

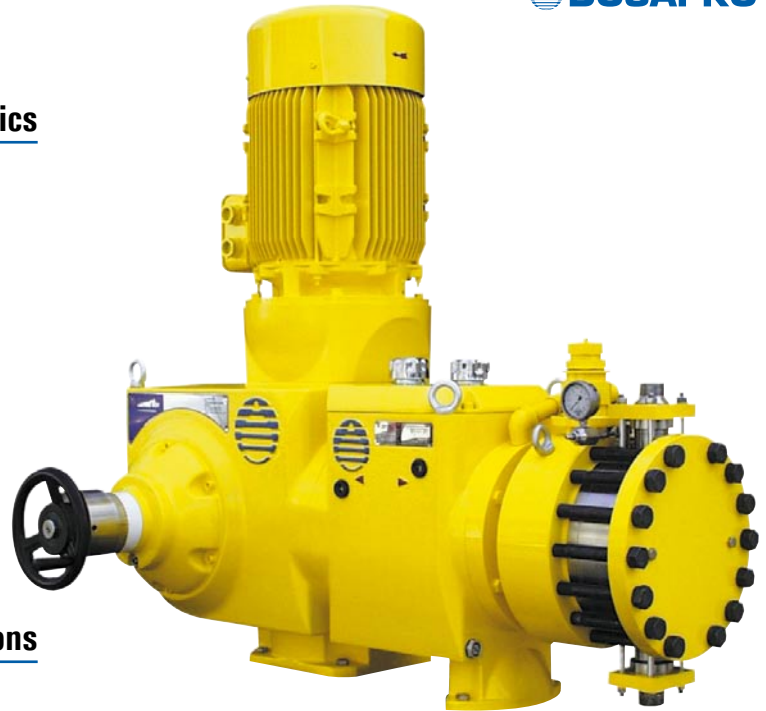
# PRIMEROYAL<sup>®</sup> P and R dosing pumps

Hydraulically actuated diaphragm liquid end • Packed plunger liquid end • PRIMEROYAL<sup>®</sup> P: flow rate up to 15665 l/h - pressure up to 311 bar • PRIMEROYAL<sup>®</sup> R: flow rate up to 15882 l/h - pressure up to 500 bar



## Main mechanical characteristics

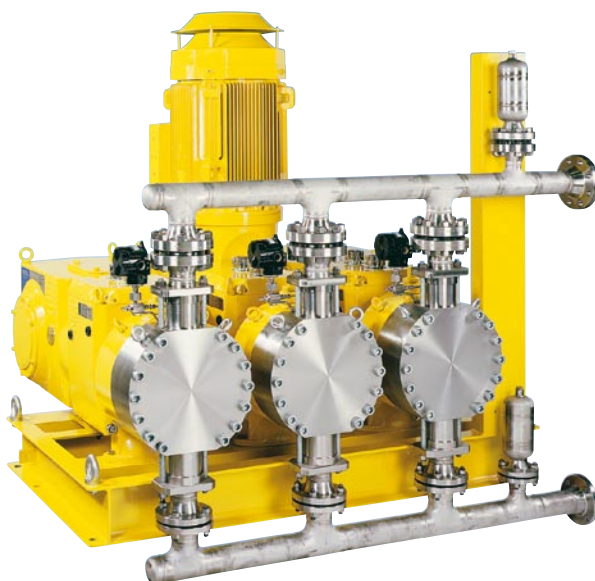
- Reciprocating dosing pumps with variable stroke length
- Stroke micrometric adjustment while running or stopped
- Fixed stroke version available
- Multiplexing capability up to 2x3 heads
- Maximum stroke length: 75 mm
- Stroke speeds at 50 Hz - 1500 rpm:  
48, 73, 93, 117, 146 and 175 spm
- Design end loads:
  - PRIMEROYAL<sup>®</sup> P: 2500 daN
  - PRIMEROYAL<sup>®</sup> R: from 4200 to 5000 daN



