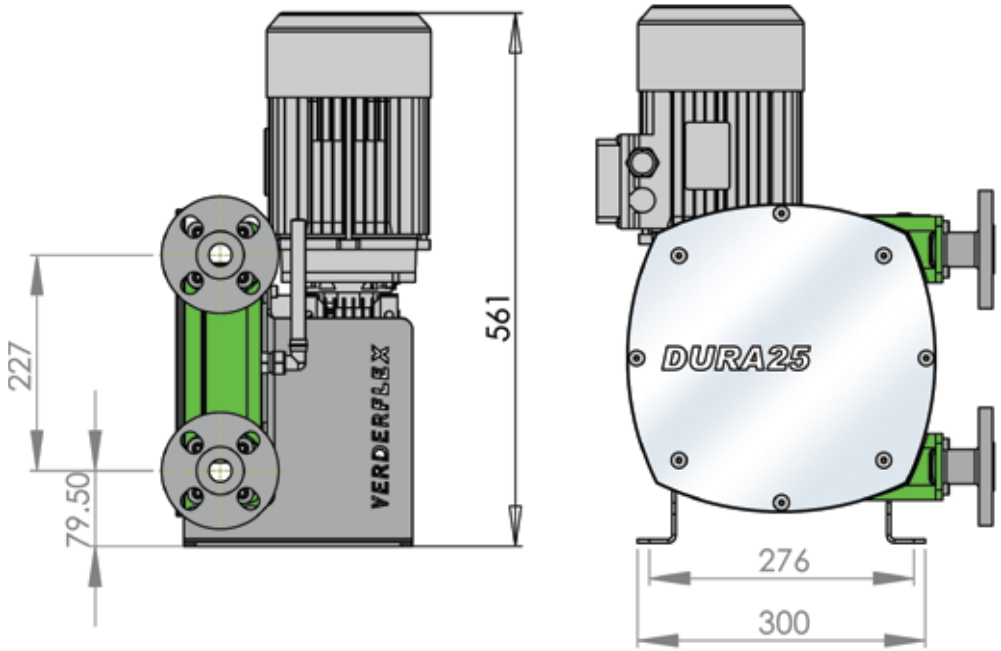



# Verderflex Dura peristaltic pumps, model 25



# The Verderflex hose

- Water treatment -
  Lime mixing & recirculation

- Mining -
  Process reagent dosing

- Brewing -
  Pumping Kieselguhr

- Manufacturing -
  In-Process dosing & transfer

The successful use of hose pumps in a number of fields led Verder to develop a hose with an enhanced construction. Hoses in peristaltic pumps generally fail due to fatigue between the rubber layers and the reinforcement. However, Verder hoses are specifically designed and manufacturered to reduce fatigue, resulting in an extremely long hose service life.

## Technical Summary

- 12 standard hose sizes from 5mm (3⁄16") to 125mm (5").
- All are designed to maximise hose life by optimising the hoses' fatigue strength.
- Hoses are available in Natural Rubber (NR), Nitrile Buna Rubber (NBR), Food Grade NBRF, EPDM and Hypalon® (CSM).
- Hoses have colour coded identification tapes bonded into the outer surface during manufacture to clearly identify material type.

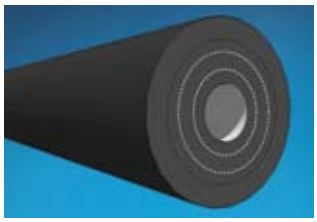
Internal diameter of the hose and rotor speed determine the flow rate of the pump. Hose wall thickness compared to its diameter and the number of reinforcement layers are responsible for the restitution of the hose after compression which creates a virtual vacuum in the hose. The construction of the textile reinforcement allows a discharge pressure of the pump of up to 16 Bar/230 PSI for all pump types.

## Technical hose data

| Model | Diameter Internal mm | External mm | Length mm | Weight kg |
|---|---|---|---|---|
| VF 5 | 5 | 32 | 510 | 0.4 |
| VF 10 | 10 | 32 | 510 | 0.43 |
| VF 15 | 15 | 37 | 780 | 0.68 |
| VF 20 | 20 | 37 | 780 | 0.73 |
| VF 25 | 25 | 55 | 1005 | 2.0 |
| VF 32 | 32 | 62 | 1250 | 3.1 |
| VF 40 | 40 | 65 | 1490 | 4.0 |
| VF 50 | 50 | 81 | 1820 | 6.5 |
| VF 65 | 65 | 101 | 2335 | 12.5 |
| VF 80 | 80 | 123 | 2780 | 22 |
| VF 100 | 100 | 144 | 3270 | 35.5 |
| VF 125 | 125 | 170 | 4050 | 43.2 |

