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Rotto®

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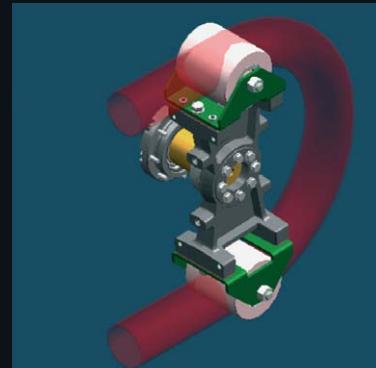
We have been manufacturing pumps for over 60 years, and from the early years we have especially focused on the research and development of the peristaltic pump. Today we are in a position of proposing solutions for every industrial field with the reliability and quality that we have built our success upon.

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Simple Principle

The basic principle of the peristaltic pump traces back to human “peristalsis” a term referring to the alternating contraction and relaxation of muscles around a tube to force the contents through it. An elastomeric tube is squeezed along a length by rollers that push the fluid contained within. The tube's restitution after squeezing produces a vacuum that draws fluid continuously into the tube. This creates a gentle pumping action that doesn't cause any damage to the product. Contaminations are avoided because the fluid is contained within the tube (one contact part with product). The pump employs a rotor with rollers mounted on it that continually compress and occlude some portion of the tube. This action moves the fluid through the tube with a constant rate of displacement for each revolution of the rotor, enabling a precise measurement of the volume of fluid pumped through the tube.

Rotho®



The Rotho Pump

The “roller on bearings” design of the Rotho pump offers many advantages:

- It eliminates the requirement for adding a lubrication fluid inside the pump housing, because there is no friction on the surface of the tube therefore giving a longer tube life.
- **it requires smaller drives, so less power installed, compared to others peristaltic pumps, to get the same rpm and capacity.**
- They can transfer food products with no contamination hazards, as the pump housing is lubrication free.
- With no lubrication fluid required, hose replacement is greatly simplified and cheaper without having to drain and dispose of a messy and possibly contaminated oil or glycerine solution.



Advantages

- No seals
- No valves
- Self priming
- Only tube to replace
- Reverse flow by reversing motor
- No contact between product and mechanical parts
- Can run dry without damage
- Able to pump products with solid parts inside
- Suitable for CIP applications

Uses

- Transfer, feed, meter, filter of:
- Fragile or sensitive fluids
- Compound fluids
- Abrasive and corrosive fluids
- Non pollutable or pollutant fluids

Fields of application



Ceramic



Chemical



Water and waste treatments



Food & beverage



Metallurgy



Pulppaper



Construction



Painting and pigment



Ink



Mining



Marine



Biogas

Abrasive Products

The Roto pump is excellent on abrasive slurries where it has had much more success than other pumps. The Roto pump parts stay out of the product zone and the hose is the only one thing that is in contact with the product, this keeping abrasive wear to a minimum.

Products that crystallize are also well pumped by the Roto pump.

There are no valves or glands so the eventual build up of crystals could not clog the pump.



Corrosive Products

With corrosive fluids the hose selection is of paramount importance to the longevity of the pump. With the correct hose selection and no other contact mechanical parts in the product, this ensures a long pump life.

Fluids With Solid Parts Or Sensitive Products

A problematic product for many pump types is fluids with solid particles such as waste water with gravel, pieces of wood, concrete or foods, where as the peristaltic pump due to free tube-passage can easily transfer it without any product or pump damage.

The Roto pump is also a good choice for transferring shear-sensitive fluids or foamy products, the non emulsifying action minimises damage to the product or its consistency.



Viscous Products

The Roto pump gives a strong self-priming suction which can draw almost full vacuum, producing the pull necessary to draw viscous materials such as honey, grout, resins or waste sludge, which is almost impossible for many other pump types.



Environmental Applications

There are two main environmental applications for the Roto pump:

- Chemical metering
- Sludge transfer

1) Chemical metering:

The most common is for Sodium Hypochlorite, Sodium Bisulfite, Ferric Chloride and some polymers, as well as lime slurry and carbon slurry. Above all with sodium hypochlorite that emits off gas, the Roto pump doesn't lose efficiency due to pockets of air, pumping together both liquid and gas



2) Sludge:

The Roto pump can handle many different kinds of sludge depending upon the level of treatment in a plant. It can feed and transfer thickened sludge, waste activated sludge, return activated sludge and corrosive sludge.



ROTHO tube

It is an elastomeric tube right for duty service and its selection depends by the product to pump, pressure, temperature; it is a multilayer hose with 2, 4 or 6 textile insert reinforcement depends by its dimension and pressure to win.



The right hose for the right product

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| Hose Colour Identification | BLE | RED | GREEN | YELLOW | WHITE | ORANGE | BEIGE |
|---|--|--|---|--|--|--|---|
| Hose mark | NN | NP | EP | RN | RF | HY | PH |
| Composition | NATURAL ISOPRENE | Substrate for food products NATURAL ISOPRENE | Monomer Ethylene-Propylene EPDM | Nitril-Butadiene Substrate for foods NBR | Nitril-Butadiene For foods NBR | Polyethylene Chlorosulphonate HYPALON | PHARMED Thermoplastic Elastomer-base. Polypropylene |
| Thechnical features | Multilayer hose with textile insert reinforcement. | Multilayer hose with textile insert reinforcement. | Multilayer hose with textile insert reinforcement. | Multilayer hose with textile insert reinforcement. | Multilayer hose with textile insert reinforcement. | Multilayer hose with textile insert reinforcement. | Omogeneous tube, without textile insert. |
| TEMP. C° | -10 +85 | -10 +75 | -10 +95 | -10 +75 | -10 +75 | -10 +85 | -20 +135 |
| PRESS. BAR | -0,9 +8 (15) | -0,9 +6(8) | -0,9 +8 | -0,9 +6(8) | -0,9 +6(8) | -0,9 +8 (15) | -0,5 +1,5/2 |
| Compatibility | Excellent behaviour for abrasive liquids and moderately aggressive liquids and fluids for high pressure. | Similar to NN type, suitable for foods products. | Suitable for chemical use and for relatively high pressure. | Suitable for oils, greases, hydrocarbons and various solvents. | Suitable for alimentary use, oils and fats. | Suitable for concentrated acids, alkaline liquids. | Suitable for alimentary and pharmaceutical products, (liquid). |
| Mechanical characteristics | Resistance/Duration HIGH | Resistance/Duration HIGH | Resistance/Duration MEDIUM | Resistance/Duration MEDIUM | Resistance/Duration HIGH | Resistance/Duration HIGH | Resistance/Duration HIGH |
| | Hose available for all models. | Hose available for all models. | Hose available for all models. | Hose available for all models. | Hose available for all models. | Hose available for all models. | Available for PSF serie only. |
| Alimentary classification | | FDA-CFR 21 Parts 170 to 199 Item 177.2600 | | | FDA 1777.2600 | | FDA 177. 2600 NSF CRITERIA |
| For cleaning: C.I.P. and S.I.P. Suggest to remove the tube. | | To sterilize whit water to 70° and solution of 5% volume surface-active agent, rinse with cold water. Washing with steam to 120°, for max. 3 minutes. | | | To sterilize with water to 70° and solution of 5% volume surface-active agent, rinse with cold water. Washing with steam to 120°, for max. 3 minutes. | | To sterilize with hot water and neutral nonoile soaps. Rinse with distilled water. Possibility to autoclave sterilization. |



Connections



Flanges DIN; ANSI;
DIN 11851 Threaded , Clamp, Tri-clamp, RJT, BSP threaded
In: S.S. 316,
PVC, PVDF, PTFE
Polypropylene,
Titanium

Variable gear speed



Ratio 1-5

Frequency inverter



Possible arrangement
for analogical signal 4-20mA, 0-10V.

Pulse dampeners



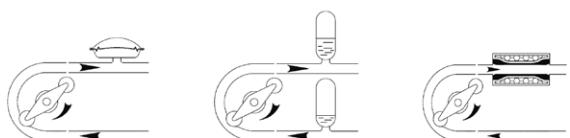
The pulse dampeners are suggested in case of negative suction and pressure over 2 bar;
they ensure a better pump working
and a longer tube life.

Three types are available:

Membrane

Empty vessel

Flexible tube



The models of MS and SDF Serie can be equipped of feeder to feed products with solid parts or sensitive parts.



Feeder

All Roto pumps (optional for PSF Serie) are equipped of leak detector to provide early indication of hose failure. This is a float type sensor that is located at the lowest point of the pump housing.



Leak detector

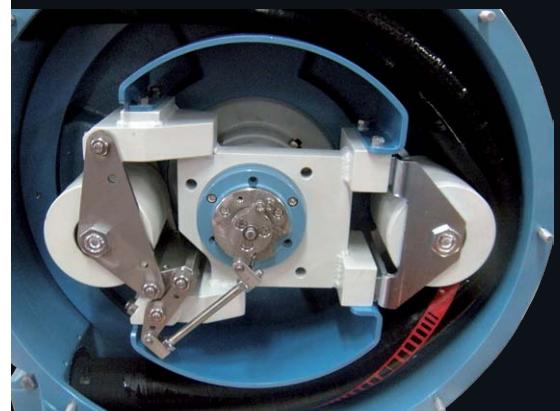
The "retractable" position of the roller is instrumental in increasing the lifetime of the tube element. When the pump is not in use for a certain period of time, the tube element can be separated from the roller from outside the pump by activating the rapid release mechanism of the retractable roller, quickly and safely without opening the pump casing.



Retractable roller

This new positioning system is essential for all those pumps used for fully automated foodstuff handling that requires regular cleaning and sterilization of all components in contact with the product.

In this case, the retractable roller quickly releases the tube element, ensuring perfect CIP and SIP cleaning procedures whenever required.



ATEX CERTIFICATION
II GROUP – CAT. 2/3 – ZONE 1-2



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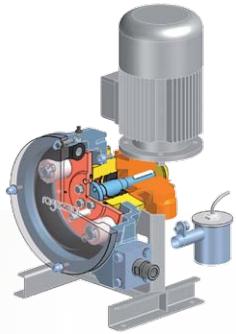
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PSF serie

Capacity/h from 1lt up to 3.100 lt

Pressure up to 8-15 bar

Tubes diameter 5; 10; 16; 26 mm

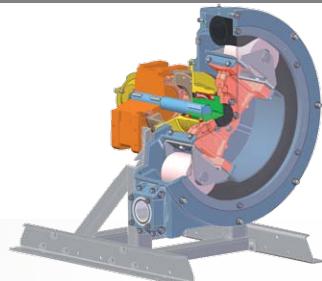


MS serie

Capacity/h from 1.000 lt up to 18.000 lt

Pressure up to 8-15 bar

Tubes diameter 34; 40; 55; 68 mm

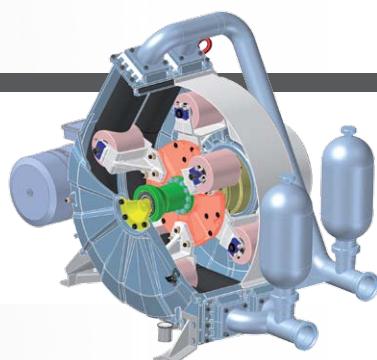


SDF serie

Capacity/h from 10.000lt up to 70.000 lt

Pressure up to 8-15 bar

Tubes diameter 76; 90 mm

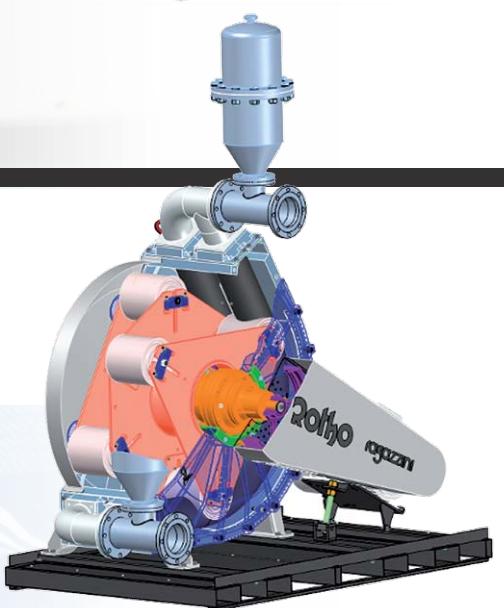


SDR serie

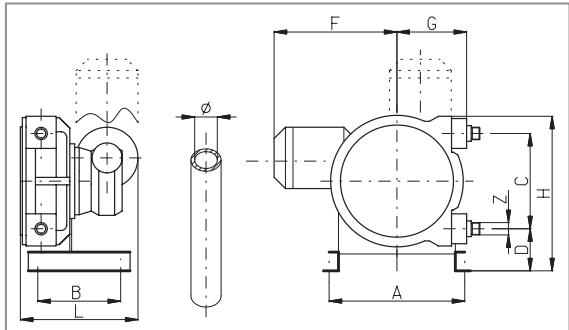
Capacity/h from 80.000lt up to 180.000 lt

Pressure up to 8-15 bar

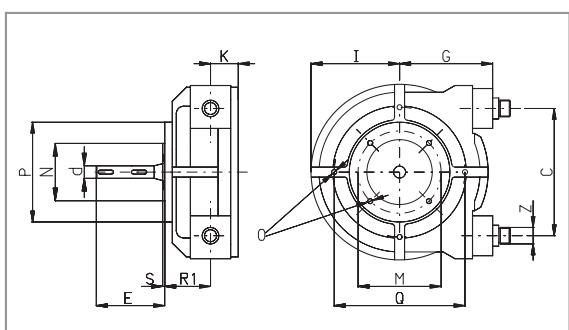
Tubes diameter 114; 127 mm



PSF1



| DIMENSIONS | | | | | | | | | | | | |
|------------|------|------------|--------|--------|------|-----|-----|-----|-----|-----|-----|-----|
| MOD. | Ø mm | Z UNI338 | LT/RPM | MAXBAR | A mm | B | C | D | F | G | H | L |
| PSF1 | 26 | 1" 1/4 BSP | 0.380 | 8 | 350 | 220 | 255 | 108 | 370 | 185 | 416 | 315 |



