

**630S, 630SN, 630U, 630UN, 630Du, 630DuN,
630Bp, 630BpN, 630US, 630DuS, 630En,
630EnN, 630Pn and 630PnN Pumps**

600

series
Watson-Marlow Pumps

FEATURES AND BENEFITS

- Colour display and intuitive menu structures provide visual status indication and minimal key presses
- Flow rates from 0.001 L/min (0.0002 USGPM) to 18 L/min (4.76 USGPM) depending on model and pumphead/tubing options
- 620R, 620RE, 620RE4, 620L and 620LG pumpheads available
- 2650:1 speed control range from 0.1 to 265 rpm in 0.1 rpm increments
- Keypad incorporates 3-level security PIN lock
- IP31 (NEMA 2) and IP66 (NEMA 4X) cased pumps
- Dual voltage, 115 V/230 V 50/60 Hz
- Remote Analogue/Digital, RS232, RS485, PROFIBUS®, PROFINET®, SCADA and EtherNet/IP™ control options



Watson-Marlow...Innovation in Full Flow

PERFORMANCE: 620R—PUMPHEAD FOR CONTINUOUS TUBING

- Twin roller pumphead for continuous 3.2 mm wall tubing



Tube bore and flow rates—L/min (USGPH)		Continuous tubing, 620R (2 rollers)			
Tube material	Speed	6.4 mm	9.6 mm	12.7 mm	15.9 mm
Marprene® TL, Bioprene® TL	0.1-265 rpm	0.001-3.4 (0.02-53.9)	0.003-6.6 (0.05-105)	0.004-11 (0.06-174)	0.005-12 (0.08-190)
Pumpsil®	0.1-265 rpm	0.001-3.2 (0.02-50.7)	0.003-7.2 (0.05-114)	0.004-11 (0.06-174)	0.01-15 (0.16-238)
GORE® STA-PURE® Pump Tubing – Series PFL, Neoprene	0.1-265 rpm	0.001-3.2 (0.02-50.7)	0.003-6.6 (0.05-105)	0.004-11 (0.06-174)	0.006-16 (0.1-254)

PERFORMANCE: 620RE/RE4— PUMPHEADS FOR LOADSURE ELEMENTS

- RE—2 roller pumphead
- RE4—4 roller low pulse pumphead
- LoadSure elements for use with quick release industrial or sanitary tri-clamp connections



Tube bore and flow rates—L/min (USGPH)		LoadSure™ elements, 620RE (2 rollers)	
Tube material	Speed	12 mm	17 mm
Marprene® TM, Bioprene® TM	0.1-265 rpm	0.004-11 (0.06-174)	0.01-16 (0.16-254)
Marprene® TL, Bioprene® TL	0.1-265 rpm	0.004-11 (0.06-174)	0.01-18 (0.16-285)
Pumpsil®	0.1-265 rpm	0.004-10 (0.06-159)	0.01-16 (0.16-254)
GORE® STA-PURE® Pump Tubing – Series PFL, Neoprene	0.1-265 rpm	0.004-11 (0.06-174)	0.01-19 (0.16-301)

Tube bore and flow rates—L/min (USGPH)		LoadSure™ elements, 620RE (4 rollers)	
Tube material	Speed	12 mm	17 mm
Marprene® TM, Bioprene® TM	0.1-265 rpm	0.003-8.3 (0.05-132)	0.004-11 (0.06-174)
Marprene® TL, Bioprene® TL	0.1-265 rpm	0.003-8.3 (0.05-132)	0.005-12 (0.08-190)
Pumpsil®	0.1-265 rpm	0.003-8.7 (0.05-138)	0.004-11 (0.06-174)
GORE® STA-PURE® Pump Tubing – Series PFL, Neoprene	0.1-265 rpm	0.003-9 (0.05-143)	0.005-13 (0.08-206)

