WATSON MARLOW Pumps

530 630 730

Sanitary
process pumps

secure · accurate · intuitive

Now available with Industrial Ethernet connectivity

Secure · accurate · intuitive

- 120, 530, 630 and 730 peristaltic pumps share the same functionality to enhance compliance with cGMP and ensure final product quality
- Constant contact materials across the complete range, minimising validation
- Pumps to take you from research to production

120 flows between 0.001 to 190 ml/min
530 flows between 0.004 ml/min to 3.5 L/min
630 flows between 0.001 to 19 L/min
730 flows between 0.12 to 3300 L/hr

Unrivalled accuracy with simple-to-use HMI requiring minimal key presses to reduce chances of costly errors

Ultimate process security with a 3-level PIN lock

Maintaining product integrity with visual status indication and an intuitive user interface

Protect your process by connecting remote pressure and flow sensors

Ultimate controllability with manual, remote, analogue and digital communication, RS232, RS485, PROFIBUS, PROFINET and EtherNet/IP

PROFIBUS PROFINET EtherNet/IP

Your product is contained within a validated single-use fluid path—the tube

875,000:1 flow control range, with flow proportional to pump speed

Why Watson-Marlow makes the right pump for you

Watson-Marlow Fluid Technology Group is unique in being able to work with you at every process step to ensure your fluid transfer requirements are achieved. Whether performing gentle transfer of live cells or flavouring addition, we have a solution.

Peristaltic pumps play an increasingly important role in the biopharm industry, where they are used for handling valuable and delicate fluids without contamination. The pumped fluid is totally contained within the tube, providing complete isolation of the fluid

Four pump ranges enable benchtop microlitre flows to higher capacities up to 33 L/min, with the equivalent accuracy and methods of control across the range.

Low shear

The extremely low shear pump action allows you to move product without degradation or damage.

5 YEARS WARRANTY

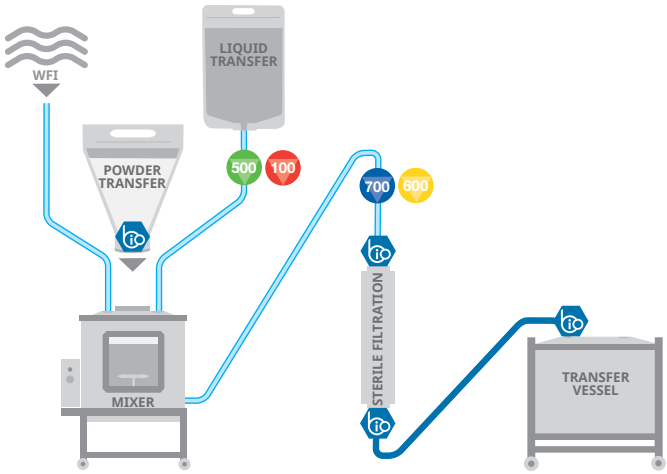
Buffer and media preparation

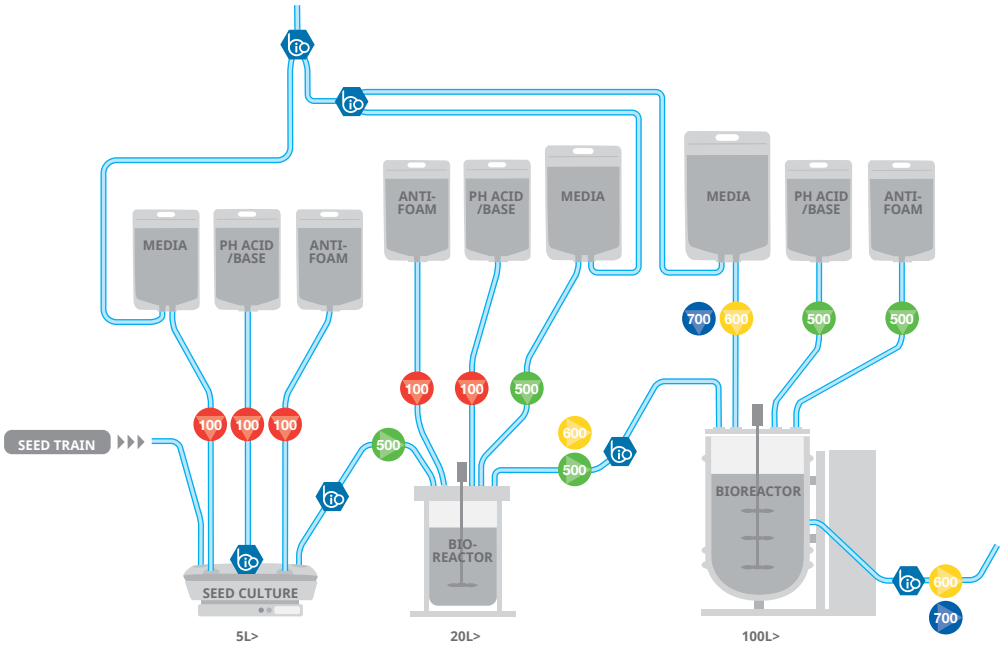
Watson-Marlow is unique in being able to work at every process step to ensure your critical fluid transfer requirements are achieved.

