

# 400/VM2-F, VM3-F, VM4-F Precision instrument quality multi-channel pumps

# 400 series

Watson-Marlow Pumps

## FEATURES AND BENEFITS

- 2-4 channel manifold tubing pumps
- Very low pulsation pumping and dosing provided with 10 rollers in C-teflon® low friction material
- Flow rate ranges down to micro liters per minute
- Individual spring loaded tracks for flexibility and maximised performance
- Pre-set occlusion for optimised performance and tube life
- Vast range of standard 2-bridged colour-coded tube elements is available in TPE, PVC and silicone materials (Bridge distance: 152mm)

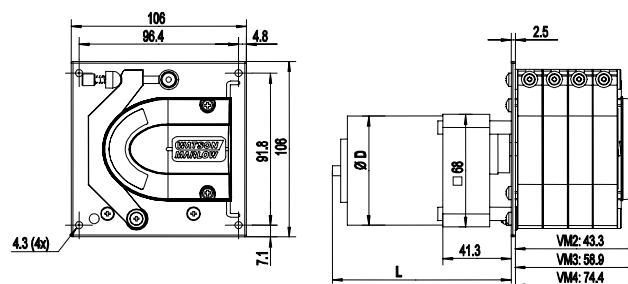


*Watson-Marlow...Innovation in Full Flow*

## PERFORMANCE

Flow rates ml/min @ nominal rpm							
Tube color code	Tube bore (mm)	ml/rev	12	25	30	60	100
Orange/Black	0.13	0.001	0.012	0.025	0.030	0.060	0.10
Orange/Red	0.19	0.003	0.036	0.075	0.090	0.18	0.30
Orange/Blue	0.25	0.004	0.048	0.10	0.12	0.24	0.40
Orange/Green	0.38	0.010	0.12	0.25	0.30	0.60	1.0
Orange/Yellow	0.51	0.018	0.22	0.45	0.54	1.1	1.8
Orange/White	0.64	0.028	0.34	0.70	0.84	1.7	2.8
Black/Black	0.76	0.038	0.46	0.95	1.1	2.3	3.8
Orange/Orange	0.89	0.053	0.64	1.3	1.6	3.2	5.3
White/White	1.02	0.068	0.82	1.7	2.0	4.1	6.8
Red/Red	1.14	0.085	1.0	2.1	2.6	5.1	8.5
Grey/Grey	1.30	0.11	1.3	2.8	3.3	6.6	11
Yellow/Yellow	1.42	0.13	1.6	3.3	3.9	7.8	13
Yellow/Blue	1.52	0.14	1.7	3.5	4.2	8.4	14
Blue/Blue	1.65	0.17	2.0	4.3	5.1	10.2	17
Green/Green	1.85	0.20	2.4	5.0	6.0	12.0	20
Purple/Purple	2.06	0.24	2.9	6.0	7.2	14.4	24
Purple/Black	2.29	0.27	3.2	6.8	8.1	16.2	27
Purple/Orange	2.54	0.31	3.7	7.8	9.3	18.6	31
Purple/White	2.79	0.34	4.1	8.5	10.2	20.4	34

## DIMENSIONS



	Motor type	Length L behind mounting surface	Motor diameter D
400FDC/VM	Coreless DC 30W	L=120mm	D=68mm
	Coreless DC 30W	L=90mm	D=40mm
400VDL/VM	Brushless DC 35W	L=105mm	D=68mm

\*=maximum length behind mounting plate

## MATERIALS OF CONSTRUCTION

Component	Material
Rotor	Anodised Aluminium
Rollers	C-Teflon®
Tracks	Anodised Aluminium
Tube holder	Anodised Aluminium
Shafts	Acid resistant stainless steel
Mounting panel	Anodised Aluminium
Springs	Stainless steel
Screws	Stainless steel
Front cover	Polycarbonate

## ORDER INFORMATION

400FDC/VM					
Motor type	Supply	Nominal speed* (rpm)	VM2-F 2 channel	VM3-F 3 channel	VM4-F 4 channel
Coreless DC 30W	24VDC	100	040.LPFV.M2T	040.LPFV.M3T	040.LPFV.M4T
Coreless DC 5W	24VDC	60	040.EMFV.M2T	040.EMFV.M3T	040.EMFV.M4T
Coreless DC 5W	24VDC	25	040.ECFV.M2T	040.ECFV.M3T	040.ECFV.M4T
Coreless DC 5W	24VDC	12	040.E8FV.M2T	040.E8FV.M3T	040.E8FV.M4T

\*Nominal voltage and nominal load. Speed is load dependent and can be adjusted by altering the voltage

400VDL/VM					
Motor type	Supply	Nominal speed* (rpm)	VM2-F 2 channel	VM3-F 3 channel	VM4-F 4 channel
Brushless DC 35W	24VDC	100	040.NPFV.M2T	040.NPFV.M3T	040.NPFV.M4T
Brushless DC 35W	24VDC	30	040.NEFV.M2T	040.NEFV.M3T	040.NEFV.M4T

Tube ordering codes for 400FDC and 400VDL pumpheads					
Tube color code	Bore	Pharmed PBT (Bridge distance=152mm)	Tygon E3603 (Bridge distance=152mm)	Tygon LFL (Bridge distance=152mm)	Silicone Platinum cured (Bridge distance=140mm)
Orange/Black	0.13		980.A013.152		
Orange/Red	0.19		980.A019.152		
Orange/Blue	0.25	978.A025.152	980.A025.152	987.A025.152	
Orange/Green	0.38	978.A038.152	980.A038.152	987.A038.152	
Green/Yellow	0.44		980.A044.152		
Orange/Yellow	0.51	978.A051.152	980.A051.152	987.A051.152	983.A051.140
White/Yellow	0.57		980.A057.152		
Orange/White	0.64	978.A064.152	980.A064.152	987.A064.152	
Black/Black	0.76	978.A076.152	980.A076.152	987.A076.152	983.A076.140
Orange/Orange	0.89	978.A089.152	980.A089.152	987.A089.152	
White/Black	0.95		980.A095.152		
White/White	1.02	978.A102.152	980.A102.152	987.A102.152	983.A102.140
White/Red	1.09		980.A109.152		
Red/Red	1.14	978.A114.152	980.A114.152	987.A114.152	983.A114.140
Red/Grey	1.22		980.A122.152		
Grey/Grey	1.30		980.A130.152	987.A130.152	983.A130.140
Yellow/Yellow	1.42	978.A142.152	980.A142.152	987.A142.152	983.A142.140
Yellow/Blue	1.52	978.A152.152	980.A152.152	987.A152.152	
Blue/Blue	1.65	978.A165.152	980.A165.152	987.A165.152	
Blue/Green	1.75		980.A175.152		
Green/Green	1.85	978.A185.152	980.A185.152	987.A185.152	
Purple/Purple	2.06	978.A206.152	980.A206.152	987.A206.152	983.A206.140
Purple/Black	2.29	978.A229.152	980.A229.152	987.A229.152	983.A229.140
Purple/Orange	2.54	978.A254.152	980.A254.152	987.A254.152	983.A254.140
Purple/White	2.79	978.A279.152	980.A279.152	987.A279.152	983.A279.140

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. © STA-PURE PFL and © STA-PURE PCS are registered trademarks of W.L Gore & Associates Inc. Please state the product code when ordering pumps and tubing.

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