PERFORMANCE: 620L/LG—TWIN CHANNEL LOW PULSE PUMPHEADS



Tube bore and flow rates—L/min (USGPH)		Y element tubing			Continuous tubing (flow per channel - max of 2 channels)		
Tube material	Speed	8.0 mm	12.0 mm	16.0 mm	8.0 mm	12.0 mm	16.0 mm
Pumpsil®	0.1-265 rpm	0.002-4.4 (0.03-69.7)	0.003-8.5 (0.05-135)	0.005-11.5 (0.08-182)	0.001-2.2 (0.02-34.9)	0.002-4.3 (0.03-68.2)	0.003-5.8 (0.05-91.9)
Marprene®, Bioprene®	0.1-265 rpm	0.002-4.5 (0.03-71.3)	0.003-8.0 (0.05-127)	0.005-11.3 (0.08-179)	0.001-2.3 (0.02-36.5)	0.002-4.0 (0.03-63.4)	0.003-5.7 (0.05-90.3)
Neoprene	0.1-265 rpm	0.002-4.6 (0.03-72.9)	0.003-7.7 (0.05-122)	0.005-13.3 (0.08-211)	0.001-2.3 (0.02-36.5)	0.002-3.9 (0.03-61.8)	0.003-6.7 (0.05-106)
GORE® STA-PURE® Pump Tubing Series PFL, GORE® STA-PURE® Pump Tubing Series PCS (620LG pumphead only)	0.1-265 rpm	0.002-5.2 (0.03-82.4)	0.003-9.0 (0.05-143)	0.005-12.4 (0.08-197)	0.001-2.6 (0.02-41.2)	0.002-4.5 (0.03-71.3)	0.003-6.7 (0.05-106)

