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WATSON

MARLOW

Bredel

PUMPS

520Du, 520U and 520S

NEW

The solution for biopharm and process



We asked what industry wanted

The pump of choice ...

Process engineers know that there is nothing more **reliable** and versatile than a Watson-Marlow peristaltic pump. The new generation 520 pumps go further. **Flow rates** to 3.5 litre/min are achieved with slow speed and large swept volume. This means long **tube life** and gentle handling of shear sensitive fluids.

The 520's **high-powered**, brushless DC motor gives it controllability from 0.1 rpm to 220 rpm with speed **accuracy** to 0.1%. It provides **precision** dosing and metering, and excellent, uninterrupted batch consistency.

Your decision is whether you need the 520S with manual control, the 520U with remote auto and analogue control or the 520Du with remote auto and RS232. Then choose your pumphead: the new 520R2 or a range of pumpheads offering flow rates from 4 microlitres to 3.5 litres per minute, and from 1 to 48 channels.

The 520's versatility is what makes it your pump of choice – and a world leader in whole-life value-for-money.



Reliable, controllable and versatile. The new 520 pump is designed for **chemical process**, biotech and pharmaceutical applications.

... for process

We deliver it all ...

- **Outstanding performance**

Powerful 2.2Nm torque available in all conditions with 0.1% set speed accuracy at 220rpm. Class-leading 2,200:1 turndown, giving flow rates from 4 µl/min to 3.5 litre/min.

- **Easy to use**

Large, high-visibility speed and flow display, menu operation with on-screen help. Tactile membrane keypad with large keys for gloved use.

- **Clean and robust**

Tough cast housing with sleek, curved lines for liquid run-off and no bug traps. Smooth polyester finish is durable, corrosion-resistant and easy to clean.

- **Reliable**

Brushless DC motor and high-performance gearbox – no brushes, no carbon-dust contamination: zero maintenance. 24/7-duty rated with full software protection.

...the quality and reliability you expect from Watson-Marlow Bredel pumps – plus a three-year comprehensive warranty.

Why Peristaltics?



Compared with other positive displacement pumps, peristaltic pumps win on all counts. They handle difficult fluids and suspended solids with ease, and offer sterile pumping with no risk of contamination and minimal fluid degradation. They provide precision dosing and metering, and excellent, uninterrupted batch consistency. There are no crevices and dead spots inviting residue build-up and bacterial problems. Cleaning and maintenance are quick and easy. Peristaltic pumps self-prime, can run dry, and have no valves or seals to leak, clog, corrode or replace.

... they are our finest, toughest, most versatile pumps ever.

The pumphead that delivers ...

Outstanding performance, minimal downtime and low whole-life cost

That's what the 520R2 pumphead brings to the 520S, 520U and 520Du drives.

Long-life, gentle pumping

Spring-loaded roller arms and large, low-friction 316 stainless steel rollers provide gentle, high-flow pumping for shear-sensitive fluids.

On top of that, low running speed from the high swept volume extends tube life – offering secure and predictable long-term operation.

Easy setup and maintenance

The large rotor hub has a clutch to allow easy loading and avoid tube twist. There's one adjustment: setting the tube clamps to grip large or small tubing. Changing the tube is the only routine maintenance. Minimum downtime means maximum throughput – and maximum value.

...and there's more

- Two wall thicknesses, eight materials and eight tubing sizes enable you to scale-up: benchtop to pilot to process.
- Unrivalled chemical resistance with PPS (polyphenylene sulfide) and stainless steel.
- Tough, clear, snap-shut safeguard.



The 520 pump is perfect for fermentation and other **biotech and pharmaceutical applications**, as shown here in hollow fibre perfusion at Unipath, world leaders in women's health diagnostics.

- Low shear – minimal denaturing of mammalian cells
- Contamination-free pumping from the cleanest of all pump types
- Predictable pump service intervals – extending validation periods

... for biopharm

... for every process

520S/R2: Just plug in and switch on for ultimate economy of ownership, with manual control.

