

**B**  
& BR  
**series**

HYDRAULIC  
DIAPHRAGM  
DOSING PUMPS

**DOSEURO®**





# B

## Hydraulic diaphragm Type

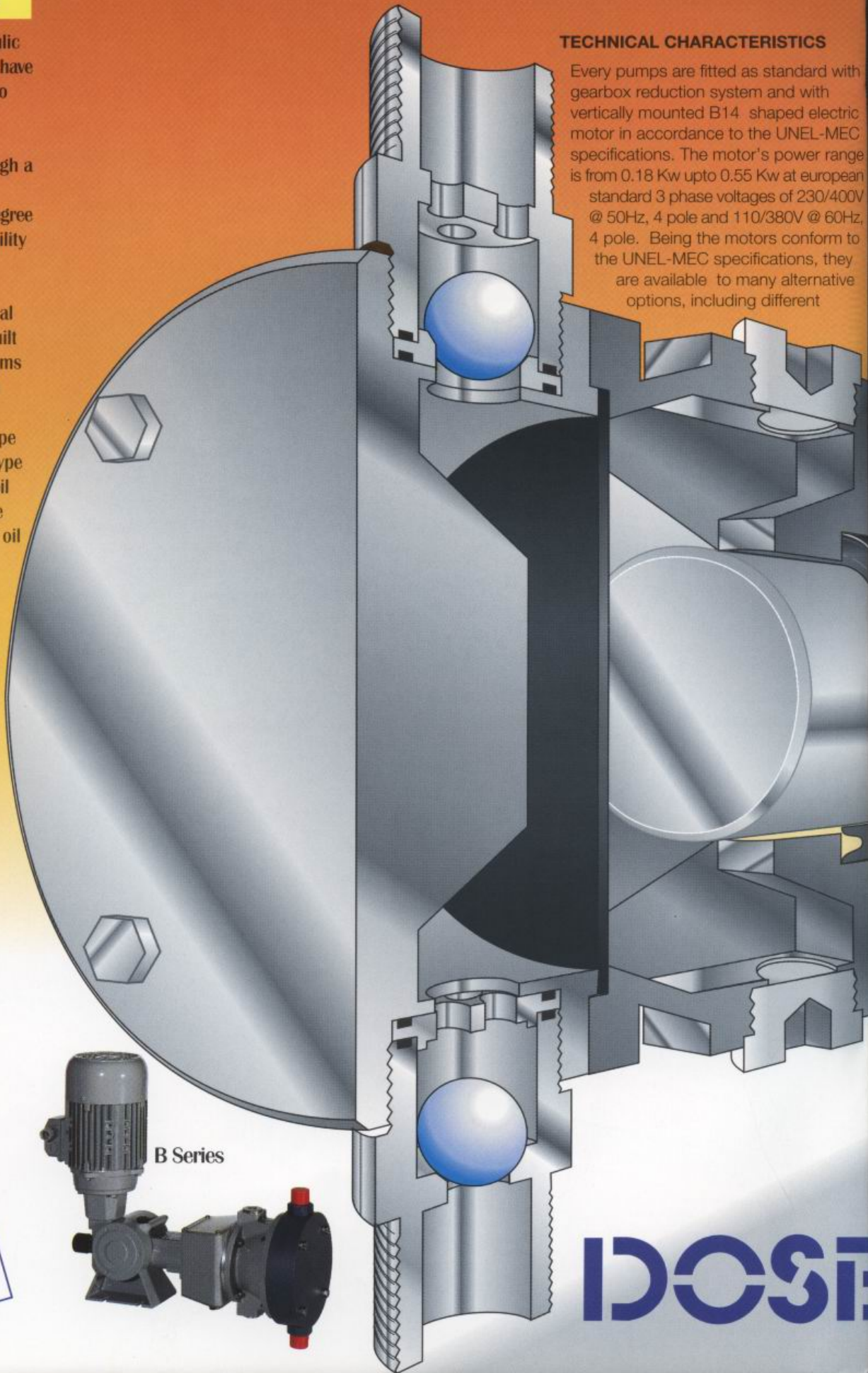
"B" and "BR" Series hydraulic diaphragm metering pumps, have been specifically designed to ensure accuracy and are engineered for continuous metering applications through a wide range of capacities.

The design ensures a high degree of accuracy and reproducibility commensurate with the requirements of the water treatment and petrochemical engineer. The pumps are built accordingly with the CE norms as stated in the EU Machine Guideline.

B - Hydraulic Diaphragm Type  
BR - Hydraulic Diaphragm Type equipped with a hydraulic oil reservoir for maintaining the correct amount of oil in the oil chamber

### TECHNICAL CHARACTERISTICS

Every pumps are fitted as standard with gearbox reduction system and with vertically mounted B14 shaped electric motor in accordance to the UNEL-MEC specifications. The motor's power range is from 0.18 Kw upto 0.55 Kw at european standard 3 phase voltages of 230/400V @ 50Hz, 4 pole and 110/380V @ 60Hz, 4 pole. Being the motors conform to the UNEL-MEC specifications, they are available to many alternative options, including different



B Series



# IDOSI



voltages and frequencies, insulation standards and special explosion proof versions.

■ The gearbox provides for a wormwheel reduction system with all bearings fully supported within the fully lubricated gearbox.

■ The manually adjustable output with spring return is operated by an eccentric, which provides for the piston delivery stroke (outlet), while the suction stroke (inlet) is spring assisted.