Buffers are critical to maximising product retention in downstream bioprocessing. At this stage, the value of the product has increased significantly.

The pumps used for handling buffers must deliver accurate flows with intuitive operation to avoid costly mistakes.

Large volumes of buffer are often required, so pumps must offer the option to be easily scaled-up using the same validated contact materials.





Fermentation

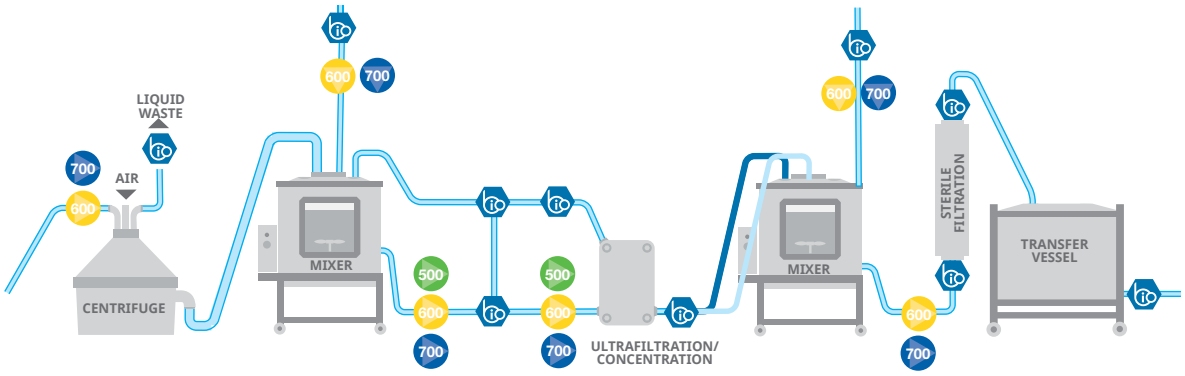
Superior flow stability, providing accurate and repeatable process control, preventing non-conformance and maintaining cGMP

Flexible and scalable, without changing contact materials or losing performance, ensuring the process remains controlled and repeatable at every scale.

Single-use fluid paths eliminate cross-contamination, with risks further mitigated by the use of high purity, USP Class VI validated contact materials.

Improving fermentation yields requires accuracy and repeatability to ensure compliance and optimise titre.

120, 530, 630 and 730 process pumps share comprehensive remote, analogue, digital and PROFIBUS communication, for this area of bioprocessing where integration is important.



Harvest

Our suite of peristaltic pumps meets a range of requirements from benchtop applications to full production.

Functionality suits process needs and supports full integration with other process equipment. This allows you complete process scaling, using the same technology and validation throughout.

Validated single-use fluid paths eliminate the risk of cross-contamination, while facilitating aseptic processing.

In this process to extract proteins, pumping accuracy and low shear are the most important factors. The Watson-Marlow process pumps range provides optimum product integrity—only the tube contacts the fluid, allowing you to move product without degradation or damage.

Constant contact materials across the range, minimises validation.

Purification

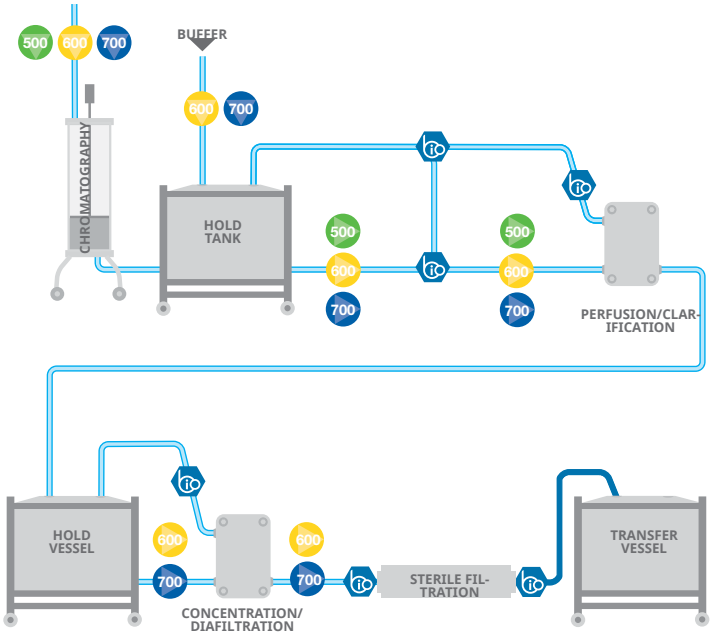
Downstream purification demands processing equipment that will not damage or degrade products.

