

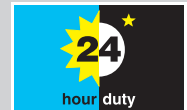
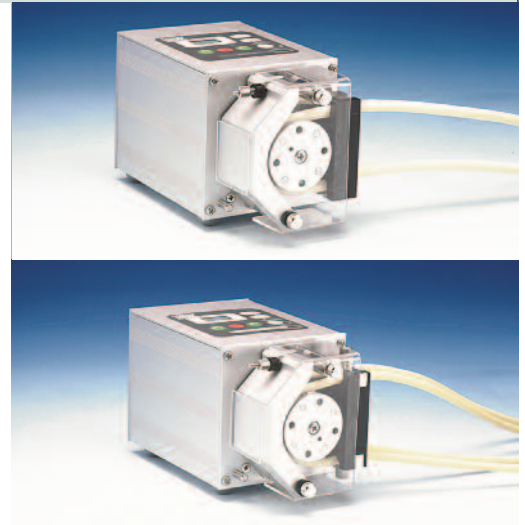
# 403U/R1, 403U/L and 403U/L2 auto/manual control compact pumps

# 400 series

Watson-Marlow Pumps Group

## COMMON FEATURES AND BENEFITS

- 403U/R1 flow rates up to 150ml/min and 403U/L provides up to 180ml/min and the 403U/L2 produces flow rates up to 92ml/min
- 403U/R1 is a single channel pump which accepts continuous tubing in eight bore sizes
- 403U/L uses a split channel tube element for single channel low-pulse flows
- 403U/L2 is a two channel pump which can be fitted with seven tube bore sizes
- Pumpheads have adjustable occlusion for precision flow rates
- IP21 ingress protection



*Watson-Marlow ... Value for life*

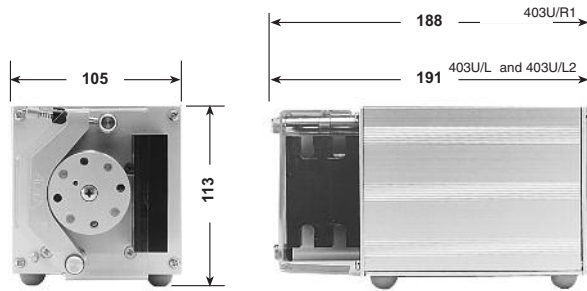
## FUNCTIONALITY

Pump drives	403U/R1	403U/L	403U/L2
<b>Manual/auto control</b>			
Speed control, direction and stop/start via top panel mounted keypad with digital display	•	•	•
2.5-50rpm 20:1 speed control	•	•	•
MAX high speed priming function	•	•	•
Reversible drive	•	•	•
<b>Analogue speed control and remote switching</b>			
Via a 15D connector	•	•	•

## PERFORMANCE

Flow rate ranges, per channel (ml/min)									
	Speed rpm	0.5mm	0.8mm	1.6mm	2.4mm	3.2mm	4.0mm	4.8mm	6.4mm
403U/R1	2.5 - 50	0.06 - 1.1	0.14 - 2.8	0.55 - 11	1.2 - 24	2.1 - 43	3.3 - 65	4.6 - 92	7.6 - 150
403U/L	2.5 - 50	0.11 - 2.2	0.28 - 5.6	1.1 - 22	2.4 - 49	4.3 - 86	6.5 - 130	9.2 - 180	
403U/L2	2.5 - 50	0.06 - 1.1	0.14 - 2.8	0.55 - 11	1.2 - 24	2.1 - 43	3.3 - 65	4.6 - 92	

## TECHNICAL DRAWINGS



All dimensions in mm

## SPECIFICATION

403U	
Weight	2.5kg
Temperature	5C to 40C (40F to 104F)
Noise	< 70dB(A) at 1m
Control ratio	20:1
Standards	CE, BS0800, IEC335-1, EN60529(IP21)
Power supply	13VA, 200-240V, 50/60Hz, 1ph,

## MATERIALS OF CONSTRUCTION

Component	Material
Drive	Extruded anodised aluminium
Front support plate	Anodised aluminium
Pumphead track	Extruded anodised aluminium
Pumphead rollers	Stainless steel
Pumphead rotor	Aluminium
Pumphead guard	Polyester resin (PET)
Tube clamps	Acetal

## ORDER INFORMATION

Product codes		
Description		Partcode
403U/R1	220-240V 50/60Hz 1ph single channel low flow pump	040.3K1R.010*
403U/L	220-240V 50/60Hz 1ph Y-element low flow pump	040.3K1L.010*
403U/L2	220-240V 50/60Hz 1ph dual channel low flow pump	040.3K1L.020*
400AC1	0-10V CW/STOP/CCW 1.5m remote cable	049.0011.000
400AC2	4-20mA CW/STOP/CCW 1.5m remote cable	049.0031.000
400AC3	CW/STOP/CCW 1.5m remote cable	049.0051.000
400AC4	START/STOP 3m remote cable fitted with foot switch	049.0071.000

\*Replace last 0 with A, E or U for American, European or UK mains supply (American 110V 1ph 60Hz)

Tube ordering codes for 403U/R1, 403U/L2 and transfer tube for 403U/L							
Bore/wall(mm)	Bioprene	Marprene	Pumpsil	PVC	Neoprene	STA-PURE®	Chem-Sure®
0.5/1.6	903.0005.016	902.0005.016	913.A005.016				
0.8/1.6	903.0008.016	902.0008.016	913.A008.016	950.0008.016	920.0008.016		
1.6/1.6	903.0016.016	902.0016.016	913.A016.016	950.0016.016	920.0016.016	960.0016.016	965.0016.016
3.2/1.6	903.0032.016	902.0032.016	913.A032.016	950.0032.016	920.0032.016	960.0032.016	965.0032.016
4.8/1.6	903.0048.016	902.0048.016	913.A048.016	950.0048.016	920.0048.016	960.0048.016	965.0048.016
6.4/2.4	903.0064.024	902.0064.024	913.A064.024	950.0064.016	920.0064.016	960.0064.024	965.0064.024

Tube ordering codes for L pumphead Y- elements		
Bore/wall(mm)	Marprene	Pumpsil
1.6/1.6	902.E016.016	910.E016.016
2.4/1.6	902.E024.016	910.E024.016
3.2/1.6	902.E032.016	910.E032.016
4.8/1.6	902.E048.016	910.E048.016

All flow rates shown were obtained pumping water at 20C (68F) with zero suction and delivery heads. Watson-Marlow, Bioprene and Marprene are trademarks of Watson-Marlow Limited. 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. LoadSure is a trademark of Watson-Marlow Limited. ® Chem-Sure and ® STA-PURE are registered trademarks of W.L. Gore & Associates Inc. Please state the product code when ordering pumps and tubing.

**WATSON  
MARLOW**

Watson-Marlow Pumps Group

Watson-Marlow Pumps Group  
Falmouth, Cornwall England TR11 4RU  
Tel: +44 (0)1326 370370 Fax: +44 (0)1326 376009  
www.watson-marlow.com info@watson-marlow.co.uk  
*Watson-Marlow ... Value for life*