

314 Rapid Load Pump Heads Single-Channel, 4-Roller

Features

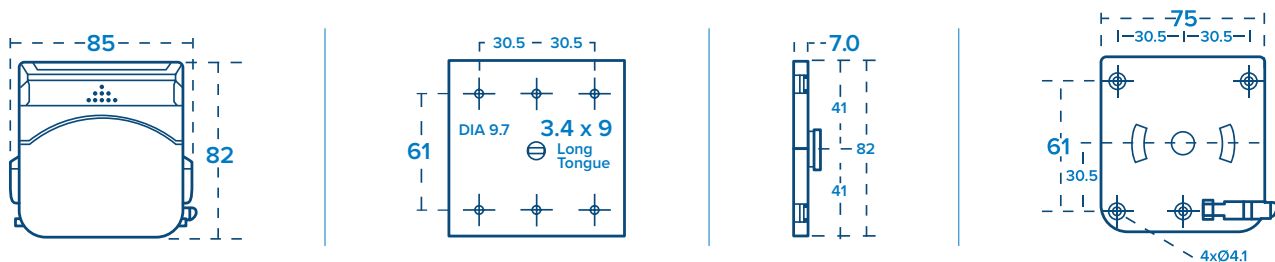
- Flip-top design provides fast and easy tubing changes
- Four-roller rotor for higher performance and less pulsation
- Designed for up to 1200 mL/min continuous or 2400 mL/min intermittent use
- Mount to 300 series drives with 314DW and 314DW2 pump heads without bayonet plate adapter
- Attach 314D and 314D2 pump heads to non-Watson-Marlow drives with bayonet plate
- Increase pumping capacity by adding 314X and 314X2 extension pump heads
 - Add up to five extension pump heads*
- One-year comprehensive warranty



WARNING: This product is not approved or intended for, and should not be used for, medical, clinical, surgical, or other patient-oriented applications.

*The number of extension pump heads allowed depends on the type and size of tubing being used.

300 SERIES TECHNICAL DRAWINGS



USA	+1.800.323.4340
	+1.847.549.7600
Canada	+1.800.363.5900
China	+86.21.5109.9909
India	+1.800.266.1244

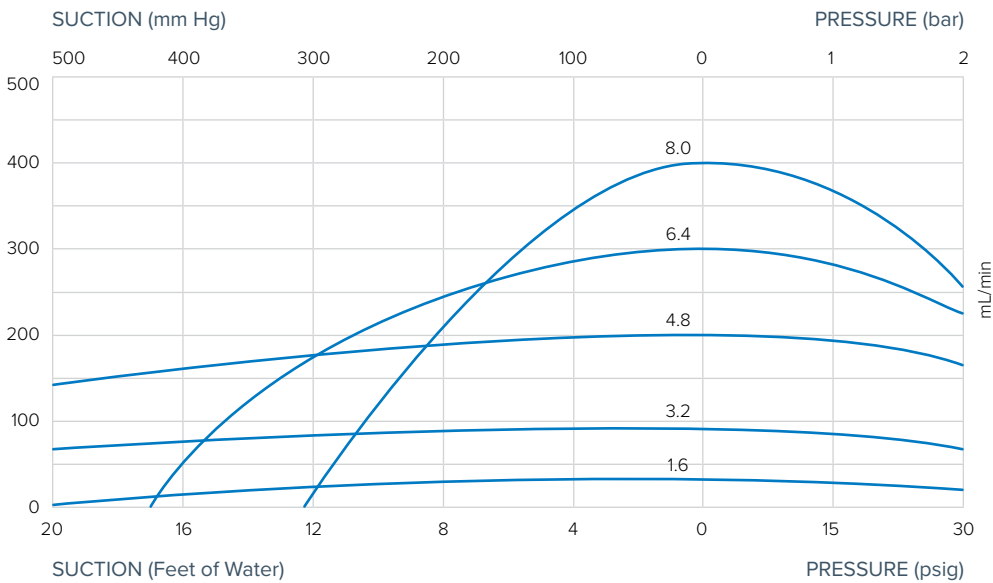
UK	+44 (0) 1480.272279
	+33 (0) 1.87.170142*
	+49 (0) 937.792030*
Italy	+39.02.84349215
All others	+1.847.549.7600

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*Inquiries from Germany and France are now handled in our St. Neots office by native-speaking experts.