■ The flowrate adjustment is possible whether is or not in operation. The movement of the piston is based on a precise reciprocating

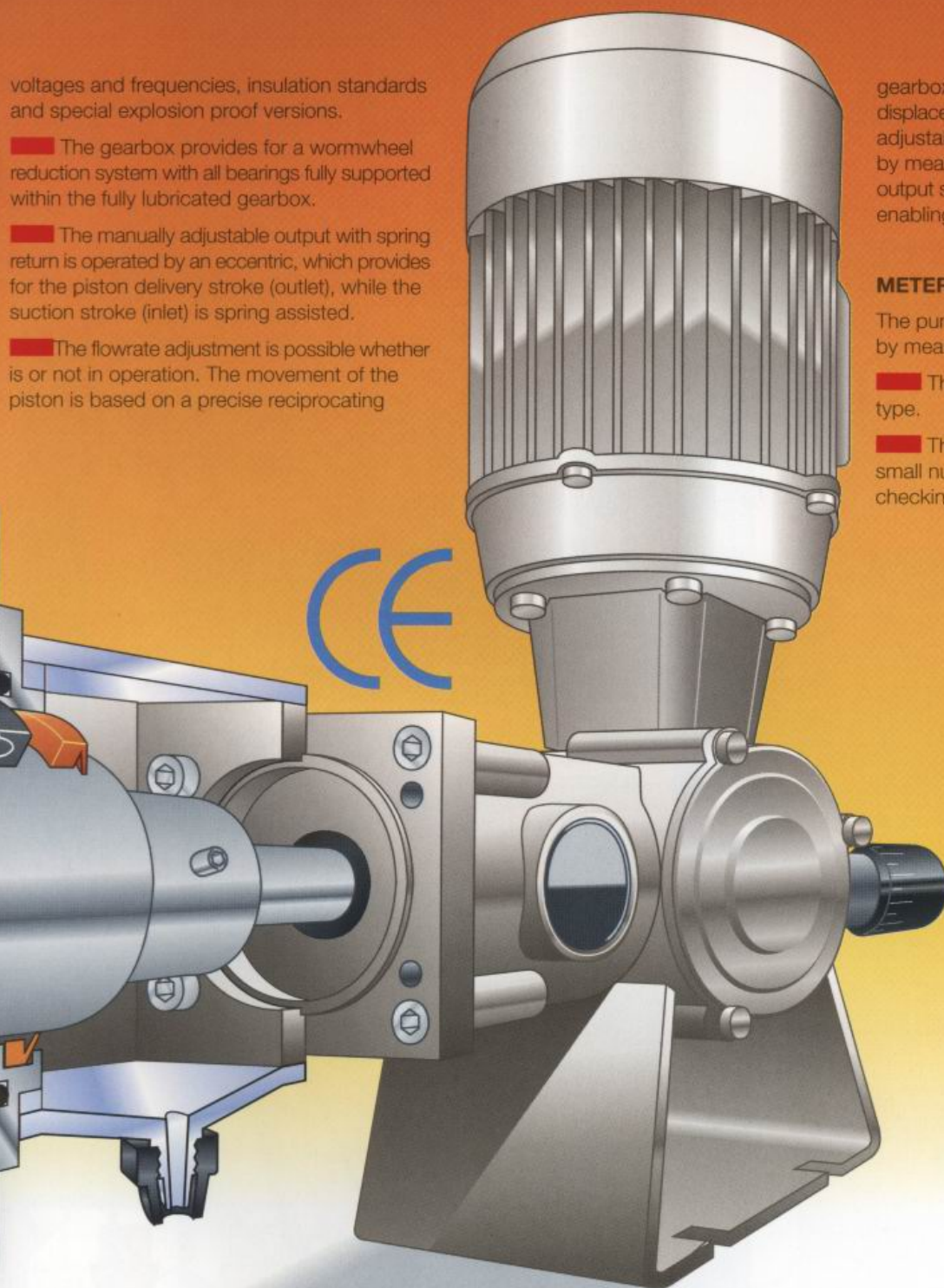
gearbox which provides for exact volumetric displacement. The metering rate is fully manually adjustable. Automatic adjustment is available by means of servo control units, with 4-20mA output signal, or by means of pneumatic control, enabling control from 3-15 PSI signal air.

#### METERING PUMPHEAD

The pumphead is connected to the body pump by means a spacer assembly.

■ The pumphead is hydraulic diaphragm type.

■ The simple building configuration and a small number of components allow an easy checking and maintenance.



BR Series



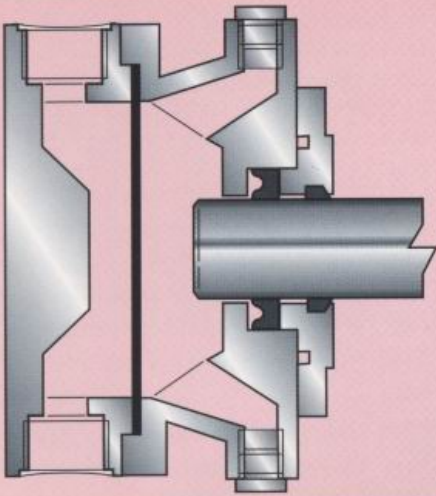
EURO®



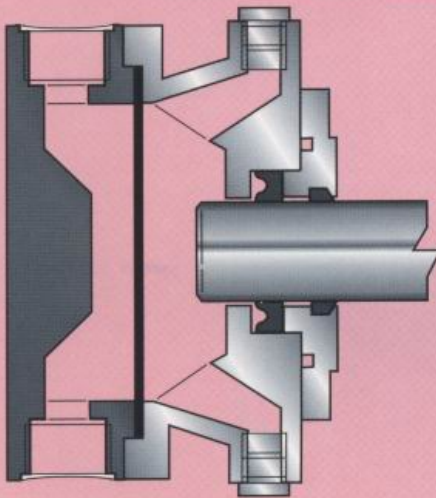


# Examples composition

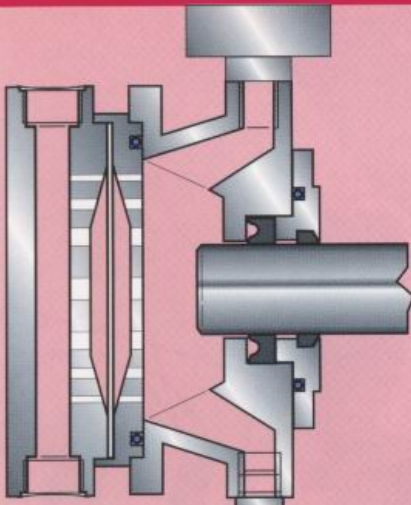
Execution 41



Execution 43



Execution 41 BR



■ "B" and "BR" series Hydraulic Diaphragm pumps are available in three different sizes:

- B 125 N piston stroke 12.5 mm
- B 175 N piston stroke 17.5 mm
- B 250 N piston stroke 25 mm
- BR 125 N piston stroke 12.5 mm
- BR 175 N piston stroke 17.5 mm
- BR 250 N piston stroke 25 mm

For these three types 11 different piston sizes are available to suit each client's applications for capacity and pressure.