The non-contacting, gentle action of our peristaltic pumps ensures product cannot be damaged by high fluid velocities or contact with mechanical parts.

Watson-Marlow pumps are suitable for a range purification processes—clarification, concentration, including ultrafiltration, diafiltration and chromatography.

Low shear and very low pulsation must be maintained across the filters in purification. Your product is contained within a validated single-use fluid path—the tube. There are no high velocities or complex flow paths associated with lobes or other pump types.

Watson-Marlow processing pumps are easy to install and simple to use.



Quality and validation in bioprocessing

	Research		Clinical trials			Clinical manufacture
	DISCOVERY up to 10,000 compounds	PRE-CLINICAL 250 compounds	PHASE 1 20 - 100 trials	PHASE 2 100 - 500 trials	PHASE 3 1,000 - 10,000 trials	
Watson-Marlow pumps						
120 Series	•	•	•			•
530 Series		•	•	•	•	•
630 Series			•	•	•	•
730 Series				•	•	•
Watson-Marlow tubing						
Pumpsil	•	•	•	•	•	•
Bioprene	•	•	•	•	•	•
PureWeld XL	•	•	•	•	•	•
GORE STA-PURE PCS			•	•	•	•

Successful bioprocessing relies on fluid handling accuracy and repeatability; guaranteed batch to batch consistency and compliance with regulations, including cGMP.

Our world-class peristaltic technology is uniquely supported with Watson-Marlow tubing and BioPure fluid path components. These are designed to interact perfectly, making us the only complete fluid path provider in the biopharmaceutical market.

Single-use fluid paths eliminate cross-contamination, with risks further mitigated by the use of high purity, USP Class VI validated contact materials.

The unimpeded flow path provided by BioPure connectors, combined with superior flow control of Watson-Marlow pumps, reduces process variation, enhances operating techniques and increases product quality.

- **Process consistency and repeatability**

  Unsurpassed control over the fluid path. Only Watson-Marlow tubing is validated for operation in our peristaltic pumps

Select your pump control features

Feature	530Du 630Du 730Du	530DuN 630DuN 730DuN	530U 630U 730U	530UN 630UN 730UN	530S 630S 730S	530SN 630SN 730SN	530Bp/BpN 630Bp/BpN 730BpN	530En/EnN 630En/EnN 730EnN	530Pn/PnN 630Pn/PnN 730PnN
Manual control									
Intuitive keypad and colour display. Choice of flow rate or speed display	•	•	•	•	•	•	•	•	•
Full calibration with choice of flow units	•	•	•	•	•	•	•	•	•
Remote control									
Configurable Start/Stop, leak detector and pressure switch input via contact closure or 5 V TTL or 24 V industrial logic	•	•	•	•				•	•
Direction change and auto/manual toggle input (via contact closure or 5 V TTL or 24 V industrial logic)	•	•	•	•					
Remote operation of MemoDose (foot/hand-switch or logic input)	•	•	•	•					
Four configurable digital status outputs through 24 V, 30 W relays		•		•					
Software configurable IP31 outputs	•		•						
Remote pressure/flow sensors								•	•
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	•	•	•	•					
Digital communication									
RS485 network control		•							
RS232 network control	•								
PROFIBUS DP V0							•		
PROFINET									•
EtherNet/IP								•	
Security									
3-level security PIN lock	•	•	•	•	•	•	•	•	•

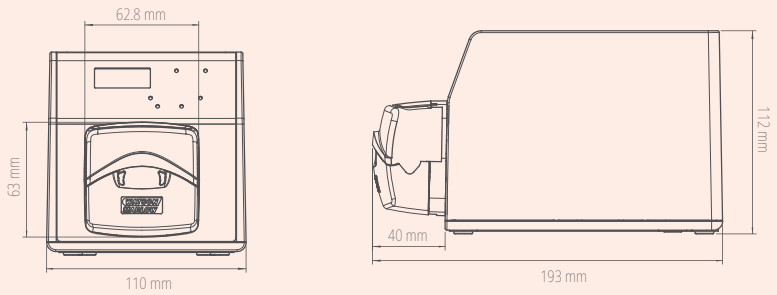
120 Technical data

- Small and stackable pumps, saving valuable space in cleanrooms, LAF and biosafety cabinets
- Three drive options and four pumpheads for single, twin or up to three separate channels of flow
- Superior speed control up to 2,000:1
- Manual, remote or automatic control via 4–20 mA or 0–10 V inputs