Performance

323 drive with 314D pump head, 1.6 mm wall tubing — tube bore and flow rates (mL/min)							
	0.5 mm (1/50")	0.8 mm (1/32")	1.6 mm (1/16")	3.2 mm (1/8")	4.8 mm (3/16")	6.4 mm (1/4")	8 mm (5/16")
15 to 220 rpm	0.05 to 6.6	0.09 to 13	0.38 to 55	1.3 to 190	2.9 to 420	4.5 to 660	6 to 880
3 to 400 rpm	0.09 to 12	0.18 to 24	0.75 to 100	2.6 to 340	5.7 to 760	9 to 1200	12 to 1600
15 to 400 rpm	0.45 to 12	0.90 to 24	3.8 to 100	13 to 340	29 to 760	45 to 1200	60 to 1600



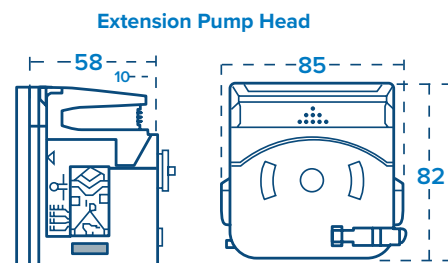
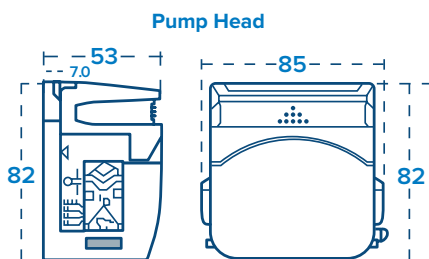
CONDITIONS

- Suction curves obtained with zero output pressure
- Pressure curves obtained with zero lift
- Pump head speed 100 rpm

CONVERSION FACTORS

- Suction pressure in bar $\times 747.7 =$ mm Hg
- Suction pressure in bar $\times 33.5 =$ ft H₂O
- Back pressure in bar $\times 14.5 =$ psi

Technical Drawings



Technical Specifications

1.6 mm wall thickness tubing							
Tube bore (mm)	0.5	0.8	1.6	3.2	4.8	6.4	8.0
mL/rev	0.03	0.06	0.25	0.85	1.9	3	4
Max continuous speed (rpm)	400	400	400	400	400	400	400
Max intermittent speed (rpm)	600	600	600	600	600	600	600
With silicone tubing*							
Required torque up to 0.5 bar kgcm	1.1	1.1	1.7	2.3	2.9	3.5	4.0
Required torque up to 2.0 bar kgcm	1.5	1.5	2.1	3.2	4.3	5.2	6.7
Max continuous pressure; bar	2.0	2.0	1.5	1.5	1.0	1.0	1.0
Max intermittent pressure; bar	2.5	2.5	2.0	2.0	1.3	1.3	1.3

* [Watson-Marlow Pumpsil® Platinum-Cured Silicone Pump Tubing](#)

Materials of Construction

Component	Material
Pump head body assembly	Glass-filled polypropylene, polyacrylamide—IXEF® (PARA), stainless steel
Pump head track	Polyacrylamide—IXEF® (PARA)
Pump head rotor assembly	Electroless nickel-plated hardened steel, glass-filled nylon
Pump head roller assembly	MoS2-filled nylon 6 (Nylatron®)
Sealed bearings	Carbon steel

Ordering Information

Pump heads		
Model	Description	Item number
314D	Rapid Load Pump Head for 1.6 mm Wall Tubing, With Bayonet Plate	50142-09
314DW	Rapid Load Pump Head for 1.6 mm Wall Tubing, Without Bayonet Plate	50130-15
314X	Extension Rapid Load Pump Head for 1.6 mm Wall Tubing	50130-14
314D2	Rapid Load Pump Head for 2.4 mm Wall Tubing, With Bayonet Plate	50142-11
314DW2	Rapid Load Pump Head for 2.4 mm Wall Tubing, Without Bayonet Plate	50142-12
314X2	Extension Rapid Load Pump Head for 2.4 mm Wall Tubing	50142-13
314D/A	Rapid Load Pump Head for 1.6 mm Wall Tubing, For 500-Series Drive	50142-10
314D2/A	Rapid Load Pump Head for 2.4 mm Wall Tubing, For 500-Series Drive	50142-14
300 series drives		
Model	Description	Item number
323E	Variable-Speed Pump Drive, Manual Control, 15 to 400 rpm; US Plug	50142-15
323S	Variable-Speed Pump Drive, Manual Control, 3 to 400 rpm; US Plug	50130-20
323S	Variable-Speed Pump Drive, Manual Control, 3 to 400 rpm; UK Plug	50131-90
323S	Variable-Speed Pump Drive, Manual Control, 3 to 400 rpm; EU Plug	50131-80
323U	Variable-Speed Pump Drive, Analog/Manual Control, 3 to 400 rpm; US Plug	50142-16
323Du	Variable-Speed Pump Drive, RS-232/Analog/Manual Control, 3 to 400 rpm; US Plug	50130-21
323Du	Variable-Speed Pump Drive, RS-232/Analog/Manual Control, 3 to 400 rpm; UK Plug	50131-82
323Du	Variable-Speed Pump Drive, RS-232/Analog/Manual Control, 3 to 400 rpm; EU Plug	50131-81
323Dz	Variable-Speed Dispensing Pump Drive, Remote/Manual Control, 2 to 400 rpm; US Plug	50142-17



All flow rates shown were obtained pumping water at 20 °C (68 °F) with zero suction and delivery heads. Watson-Marlow is a trademark of Watson-Marlow Limited. The information contained in this document is believed to be correct but Cole-Parmer accepts no liability for any errors it contains, and reserves the right to alter specifications without notice. Please state the item number when ordering pumps and tubing.