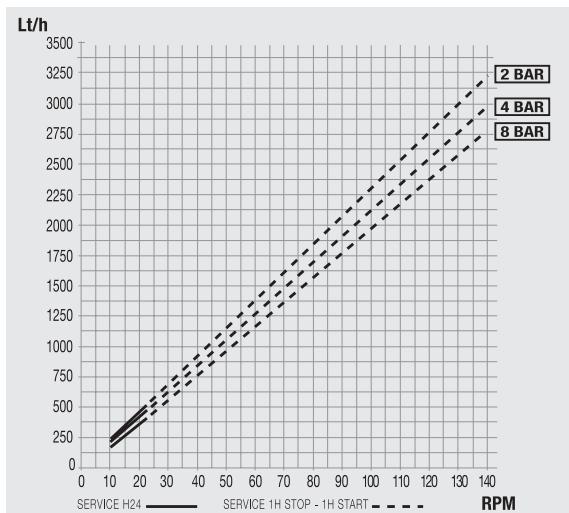
| DIMENSIONS | | | | | | | | | | | | |
|------------|------------|-----|------|-----|------|-----|-----|-----|----|-----|---|----|
| MOD. | Z UNI 338 | E | d j6 | M | N f7 | P | O | I | R1 | Q | S | K |
| PSF1 | 1" 1/4 BSP | 136 | 25 | 150 | 115 | 200 | M10 | 176 | 93 | 260 | 4 | 53 |

| RPM | 0-4 bar | | | |
|-----|---------|-----|-----|------|
| | Lt/h | | BAR | |
| | std | max | std | max |
| 14 | 308,8 | 2 | 4 | 0,37 |
| 18 | 398,4 | 2 | 4 | 0,37 |
| 22 | 488,1 | 2 | 4 | 0,37 |
| 31 | 689,9 | 2 | 4 | 0,37 |
| 37 | 824,4 | 2 | 4 | 0,37 |
| 47 | 1048,6 | 2 | 4 | 0,75 |
| 58 | 1295,2 | 2 | 4 | 0,75 |
| 74 | 1654,0 | 2 | 4 | 0,75 |
| 93 | 2079,9 | 2 | 4 | 0,75 |
| 117 | 2618,0 | 2 | 2 | 1,1 |
| 140 | 3133,7 | 2 | 2 | 1,1 |

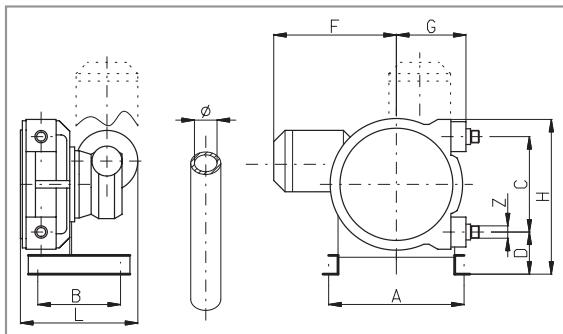
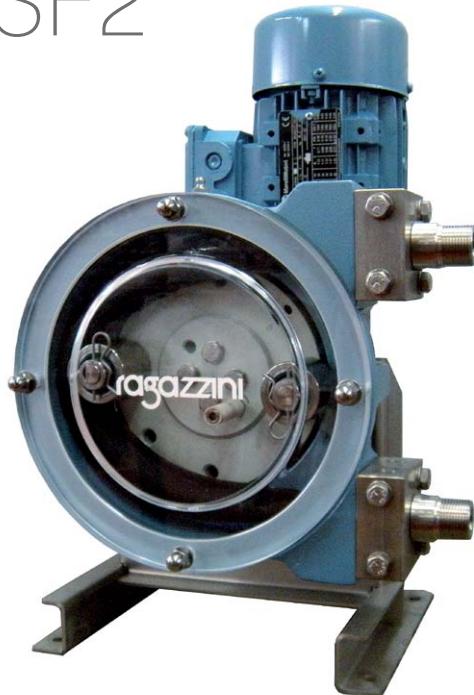
| RPM | 4-8 bar | | | |
|-----|---------|-----|-----|------|
| | Lt/h | | BAR | |
| | std | max | std | max |
| 14 | 302,4 | 4 | 8 | 0,37 |
| 18 | 390,2 | 4 | 8 | 0,37 |
| 22 | 478,1 | 4 | 8 | 0,37 |
| 31 | 675,8 | 4 | 8 | 0,37 |
| 37 | 807,5 | 4 | 8 | 0,75 |
| 47 | 1027,2 | 4 | 8 | 0,75 |
| 58 | 1268,8 | 4 | 8 | 1,1 |
| 74 | 1620,2 | 4 | 8 | 1,1 |
| 93 | 2037,5 | 4 | 6 | 1,1 |

| RPM | variable gear speed 0-4 bar | | | |
|-----|-----------------------------|------|-----|------|
| | Lt/h | | BAR | |
| | max | min | std | max |
| 10 | 1,9 | 219 | 37 | 2 |
| 13 | 2,4 | 286 | 49 | 2 |
| 16 | 3 | 354 | 62 | 2 |
| 22 | 4,2 | 488 | 89 | 2 |
| 26 | 5 | 578 | 107 | 2 |
| 33 | 6,3 | 735 | 136 | 2 |
| 42 | 7,9 | 937 | 172 | 2 |
| 53 | 10 | 1183 | 219 | 2 |
| 67 | 12,7 | 1497 | 280 | 2 |
| 83 | 15,8 | 1856 | 349 | 2 |
| 100 | 19 | 2237 | 421 | 2 |
| 143 | 27,1 | 3201 | 602 | 2 |
| | | | 1,5 | 0,75 |

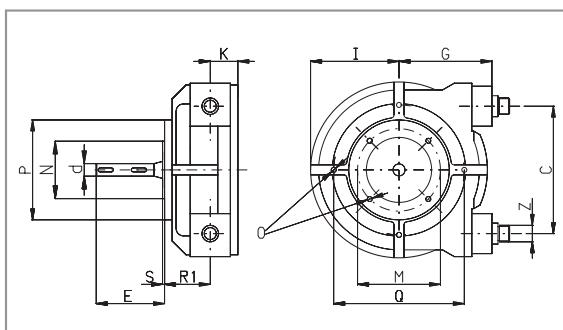
| RPM | variable gear speed 4-8 bar | | | |
|-----|-----------------------------|------|-----|------|
| | Lt/h | | BAR | |
| | max | min | std | max |
| 10 | 1,9 | 215 | 37 | 4 |
| 13 | 2,4 | 280 | 48 | 4 |
| 16 | 3 | 346 | 61 | 4 |
| 22 | 4,2 | 478 | 87 | 4 |
| 26 | 5 | 566 | 105 | 4 |
| 33 | 6,3 | 720 | 133 | 4 |
| 42 | 7,9 | 917 | 168 | 4 |
| 53 | 10 | 1159 | 215 | 4 |
| 67 | 12,7 | 1466 | 274 | 4 |
| | | | 6 | 0,75 |



PSF2



| DIMENSIONS | | | | | | | | | | | | |
|------------|------|----------|--------|---------|------|-----|-----|-----|-----|-----|-----|-----|
| MOD. | Ø mm | Z UNI338 | LT/RPM | MAX BAR | A mm | B | C | D | F | G | H | L |
| PSF2 | 16 | 3/4" BSP | 0.093 | 8 | 230 | 160 | 170 | 110 | 290 | 140 | 315 | 242 |



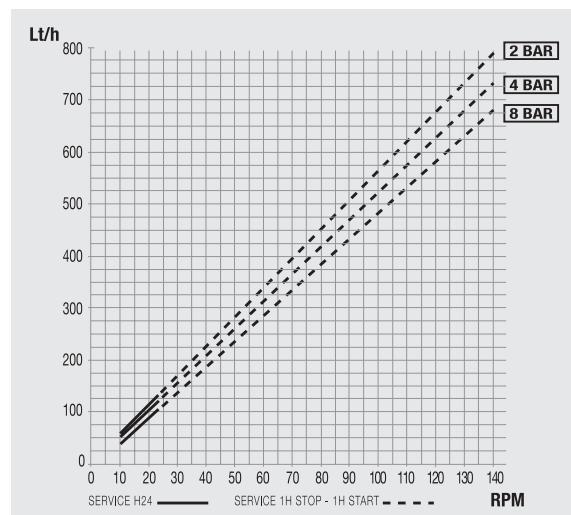
| DIMENSIONS | | | | | | | | | | | | |
|------------|-----------|----|------|----|------|-----|----|-----|----|-----|---|----|
| MOD. | Z UNI 338 | E | d j6 | M | N f7 | P | O | I | R1 | Q | S | K |
| PSF2 | 3/4" BSP | 84 | 18 | 87 | 60 | 140 | M8 | 120 | 87 | 180 | 3 | 41 |

| RPM | Lt/h | BAR | | Kw |
|-----|-------|-----|-----|------|
| | | std | max | |
| | | 2 | 4 | |
| 14 | 75,6 | 2 | 4 | 0,18 |
| 20 | 108,5 | 2 | 4 | 0,18 |
| 23 | 124,9 | 2 | 4 | 0,18 |
| 30 | 163,4 | 2 | 4 | 0,18 |
| 40 | 218,2 | 2 | 4 | 0,37 |
| 50 | 273,1 | 2 | 4 | 0,37 |
| 70 | 382,8 | 2 | 4 | 0,37 |
| 100 | 547,4 | 2 | 2 | 0,37 |
| 140 | 766,9 | 2 | 2 | 0,37 |

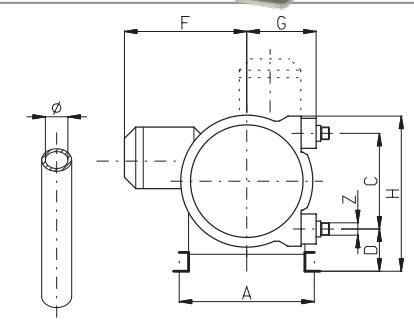
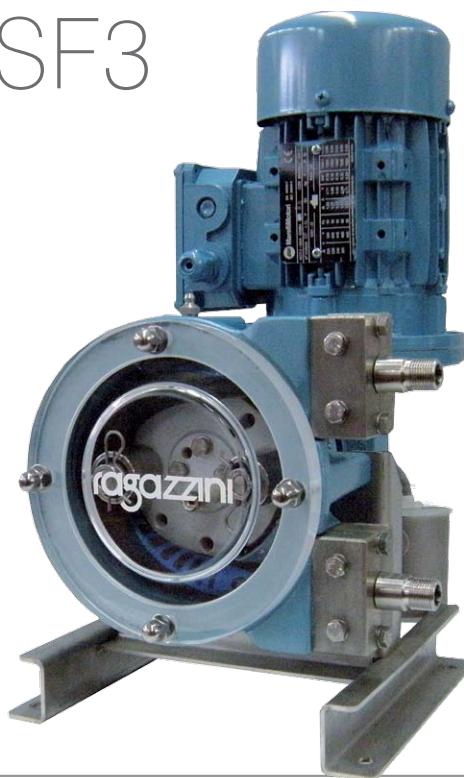
| RPM | Lt/h | BAR | | Kw |
|-----|-------|-----|-----|------|
| | | std | max | |
| | | 4 | 8 | |
| 14 | 74,0 | 4 | 8 | 0,18 |
| 20 | 106,3 | 4 | 8 | 0,18 |
| 23 | 122,4 | 4 | 8 | 0,18 |
| 30 | 160,0 | 4 | 8 | 0,18 |
| 40 | 213,8 | 4 | 8 | 0,37 |
| 50 | 267,5 | 4 | 8 | 0,37 |
| 70 | 375,0 | 4 | 8 | 0,37 |

| RPM | Lt/h | | BAR | | Kw |
|-----|------|-----|-----|-----|------|
| | max | min | max | min | |
| | 9 | 1,9 | 48 | 9 | 2 |
| 13 | 2,7 | 70 | 14 | 2 | 0,18 |
| 15 | 3,2 | 81 | 16 | 2 | 0,18 |
| 20 | 4,1 | 108 | 21 | 2 | 0,18 |
| 29 | 5,4 | 158 | 28 | 2 | 0,37 |
| 36 | 6,8 | 196 | 36 | 2 | 0,37 |
| 50 | 9,5 | 273 | 51 | 2 | 0,37 |
| 71 | 13,6 | 388 | 73 | 2 | 0,37 |
| 100 | 19 | 547 | 103 | 2 | 0,37 |
| 143 | 27,1 | 783 | 147 | 2 | 0,37 |

| RPM | Lt/h | | BAR | | Kw |
|-----|------|-----|-----|-----|------|
| | max | min | max | min | |
| | 9 | 1,9 | 47 | 9 | 4 |
| 13 | 2,7 | 69 | 13 | 4 | 0,18 |
| 15 | 3,2 | 79 | 16 | 4 | 0,18 |
| 20 | 4,1 | 106 | 21 | 4 | 0,18 |
| 29 | 5,4 | 155 | 28 | 4 | 0,37 |
| 36 | 6,8 | 192 | 35 | 4 | 0,37 |
| 50 | 9,5 | 268 | 50 | 4 | 0,37 |
| 71 | 13,6 | 380 | 72 | 4 | 0,37 |

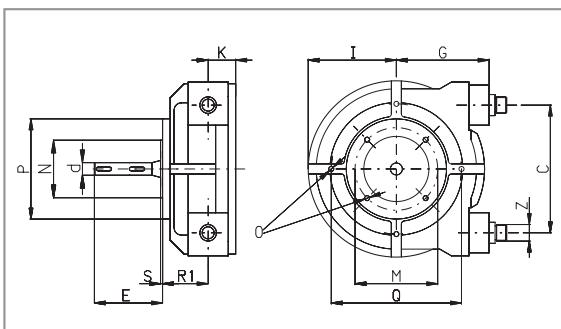


PSF3



DIMENSIONS

| MOD. | \emptyset mm | Z UNI338 | LT/RPM | MAX BAR | A mm | B | C | D | F | G | H | L |
|------|----------------|----------|--------|---------|------|-----|-----|----|-----|-----|-----|-----|
| PSF3 | 10 | 3/8" BSP | 0.024 | 8 | 210 | 160 | 112 | 94 | 237 | 110 | 238 | 214 |



DIMENSIONS

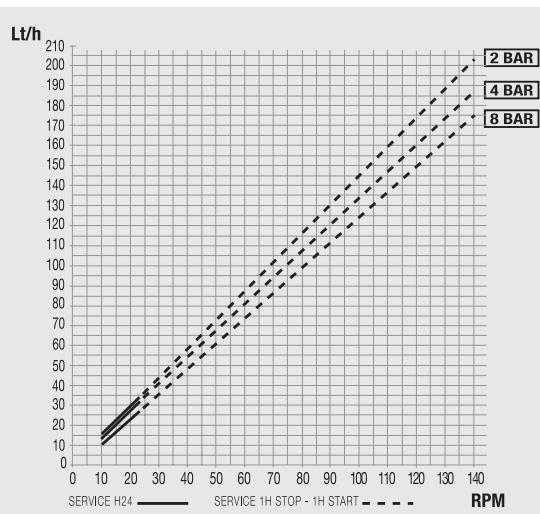
| MOD. | Z UNI 338 | E | dj6 | M | N f7 | P | O | I | R1 | Q | S | K |
|------|-----------|----|-----|----|------|-----|----|----|----|-----|---|----|
| PSF3 | 3/8" BSP | 86 | 18 | 87 | 60 | 108 | M8 | 88 | 67 | 160 | 4 | 31 |

| RPM | Lt/h | BAR | | Kw |
|-----|-------|-----|-----|------|
| | | std | max | |
| | | 2 | 4 | |
| 14 | 19,5 | 2 | 4 | 0,18 |
| 20 | 28,0 | 2 | 4 | 0,18 |
| 23 | 32,2 | 2 | 4 | 0,18 |
| 30 | 42,2 | 2 | 4 | 0,18 |
| 40 | 56,3 | 2 | 4 | 0,18 |
| 50 | 70,5 | 2 | 4 | 0,18 |
| 70 | 98,8 | 2 | 4 | 0,18 |
| 100 | 141,3 | 2 | 4 | 0,18 |
| 140 | 197,9 | 2 | 2 | 0,18 |

