

530S, 530SN, 530U, 530UN, 530Du, 530DuN, 530US, 530DuS, 530Bp, 530BpN, 530En and 530EnN Pumps

500 series Watson-Marlow Pumps

FEATURES AND BENEFITS

- Colour display and intuitive menu structures provide visual status indication and minimal key presses
- Flow rates from 0.004 ml/min (0.0006 USGPH) to 3.5 L/min (55.48 USGPH)
- 520R, 520R2, 520REL, 520REM, 520REH, 520RET and 505L pumpheads available as standard, others available on request
- 2200:1 speed control range from 0.1 to 220 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, SCADA and EtherNet/IP™ control options



PROFINET®
coming soon



Watson-Marlow... Innovation in Full Flow

PERFORMANCE: 520R/R2—TWIN SPRUNG ROLLER PUMPHEAD FOR CONTINUOUS TUBING

- R—Pumphead for continuous 1.6 mm wall tubing
- R2—Pumphead for continuous 2.4 mm wall tubing



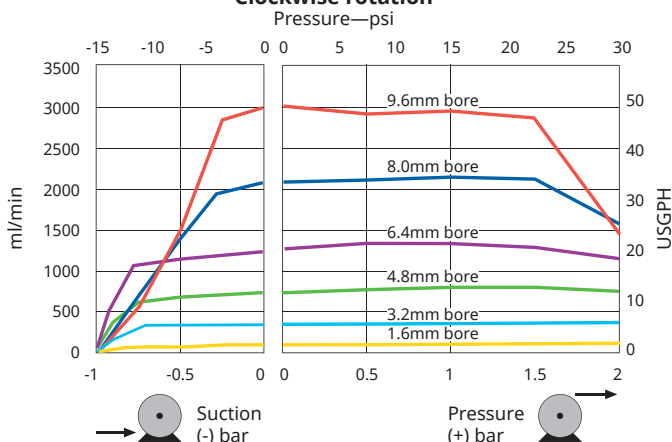
Tube bore and flow rates—ml/min (USGPH)—520R

Tube material	Speed	0.5 mm	1.6 mm	3.2 mm	4.8 mm	6.4 mm	8.0 mm	9.6 mm
Pumpsil®, Neoprene GORE® STA-PURE® Pump Tubing - Series PCS, GORE® STA-PURE® Pump Tubing - Series PFL	0.1-220 rpm	0.004-9.5 (0-0.15)	0.04-97 (0-1.54)	0.18-390 (0-6.18)	0.40-870 (0.01-13.8)	0.70-1500 (0.01-23.8)	1.10-2400 (0.02-38)	NA
Marprene®, Bioprene®, PureWeld XL®	0.1-220 rpm	0.004-9.0 (0-0.14)	0.04-92 (0-1.46)	0.17-370 (0-5.86)	0.38-830 (0-13.2)	0.67-1500 (0.01-23.8)	1.10-2300 (0.02-36.5)	NA

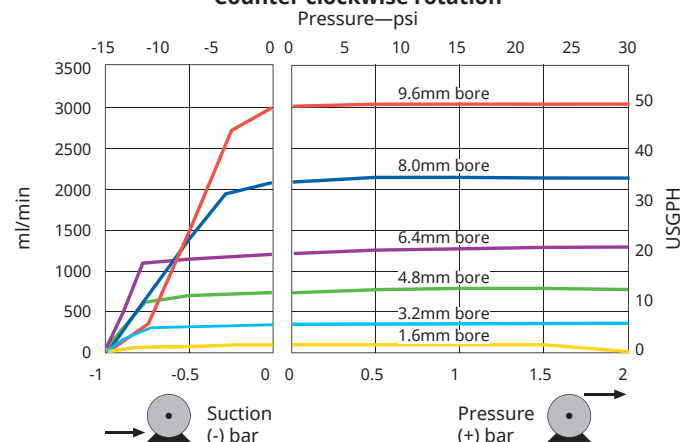
Tube bore and flow rates—ml/min (USGPH)—520R2