■ Hydraulic diaphragm metering pumps are suitable for use when:

The dosed liquid is of abrasive type with small amounts of solids in suspension.

The dosed liquid is a toxic solution.

A drip proof/air tight application is required.

High pressure metering is required.

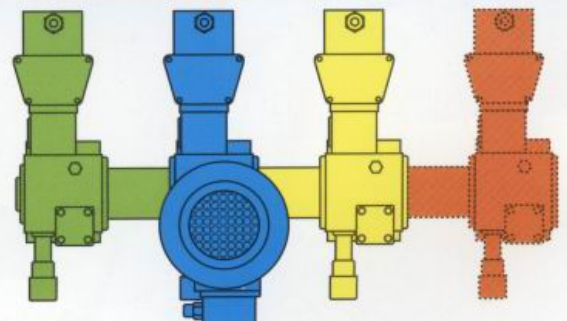
■ Standard materials of pumphead construction:

AISI 316 Stainless steel and PVC.

Available in many different materials of construction to suit the chemicals in use.

■ Jacketed pumpheads for either cooling or heating are available to suit requirements.

■ Piston seals are in polyurethane rubber.



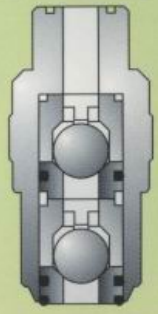
## MULTIPLE HEADED PUMPS

Different multiple heads units are available on request.

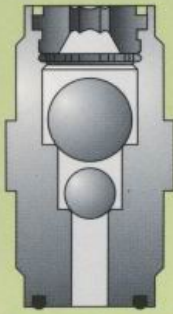
Each pumping element is independently adjustable either is in operation or not.



