

MILROYAL[®] SERIES

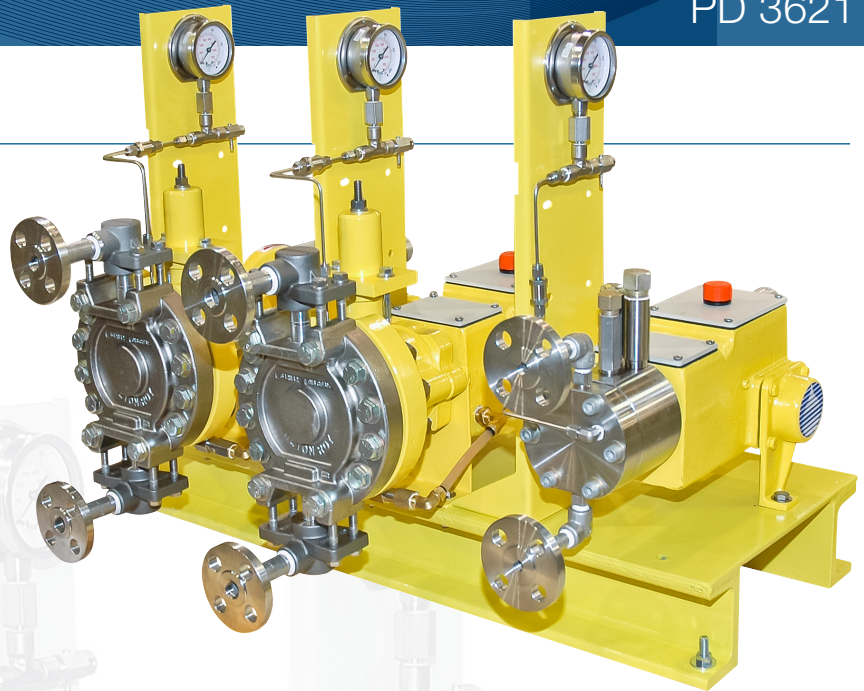
Metering Pumps

PD 3621

MILROYAL D Pumps

The MILROYAL D is a robust industrial duty metering pump for use in critical processes in oil and gas, chemical and hydrocarbon processes, water and waste treatment, and in most industries where chemical injection is required.

The MILROYAL design is modular thus allowing it to accept a variety of liquid ends and other options that perfectly tune it to process requirements. Multiplex configurations provide even greater application flexibility.



MILROYAL D Triplex with HPD Liquid End

General Specifications

Drive

Polar crank design - all moving parts submerged in oil.

Liquid Ends Available

High Performance Diaphragm (HPD) or Packed Plunger

Multiplexing

Up to 6 pumps driven by one motor. Limited to a maximum of 25 HP.
Consult applications engineering concerning capabilities for a specific application.

Maximum Performance Ratings (per head)

53 gph @ 70 psig (200 l/h @ 5 bar) to
0.5 gph @ 3,000 psig (1.9 l/h @ 207 bar)

Capacity Control

Manual micrometer standard; Electronic stroke length control or variable speed optional

Accuracy

±1.0% over 10:1 turndown ratio

Weight with Motor (simplex; approximate)

HPD = 195 lbs. (88 kg); Packed plunger = 95 lbs. (43 kg)

TYPICAL PERFORMANCE (See note 1)

