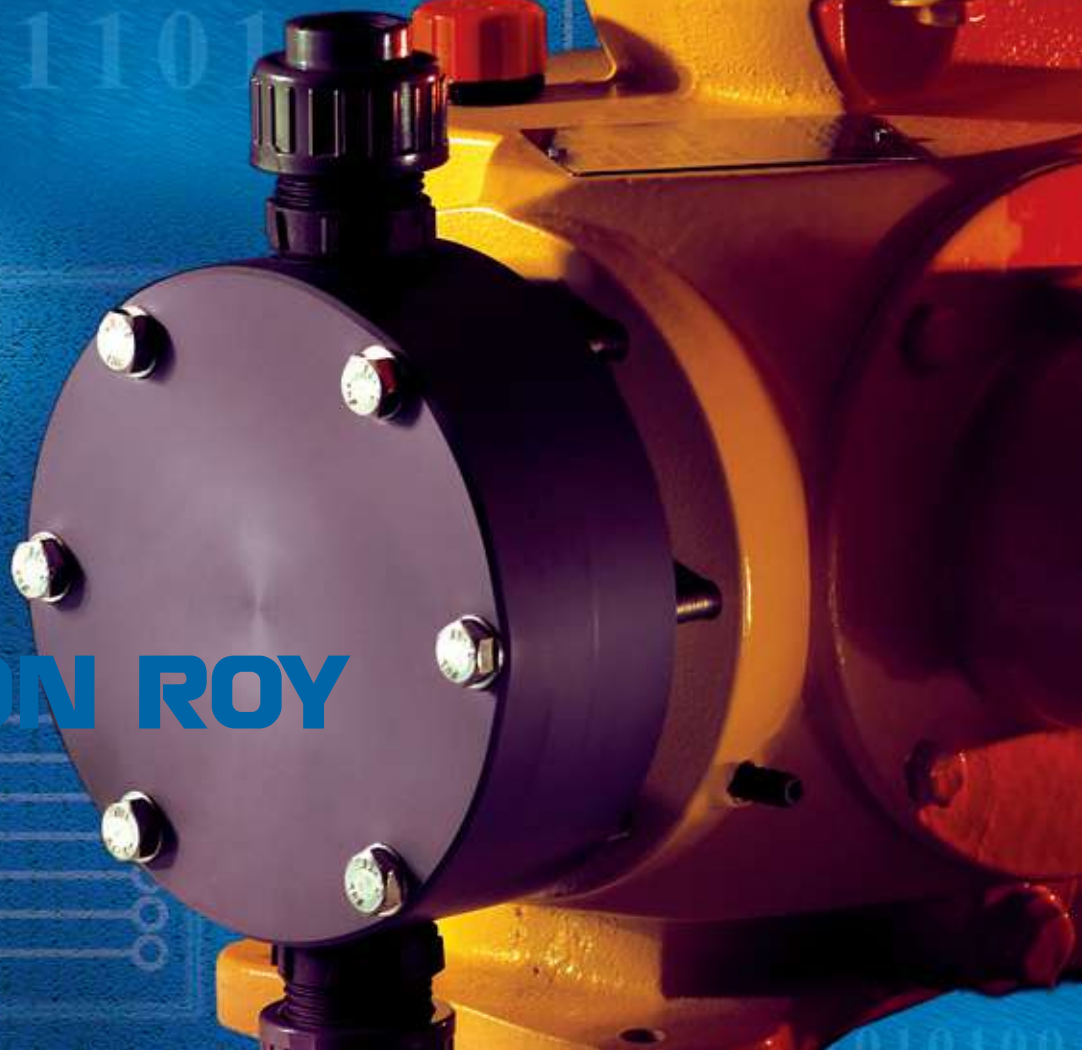


**MACROY®**

**SERIES OF  
METERING  
PUMPS**



 **MILTON ROY**





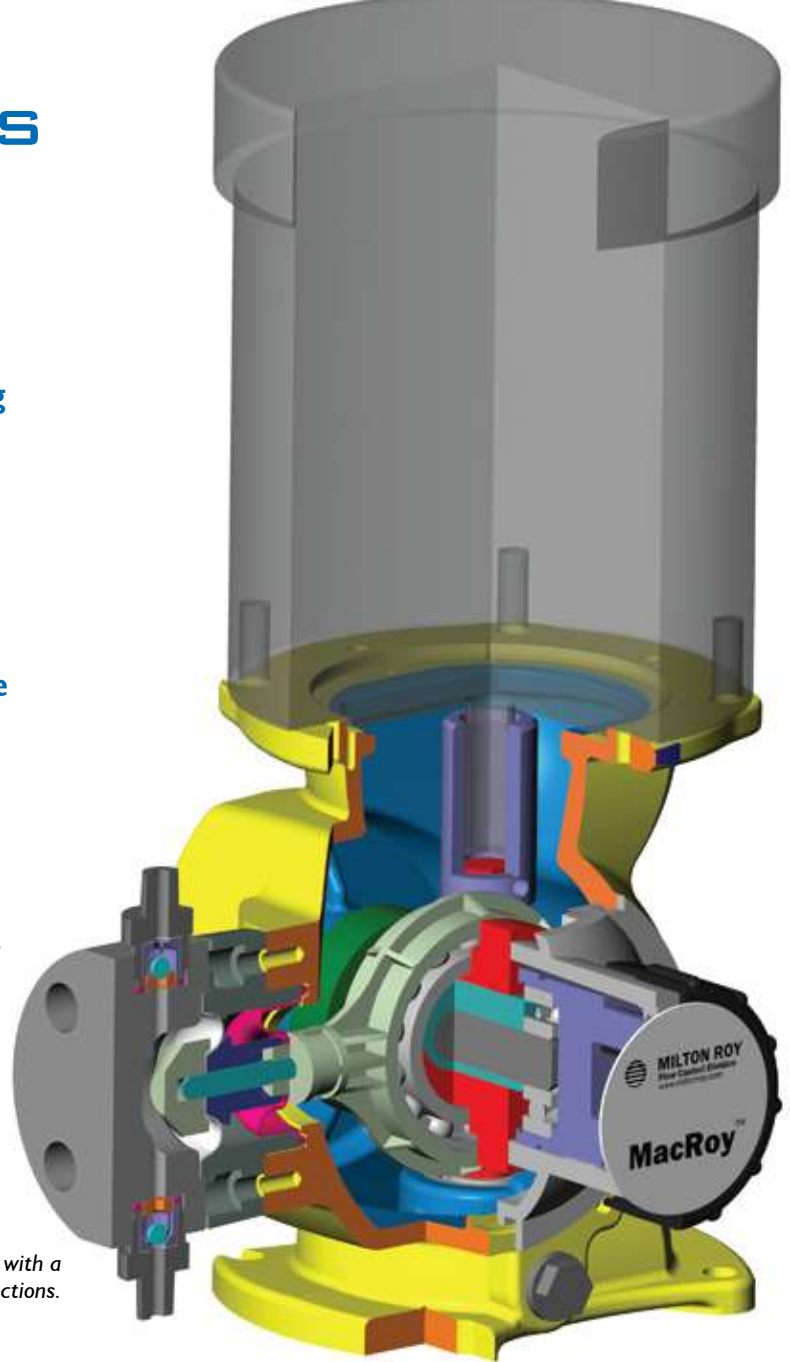
# MACROY® SERIES



The MacRoy® Series of metering pumps offer traditional Milton Roy reliability with outstanding value for applications up to 175 psi (12 Bar).

Milton Roy has combined its heavy-duty industrial drive technology with state of the art design and manufacturing processes in creating the MacRoy® Series metering pump. This family of Mechanically Actuated Diaphragm metering pumps is designed for durability and cost effectiveness.

*Illustrated to the right is a D4 with a PVC liquid end, featuring NPT connections.*

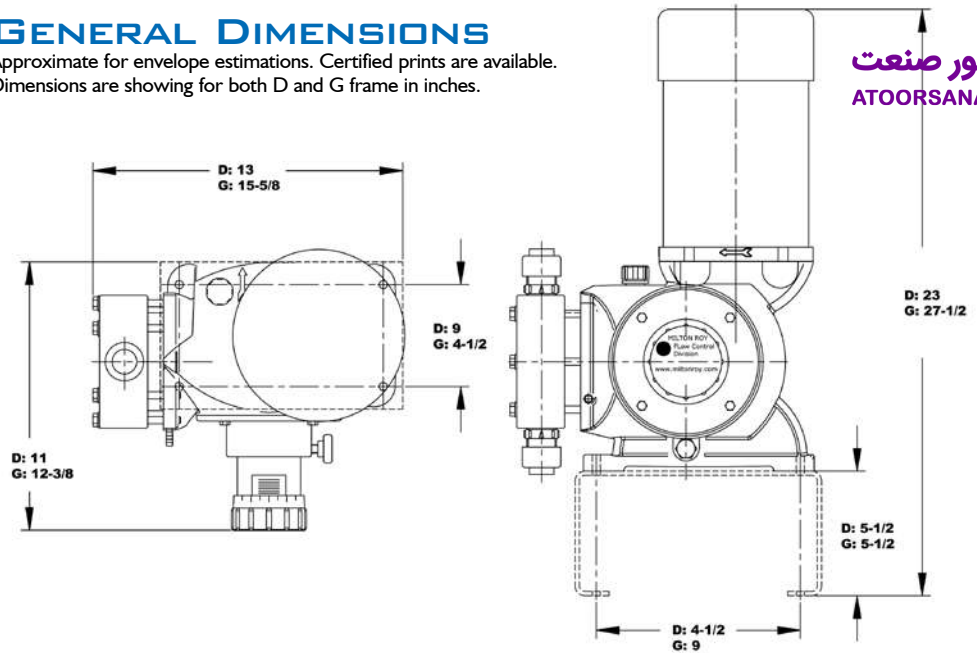


## MACROY FEATURES AND SPECIFICATIONS

- ▶ Flow Rates up to 312 GPH (1180 Liters/hr)
- ▶ Mechanically Actuated Diaphragm liquid end eliminates flow restrictions
- ▶ Durable, metallic housing designed to withstand tough environments
- ▶ High efficiency motors minimize heat buildup
- ▶ A robust, metallic, worm gear drive coupled with the industrial duty variable eccentric stroke adjustment mechanism yields a 10 to 1 turn down ratio with smooth velocity profiles as compared to the pulsating flows of solenoid pumps or lost motion designs
- ▶ Smooth running, low friction bronze gears
- ▶ The PTFE, high performance, diaphragm design increases diaphragm life by eliminating the stresses inherent in most designs
- ▶ Reliable low flow performance is a result of high performance check valves with machined seats
- ▶ All gear components operate in an oil bath for long life
- ▶ Precision stroke adjustment can be operated while the pump is running or stopped
- ▶ Steady State Accuracy –  $\pm 1\%$  of full capacity over the 10 to 1 turndown ratio
- ▶ Liquid Temperature Range – 14° to 122° F (-14° to 50° C)
- ▶ Coating – 2 part epoxy
- ▶ Average Weight with motor – Frame D: 45 lbs (20 kgs)  
Frame G: 105 lbs (48 kgs)

