

## **MILROYAL B PUMPS**

### **MILROYAL B SIMPLEX WITH HPD LIQUID END**

(shown with optional flanges)



#### **General Specifications**

##### **Drive**

Polar Crank Design — all moving parts submerged in oil

##### **Liquid Ends Available**

High Performance Diaphragm (HPD)  
Packed Plunger  
Disc Diaphragm

##### **Multiplexing**

Up to 8 pumps driven by one motor. (Limited to total of 10 HP.) Consult Applications Engineering concerning capabilities for specific application.

#### **Maximum Performance Ratings** (per head)

500 gph (1893 l/h) @ 100 psig (7 bar) to  
3.4 gph (13 l/h) @ 10,000 psig (1450 bar)

#### **Capacity Control**

Manual Micrometer (std)  
Electronic, Pneumatic, or Variable Speed (opt)

#### **Accuracy**

±1.0% over 10:1 turndown ratio

#### **Weight** (simplex)

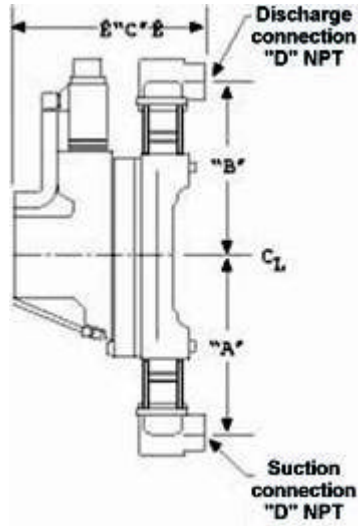
Approximate shipping weight is 250–600 lbs. (113–272 kg), depending on liquid end selected.

### **MILROYAL B TRIPLEX**



## MILROYAL B PUMPS

### HIGH PERFORMANCE DIAPHRAGM (HPD) LIQUID END DIMENSIONS\*



Material	Plunger Diameter		A*		B*		C		D
	in.	mm	in.	mm	in.	mm	in.	mm	in.
Metal	7/16"	11	4 25/32"	121	4 25/32"	121	4"	102	1/2"
	9/16"	14	4 25/32"	121	4 25/32"	121	4"	102	1/2"
	5/8"	16	4 25/32"	121	4 25/32"	121	4"	102	1/2"
	1"	25	4 13/16"	122	4 13/16"	122	6 1/8"	156	1/2"
	1 1/4"	32	5 7/32"	133	5 7/32"	133	6 1/8"	156	1/2"
	1 1/2"	38	7 1/16"	179	7 1/16"	179	8 1/4"	210	1"
	2"	51	7 9/16"	192	7 9/16"	192	8 1/4"	210	1"
	2 1/2"	64	7 9/16"	192	7 9/16"	192	8 1/4"	210	1"
	3 1/2"	89	10 1/8"	257	10 1/8"	257	13"	330	1 1/2"
	4"	102	10 1/8"	257	10 1/8"	257	13"	330	1 1/2"
Plastic	1"	25	6 1/2"	165	6 1/2"	165	6 15/16"	176	1/2"
	1 1/4"	32	6 1/2"	165	6 1/2"	165	6 15/16"	176	1/2"
	1 1/2"	38	9 9/16"	243	9 9/16"	243	8 3/4"	222	1"
	2"	51	9 9/16"	243	9 9/16"	243	8 3/4"	222	1"
	2 1/2"	64	9 9/16"	243	9 9/16"	243	8 3/4"	222	1"
	3 1/2"	89	16"‡	406‡	13"	330	13 1/4"‡	337‡	1 1/2"
	4"	102	16"‡	406‡	13"	330	13 1/4"‡	337‡	1 1/2"

**Notes:**

\* Dimensions shown are for single diaphragm liquid ends. Contact factory for double diaphragm dimensions.

† A & B dimensions are based on standard ball check configuration: Metallic = single ball checks, Plastic = double ball checks. Consult factory for dimensions on optional configurations.