*Dimensions of the Verderflex hose are universal, this allows it to be fitted to most brands of hose pumps on the market.*

**"...specifically designed to reduce fatigue..."**



**"...resulting in an extremely long hose service life..."**

# Hose selection

## Surface properties of the hose

Some industrial hose pumps in today's market have machined exteriors, a process generally employed to achieve an equal wall thickness. In comparison, the unique Verderflex® production process is so precise that the exact wall thickness and outer diameter tolerances are maintained at each and every point. For this reason Verderflex® hoses do not have to undergo this additional process of external machining. When Verderflex® hoses are tested alongside their competitors, results indicate that there is no additional friction loss due to the wound surface. The textured surface actually creates micropockets of lubricant which promotes even lubrication coverage which results in longer hose life . For corrosive applications requiring EPDM hose, Verderflex® recognizes the importance of a homogeneous material. Under normal wear, a hose will fail in the „cheeks" of the hose and form a leak path through to the outer layer. Some hose pump manufacturers simply use an EPDM inner core and supplement this with natural rubber in the cord and outer layers, which accelerates hose failure through these layers in corrosive applications. Verderflex® uses a homogenous EPDM material throughout the hose, which helps to extend hose life and protect the pump in these aggressive applications.

All Verderflex® hoses have a colored lettering on the exterior which indicates the type of hose. The Verderflex® lettering is white for a NR hose, yellow for a NBR, yellow with a white stripe for the Food Grade NBRF, red for a EPDM hose type and green for Hypalon® or CSM.

| | Print colour | Temperature<br>Celcius | Pressure<br>bar |
|---|---|---|---|
| NR | | Most common hose for all market segments is the Natural Rubber (NR) hose. Both the liner and cover are made from NR which is highly resistant to abrasion.<br>Suitable for use with lightly corrosive chemicals, highly abrasive slurries, inorganic products, etc. | |
|  | White | -20°C to +80°C | 16 |
| NBR | | This hose is particularly suitable for use with oily or fatty products, and with organic materials.<br>The inner liner is of nitrile buna rubber (NBR) and the cover is a blend of SBR/NR. | |
|  | Yellow | -20°C to +80°C | 16 |
| NBRF | | The NBRF hose has an FDA approved food grade inner liner for use in EHEDG compliant or similar hygienic applications. | |
|  | White / Yellow | -20°C to +80°C | 16 |
| EPDM | | This hose is suitable for corrosive chemicals and inorganic products, the liner is made of EPDM rubber. The cover of this hose is also made of EPDM, in contrast to many other hoses whose cover is made of natural rubber. This feature makes the hose exceptionally resistant to corrosive chemicals, even those for diffusing media. | |
|  | Red | -20°C to +100°C | 16 |
| | | | *This hose can be run for short time up to 120° C |
| CSM | | The CSM, or Hypalon® hose, is used to pump highly corrosive products such as strong oxidising agents.<br>This hose has a CSM inner liner and an SBR/NR outer cover; it has a maximum continuous temperature rating of 85° C | |
|  | Green | -20°C / +85°C | 16 |

# Applications for Verderflex peristaltic pumps

## Dosing Polymers and Ferric in Coagulation Processes

"Ferric" and polymers are used to dose coagulants into clean water plants to remove peat, suspended solids and residual colours from clean water steams. In wastewater treatment, sophisticated polymers maximise plant throughput by increasing the solid separation rate allowing greater primary waste volumes to be treated per day.

- most polymers are highly shear sensitive;
- high shear rate pumping solutions increase coagulant costs, lowering plant efficiency;
- over-dosing causes coagulant to be re-circulated into the plant inlet stream, this reduces the effectiveness of lime treatment, additionally increasing the costs of this operation;
- in contrast, the gentle peristaltic action maximises coagulant performance and increases overall plant efficiency;
- the linear flow-speed characteristic of Peristaltic pumps allows accurate coagulant dosing rates, optimising chemical usage;
- abrasive products create continual wear problems for many pumps leading to continual maintenance downtime and premature pump failures;
- peristaltic pumps are abrasion resistant, so they provide reliable and predictable service.

## Hypochlorite and drinking water disinfection

All water treatment plants produce waste, which has to be prepared for disposal, usually by filter pressing, to minimise volumes and constrain the waste processing costs. Usually such waste is sent to landfill or incinerated giving a disposal cost based on the waste's weight and volume.