## GENERAL DIMENSIONS

Approximate for envelope estimations. Certified prints are available.  
Dimensions are showing for both D and G frame in inches.



## NPT CONNECTION SIZES

FRAME	LIQUID END SIZE	CONNECTION PORT SIZE FOR THE FOLLOWING MATERIALS			
		BLACK PP, PVC, PVDF & ACRYLIC	APPLICATIONS		316 SS
D	2	1/4" Male	1/4" Male	1/4" Male	1/4" Male
	4		1/2" Male		1/2" Male
	7 & 8		1/2" Female		
G	5	1" Female	1" Male	1" Female	1" Male
	6 & 7		1" Male	1" Female	1" Male

## MATERIALS OF CONSTRUCTION

MATERIAL	FRAME	LIQUID END SIZE	HEAD	CHECK VALVE	SEALS	SEATS	BALLS	DIAPHRAGM
Black Polypropylene	D	2	Black PP	PVDF	Aflas	Alloy C22	Ceramic	PTFE
		4				PTFE		
		7 & 8				PVC		
	G	5						
6 & 7								
PVC	D	2	PVC	PVDF	Aflas	Alloy C22		
		4				PTFE		
		7 & 8				PVC		
	G	5					PVC	
6 & 7								
PVDF	D	2	PVDF	PVDF	Aflas	Alloy C22		
		4				PTFE		
		7 & 8				PVDF		
	G	All				Viton	PVC	
5								
Acrylic	D	2	Acrylic	PVDF	Aflas	Alloy C22		
		4				PTFE		
		7 & 8				PVC		
	G	5					PVC	
6 & 7								
Polymer Applications	D & G	All	PVC	PVC	Viton	316 SS	316 SS	
Slurry Applications	D & G	All		316 SS				
H2SO4 Applications	D & G	All		PVDF				Aflas
316 SS	D	2	316 SS	316 SS	PTFE	316 SS	316 SS	
		4				PTFE		
		7 & 8				Viton		
	G	5						316 SS
		6 & 7				PTFE		

## PUMP SELECTION BY CAPACITY AND PRESSURE

PUMP SELECTION			MAXIMUM RATINGS					
MACROY			CAPACITY @ 60 HZ		CAPACITY @ 50 HZ		PRESSURE	
FRAME	LIQUID END	GEAR CODE	(1725 RPM)		(1425 RPM)		PSI	BAR
			GPH	LITER/HR	GPH	LITER/HR		
D	2	1	0.18	0.7	0.15	0.6	175	12
		2	0.35	1.3	0.29	1.1		
		6	0.48	1.8	0.40	1.5		
		3	0.7	2.6	0.58	2.2		
	4	1	3.0	11.4	2.5	9.5	150	10
		2	6.6	25	5.5	21		
		6	10	38	6.9	26		
		3	14.4	45	12	45		
	7	1	13	99	10	39	100	7
		2	25	95	21	79		
		6	34	129	28	106		
		3	50	189	42	159		
	8	1	31	117	26	98	75	5
		2	57	216	47	178		
		6	87	329	72	273		
		3	127	481	106	401		
G	5	1	26	98.4	22	82	150	10
		2	53	200.6	44	167		
		6	75	283.9	62	237		
		3	106	401.2	88	334		
		8	-	-	110	416		
	6	1	37	140.0	31	117	100	7
		2	74	280.1	62	233		
		6	104	393.6	87	328		
		3	147	556.4	122	464		
		8	-	-	154	583		
	7	1	75	283.9	62	237	50	3.5
		2	150	567.8	125	473		
		6	213	806.2	177	672		
		3	300	1135.5	250	946		
		8	-	-	312	1181		

Ratings based on 1/4 HP (.25 kW)

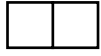
Ratings based on 1 HP (.75 kW)

MacRoy G with PVC liquid end and manual micrometer stroke adjustment.





## MACROY D & G PRODUCT CODE



Frame and  
Liquid End



Gear  
Ratio



Motor &/  
or Mount



Liquid  
End  
Material



Connections



Capacity  
Control



Double  
Diaphragm



Base



Stroke  
Counting

### Frame and Liquid End

#### D Frame

D2

D4

D7

D8

#### G Frame

G5

G6

G7

### Gear Ratio Code

1 = 43 SPM

2 = 86 SPM

6 = 120 SPM

3 = 173 SPM

8 = 180 SPM @

1450 RPM

### Motor &/or Mount

8 = 1 ph 60 Hz 115/230 VAC

1725 RPM TE

J = 3 ph 60 Hz 230/460 VAC

1725 RPM TE

9 = 1 ph 50 Hz 115/230 VAC

1450 RPM TE

L = 3 ph 50 Hz 220/380 VAC

1450 RPM TE

M = IEC 71, F130 V1 Flange  
Mount Less Motor

N = IEC 80, F165 V1 Flange

Mount Less Motor  
(G Frame only)

