Publication PB 0120
Issue 2

302F/RL fixed speed pump &
302S/RL variable speed pump
Installation and operating instructions

Drive/s:	**302S Issue 3**
	302F Issue 2
EPROM:	**N/A**
Pumphead/s:	**Issue 1**

302S/RL & 302F/RL

Contents

Declarations

Declaration of conformity

CE

When the 302S/RL or the 302F/RL pump units are used as stand alone pumps they comply with:

Machinery Directive 89/392/EEC EN60204-1

Low Voltage Directive 73/23/EEC EN61010-1

EMC Directive 89/336/EEC EN50081-1/EN50082-1

Declaration of incorporation

When the 302S/RL or the 302F/RL, are to be installed into machines or are to be assembled with other machines for installations, they must not be put into service until the relevant machinery has been declared in conformity with the provisions of the Machinery Directive 89/392/EEC and EN60204-1.

Responsible person: A S Balding, Managing Director, Watson-Marlow Limited, Falmouth, Cornwall TR11 4RU, England.

Telephone 01326 370370 Fax 01326 376009

One year warranty

Watson-Marlow Limited warrants, subject to the conditions below, through either Watson-Marlow Limited, its subsidiaries, or its authorised distributors, to repair or replace free of charge, including labour, any part of this product which fails within one year 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.
- Products must be returned by pre-arrangement carriage paid to Watson-Marlow Limited, its subsidiaries, or its authorised distributor.
- All repairs or modifications must have been made by Watson-Marlow Limited, its subsidiaries, or its authorised distributors or with the express permission of Watson-Marlow Limited, its subsidiaries, or its authorised distributors.
- Products which have been abused, misused, or subjected to malicious or accidental damage or electrical surge are excluded.

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

Information for returning pumps

Any equipment which has been contaminated with, or exposed to, body fluids, toxic chemicals or any other substance hazardous to health must be decontaminated before it is returned to Watson-Marlow or its distributor.

A certificate (a suitable blank form is included at the rear of these operating instructions), or signed statement, must be attached to the outside of the shipping carton.

This certificate is required even if the pump is unused. If the pump has been used, the fluids that have been in contact with the pump and the cleaning procedure must be specified along with a statement that the equipment has been decontaminated.

Safety

In the interests of safety, this pump and the tubing selected should only be used by competent, suitably trained personnel after they have read and understood this manual, and considered any hazard involved.

Any person who is involved in the installation or maintenance of this equipment should be fully competent to carry out the work. In the UK this person should also be familiar with the Health and Safety at Work Act 1974.

Ensure the drive is inoperative before removing the cover.

There are dangerous voltages (at mains potential) inside the unit. If access is required, isolate the pump from the mains before removing the cover.

Recommended operating procedures

DO keep delivery and suction lines as short as possible.

DO use the minimum number of bends in rigid pipe runs. If there must be a bend, use a swept bend and not a tight elbow.

DO use suction and delivery pipelines with a bore equal to or larger than the bore of the tube fitted in the pumphead. When pumping **viscous** fluids, the losses caused by increased friction can be overcome by using pipe runs with a cross sectional area several times greater than the pumping element.

DO run at a slow speed when pumping viscous fluids. When using the 501RL pumphead, a 4.8 or 6.4mm bore tube with a 1.6mm wall will give best results. Tube smaller than this will generate a high friction pressure loss, so reducing the flow. Tube with a larger bore will not have sufficient strength to restitute. Flooded suction will enhance pumping performance in all cases, particularly for materials of a viscous nature. Silicone and Marprene tubing is available with a 2.4mm wall thickness for speeds up to 200rpm. (The rotor will require re-setting to a roller/track gap of 3.8mm.)

DO use the largest possible bore tube running at slow speed for the longest tube life.

DO fit an extra length of pump tube in the system so that you can move the tube through the pumphead occasionally, without needing to break the pumping circuit. This is particularly useful for extending tube life in long running sterile applications.

DO keep the track and rollers clean, and ensure that the rollers are free.

DO NOT fit valves in the suction or delivery lines without considering that peristaltic pumps are self priming and will hold their prime up to several metres, so there may be no need for non-return or foot valves, nor for the loading valves required on many other kinds of pumps.