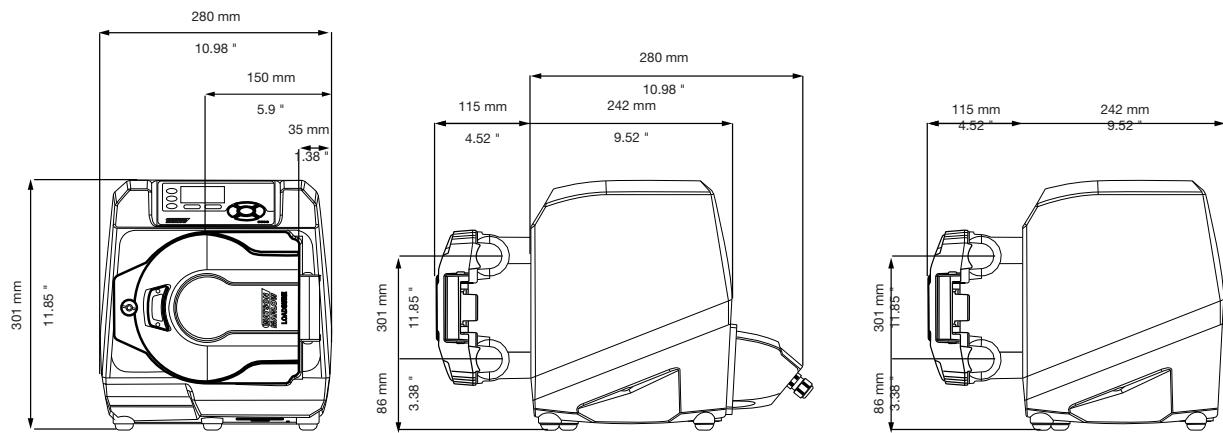
TECHNICAL DATA

Pump drives	630S	630SN	630U	630UN	630Du	630DuN	630Bp	630BpN	630US	630DuS	630En	630EnN	630Pn	630PnN
Model	Standard	Standard IP66 / NEMA 4X	Universal	Universal IP66 / NEMA 4X	Digital Universal	Digital Universal IP66 / NEMA 4X	Bus Pump / PROFIBUS®	Bus Pump / PROFIBUS® IP66 / NEMA 4X	Universal SCADA / IP66 / NEMA 4X	Digital Universal SCADA / IP66 / NEMA 4X	EtherNet/IP™	EtherNet/IP™ / IP66 / NEMA 4X	PROFINET®	PROFINET® / IP66 / NEMA 4X
Manual control														
Intuitive keypad and colour display	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Choice of flowrate or speed display	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Full calibration with choice of flow units	•	•	•	•	•	•	•	•	•	•	•	•	•	•
MemoDose function	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Auto restart facility	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Guard switch detection	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Leak detection			•	•	•	•	•	•	•	•	•	•	•	•
Dispensing (Network Control)														
Pump drives	630S	630SN	630U	630UN	630Du	630DuN	630Bp	630BpN	630US	630DuS	630En	630EnN	630Pn	630PnN
Remote control														
Configurable Start/Stop, leak detector and pressure switch input via contact closure or 5 V TTL or 24 V industrial logic			•	•	•	•					•	•	•	•
Configurable Start/Stop, leak detector and pressure switch input via 110 V industrial logic										•	•			
Direction change and auto/manual toggle input via contact closure or 5 V TTL or 24 V industrial logic			•	•	•	•								
Direction change and auto/manual toggle input via 110 V industrial logic										•	•			
Remote operation of MemoDose (foot/hand-switch or logic input)		•	•	•	•	•								
Four configurable digital status outputs through 24 V, 30 W relays				•		•								
Four configurable digital status outputs through 110 V relays									•	•				
Menu configurable logic outputs			•		•						•	•	•	•
Remote pressure/flow sensors														
Pump drives	630S	630SN	630U	630UN	630Du	630DuN	630Bp	630BpN	630US	630DuS	630En	630EnN	630Pn	630PnN
Analogue speed control														
Fully configurable inputs; 0-10 V or 4-20 mA		•	•	•	•	•			•	•				
Analogue outputs; 0-10 V, 4-20 mA		•	•	•	•	•			•	•				
Keypad/analogue input scaling (replacement of diaphragm pumps)					•	•				•				
Tacho frequency output; 0-1478 Hz			•	•	•	•					•	•	•	•
2x sensor inputs 4-20 mA*														
Pump drives	630S	630SN	630U	630UN	630Du	630DuN	630Bp	630BpN	630US	630DuS	630En	630EnN	630Pn	630PnN
Security														
3-level Security PIN lock	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Pump drives	630S	630SN	630U	630UN	630Du	630DuN	630Bp	630BpN	630US	630DuS	630En	630EnN	630Pn	630PnN
Network communication														
RS485 network control							•				•			
RS232 network control						•								
Pump drives	630S	630SN	630U	630UN	630Du	630DuN	630Bp	630BpN	630US	630DuS	630En	630EnN	630Pn	630PnN
Digital pump commands (PROFIBUS®/PROFINET®/EtherNet/IP™)														
PROFIBUS® DP V0								•	•					
PROFINET® (CC-B & Netload Class III)													•	•
EtherNet/IP™										•	•			
Communication speeds from 9.6 kbits/s up to 12000 kbits/s								•	•					
Network speed: 10/100 Mbps - Full Duplex Operation											•	•		
Network speed: 100 Mbps - Full Duplex Operation												•	•	
Auto-detect bus speed								•	•					
Speed set point								•	•		•	•	•	•
Speed feedback								•	•		•	•	•	•
Flow calibration function								•	•		•	•	•	•
Hours run								•	•		•	•	•	•
Revolution counter								•	•		•	•	•	•
Leak detection								•	•		•	•	•	•
Low fluid level alarm								•	•		•	•	•	•
Diagnostic feedback								•	•		•	•	•	•
Flow Totaliser										•	•	•	•	•
Sensor scaling										•	•	•	•	•
Dispensing (Network Control)**										•	•	•	•	•

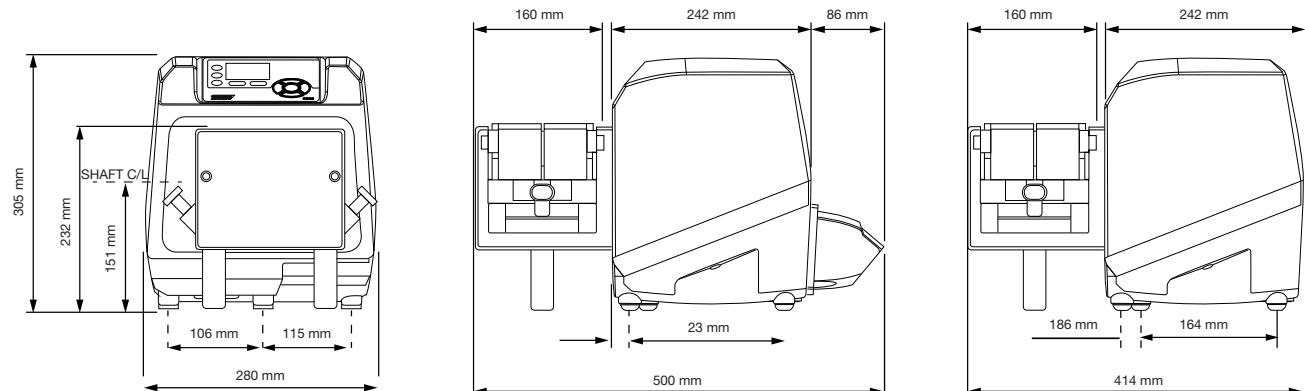
*Range of 3rd party pressure/flow sensors supported—see compatible sensor list on www.wmftg.com/literature