Tube material	Speed	0.5 mm	1.6 mm	3.2 mm	4.8 mm	6.4 mm	8.0 mm	9.6 mm
Pumpsil® GORE® STA-PURE® Pump Tubing - Series PCS GORE® STA-PURE® Pump Tubing - Series PFL	0.1-220rpm	NA	0.04-97 (0-1.54)	0.18-390 (0-6.18)	0.40-870 (0.01-13.8)	0.70-1500 (0.01-23.8)	1.10-2400 (0.02-38)	1.60-3500 (0.03-55.5)
Marprene®/Bioprene®, PureWeld XL®	0.1-220rpm	NA	0.04-92 (0-1.46)	0.17-370 (0-5.86)	0.38-830 (0-13.2)	0.67-1500 (0.01-23.8)	1.10-2300 (0.02-36.5)	1.50-3300 (0.02-52.3)

Clockwise rotation



Counter clockwise rotation



PERFORMANCE: 520REL—TWIN ROLLER PUMPHEAD FOR LOADSURE® ELEMENTS

- REL—LoadSure® elements for 0–2 bar operation
- LoadSure® elements for use with quick release industrial or sanitary tri-clamp connections

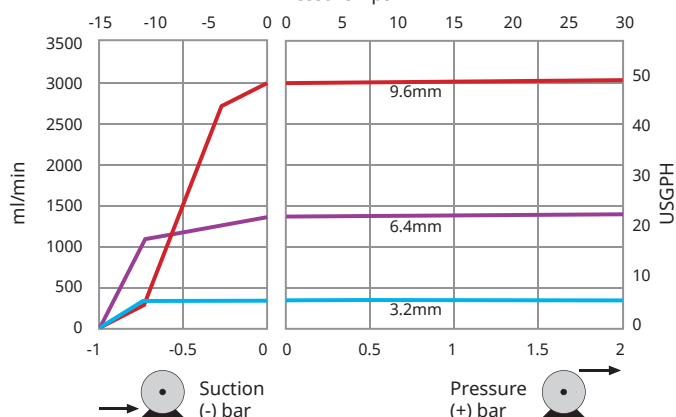


LoadSure® element tubing flow rates—ml/min (USGPH)

Tube material	Speed	3.2 mm	6.4 mm	9.6 mm
Pumpsil®, GORE® STA-PURE® Pump Tubing – Series PCS, GORE® STA-PURE® Pump Tubing – Series PFL, Neoprene	0.1-220 rpm	0.18–390 (0–6.18)	0.70–1500 (0.01–23.8)	1.60–3500 (0.03–55.5)
Marpren® TL, Biopren® TL	0.1-220 rpm	0.17–370 (0–5.86)	0.67–1500 (0.01–23.8)	1.50–3300 (0.02–52.3)

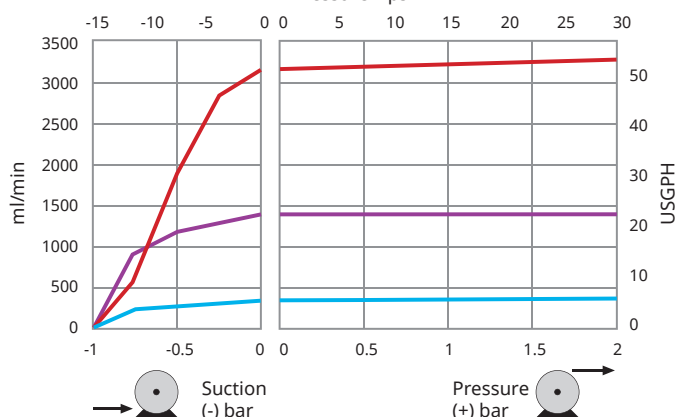
Marpren® TL 0-2 bar CCW 200 rpm

Pressure—psi



STA-PURE® 0-2 bar CCW 200 rpm

Pressure—psi



PERFORMANCE: 520REM—TWIN ROLLER PUMPHEAD FOR LOADSURE® ELEMENTS

- REM—LoadSure® Elements for 2–4 bar operation
- LoadSure® elements for use with quick release industrial or sanitary tri-clamp connections