Any valves fitted must cause no restriction. If electrically actuated valves are fitted, they should be interlocked so that the pump will only run when the valves are open. Fit an automatic by-pass if manual valves are installed.

When using Marprene or Bioprene tubing, after the first 30 minutes of running, re-tension the tube in the pumphead by releasing the tube clamp on the delivery side a little and pulling the tube tight. This is to counteract the normal stretching that occurs with Marprene and Bioprene, which can go unnoticed and result in reduced tube life.

Tube selection The chemical compatibility list published in the Watson-Marlow catalogue is only a guide. If in doubt about the compatibility of a tube material and the duty fluid, request a tube sample card for immersion trials. Remember the sample will be fully immersed, but the fluid when in use will only be in contact with the inside of the tube. If the material swells but does not lose its strength it could be worth considering.

Viscous dispensing To overcome the common problems of reduced accuracy and dripping delivery pipes, the suction and delivery lines should be kept as short as possible. Use larger bore transmission tubing than that in the pumphead to keep the friction losses to a minimum. Improved accuracy will be noticed if rigid or semi-rigid pipe is used on the delivery side. The rigid tube is effective in reducing over-run because it does not expand during pumping.

Part 1: 302F and 302S drives

Installation

The 302F and 302S are suitable for single phase mains electricity supplies only. They will accept any voltage from 110V to 240V at either 50Hz or 60Hz. A mains cable fitted with a moulded plug is supplied with the drive, but if another plug is to be fitted, the colour coding of the mains lead must be observed. The mains cable for UK and European supplies is coded so that the live lead is coloured brown, the neutral lead is coloured blue, and the earth lead is coloured green and yellow. The mains cable for American supplies is coded so that the live lead is coloured black, the neutral lead is coloured white, and the earth lead is coloured green.

If the drive does not operate correctly, check that mains electricity is available at the unit, that the mains supply is within range, and that the fuse (located in the carrier beneath the mains connector) is intact.

There are dangerous voltages (mains potential) inside the drive. If access is required, isolate the drive from the mains before removing the cover.

The front panel potentiometer of the 302S may be set to give speeds within the range 10 to 100% of maximum speed. It features a locking knob which should be pulled out to unlock, turned to give the appropriate speed setting, and pushed in to relock. For rapid priming, depress the MAX switch (non latching) to give maximum speed; on release the drive will return to its original speed setting.

Do not change the direction of rotation of the drive shaft whilst running the pump. Stop the drive before carrying out this operation.

Flow rates

The 302F and 302S can be fitted with any of six different pumpheads. For more information about the 501RL see Part 2 of this manual. For details of other pumpheads, please refer to the relevant operating instructions. Maximum numbers of pumpheads/channels permissible are also given.

The flow rates given below were obtained using silicone tubing (except for the 505AA where PVC tubing was used), with the pumphead rotating clockwise, pumping water at 20C with zero suction and delivery pressures (unless otherwise stated).

Where an application is critical, the flow rate should be determined under operating conditions. The important factors are suction and delivery pressures, temperature, and fluid viscosity. Tube life will be reduced when pumping against pressure.

501RL flow rates (ml/min)							
Tube #	112	13	14	16	25	17	18
Tube bore	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm
	1/50"	1/32"	1/16"	1/8"	3/16"	1/4"	5/16"
55 rpm	**2.3**	**6.7**	**24**	**100**	**220**	**350**	**550**
220 rpm	**9.2**	**27**	**94**	**410**	**890**	**1400**	**2200**

505L (fitted with double-Y tubing element) flow rates (ml/min)						
Tube #	14	16	25	17	18	122
Tube bore	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm	9.6mm
	1/16"	1/8"	3/16"	1/4"	5/16"	3/8"
55 rpm	**40**	**125**	**230**	**385**	**495**	**685**
220 rpm	**155**	**500**	**925**	**1540**	**1980**	**2750**

* 9.6mm bore through pumphead and to delivery; 12.7mm bore to source.An MNA0345A twin tube clamp, available from Watson-Marlow or its distributors, must be purchased to enable the 9.6mm high-flow double-Y tubing element to be used.

