

502VK

Operating Instructions

PB 0107

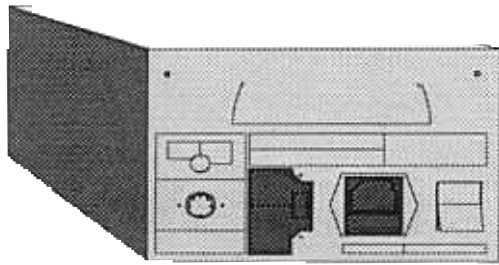


220-240V 50/60Hz

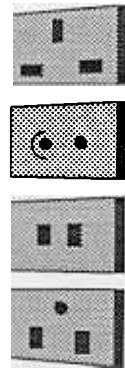
Brown Blue Green/Yellow		Live Neutral Earth	GB AUS NZ ZA
Marron Bleu Vert/Jaune		Phase Neutre Terre	F B CH
Braun Blau Grün/Gelb		Phase Null Erde	D CH
Bruin Blauw Groen/Geel		Fase Nulleider Aarde	NL B
Marron Azul Verde/Amarillo		Linea Neutro Tierra	I CH
Marron Azul Verde/Amarillo		Cargado Neutro Tierra	E
Brun Blå Grön/Gul		Ledare Nolla Jord	S
Brun Blå Grønn/Gul		L2 L1 Jord	N
Ruskra Sininen Vihrea/Keltainen		Plussa Nolla Maa	SF
Brun Blå Grøn/Gul		Fase Nul Jord	DK

100-120V 60Hz

Black White Green		Active Neutral Ground	USA CDN J
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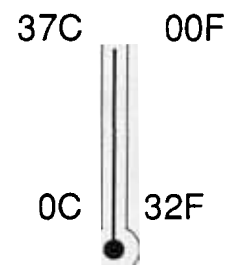
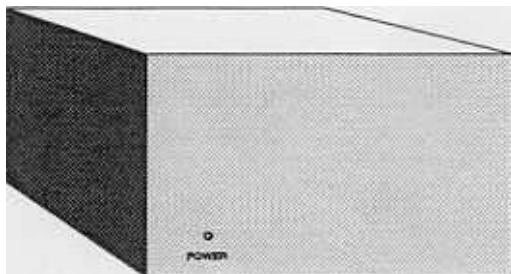
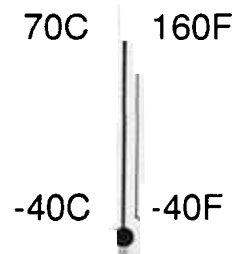
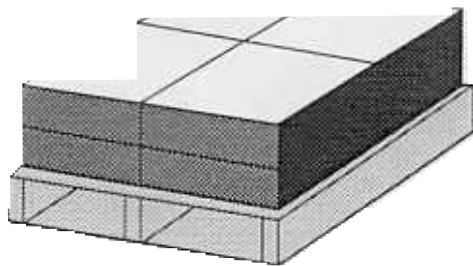


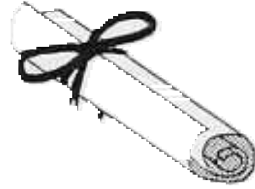
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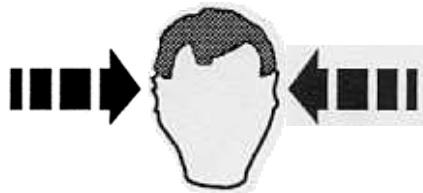
220-240V
50/60Hz