AB 8/14 N DV



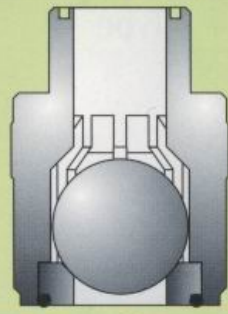
AB 5/21 N DV



AB 11/21 N



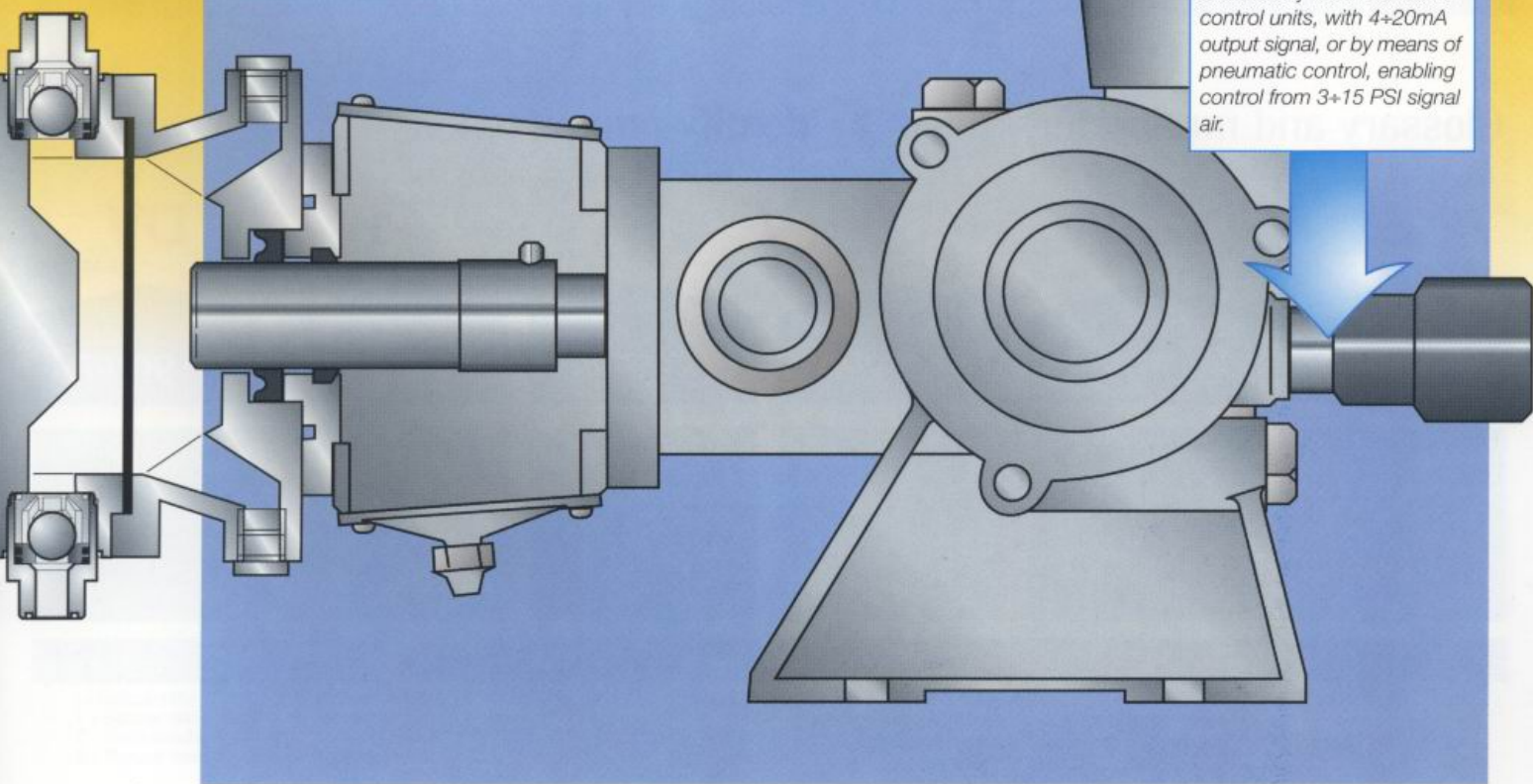
AB 22/14 N



### Gearbox

Every pumps are fitted as standard with gearbox reduction system and with vertically mounted B14 shaped electric motor in accordance to the UNEL-MEC specifications. The motor's power range is from 0.18 Kw upto 0.75 Kw at european standard 3 phase voltages of 230/400V @ 50Hz, 4 pole and 110/380V @ 60 Hz, 4 pole.

The automatic adjustment is available by means of servo control units, with 4+20mA output signal, or by means of pneumatic control, enabling control from 3+15 PSI signal air.





# B

Hydraulic diaphragm  
Type

## Hydraulic diaphragm pumps: executions

| EXECUT. | PARTS     |                |              |             |           |              |
|---------|-----------|----------------|--------------|-------------|-----------|--------------|
|         | PUMP HEAD | PISTON         | VALVE (ball) | VALVE SEATS | DIAPHRAGM | PISTON GASK. |
| 29      | PP        | AISI 420 TEMP. | PYREX        | PP          | PTFE/NBR  | T20          |
| 41      | AISI 316  | AISI 420 TEMP. | AISI 316     | AISI 316    | PTFE/NBR  | T20          |
| 43      | PVC       | AISI 420 TEMP. | PYREX        | PVC         | PTFE/NBR  | T20          |

PP = Polypropylene

AISI 316 = Stainless steel 316

AISI 420 TEMP. = Tempered stainless steel 420

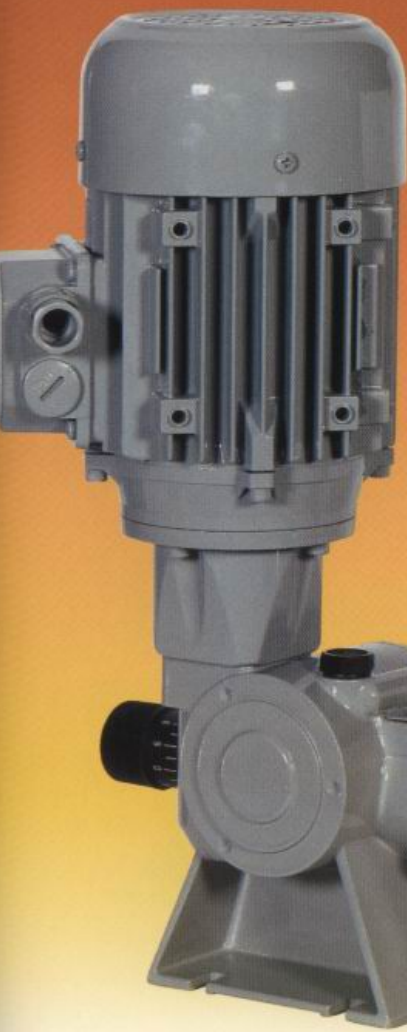
T20 = Polyurethane rubber

## Glossary and numbering-system to identify pumps type

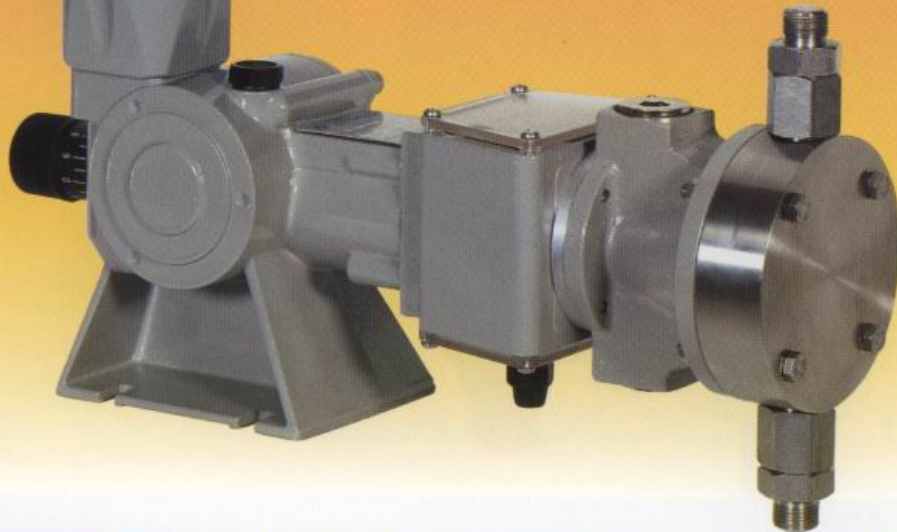
| B                                          | 125N                  | 30                    | / | F                                                                          | 41                                | DV                          |
|--------------------------------------------|-----------------------|-----------------------|---|----------------------------------------------------------------------------|-----------------------------------|-----------------------------|
| 1 <sup>st</sup> group                      | 2 <sup>nd</sup> group | 3 <sup>rd</sup> group |   | 4 <sup>th</sup> group                                                      | 5 <sup>th</sup> group             | 6 <sup>th</sup> group       |
| "B" series hydraulic diaphragm dosing pump | stroke length         | piston diameter in mm |   | reduction ratio group (nr. of piston strokes/min):<br>F (1/24)<br>B (1/12) | materials in touch with the fluid | not standard - special code |

