

# Drive with 102R Pumphead



100 series cased pump

## Features and benefits

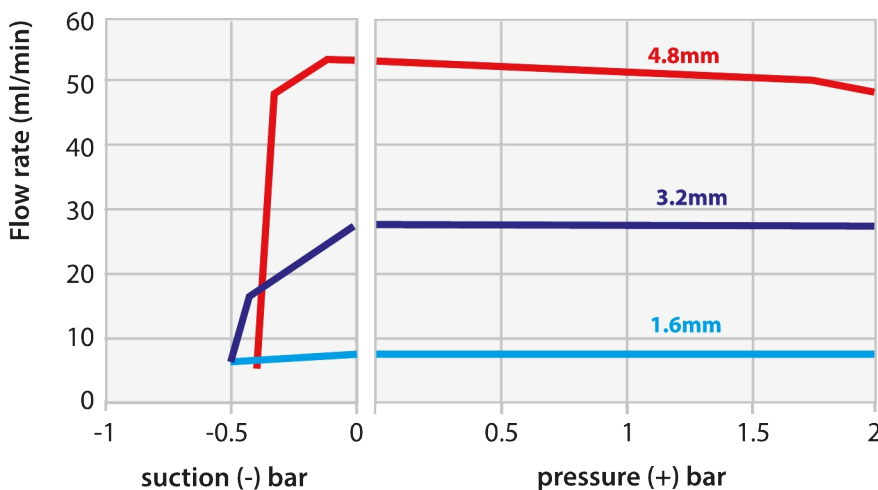
- Smooth, wipe down case with no sharp edges to tear gloves and no bug traps. IP31 ingress protection
- Superior speed control up to 2,000:1,  $\pm 1\%$  set speed accuracy, repeatable flow
- Efficient and intuitive to use, requiring minimal key presses
- Compact footprint requires minimal countertop space
- Maintenance-free, brushless DC motor
- Single, twin or three channels of flow
- Manual, remote or auto control
- Three-year warranty



## Drive with 102R Pumphead performance

102R pumphead for continuous tubing for fixed (120F) speed pumps — Tube bore and flow rates (ml/min)						
	Speed rpm	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm
Pumpsil (Silicone)	10rpm	0.3	0.5	2.1	8.5	17
	17rpm	0.5	0.9	3.6	14	29
	31rpm	0.9	1.6	6.5	26	52
102R pumphead for continuous tubing for manual (120S) and auto (120U) variable speed pumps — Tube bore and flow rates (ml/min)						
	Speed rpm	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm
Pumpsil (Silicone)	1 - 32rpm	0.03-0.9	0.05-1.6	0.21-6.7	0.85-27	1.6-54
	0.1 - 32rpm	0.003-0.9	0.005-1.6	0.021-6.7	0.085-27	0.16-54

Pumpsil 102R pumphead CCW 32rpm



Flows obtained pumping water at 100rpm CCW-rotation  
Typically 25% less pressure capacity in the CW direction

## Technical specifications

	Drive with 102R Pumphead
Pumphead number of rollers	2
Pumphead number of channels	1
Max. flow rate	54 ml/min
Min. flow rate	0.003 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	32:1, 320:1
Max. operating speed	32 rpm
Min. operating speed	0.1 rpm
Operating temperature range	5 to 40 °C
Operating temperature range	40 to 104 °F
Weight	1.55 kg
Weight	3.4 lbs
Control options	Automatic variable speed, Fixed 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 40C (104F)
Noise	<60dB(A) at 1 m
Max. altitude	2000
Power supply	Supplied with 24 VDC mains transformer plug (range 90-264 VAC 47-63 Hz) which comes with multi-country adapters