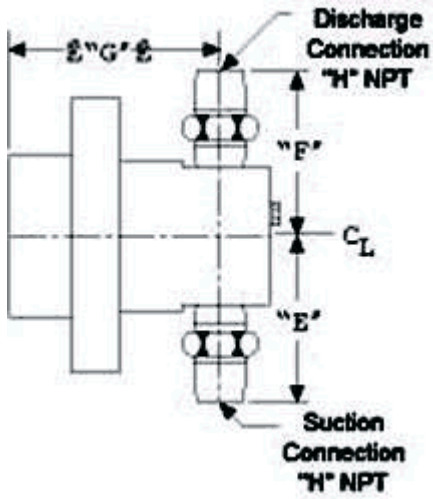
‡ Suction and discharge connections are horizontal in metal and vertical in plastic except on plastic 3 1/2" (89 mm) plunger, where suction horizontal, discharge is vertical and dimension "C" for discharge is 10 13/16" (275 mm).

**MAXIMUM ALLOWABLE SUCTION PRESSURE RANGE - HPD**

<b>Plunger Diameter</b>		<b>Standard</b>		<b>Mid Range</b>		<b>High Range</b>	
<b>in.</b>	<b>mm</b>	<b>PSIG</b>	<b>Bar</b>	<b>PSIG</b>	<b>Bar</b>	<b>PSIG</b>	<b>Bar</b>
7/16"	11	660	46	1130	77	1450	98
9/16"	14	460	31	770	53	985	68
5/8"	16	360	25	590	40	750	51
1"	25	100	7	—	—	—	—
1 1/4"	32	100	7	—	—	—	—
1 1/2"	38	85	6	100	7	—	—
2"	51	60	4	85	6	100	7
2 1/2"	64	45	3	60	4	70	5
3 1/2"	89	20	1.3	35	2	40	3
4"	100	15	1	25	1.5	30	2

## MILROYAL B PUMPS

### PACKED PLUNGER LIQUID END DIMENSIONS



Pressure	Plunger Diameter		E		F		G		H
	in.	mm	in.	mm	in.	mm	in.	mm	in.
0-4999 PSIG (0-344 BAR)	5/16"	8	3"	76	3"	76	4 1/4"	108	1/2"
	7/16"	11	3"	76	3"	76	4 1/4"	108	1/2"
	5/8"	16	3"	76	3"	76	4 1/4"	108	1/2"
	7/8"	22	3 1/2"	89	3 1/2"	89	4 1/4"	108	1"
	1 1/8"	28	3 9/16"	90	3 9/16"	90	4"	102	1"
	1 1/2"	38	4 7/16"	113	4 7/16"	113	4"	102	1 1/4"
	1 3/4"	44	4 7/16"	113	4 7/16"	113	4"	102	1 1/4"
5000+ PSIG (345+ BAR)	5/16"	8	3 5/16"	84	3 5/16"	84	4 1/2"	114	3/4"
	7/16"	11	3 5/16"	84	3 5/16"	84	4 1/2"	114	3/4"

### MAXIMUM ALLOWANCE SUCTION PRESSURE RANGE - PACKED PLUNGER

Plunger Diameter		Standard		Mid Range		High Range	
in.	mm	PSIG	Bar	PSIG	Bar	PSIG	Bar
5/16"	8	1180	81	2120	146	2750	190
7/16"	11	660	46	1130	78	1450	100
5/8"	16	360	25	590	41	750	52
7/8"	22	208	14	330	23	410	28
1 1/8"	28	142	10	215	15	265	18
1 1/2"	38	94	6	135	9	165	11
1 3/4"	44	75	5	104	7	125	9
2 1/2"	64	46	3	60	4	70	5

## MILROYAL B PUMPS

### HPD MATERIALS OF CONSTRUCTION - WETTED PARTS

Materials of Construction	Diaphragm	Diaphragm Head	Port Connection	Ball Seat (3)	Ball Check (3)	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-3 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:**

\* Temperature range for metallic versions is 10°F (-12°C) to 190°F (88°C) standard, optional to 225°F (107°C), special to 300°F (149°C). Temperature range for plastic versions is 10°F (-12°C) to 140°F (60°C).

‡ 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.

