

120 Drive with 400DM3 Pumphead



100 series cased pump

Features and benefits

- Smooth, wipe down case with no sharp edges to tear gloves and no bug traps. IP31 ingress protection
- Superior speed control up to 2,000:1, $\pm 1\%$ set speed accuracy, repeatable flow
- Efficient and intuitive to use, requiring minimal key presses
- Compact footprint requires minimal benchtop space
- Maintenance-free, brushless DC motor
- 3 channel pumphead
- Automatic variable speed, Manual variable speed options
- Three-year warranty



120 Drive with 400DM3 Pumphead performance

400DM3 (three channel) pumphead for manifold tubing — Tube bore and flow rates per channel (ml/min)						
	Speed rpm	0.13mm	0.19mm	0.25mm	0.38mm	0.50mm
120S	1 – 100rpm	0.001-0.1	0.002-0.2	0.004-0.4	0.008-0.8	0.014-1.4
120U	0.1 – 100rpm	0.0001-0.1	0.0002-0.2	0.0004-0.4	0.0008-0.8	0.001-1.4
	Speed rpm	0.64mm	0.76mm	0.89mm	1.02mm	1.14mm
120S	1 – 100rpm	0.022-2.2	0.031-3.1	0.043-4.3	0.055-5.5	0.070-7.0
120U	0.1 – 100rpm	0.002-2.2	0.003-3.1	0.004-4.3	0.006-5.5	0.007-7.0
	Speed rpm	1.30mm	1.42mm	1.52mm	1.65mm	1.85mm
120S	1 – 100rpm	0.089-8.9	0.110-11	0.120-12	0.140-14	0.180-18
120U	0.1 – 100rpm	0.009-8.9	0.011-11	0.012-12	0.014-14	0.018-18
	Speed rpm	2.06mm	2.29mm	2.54mm	2.79mm	
120S	1 – 100rpm	0.210-21	0.250-25	0.310-31	0.360-36	
120U	0.1 – 100rpm	0.021-21	0.025-25	0.031-31	0.036-36	

Technical specifications

120 Drive with 400DM3 Pumphead	
Pumphead number of channels	3
Max. flow rate	36 ml/min
Min. flow rate	0.0001 ml/min
Max. flow rate	3.04 USGPH
Min. flow rate	0.00002 USGPH
Max. operating pressure	2 bar
Max. operating pressure	30 psi
Speed control ratio	100:1, 1000:1
Max. operating speed	100 rpm
Min. operating speed	0.1 rpm
Operating temperature range	5 to 40 °C
Operating temperature range	40 to 104 °F
Weight	1.7 kg
Weight	3.7 lbs
Control options	Automatic variable speed, Manual variable speed
Standards	CE, cETLus
Ingress rating	IP31, NEMA 2
Humidity	(Non-condensing) 80 % up to 31 °C (88 °F) decreasing linearly to 50 % at 40 °C (104 °F)
Noise	<60dB(A) at 1 m
Max. altitude	2000 m
Power supply	Supplied with 24 VDC mains transformer plug (range 90-264 VAC 47-63 Hz) which comes with multi-country adaptors