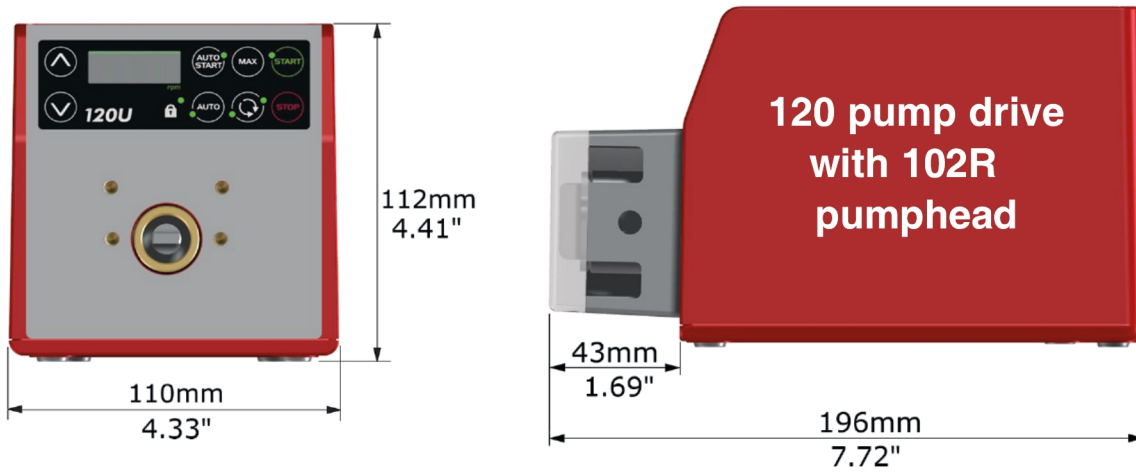
## Materials of construction

	Drive with 102R Pumphead
Drive shaft	Stainless steel
Drive casework	ABS plastic
Keypad/HMI	Polyester
Pumphead guard	Polycarbonate
Pumphead roller assembly	MoS2 filled Nylon 6 (Nylatron)
Pumphead rotor assembly	IXEF (Polyarylamide)
Pumphead track	Acetal copolymer (Kematal), PVDF
Spindles	Stainless steel

Information listed covers the complete range.

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

## Drive with 102R Pumphead dimensions

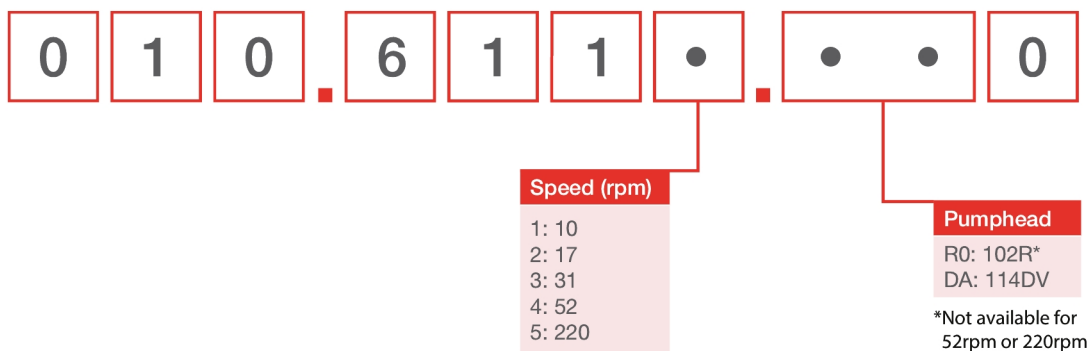


## Control options

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

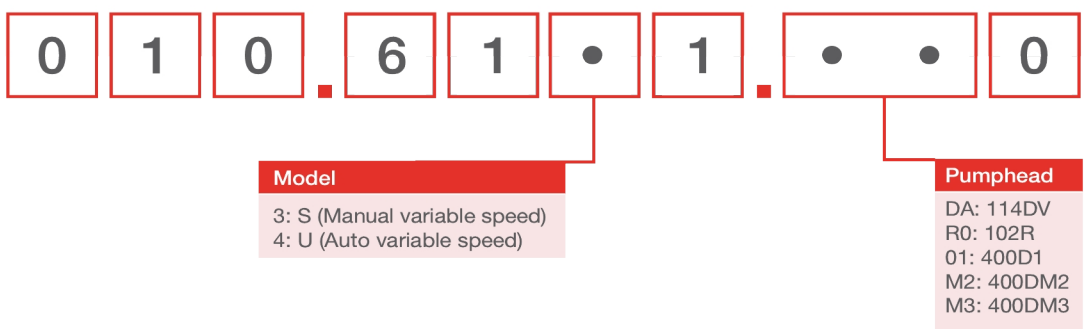
## Product codes

### 120F



Note: All models are IP31 / NEMA 2

### 120S, 120U



## Product codes

Pumphead product codes		
Model	Description	Product code
102R	102R single channel pumphead (8mm shaft)	013.7101.000
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 1.6mm wall thickness for 102R pumphead					
	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm
Pumpsil	913.A005.016	913.A008.016	913.A016.016	913.A032.016	913.A048.016

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 users 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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