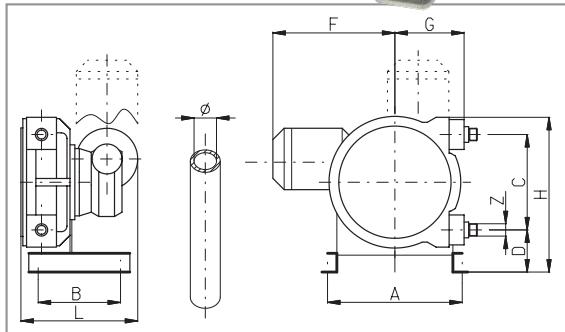
| RPM | Lt/h | BAR | | Kw |
|-----|-------|-----|-----|------|
| | | std | max | |
| | | 4 | 8 | |
| 14 | 19,1 | 4 | 8 | 0,18 |
| 20 | 27,4 | 4 | 8 | 0,18 |
| 23 | 31,6 | 4 | 8 | 0,18 |
| 30 | 41,3 | 4 | 8 | 0,18 |
| 40 | 55,2 | 4 | 8 | 0,18 |
| 50 | 69,0 | 4 | 8 | 0,18 |
| 70 | 96,8 | 4 | 8 | 0,18 |
| 100 | 138,4 | 4 | 8 | 0,18 |

| RPM | Lt/h | | BAR | | Kw |
|-----|------|-----|-----|-----|------|
| | max | min | max | min | |
| | 12 | 1 | 2 | 4 | |
| 9 | 1,9 | | 12 | 1 | 0,18 |
| 13 | 2,7 | | 18 | 3 | 0,18 |
| 15 | 3,2 | | 21 | 3 | 0,18 |
| 20 | 4,1 | | 28 | 5 | 0,18 |
| 26 | 5,4 | | 36 | 6 | 0,18 |
| 33 | 6,8 | | 46 | 8 | 0,18 |
| 46 | 9,5 | | 65 | 12 | 0,18 |
| 65 | 13,6 | | 92 | 18 | 0,18 |
| 91 | 19 | | 129 | 26 | 0,18 |
| 130 | 27,1 | | 184 | 37 | 0,18 |

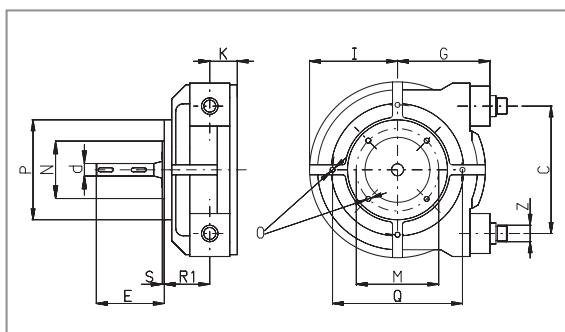
| RPM | Lt/h | | BAR | | Kw |
|-----|------|-----|-----|-----|------|
| | max | min | max | min | |
| | 12 | 0 | 4 | 8 | |
| 9 | 1,9 | | 12 | 0 | 0,18 |
| 13 | 2,7 | | 18 | 1 | 0,18 |
| 15 | 3,2 | | 20 | 2 | 0,18 |
| 20 | 4,1 | | 27 | 3 | 0,18 |
| 26 | 5,4 | | 36 | 5 | 0,18 |
| 33 | 6,8 | | 45 | 7 | 0,18 |
| 46 | 9,5 | | 63 | 11 | 0,18 |
| 65 | 13,6 | | 90 | 16 | 0,18 |



PSF3-S



| DIMENSIONS | | | | | | | | | | | | |
|------------|------|----------|--------|---------|------|-----|-----|----|-----|-----|-----|-----|
| MOD. | Ø mm | Z UNI338 | LT/RPM | MAX BAR | A mm | B | C | D | F | G | H | L |
| PSF3S | 5 | 3/8" BSP | 0.006 | 12 | 210 | 160 | 112 | 94 | 237 | 110 | 238 | 214 |



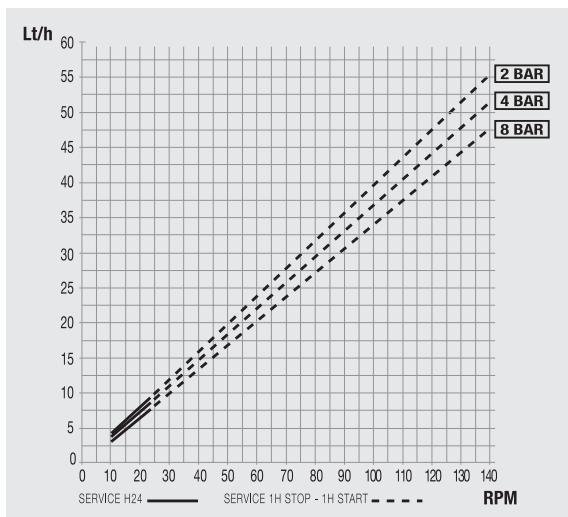
| DIMENSIONS | | | | | | | | | | | | |
|------------|-----------|----|------|----|------|-----|----|----|----|-----|---|----|
| MOD. | Z UNI 338 | E | d j6 | M | N f7 | P | O | I | R1 | Q | S | K |
| PSF3S | 3/8" BSP | 86 | 18 | 87 | 60 | 108 | M8 | 88 | 67 | 160 | 4 | 31 |

| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|------|
| | | std | max | |
| | | | | |
| 14 | 5,3 | 2 | 6 | 0,18 |
| 20 | 7,6 | 2 | 6 | 0,18 |
| 23 | 8,8 | 2 | 6 | 0,18 |
| 30 | 11,5 | 2 | 6 | 0,18 |
| 40 | 15,3 | 2 | 6 | 0,18 |
| 50 | 19,2 | 2 | 6 | 0,18 |
| 70 | 26,9 | 2 | 6 | 0,18 |
| 100 | 38,4 | 2 | 6 | 0,18 |
| 140 | 53,8 | 2 | 2 | 0,18 |

| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|------|
| | | std | max | |
| | | | | |
| 14 | 4,9 | 6 | 12 | 0,18 |
| 20 | 7,0 | 6 | 12 | 0,18 |
| 23 | 8,1 | 6 | 12 | 0,18 |
| 30 | 10,7 | 6 | 12 | 0,18 |
| 40 | 14,3 | 6 | 12 | 0,18 |
| 50 | 17,9 | 6 | 12 | 0,18 |
| 70 | 25,2 | 6 | 12 | 0,18 |
| 100 | 36,1 | 6 | 12 | 0,18 |

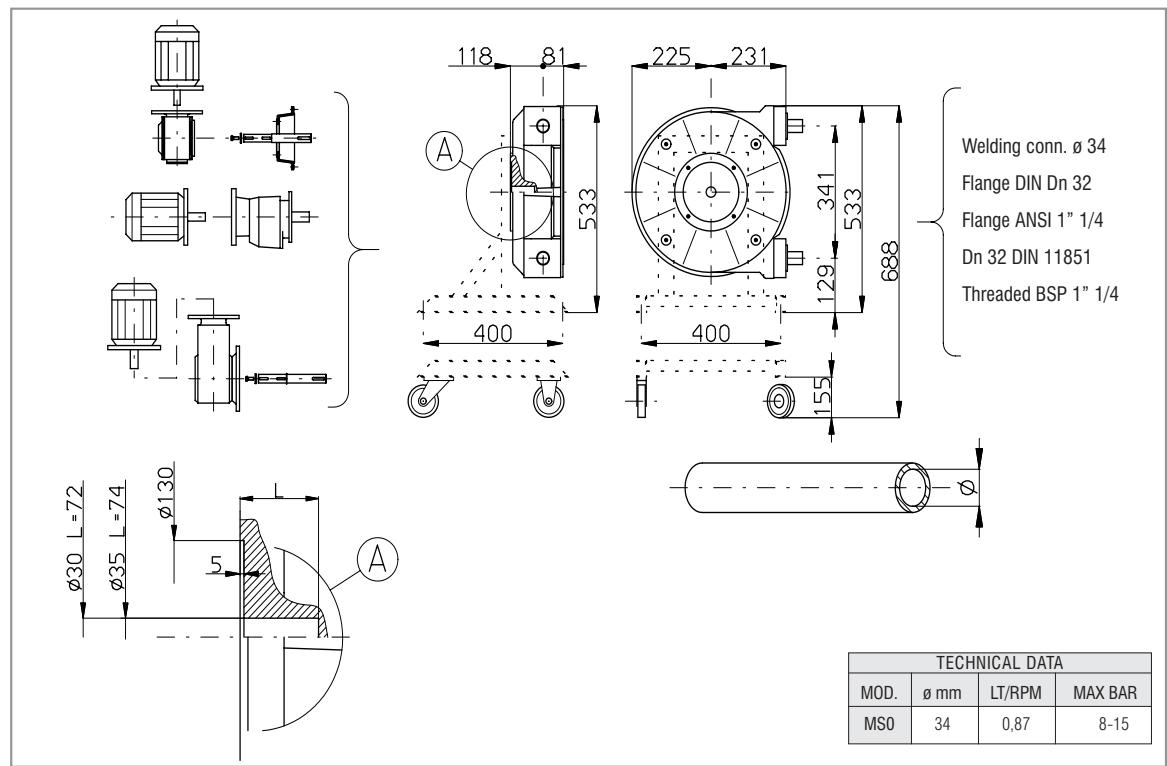
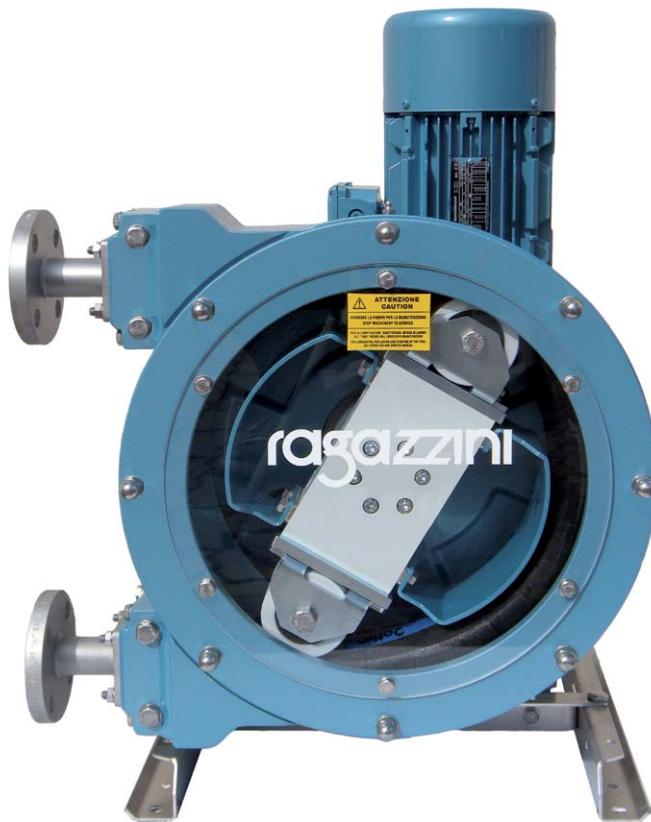
| RPM | variable gear speed 0-6 bar | | | | Kw | |
|-----|-----------------------------|------|------|-----|------|--|
| | Lt/h | | BAR | | | |
| | max | min | max | min | | |
| 9 | 1,9 | 3,4 | 0,2 | 2 | 0,18 | |
| 13 | 2,7 | 5,0 | 0,5 | 2 | 0,18 | |
| 15 | 3,2 | 5,7 | 0,7 | 2 | 0,18 | |
| 20 | 4,1 | 7,6 | 1,1 | 2 | 0,18 | |
| 26 | 5,4 | 10,0 | 1,6 | 2 | 0,18 | |
| 33 | 6,8 | 12,6 | 2,1 | 2 | 0,18 | |
| 46 | 9,5 | 17,6 | 3,1 | 2 | 0,18 | |
| 65 | 13,6 | 25,0 | 4,6 | 2 | 0,18 | |
| 91 | 19 | 35,0 | 7,3 | 2 | 0,18 | |
| 130 | 27,1 | 50,0 | 10,4 | 2 | 0,18 | |

| RPM | variable gear speed 6-12 bar | | | | Kw | |
|-----|------------------------------|------|-----|-----|------|--|
| | Lt/h | | BAR | | | |
| | max | min | max | min | | |
| 9 | 5 | 3,1 | 0,2 | 6 | 0,18 | |
| 13 | 5 | 4,5 | 0,2 | 6 | 0,18 | |
| 15 | 5 | 5,2 | 0,2 | 6 | 0,18 | |
| 20 | 5 | 7,0 | 0,2 | 6 | 0,18 | |
| 26 | 5,4 | 9,2 | 0,3 | 6 | 0,18 | |
| 33 | 6,8 | 11,8 | 0,7 | 6 | 0,18 | |
| 46 | 9,5 | 16,5 | 1,5 | 6 | 0,18 | |
| 65 | 13,6 | 23,4 | 2,7 | 6 | 0,18 | |

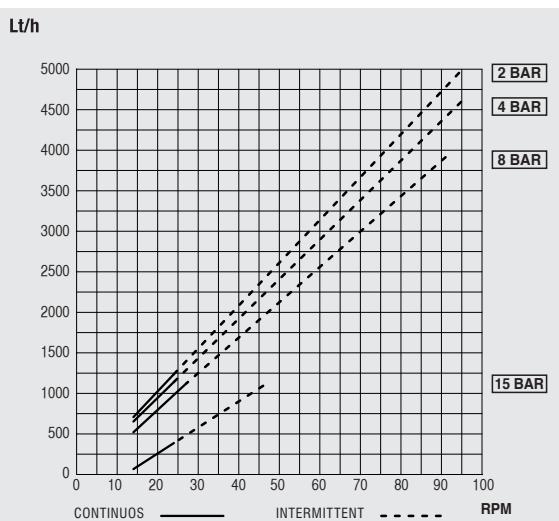


MSO

MSO MS1 MS2 MS3



| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|------|
| | | std | max | |
| | | | | |
| 14 | 687 | 2 | 4 | 0,75 |
| 18 | 893 | 2 | 4 | 0,75 |
| 24 | 1201 | 2 | 4 | 0,75 |
| 28 | 1406 | 2 | 4 | 0,75 |
| 36 | 1817 | 2 | 4 | 1,5 |
| 47 | 2381 | 2 | 4 | 1,5 |
| 57 | 2894 | 2 | 4 | 1,5 |
| 71 | 3613 | 2 | 4 | 1,5 |
| 95 | 4845 | 2 | 4 | 2,2 |



| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|------|
| | | std | max | |
| | | | | |
| 14 | 673 | 4 | 8 | 0,75 |
| 15 | 723 | 4 | 8 | 0,75 |
| 17 | 824 | 4 | 8 | 0,75 |
| 19 | 924 | 4 | 8 | 0,75 |
| 21 | 1025 | 4 | 8 | 0,75 |
| 27 | 1326 | 4 | 8 | 0,75 |
| 30 | 1477 | 4 | 8 | 1,5 |
| 31 | 1528 | 4 | 8 | 1,5 |
| 35 | 1729 | 4 | 8 | 1,5 |
| 39 | 1930 | 4 | 8 | 1,5 |
| 44 | 2181 | 4 | 8 | 1,5 |
| 48 | 2382 | 4 | 8 | 1,5 |
| 57 | 2835 | 4 | 8 | 1,5 |
| 63 | 3137 | 4 | 6 | 1,5 |
| 71 | 3644 | 2 | 6 | 1,5 |
| 78 | 4004 | 2 | 6 | 2,2 |
| 91 | 4671 | 2 | 6 | 2,2 |