520U/R2: The process workhorse with status outputs, configureable software and password protection.

520Du/R2: The ultimate process pump with RS232 and full industrial connectivity.

Feature	520Du/R2	520U/R2	520S/R2
Manual control Speed adjustment; run and stop; forward/reverse; "max" key for rapid priming and purging. Keypad lock prevents tampering and accidental change. Auto-restart for mains failure recovery	•	•	•
Remote auto control Digitally controlled with contact closure, 5V TTL or 24V industrial standard logic inputs for: run/stop, direction, auto/manual toggle, liquid detection and MemoDose trigger	•	•	
Analogue control Software calibrated remote speed control (4-20mA) Second analogue or keypad speed scaling	• •	•	
Pump status outputs 0-10V or 0-1258Hz analogue pump speed feedback Four 5V TTL or 24V industrial logic 4-20mA pump speed feedback	• • •	• •	
MemoDose Accurate, easy, single-shot dosing	•	•	•
Calibration Simple calibration to display the flowrate as well as the rotation speed		•	•
Password protection Guard against any set-up changes	•	•	
RS232 network control Full industrial standard connectivity for process control through PC, PLC or other plant controller	•		
Comprehensive calibration For precise metering and dispensing choice of flow units	•		

The 520S, 520U and 520Du pumps can be fitted with four alternative pumpheads for high accuracy dosing, multi-channel flows or very low flow pumping up to 48 channels.



The options



520Du/L: Fitted with the low-pulse, single or two channel 505L pumphead for accurate dosing.



520Du/D/X: 313 three roller or 314 four roller, flip-top pumpheads can be extended to provide up to five channels of flow.



520Du/CA4: Between 4 and 16 microlitre channels which can be extended up to 48 separate channels on a single drive.



Our finest, toughest, most versatile pumps ever.

Order information				
Pump	Specification	Power	Supply	Product number
520S/R2 220 rpm	IP31 2.4mm wt tube	115/230V	1ph 50/60 Hz	050.7131.2LU
520S/R 220 rpm	IP31 1.6mm wt tube	115/230V	1ph 50/60 Hz	050.7131.10U
520U/R2 220 rpm	IP31 2.4mm wt tube	115/230V	1ph 50/60 Hz	050.7141.2LU
520U/R 220 rpm	IP31 1.6mm wt tube	115/230V	1ph 50/60 Hz	050.7141.10U
520Du/R2 220 rpm	IP31 1.6mm wt tube	115/230V	1ph 50/60 Hz	050.7151.2LU
520Du/R 220 rpm	IP31 1.6mm wt tube	115/230V	1ph 50/60 Hz	050.7151.10U
*Mains leads: replace U with E, A or O if European, American or no plug is required				
Drive	Specification	Power	Supply	Product number
520S 220 rpm	IP31	115/230V	1ph 50/60 Hz	056.7131.00U
520U 220 rpm	IP31	115/230V	1ph 50/60 Hz	056.7141.00U
520Du 220 rpm	IP31	115/230V	1ph 50/60 Hz	056.7151.00U
Pumphead	Specification	Product number		
505CA4	Four channel, eight roller cassette pumphead	053.4202.000		
505CA8	Eight channel, eight roller cassette pumphead	053.4222.000		
505CA12	Twelve channel, eight roller cassette pumphead	053.4242.000		
505CA16	Sixteen channel, eight roller cassette pumphead	053.4262.000		
505CAX12	Twelve channel, eight roller extension cassette pumphead	053.3442.000		
505CAX16	Sixteen channel, eight roller extension cassette pumphead	053.3462.000		
505L	Low pulse twin channel pumphead	053.4001.000		
505LX	Low pulse twin channel extension pumphead	053.4011.000		
505LG	Low pulse twin channel pumphead for STA-PURE tubing	053.4010.00G		
313D/A	Three roller pumphead with adapter plate for 500 series cased drives, for 1.6mm wall thickness tubing	033.3401.000		
313D2/A	Three roller pumphead with adapter plate for 500 series cased drives, for 2.4mm wall thickness tubing	033.3501.000		
314D/A	Four roller pumphead with adapter plate for 500 series cased drives, for 1.6mm wall thickness tubing	033.4401.000		
314D2/A	Four roller pumphead with adapter plate for 500 series cased drives, for 2.4mm wall thickness tubing	033.4501.000		
313X	Three roller extension pumphead for 1.6mm wall thickness tubing	033.3431.000		
314X	Four roller extension pumphead for 1.6mm wall thickness tubing	033.4431.000		
313X2	Three roller extension pumphead for 2.4mm wall thickness tubing	033.3531.000		
314X2	Four roller extension pumphead for 2.4mm wall thickness tubing	033.4531.000		

