

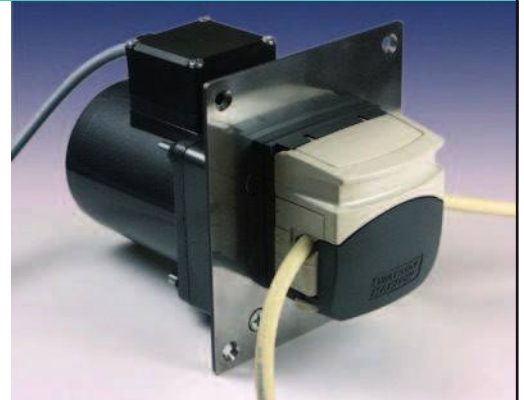
# 313/314 FAM, FDM and VBM Heavy duty AC and DC OEM-pumps

# 300 series

Watson-Marlow Pumps

## FEATURES

- Rugged peristaltic pumps for industrial applications
- Complete range of drives; AC, DC and brushless DC
- Heavy duty spur gearbox with ball bearings
- High performance easy load flip-top pumphead
- Available in multichannel versions with up to 6 channels
- Flow rates up to 1800 ml/min



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

## PERFORMANCE

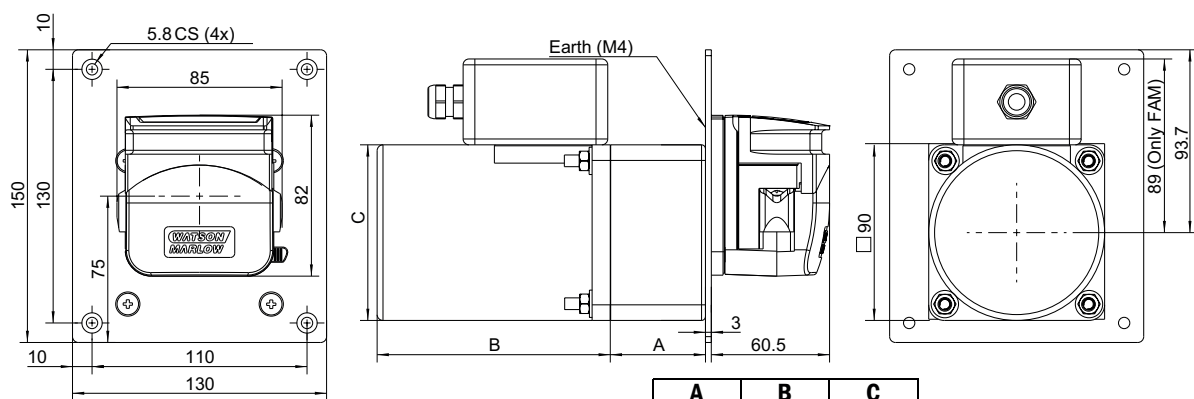
### Flow rates (ml/min)

Marprene tubing 1.6mm wall, zero pressure and no suction lift  
Nominal flow rates may vary +/-10%

ml/min with tubing dimension:	FAM 50Hz				FAM 60Hz			FDM 12/24VDC				VBM 24VDC		
	RPM													
Tube bore (mm)	37	75	145	290	42	85	170	45	90	175	350	100	190	360
0.5	1.3	2.6	5.0	10	1.4	3.0	6.0	1.5	3.0	6.0	12	3.4	6.5	12
0.8	2.6	5.4	10	21	3.0	6.0	12	3.2	6.4	13	25	7.0	14	26
1.6	10	20	39	79	11	23	46	12	24	48	95	27	52	100
3.2	37	75	145	290	42	85	170	45	90	175	350	100	190	360
4.8	80	165	320	640	90	190	375	100	198	385	770	220	420	790
6.4	130	270	520	1045	150	305	610	160	325	630	1260	360	685	1296
8.0	185	375	725	1450	210	425	850	225	450	875	1750	500	950	1800