303 flow rates (ml/min)							
Tube #	112	13	14	16	25	17	18
Tube bore	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm
	1/50"	1/32"	1/16"	1/8"	3/16"	1/4"	5/16"
55 rpm	**1.7**	**3.9**	**15**	**55**	**121**	**198**	**275**
220 rpm	**6.6**	**15.4**	**60**	**220**	**484**	**792**	**1100**
***Note:**303 pumpheads must not be run at speeds greater than 220rpm*							

Maximum number of 303 pumpheads							
Silicone tubing							
Tube #	112	13	14	16	25	17	18
Tube bore	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm
	1/50"	1/32"	1/16"	1/8"	3/16"	1/4"	5/16"
55 rpm	**6**	**6**	**6**	**6**	**6**	**6**	**5**
220	**6**	**6**	**6**	**6**	**6**	**6**	**5**
Marprene, Tygon, Neoprene and Viton tubing							
Tube #	112	13	14	16	25	17	18
Tube bore	0.5mm	0.8mm	1.6mm	3.2mm	4.8mm	6.4mm	8.0mm
	1/50"	1/32"	1/16"	1/8"	3/16"	1/4"	5/16"
55 rpm	**6**	**6**	**6**	**6**	**4**	**3**	**3**
220 rpm	**6**	**6**	**6**	**6**	**4**	**3**	**3**

505LA flow rates (ml/min)								
Tube bore								max channels
mm	0.13	0.19	0.25	0.38	0.50	0.63	0.76	
"	0.005	0.007	0.01	0.015	0.02	0.025	0.03	
55 rpm	**0.09**	**0.23**	**0.49**	**1.20**	**1.60**	**1.98**	**3.28**	12
Tube bore								max channels
mm	0.88	1.02	1.14	1.29	1.42	1.47	1.52	
"	0.035	0.04	0.045	0.05	0.055	0.058	0.06	
55 rpm	**3.62**	**6.07**	**7.08**	**9.34**	**10.6**	**11.6**	**12.2**	12
Tube bore								max channels
mm	1.65	1.85	2.05	2.38	2.54	2.79		
"	0.065	0.07	0.08	0.09	0.1	0.11		
55 rpm	**13.6**	**15.9**	**21.1**	**25.8**	**29.8**	**32.2**		12
***Note:** The 505LA pumphead must not be run at speeds greater than 55rpm*								

505AA flow rates (ml/min)								
Tube bore								max channels
mm	0.13	0.19	0.25	0.38	0.50	0.63	0.76	
"	0.005	0.007	0.01	0.015	0.02	0.025	0.03	
55 rpm	**0.03**	**0.07**	**0.16**	**0.27**	**0.43**	**0.63**	**0.85**	
170 rpm	**0.09**	**0.21**	**0.48**	**0.82**	**1.33**	**1.94**	**2.62**	48
Tube bore								max channels
mm	0.88	1.02	1.14	1.29	1.42	1.47	1.52	
"	0.035	0.04	0.045	0.05	0.055	0.058	0.06	
55 rpm	**1.20**	**1.58**	**2.04**	**2.48**	**3.18**	**3.48**	**3.76**	
170 rpm	**3.71**	**4.90**	**6.29**	**7.65**	**9.83**	**10.7**	**11.6**	48
Tube bore								max channels
mm	1.65	1.85	2.05	2.38	2.54	2.79		
"	0.065	0.07	0.08	0.09	0.1	0.11		
55 rpm	**4.14**	**5.37**	**6.46**	**7.83**	**10.0**	**11.2**		
170 rpm	**12.8**	**16.6**	**20.0**	**24.2**	**31.0**	**34.7**		48
***Note:** 505AA pumpheads must not be run at speeds greater than 170rpm*								