Tubing						
2.4mm wall thickness tubing for 520R2						
Tube#	Tube bore	Bioprene	Marprene	Pumpsil*	Sta-Pure	Chem-Sure
105	0.5mm 1/50"			913.A005.024		
108	0.8mm 1/32"			913.A008.024		
119	1.6mm 1/16"	903.0016.024	902.0016.024	913.A016.024	960.0016.024	965.0016.024
120	3.2mm 1/8"	903.0032.024	902.0032.024	913.A032.024	960.0032.024	965.0032.024
15	4.8mm 3/16"	903.0048.024	902.0048.024	913.A048.024	960.0048.024	965.0048.024
24	6.4mm 1/4"	903.0064.024	902.0064.024	913.A064.024	960.0064.024	965.0064.024
121	8.0mm 5/16"	903.0080.024	902.0080.024	913.A080.024	960.0080.024	965.0080.024
122	9.6mm 3/8"	903.0096.024	902.0096.024	913.A096.024	960.0096.024	965.0096.024
1.6mm wall thickness tubing for 520R						
Tube#	Tube bore	Bioprene	Marprene	Pumpsil*	Sta-Pure	Chem-Sure
112	0.5mm 1/50"	903.0005.016	902.0005.016	913.A005.016		
13	0.8mm 1/32"	903.0008.016	902.0008.016	913.A008.016		
14	1.6mm 1/16"	903.0016.016	902.0016.016	913.A016.016	960.0016.016	965.0016.016
16	3.2mm 1/8"	903.0032.016	902.0032.016	913.A032.016	960.0032.016	965.0032.016
25	4.8mm 3/16"	903.0048.016	902.0048.016	913.A048.016	960.0048.016	965.0048.016
17	6.4mm 1/4"	903.0064.016	902.0064.016	913.A064.016	960.0064.016	965.0064.016
18	8.0mm 5/16"	903.0080.016	902.0080.016	913.A080.016	960.0080.016	965.0080.016
Tube#	Tube bore	Neoprene	Butyl	PVC	Fluorel	
112	0.5mm 1/50"				970.0005.016	
13	0.8mm 1/32"	920.0008.016			970.0008.016	
14	1.6mm 1/16"	920.0016.016	932.0016.016	950.0016.016	970.0016.016	
16	3.2mm 1/8"	920.0032.016	932.0032.016	950.0032.016	970.0032.016	
25	4.8mm 3/16"	920.0048.016	932.0048.016	950.0048.016	970.0048.016	
17	6.4mm 1/4"	920.0064.016	932.0064.016	950.0064.016	970.0064.016	
18	8.0mm 5/16"	920.0080.016	932.0080.016	950.0080.016	970.0080.016	

* Pumpsil is our own brand of platinum-cured silicone tubing with LaserTraceability.

For pumpheads requiring different tube wall thicknesses, contact Watson-Marlow Bredel or its authorised distributors.



IP31