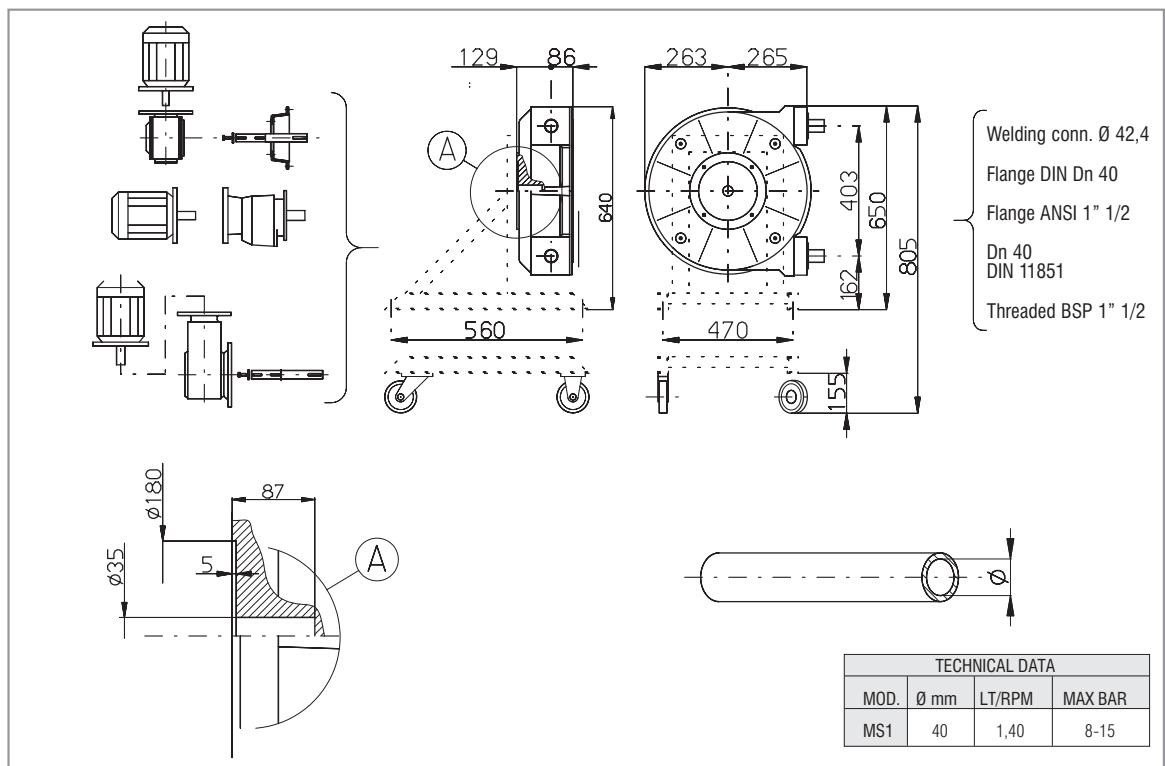
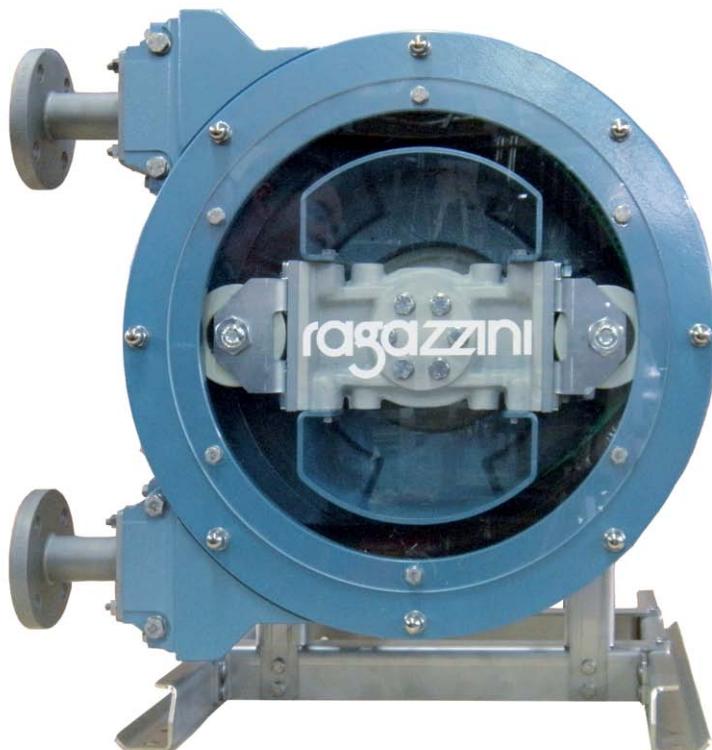
| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|------|
| | | std | max | |
| | | | | |
| 14 | 520 | 8 | 12 | 0,75 |
| 15 | 566 | 8 | 12 | 0,75 |
| 17 | 659 | 8 | 12 | 0,75 |
| 19 | 751 | 8 | 12 | 1,5 |
| 21 | 843 | 8 | 12 | 1,5 |
| 27 | 1120 | 8 | 12 | 1,5 |
| 30 | 1258 | 8 | 12 | 1,5 |
| 31 | 1304 | 8 | 12 | 1,5 |
| 35 | 1489 | 8 | 12 | 1,5 |
| 39 | 1673 | 8 | 12 | 1,5 |
| 44 | 1904 | 8 | 12 | 2,2 |
| 48 | 2088 | 8 | 10 | 2,2 |
| 57 | 2503 | 8 | 10 | 2,2 |
| 63 | 2780 | 8 | 8 | 2,2 |
| 71 | 2992 | 8 | 8 | 2,2 |
| 78 | 3315 | 8 | 6 | 2,2 |
| 91 | 3914 | 8 | 6 | 2,2 |

| variable gear speed 0-4 bar | | | | | | |
|-----------------------------|------|------|-----|-----|-----|------|
| RPM | Lt/h | | BAR | | Kw | |
| | max | min | max | min | std | max |
| 10 | 1,9 | 482 | 66 | 2 | 4 | 0,75 |
| 12 | 2,4 | 585 | 92 | 2 | 4 | 0,75 |
| 16 | 3,2 | 790 | 133 | 2 | 4 | 0,75 |
| 19 | 3,8 | 944 | 164 | 2 | 4 | 0,75 |
| 24 | 4,8 | 1201 | 215 | 2 | 4 | 0,75 |
| 32 | 6,3 | 1611 | 292 | 2 | 4 | 0,75 |
| 40 | 7,6 | 2022 | 359 | 2 | 4 | 1,5 |
| 50 | 9,5 | 2535 | 456 | 2 | 4 | 1,5 |
| 67 | 12,7 | 3408 | 621 | 2 | 4 | 1,5 |
| 100 | 19 | 5102 | 944 | 2 | 2 | 1,5 |

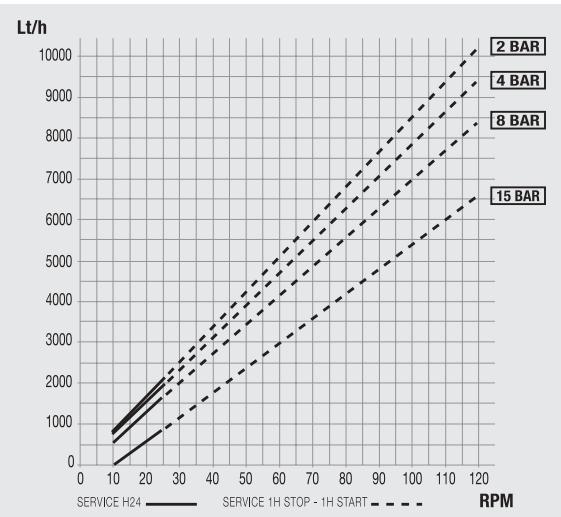
| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|------|
| | | std | max | |
| | | | | |
| 14 | 646 | 8 | 15 | 0,75 |
| 15 | 692 | 8 | 15 | 0,75 |
| 17 | 784 | 8 | 15 | 1,5 |
| 19 | 876 | 8 | 15 | 1,5 |
| 22 | 1014 | 8 | 15 | 1,5 |
| 24 | 1107 | 8 | 15 | 1,5 |
| 28 | 1291 | 8 | 15 | 1,5 |
| 30 | 1383 | 8 | 15 | 1,5 |
| 35 | 1614 | 8 | 15 | 2,2 |
| 39 | 1798 | 8 | 15 | 2,2 |
| 46 | 2121 | 8 | 15 | 2,2 |
| 50 | 2306 | 8 | 14 | 2,2 |
| 57 | 2628 | 8 | 12 | 2,2 |
| 63 | 2905 | 8 | 8 | 2,2 |
| 72 | 3320 | 8 | 8 | 2,2 |

| RPM | Lt/h | | BAR | | Kw |
|-----|------|------|-----|-----|-----|
| | max | min | max | min | |
| 9 | 1,8 | 453 | 91 | 4 | 8 |
| 10 | 2 | 503 | 101 | 4 | 8 |
| 12 | 2,3 | 603 | 116 | 4 | 8 |
| 13 | 2,6 | 654 | 131 | 4 | 8 |
| 14 | 2,8 | 704 | 141 | 4 | 8 |
| 18 | 3,6 | 905 | 181 | 4 | 8 |
| 20 | 4 | 1006 | 201 | 4 | 8 |
| 21 | 4,2 | 1056 | 211 | 4 | 8 |
| 25 | 4,7 | 1257 | 236 | 4 | 8 |
| 28 | 5,3 | 1408 | 267 | 4 | 8 |
| 31 | 5,8 | 1559 | 292 | 4 | 8 |
| 34 | 6,4 | 1710 | 322 | 4 | 8 |
| 40 | 7,6 | 2011 | 382 | 4 | 8 |
| 44 | 8,4 | 2213 | 422 | 4 | 8 |
| 50 | 9,5 | 2514 | 478 | 4 | 8 |
| 55 | 10,5 | 2766 | 528 | 4 | 6 |
| 64 | 12,2 | 3218 | 613 | 4 | 6 |
| 71 | 13,6 | 3570 | 684 | 4 | 4 |
| | | | | | 2,2 |

MS1



| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|------|
| | | std | max | |
| | | | | |
| 14 | 1114 | 2 | 4 | 0,75 |
| 18 | 1447 | 2 | 4 | 0,75 |
| 22 | 1779 | 2 | 4 | 0,75 |
| 25 | 2029 | 2 | 4 | 1,5 |
| 30 | 2445 | 2 | 4 | 1,5 |
| 35 | 2861 | 2 | 4 | 1,5 |
| 47 | 3859 | 2 | 4 | 1,5 |
| 61 | 5024 | 2 | 4 | 2,2 |
| 70 | 5773 | 2 | 4 | 2,2 |
| 93 | 7686 | 2 | 4 | 3 |



| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|------|
| | | std | max | |
| | | | | |
| 14 | 1090 | 4 | 8 | 0,75 |
| 15 | 1172 | 4 | 8 | 0,75 |
| 17 | 1335 | 4 | 8 | 0,75 |
| 19 | 1498 | 4 | 8 | 1,5 |
| 22 | 1742 | 4 | 8 | 1,5 |
| 24 | 1905 | 4 | 8 | 1,5 |
| 27 | 2150 | 4 | 8 | 1,5 |
| 30 | 2394 | 4 | 8 | 1,5 |
| 35 | 2802 | 4 | 8 | 1,5 |
| 38 | 3046 | 4 | 8 | 2,2 |
| 45 | 3617 | 4 | 8 | 2,2 |
| 49 | 3943 | 4 | 8 | 2,2 |
| 56 | 4513 | 4 | 8 | 2,2 |
| 62 | 5002 | 4 | 4 | 2,2 |
| 71 | 5906 | 2 | 2 | 2,2 |
| 79 | 6572 | 2 | 2 | 2,2 |
| 89 | 7404 | 2 | 2 | 2,2 |

| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|-----|
| | | std | max | |
| | | | | |
| 14 | 843 | 8 | 12 | 1,5 |
| 15 | 918 | 8 | 12 | 1,5 |
| 17 | 1067 | 8 | 12 | 1,5 |
| 19 | 1217 | 8 | 12 | 2,2 |
| 22 | 1441 | 8 | 12 | 2,2 |
| 24 | 1590 | 8 | 12 | 2,2 |
| 27 | 1815 | 8 | 12 | 2,2 |
| 30 | 2039 | 8 | 12 | 3 |
| 35 | 2413 | 8 | 12 | 3 |
| 38 | 2637 | 8 | 12 | 3 |
| 45 | 3160 | 8 | 12 | 3 |
| 49 | 3459 | 8 | 8 | 3 |
| 56 | 3982 | 8 | 8 | 3 |
| 62 | 4430 | 8 | 8 | 3 |
| 71 | 4849 | 8 | 6 | 3 |
| 79 | 5447 | 8 | 4 | 3 |
| 89 | 6194 | 8 | 4 | 3 |

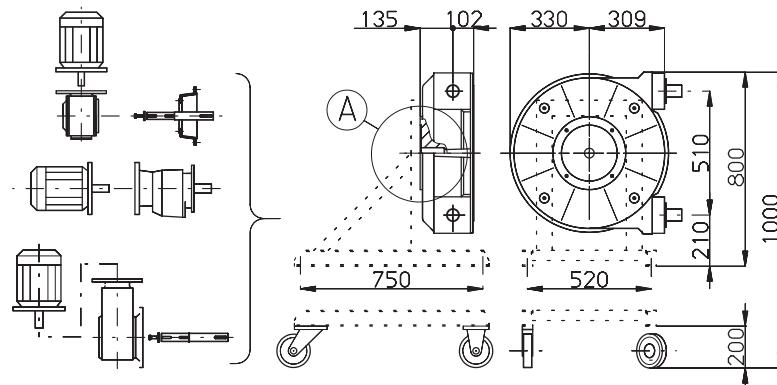
| variable gear speed 0-4 bar | | | | | |
|-----------------------------|------|------|------|-----|-----|
| RPM | Lt/h | BAR | | Kw | |
| | | max | min | max | min |
| 10 | 1,9 | 781 | 107 | 2 | 4 |
| 13 | 2,4 | 1031 | 149 | 2 | 4 |
| 16 | 3 | 1280 | 199 | 2 | 4 |
| 18 | 3,4 | 1447 | 232 | 2 | 4 |
| 22 | 4,1 | 1779 | 290 | 2 | 4 |
| 25 | 4,8 | 2029 | 349 | 2 | 4 |
| 33 | 6,3 | 2695 | 473 | 2 | 4 |
| 43 | 8,3 | 3526 | 640 | 2 | 4 |
| 50 | 9,5 | 4109 | 740 | 2 | 4 |
| 67 | 12,7 | 5523 | 1006 | 2 | 2 |
| 100 | 19 | 8268 | 1530 | 2 | 2 |

| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|-----|
| | | std | max | |
| | | | | |
| 14 | 217 | 15 | 15 | 1,5 |
| 15 | 277 | 15 | 15 | 1,5 |
| 17 | 397 | 15 | 15 | 1,5 |
| 19 | 517 | 15 | 15 | 2,2 |
| 22 | 697 | 15 | 15 | 2,2 |
| 24 | 816 | 15 | 15 | 2,2 |
| 27 | 996 | 15 | 15 | 2,2 |
| 30 | 1176 | 15 | 15 | 3 |
| 35 | 1476 | 15 | 15 | 3 |
| 38 | 1655 | 15 | 15 | 3 |
| 45 | 2075 | 15 | 15 | 4 |