X = Nema 56C Mount

Less Motor

### Liquid End Material

2 = PVDF

4 = Black Polypropylene  
(UV Stable)

7 = 316 ss

8 = PVC

A = Acrylic

P = Polymer Service

L = Slurry Applications

N = H<sub>2</sub>SO<sub>4</sub> Applications

### Connections

P = NPT

T = Tubing

B = Bleed Valve NPT

C = Bleed Valve Tubing

### Capacity Control

M4 = Manual

E1 = 4-20, Nema 4, 115V

E2 = 4-20, Nema 4, 230V

EA = 4-20, Ex Prf, 115V

EB = 4-20, Ex Prf, 230V

### Double Diaphragm

N = None

D = Double Diaphragm

3 = Double Diaphragm w/  
Gauge

4 = Double Diaphragm  
w/Nema 4

Rupture Detection

7 = Double Diaphragm

w/Nema 7

Rupture Detection

### Base Code

N = None

I = Simplex Optional Base

### Stroke Counting

N = None

I = Stroke Counting  
(20 to 250 VAC/DC)



The photograph to the right is a D4 with a PVC liquid end, featuring NPT style check valves.

## MACROY, DEPENDABLE AND VERSATILE

The MacRoy™ series of pumps has proven its exceptional value over years of solid performance in a wide range of applications and industries. Water treatment chemicals, process additives, acids, out-gassing fluids, slurries, and many more applications are all handled with ease by this robust metering pump design. Your local representative can assist you in applying the MacRoy™ metering pump to your process.



### ACCESSORIES



#### Safety Valves

Protect pump and piping from overpressure.



#### Back Pressure Valves

Provide smooth, artificial pressure in pump discharge line for atmospheric or low pressure systems to ensure pumping accuracy.

#### Pulsation Dampeners

Minimize pressure and flow surges in the pump discharge. When applied to pump inlet, more favorable NPSH conditions result.



#### Calibration Columns

Allow periodic verification of pump performance during routine checks or after system maintenance.



 **MILTON ROY**

MILTON ROY COMPANY

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## Manual & Enhanced Models

The PROTEUS chemical metering pump is a mechanically actuated diaphragm pump driven by advanced variable speed technology to provide the most accurate and reliable performance in the industry. This proven technology is easy to maintain and provides years of maximum up-time service. Available in two control configurations - Manual and Enhanced - the PROTEUS pump fits seamlessly into the process control requirements of every application. The Manual model includes the ideal level of standard features while the Enhanced model provides a broader range of capabilities. All models come standard with a four-color backlit display, multilanguage options, and remote operation options - all in a design platform that can adapt as technology evolves. The PROTEUS metering pump provides everything you need for complete control of your process.



## Applications

Whatever your application, the PROTEUS series of metering pump can provide the performance you need. Designed for the specific requirements of municipal and industrial water and waste treatment, the PROTEUS metering pump is suitable for a wide range of applications.

- ☑ Water treatment
- ☑ Waste water treatment
- ☑ General industry
- ☑ Agricultural
- ☑ Chemical
- ☑ Oil & gas
- ☑ Power generation
- ☑ Pulp & paper
- ☑ Textiles
- ☑ Other (contact your local authorized representative)



Certified to  
NSF/ANSI 61 & 372

## Performance Specifications

<b>Turndown Ratio:</b>	<b>Up to 1000:1</b>
<b>Steady State Accuracy:</b>	<b>+/- 1.0%</b>
<b>Repetitive Accuracy:</b>	<b>+/- 3.0%</b>
<b>Linearity:</b>	<b>+/- 3.0%</b>
<b>Duty Rating:</b>	<b>Continuous</b>

## Features and Benefits

- ☑ Maximum application customization through advanced easy-to-use operation interface with backlit color display and enhanced settings.
- ☑ Remote connectivity enables control and feedback in real time.
- ☑ Universal power supply provides maximum flexibility (100-240V, 50/60 Hz) to power your pump.
- ☑ Multilanguage navigation (English, French, Spanish, Portuguese and Chinese) offers convenient operation anywhere in the field.
- ☑ Innovative drive system creates superior +/- 1% steady state accuracy over 1000:1 turndown ratio for greater flexibility in handling difficult chemicals.
- ☑ Optional liquid-end materials (polypropylene, PVDF, and 316L Stainless Steel) to maximize the life of the pump in challenging environments.
- ☑ Mechanically actuated diaphragms provide easy maintenance with years of field experience.
- ☑ Rugged construction with NEMA 4X/IP 65 housing and protective cover protect in the harshest environments.