*PRIMEROYAL<sup>®</sup> R dosing pump, Simplex version  
equipped with a diaphragm liquid end*

## Main liquid end configurations

- Packed plunger liquid end ("UT"):
  - Liquid end body: 316L stainless steel
  - Plunger: 316L chromium oxide coated
  - Flushing ring
- Diaphragm liquid end ("H"):
  - Liquid end body: 316L stainless steel
  - Diaphragm: PTFE
  - Hydraulically actuated diaphragm
  - "HPD" patented design, life currently exceeding 20,000 hours



*PRIMEROYAL<sup>®</sup> R dosing pump, Triplex - Version with fixed stroke*

## Main electrical characteristics

- Motor power supply: 400 V - 50 Hz - 3 phase as standard. Other voltages/frequencies on request
- Electric equipment for non hazardous or hazardous area, large variety of protections and insulations
- Conforming to the European standards, Nema motors available

## Options

- Double or triple diaphragm
- Diaphragm failure detection
- Cooling/heating jacket
- Thermal barrier
- Special materials
- Food grade design
- Slurry configuration
- Special valves
- Automatic flow rate adjustment: electronic servomotor (waterproof or explosion-proof), pneumatic servomotor
- Remote head
- Stroke counter
- Low temperature
- Sand-proof
- Special designs available

## Performance

- Conformity to API 675 for adjustable stroke version
- Conformity to API 674 for fixed stroke version
- In accordance with ATEX CE EX II 2G/D c T3 or T4 on request

### PRIMEROYAL® P

#### 316L chromium oxide coated plunger and 316L stainless steel liquid end ("UT")

| Ø Plunger (mm) | Swept volume (cm <sup>3</sup> ) | Stroke speed max. (spm)<br>Motor speed 1500 rpm | Flow rate max. (l/h) |         | Pressure max. (bar) | Connections    |
|----------------|---------------------------------|---|----------------------|---------|---------------------|----------------|
|                |                                 |   | 10 bar               | P. max. |                     |                |
| 31.8           | 59.38                           | 175   | 598                  | 526     | 311                 | 1" - VV1 m     |
| 38.1           | 85.51                           | 175   | 861                  | 790     | 215                 | 1" - VV1 m     |
| 44.5           | 116.38                          | 175   | 1173                 | 1103    | 158                 | 1" - VV1 m     |
| 50.8           | 152.01                          | 175   | 1532                 | 1464    | 120                 | 1" 1/2 - VV1 m |
| 57.2           | 192.39                          | 175   | 1939                 | 1873    | 95                  | 1" 1/2 - VV1 m |
| 63.5           | 237.52                          | 175   | 2394                 | 2330    | 76                  | 1" 1/2 - VV1 m |
| 69.9           | 287.40                          | 175   | 2896                 | 2834    | 63                  | 1" 1/2 - VV1 m |
| 79.4           | 371.12                          | 175   | 3740                 | 3683    | 48                  | 1" 1/2 - VV1 m |
| 88.9           | 465.54                          | 175   | 4692                 | 4639    | 38                  | 3" - VV1 m     |
| 101.6          | 608.05                          | 146   | 5113                 | 5074    | 29                  | 3" - VV1 m     |
| 127            | 950.08                          | 146   | 7989                 | 7963    | 18                  | 3" - VV1 m     |
| 152.4          | 1368.11                         | 146   | 11505                | 11495   | 12                  | 4" - VV1 m     |
| 177.8          | 1862.15                         | 146   | 15659                | 15665   | 9                   | 4" - VV1 m     |