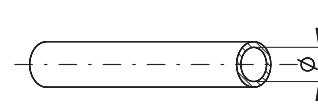
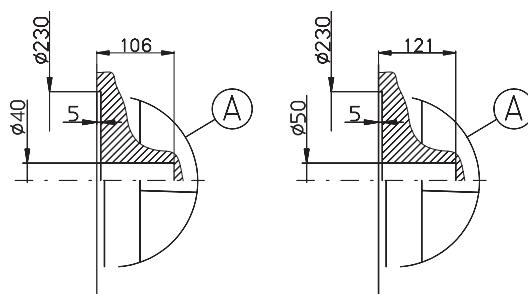
| RPM | Lt/h | BAR | | Kw |
|-----|------|------|------|----|
| | | max | min | |
| 10 | 1,9 | 764 | 104 | 4 |
| 11 | 2 | 846 | 112 | 4 |
| 12 | 2,3 | 927 | 137 | 4 |
| 13 | 2,6 | 1009 | 161 | 4 |
| 16 | 3 | 1253 | 194 | 4 |
| 17 | 3,2 | 1335 | 210 | 4 |
| 19 | 3,7 | 1498 | 251 | 4 |
| 21 | 4 | 1661 | 275 | 4 |
| 25 | 4,7 | 1987 | 332 | 4 |
| 27 | 5,2 | 2150 | 373 | 4 |
| 32 | 6,1 | 2557 | 446 | 4 |
| 35 | 6,7 | 2802 | 495 | 4 |
| 40 | 7,6 | 3209 | 569 | 4 |
| 44 | 8,4 | 3535 | 634 | 4 |
| 51 | 9,6 | 4106 | 732 | 4 |
| 56 | 10,7 | 4513 | 821 | 4 |
| 63 | 12 | 5084 | 927 | 4 |
| 89 | 17 | 7203 | 1335 | 4 |

MS2

MS0 MS1 MS2 MS3



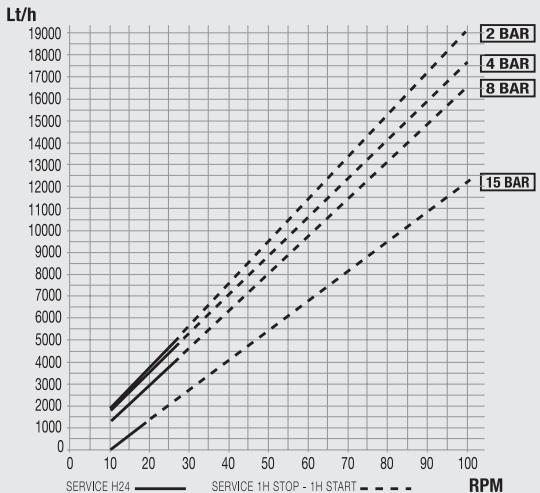
Welding conn. Ø 60,3
Flange DIN Dn 50
Flange ANSI 2"
Dn 50
DIN 11851
Threaded BSP 2"



| TECHNICAL DATA | | | |
|----------------|------|--------|---------|
| MOD. | Ø mm | LT/RPM | MAX BAR |
| MS2 | 55 | 3,20 | 8-15 |

0-4 bar

| RPM | Lt/h | BAR | | Kw |
|-----|-------|-----|-----|-----|
| | | std | max | |
| 14 | 2528 | 2 | 4 | 1,5 |
| 15 | 2717 | 2 | 4 | 1,5 |
| 18 | 3283 | 2 | 4 | 1,5 |
| 19 | 3472 | 2 | 4 | 1,5 |
| 22 | 4038 | 2 | 4 | 1,5 |
| 24 | 4416 | 2 | 4 | 1,5 |
| 27 | 4982 | 2 | 4 | 2,2 |
| 30 | 5549 | 2 | 4 | 2,2 |
| 35 | 6493 | 2 | 4 | 2,2 |
| 38 | 7059 | 2 | 4 | 2,2 |
| 47 | 8758 | 2 | 4 | 3 |
| 54 | 10080 | 2 | 4 | 3 |
| 60 | 11213 | 2 | 4 | 4 |
| 67 | 12534 | 2 | 4 | 4 |
| 74 | 13856 | 2 | 3 | 4 |
| 84 | 15744 | 2 | 2 | 4 |
| 93 | 17443 | 2 | 2 | 4 |



4-8 bar

| RPM | Lt/h | BAR | | Kw |
|-----|-------|-----|-----|-----|
| | | std | max | |
| 14 | 2474 | 4 | 8 | 2,2 |
| 15 | 2659 | 4 | 8 | 2,2 |
| 18 | 3214 | 4 | 8 | 2,2 |
| 19 | 3399 | 4 | 8 | 2,2 |
| 22 | 3954 | 4 | 8 | 2,2 |
| 24 | 4324 | 4 | 8 | 3 |
| 27 | 4879 | 4 | 8 | 3 |
| 30 | 5434 | 4 | 8 | 3 |
| 35 | 6358 | 4 | 8 | 4 |
| 38 | 6913 | 4 | 8 | 4 |
| 47 | 8578 | 4 | 6 | 4 |
| 54 | 9873 | 4 | 5 | 4 |
| 60 | 10982 | 4 | 4 | 4 |
| 67 | 12277 | 4 | 4 | 4 |
| 74 | 13226 | 4 | 3 | 4 |
| 84 | 15076 | 4 | 2 | 4 |
| 93 | 16740 | 4 | 2 | 4 |

variable gear speed 0-4 bar

| RPM | Lt/h | BAR | | Kw |
|-----|------|-------|------|----|
| | | max | min | |
| 10 | 1,9 | 1773 | 244 | 2 |
| 11 | 2 | 1962 | 262 | 2 |
| 13 | 2,4 | 2339 | 338 | 2 |
| 14 | 2,6 | 2528 | 376 | 2 |
| 15 | 2,9 | 2717 | 432 | 2 |
| 17 | 3,2 | 3094 | 489 | 2 |
| 20 | 3,7 | 3661 | 583 | 2 |
| 21 | 4,1 | 3850 | 659 | 2 |
| 25 | 4,7 | 4605 | 772 | 2 |
| 27 | 5,1 | 4982 | 848 | 2 |
| 33 | 6,3 | 6115 | 1074 | 2 |
| 39 | 7,3 | 7248 | 1263 | 2 |
| 43 | 8,1 | 8003 | 1414 | 2 |
| 48 | 9 | 8947 | 1584 | 2 |
| 53 | 10,1 | 9891 | 1792 | 2 |
| 60 | 11,4 | 11213 | 2037 | 2 |
| 67 | 12,7 | 12534 | 2283 | 2 |
| 85 | 16,1 | 15933 | 2924 | 2 |

8 bar

| RPM | Lt/h | BAR | | Kw |
|-----|-------|-----|-----|-----|
| | | std | max | |
| 14 | 1914 | 8 | 8 | 2,2 |
| 15 | 2083 | 8 | 8 | 2,2 |
| 18 | 2592 | 8 | 8 | 2,2 |
| 19 | 2762 | 8 | 8 | 2,2 |
| 22 | 3270 | 8 | 8 | 2,2 |
| 24 | 3610 | 8 | 8 | 3 |
| 27 | 4118 | 8 | 8 | 3 |
| 30 | 4627 | 8 | 8 | 3 |
| 35 | 5475 | 8 | 8 | 4 |
| 38 | 5984 | 8 | 8 | 4 |
| 47 | 7510 | 8 | 6 | 4 |
| 54 | 8698 | 8 | 5 | 4 |
| 60 | 9715 | 8 | 4 | 4 |
| 67 | 10902 | 8 | 4 | 4 |
| 74 | 12090 | 8 | 3 | 4 |
| 84 | 13786 | 8 | 2 | 4 |
| 93 | 15312 | 8 | 2 | 4 |

variable gear speed 4-8 bar

| RPM | Lt/h | BAR | | Kw |
|-----|------|-------|------|----|
| | | max | min | |
| 10 | 1,9 | 1734 | 236 | 4 |
| 11 | 2 | 1919 | 255 | 4 |
| 13 | 2,4 | 2289 | 329 | 4 |
| 14 | 2,6 | 2474 | 366 | 4 |
| 15 | 2,9 | 2659 | 421 | 4 |
| 17 | 3,2 | 3029 | 477 | 4 |
| 20 | 3,7 | 3584 | 569 | 4 |
| 21 | 4,1 | 3769 | 643 | 4 |
| 25 | 4,7 | 4509 | 754 | 4 |
| 27 | 5,1 | 4879 | 828 | 4 |
| 33 | 6,3 | 5988 | 1050 | 4 |
| 39 | 7,3 | 7098 | 1235 | 4 |
| 43 | 8,1 | 7838 | 1383 | 4 |
| 48 | 9 | 8763 | 1549 | 4 |
| 53 | 10,1 | 9688 | 1753 | 4 |
| 60 | 11,4 | 10982 | 1993 | 4 |
| 67 | 12,7 | 12277 | 2234 | 4 |
| 85 | 16,1 | 15606 | 2863 | 4 |

15 bar

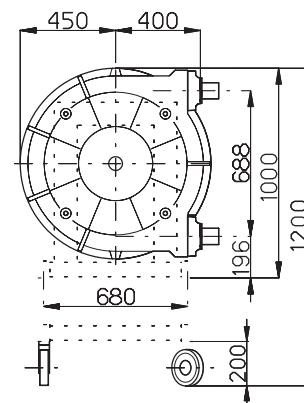
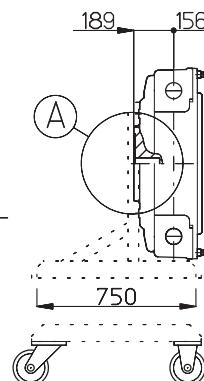
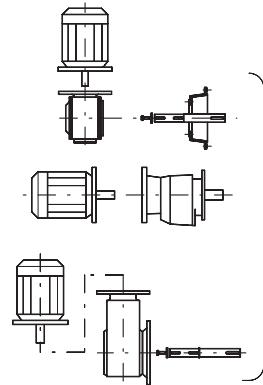
| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|----|
| | | std | max | |
| 14 | 493 | 15 | 15 | 3 |
| 15 | 629 | 15 | 15 | 3 |
| 17 | 901 | 15 | 15 | 3 |
| 19 | 1173 | 15 | 15 | 4 |
| 21 | 1445 | 15 | 15 | 4 |
| 24 | 1853 | 15 | 15 | 4 |
| 26 | 2125 | 15 | 15 | 5 |
| 29 | 2533 | 15 | 15 | 5 |

variable gear speed 6-12 bar

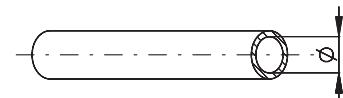
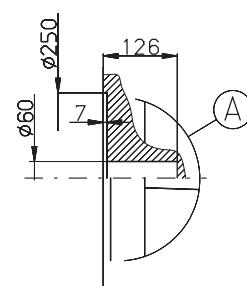
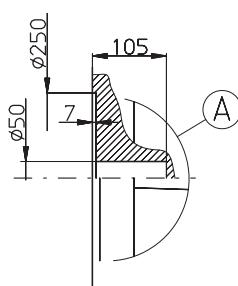
| RPM | Lt/h | BAR | | Kw |
|-----|------|------|-----|----|
| | | max | min | |
| 10 | 1,8 | 1670 | 206 | 6 |
| 11 | 2,1 | 1849 | 260 | 6 |
| 12 | 2,3 | 2028 | 295 | 6 |
| 13 | 2,6 | 2206 | 349 | 6 |
| 15 | 2,8 | 2563 | 385 | 6 |
| 17 | 3,2 | 2920 | 456 | 6 |
| 19 | 3,6 | 3277 | 528 | 6 |
| 21 | 4 | 3635 | 599 | 6 |
| 28 | 5,3 | 4884 | 831 | 6 |

MS3

MS0 MS1 MS2 MS3



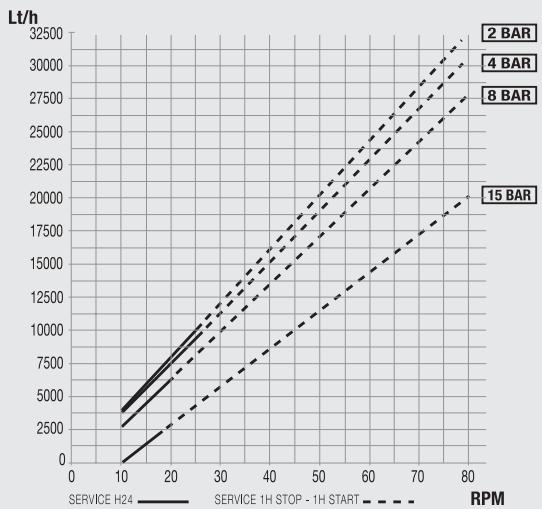
Welding conn. Ø 76,1
 Flange DIN Dn 65
 Flange ANSI 2" 1/2
 Dn 65
 DIN 11851
 Threaded BSP 2" 1/2



| TECHNICAL DATA | | | |
|----------------|------|--------|---------|
| MOD. | Ø mm | LT/RPM | MAX BAR |
| MS3 | 68 | 6,80 | 8-15 |

0-4 bar

| RPM | Lt/h | BAR | | Kw |
|-----|-------|-----|-----|-----|
| | | std | max | |
| 14 | 5372 | 2 | 4 | 2,2 |
| 15 | 5773 | 2 | 4 | 2,2 |
| 17 | 6576 | 2 | 4 | 2,2 |
| 19 | 7378 | 2 | 4 | 2,2 |
| 21 | 8180 | 2 | 4 | 3 |
| 24 | 9384 | 2 | 4 | 3 |
| 26 | 10186 | 2 | 4 | 3 |
| 29 | 11390 | 2 | 4 | 4 |
| 32 | 12594 | 2 | 4 | 4 |
| 39 | 15402 | 2 | 4 | 5,5 |
| 42 | 16606 | 2 | 4 | 5,5 |
| 51 | 20216 | 2 | 4 | 7,5 |
| 56 | 22222 | 2 | 4 | 7,5 |
| 63 | 25031 | 2 | 3 | 7,5 |
| 71 | 28240 | 2 | 3 | 7,5 |
| 79 | 31450 | 2 | 2 | 7,5 |