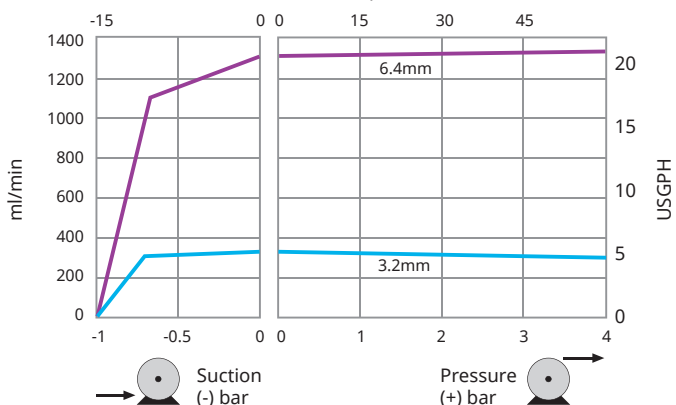


LoadSure® element tubing flow rates—ml/min (USGPH)

Tube material	Speed	3.2 mm	6.4 mm
Pumpsil®, GORE® STA-PURE® Pump Tubing – Series PCS, GORE® STA-PURE® Pump Tubing – Series PFL, Neoprene	0.1-220 rpm	0.18–390 (0–6.18)	0.70–1500 (0.01–23.8)
Marpren® TM, Biopren® TM	0.1-220 rpm	0.17–370 (0–5.86)	0.67–1500 (0.01–23.8)