Tube bore and flow rates 114DV, 102R and 400D1 (ml/min)

Model and speed	0.5 mm	0.8 mm	1.6 mm	2.4 mm	3.2 mm	4.0 mm	4.8 mm
120F/DV 10 rpm	0.2	0.4	1.4	2.9	4.7	6.7	8.5
120F/DV 17 rpm	0.3	0.7	2.4	4.9	8.0	11	14
120F/DV 31 rpm	0.6	1.2	4.3	9.0	15	21	26
120F/DV 52 rpm	1.0	2.1	7.3	15	24	35	44
120F/DV 220 rpm	4.4	8.8	31	64	100	150	190
120S/DV 1-200 rpm	0.02–4.0	0.04–8.0	0.14–28	0.29–58	0.47–94	0.67–130	0.85–170
120U/DV 0.1-200 rpm	0.002–4.0	0.004–8.0	0.014–28	0.029–58	0.047–94	0.067–130	0.085–170
120F/R 10 rpm	0.3	0.5	2.1	-	8.5	-	17
120F/R 17 rpm	0.5	0.9	3.6	-	14	-	29
120F/R 31 rpm	0.9	1.6	6.5	-	26	-	52
120S/R 1-32 rpm	0.03–0.9	0.0–1.6	0.21–6.7	-	0.85–27	-	1.6–54
120U/R 0.1-32 rpm	0.003–0.9	0.005–1.6	0.02–6.7	-	0.09–27	-	0.16–54
120S/D1 1-200 rpm	0.01–2.2	0.03–5.8	0.11–23	0.24–49	0.41–81	0.59–120	-
120U/D1 0.1 -200 rpm	0.001–2.2	0.003–5.8	0.011–23	0.024–49	0.041–81	0.059–120	-

Product dimensions



114DV

Single-channel, flip-top pumphead

102R

Single-channel pump-head accepts continuous silicone tubing only

400D1

Accepts tubing in five sizes from 0.5 to 4.0 mm internal diameter

400DM2 and 400DM3

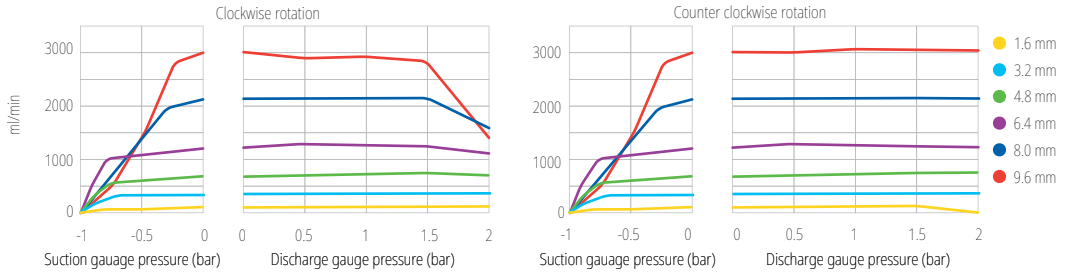
Two and three channels accept three-bridge manifold tubing from 0.13 to 2.79 mm bore

530 Technical data

- Flow rates from 0.004 ml/min to 3.5 L/min and pressures up to 7 bar
- Colour display and intuitive menu structure
- IP31 or IP66 cased pumps, manual, remote, analogue, or RS485 digital communication, PROFIBUS, PROFINET and EtherNet/IP™
- Four drive options and three pumpheads for single and multi-channel flows
- Precise 2200:1 speed control range

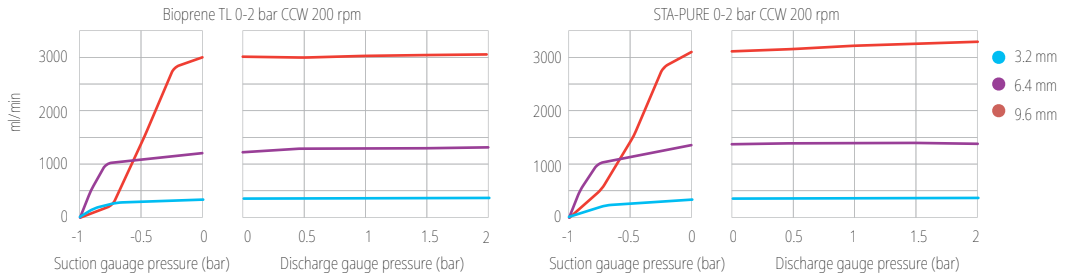
Tube bore and flow rates (ml/min)