4-8 bar

| RPM | Lt/h | BAR | | Kw |
|-----|-------|-----|-----|-----|
| | | std | max | |
| 14 | 5258 | 4 | 8 | 3 |
| 15 | 5651 | 4 | 8 | 3 |
| 17 | 6437 | 4 | 8 | 4 |
| 19 | 7223 | 4 | 8 | 4 |
| 21 | 8009 | 4 | 8 | 4 |
| 24 | 9188 | 4 | 8 | 5,5 |
| 26 | 9974 | 4 | 8 | 5,5 |
| 29 | 11153 | 4 | 8 | 7,5 |
| 32 | 12332 | 4 | 8 | 7,5 |
| 39 | 15084 | 4 | 6 | 7,5 |
| 42 | 16263 | 4 | 6 | 7,5 |
| 51 | 19800 | 4 | 5 | 7,5 |
| 56 | 21765 | 4 | 4 | 7,5 |
| 63 | 24517 | 4 | 3 | 7,5 |
| 71 | 27661 | 4 | 3 | 7,5 |
| 79 | 30805 | 4 | 2 | 7,5 |

| variable gear speed 0-4 bar | | | | | | |
|-----------------------------|------|-------|------|-----|-----|-----|
| RPM | Lt/h | | BAR | | Kw | |
| | max | min | max | min | std | max |
| 10 | 1,8 | 3767 | 477 | 2 | 4 | 2,2 |
| 11 | 2,1 | 4168 | 598 | 2 | 4 | 2,2 |
| 12 | 2,3 | 4570 | 678 | 2 | 4 | 2,2 |
| 13 | 2,6 | 4971 | 798 | 2 | 4 | 2,2 |
| 15 | 2,8 | 5773 | 879 | 2 | 4 | 2,2 |
| 17 | 3,2 | 6576 | 1039 | 2 | 4 | 4 |
| 19 | 3,6 | 7378 | 1200 | 2 | 4 | 4 |
| 21 | 4 | 8180 | 1360 | 2 | 4 | 4 |
| 23 | 4,4 | 8983 | 1520 | 2 | 4 | 4 |
| 28 | 5,3 | 10989 | 1882 | 2 | 4 | 4 |
| 30 | 5,8 | 11791 | 2082 | 2 | 4 | 7,5 |
| 36 | 6,9 | 14198 | 2523 | 2 | 4 | 7,5 |
| 40 | 7,7 | 15803 | 2844 | 2 | 4 | 7,5 |
| 45 | 8,5 | 17809 | 3165 | 2 | 4 | 7,5 |
| 51 | 9,7 | 20216 | 3647 | 2 | 4 | 7,5 |
| 56 | 10,7 | 22222 | 4048 | 2 | 4 | 7,5 |
| 63 | 11,9 | 25031 | 4529 | 2 | 3 | 7,5 |

8-10 bar

| RPM | Lt/h | BAR | | Kw |
|-----|-------|-----|-----|-----|
| | | std | max | |
| 13 | 3706 | 8 | 10 | 4 |
| 16 | 4787 | 8 | 10 | 4 |
| 17 | 5148 | 8 | 10 | 5,5 |
| 20 | 6229 | 8 | 10 | 5,5 |
| 21 | 6589 | 8 | 10 | 5,5 |
| 25 | 8031 | 8 | 10 | 7,5 |
| 27 | 8752 | 8 | 10 | 7,5 |
| 31 | 10193 | 8 | 10 | 11 |
| 34 | 11274 | 8 | 10 | 11 |

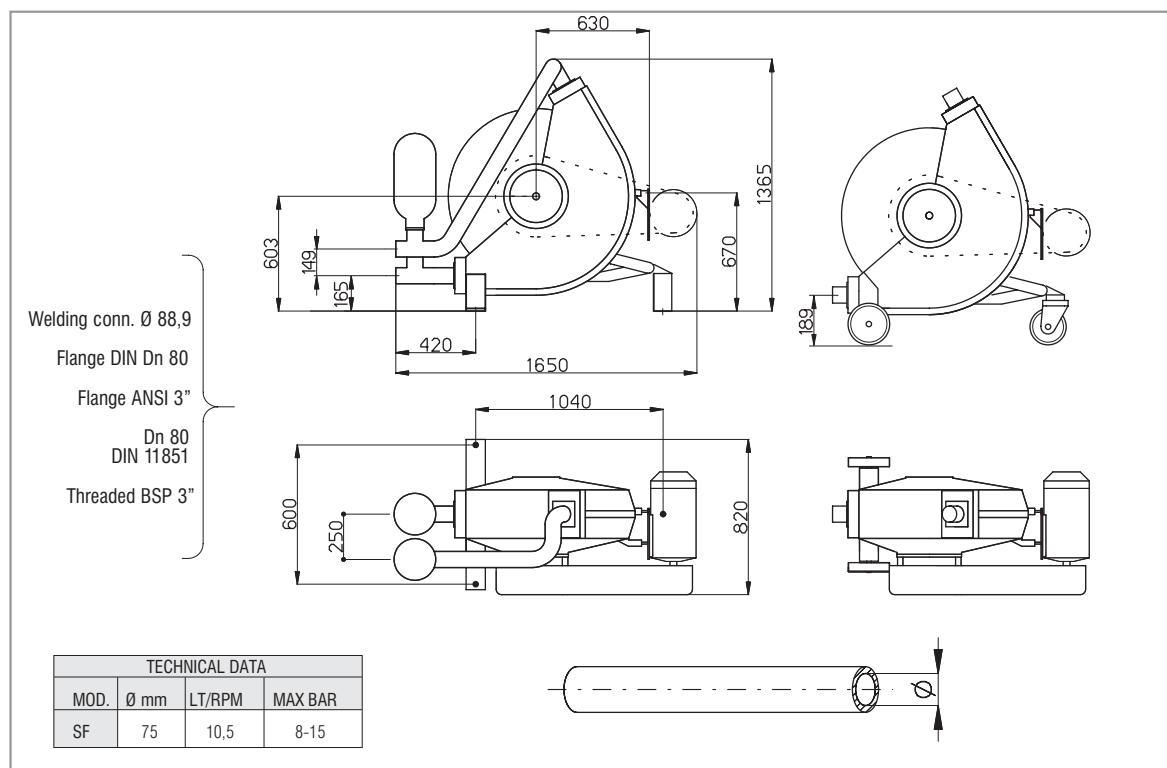
| variable gear speed 4-8 bar | | | | | | |
|-----------------------------|------|-------|------|-----|-----|-----|
| RPM | Lt/h | | BAR | | Kw | |
| | max | min | max | min | std | max |
| 10 | 1,8 | 3930 | 707 | 4 | 8 | 4 |
| 11 | 2,2 | 4323 | 865 | 4 | 8 | 4 |
| 12 | 2,3 | 4716 | 904 | 4 | 8 | 4 |
| 14 | 2,7 | 5503 | 1061 | 4 | 8 | 4 |
| 15 | 2,9 | 5896 | 1140 | 4 | 8 | 4 |
| 18 | 3,4 | 7075 | 1336 | 4 | 8 | 7,5 |
| 19 | 3,6 | 7468 | 1415 | 4 | 8 | 7,5 |
| 22 | 4,3 | 8647 | 1690 | 4 | 8 | 7,5 |
| 24 | 4,6 | 9433 | 1808 | 4 | 8 | 7,5 |
| 29 | 5,5 | 11398 | 2162 | 4 | 8 | 9,2 |
| 36 | 6,9 | 14149 | 2712 | 4 | 6 | 9,2 |
| 44 | 8,3 | 17294 | 3262 | 4 | 6 | 9,2 |

15 bar

| RPM | Lt/h | BAR | | Kw |
|-----|------|-----|-----|-----|
| | | std | max | |
| 13 | 758 | 15 | 15 | 7,5 |
| 16 | 1625 | 15 | 15 | 7,5 |
| 18 | 2203 | 15 | 15 | 7,5 |
| 19 | 2492 | 15 | 15 | 7,5 |
| 22 | 3359 | 15 | 15 | 11 |
| 26 | 4515 | 15 | 15 | 11 |
| 31 | 5960 | 15 | 12 | 11 |

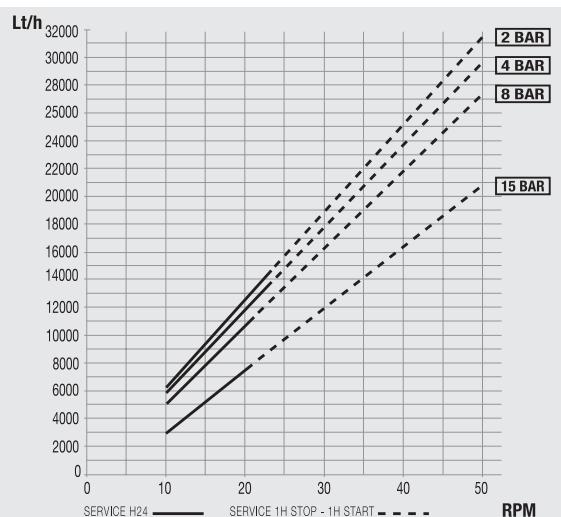
| variable gear speed 6-10 bar | | | | | | |
|------------------------------|------|-------|------|-----|-----|-----|
| RPM | Lt/h | | BAR | | Kw | |
| | max | min | max | min | std | max |
| 10 | 1,8 | 3550 | 438 | 6 | 10 | 4 |
| 11 | 2,2 | 3929 | 590 | 6 | 10 | 4 |
| 12 | 2,3 | 4308 | 628 | 6 | 10 | 4 |
| 14 | 2,7 | 5067 | 780 | 6 | 10 | 5,5 |
| 15 | 2,9 | 5447 | 856 | 6 | 10 | 5,5 |
| 18 | 3,4 | 6585 | 1045 | 6 | 10 | 7,5 |
| 19 | 3,6 | 6965 | 1121 | 6 | 10 | 7,5 |
| 22 | 4,3 | 8103 | 1387 | 6 | 10 | 7,5 |
| 24 | 4,6 | 8862 | 1501 | 6 | 10 | 7,5 |
| 29 | 5,5 | 10759 | 1842 | 6 | 8 | 9,2 |
| 36 | 6,9 | 13415 | 2373 | 6 | 8 | 9,2 |
| 44 | 8,3 | 16451 | 2905 | 6 | 6 | 9,2 |

SF100



| 0-4 bar | | | | |
|---------|-------|-----|-----|-----|
| RPM | Lt/h | BAR | | Kw |
| | | std | max | |
| 14,7 | 8981 | 2 | 4 | 5,5 |
| 19,3 | 11830 | 2 | 4 | 5,5 |
| 23,2 | 14246 | 2 | 4 | 5,5 |
| 27,7 | 17034 | 2 | 4 | 5,5 |
| 29,2 | 17963 | 2 | 4 | 5,5 |
| 36,6 | 22548 | 2 | 4 | 7,5 |
| 43,6 | 26884 | 2 | 4 | 7,5 |
| 46 | 28371 | 2 | 3 | 7,5 |
| 48,8 | 30106 | 2 | 3 | 7,5 |

| 4-6 bar | | | | |
|---------|-------|-----|-----|-----|
| RPM | Lt/h | BAR | | Kw |
| | | std | max | |
| 14,7 | 8795 | 4 | 6 | 5,5 |
| 19,3 | 11587 | 4 | 6 | 5,5 |
| 23,2 | 13954 | 4 | 6 | 7,5 |
| 27,7 | 16685 | 4 | 6 | 7,5 |
| 31 | 18688 | 4 | 6 | 11 |
| 39 | 23543 | 4 | 6 | 11 |
| 43,6 | 26335 | 4 | 5 | 11 |



| 8 bar | | | | |
|-------|----------|-----|-----|-----|
| RPM | Lt/h | BAR | | Kw |
| | | std | max | |
| 16,6 | 8734 | 8 | 8 | 7,5 |
| 18,5 | 9791 | 8 | 8 | 7,5 |
| 21 | 11183 | 8 | 8 | 11 |
| 23,5 | 12574 | 8 | 8 | 11 |
| 26,3 | 14132 | 8 | 8 | 11 |
| 29,6 | 15968 | 8 | 8 | 15 |
| 33 | 17861 | 8 | 8 | 15 |
| 37 | 20087 | 8 | 8 | 15 |
| 41,1 | 22368,15 | 8 | 6 | 15 |

| 15 bar | | | | |
|--------|-------|-----|-----|----|
| RPM | Lt/h | BAR | | Kw |
| | | std | max | |
| 16,6 | 5864 | 15 | 15 | 11 |
| 18,5 | 6712 | 15 | 15 | 11 |
| 21 | 7828 | 15 | 15 | 15 |
| 23,5 | 8943 | 15 | 15 | 15 |
| 26,3 | 10193 | 15 | 12 | 15 |
| 29,6 | 11666 | 15 | 12 | 15 |
| 33 | 13183 | 15 | 10 | 15 |

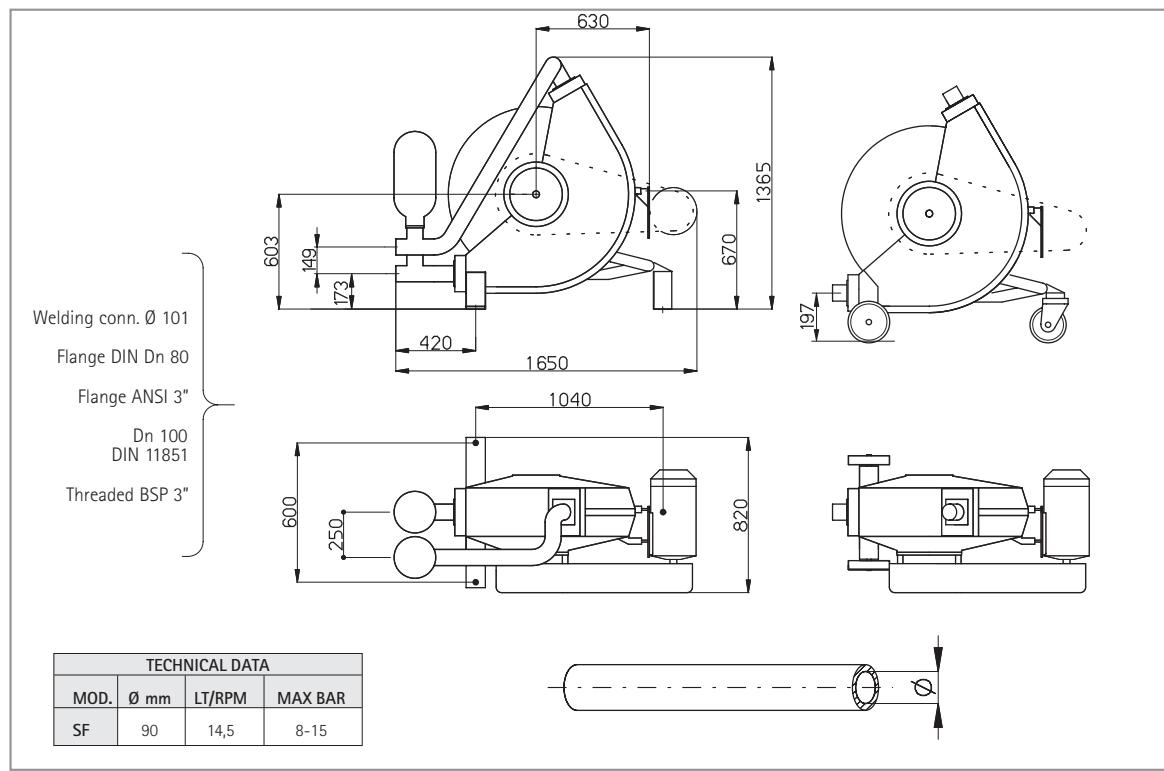
| variable gear speed 0-4 bar | | | | | |
|-----------------------------|-----|-------|------|-----|-----|
| RPM | | Lt/h | BAR | | Kw |
| | | | max | min | |
| 20,1 | 3,8 | 12326 | 2228 | 2 | 5,5 |
| 25,2 | 4,8 | 15485 | 2848 | 2 | 5,5 |
| 30 | 5,7 | 18459 | 3405 | 2 | 7,5 |
| 38,2 | 7,3 | 23539 | 4396 | 2 | 9,2 |
| 48,1 | 9,1 | 29672 | 5511 | 2 | 9,2 |

