PROTEUS™
Metering Pumps

DATA SHEET

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)

NSF
Certified to NSF/ANSI 61 & 372

Performance Specifications

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

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.

Literature #54815.01

©2016 Milton Roy, LLC. All rights reserved.

MILTON ROY®
an Accudyne Industries brand

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
22	Enhanced 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.

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	A44ACA7T1	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
23	Enhanced 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.

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	A44ACA7T1	Complete Product Code

©2016 Milton Roy, LLC. All rights reserved.

MILTON ROY
an Accudyne Industries brand

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**	**A46TCN4PN**	**Complete Product Code**											

Tubing Kit # Description Table

Kit#	Contents
1	1 Injection valve
	1 Foot valve
	1 Weight (suction tubing)
	16' PE tube 3/8"
	20' Reinforced PVC hose 1/4"x1/2"

Kit#	Contents
2	1 Injection valve
	1 Foot valve
	1 Weight (suction tubing)
	6m PE tube 8mm
	6m Reinforced PVC hose 6x12mm

Kit#	Contents
3	1 Injection valve
	2m Reinforced PVC hose 15x23mm (Suction)
	3m PE tube 1/2" (Discharge)
	1 Suction hose fitting (1/2" FNPT X 15x23 hose) & 2 Hose clamps

Kit#	Contents
4	2m Reinforced PVC hose 15x23mm (Suction)
	1 Suction hose fitting (1/2" FNPT X 15x23 hose) & 2 Hose clamps

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 Assembles - 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 Assembles - 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	

©2016 Milton Roy, LLC. All rights reserved.

Electronic control by model

	Control Version	
	Manual model	Enhanced model
User Interface		
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	●	●
Operation Modes		
Manual (Internal)	●	●
Analog [0/4-20 mA] (External)		●
Pulse [volume/pulse] (External)		●
Batch (External)		●
Cycle Timer (Internal)		●
Timed event (Internal)		●
Control Input		
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		●

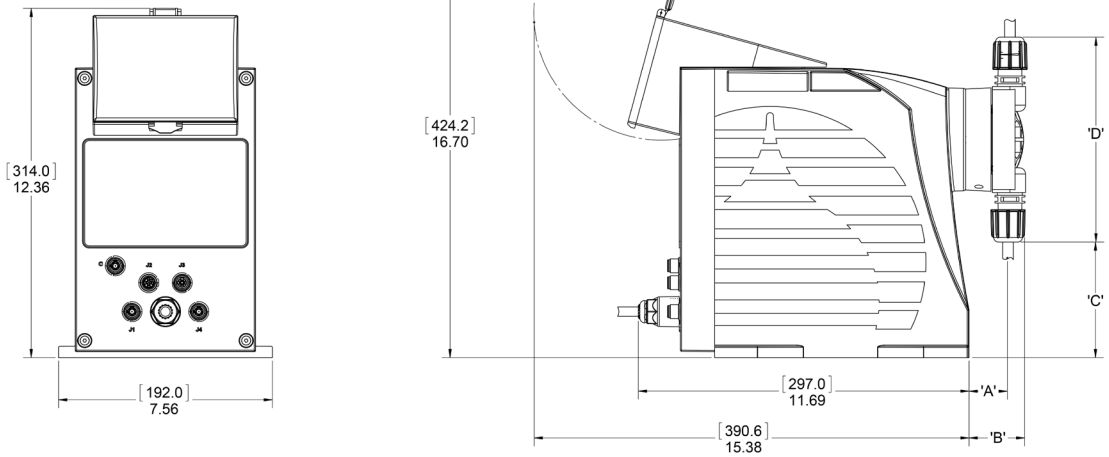
	Control Version	
	Manual model	Enhanced model
Control Output		
Programmable digital contacts	0	2
Pump running		●
Pump standby/stopped [not pumping but ready]		●
Alarm status		●
User alarm status		●
Internal/External mode indication		●
Pump stopped		●
Stroke pulse		●
Timed event running		●
Programmable 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
Operation functions		
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	●	●