#### HPD diaphragm and metallic liquid end ("H")

|                  | Ø Plunger (mm) | Swept volume (cm <sup>3</sup> ) | Ø Diaphragm (mm) | Stroke speed max. (spm)<br>Motor speed 1500 rpm | Flow rate max. (l/h) |         | Pressure max. (bar) | Connections        |
|------------------|----------------|---------------------------------|------------------|---|----------------------|---------|---------------------|--------------------|
|                  |                |                                 |                  |   | 10 bar               | P. max. |                     |                    |
| Single diaphragm | 50             | 147.26                          | 166              | 146   | 1225                 | 1096    | 85                  | 1" - VV1 m         |
|                  | 55             | 178.18                          | 166              | 146   | 1482                 | 1326    | 85                  | 1" - VV1 m         |
|                  | 145            | 1238.47                         | 366              | 117   | 8259                 | 8201    | 15                  | 3" - VH3 - 300 lbs |
|                  | 160            | 1507.96                         | 366              | 117   | 10056                | 10027   | 12                  | 3" - VH3 - 300 lbs |
| Double diaphragm | 32             | 60.31                           | 168              | 175   | 601                  | 461     | 300                 | 1" - VV1 m         |
|                  | 40             | 94.24                           | 168              | 175   | 940                  | 798     | 198                 | 1" - VV1 m         |
|                  | 50             | 147.26                          | 168              | 175   | 1468                 | 1330    | 127                 | 1" 1/2 - VV1 m     |
|                  | 55             | 178                             | 168              | 175   | 1777                 | 1641    | 105                 | 1" 1/2 - VV1 m     |
|                  | 63             | 233.79                          | 268              | 175   | 2332                 | 2202    | 80                  | 2" - VV1 m         |
|                  | 70             | 288.63                          | 268              | 175   | 2879                 | 2736    | 64                  | 2" - VV1 m         |
|                  | 80             | 376.99                          | 268              | 175   | 3760                 | 3631    | 49                  | 2" - VV1 m         |
|                  | 90             | 477.12                          | 268              | 146   | 3970                 | 3824    | 35                  | 2" - VV1 m         |
|                  | 100            | 589.04                          | 268              | 146   | 4902                 | 4819    | 31                  | 2" - VV1 m         |
|                  | 115            | 779.01                          | 308              | 146   | 6482                 | 6409    | 24                  | 3" - VV3 - 300 lbs |
|                  | 125            | 920.38                          | 308              | 146   | 7659                 | 7597    | 20                  | 3" - VV3 - 300 lbs |
| 130              | 994.98         | 308                             | 146              | 8284  | 8218                 | 18      | 3" - VV3 - 300 lbs  |                    |



## Performance

- Conformity to API 675 for adjustable stroke version
- Conformity to API 674 for fixed stroke version
- In accordance with ATEX CE EX II 2G/D c T3 or T4 on request

### PRIMEROYAL® R

#### 316L chromium oxide coated plunger and 316L stainless steel liquid end ("UT")

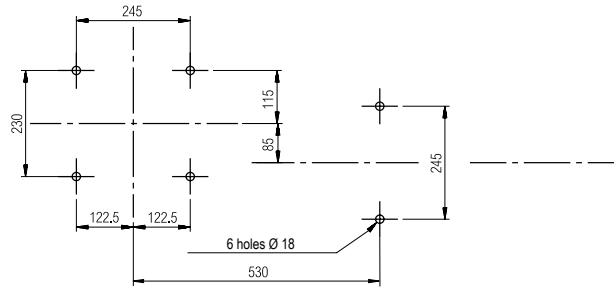
| Ø Plunger (mm) | Swept volume (cm <sup>3</sup> ) | Stroke speed max. (spm)<br>Motor speed 1500 rpm | Flow rate max. (l/h) |         | Pressure max. (bar) | Connections    |
|----------------|---------------------------------|---|----------------------|---------|---------------------|----------------|
|                |                                 |   | 10 bar               | P. max. |                     |                |
| 31.8           | 59.38                           | 175   | 598                  | 480     | 500                 | 1" - VV1 m     |
| 38.1           | 85.51                           | 175   | 861                  | 738     | 435                 | 1" - VV1 m     |
| 44.5           | 116.38                          | 175   | 1173                 | 1052    | 319                 | 1" - VV1 m     |
| 50.8           | 152.01                          | 175   | 1532                 | 1413    | 244                 | 1" 1/2 - VV1 m |
| 57.2           | 192.39                          | 175   | 1939                 | 1821    | 192                 | 1" 1/2 - VV1 m |
| 63.5           | 237.52                          | 175   | 2394                 | 2279    | 155                 | 1" 1/2 - VV1 m |
| 69.9           | 287.40                          | 175   | 2896                 | 2783    | 128                 | 1" 1/2 - VV1 m |
| 79.4           | 371.12                          | 175   | 3740                 | 3630    | 99                  | 1" 1/2 - VV1 m |
| 88.9           | 465.54                          | 175   | 4692                 | 4586    | 79                  | 3" - VV1 m     |
| 101.6          | 608.05                          | 146   | 5113                 | 5020    | 60                  | 3" - VV1 m     |
| 127            | 950.08                          | 146   | 7989                 | 7909    | 38                  | 3" - VV1 m     |
| 152.4          | 1368.11                         | 146   | 11505                | 11440   | 26                  | 4" - VV1 m     |
| 177.8          | 1862.15                         | 146   | 15659                | 15615   | 19                  | 4" - VV1 m     |