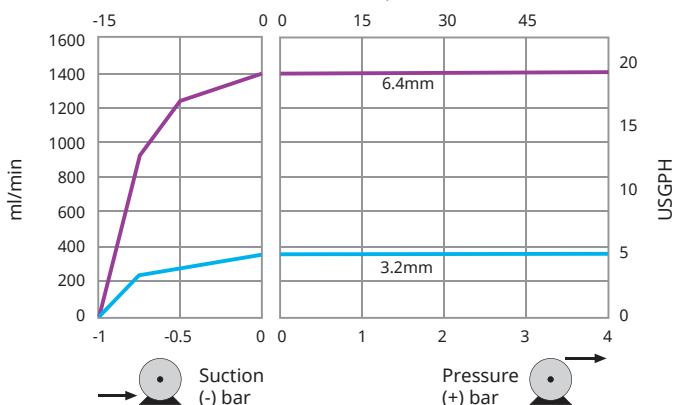
Marpren® TM 2-4 bar CCW 200 rpm

Pressure—psi



STA-PURE® 2-4 bar CCW 200 rpm

Pressure—psi



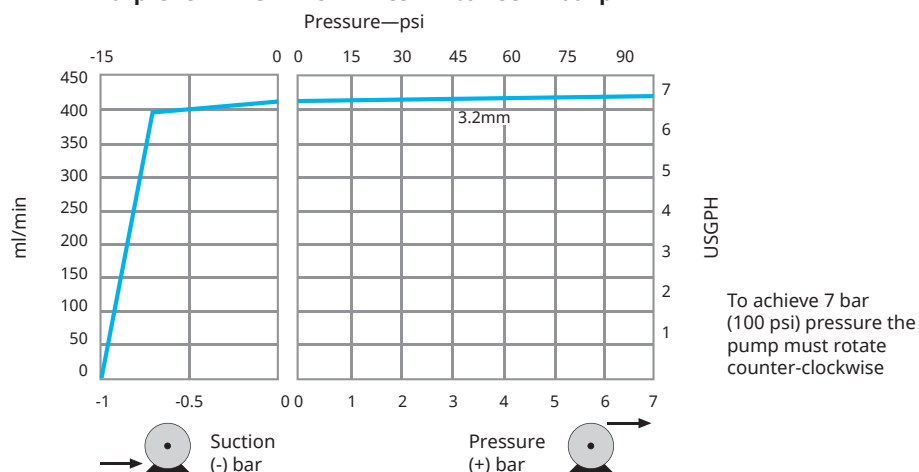
PERFORMANCE: 520RH—TWIN ROLLER PUMPHEAD FOR LOADSURE® ELEMENTS

- REH—LoadSure® Elements for 4–7 bar operation
- LoadSure® elements for use with quick release industrial or sanitary tri-clamp connections



LoadSure® element tubing flow rates—ml/min (USGPH)		
Tube material	Speed	3.2 mm
Marpren® TH, Biopren® TH, GORE® STA-PURE® Pump Tubing – Series PCS	0.1-220 rpm	0.20-450 (0–7.13)

Marpren® TH/ STA-PURE® PCS 4-7 bar CCW 200 rpm



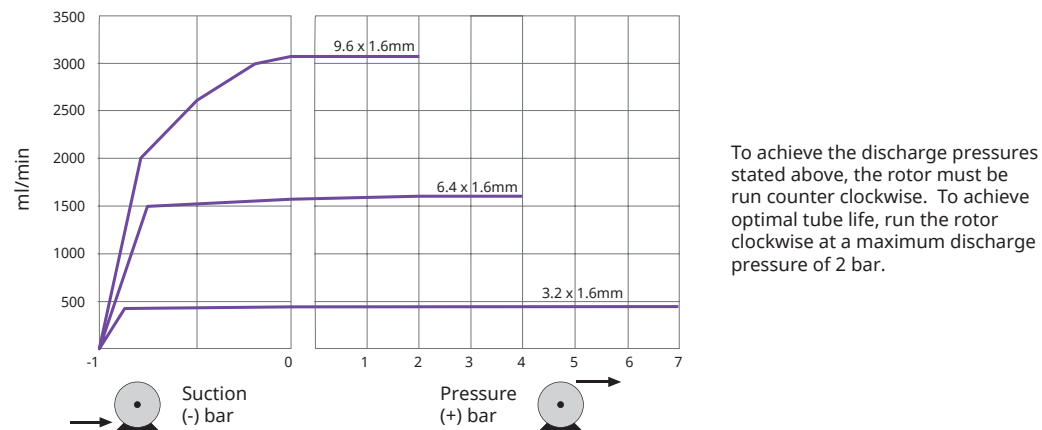
PERFORMANCE: 520RET—TWIN ROLLER PUMPHEAD FOR LOADSURE® ELEMENTS

- RET—Maxthane® LoadSure® Elements
- LoadSure® elements for use with quick release sanitary tri-clamp connections