505BA flow rates (ml/min)								
Tube bore								max channels
mm	0.13	0.19	0.25	0.38	0.50	0.63	0.76	
"	0.005	0.007	0.01	0.015	0.02	0.025	0.03	
55 rpm	**0.03**	**0.07**	**0.17**	**0.27**	**0.44**	**0.79**	**1.16**	
170 rpm	**0.09**	**0.22**	**0.50**	**0.83**	**1.36**	**2.45**	**3.57**	48
Tube bore								max channels
mm	0.88	1.02	1.14	1.29	1.42	1.47	1.52	
"	0.035	0.04	0.045	0.05	0.055	0.058	0.06	
55 rpm	**1.54**	**2.04**	**2.51**	**3.22**	**3.81**	**4.14**	**4.37**	
170 rpm	**4.76**	**6.29**	**7.75**	**9.96**	**11.8**	**12.8**	**13.5**	48
Tube bore								max channels
mm	1.65	1.85	2.05	2.38	2.54	2.79		
"	0.065	0.07	0.08	0.09	0.1	0.11		
55 rpm	**5.05**	**6.31**	**7.6**	**9.84**	**11.0**	**12.84**		
170 rpm	**15.6**	**19.5**	**23.5**	**30.4**	**34.0**	**39.7**		48
***Note:** 505BA pumpheads must not be run at speeds greater than 170rpm*								

304MC and 304MCX flow rates (ml/min)								
Tube bore								max channels
mm	0.13	0.19	0.25	0.38	0.50	0.63	0.76	
"	0.005	0.007	0.01	0.015	0.02	0.025	0.03	
55 rpm	**0.04**	**0.15**	**0.26**	**0.46**	**0.83**	**1.50**	**2.30**	
110 rpm	**0.09**	**0.30**	**0.52**	**0.92**	**1.70**	**3.10**	**4.60**	15
Tube bore								max channels
mm	0.88	1.02	1.14	1.29	1.42	1.47	1.52	
"	0.035	0.04	0.045	0.05	0.055	0.058	0.06	
55 rpm	**3.20**	**4.10**	**5.00**	**6.50**	**8.30**	**8.80**	**9.40**	
110 rpm	**6.40**	**8.10**	**9.90**	**13.0**	**17.0**	**18.0**	**19.0**	15
Tube bore								max channels
mm	1.65	1.85	2.05	2.38	2.54	2.79		
"	0.065	0.07	0.08	0.09	0.1	0.11		
55 rpm	**11.0**	**14.0**	**17.0**	**20.0**	**24.0**	**26.0**		
110 rpm	**22.0**	**28.0**	**33.0**	**40.0**	**47.0**	**53.0**		15
***Note:** 304MC & 304MCX pumpheads must not be run at speeds greater than 110rpm*								

308MC and 308MCX flow rates (ml/min)								
Tube bore								max channels
mm	0.13	0.19	0.25	0.38	0.50	0.63	0.76	
"	0.005	0.007	0.01	0.015	0.02	0.025	0.03	
55 rpm	**0.04**	**0.14**	**0.23**	**0.41**	**0.70**	**1.30**	**1.90**	
110 rpm	**0.09**	**0.28**	**0.47**	**0.83**	**1.40**	**2.60**	**3.90**	15
Tube bore								max channels
mm	0.88	1.02	1.14	1.29	1.42	1.47	1.52	
"	0.035	0.04	0.045	0.05	0.055	0.058	0.06	
55 rpm	**2.60**	**3.30**	**4.40**	**5.0**	**6.0**	**6.50**	**7.0**	
110 rpm	**5.30**	**6.60**	**8.80**	**10.0**	**12.0**	**13.0**	**14.0**	15
Tube bore								max channels
mm	1.65	1.85	2.05	2.38	2.54	2.79		
"	0.065	0.07	0.08	0.09	0.1	0.11		
55 rpm	**8.50**	**10.0**	**12.0**	**14.50**	**16.50**	**18.0**		
110 rpm	**17.0**	**20.0**	**24.0**	**29.0**	**33.0**	**36.0**		15
***Note:** 308MC & 304MCX pumpheads must not be run at speeds greater than 110rpm*								

Tubing range

Flow precision depends upon the accuracy and consistency of the tubing. All Watson-Marlow tubing is formulated, manufactured and quality controlled to rigorous specifications. Peristaltic pumping performance and tube life will be affected unless tubing specifically designed for the task is used.