314 flowrates are approximately 85% of 313 flow rates

## DIMENSIONS



	A	B	C
FAM 37 and 42 rpm	68	100	Ø90
FAM 75, 85, 145, 170 and 290 rpm	50	100	Ø90
FDM 45 rpm	68	110	Ø80
FDM 90, 175 and 230 rpm	50	110	Ø80
VBM 100 rpm	63	60	Ø70
VBM 190 and 360 rpm	45	60	Ø70

All dimensions in millimetres

## TECHNICAL SPECIFICATION

Specification	FAM AC-drive	FAM AC-drive
Motor type	1 phase, 4 pole induction motor	1 phase, 4 pole induction motor
Supply voltage	220-230VAC	110-115VAC
Power consumptions	40W	20W
Nominal speed	1450rpm@50Hz	1400rpm@50Hz
	1750rpm@60Hz	1700rpm@60Hz
Reversible	Reversible	Reversible
Terminal box	With terminal box for easy and secure installation	With terminal box for easy and secure installation
Capacitor	Capacitor included (inside term. Box)	Capacitor included (inside term. Box)
Working temperature	-10 to +40°C	-10 to +40°C
Protection class	IP41	IP41

Specification	FDM DC-drive	VBM brushless DC-drive
Motor type	Carbon brush DC-motor	Brushless variable speed motor
Supply voltage	12 or 24VDC	24VDC
Power consumptions	30W	60W
Motor speed	1750rpm (nominal)	4000rpm (Max speed)
Reversible	Reversible	Reversible
Speed adjustment	Speed can be adjusted by altering the input voltage	Integrated speed control by additional 0-4V signal
Brushes	Replaceable brushes (normal life 2500 to 4000h)	No brushes (extremely long life with no maintenance)
Cable length	300mm	500 mm
Working temperature	-10 to +40C	-10 to +40C
Protection class	IP41	IP41

### Special note for the FAM drive:

The drives are delivered with a capacitor optimised for most applications.

By altering the capacitor value one can achieve:

1. Increased starting torque in high torque applications
2. Reduced heat in long life continuous running applications

### Pumphead description

313 and 314 pumpheads are fast loading and easy to use with flip-top design

They attach to the drive with a bayonet fitting. Up to six pumpheads can be ganged to a drive for multi channel pumping

313 pumpheads have three rollers and 314 pumpheads have four rollers. The four roller design gives higher precision and less pulsation, but with lower flow (85%) than with three rollers.

Available in two versions for 1.6 mm (D) and 2.4mm (D2) wall thickness tubing with adjustable tube clamps for 0.5 mm to 8.0 mm bore thickness.

## ORDER INFORMATION

Description	Supply voltage	Speed (rpm)	Number of channels	Product code
313FAM/D	230VAC, 50Hz	37	6	040.AG23.010
	115VAC, 60Hz	42	4	040.EH23.010
	230VAC, 50Hz	75	4	040.AN23.010
	115VAC, 60Hz	85	2	040.EP23.010
	230VAC, 50Hz	145	2	040.AQ23.010
	115VAC, 60Hz	170	1	040.ER23.010
	230VAC, 50Hz	290	1	040.AU23.010

Description	Supply voltage	Speed (rpm)	Number of channels	Product code
313FDM/D	12VDC	45	6	040.CH23.010
	24VDC	45	6	040.DH23.010
	12VDC	90	4	040.CP23.010
	24VDC	90	4	040.DP23.010
	12VDC	175	2	040.CR23.010
	24VDC	175	2	040.DR23.010
	12VDC	350	1	040.CV23.010
	24VDC	350	1	040.DV23.010

Description	Supply voltage	Speed (rpm)	Number of channels	Product code
313VBM/D	24VDC	100	3	040.NP23.010
	24VDC	190	2	040.NS23.010
	24VDC	360	1	040.NV23.010

Silicone 8.0mm no backpressure  
Marprene max 6.4mm no backpressure

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.

**WATSON  
MARLOW**  
Pumps