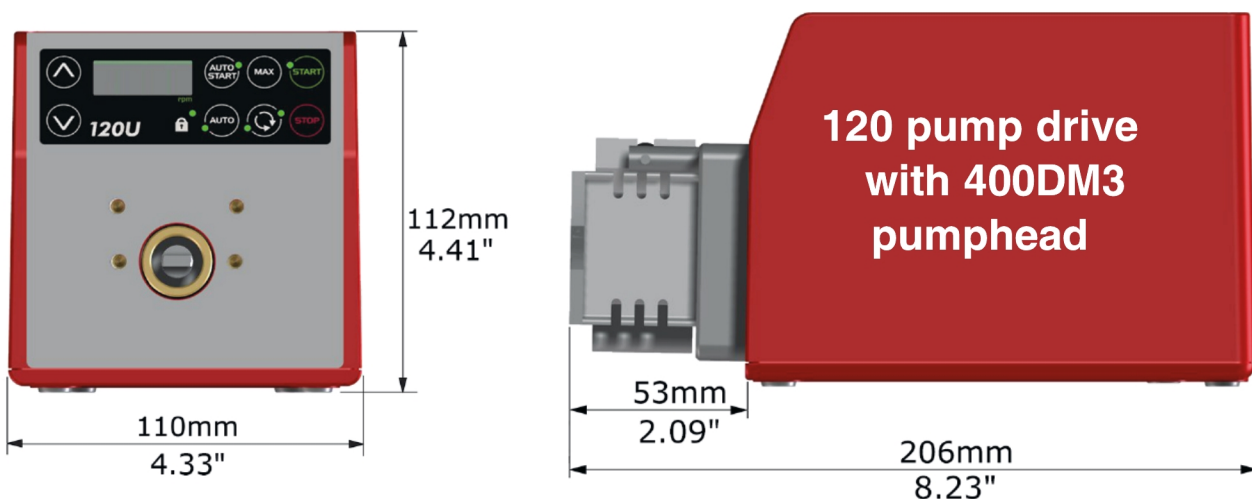
Materials of construction

120 Drive with 400DM3 Pumphead	
Drive shaft	Stainless steel
Drive casework	ABS plastic
Keypad/HMI	Polyester
Pumphead guard	Polyethylene (PETG)
Pumphead roller assembly	Acetal
Pumphead rotor assembly	Aluminium (anodised)
Pumphead track	Aluminium (anodised)
Spindles	Stainless steel

Information listed covers the complete range.

For detailed specifications of individual models/components refer to user manual or contact WMFTS representative.

120 Drive with 400DM3 Pumphead dimensions

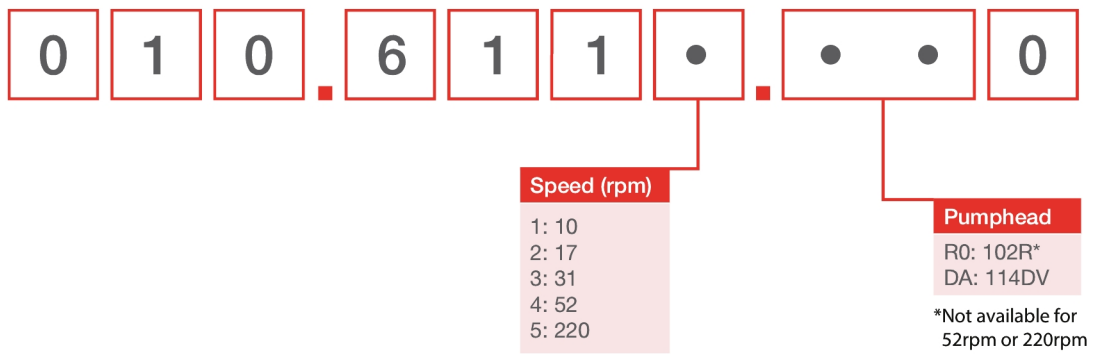


Control options

Key to pump drive control											
120F			120S				120U				
Fixed speed			Manual variable speed				Auto variable speed				
Manual control											
Pump drives									120F	120S	120U
Fixed speed (CW direction)									✓		
Variable speed 1rpm increments										✓	
Variable speed 0.1rpm increments											✓
Numerical speed display										✓	✓
Direction change										✓	✓
Max (prime)										✓	✓
Auto start										✓	✓
Remote control and feedback											
Pump drives									120F	120S	120U
Run/stop, direction change, auto/man toggle, alarm											✓
Analogue control											
Pump drives									120F	120S	120U
Variable speed 0.1rpm increments											✓
Analogue speed input; 4-20mA, 0-10V											✓
Tacho speed output; 0-5V											✓
Security											
Pump drives									120F	120S	120U
Keypad lock to protect set-up										✓	✓
Control Ratio											
	120F	120S					120U				
Pumphead	N/A	102R	114DV	400D1	400DM2	400DM3	102R	114DV	400D1	400DM2	400DM3
Manual	Fixed	1-32 rpm (32:1)	1-200 rpm (200:1)	1-200 rpm (200:1)	1-100 rpm (100:1)	1-100 rpm (100:1)	0.1-32 rpm (320:1)	0.1-200 rpm (2,000:1)	0.1-200 rpm (2,000:1)	0.1-100 rpm (1,000:1)	0.1-100 rpm (1,000:1)
Automatic	N/A	N/A	N/A	N/A	N/A	N/A	0.01-32 rpm (3,200:1)	0.01-200 rpm (20,000:1)	0.01-200 rpm (20,000:1)	0.01-100 rpm (10,000:1)	0.01-100 rpm (10,000:1)