### DISC DIAPHRAGM MATERIALS OF CONSTRUCTION - WETTED PARTS

Materials of Construction	Diaphragm Head	Cartridge Body	Seats	Balls	Limit Pins	Diaphragm	Contour Plate
316 SS†	316 SS CF-8M‡	316 SS CF-8M‡	316 SS	316 SS	316 SS	PTFE	316 SS CF-8M‡
Alloy 20†	20Cb-3 CN-7M	20Cb-3 CN-D7M	20Cb-3	20Cb-3	20Cb-3	PTFE	20Cb-3 CN-7M
Plastic	Acrylic Plastic*	PVC	PVC	Ceramic	Alloy C	PTFE	(none)

**Notes:**

\* Diaphragm head is polypropylene on plastic 2 1/2".

† Maximum temperature for metallic liquid ends is 250°F (121°C). Maximum temperature for plastic liquid ends is 140°F (60°C).

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

§ CN-7M is the cast equivalent to wrought 20CB-3.

### PACKED PLUNGER MATERIALS OF CONSTRUCTION - WETTED PARTS

Liquid End Material	Plunger	Check Valve	Seat	Seat Seal	Ball	Lantern Ring/ Spacers	Packing Spring	Gland Cap
	316 SS (to 1500 psi)	316 SS CF-8M*	316 SS	PTFE	316 SS	316 SS CF-8M*	N/A	316 SS CF-8M*
316 SS	Colmonoy (to 5000 psi)	316 SS CF-8M*	316 SS	PTFE	316 SS	316 SS CF-8M*	316 SS	316 SS CF-8M*
	Carbide (to 10,000 psi)	316 SS CF-8M*	Hardened 13-8 Mo	PTFE	Carbide	316 SS CF-8M*	316 SS	316 SS CF-8M*
Alloy 20	20Cb-3 (to 1500 psi)	20Cb-3 CN-7M†	20Cb-3	PTFE	20Cb-3 20Cb-3	CN-7M†	N/A	20Cb-3 CN-7M†

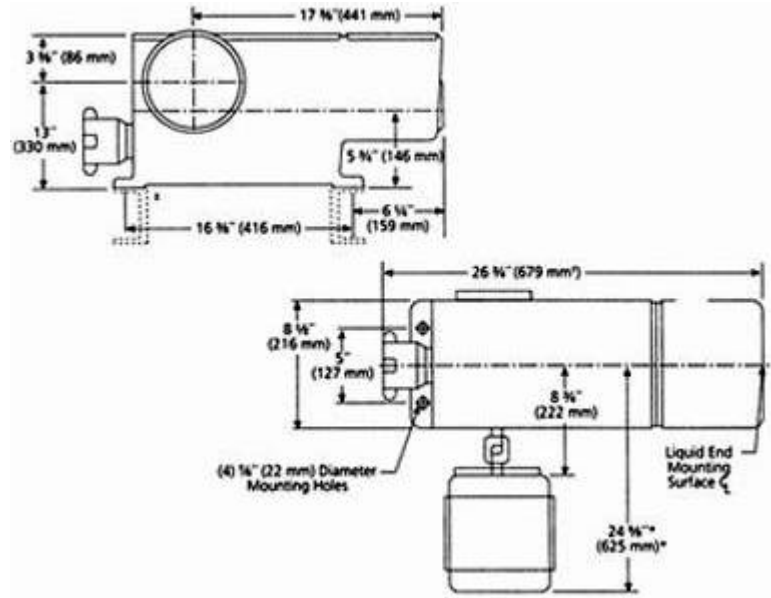
**Notes:**

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

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

## MILROYAL B PUMPS

### DRIVE DIMENSIONS



- Notes:**
- \* Dimension shown is for the largest available motor.
  - ‡ Various bases are supplied with certain liquid ends and multiplex units. Consult factory for exact mounting dimensions.
  - † 26 3/4" (679 mm) is the dimension for manual stroke adjustment. For electronic stroke, overall length is 41 5/8" (1311 mm).

#### Available Options

- Double diaphragm
- Diaphragm rupture detection system
- Flanged connections
- Electronic capacity control
- Pneumatic capacity control
- Severe duty motors
- Variable speed drives
- Other options are available to fit your application

#### Accessories

- Safety Valves
- Back pressure valves
- Calibration columns
- Pulsation dampeners
- Tanks & standard systems
- Sludge traps

*All information contained herein subject to change without notice.*