**Output Code 2 -**

5.6 GPH (21.2 l/h) 175 psi (12.0 bar) Note: High viscosity option and PE tube limited to 150 psi (10.3 bar)

ERB PROTEUS Series Frame B														
Control and Output Code														
12	Manual Control Note: Cordsets from the accessories table may be required for the customer to connect to desired input/output. Enhanced is shipped with 4 pin cable for analog input signal.													
22	Enhanced Control													
Voltage Code														
1	110 - 120 VAC 1 Phase US Plug													
2	220 - 240 VAC 1 Phase US Plug													
3	220 - 240 VAC 1 Phase DIN Plug													
5	220 - 240 VAC 1 Phase UK Plug													
6	220 - 240 VAC 1 Phase Australia / New Zealand Plug													
7	220 - 240 VAC 1 Phase Swiss Plug													
8	110 - 120 VAC 1 Phase No Plug													
	Liquid End Codes	Type	Head	Check Valve Body	Diaphragm	Diaph. O-Ring	Seat	Balls	O-Ring	Fittings	Connection	Tube Kit (see table)	Max Turndown Ratio	RPM Kit Number
	A44ACA7T1	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	Ceramic	TFE/P	PVDF	Tube Imperial	1	1000:1	RPM54771
	A44ACA7PN	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	Ceramic	TFE/P	PVDF	1/2" NPT/BSP	-	1000:1	RPM54771
	A44A1A7T1	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	316L	TFE/P	PVDF	Tube Imperial	1	1000:1	RPM54778
	A44A1A7PN	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	316L	TFE/P	PVDF	1/2" NPT/BSP	-	1000:1	RPM54778
	A44ACA7M2	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	Ceramic	TFE/P	PVDF	Tube Metric	2	1000:1	RPM54771
	A44A1A7M2	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	316L	TFE/P	PVDF	Tube Metric	2	1000:1	RPM54778
	A44ACA2FN	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	Ceramic	TFE/P	PVDF/PVC	DN15 Female	-	1000:1	RPM54772
	A44A1A2FN	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	316L	TFE/P	PVDF/PVC	DN15 Female	-	1000:1	RPM54779
	A74TCA7T1	Std	PVDF	PVDF	PTFE/PVDF	FKM	PTFE	Ceramic	TFE/P	PVDF	Tube Imperial	1	200:1	RPM54773
	A74TCA7PN	Std	PVDF	PVDF	PTFE/PVDF	FKM	PTFE	Ceramic	TFE/P	PVDF	1/2" NPT/BSP	-	200:1	RPM54773
	A74TCA7M2	Std	PVDF	PVDF	PTFE/PVDF	FKM	PTFE	Ceramic	TFE/P	PVDF	Tube Metric	2	200:1	RPM54773
	A74TCA2FN	Std	PVDF	PVDF	PTFE/PVDF	FKM	PTFE	Ceramic	TFE/P	PVDF/PVC	DN15 Female	-	200:1	RPM54774
	A74TCA7DN	Std	PVDF	PVDF	PTFE/PVDF	FKM	PTFE	Ceramic	TFE/P	PVDF	DN15 Male	-	200:1	RPM54774
	A1411V1PN	Std	316L	316L	PTFE/316L	FKM	316L	316L	FKM	316L	NPT	-	1000:1	RPM54775
	S1414V1PN	Slurry	316L	316L	PTFE/316L	FKM	316L	440C	FKM	316L	NPT	-	1000:1	RPM54776
	V44T1N4T3	Hi Vis	PP	PP	PTFE/PVDF	FKM	PTFE	316L	-	PP	Tube Imperial	3	1000:1	RPM54777
ERB	12	1	<b>A44ACA7T1</b> Complete Product Code											

**Output Code 3 -**

14.0 GPH (53.0 l/h) 75 psi (5.0 bar)

ERB PROTEUS Series Frame B														
Control and Output Code														
13	Manual Control Note: Cordsets from the accessories table may be required for the customer to connect to desired input/output. Enhanced is shipped with 4 pin cable for analog input signal.													
23	Enhanced Control													
Voltage Code														
1	110 - 120 VAC 1 Phase US Plug													
2	220 - 240 VAC 1 Phase US Plug													
3	220 - 240 VAC 1 Phase DIN Plug													
5	220 - 240 VAC 1 Phase UK Plug													
6	220 - 240 VAC 1 Phase Australia / New Zealand Plug													
7	220 - 240 VAC 1 Phase Swiss Plug													
8	110 - 120 VAC 1 Phase No Plug													
	Liquid End Codes	Type	Head	Check Valve Body	Diaphragm	Diaph. O-Ring	Seat	Balls	O-Ring	Fittings	Connection	Tube Kit (see table)	Max Turndown Ratio	RPM Kit Number
	A44ACA7T1	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	Ceramic	TFE/P	PVDF	Tube Imperial	1	1000:1	RPM54771
	A44ACA7PN	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	Ceramic	TFE/P	PVDF	1/2" NPT/BSP	-	1000:1	RPM54771
	A44A1A7T1	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	316L	TFE/P	PVDF	Tube Imperial	1	1000:1	RPM54778
	A44A1A7PN	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	316L	TFE/P	PVDF	1/2" NPT/BSP	-	1000:1	RPM54778
	A44ACA7M2	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	Ceramic	TFE/P	PVDF	Tube Metric	2	1000:1	RPM54771
	A44A1A7M2	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	316L	TFE/P	PVDF	Tube Metric	2	1000:1	RPM54778
	A44ACA2FN	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	Ceramic	TFE/P	PVDF/PVC	DN15 Female	-	1000:1	RPM54772
	A44A1A2FN	Std	PP	PVDF	PTFE/PVDF	FKM	TFE/P	316L	TFE/P	PVDF/PVC	DN15 Female	-	1000:1	RPM54779
	A74TCA7T1	Std	PVDF	PVDF	PTFE/PVDF	FKM	PTFE	Ceramic	TFE/P	PVDF	Tube Imperial	1	200:1	RPM54773
	A74TCA7PN	Std	PVDF	PVDF	PTFE/PVDF	FKM	PTFE	Ceramic	TFE/P	PVDF	1/2" NPT/BSP	-	200:1	RPM54773
	A74TCA7M2	Std	PVDF	PVDF	PTFE/PVDF	FKM	PTFE	Ceramic	TFE/P	PVDF	Tube Metric	2	200:1	RPM54773
	A74TCA2FN	Std	PVDF	PVDF	PTFE/PVDF	FKM	PTFE	Ceramic	TFE/P	PVDF/PVC	DN15 Female	-	200:1	RPM54774
	A74TCA7DN	Std	PVDF	PVDF	PTFE/PVDF	FKM	PTFE	Ceramic	TFE/P	PVDF	DN15 Male	-	200:1	RPM54774
	A1411V1PN	Std	316L	316L	PTFE/316L	FKM	316L	316L	FKM	316L	NPT	-	1000:1	RPM54775
	S1414V1PN	Slurry	316L	316L	PTFE/316L	FKM	316L	440C	FKM	316L	NPT	-	1000:1	RPM54776
	V44T1N4T3	Hi Vis	PP	PP	PTFE/PVDF	FKM	PTFE	316L	-	PP	Tube Imperial	3	1000:1	RPM54777
ERB	23	1	<b>A44ACA7T1</b> Complete Product Code											