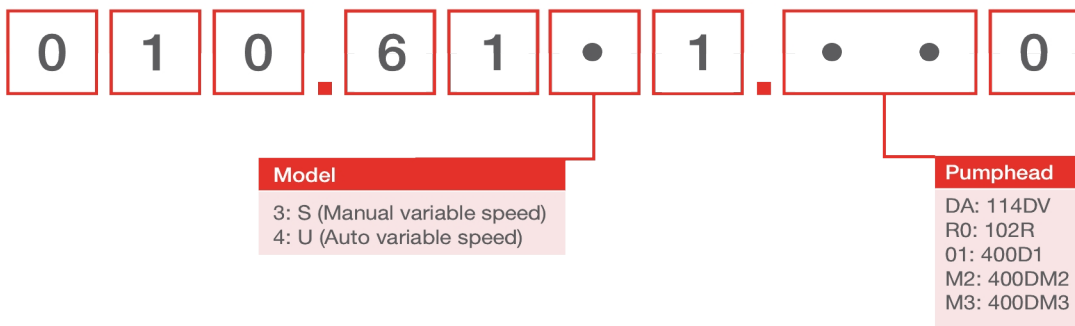
Product codes

120F



Note: All models are IP31 / NEMA 2

120S, 120U



Product codes

Pumphead product codes		
Model	Description	Product code
400DM3	400DM3 pumphead kit, 3 channel	043.001D.D3C
120 PSU	120V PSU kit 1A	MN2634B

Notes:

The pumpheads can only be sold as 120 replacement heads

The pumpheads are not interchangeable between drive models as they use different shaft designs

Tubing for DM3 pumphead				
Colour code	Bore (mm)	Pharmed® BPT	Tygon® E3603	Tygon® E-LFL
orange/black	0.13		981.A013.072	
orange/blue	0.25	979.A025.072	981.A025.072	988.A025.072
orange/green	0.38	979.A038.072	981.A038.072	988.A038.072
green/yellow	0.44		981.A044.072	
orange/yellow	0.51	979.A051.072	981.A051.072	988.A051.072
white/yellow	0.57		981.A057.072	
orange/white	0.64	979.A064.072	981.A064.072	988.A064.072
black/black	0.76	979.A076.072	981.A076.072	988.A076.072
orange/orange	0.89	979.A089.072	981.A089.072	988.A089.072
white/black	0.95		981.A095.072	
white/white	1.02	979.A102.072	981.A102.072	988.A102.072
white/red	1.09		981.A109.072	
red/red	1.14	979.A114.072	981.A114.072	988.A114.072
red/grey	1.22		981.A122.072	
grey/grey	1.30		981.A130.072	988.A130.072
yellow/yellow	1.42	979.A142.072	981.A142.072	988.A142.072
yellow/blue	1.52	979.A152.072	981.A152.072	988.A152.072
blue/blue	1.65	979.A165.072	981.A165.072	988.A165.072
blue/green	1.75		981.A175.072	
green/green	1.85	979.A185.072	981.A185.072	988.A185.072
purple/purple	2.06	979.A206.072	981.A206.072	988.A206.072
purple/black	2.29	979.A229.072	981.A229.072	988.A229.072
purple/orange	2.54	979.A254.072	981.A254.072	988.A254.072
purple/white	2.79	979.A279.072	981.A279.072	988.A279.072

Disclaimer: All flow rates shown were obtained pumping water at 20 °C (68 °F) with zero suction and delivery heads. The information contained in this document is believed to be correct but Watson-Marlow Limited accepts no liability for any errors it contains and reserves the right to alter specifications without notice. It is the user's responsibility to ensure product suitability for use within their application. Watson-Marlow, LoadSure, Pumpsil, PureWeld XL, Bioprene, Marprene are registered trademarks of Watson-Marlow Limited. Tri-Clamp is a registered trademark of Alfa Laval Corporate AB. GORE and STA-PURE are registered trademarks of W.L. Gore and Associates. Please state the product code when ordering pumps and tubing.

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