Packed Plunger

| Plunger Diameter | Gear Ratio Code | Maximum Capacity | | 1/4 HP (0.25 kW) | | 1/3 HP (0.25 kW) | |
|------------------|-----------------|------------------|--------|----------------------------|-----|------------------|-----|
| | | | | Maximum Discharge Pressure | | | |
| | | ml/H | GPH | PSIG | BAR | PSIG | BAR |
| 1/8 in (3 mm) | 60 | 305 | 0.081 | 300 | 21 | - | - |
| | 30 | 615 | 0.162 | 300 | 21 | - | - |
| | 15 | 1,200 | 0.316 | 300 | 21 | - | - |
| | 10 | 1,800 | 0.475 | 300 | 21 | - | - |
| 1/8 HP (3 mm) | 60 | 125 | 0.033 | 3000 | 207 | - | - |
| | 30 | 245 | 0.065 | 3000 | 207 | - | - |
| | 15 | 480 | 0.126 | 3000 | 207 | - | - |
| 1/4 in (6 mm) | 60 | 1,230 | 0.325 | 300 | 21 | - | - |
| | 30 | 2,460 | 0.650 | 300 | 21 | - | - |
| | 15 | 4,800 | 1.270 | 300 | 21 | - | - |
| | 10 | 7,150 | 1.880 | 300 | 21 | - | - |
| 1/4 HP (6 mm) | 60 | 495 | 0.131 | 3000 | 207 | - | - |
| | 30 | 985 | 0.260 | 3000 | 207 | - | - |
| | 15 | 1,920 | 0.508 | 3000 | 207 | - | - |
| 7/16 in (11 mm) | 60 | 3,785 | 1.000 | 1000 | 69 | - | - |
| | 30 | 7,570 | 2.000 | 1000 | 69 | - | - |
| | 15 | 15,520 | 4.100 | 1000 | 69 | - | - |
| | 10 | 23,090 | 6.100 | 1000 | 69 | - | - |
| 5/8 in (16 mm) | 60 | 7,950 | 2.100 | 650 | 45 | - | - |
| | 30 | 15,845 | 4.200 | 650 | 45 | - | - |
| | 15 | 31,795 | 8.400 | - | - | 650 | 45 |
| | 10 | 47,310 | 12.500 | - | - | 650 | 45 |