100-120V
50/60Hz

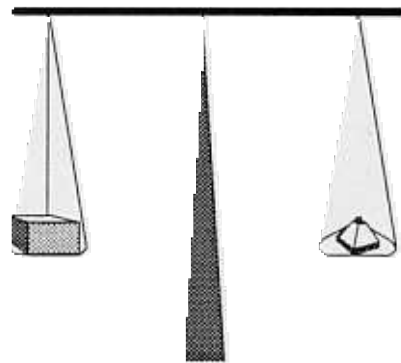




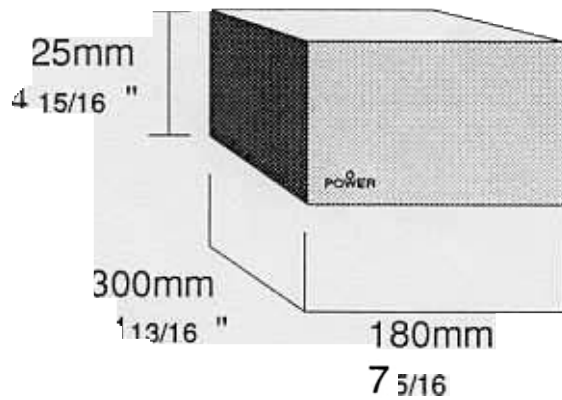
P31

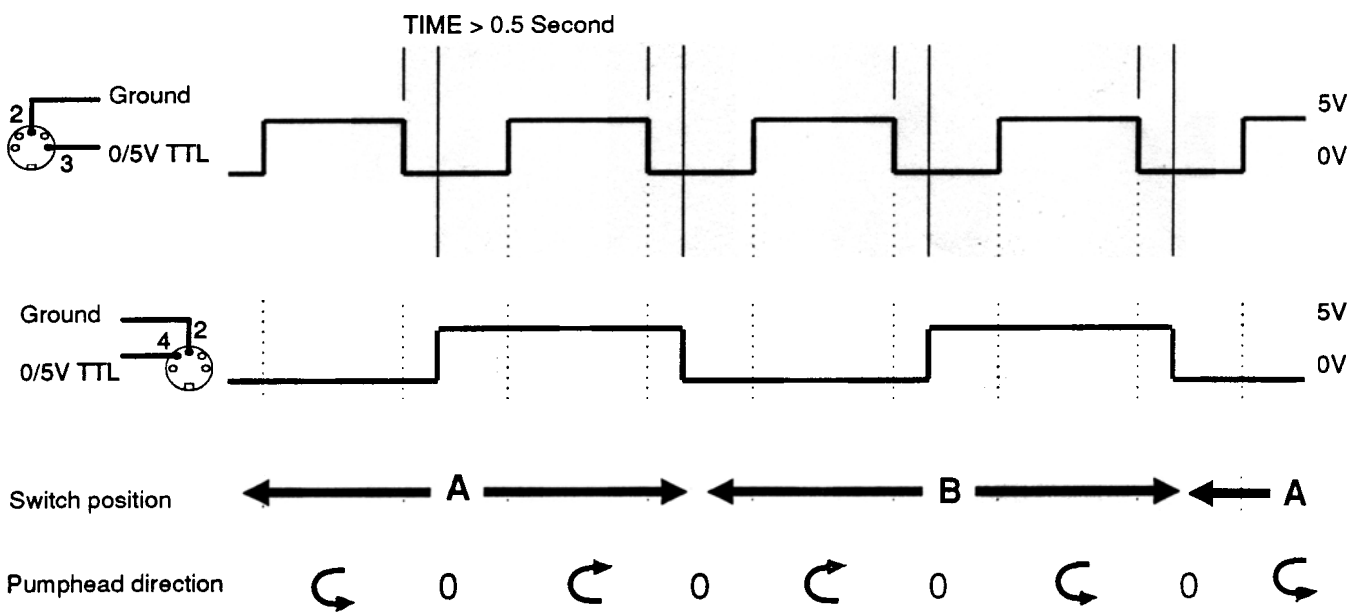
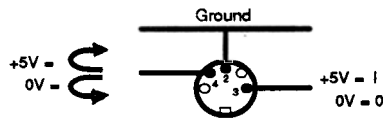
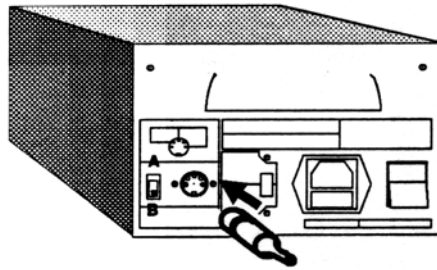
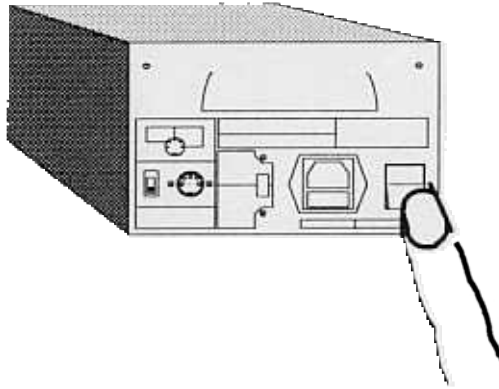