#### HPD diaphragm and metallic liquid end ("H")

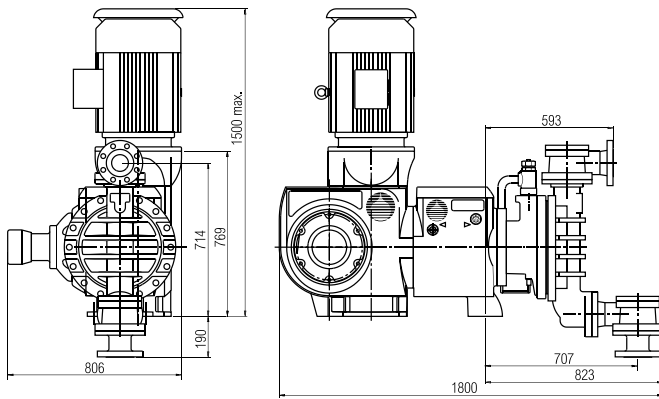
|                  | Ø Plunger (mm) | Swept volume (cm <sup>3</sup> ) | Ø Diaphragm (mm) | Stroke speed max. (spm)<br>Motor speed 1500 rpm | Flow rate max. (l/h) |         | Pressure max. (bar) | Connections        |
|------------------|----------------|---------------------------------|------------------|---|----------------------|---------|---------------------|--------------------|
|                  |                |                                 |                  |   | 10 bar               | P. max. |                     |                    |
| Single diaphragm | 145            | 1238.47                         | 366              | 146   | 10306                | 10089   | 25                  | 4" - VV3 - 300 lbs |
|                  | 160            | 1507.96                         | 366              | 146   | 12549                | 12338   | 24                  | 4" - VV3 - 300 lbs |
|                  | 180            | 1908.51                         | 366              | 146   | 15882                | 15704   | 19                  | 4" - VV3 - 300 lbs |
| Double diaphragm | 40             | 94.24                           | 168              | 175   | 940                  | 721     | 300                 | 1" - VV1 m         |
|                  | 50             | 147.26                          | 168              | 175   | 1468                 | 1229    | 254                 | 1" 1/2 - VV1 m     |
|                  | 55             | 178.18                          | 168              | 175   | 1777                 | 1541    | 210                 | 1" 1/2 - VV1 m     |
|                  | 63             | 233.79                          | 268              | 175   | 2332                 | 2108    | 160                 | 2" - VV1 m         |
|                  | 70             | 288.63                          | 268              | 175   | 2879                 | 2648    | 129                 | 2" - VV1 m         |
|                  | 80             | 376.99                          | 268              | 175   | 3760                 | 3519    | 99                  | 2" - VV1 m         |
|                  | 90             | 477.12                          | 268              | 146   | 3970                 | 3811    | 78                  | 2" - VV1 m         |
|                  | 100            | 589.04                          | 268              | 146   | 4902                 | 4705    | 63                  | 2" - VV1 m         |
|                  | 115            | 779.01                          | 308              | 146   | 6482                 | 6305    | 48                  | 3" - VV3 - 600 lbs |
|                  | 125            | 920.38                          | 308              | 146   | 7659                 | 7493    | 40                  | 3" - VV3 - 600 lbs |
| 130              | 994.98         | 308                             | 146              | 8284  | 8134                 | 37      | 3" - VV3 - 600 lbs  |                    |