## PROTEUS Series Code Selection Table, cont.

Output Code 4 -

18.0 GPH (68.1 l/h) 50 psi (3.5 bar)

ERB PROTEUS Series Frame B													
Control and Output Code													
14	Manual Control	Note: Cordsets from the accessories table may be required for the customer to connect to desired input/output. Enhanced is shipped with 4 pin cable for analog input signal.											
24	Enhanced Control												
Voltage Code													
1	110 - 120 VAC 1 Phase US Plug												
2	220 - 240 VAC 1 Phase US Plug												
3	220 - 240 VAC 1 Phase DIN Plug												
5	220 - 240 VAC 1 Phase UK Plug												
6	220 - 240 VAC 1 Phase Australia / New Zealand Plug												
7	220 - 240 VAC 1 Phase Swiss Plug												
8	110 - 120 VAC 1 Phase No Plug												
	Liquid End Codes	Type	Head	Check Valve Body	Diaphragm	Seat	Balls	O-Ring	Fittings	Connection	Tube Kit (see table)	Max Turndown Ratio	RPM Kit Number
	A46VCN4PN	Std	PP	PP	PTFE	FKM	Ceramic	-	PP	NPT	-	500:1	RPM54780
	A46VCN4TN	Std	PP	PP	PTFE	FKM	Ceramic	-	PP	Tube Imperial	-	500:1	RPM54780
	A46V1N4PN	Std	PP	PP	PTFE	FKM	316L	-	PP	NPT	-	500:1	RPM54784
	A46V1N4TN	Std	PP	PP	PTFE	FKM	316L	-	PP	Tube Imperial	-	500:1	RPM54784
	A46V1N2FN	Std	PP	PP	PTFE	FKM	316L	-	PP/PVC	DN15 Female	-	500:1	RPM54784
	A46VCN2FN	Std	PP	PP	PTFE	FKM	Ceramic	-	PP/PVC	DN15 Female	-	500:1	RPM54780
	A76VCN7PN	Std	PVDF	PVDF	PTFE	FKM	Ceramic	-	PVDF	NPT	-	500:1	RPM54780
	A76VCN7TN	Std	PVDF	PVDF	PTFE	FKM	Ceramic	-	PVDF	Tube Imperial	-	500:1	RPM54780
	A76VCN2FN	Std	PVDF	PVDF	PTFE	FKM	Ceramic	-	PVDF/PVC	DN15 Female	-	500:1	RPM54780
	A76VCN7FN	Std	PVDF	PVDF	PTFE	FKM	Ceramic	-	PVDF	DN15 Female	-	500:1	RPM54780
	A1611V1PN	Std	316L	316L	PTFE	316L	316L	FKM	316L	NPT	-	1000:1	RPM54781
	S1614V1PN	Slurry	316L	316L	PTFE	316L	440C	FKM	316L	NPT	-	1000:1	RPM54783
	V46T1N4P4	Hi Vis	PP	PP	PTFE	PTFE	316L	-	PP	NPT	4	1000:1	RPM54782
	V46T1N4T4	Hi Vis	PP	PP	PTFE	PTFE	316L	-	PP	Tube Imperial	4	1000:1	RPM54782
ERB	24	1	<b>A46TCN4PN</b>		<b>Complete Product Code</b>								

## Tubing Kit # Description Table

Kit#	Contents	Kit#	Contents	Kit#	Contents	Kit#	Contents
1	1 Injection valve	2	1 Injection valve	3	1 Injection valve	4	2m Reinforced PVC hose 15x23mm (Suction)
	1 Foot valve		1 Foot valve		2m Reinforced PVC hose 15x23mm (Suction)		
	1 Weight (suction tubing)		1 Weight (suction tubing)		3m PE tube 1/2" (Discharge)		
	16' PE tube 3/8"		6m PE tube 8mm		1 Suction hose fitting (1/2" FNPT X 15x23 hose) & 2 Hose clamps		
	20' Reinforced PVC hose 1/4"x1/2"		6m Reinforced PVC hose 6x12mm				