Tubing for 501RL and 303 pumpheads						
Bore mm	Bore "	Tube #	Marprene	Bioprene	Silicone	Neoprene
0.5	1/50	112	**902.0005.016**	**903.0005.016**	**910.0005.016**	
0.8	1/32	13	**902.0008.016**	**903.0008.016**	**910.0008.016**	**920.0008.016**
1.6	1/16	14	**902.0016.016**	**903.0016.016**	**910.0016.016**	**920.0016.016**
3.2	1/8	16	**902.0032.016**	**903.0032.016**	**910.0032.016**	**920.0032.016**
4.8	3/16	25	**902.0048.016**	**903.0048.016**	**910.0048.016**	**920.0048.016**
6.4	1/4	17	**902.0064.016**	**903.0064.016**	**910.0064.016**	**920.0064.016**
8.0	5/16	18	**902.0080.016**	**903.0080.016**	**910.0080.016**	**920.0080.016**
Bore mm	Bore "	Tube #	Butyl	Tygon	Viton	
1.6	1/16	14	**930.0016.016**	**950.0016.016**	**970.0016.016**	
3.2	1/8	16	**930.0032.016**	**950.0032.016**	**970.0032.016**	
4.8	3/16	25	**930.0048.016**	**950.0048.016**	**970.0048.016**	
6.4	1/4	17	**930.0064.016**	**950.0064.016**	**970.0064.016**	
8.0	5/16	18	**930.0080.016**	**950.0080.016**	**970.0080.016**	

- Butyl tubing is not suitable for 303 pumpheads

Double-Y tubing elements for 505L

Tube bore mm	Tube bore "	Silicone	Marprene
1.6	1/16	**910.E016.024**	**902.E016.024**
3.2	1/8	**910.E032.024**	**902.E032.024**
4.8	3/16	**910.E048.024**	**902.E048.024**
6.4	1/4	**910.E064.024**	**902.E064.024**
8.0	5/16	**910.E080.024**	**902.E080.024**
9.6*	3/8	**910.E096.024**	**902.E096.024**

* 9.6mm bore through pumphead and to delivery; 12.7mm bore to source. An MNA0345A twin tube clamp, available from Watson-Marlow or its distributors, must be purchased to enable the 9.6mm high-flow double-Y tubing element to be used.

2.4mm wall tubing for 505L transfer use

Tube Bore mm	Tube Bore "	Tube #	Silicone	Marprene
1.6	1/16	119	**910.0016.024**	**902.0016.024**
3.2	1/8	120	**910.0032.024**	**902.0032.024**
4.8	3/16	15	**910.0048.024**	**902.0048.024**
6.4	1/4	24	**910.0064.024**	**902.0064.024**
8.0	5/16	121	**910.0080.024**	**902.0080.024**
9.6	3/8	122	**910.0096.024**	**902.0096.024**

Part 3: 501RL Pumphead

Description

The 501RL pumphead has two spring-loaded working rollers, which automatically compensate for minor variations in tubing wall thickness, giving extended tube life.

The 501RL is set during manufacture to accept tubing with wall thicknesses of between 1.6mm and 2.0mm, and internal diameters of up to 8.0mm. The 501RL pumphead is equipped with a "tool lockable" guard for increased safety. This should be locked shut whilst the pump is in use.

A major feature of the 501RL pumphead is the ability to run the pumphead clockwise for extended tube life, or anti-clockwise to operate against higher pressures.

The tube clamps of the 501RL are adjustable to four positions to allow varying tube diameters to be securely held without occluding the tube.

Installation

Any one of three tubing input/output positions can be selected on cased drives. Select the required position then fit the track over the drive shaft and locating boss. Tighten the track retaining screw.

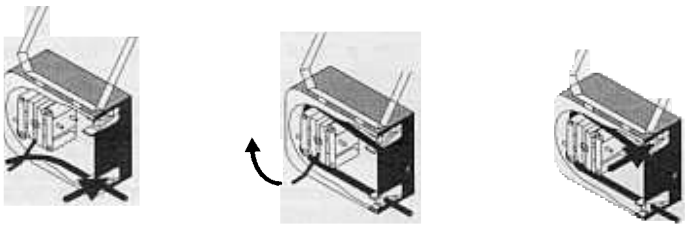
After checking that the shaft is clean and degreased slide the rotor on to it. The rotor is attached to the shaft by a split collet, and it is important that the rotor retaining screw is fully tightened to a torque of 3Nm using the largest screw driver that will fit the screw head. This will prevent the collet slipping when the pump is being used.