65 dBA



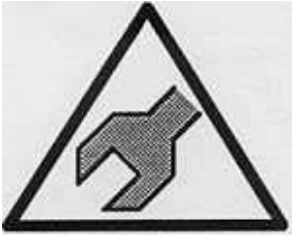
4.7kg (10)lbs





Note: Direction reverse TTL input or switch should only be used with the pump stopped





502VK Spares

FS	0003	Fuse 1.0A T type
LS	0010	110V neon lamp
MNA0297A		Printed circuit board assembly
MNA0303A		Motor/gearbox assembly
SW	0080	Mains on/off switch
SW	0086	Voltage selector switch
TF	0022	Toroidal transformer

Quick start-up guide

- 1 Fit 502AA over boss on drive and tighten two knurled nuts at top and bottom of pumphead adaptor. Tongue on drive shaft must engage with slot in centre shaft of pumphead.
- 2 If a 502AAX extension pumphead is to be fitted, remove end plate of the 502AA pumphead, fit the 502AAX pumphead to the 502AA pumphead, and fit the end plate to the 502AAX pumphead.
- 3 Load tubing into pumphead cassettes and fit cassettes into pumphead starting at drive end.
- 4 Individual cassettes may be removed without disturbing the pumping action of others.

Two year warranty

Watson-Marlow warrants, subject to the conditions below, through either Watson-Marlow or its authorised distributors, to repair or replace free of charge, including labour, any part of this product which fails within two years of delivery of the product to the end user. Such failure must have occurred because of defect in material or workmanship and not as a result of operation of the product other than in accordance with the instructions given in this manual.

Conditions of and specific exceptions to the above warranty are:

Consumable items such as rollers and tubing are excluded.

- 2 Products must be returned by pre-arrangement carriage paid to Watson-Marlow or its authorised distributor.
- 3 All repairs or modifications must have been made by Watson-Marlow or its authorised distributors or with the express permission of Watson-Marlow or its authorised distributors.
- 4 Products which have been abused, misused, or subjected to malicious or accidental damage are excluded.

Warranties purporting to be on behalf of Watson-Marlow made by any person, including representatives of Watson-Marlow or its distributors, which do not accord with the terms of this warranty shall not be binding upon Watson-Marlow unless expressly approved in writing by a Director or Manager of Watson-Marlow.

Introduction

Thank you for purchasing this Watson-Marlow 502AA pumphead. Like all Watson-Marlow products, it is made to very high standards to give many years of reliable and accurate performance. The 502AA is available in four, eight, twelve and sixteen channel versions, and the 502AAX extension pumphead is available in twelve and sixteen channel versions.

Each pumphead has an integral planetary gearbox which drives each of the six stainless steel rollers eliminating much of the normal friction induced tube wear. It is this feature which greatly extends the life of tubing in this pumphead. The gearbox has a 4:1 reduction ratio which results in the final rotor speed being only a quarter of the input speed from the drive.