## Accessories

### Input/Output Cordsets

Part No.	Description	Application Notes
48414	CORDSET, 5 PIN, 2 M / 6.6 FT	(J2) Digital output
49035	CORDSET, 6 PIN, 2 M / 6.6 FT	(J1 & J4) Digital input & Analog output
54711	CORDSET, 4 PIN, 2 M / 6.6 FT	(J3) Analog input

### Extension Cable Assemblies - 5 Pin

Part No.	Description	Application Notes
50503-3	Extension Cable, 3 M / 9.8 Ft	
50503-6	Extension Cable, 6 M / 19.7 Ft	
50503-15	Extension Cable, 15 M / 49.2 Ft	
50503-30	Extension Cable, 30 M / 98.4 Ft	

### Extension Cable Assemblies - 6 Pin

Part No.	Description	Application Notes
50684-3	Extension Cable, 3 M / 9.8 Ft	
50684-6	Extension Cable, 6 M / 19.7 Ft	
50684-15	Extension Cable, 15 M / 49.2 Ft	
50684-30	Extension Cable, 30 M / 98.4 Ft	

## Electronic control by model

Control Version

Control Version

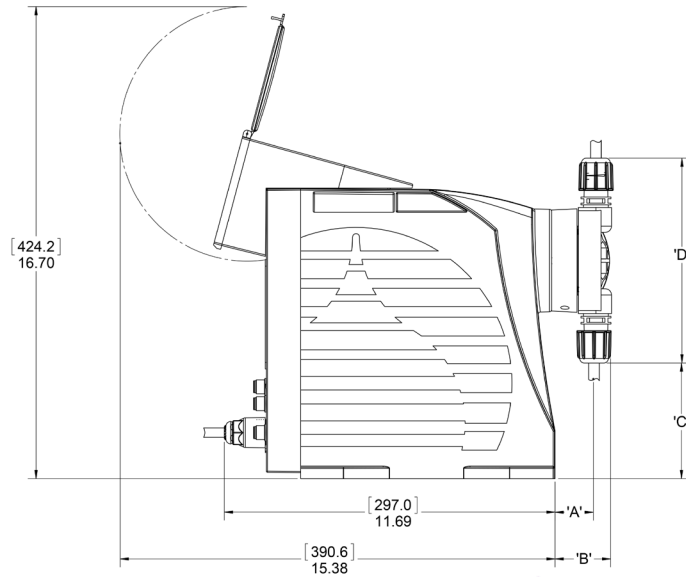
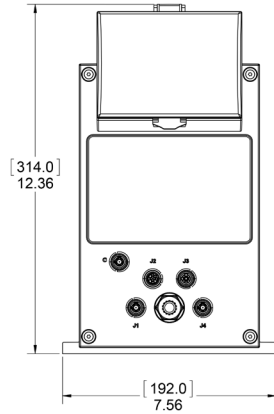
Manual model  
Enhanced model

Manual model  
Enhanced model

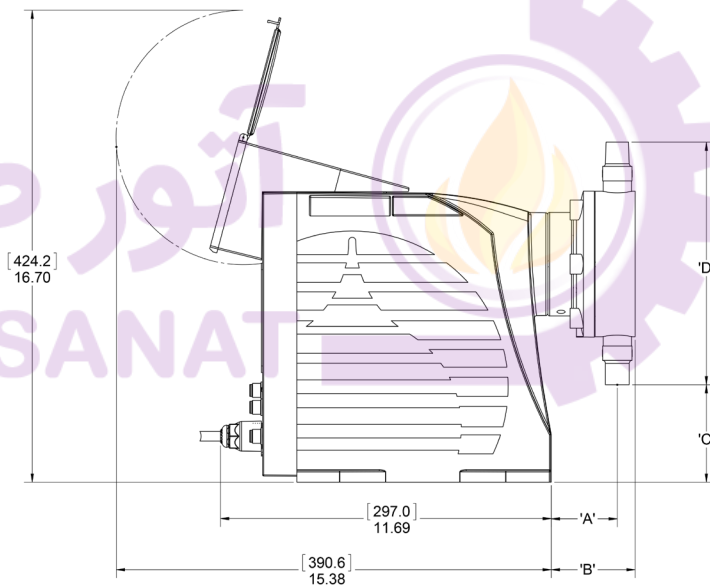
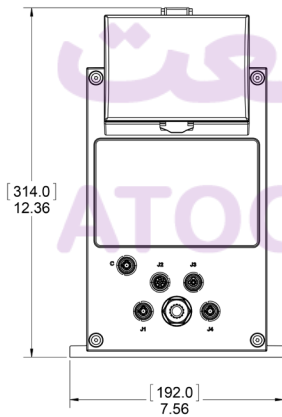
	Manual model	Enhanced model
<b>User Interface</b>		
Four Color Backlit graphical display	[?]	[?]
Flow rate or volume display (GPH, L/hr)	[?]	[?]
Capacity setting display	[?]	[?]
Start/Stop button	[?]	[?]
Mode/Select button	[?]	[?]
Full capacity (100%) button	[?]	[?]
Prime button	[?]	[?]
Active operation mode indication on display	[?]	[?]
Active alarm indication on display	[?]	[?]
Calibration status indication on display	[?]	[?]
<b>Operation Modes</b>		
Manual (Internal)	[?]	[?]
Analog [0/4-20 mA] (External)	[?]	[?]
Pulse [volume/pulse] (External)	[?]	[?]
Batch (External)	[?]	[?]
Cycle Timer (Internal)	[?]	[?]
Timed event (Internal)	[?]	[?]
<b>Control Input</b>		
Programmable digital contacts	1	4
Single level float switch	[?]	[?]
Dual low level float switch	[?]	[?]
Pulse control	[?]	[?]
Remote start/stop	[?]	[?]
Remote internal/external mode selection	[?]	[?]
Programmable analog inputs	0	2
Pacing	[?]	[?]
Tank level	[?]	[?]