in case of pumps supplied without motor add: WO/M





# B125N



| Pump type  | Reducer ratio<br>Strokes number /1 | Capacity (*2) |       |       |       |        |      | Max Press. (*3) |     | Connections (*4) |                   | Motor | ø mm<br>Real<br>piston | ø mm<br>Diaphr. | Stroke<br>mm | Net Weights (*5) |  |
|------------|------------------------------------|---------------|-------|-------|-------|--------|------|-----------------|-----|------------------|-------------------|-------|------------------------|-----------------|--------------|------------------|--|
|            |                                    | 50 Hz         | 60 Hz | L/h   |       | SS 316 | PVC  | SS 316          | PVC | Length           | SS 316            |       |                        |                 |              | PVC              |  |
| B-125N- 8  | F                                  | 58            | 70    | 0,025 | 0,030 | 1,5    | 1,8  | 20              | 10  | 1/2" G.m.        | kW 0.18           | 8     | 50                     | 12.5            | 9,5          | 8                |  |
|            | C                                  | 96            | 116   | 0,040 | 0,050 | 2,4    | 3    |                 |     |                  |                   |       |                        |                 |              |                  |  |
|            | B                                  | 116           |       | 0,050 |       | 3      |      |                 |     |                  |                   |       |                        |                 |              |                  |  |
| B-125N- 12 | I                                  | 35            | 42    | 0,045 | 0,054 | 2,7    | 3,2  | 20              | 10  | 1/2" G.m.        | 3 Ph<br>~1400 rpm | 12    | 70                     | 9,5             | 8            |                  |  |
|            | F                                  | 58            | 70    | 0,075 | 0,090 | 4,5    | 5,4  |                 |     |                  |                   |       |                        |                 |              |                  |  |
|            | C                                  | 96            | 116   | 0,123 | 0,150 | 7,4    | 9    |                 |     |                  |                   |       |                        |                 |              |                  |  |
| B-125N- 18 | I                                  | 35            | 42    | 0,110 | 0,132 | 6,6    | 7,9  | 20              | 10  | 1/2" G.m.        | or                | 18    | 70                     | 10              | 9,5          |                  |  |
|            | F                                  | 58            | 70    | 0,183 | 0,220 | 11     | 13,2 |                 |     |                  |                   |       |                        |                 |              |                  |  |
|            | C                                  | 96            | 116   | 0,300 | 0,366 | 18     | 22   |                 |     |                  |                   |       |                        |                 |              |                  |  |
| B-125N- 25 | I                                  | 35            | 42    | 0,211 | 0,252 | 12,6   | 15,1 | 20              | 10  | 1/2" G.m.        | kW 0.18           | 25    | 70                     | 10              | 9,5          |                  |  |
|            | F                                  | 58            | 70    | 0,350 | 0,420 | 21     | 25,2 |                 |     |                  |                   |       |                        |                 |              |                  |  |
|            | C                                  | 96            | 116   | 0,566 | 0,700 | 34     | 42   |                 |     |                  |                   |       |                        |                 |              |                  |  |
| B-125N- 30 | I                                  | 35            | 42    | 0,301 | 0,360 | 18     | 21,6 | 14              | 10  | 1/2" G.m.        | 1 ph<br>~1400 rpm | 30    | 70                     | 10              | 9,5          |                  |  |
|            | F                                  | 58            | 70    | 0,500 | 0,600 | 30     | 36   |                 |     |                  |                   |       |                        |                 |              |                  |  |
|            | C                                  | 96            | 116   | 0,816 | 1,000 | 49     | 60   |                 |     |                  |                   |       |                        |                 |              |                  |  |
| B-125N- 40 | I                                  | 35            | 42    | 0,543 | 0,650 | 32,5   | 39   | 8               | 10  | 1/2" G.m.        |                   | 40    | 90                     | 11              | 11           |                  |  |
|            | F                                  | 58            | 70    | 0,900 | 1,080 | 54     | 65   |                 |     |                  |                   |       |                        |                 |              |                  |  |
|            | C                                  | 96            | 116   | 1,483 | 1,800 | 89     | 108  |                 |     |                  |                   |       |                        |                 |              |                  |  |

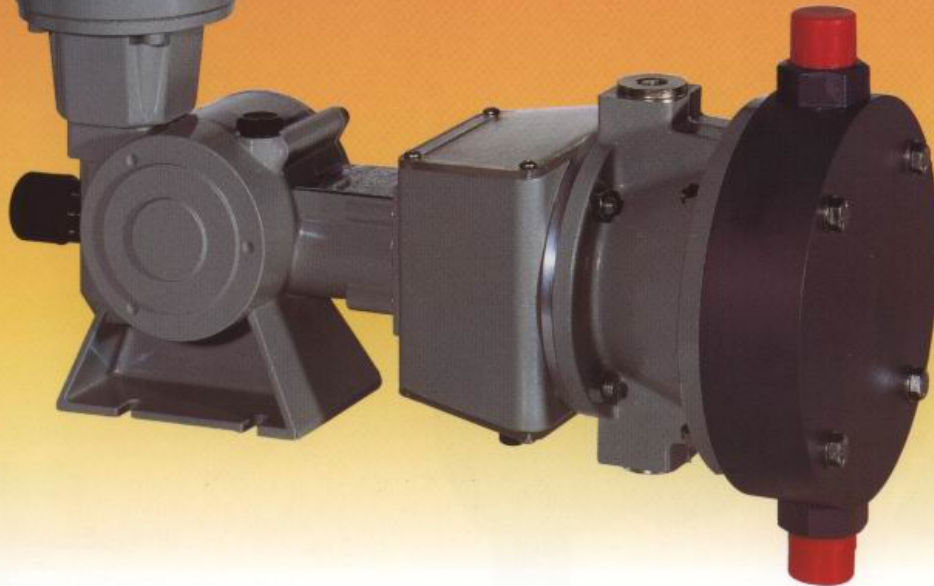
Note: G.m. = Cylindrical, male; 1 liter = 0,264 gallon; 1 Kg/cm2 = 14,223 PSI  
 (\*1) Piston's number o strokes during 1 minute with 4 pole motor  
 I = Reducer ratio 1 : 40 = 35 strokes at 50 Hz / 42 strokes at 60 Hz  
 F = Reducer ratio 1 : 24 = 58 strokes at 50 Hz / 70 strokes at 60 Hz  
 C = Reducer ratio 1 : 14,5= 96 strokes at 50 Hz / 116 strokes at 60 Hz  
 B = Reducer ratio 1 : 12 = 116 strokes at 50 Hz

(\*2) The indicated capacity value is subject to changes due to the working pressure, the dosed liquid, the viscosity.  
 (\*3) Higher pressures are available.  
 (\*4) Different range of connections are available on request.  
 (\*5) The weight is approximate and is the value of the pump fitted with a totally enclosed fan-cooled outdoor motor.  
 (\*6) The pumps can be supplied with accessories if requested.  
 (\*7) The pumps are epoxy coated RAL 7030.