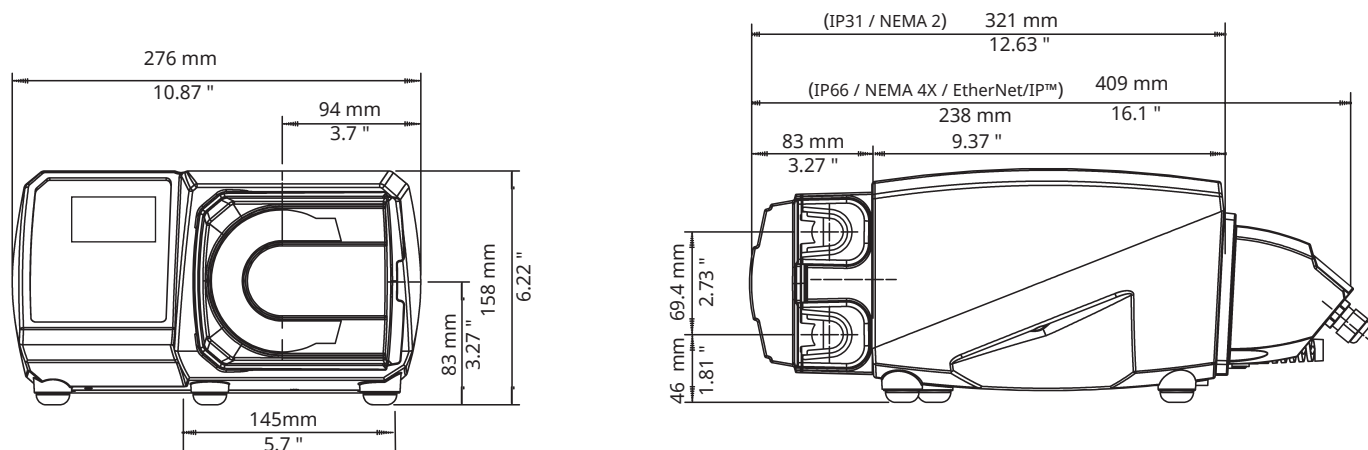


LoadSure® element flow rates—ml/min (USGPH)				
Tube material	Speed	3.2 mm	6.4 mm	9.6 mm
Maxthane®	0.1-220 rpm	0.24-520 (0.8-2.4)	0.75-1600 (0.01-25.4)	1.3-2900 (0.02-46.0)

Maxthane® LoadSure® Elements, Counter clockwise Rotation 200 rpm RET rotor



DIMENSIONS



TECHNICAL SPECIFICATION

	530SN, 530UN, 530DuN	530US, 530DuS	530BpN	530EnN	530S, 530U, 530Du	530Bp	530En
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	(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)				5 °C to 40 °C (40 °F to 104 °F)		
Pump weight	10.7 kg (23 lb 9 oz)				9.82 kg (21 lb 10 oz)		
Speed control ratio	2200:1				2200:1		
Torque rating	2.2 Nm, continuous duty				2.2 Nm, continuous duty		
Profibus connection	NA		9 - PIN D SKT	NA	NA	9 - PIN D SKT	NA
EtherNet/IP™ connection	NA			2x SKT M12D	NA		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 Marpen tubing and LoadSure® elements)						
Power supply	100-120 V/200-240 V 1 ph 50/60 Hz 135 VA						

MATERIALS OF CONSTRUCTION

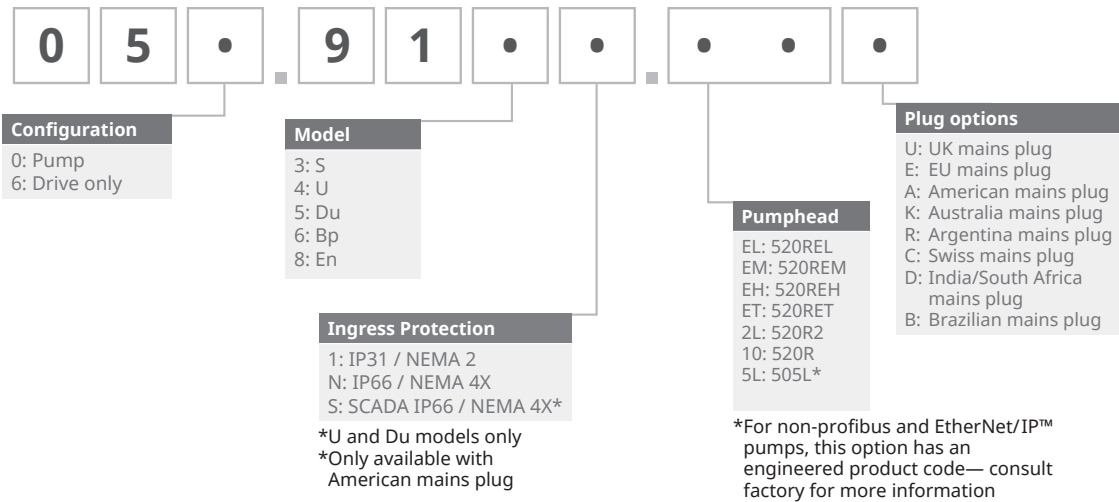
Component	Material
Keypad	Polyester
Switch-plate	Glass filled ABS plastic
Rear blanking plate	Stainless steel 304
Drive casework	Pressure die-cast aluminium LM24
Case work coating	Alocrom pre-treatment, exterior grade polyester powder coat
Drive shaft	Electroless nickel plated carbon steel
Pumphead track	PPS (polyphenylene sulphide)
Guard	Polycarbonate
Guard seal	Neoprene
Rotor hub	Stainless steel 316
Roller arms, rotor	PPS (polyphenylene sulphide)
Rollers - main	Stainless steel 316
Rollers - guide	Nylatron
Main roller bearings	Stainless steel with PTFE seals
Drain port and nut	PP (polypropylene)
Drain plug	Hytrell