	Manual model	Enhanced model
<b>Control Output</b>		
Programmable digital contacts	0	2
• Pump running	[?]	[?]
• Pump standby/stopped [not pumping but ready]	[?]	[?]
• Alarm status	[?]	[?]
• User alarm status	[?]	[?]
• Internal/External mode indication	[?]	[?]
• Pump stopped	[?]	[?]
• Stroke pulse	[?]	[?]
• Timed event running	[?]	[?]
• Programmable analog output	0	1
• Flow rate [4-20 mA correlates to 0 - max capacity]	[?]	[?]
• Mirror analog input 1	[?]	[?]
• Power supply for remote device [24V] (eg. Flow sensor)	0	1
<b>Operation functions</b>		
• Capacity control by motor speed variation	[?]	[?]
• Variable stroke profile (variable discharge speed/constant suction speed)	[?]	[?]
• Slow suction mode for viscous or degassing media	[?]	[?]
• Calibration function (single point)	[?]	[?]
• Prime feature (max capacity) button, timer	[?]	[?]
• Totalizer (strokes, volume, hours motor operation, number of power cycles)	[?]	[?]
• Keypad lock (software driven with password)	[?]	[?]
• Clock feature (date and 12 hour time)	[?]	[?]
• Diaphragm replacement mode (sets stroke to extended position)	[?]	[?]
• Display firmware revision	[?]	[?]
• Load factory defaults	[?]	[?]
• Battery to maintain date and time settings when main power is removed	[?]	[?]
• EEPROM nonvolatile memory (configurations saved/powers up in last used mode)	[?]	[?]
• Internal/External input control mode configuration	[?]	[?]
• Alarm output mask configuration (configure which events trigger alarm output relay)	[?]	[?]
• Analog input response curve customization	[?]	[?]
• Input pulse width setting	[?]	[?]
• Stat/Stop via remote signal	[?]	[?]
• Pump switch off on tank empty	[?]	[?]

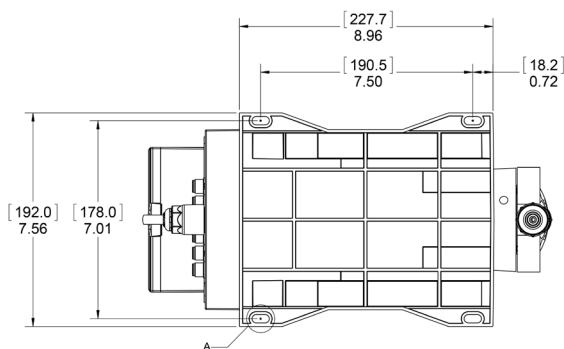
**Drive Sizes: ERBx2x, ERBx3x**



**Drive Size: ERBx4x**



**Mounting Information  
(All drive sizes)**



DRIVE	LIQUID END	A		B		C		D	
		INCH	[mm]	INCH	[mm]	INCH	[mm]	INCH	[mm]
ERBx2x ERBx3x	*TUBE CONNECTIONS: CODE A44, A74"	1.44	36.7	2.03	51.7	4.09	103.9	7.25	184.2
	*DN PIPE CONNECTIONS: CODE A44, A74"	1.44	36.7	2.00	50.7	2.45	62.2	10.54	267.7
	*STAINLESS HEAD AND SLURRY HEAD: CODE A14, S14"	1.38	35.0	2.01	51.0	3.70	94.0	8.03	204.0
	*HIGH VISCOSITY HEAD: CODE V44"	1.61	40.8	2.30	58.3	4.32	109.8	7.63	193.7
ERBx4x	*NPT CONNECTIONS: CODE A46, A76"	2.33	59.3	2.96	75.3	3.45	87.6	8.58	218.0
	*TUBE CONNECTIONS: CODE A46, A76"	2.33	59.3	2.96	75.3	2.82	71.6	9.84	250.0
	*DN PIPE CONNECTIONS: CODE A46, A76"	2.33	59.3	3.13	79.5	2.05	52.1	11.38	289.0
	*STAINLESS HEAD AND SLURRY HEAD: CODE A16, S16"	2.42	61.4	3.28	83.4	2.98	75.6	9.49	241.0
	*HIGH VISCOSITY HEAD (NPT DISCHARGE): CODE V46"	2.33	59.3	2.95	74.9	3.73	94.8	8.30	210.8
*HIGH VISCOSITY HEAD (TUBE DISCHARGE): CODE V46"	2.33	59.3	2.95	74.9	3.73	94.8	8.93	226.8	



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