# B175N



| Pump type  | Reducer ratio<br>(*1)<br>Strokes number /1 | Reducer ratio   |           | Capacity (*2)           |                |                   |                | Max Press.<br>Kg/cm <sup>2</sup> |        |        |        | Connections<br>(*4) | Motor | ø mm<br>Real<br>piston | ø mm<br>Diaphr. | Stroke<br>mm | Net Weights (*5)<br>Kg |      |
|------------|--------------------------------------------|-----------------|-----------|-------------------------|----------------|-------------------|----------------|----------------------------------|--------|--------|--------|---------------------|-------|------------------------|-----------------|--------------|------------------------|------|
|            |                                            | 50 Hz           | 60 Hz     | L/1'                    |                | L/h               |                | SS 316                           |        | PVC    |        |                     |       |                        |                 |              | SS 316                 | PVC  |
|            |                                            | 50 Hz           | 60 Hz     | 50 Hz                   | 60 Hz          | 50 Hz             | 60 Hz          | 0,25kW                           | 0,37kW | 0,25kW | 0,37kW |                     |       |                        |                 |              |                        |      |
| B-175N- 8  | F<br>C<br>B                                | 70<br>96<br>120 | 84<br>116 | 0,043<br>0,058<br>0,073 | 0,052<br>0,070 | 2,6<br>3,5<br>4,4 | 3,12<br>4,2    |                                  |        |        |        |                     |       | 8                      |                 |              | 11,5                   | 11   |
| B-175N- 12 | F<br>C<br>B                                | 70<br>96<br>120 | 84<br>116 | 0,126<br>0,173<br>0,216 | 0,152<br>0,206 | 7,6<br>10,4<br>13 | 9,12<br>12,4   |                                  |        |        |        |                     |       | 50                     | 12              | 11,5         | 12                     | 11,5 |
| B-175N- 18 | F<br>C<br>B                                | 70<br>96<br>120 | 84<br>116 | 0,300<br>0,400<br>0,533 | 0,360<br>0,480 | 18<br>24<br>32    | 21,6<br>28,8   | 20                               |        | 10     |        |                     | 18    |                        |                 |              | 12                     | 11,5 |
| B-175N- 25 | F<br>C<br>B                                | 70<br>96<br>120 | 84<br>116 | 0,600<br>0,816<br>1,016 | 0,720<br>0,980 | 36<br>49<br>61    | 43,2<br>58,8   |                                  |        |        |        |                     |       | 25                     | 70              |              | 12,5                   | 12   |
| B-175N- 30 | F<br>C<br>B                                | 70<br>96<br>120 | 84<br>116 | 0,850<br>1,150<br>1,466 | 1,020<br>1,380 | 51<br>69<br>88    | 61,2<br>82,8   |                                  |        |        |        |                     |       | or                     | 30              | 17,5         | 12,5                   | 12   |
| B-175N- 40 | F<br>C<br>B                                | 70<br>96<br>120 | 84<br>116 | 1,533<br>2,100<br>2,630 | 1,840<br>2,52  | 92<br>126<br>158  | 110,4<br>151,2 | 12                               | 19     |        |        |                     |       | 40                     | 90              |              | 13,5                   | 12   |
| B-175N- 50 | F<br>C<br>B                                | 70<br>96<br>120 | 84<br>116 | 2,400<br>3,283<br>4,116 | 2,880<br>3,940 | 144<br>197<br>247 | 172,8<br>236,4 | 7,5                              | 12     | 7,5    | 10     |                     |       | 50                     |                 |              | 16                     | 15   |
| B-175N- 55 | F<br>C<br>B                                | 70<br>96<br>120 | 84<br>116 | 2,900<br>3,966<br>4,983 | 3,480<br>4,760 | 174<br>238<br>299 | 208,8<br>285,6 | 6,3                              | 9,5    | 6,3    | 9,5    | 3/4" G.m.           |       | 55                     | 120             |              | 16                     | 15   |
| B-175N- 65 | F<br>C<br>B                                | 70<br>96<br>120 | 84<br>116 | 4,050<br>5,550<br>6,960 | 4,860<br>6,660 | 243<br>333<br>418 | 291,6<br>399,6 | 4,5                              | 7      | 4,5    | 7      |                     |       | 65                     |                 |              | 16                     | 15   |

Note: G.m. = Cylindrical, male; 1 liter = 0,264 gallon; 1 Kg/cm<sup>2</sup> = 14,223 PSI