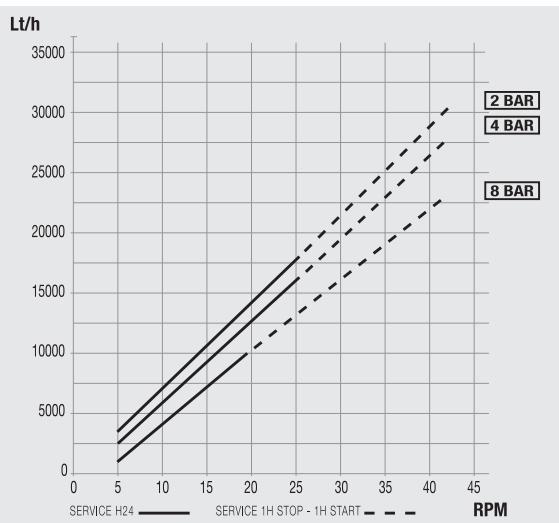
| variable gear speed 4-6 bar | | | | | |
|-----------------------------|-----|-------|------|-----|-----|
| RPM | | Lt/h | BAR | | Kw |
| | | | max | min | |
| 20,1 | 3,8 | 12073 | 2180 | 4 | 5,5 |
| 25,2 | 4,8 | 15168 | 2787 | 4 | 7,5 |
| 30 | 5,7 | 18081 | 3333 | 4 | 9,2 |
| 38,2 | 7,3 | 23058 | 4304 | 4 | 9,2 |
| 48,1 | 9,1 | 29066 | 5397 | 4 | 9,2 |

| variable gear speed 4-8 bar | | | | | |
|-----------------------------|-----|-------|------|-----|----|
| RPM | | Lt/h | BAR | | Kw |
| | | | max | min | |
| 20,7 | 3,6 | 12437 | 2059 | 4 | 8 |
| 26,3 | 4,5 | 15935 | 2605 | 4 | 8 |
| 29,6 | 5,1 | 17838 | 2969 | 4 | 8 |
| 37 | 6,4 | 22329 | 3758 | 4 | 11 |
| 47,3 | 8,2 | 28580 | 4851 | 4 | 11 |

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SF190





| 0-4 bar | | | | |
|---------|-------|-----|-----|-----|
| RPM | Lt/h | BAR | | Kw |
| | | std | max | |
| 14,9 | 11706 | 2 | 4 | 5,5 |
| 19,6 | 15449 | 2 | 4 | 5,5 |
| 23,6 | 18635 | 2 | 4 | 5,5 |
| 28,1 | 22220 | 2 | 4 | 7,5 |
| 29,7 | 23494 | 2 | 4 | 7,5 |
| 35,5 | 28114 | 2 | 4 | 11 |
| 39,7 | 31459 | 2 | 4 | 11 |
| 41,8 | 33132 | 2 | 3,5 | 11 |

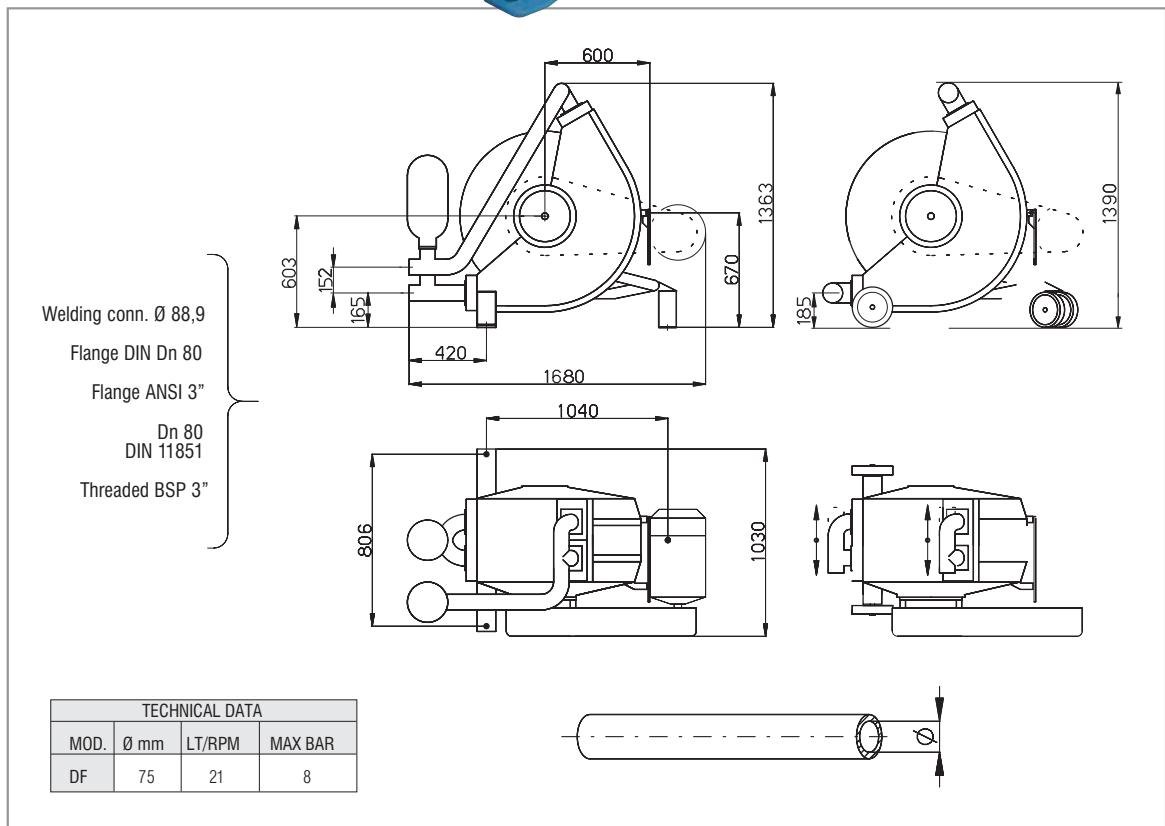
| 4-8 bar | | | | |
|---------|-------|-----|-----|----|
| RPM | Lt/h | BAR | | Kw |
| | | std | max | |
| 16,9 | 13025 | 4 | 8 | 11 |
| 18,8 | 14508 | 4 | 8 | 11 |
| 21,4 | 16536 | 4 | 8 | 11 |
| 23,9 | 18487 | 4 | 8 | 11 |
| 26,8 | 20750 | 4 | 8 | 15 |
| 30,1 | 23325 | 4 | 8 | 15 |
| 33,6 | 26056 | 4 | 8 | 15 |
| 37,6 | 29177 | 4 | 7 | 15 |
| 41,8 | 32455 | 4 | 6 | 15 |

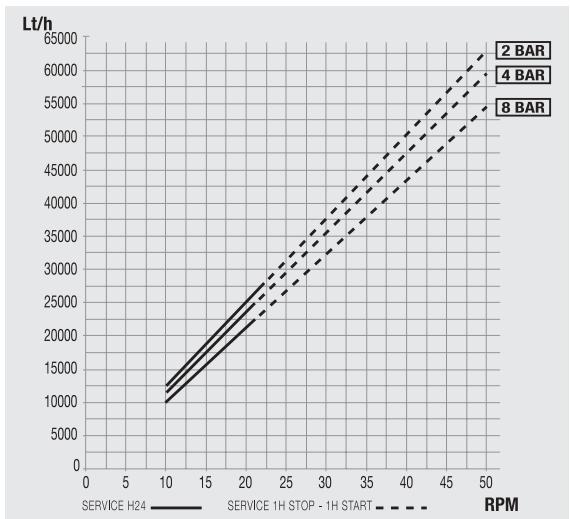
| 8 bar | | | | |
|-------|-------|-----|-----|----|
| RPM | Lt/h | BAR | | Kw |
| | | std | max | |
| 16,9 | 11444 | 8 | 8 | 11 |
| 18,8 | 12803 | 8 | 8 | 11 |
| 21,4 | 14664 | 8 | 8 | 11 |
| 23,9 | 16452 | 8 | 8 | 11 |
| 26,8 | 18527 | 8 | 8 | 15 |
| 30,1 | 20889 | 8 | 8 | 15 |
| 33,6 | 23393 | 8 | 8 | 15 |
| 37,6 | 26255 | 8 | 7 | 15 |
| 41,8 | 29260 | 8 | 6 | 15 |

| Variable gear speed 0-3,5 bar | | | | | | |
|-------------------------------|-----|-------|------|-----|-----|-----|
| RPM | | Lt/h | | BAR | | Kw |
| max | min | max | min | std | max | |
| 20,1 | 3,8 | 15848 | 2865 | 2 | 3,5 | 5,5 |
| 25,2 | 4,8 | 19910 | 3661 | 2 | 3,5 | 7,5 |
| 30 | 5,7 | 23733 | 4378 | 2 | 3,5 | 7,5 |
| 36,1 | 6,9 | 28592 | 5334 | 2 | 3 | 9,2 |
| 42,9 | 8,2 | 34008 | 6369 | 2 | 2,5 | 9,2 |

| Variable gear speed 4-8 bar | | | | | | |
|-----------------------------|-----|-------|------|-----|-----|----|
| RPM | | Lt/h | | BAR | | Kw |
| max | min | max | min | std | max | |
| 19,4 | 3,3 | 14976 | 2413 | 4 | 8 | 11 |
| 24,3 | 4,1 | 18799 | 3037 | 4 | 6 | 11 |
| 34,7 | 5,9 | 26914 | 4442 | 4 | 5 | 11 |
| 38,7 | 6,6 | 30036 | 4988 | 4 | 4 | 11 |

DF100





| 0-3,5 bar | | | | |
|-----------|-------|-----|-----|-----|
| RPM | Lt/h | BAR | | Kw |
| | | std | max | |
| 14,7 | 17961 | 2 | 3,5 | 7,5 |
| 18,3 | 22422 | 2 | 3,5 | 7,5 |
| 22,1 | 27130 | 2 | 3,5 | 7,5 |
| 27,7 | 34068 | 2 | 3,5 | 11 |
| 29,2 | 35927 | 2 | 3,5 | 11 |
| 34,9 | 42989 | 2 | 3,5 | 11 |
| 43,6 | 53768 | 2 | 3,5 | 15 |
| 46 | 56742 | 2 | 3,5 | 15 |

| 4-8 bar | | | | |
|---------|-------|-----|-----|------|
| RPM | Lt/h | BAR | | Kw |
| | | std | max | |
| 16,6 | 19897 | 4 | 8 | 11 |
| 18,5 | 22203 | 4 | 8 | 11 |
| 21 | 25238 | 4 | 8 | 15 |
| 23,5 | 28272 | 4 | 8 | 15 |
| 26,3 | 31671 | 4 | 8 | 15 |
| 29,6 | 35676 | 4 | 6 | 15 |
| 33 | 39803 | 4 | 6 | 15 |
| 37 | 44659 | 4 | 6 | 18,5 |
| 41,1 | 49635 | 4 | 5 | 18,5 |
| 46 | 55583 | 4 | 5 | 18,5 |

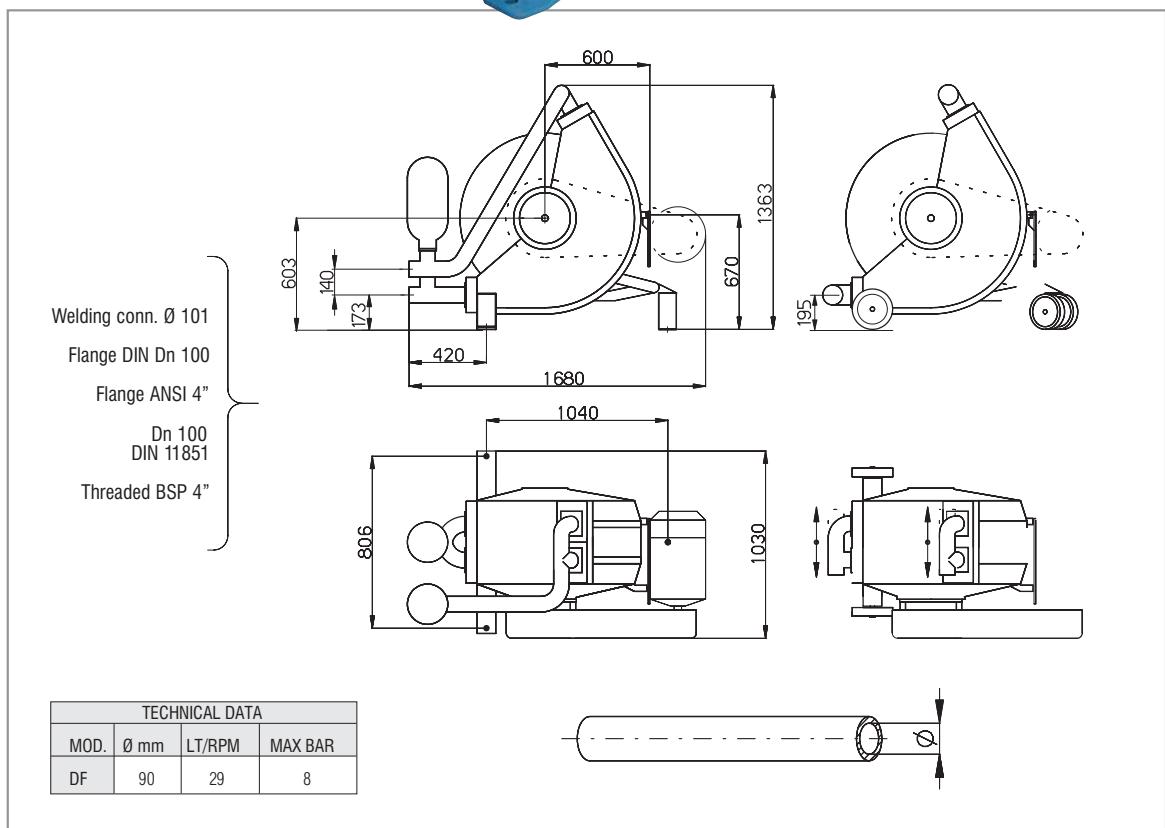
| 8 bar | | | | |
|-------|-------|-----|-----|------|
| RPM | Lt/h | BAR | | Kw |
| | | std | max | |
| 16,6 | 17468 | 8 | 8 | 11 |
| 18,5 | 19583 | 8 | 8 | 11 |
| 21 | 22365 | 8 | 8 | 15 |
| 23,5 | 25148 | 8 | 8 | 15 |
| 26,3 | 28264 | 8 | 8 | 15 |
| 29,6 | 31937 | 8 | 6 | 15 |
| 33 | 35721 | 8 | 6 | 15 |
| 37 | 40173 | 8 | 6 | 18,5 |