TYPICAL PERFORMANCE

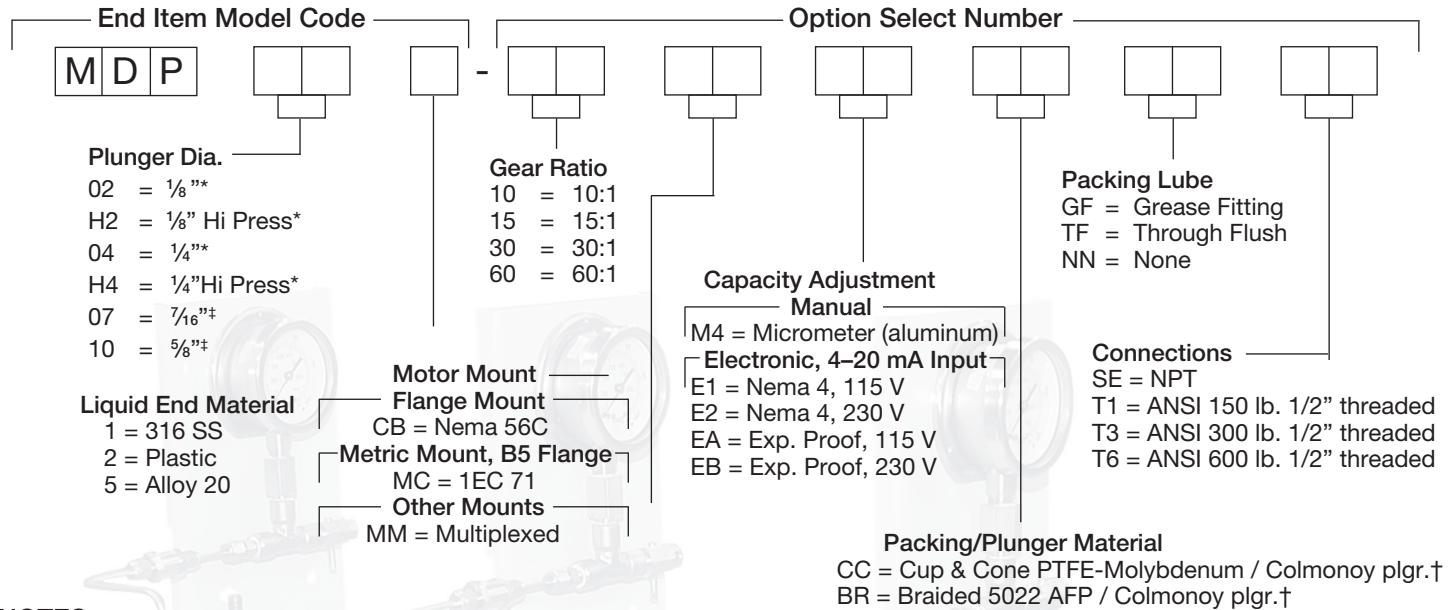
High Performance Diaphragm

| Plunger Diameter | Gear Ratio Code | Maximum Capacity | | 1/3 HP (0.25 kW) | | 1/2 HP (0.37 kW) | |
|------------------|-----------------|------------------|------|----------------------------|-----|------------------|-----|
| | | | | Maximum Discharge Pressure | | | |
| | | L/H | GPH | PSIG | BAR | PSIG | BAR |
| 1 in (25 mm) | 60 | 19.7 | 5.2 | 220 | 15 | - | - |
| | 30 | 39.4 | 10.4 | 220 | 15 | - | - |
| | 15 | 76.5 | 20.2 | 190 | 13 | 220 | 15 |
| 1¼ in (32 mm) | 60 | 33.3 | 8.8 | 145 | 10 | - | - |
| | 30 | 66.2 | 17.5 | 130 | 9 | 145 | 10 |
| | 15 | 129 | 34.1 | 100 | 7 | 145 | 10 |
| 1½ in (11 mm) | 60 | 51.5 | 13.6 | 70 | 5 | - | - |
| | 30 | 103 | 27.2 | 70 | 5 | - | - |
| | 15 | 200 | 53.0 | - | - | 70 | 5 |

NOTES:

1. Typical performance based on 1725 RPM, 60 hz motor. Derate flow rates for all other RPM speeds.
2. Plastic liquid ends are limited to 150 PSIG (10 Bar) @68°F (20°C) and are linearly derated to 65 PSIG (4 Bar) @ 140°F (60°C).

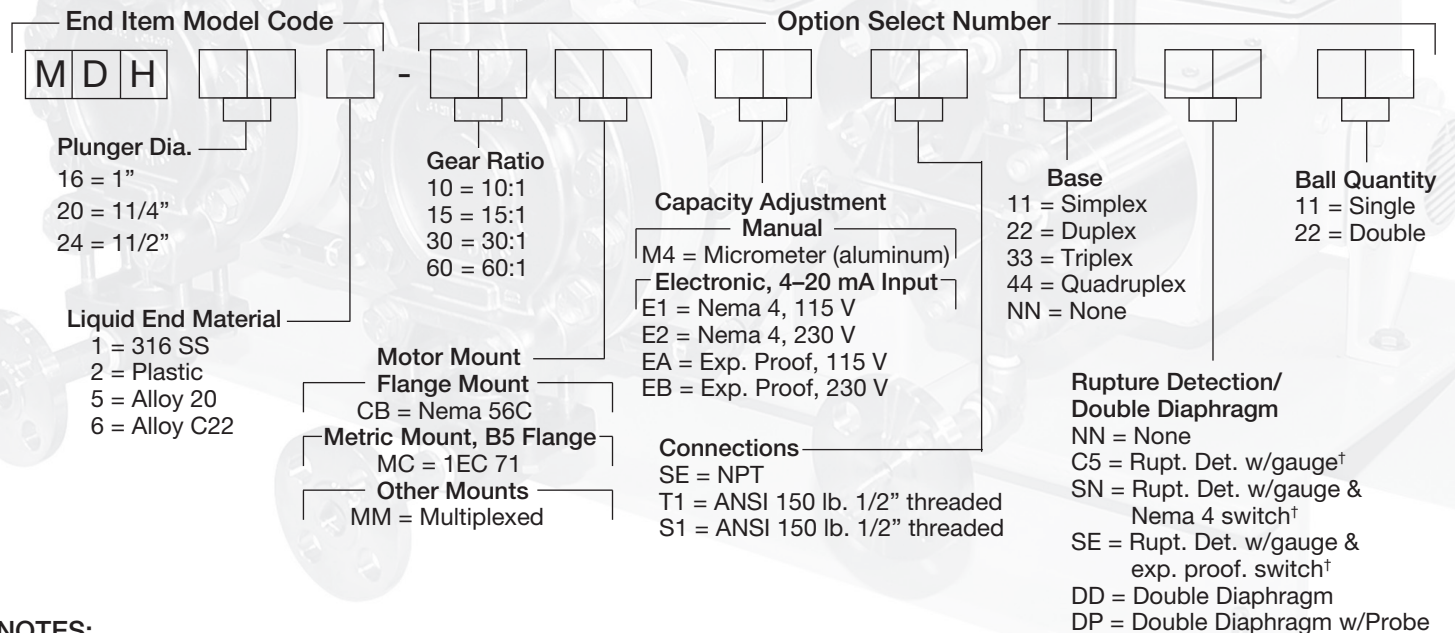
PACKED PLUNGER MODEL CODE



NOTES:

- * 1/4" & 1/8" plunger diameters are only available in Alloy 20 and Plastic liquid end materials and with packing lube NN.
- † Packing/plunger material code CC is only available with 1/8" and 1/4" plungers. Packing/plunger material code BR is only available with 7/16" & 5/8" plungers.
- ‡ 7/16" & 5/8" plunger diameters are only available in 316 SS and Alloy 20 liquid end materials. Ceramic balls with tungsten carbide seats are available on 7/16" & 5/8" plunger diameter pumps with 316 SS liquid end (for slurry service).

HIGH PERFORMANCE DIAPHRAGM (HPD) MODEL CODE



NOTES:

- * Plastic liquid ends are available with double ball checks only.
- † Rupture detection options C5, SN, and SE are only available on metallic liquid ends.
- ‡ Ceramic balls with tungsten carbide seats are available on 316 SS liquid ends (for slurry service).

MATERIALS OF CONSTRUCTION

Packed Plunger Liquid End

| Materials of Construction | Liquid End | Ball Check | Ball Seat | Plunger | Cartridge Body | Packing | Gland Cap |
|---------------------------|------------|-----------------------|-----------|----------|----------------|---------|-----------|
| Plastic | PVC | Sapphire | PVC | Ceramic | PVC | PTFE | PVC |
| Alloy 20 | Alloy 20 | Alloy 20 [‡] | Alloy 20 | Colmonoy | Alloy 20 | PTFE | Alloy 20 |
| 316 SS | 316 SS | 316 SS | 316 SS | Colmonoy | 316 SS | PTFE | 316 SS |

NOTES:

[‡] Ball checks in high pressure liquid end are sapphire.

High Performance Diaphragm (HPD)

| Materials of Construction | Diaphragm | Diaphragm Head | Port Connection | Ball Seat | Ball Check | Ball Guide |
|---------------------------|----------------|---------------------------------|---------------------------------|-----------|------------|---------------------------------|
| 316 SS | PTFE/Elastomer | 316 SS CF-8M* | 316 SS CF-8M* | 316 SS | 316 SS | 316 SS CF-8M* |
| Alloy 20 | PTFE/Elastomer | 20CB-3 CN-7M [†] | 20Cb-D3 CN-7M [†] | 20CB-3 | 20CB-3 | 20CB-3 CN-7M [†] |
| Plastic | PTFE/Elastomer | PVC | PVC | PVC | Ceramic | PVC |
| Alloy C22 | PTFE/Elastomer | Alloy C22 CX2MW [‡] | Alloy C22 CX2MW [‡] | Alloy C22 | Alloy C276 | Alloy C22 CX2MW [‡] |

NOTES:

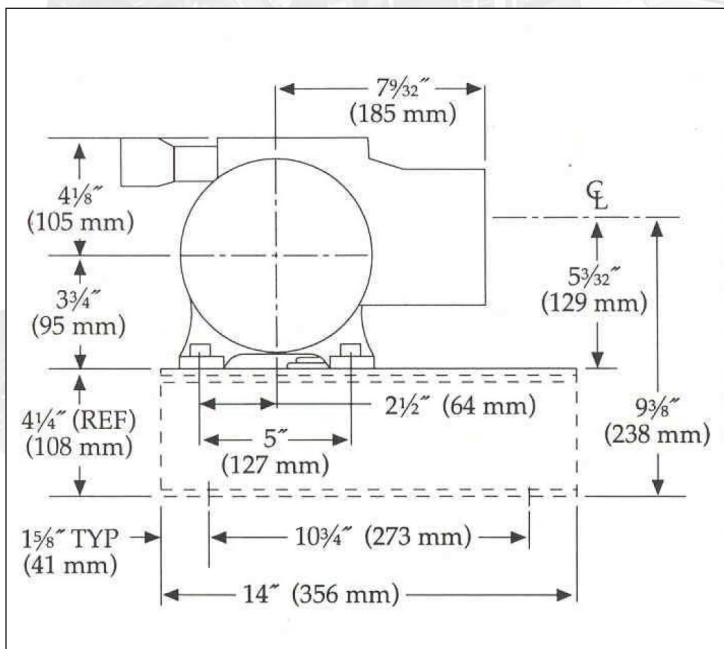
* CF-8M is the cast equivalent to wrought 316 SS.