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1. 502AA installation

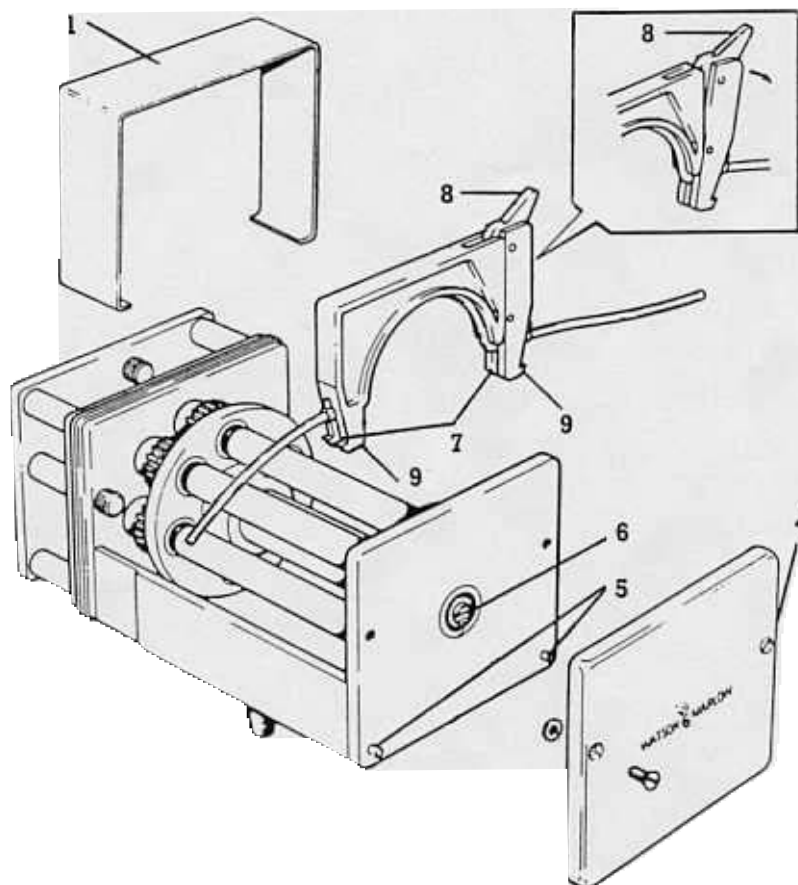
WARNING: Before installing any pumphead ensure that the drive is switched off and isolated from the mains. Failure to do so could result in injury to the user or damage to the pump.

Fit the pumphead over the boss on the drive module ensuring that the tongue of the drive shaft locates on the slot in the pumphead centre shaft. Tighten the retaining screws at the top and bottom of the pumphead adaptor.

2. 502AAX installation

Up to thirty-two channels may be driven from one 502VK drive, using one 502AA pumphead and one or two 502AAX extension pumpheads (see flow rate tables). To fit an extension pumphead, remove the end cover plate (4) from the 502AA to expose the two locating pins (5) and the drive shaft slot (6). Spring off the gearbox cover plate (1) from the 502AAX extension pumphead.

Locate the 502AAX extension pumphead on to the two locating pins, ensuring that the tongue of its drive shaft engages in the slot in the shaft of the 502AA. Tighten the two knurled retaining screws on the right and left of the 502AAX gearbox. Replace the gearbox cover plate. If a third module is to be added, repeat this procedure. Fit the end plate to the last pumphead.



3. Cassette loading

The cassettes are designed only for use with manifold pump tubing. Place the tube, without twisting it or stretching it, into the tube retaining slots (7). Depress the cam adjustment lever (8) which will move the cassette leg inwards. Load the cassettes into the pumphead starting at the drive end. Ensure that both retaining lips (9) are properly engaged, then raise the cam adjustment lever to its vertical position to give the normal tube occlusion. The final delivery pressure can be varied slightly by adjusting the cam lever position.

CAUTION All cassettes should be in position in the pumphead, even if some do not contain tubing, before the pump is switched on.

4. Cassette removal

Depress the cam adjustment lever fully and lift out the cassette. There is no need to switch the drive module off to remove a cassette, and the removal of a cassette will not disturb the pumping action of any other.