Tube material	Speed	0.5 mm	1.6 mm	3.2 mm	4.8 mm	6.4 mm	8.0 mm
Pumpsil®, GORE® STA-PURE®, Pump Tubing - Series PCS, GORE® STA-PURE® Pump Tubing - Series PFL	0.1 to 220 rpm	0.004–9.5	0.04–97	0.18–390	0.40–870	0.70–1500	1.1–2400
Bioprene®, PureWeld XL®	0.1 to 220 rpm	0.004–9.5	0.04–92	0.17–370	0.38–830	0.67–1500	1.1–2300

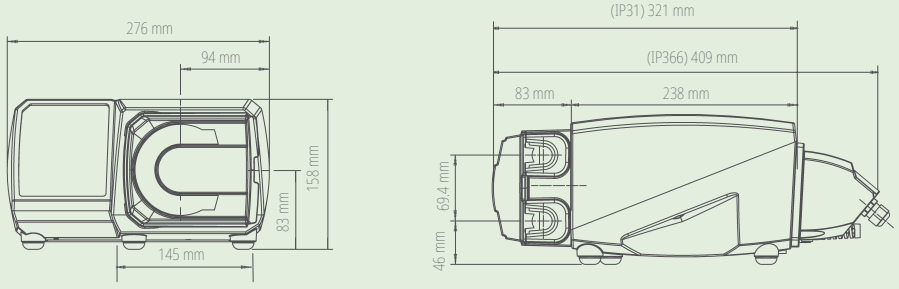


LoadSure® element tubing flow rates (ml/min)

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	0.1 to 220 rpm	0.18–390	0.70–1500	1.6–3500
Bioprene®, PureWeld XL®	0.1 to 220 rpm	0.17–370	0.67–1500	1.5–3300



Product dimensions



520 Pumpheads

520R/520R2

Continuous tubing pumpheads for pressures up to 2 bar and flows to 3.5 L/min

520REL/520REM/520REH

LoadSure tube element pumpheads for pressures up to 2, 4 or 7 bar operation

505L

Very low pulse pumphead for single or twin channel flows

313D/314D

Flip top pumpheads for up to six individual channels of flow

505CA

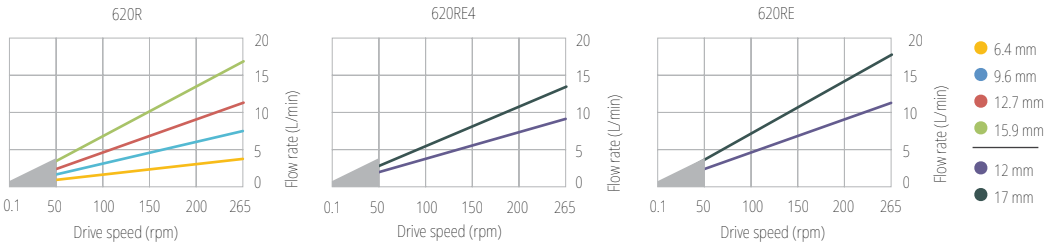
Multi-channel cassette pumphead accepts standard manifold tubing

630 Technical data

- Flow rates from 0.001 to 19 L/min and pressures wup to 4 bar
- Colour display and intuitive menu structure
- IP31 or IP66 cased pumps, manual, remote, analogue or RS485 digital communication, PROFIBUS, PROFINET and EtherNet/IP™
- Four drive options and two pumpheads for single channel flows
- Precise 2650:1 speed control range

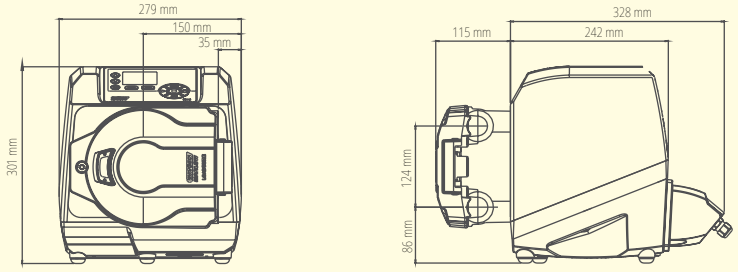
620 pumpheads: flow ranges, 0.1-265 rpm. L/min