**Dispensing (Network/Manual) - Store up to 100 recipes locally or via network control. Features include volume, flow rate, anti-drip, ramp and time delays. Run these as batches using local, network or manual keypad control.

DIMENSIONS - 620R/RE/RE4 PUMPHEADS



DIMENSIONS - 620L/LG PUMPHEADS



TECHNICAL SPECIFICATION

	630SN, 630UN, 630DuN, 630US, 630DuS	630BpN	630EnN	630PnN	630S, 630U, 630Du	630Bp	630En	630Pn
Ingress rating	IP66 / NEMA 4X				IP31 / NEMA 2			
Enclosure	Watertight/dustproof				Wipe-down			
Suitability	Corrosion-resistant for heavy industrial environments				Dry industrial environments with non-corrosive atmosphere			
Humidity	(Non-condensing) 80 % to 31 °C (88 °F), decreasing linearly to 50 % at 40 °C (104 °F)		(Condensing) 10-100 % RH		(Non-condensing) 80 % to 31 °C (88 °F), decreasing linearly to 50 % at 40 °C (104 °F)			
Temperature	5 °C to 40 °C (40 °F to 104 °F)							
Pump weight (R/RE pumphead)	20.5 kg (45 lb 3 oz)				19.7 kg (43 lb 3 oz)			
Pump weight (RE4 pumphead)	21.0 kg (46 lb 5 oz)				20.1 kg (44 lb 5 oz)			
Pump weight (L/LG pumphead)	25.2 kg (55 lb 9 oz)				24.3 kg (53 lb 9 oz)			
Speed control ratio	2650:1							
Torque rating	6 Nm, continuous duty							
PROFIBUS® connection	N/A	9 - PIN D SKT	N/A	N/A	N/A	9 - PIN D SKT	N/A	N/A
EtherNet/IP™ connection	N/A		2x SKT M12D	N/A	N/A		2x SKT RJ45, 1x 9-Pin D SKT	N/A
PROFINET® connection	N/A		N/A	2x SKT M12D	N/A		N/A	2x SKT RJ45, 1x 9-Pin D SKT
RoHS compliant	Yes							
Noise	<70 dB(A) at 1 m							
Standard	CE, cETLus, IRAM, C-Tick, NSF/ANSI 61 (for Marpene tubing & loadsure elements)							
Power supply	100-120 V/200-240 V 1 ph 50/60 Hz 250 VA							

MATERIALS OF CONSTRUCTION

Component	620R/RE/RE4	620L/LG
Keypad	Polyester	
Switch-plate	ABS PA-765	
Rear blanking plate	Stainless steel 316	
Drive casework	Pressure die-cast aluminium (top - LM6, base - LM24)	
Case work and guard coating	Exterior grade polyester powder coat	Alocrom pre-treatment, exterior grade polyester powder coat
Drive shaft	Stainless steel 440C	
Pumphead track	Powder coated aluminium LM24	Aluminium alloy NS4 anodised
Front/back plates	N/A	Aluminium alloy HS30
Pumphead coating	N/A	Polyester epoxy powder
Track spindles	N/A	Stainless steel 303S31
Rotor body/Tube clamps	N/A	Aluminium alloy HE30
Guard	Pressure die-cast aluminium LM24	N/A
Rotor hub, roller arms	Fortron 1140L4 (PPS)	N/A
Rotor cover	Dupont Hytrel G5544	N/A
Rollers – main	Stainless steel 303/Nylatron	Stainless steel 316
Rollers – guide	Nylatron	Stainless steel 316
Main roller bearings	Carbon steel	
Tube clamp sets	Polypropylene	N/A
Y element connector	N/A	Stainless steel 303S31