[†] CN-7M is the cast equivalent to wrought 20CB-3.

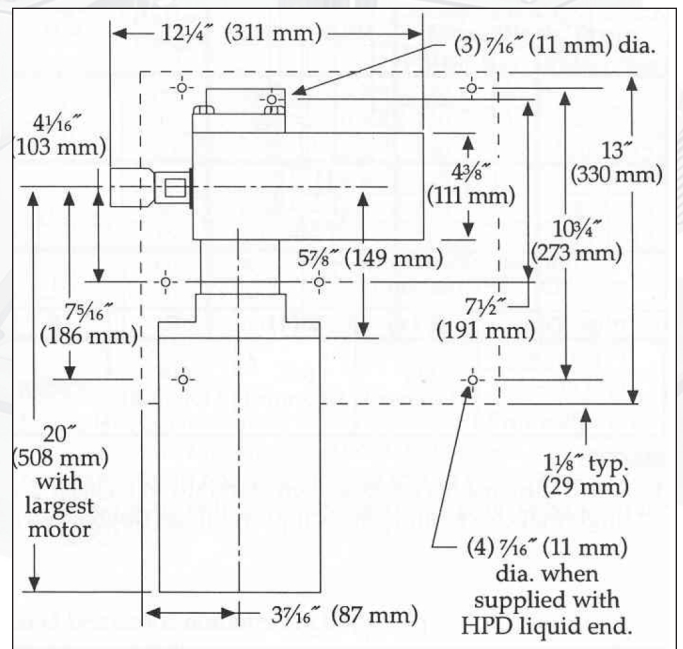
[‡] CX2MW is the cast equivalent to wrought Alloy C22.

DRIVE DIMENSIONS

Side View



Top View

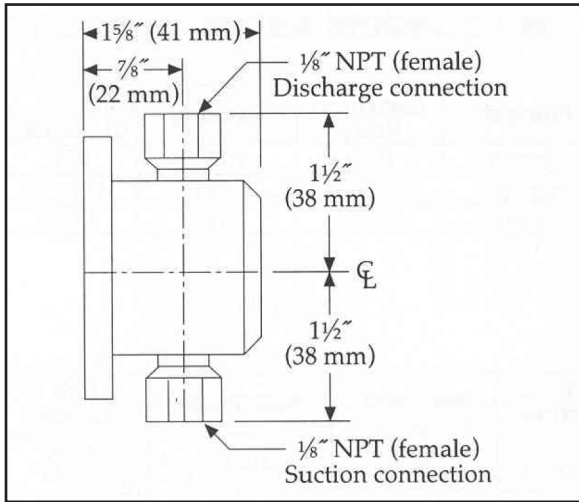


NOTES:

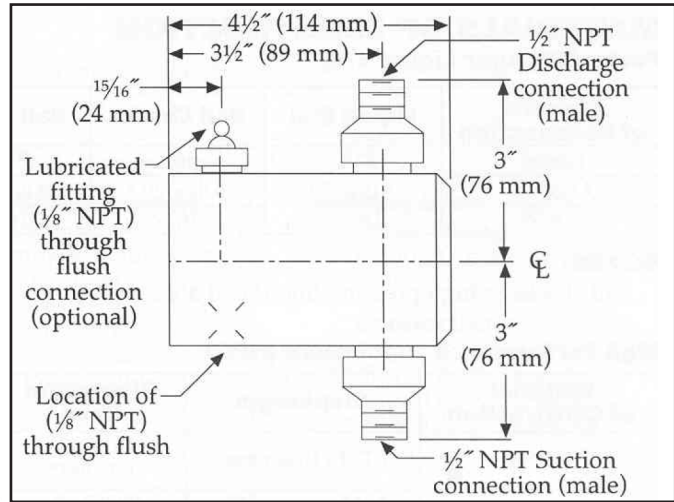
Base (shown as dotted lines) supplied only with HPD liquid end.