Tube Bore (mm #)		6.4, 17	8.0	9.6, 193	12.0	12.7, 88	15.9, 189	16.0	17.0
620R (continuous tubing)	Bioprene® TL, Pumpsil®, GORE® STA-PURE® PFL, PureWeld XL®	0.001–3.4	-	0.003–7.2	-	0.004–11	0.005–15	-	-
620RE (LoadSure elements, two rollers)	Bioprene® TL, Bioprene® TM, Pumpsil®, GORE® STA-PURE® PFL, PureWeld XL®	-	-	-	0.004–11	-	-	-	0.006–19
620RE4 (LoadSure elements, four rollers)	Bioprene® TL, Bioprene® TM, Pumpsil®, GORE® STA-PURE® PFL, PureWeld XL®	-	-	-	0.003–9.0	-	-	-	0.004–13
620L ('Y' tubing elements)	Bioprene® TM, Pumpsil®, GORE® STA-PURE® PFL, GORE® STA-PURE® PCS, PureWeld XL®	-	0.002–5.2	-	0.003–9.0	-	-	0.005–12.4	-
620L (continuous tubing)	Bioprene®, Pumpsil®, GORE® STA-PURE® PFL, GORE® STA-PURE® PCS, PureWeld XL®	-	0.001–2.6	-	0.002–4.5	-	-	0.003–6.7	-



Limited to 2 bar below 50 rpm. Flow rate varies with tube material, discharge pressure, suction and viscosity

Product dimensions



620 Pumpheads

620R

Twin sprung roller, continuous tubing pumphead

620RE / 620RE4

LoadSure tube element pumpheads with two or four rollers, for one minute maintenance

620L

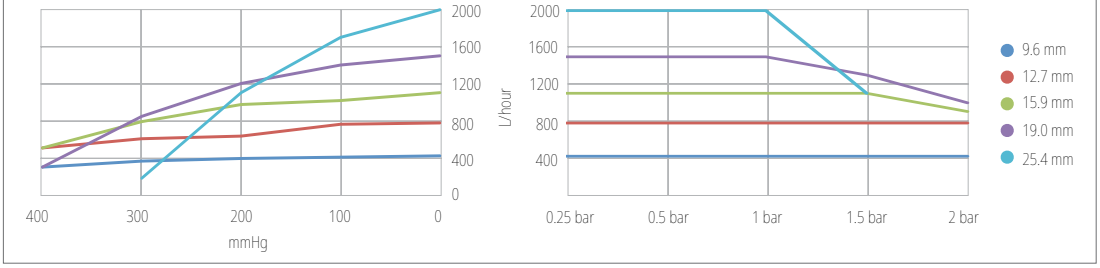
Low-pulse pumphead with twin offset tracks and six stainless steel rollers for high precision

730 Technical data

- Flow rates from 0.12 to 3,300 L/hr
- Colour display and intuitive menu structure
- IP66 cased pumps, manual, remote, analogue or RS485 digital communication, PROFIBUS, PROFINET and EtherNet/IP™
- Four drive options and two pumpheads for single and twin channel flows
- Precise 3,600:1 speed control range

730 cased pumps' performance

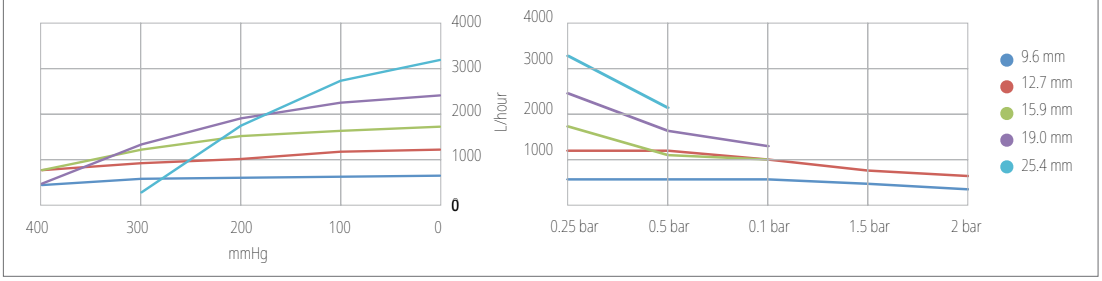
Single pumphead (720R, 720RE)	0.25 bar		0.5 bar		1 bar		1.5 bar		2 bar	
	Max speed (rpm)*	Max flow	Max speed (rpm)*	Max flow	Max speed (rpm)*	Max flow	Max speed (rpm)*	Max flow	Max speed (rpm)*	Max flow
9.6 mm	360	420 L/hr	360	420 L/hr	360	420 L/hr	360	420 L/hr	360	420 L/hr
12.7 mm	360	780 L/hr	360	780 L/hr	360	780 L/hr	360	780 L/hr	360	780 L/hr
15.9 mm	360	1100 L/hr	360	1100 L/hr	360	1100 L/hr	360	1100 L/hr	300	900 L/hr
19.0 mm	360	1500 L/hr	360	1500 L/hr	360	1500 L/hr	300	1300 L/hr	250	1000 L/hr
25.4 mm	360	2000 L/hr	360	2000 L/hr	360	2000 L/hr	200	1100 L/hr		