TECHNICAL DATA

Pump drives	530S	530SN	530U	530UN	530Du	530DuN	530Bp	530BpN	530US	530DuS	530En	530EnN
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
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	•	•	•	•	•	•	•	•	•	•	•	•
Leak detection	•	•	•	•	•	•	•	•	•	•	•	•
Pump drives	530S	530SN	530U	530UN	530Du	530DuN	530Bp	530BpN	530US	530DuS	530En	530EnN
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									•	•		
Configurable Start/Stop and leak detector input via contact closure or 5 V TTL or 24 V industrial logic Note: Does not include pressure switch											•	•
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	530S	530SN	530U	530UN	530Du	530DuN	530Bp	530BpN	530US	530DuS	530En	530EnN
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; 0-991 Hz			•	•	•	•						
2x sensor inputs 4-20 mA*											•	•
Pump drives	530S	530SN	530U	530UN	530Du	530DuN	530Bp	530BpN	530US	530DuS	530En	530EnN
Security												
3-level Security PIN lock	•	•	•	•	•	•	•	•	•	•	•	•
Pump drives	530S	530SN	530U	530UN	530Du	530DuN	530Bp	530BpN	530US	530DuS	530En	530EnN
Network communication												
RS485 network control						•				•		
RS232 network control					•							
Pump drives	530S	530SN	530U	530UN	530Du	530DuN	530Bp	530BpN	530US	530DuS	530En	530EnN
Digital pump commands (Profibus / EtherNet/IP™)												
Profibus DP V0							•	•				
Communication speeds from 9.6 kbits/s up to 12000 kbits/s							•	•				
Baud Rate (MBPS) 10/100 Full/Half 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							•	•			•	•
EtherNet/IP™											•	•
Device Level Ring (DLR)											•	•
Flow Totaliser											•	•
Sensor scaling											•	•

*Range of 3rd party pressure/flow sensors supported—consult factory for list

ORDER INFORMATION



*Special NEMA module 059.911F.100 Ethernet Watertight Module (530F) IP66 NEMA 4X is required for KROHNE flow sensor, combined with IP31 pump

Tubing 1.6 mm wall thickness tubing for 520R								
Tube bore	Tube	Pumpsil®	PureWeld XL®	Bioprene®	STA-PURE® PCS	STA-PURE® PFL	Marpren®	Neoprene
0.5mm (1/50in)	112	913.A005.016	941.0005.016	933.0005.016	NA		902.0005.016	920.0005.016
0.8mm (1/32in)	13	913.A008.016	941.0008.016	933.0008.016	NA		902.0008.016	920.0008.016
1.6mm (1/16in)	14	913.A016.016	941.0016.016	933.0016.016	961.0016.016	966.0016.016	902.0016.016	920.0016.016
3.2mm (1/8in)	16	913.A032.016	941.0032.016	933.0032.016	961.0032.016	966.0032.016	902.0032.016	920.0032.016
4.8mm (3/16in)	25	913.A048.016	941.0048.016	933.0048.016	961.0048.016	966.0048.016	902.0048.016	920.0048.016
6.4mm (1/4in)	17	913.A064.016	941.0064.016	933.0064.016	961.0064.016	966.0064.016	902.0064.016	920.0064.016
8.0mm (5/16in)	18	913.A080.016	941.0800.016	933.0080.016	961.0080.016	966.0080.016	902.0080.016	920.0080.016