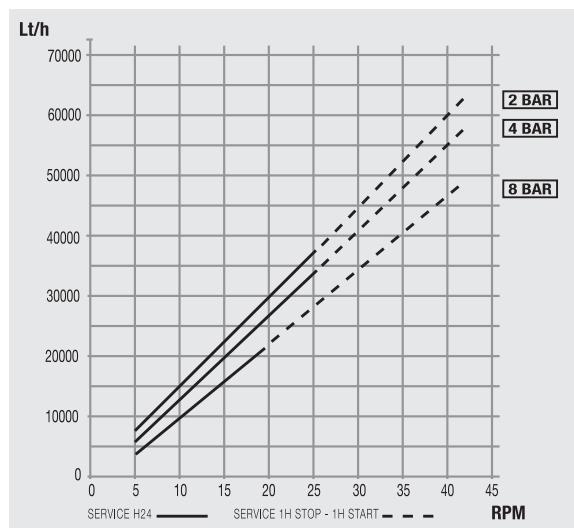
| variable gear speed 0-2,5 bar | | | | | | |
|-------------------------------|-----|-------|-------|-----|-----|-----|
| RPM | | Lt/h | | BAR | | Kw |
| max | min | max | min | std | max | |
| 20,1 | 3,8 | 24652 | 4456 | 2 | 3,5 | 7,5 |
| 25,2 | 4,8 | 30971 | 5695 | 2 | 3,5 | 9,2 |
| 30 | 5,7 | 36918 | 6810 | 2 | 2,5 | 9,2 |
| 38,2 | 7,3 | 47078 | 8793 | 2 | 2,5 | 9,2 |
| 48,1 | 9,1 | 59344 | 11023 | 2 | 1,6 | 9,2 |

| variable gear speed 4-6 bar | | | | | | |
|-----------------------------|-----|-------|------|-----|-----|------|
| RPM | | Lt/h | | BAR | | Kw |
| max | min | max | min | std | max | |
| 20,7 | 3,6 | 24874 | 4118 | 4 | 6 | 15 |
| 26,3 | 4,5 | 31671 | 5210 | 4 | 6 | 15 |
| 29,6 | 5,1 | 35676 | 5938 | 4 | 6 | 15 |
| 37 | 6,4 | 44659 | 7516 | 4 | 6 | 18,5 |
| 47,3 | 8,2 | 57161 | 9701 | 4 | 4 | 18,5 |

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DF190



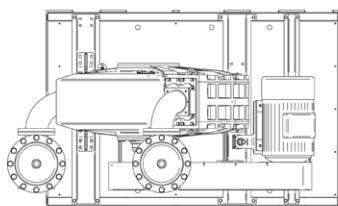
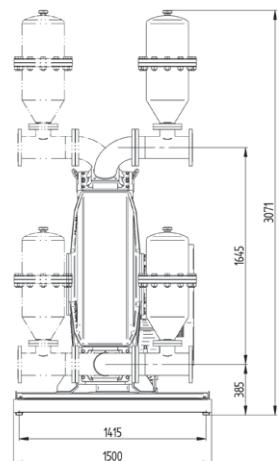
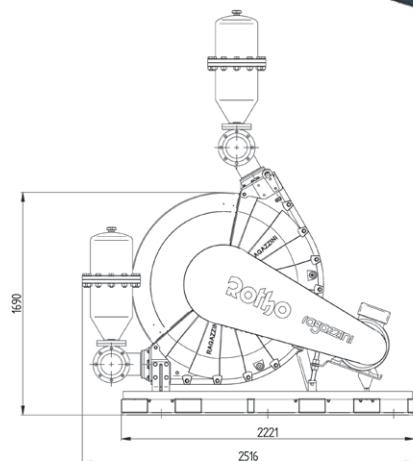


| RPM | Lt/h | BAR | | Kw |
|------|-------|-----|-----|----|
| | | std | max | |
| | | | | |
| 16,9 | 26598 | 2 | 4 | 11 |
| 18,8 | 29624 | 2 | 4 | 11 |
| 21,4 | 33766 | 2 | 4 | 11 |
| 23,9 | 37749 | 2 | 4 | 11 |
| 26,8 | 42368 | 2 | 4 | 11 |
| 30,1 | 47625 | 2 | 3 | 11 |
| 33,6 | 53201 | 2 | 2,5 | 11 |
| 37,6 | 59573 | 2 | 2,5 | 15 |
| 41,8 | 66263 | 2 | 2,5 | 15 |

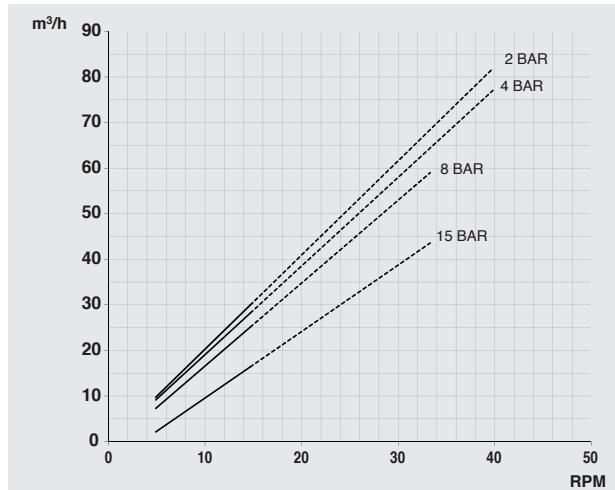
| RPM | Lt/h | BAR | | Kw |
|------|-------|-----|-----|------|
| | | std | max | |
| | | | | |
| 16,9 | 26050 | 4 | 6 | 11 |
| 18,8 | 29015 | 4 | 6 | 11 |
| 21,4 | 33073 | 4 | 6 | 15 |
| 23,9 | 36974 | 4 | 6 | 15 |
| 26,8 | 41500 | 4 | 6 | 18,5 |
| 30,1 | 46650 | 4 | 6 | 18,5 |
| 33,6 | 52112 | 4 | 5 | 18,5 |
| 37,6 | 58355 | 4 | 5 | 22 |
| 41,8 | 64909 | 4 | 4 | 22 |

| RPM | Lt/h | BAR | | Kw |
|------|-------|-----|-----|------|
| | | std | max | |
| | | | | |
| 16,9 | 24166 | 6 | 6 | 11 |
| 18,8 | 27028 | 6 | 6 | 11 |
| 21,4 | 30945 | 6 | 6 | 15 |
| 23,9 | 34712 | 6 | 6 | 15 |
| 26,8 | 39081 | 6 | 6 | 18,5 |
| 30,1 | 44053 | 6 | 6 | 18,5 |
| 33,6 | 49326 | 6 | 5 | 18,5 |
| 37,6 | 55352 | 6 | 5 | 22 |

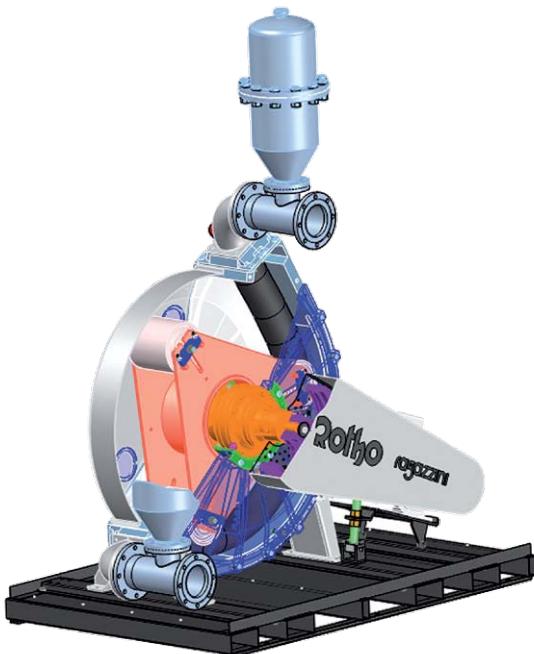
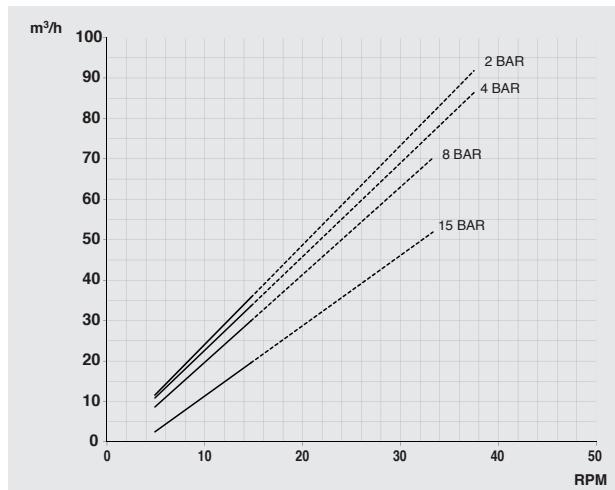
SR1 - SR2



SR1

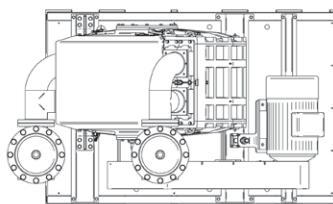
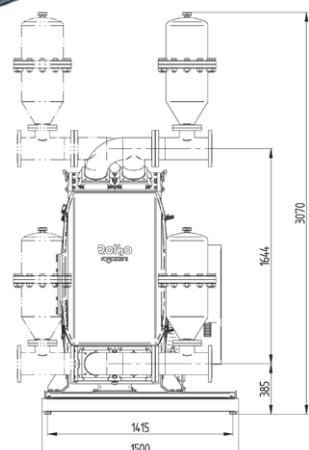
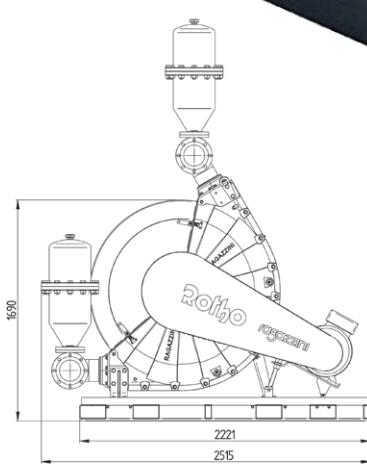


SR2

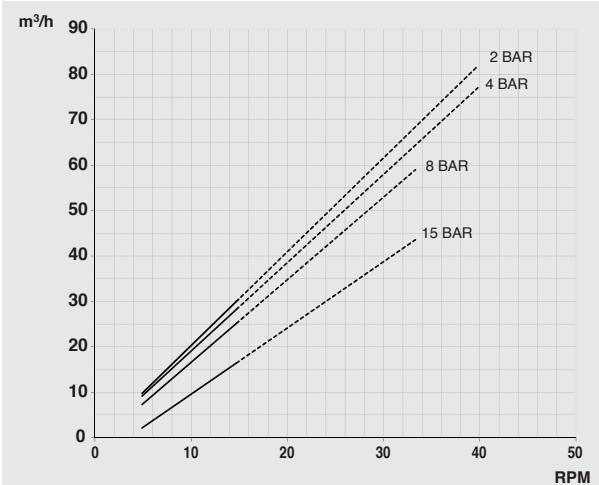


| | SR1 | SR2 |
|------------------------------------|-------|-------|
| HOSE DIAMETER | DN114 | DN127 |
| MAX CAPACITY m^3/h | 80 | 90 |
| MAX RPM | 40 | 37,5 |
| MAX PRESSURE BAR | 15 | 15 |
| MAX POWER KW | 30 | 55 |
| ANSI FL. CONNECTION | 4" | 5" |

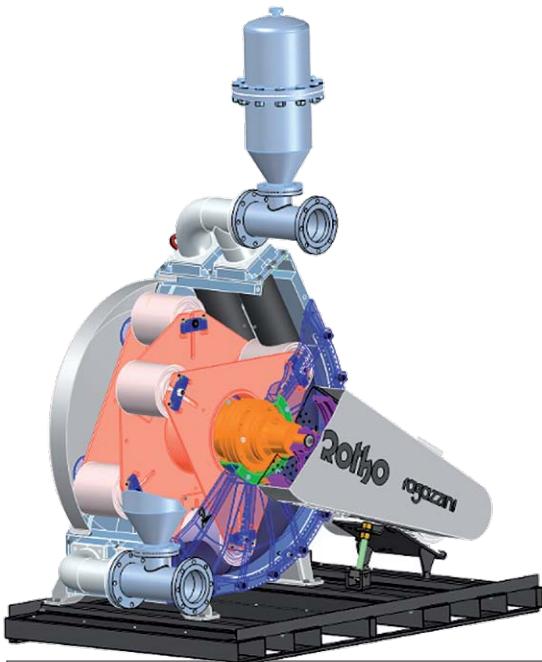
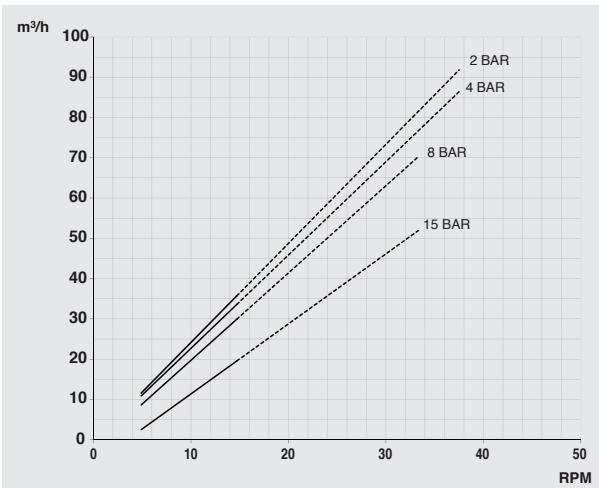
DR1 - DR2



DR1



DR2



DR1 DR2

| | | |
|---------------------|-------|-------|
| HOSE DIAMETER | DN114 | DN127 |
| MAX CAPACITY m³/h | 152 | 180 |
| MAX RPM | 37,5 | 37,5 |
| MAX PRESSURE BAR | 8 | 8 |
| MAX POWER KW | 45 | 55 |
| ANSI FL. CONNECTION | 6" | 6" |

SR1 SR2 DR1 DR2

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ragazzini

48018 Faenza - Italy - Via A. Volta 8
Tel. +39 0546 620433 - Fax +39 0546 621394
rotho@ragazzini.it

www.ragazzini.it