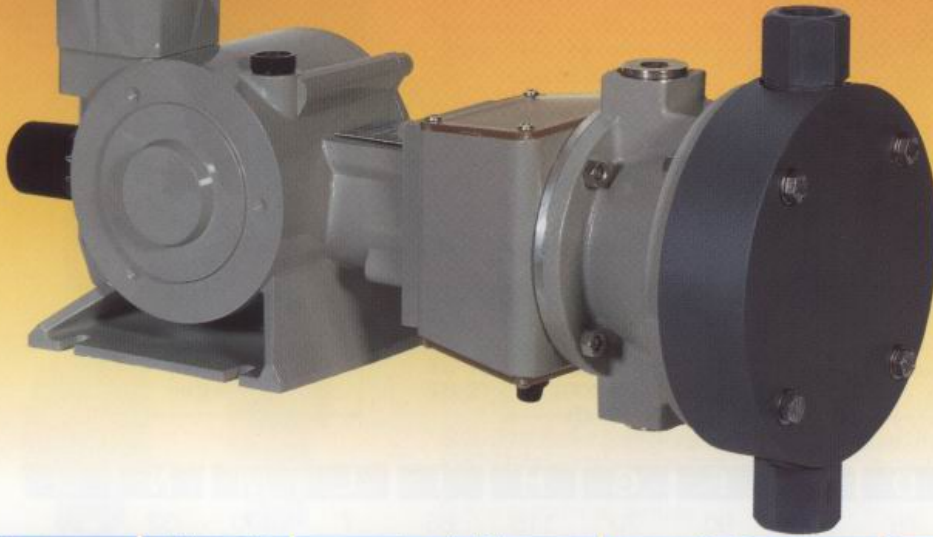
(\*1) Piston's number of strokes during 1 minute with 4 pole motor  
 F = Reducer ratio 1 : 20 = 70 strokes at 50 Hz / 84 strokes at 60 Hz  
 C = Reducer ratio 1 : 14,5 = 96 strokes at 50 Hz / 116 strokes at 60 Hz  
 B = Reducer ratio 1 : 11 = 120 strokes at 50 Hz

Notes: See next page





# B250N



| Pump type  | Reducer ratio<br>(*1)<br>Strokes number /1 | Capacity (*2) |       |       |       |        |        | Max Press.<br>Kg/cm <sup>2</sup> |        |        |           | Connections<br>(*4)   | Motor | ø mm<br>Real<br>piston | ø mm<br>Diaphr. | Stroke<br>mm | Net Weights (*5)<br>Kg |    |    |
|------------|--------------------------------------------|---------------|-------|-------|-------|--------|--------|----------------------------------|--------|--------|-----------|-----------------------|-------|------------------------|-----------------|--------------|------------------------|----|----|
|            |                                            | L/1'          |       | L/h   |       | SS 316 |        | PVC                              |        | Length | SS 316    |                       |       |                        |                 |              | PVC                    |    |    |
|            |                                            | 50 Hz         | 60 Hz | 50 Hz | 60 Hz | 0,55kW | 0,75kW | 0,55kW                           | 0,75kW |        |           |                       |       |                        |                 |              |                        |    |    |
| B-250N- 40 | F                                          | 56            | 67    | 1,75  | 2,10  | 105    | 126    | 20                               |        |        |           | kW 0.55 or<br>kW 0.75 | 40    |                        |                 |              |                        | 26 | 23 |
|            | C                                          | 96            | 116   | 3,00  | 3,60  | 180    | 216    |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
|            | B                                          | 112           |       | 3,50  |       | 210    |        |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
| B-250N- 50 | F                                          | 56            | 67    | 2,75  | 3,30  | 165    | 198    | 15                               | 20     | 10     | 3/4" G.m. | 3 Ph<br>-1400 rpm     | 50    | 120                    |                 |              | 26                     | 23 |    |
|            | C                                          | 96            | 116   | 4,70  | 5,63  | 282    | 338    |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
|            | B                                          | 112           |       | 5,50  |       | 330    |        |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
| B-250N- 55 | F                                          | 56            | 67    | 3,33  | 4,00  | 200    | 240    | 12                               | 16     |        |           | or                    | 55    |                        |                 |              | 26                     | 23 |    |
|            | C                                          | 96            | 116   | 5,70  | 6,83  | 342    | 410    |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
|            | B                                          | 112           |       | 6,66  |       | 400    |        |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
| B-250N- 65 | F                                          | 56            | 67    | 4,63  | 5,56  | 278    | 333,6  | 9                                | 11     | 9      | 10        | kW 0.55 or<br>kW 0.75 | 65    |                        | 25              |              | 37                     | 26 |    |
|            | C                                          | 96            | 116   | 7,93  | 9,52  | 476    | 571,2  |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
|            | B                                          | 112           |       | 9,26  |       | 556    |        |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
| B-250N- 75 | F                                          | 56            | 67    | 6,18  | 7,42  | 371    | 445,2  | 6,6                              | 8,6    | 6,6    | 8,6       | 1 ph<br>-1400 rpm     | 75    | 160                    |                 |              | 37                     | 26 |    |
|            | C                                          | 96            | 116   | 10,60 | 12,72 | 636    | 763,2  |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
|            | B                                          | 112           |       | 12,36 |       | 742    |        |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
| B-250N- 90 | F                                          | 56            | 67    | 8,90  | 10,68 | 534    | 640,8  | 4,7                              | 6      | 4,7    | 6         |                       | 90    |                        |                 |              | 37                     | 26 |    |
|            | C                                          | 96            | 116   | 15,25 | 18,30 | 915    | 1098   |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |
|            | B                                          | 112           |       | 17,80 |       | 1068   |        |                                  |        |        |           |                       |       |                        |                 |              |                        |    |    |

Note: G.m. = Cylindrical, male; 1 liter = 0,264 gallon; 1 Kg/cm<sup>2</sup> = 14,223 PSI

(\*1) Piston's number of strokes during 1 minute with 4 pole motor

F = Reducer ratio 1 : 25 = 56 strokes at 50 Hz / 67 strokes at 60 Hz

C = Reducer ratio 1 : 14,5 = 96 strokes at 50 Hz / 116 strokes at 60 Hz

B = Reducer ratio 1 : 12,5 = 112 strokes at 50 Hz

(\*2) The indicated capacity value is subject to changes due to the working pressure, the dosed liquid, the viscosity.

(\*3) Higher pressures are available.

(\*4) Different range of connections are available on request.