Stated performance applies to all tube materials

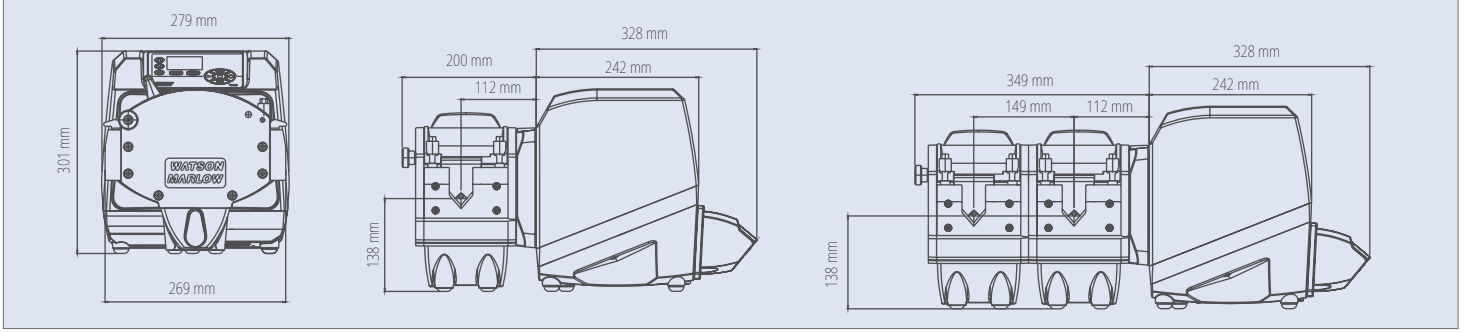
730 cased pumps' performance

Twin pumphead (720R/RX, 720RE/REX)	0.25 bar		0.5 bar		1 bar		1.5 bar		2 bar	
	Max speed (rpm)*	Max flow	Max speed (rpm)*	Max flow	Max speed (rpm)*	Max flow	Max speed (rpm)*	Max flow	Max speed (rpm)*	Max flow
9.6 mm	300*	700 L/hr	300*	700 L/hr	300*	700 L/hr	250	590 L/hr	200	470 L/hr
12.7 mm	300*	1300 L/hr	300*	1300 L/hr	250	1100 L/hr	200	870 L/hr	175	760 L/hr
15.9 mm	300*	1800 L/hr	200	1200 L/hr	175	1100 L/hr				
19.0 mm	300*	2500 L/hr	200	1700 L/hr	160	1390 L/hr				
25.4 mm	300*	3300 L/hr	200	2200 L/hr						



Stated performance applies to all tube materials
*The maximum speed is reduced at increased discharge pressures to ensure safe running of the pump

Product dimensions



720R

Continuous tubing pumphead, which can be extended to provide two channels of flow

720RE

LoadSure tube element pumphead for single or twin channels of flow

LoadSure elements

LoadSure® pumpheads guarantee correct tube loading

Watson-Marlow LoadSure technology offers snap-fit one minute maintenance. LoadSure elements offer greater reliability, easy installation and increased productivity.

520 LoadSure pumphead

- Sanitary LoadSure® elements for 3/4 inch Tri-clamp sanitary connectors
- 7 bar pressures with the 520REH. Flow rates up to 450 ml/min. Elements are available in Bioprene TH and GORE STA-PURE PCS
- 4 bar pressures with the 520REM. Flow rates up to 1500 ml/min. Elements are available in Bioprene TM, GORE STA-PURE PFL AND STA-PURE PCS
- 2 bar pressures with the 520REL. Flow rates up to 3500 ml/min. Elements are available in Bioprene TL, Pumpsil, GORE STA-PURE PFL AND STA-PURE PCS

620 LoadSure pumphead

- LoadSure® elements for sanitary 3/4 inch Tri-clamp connectors available in Bioprene TM and GORE STA-PURE PFL and STA-PURE PCS for 4 bar operation and Bioprene TL and Pumpsil for 2 bar operation.
- Two tube element bore sizes of 12 mm and 17 mm
- Highest accuracy and minimal pulsation with the 620RE4's four rollers. Highest flow rates from the 620RE's two rollers
- Flow rates up to 19 L/min, pressures up to 4 bar.