Filter presses challenge traditional pumping solutions:

- the waste is abrasive, creating stator wear, slip and consequentially the pump's flow drops
- traditionally, to maintain flow rate the pump speed is increased - "delivery on gland"
- this creates variable suction performance and the suction pressure increases creating "Rat Holes" (water is pulled from above the top of the sludge blanket) in the filter press feed, increasing the water content (the weight) and the volume of the pressed waste
- filter press operation costs are increased
- peristaltic pumps give consistent suction performance and do not suffer wear
- "Rat Holes" are eliminated, a more consistent, denser pressed waste is produced
- filter press costs are reduced.

## Hypo and drinking water disinfection

Sodium Hypochlorite has outstanding disinfection properties and dosing with locally generated solution is one of the primary methods of drinking water disinfection and odour control solutions. It is also a challenging product for a pump:

- when being pumped Hypo tends to gas causing diaphragm dosing to vapour lock and the product is not dosed;
- de-gassing kits, at best, allow such pumps to slowly recover dosing performance jeopardising consent levels
- peristaltic pumps pump both gas and liquid and ensure all the liquid stream receives a consistent dose;
- Verderflex's Hypalon ® hoses will withstand up to 17% solutions and so can be used with both low strength and high strength Hypo generation systems.

## Lime Dosing and Mixing in pH and Odour Remediation Treatment

Lime or Kalic ® or Kalkmilch is one of a group of wastewater treatment chemicals that are used to rectify the pH of wastewater discharges or remove odours from drinking water streams. Other chemicals include Ferric salts, Caustic Soda, Aluminium Sulphate, Ferrous Sulphide and Powder Activated Carbon (PAC). Many of these have common properties that make peristaltic pumps an ideal dosing solution:

- they are particularly abrasive, creating continual wear problems for progressing cavity pumps leading to ongoing high stator replacement costs and frequent maintenance downtime;
- lime is relatively highly viscous, usually too viscous for diaphragm pumps, causing them to clog up resulting in continual maintenance requirements;
- peristaltic pumps are abrasion resistant;
- peristaltic pumps have a linear flow-speed characteristic, ideal for feedback control systems, allowing precise control of dosing chemical usage, minimising chemical usage;
- peristaltic pumps have a smooth liquid passages, there are no opportunities for product to settle and the peristaltic action keeps product in suspension rather than allowing settlement;
- product may be mixed on site - solids in the liquid stream aren't a problem for peristaltic pumps;
- the seal-free design eliminates leaks and the consequent risk of workplace contamination.

VERDER

Solutions in Pumping Technology

## The Verder Difference

Pumps form an essential part of industrial processes for all our customers, which is why our starting point is your process and your specific needs. We provide a wide and complementary range of pumps and accessories on the basis of application and need. What's more, by offering technical and logistic services alongside an extensive knowledge of processes and applications positions us as a leading supplier.

The Verder Group offers a wide range of solutions for industrial applications:

- Liquids Technology – pumps, pumping systems and liquids/gas mixers
- Solids Handling Technology – equipment for processing and handling of solid materials
- Sample preparation – precise equipment for laboratory solids preparation and handling

Verder Liquids is active in many industries: chemicals, food, envIronment, water and general industry, we also offer excellent OEM solutions. 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.

## 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 substantial international pump company and if your project involves overseas work then you can benefit from our international network of companies.
- In addition to the Verder Group operating companies, the Verderflex range is supported by a worldwide distribution network that provides local support and spares availability on all five continents.

## The Verderflex Series

**More from Verderflex...**

### Verderflex Smart Tube Pump

- Flows from 0.25ml/min to 27 l/min
- Maximum discharge pressures up to 4 bar
- Four sizes of IP 55 digitally controlled programmable multi channel tube pumps
- Industrial style F series design using standard gear motor unit & optional inverter for process plants
- Wide range of tube materials including Verderprene and Silicone
- Easy-fit self adjusting tube saddle.
- External interfaces : 0-10V, 4-20 mA, RS 232

### Verderflex Scientific pumps

- Laboratory tube pumps. Flows from .... up to .... ml/min.
- Maximum discharge pressures up to 2 bar
- IP 55 protected multi channel tube pumps
- Wide range of tube materials including Verderprene and Silicone
- External interfaces : 0-10V, 4-20 mA, RS 232

### Verderflex Autoclude OEM pumps

- Laboratory tube pumps. panel mounted or free standing. Flows from .... up to .... ml/min.
- Maximum discharge pressure up to 2 bar
- IP 55 protected multi channel tube pumps
- Wide range of tube materials including Verderprene and Silicone




12-07-UK Rev.02