Tubing 2.4 mm wall thickness tubing for 520R2								
Tube bore	Tube	Pumpsil®	PureWeld XL®	Bioprene®	STA-PURE® PCS	STA-PURE® PFL	Marpren®	Neoprene
1.6mm (1/16in)	119	913.A016.024	NA	933.0016.024	961.0016.024	966.0016.024	902.0016.024	NA
3.2mm (1/8in)	120	913.A032.024		933.0032.024	961.0032.024	966.0032.024	902.0032.024	
4.8mm (3/16in)	15	913.A048.024		933.0048.024	961.0048.024	966.0048.024	902.0048.024	
6.4mm (1/4in)	24	913.A064.024	941.0064.024	933.0064.024	961.0064.024	966.0064.024	902.0064.024	
8.0mm (5/16in)	121	913.A080.024	NA	933.0080.024	961.0080.024	966.0080.024	902.0080.024	
9.6mm (3/8in)	122	913.A096.024		933.0096.024	961.0096.024	966.0096.024	902.0096.024	

Element product codes for 520REL						
	Industrial LoadSure® elements Quick-release PVDF connectors			Sanitary LoadSure® elements 3/4 in Sanitary PVDF connectors		
	3.2 mm	6.4 mm	9.6 mm	3.2 mm	6.4 mm	9.6 mm
Pumpsil®	913.A032.PFQ	913.A064.PFQ	913.A096.PFQ	913.A032.PFT	913.A064.PFT	913.A096.PFT
Bioprene® TL				933.0032.PFT	933.0064.PFT	933.0096.PFT
Marpren® TL	902.0032.PFQ	902.0064.PFQ	902.0096.PFQ			
STA-PURE® Series PCS				961.0032.PFT	961.0064.PFT	961.0096.PFT
STA-PURE® Series PFL	966.0032.PFQ	966.0064.PFQ	966.0096.PFQ	966.0032.PFT	966.0064.PFT	966.0096.PFT
Neoprene	920.0032.PFQ	920.0064.PFQ	913.A096.PFQ			

Element product codes for 520REM				
	Industrial LoadSure® elements Quick-release PVDF connectors		Sanitary LoadSure® elements 3/4 in Sanitary PVDF connectors	
	3.2 mm	6.4 mm	3.2 mm	6.4 mm
Bioprene® TM			933.P032.PFT	933.P064.PFT
Marpren® TM	902.P032.PFQ	902.P064.PFQ		
STA-PURE® Series PCS			961.M032.PFT	961.M064.PFT
STA-PURE® Series PFL	966.M032.PFQ	966.M064.PFQ	966.M032.PFT	966.M064.PFT

ORDER INFORMATION—CONTINUED

Element product codes for 520REH		
	Industrial LoadSure® elements Quick-release PVDF connectors	Sanitary LoadSure® elements 3/4 in Sanitary PVDF connectors
	3.2 mm	3.2 mm
Bioprene® TH		933.H032.PFT
Marprene® TH	902.H032.PFQ	
STA-PURE® Series PCS	961.H032.PFQ	961.H032.PFT

Element product codes for 520RET			
	Sanitary LoadSure® elements 3/4 in Sanitary PVDF connectors		
	3.2 mm	6.4 mm	9.6 mm
Maxthane® 0-2 bar (0-30 psi)	-	-	945.0096.PFT
Maxthane® 0-4 bar (0-60 psi)	-	945.0064.PFT	-
Maxthane® 0-7 bar (0-100 psi)	945.0032.PFT	-	-

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 and Maxthane 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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