## General dimensions (in mm)

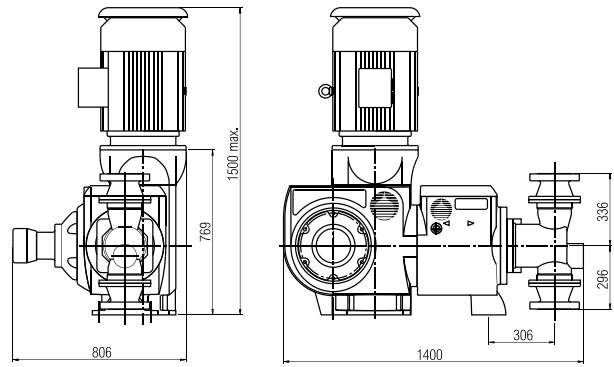
The general dimensions are given as an indication only.  
 The dimensions given correspond to the maximum dimensions (largest liquid end, most powerful motor).



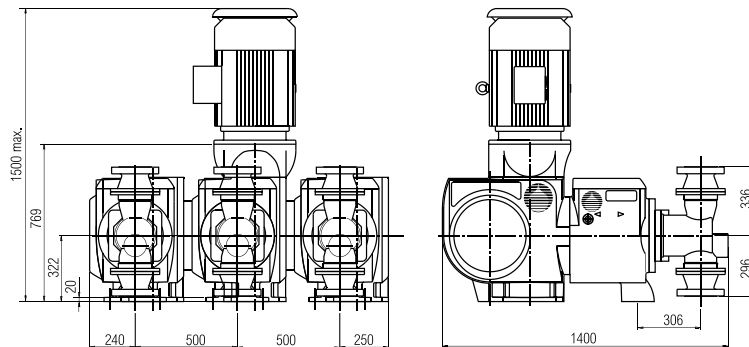
**PRIMEROYAL® P and PRIMEROYAL® R**  
**Diaphragm liquid end simplex configuration**



**PRIMEROYAL® P and PRIMEROYAL® R**  
**Packed plunger liquid end simplex configuration**



**PRIMEROYAL® P and PRIMEROYAL® R**  
**Packed plunger liquid end triplex power pump configuration**



## Weight and packing

### Adjustable stroke

| Version                 | Net Weight<br>(*) kg | Gross Weight<br>(*) kg | Packing (mm)<br>(L x W x H) |
|-------------------------|----------------------|------------------------|-----------------------------|
| PRIMEROYAL® P/R simplex | 900                  | 1100                   | 1650 x 1500 x 1400          |
| PRIMEROYAL® P/R duplex  | 1800                 | 2055                   | 2250 x 1500 x 1400          |
| PRIMEROYAL® P/R triplex | 2400                 | 2700                   | 2950 x 1500 x 1400          |

(\*) Approximately

### Fixed stroke

| Version                 | Net Weight<br>(*) kg | Gross Weight<br>(*) kg | Packing (mm)<br>(L x W x H) |
|-------------------------|----------------------|------------------------|-----------------------------|
| PRIMEROYAL® P/R simplex | 1000                 | 1180                   | 1600 x 1000 x 1700          |
| PRIMEROYAL® P/R duplex  | 2050                 | 2300                   | 1500 x 1250 x 2300          |
| PRIMEROYAL® P/R triplex | 3300                 | 3600                   | 1500 x 1700 x 2300          |

(\*) Approximately



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