5. Single segment manifold tubing for AA pumpheads

Bore mm "	Colour code	Marpene	PVC	Silicone	Solvent resist.	Acid resist.
0.13 0.005	Orange/black		980.0013.000		984.0013.000	
0.19 0.007	Orange/red		980.0019.000		984.0019.000	
0.25 0.010	Orange/blue	978.0025.000	980.0025.000		984.0025.000	
0.38 0.015	Orange/green	978.0038.000	980.0038.000		984.0038.000	
0.50 0.020	Orange/yellow	978.0050.000	980.0050.000		984.0050.000	986.0050.000
0.63 0.025	Orange/white	978.0063.000	980.0063.000	982.0063.000	984.0063.000	986.0063.000
0.76 0.030	Black/black	978.0076.000	980.0076.000	982.0076.000	984.0076.000	986.0076.000
0.88 0.035	Orange/orange	978.0088.000	980.0088.000	982.0088.000	984.0088.000	986.0088.000
1.02 0.040	White/white	978.0102.000	980.0102.000	982.0102.000	984.0102.000	986.0102.000
1.14 0.045	Red/red	978.0114.000	980.0114.000	982.0114.000	984.0114.000	986.0114.000
1.29 0.050	Grey/grey	978.0129.000	980.0129.000	982.0129.000	984.0129.000	986.0129.000
1.42 0.055	Yellow/yellow	978.0142.000	980.0142.000	982.0142.000	984.0142.000	986.0142.000
1.47 0.058	Translucent			982.0147.000		
1.52 0.060	Yellow/blue	978.0152.000	980.0152.000	982.0152.000	984.0152.000	986.0152.000
1.65 0.065	Blue/blue	978.0165.000	980.0165.000	982.0165.000	984.0165.000	986.0165.000
1.85 0.070	Green/green	978.0185.000	980.0185.000	982.0185.000	984.0185.000	986.0185.000
2.05 0.080	Purple/purple	978.0205.000	980.0205.000	982.0205.000	984.0205.000	986.0205.000
2.38 0.095	Purple/black	978.0238.000	980.0238.000	982.0238.000	984.0238.000	986.0238.000
2.54 0.100	Purple/orange	978.0254.000	980.0254.000	982.0254.000	984.0254.000	986.0254.000
2.79 0.110	Purple/white	978.0279.000	980.0279.000	982.0279.000	984.0279.000	986.0279.000

6. Flow rates

These flow rates were obtained pumping water at 20C with zero suction and delivery pressures. If flow rate is critical, it should be measured under operating conditions where the important factors are suction and delivery, temperature and viscosity. Flow rates are in ml/minute at 125rpm (502VK pumphead speed).

Bore mm	0.13	0.19	0.25	0.38	0.52	0.63	0.76	0.88	1.02	1.14
"	0.005	0.007	0.010	0.015	0.020	0.025	0.030	0.035	0.040	0.045
Flow ml/min	0.06	0.15	0.35	0.60	0.96	1.43	1.93	2.73	3.60	4.63
mm	1.29	1.42	1.47	1.52	1.65	1.85	2.05	2.28	2.54	2.79
"	0.050	0.055	0.058	0.060	0.065	0.070	0.080	0.095	0.100	0.110
Flow ml/min	5.63	7.23	7.90	8.55	9.40	12.2	14.6	17.7	22.7	25.5

7. Care and maintenance

When the pumphead needs cleaning, switch the drive off and isolate it from the mains. Withdraw the cassettes from the pumphead and remove the tubing. Wash the cassettes in water and mild detergent. If fluid has been spilled into the pumphead, removal of the pumphead from the drive will make cleaning easier. Periodically, inspect all moving parts for wear and ensure all bearings and rollers are free to rotate.

8. Spares

- BB 0003 Bearing, roller
- BB 0014 Bearing, centre shaft
- DE 0264B Gear, centre, 45 teeth, brass
- DE 0265S End plate
- DE 0293S Gearbox cover
- DE 0301M Gear, 35 teeth, plastic, 6 required
- DE 0466T Roller, 4 channel
- DE 0467T Roller, 16 channel
- DE 0494A Foot
- DE 0552T Roller, 12 channel
- DE 0553T Roller, 8 channel
- DEA 0014A Cassette assembly
- DEA 0015A Pumphead adaptor for 300 or 500 series drives