To reposition the track, remove any tubing from the pumphead, and swing out the crank handle to expose the rotor retaining screw. Turn the screw anticlockwise one turn to release the collet, and withdraw the rotor from the shaft. Loosen the track locating screw, and pull the track clear. Rotate the track to its new position and tighten the track locating screw.

Tube loading

Switch off the drive before loading the tube. Unlock and open the hinged guard and swing out the rotor crank handle until it locks into position.

Select the length of tubing required, noting that approximately 240mm is required for the track system (measured from the outside faces of the tube clamps).



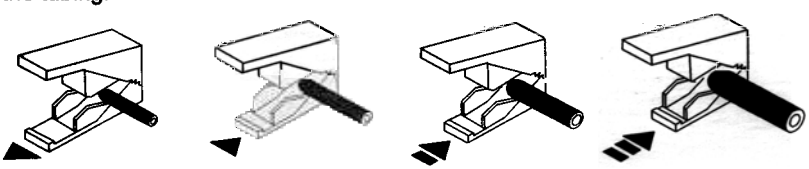
Fit one end of the tubing into one of the spring loaded clamps, and then, whilst rotating the rotor with the crank handle, feed the tubing between the rollers and the track, aligning it within the rotor tube guides. The tubing must lie naturally against the track and must not be twisted or stretched.

Fit the other end of the tubing into the second spring loaded clamp, ensuring that the tubing is not slack in the pumphead, since this can reduce tube life.

Close the crank handle and shut and lock the guard.

After the pump has been started, open the downstream clamp for a short time, so that the tube can find its natural length.

The 501RL pumphead is fitted with four-position tube clamps, to accommodate various tube diameters, which can be adjusted by pushing in or pulling out the bars at the top of the upper clamp and the bottom of the lower clamp. Set the clamps so that the minimum necessary pressure is applied to the tubing.



Roller adjustment

The 501RL has a factory set gap of 2.6mm between the rollers and the track and is suitable for tubing having wall thicknesses of between 1.6 and 2.0mm. Adjustment of the gap will be required if tubing having a wall thickness of less than 1.6mm is required. There is an adjusting screw on each of the two roller arms, and each of these screws will require adjustment. The correct gap is twice the wall thickness less twenty percent. Correct adjustment is important: over occlusion will reduce tube life; under occlusion will reduce pumping efficiency.

To change the gap setting, turn each adjusting screw clockwise to increase the gap, or anticlockwise to decrease the gap. A full turn changes the gap by 0.8mm.

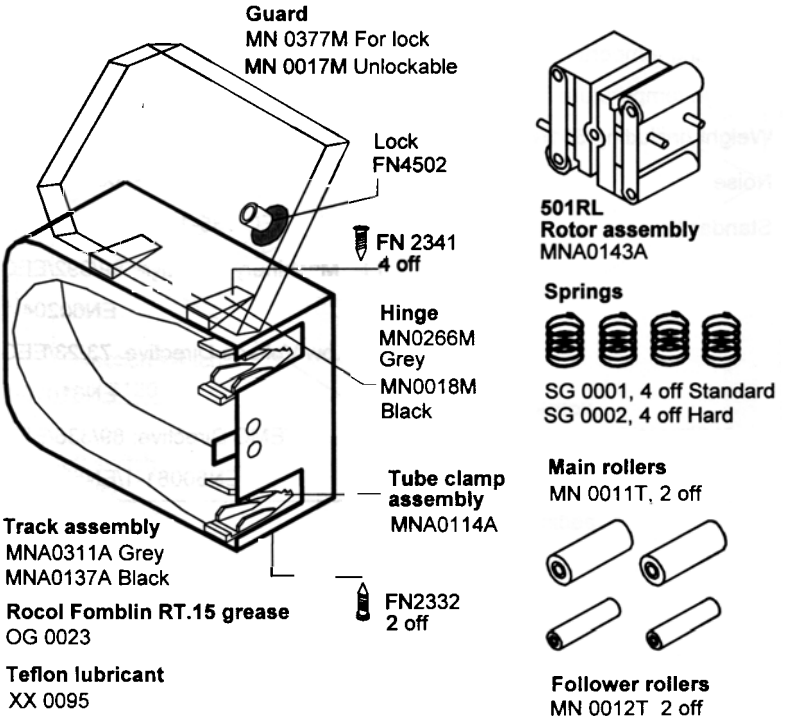
To restore the original settings of 2.6mm, turn the adjusting screws until both rollers are just touching the track, then tighten each screw by three and a quarter turns.