ORDER INFORMATION

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Model

- 3: S
- 4: U
- 5: Du
- 6: Bp
- 8: En
- 9: Pn

Ingress Protection

- 1: IP31 / NEMA 2
- N: IP66 / NEMA 4X
- S: SCADA IP66 / NEMA 4X*

*U and Du models only

*Only available with American mains plug

Pumphead

- 02: 620R*
- E2: 620RE*
- E4: 620RE4*
- 5L: 620L
- 5G: 620LG

*Not available for US or DuS models.

Plug options

- U: UK mains plug
- E: EU mains plug
- A: American mains plug
- K: Australia mains plug
- R: Argentina mains plug
- C: Swiss mains plug
- D: India/South Africa mains plug
- B: Brazilian mains plug

*Special NEMA module 069.911F.100 Ethernet Watertight Module (630F) IP66 NEMA 4X is required for KROHNE flow sensor, combined with IP31 pump

*Special NEMA module 069.919F.100 PROFINET Watertight Module (630F) IP66 NEMA 4X is required for KROHNE flow sensor, combined with IP31 pump

620R	Continuous tubing			
	6.4 mm	9.6 mm	12.7 mm	15.9 mm
STA-PURE® Series PFL	966.0064.032	966.0096.032	966.0127.032	966.0159.032
STA-PURE® Series PCS	961.0064.032	961.0096.032	961.0127.032	961.0159.032
Bioprene® TL	933.0064.032	933.0096.032	933.0127.032	933.0159.032
Marprene® TL	902.0064.032	902.0096.032	902.0127.032	902.0159.032
Pumpsil®	913.A064.032	913.A096.032	913.A127.032	913.A159.032
Neoprene	920.0064.032	920.0096.032	920.0127.032	920.0159.032

620RE/RE4	Sanitary LoadSure™ elements (3/4 " Tri-clamp PVDF connectors)		Industrial LoadSure™ elements (3/4 " Cam and groove PP connectors)	
	12 mm	17 mm	12 mm	17 mm
STA-PURE® Series PFL	966.0120.SST**	966.0170.SST**		
STA-PURE® Series PCS	961.0120.PFT*	961.0170.PFT*		
Bioprene® TM	933.P120.PFT*	933.P170.PFT*		
Bioprene® TL	933.0120.PFT	933.0170.PFT		
Marprene® TM			902.P120.PPC	902.P170.PPC
Marprene® TL			902.0120.PPC	902.0170.PPC
Pumpsil®	913.A120.PFT	913.A170.PFT	913.A120.PPC	913.A170.PPC
Neoprene			920.0120.PPC	920.0170.PPC

*4 bar pressure capability with STA-PURE, Bioprene® and Marprene® TM / **SST = sanitary stainless steel connectors

620L/LG	Y element tubing			Continuous tubing		
	8.0 mm	12.0 mm	16.0 mm	8.0 mm	12.0 mm	16.0 mm
Bore size (4.0 mm wall thickness)						
Tubing material						
Pumpsil®	913.AE80.K40	913.A12E.K40	913.A16E.040	913.A080.040	913.A120.040	913.A160.040
Marprene®	902.E080.K40	902.E120.K40	902.E160.040	902.0080.040	902.0120.040	902.0160.040
Bioprene®	933.E080.K40	933.E120.K40	933.E160.040	933.0080.040	933.0120.040	933.0160.040
Neoprene	920.E080.K40	920.E120.K40	920.E160.040	920.0080.040	920.0120.040	920.0160.040
STA-PURE® Series PCS (for 620LG pumphead)	961.E080.K40*	961.E120.K40*	961.E160.K40*			
STA-PURE® Series PFL (for 620LG pumphead)	966.E080.K40	966.E120.K40	966.E160.K40			
				Clamp set for continuous tube		069.4001.000

*4 bar pressure capability with GORE® STA-PURE® Pump Tubing – Series PCS elements (620LG pumphead only)

All flow rates shown were obtained pumping water at 20C (68F) with zero suction and delivery heads. Disclaimer: 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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