Literature #54815.01

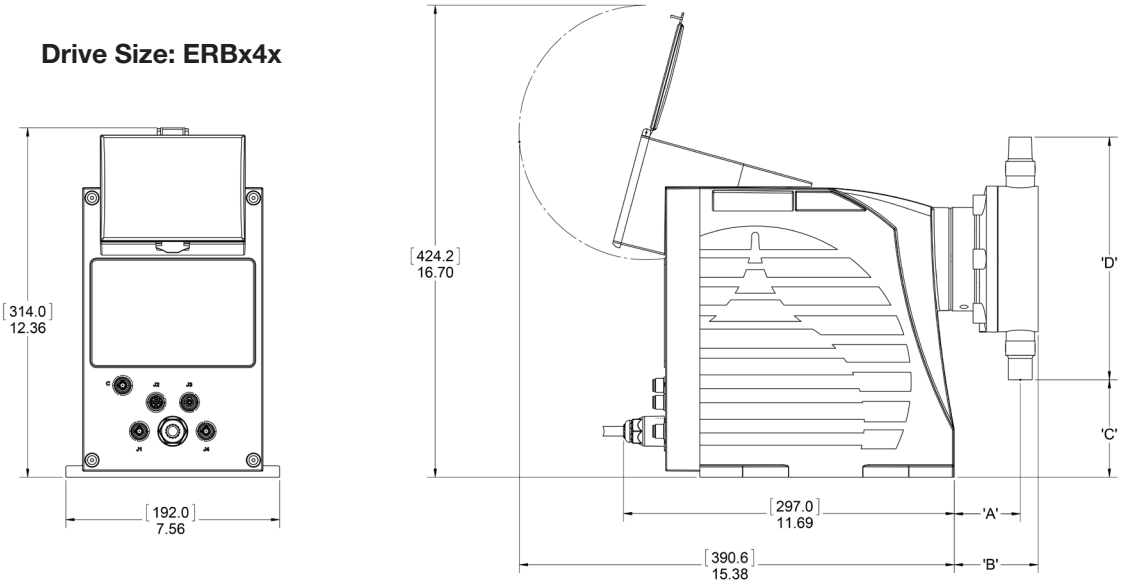
©2016 Milton Roy, LLC. All rights reserved.

MILTON ROY
an Accudyne Industries brand

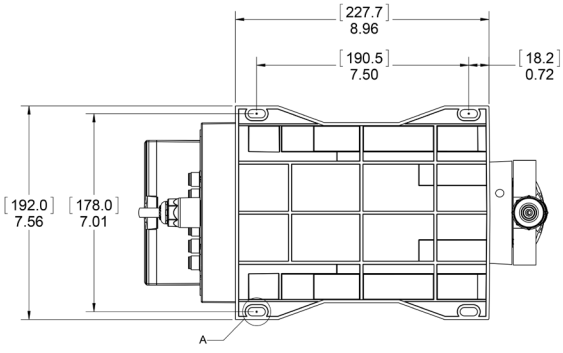
Drive Sizes: ERBx2x, ERBx3x



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

Literature #54815.01

©2016 Milton Roy, LLC. All rights reserved.

We are a proud member of Accudyne Industries, a leading global provider of precision-engineered, process-critical and technologically advanced flow control systems and industrial compressors. Delivering consistently high levels of performance, we enable customers in the most important industries and harshest environments around the world to accomplish their missions.

Accudyne INDUSTRIES

Contact your local representative to find out more about PROTEUS™ the intelligent chemical metering pump.

Americas

201 Ivyland Road
Ivyland, PA 18974, USA

info@miltonroy.com
www.miltonroy.com
www.proteuspumps.com

Europe, Middle East, Africa

10 Grande Rue
27360 Pont-Saint-Pierre, France
Tel: +33-(0) 2-32-68-3000
Fax: +33-(0) 2-32-68-3093

mr14.contact@miltonroy.com
www.miltonroy-europe.com

Asia

510 Thompson Road
#13-01, SLF Building
Singapore 298135
Tel: (65) 6568-2800
Fax: (65) 6259-9897

salesaccsg@miltonroy.com
www.miltonroy.com.sg

Building 1, No. 879 Shen Fu Road
XinZhuang Industrial Zone
Min Hang District
Shanghai, China 201108
Tel: 8621 6121 1600
Fax: 8621 5442 5265

marketing.mris@miltonroy.com
www.miltonroy.com.cn

Plot No: P 45/1
Domestic Tariff Area 8th Avenue
Mahindra World City
Chengalpattu - 603 002, India
Tel: 91-44-2225-4000 to 3
Fax: 91-44-2225-4004

miltonroyindia@vsnl.net
www.miltonroyindia.com

PROTEUS is a trademark of Milton Roy, LLC
© 2016 Milton Roy, LLC. All Rights Reserved.

YouTube

MILTON ROY®
an Accudyne Industries brand

Literature #54815.01