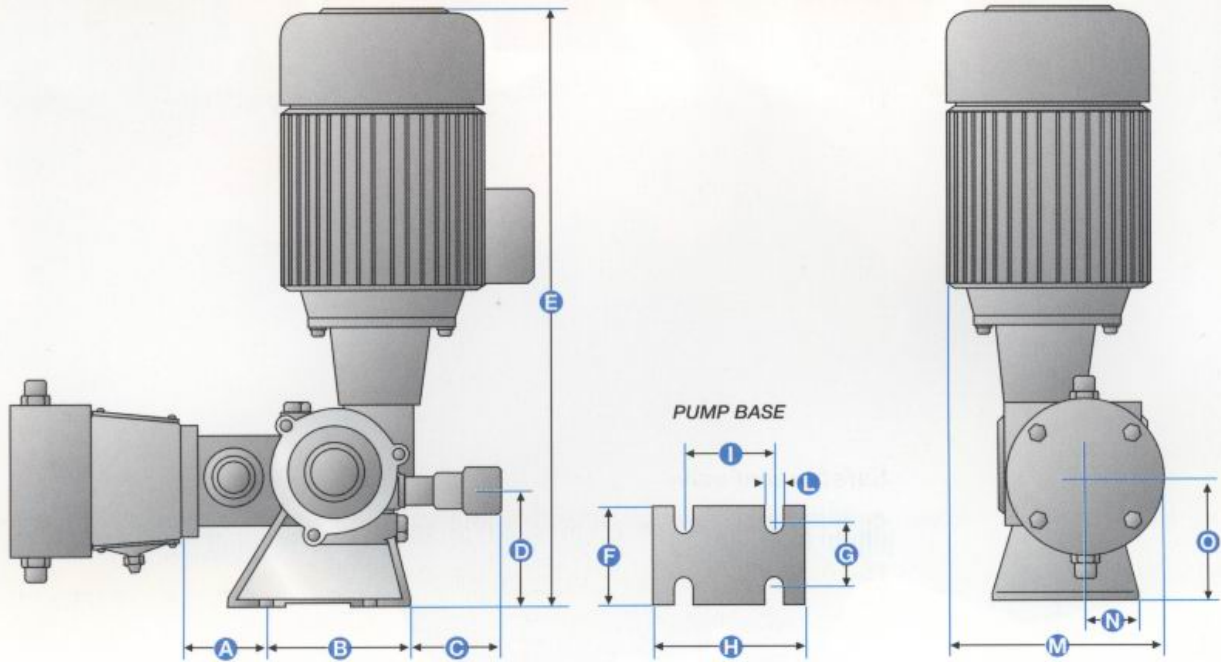
(\*5) The weight is approximate and is the value of the pump fitted with a totally enclosed fan-cooled outdoor motor.

(\*6) The pumps can be supplied with accessories if requested.

(\*7) The pumps are epoxy coated RAL 7030.



# Dimensions



|     | A  | B   | C   | D  | E   | F   | G   | H   | I   | L | M   | N  | O  |
|-----|----|-----|-----|----|-----|-----|-----|-----|-----|---|-----|----|----|
| 125 | 57 | 90  | 70  | 75 | 378 | 90  | 70  | 115 | 65  | 7 | 130 | 32 | 80 |
| 175 | 68 | 100 | 75  | 72 | 410 | 90  | 70  | 125 | 65  | 7 | 140 | 32 | 78 |
| 250 | 75 | 127 | 120 | 70 | 450 | 154 | 130 | 157 | 102 | 9 | 188 | 60 | 78 |

Dimensions in millimeters

Dimensions and configurations may be changed without prior notice for the purpose of product improvement.

## Fittings

### FITTINGS

Every metering pumps can be supplied with accessories in order to improve the operating and accuracy of the pumps.

Relief valves, adjustable to meet the site conditions, may be manufactured in Stainless Steel or PVC on request.

Back pressure valves can be utilized to ensure the correct and accurate

operation of the pump, and to avoid any risk of syphoning.

Safety valves to protect the pump from any type of over pressure and to ensure the maximum reliability.

Hydropneumatic accumulators membrane type, featuring stainless steel or PVC and several type of elastomeric diaphragms, are available on request.



# Fittings



## Relief valves and back pressure valves

| Type   | Pump capacity | Connections | Body material   | Diaphragm  |
|--------|---------------|-------------|-----------------|------------|
| VSC-6  | 90 l/h        | 1/2" G.F.   | PVC or S.S. 316 | PTFE / NBR |
| VSC-10 | 230 l/h       | 1/2" G.F.   |                 |            |
| VSC-14 | 420 l/h       | 3/4" G.F.   |                 |            |
| VSC-22 | 1000 l/h      | 1" G.F.     |                 |            |

\* Relief valve setting pressure: 3+10 kg/cm<sup>2</sup> (44+145 psi)  
 Back pressure valve setting pressure: 1+3 kg/cm<sup>2</sup> (15+44 psi)  
 G.F. = Cylindrical, Female



## Safety relief valve

| Type  | Pump capacity | Connections      | Body material   | Diaphragm  |
|-------|---------------|------------------|-----------------|------------|
| TS-10 | 200 l/h       | 3/8" o 1/2" G.F. | PVC or S.S. 316 | PTFE / NBR |
| TS-13 | 400 l/h       | 1/2" G.F.        |                 |            |
| TS-21 | 1000 l/h      | 1" G.F.          |                 |            |

\* S.S. 316 Relief Safety valve setting pressure: max 40 kg/cm<sup>2</sup> (588 psi)  
 PVC Relief Safety valve setting pressure: max 10 kg/cm<sup>2</sup> (145 psi)  
 For higher setting pressures consult our technical dept.  
 G.F. = cylindrical, female



## Membrane hydropneumatic accumulators HST type

### Type: HSTX

Body in S.S.316, composed of two parts assembled together by means of a special housing that, under dynamic pressures, tends to close itself. Diaphragms to suit the chemicals in use. Built accordingly to the ASME VIII<sup>o</sup> Div. 1 rules.

### Type:HSTPVC

Body in PVC, composed of two parts assembled together by means of a special housing that, under dynamic pressures, tends to close itself.  
 Maximum temperature: + 50 °C. Diaphragms to suit the chemicals in use.