720 LoadSure pumphead

- LoadSure® elements with sanitary 3/4 inch Tri-clamp connectors available Bioprene, Pumpsil and GORE STA-PURE PCS materials
- Four bore sizes: 12.7 mm, 15.9 mm, 19.0 mm and 25.4 mm
- Flow rates from 720RE pumphead up to 3,300 L/hr flow at up to 2 bar pressure. 720REX extension pumpheads offer identical performance, but at a maximum pressure of 1 bar.

LoadSure elements provide fast and simple tube loading every time

Pump and tubing have equal importance

It is important to recognise that the pump and tubing combination are selected to match your specific application criteria.
Watson-Marlow is the only company that manufactures both the cased pumps and peristaltic tubing, which is a real advantage for customers that want to be certain that their peristaltic pump will work right first time and every time.

Pumpsil®

Platinum-cured silicone tubing

- Single-use biopharm tubing
- Laser-etched lot traceability
- Excellent flow stability

Bioprene®

Pharmaceutical grade thermoplastic elastomer tubing

- Long pump life
- Excellent chemical compatibility
- Fully autoclavable

PureWeld XL®

High performance TPE tubing

- Exceptional pumping life compared to leading weldable TPEs
- Weldable and sealable for sterile connectivity
- Sterilisable by gamma radiation, autoclave and ethylene oxide

GORE® STA-PURE® Pump Tubing - Series PCS

PTFE-reinforced silicone tubing

- Pressure rated up to 7 bar
- Longest available tube life
- Spallation virtually eliminated

GORE® STA-PURE® Pump Tubing - Series PFL

PTFE-reinforced fluoroelastomer tubing

- High resistance to aggressive chemicals
- Pressure rated up to 4 bar
- 50 times longer life than other fluoroelastomers

Tubing features	Pumpsil	Bioprene	PureWeld XL	STA-PURE PCS	STA-PURE PFL
LoadSure® elements	•	•		•	•
Continuous tubing	•	•	•		
Meets USP Class VI requirements	•	•	•	•	•
European Pharmacopoeia 3.1.9	•			•	
ISO 10993	•	•		•	
Lot traceable from raw material to finished product	•	•	•	•	•
Sterilisation by autoclave (121C, 30 minutes)	•	•		•	•
Sterilisation by gamma irradiation to 50 kGy	•	•	•		
FDA regulations 21CFR 177.XXXX for food contact	•	•	•		
EC 1935/2004 for food contact in the EU	•		•		
Wide chemical resistance		•	•		•
High pressure capability 2–7 bar		•		•	
High dispensing accuracy	•			•	•

Drawing on considerable single-use expertise, BioPure provides the flexibility of customised tube assemblies

Offering a broad range of validated components and configurations, with no minimum order quantity and simple, repeatable ordering to support a continuous supply chain.

Full traceability of each component is maintained throughout our assembly process and is provided as part of our detailed documentation.

This ensures your tube assemblies reach you ready to use and that they meet the exacting requirements set by cGMP manufacture and validation standards.

puresu®
Single-use fluid paths

BioPure's puresu capability provides:

- » Unique support from the fluid path technology experts
- » Ultimate flexibility with quick turnaround and no minimum order quantity
- » Ready-to-use bioprocessing solutions, full traceability, double-bagged and irradiated as standard

	Research		Clinical trials			Clinical Manufacture
	DISCOVERY up to 10,000 compounds	PRE-CLINICAL 250 compounds	PHASE 1 20 - 100 trials	PHASE 2 100 - 500 trials	PHASE 3 1,000 - 10,000 trials	
BioPure						
BioBarb	•	•	•	•	•	•
BioClamp	•	•	•	•	•	•
FlatBioEndCap		•	•	•	•	•
Bio Y	•	•	•	•	•	•
BioValve	•	•	•	•	•	•
QClamp	•	•	•	•	•	•
BioEndCap		•	•	•	•	•
puresu			•	•	•	•
Gaskets	•	•	•	•	•	•

BioBarb | Bio Y | FlatBioEndCap | BioEndCap | BioValve | BioClamp | QClamp | puresu | Gaskets

WATSON MARLOW

Fluid Technology Group

BIOTECHNOLOGY AND PHARMACEUTICAL SOLUTIONS

WATSON MARLOW Pumps | WATSON MARLOW Tubing | Flexicon Liquid Filling | bioPURE | ASEPCO | AFLEX HOSE

Watson-Marlow Fluid Technology Group

Watson-Marlow Fluid Technology Group supports its customers locally through an extensive global network of direct sales operations and distributors

wmftg.com/global

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