PACKED PLUNGER LIQUID END DIMENSIONS

1/8 in & 1/4 in Diameter Plunger

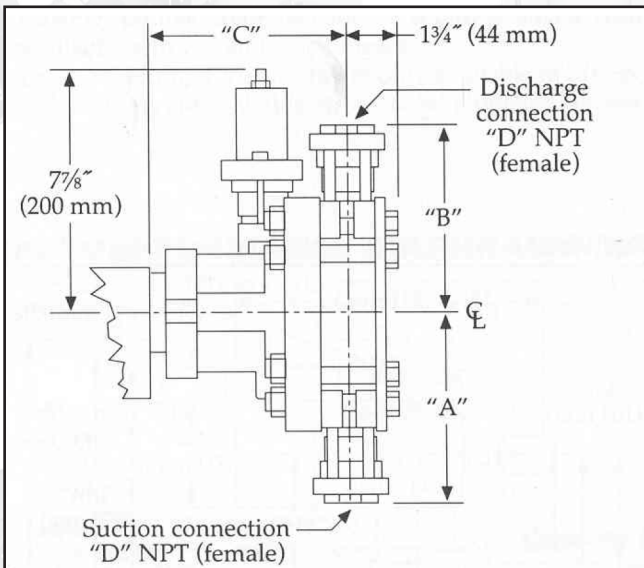


7/16 in & 5/8 in Diameter Plunger



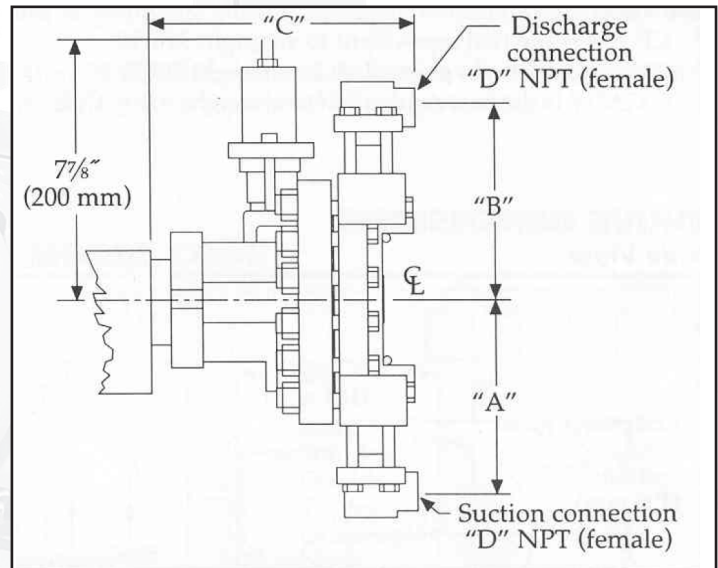
HIGH PERFORMANCE DIAPHRAGM (HPD) LIQUID END DIMENSIONS

1/8 in & 1/4 in Diameter Plunger



| Plunger Diameter | A (1) | B (1) | C |
|------------------|-------------------|-------------------|-------------------|
| 1 in (25 mm) | | | |
| 1 1/4 in (32 mm) | 6 1/2 in (165 mm) | 6 1/2 in (165 mm) | 6 1/8 in (156 mm) |
| 1 1/2 in (38 mm) | | | |

7/16 in & 5/8 in Diameter Plunger



| Plunger Diameter | A (1) | B (1) | C | D |
|------------------|---------------------|---------------------|-------------------|--------|
| 1 in (25 mm) | 4 13/16 in (122 mm) | 4 13/16 in (122 mm) | 7 7/8 in (200 mm) | 1/2 in |
| 1 1/4 in (32 mm) | 5 7/32 in (133 mm) | 5 7/32 in (133 mm) | 7 5/8 in (194 mm) | 1/2 in |
| 1 1/2 in (38 mm) | | | | |

NOTES:

1. A & B dimensions are based on standard ball check configuration and single diaphragm, where metallic liquid end has single ball checks and plastic liquid end has double ball checks. Consult factory for dimensions on optional configurations.