Care and maintenance

If aggressive liquids are spilled on to the pumphead, the head should be removed and cleaned using a mild solution of detergent and water. Remove any tubing from the pumphead, and swing out the crank handle to expose the rotor retaining screw. Turn the screw anticlockwise one turn to release the collet, and withdraw the rotor from the shaft. Unscrew the track retaining screw and detach the track from its spigot.

Check moving parts of the rotor from time to time for freedom of movement. Lubricate pivot points and rollers occasionally with Teflon lubricating oil. To obtain effective lubrication of the roller spindle, remove from the pumphead and clean thoroughly prior to applying Rocol Fomblin grease.

Spares



If in doubt when considering spares for order, do not hesitate to contact Watson-Marlow Technical Support for further information.

Part 3 : Appendices

Care and maintenance

Scheduled maintenance of the 302F/RL and 302S/RL is not required. When the pump needs cleaning, use a cloth dampened with water and mild detergent. Do not use strong solvents. If the gearbox is dismantled, it should be filled with a good quality grease such as Andersol 761.

Specification

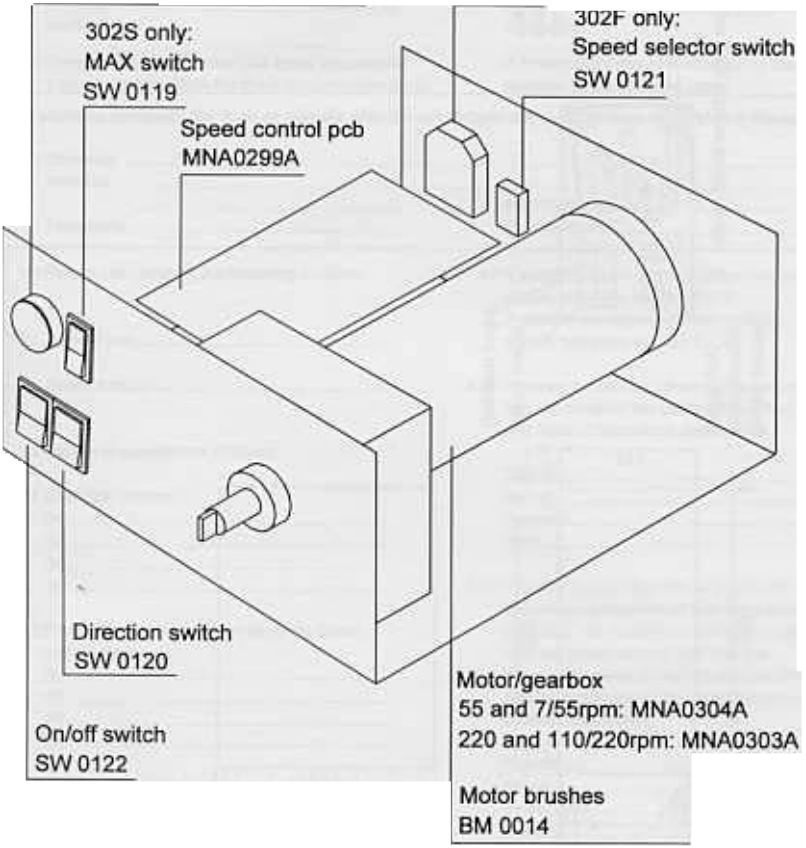
302F/RL nominal rotor speeds	7& 55rpm, 110 & 220rpm
302S/RL maximum rotor speeds	55rpm & 220rpm
Operating voltages and frequencies	110-240V 50/60Hz
Maximum power consumption	50VA
302S/RL speed control range	10 - 100 percent
Operating temperature	5C to 40C
Storage temperature range	-40C to 70C
Weight (including 501RL pumphead)	4.7kg
Noise	<70dBA at 1m
Standards	IEC 335-1, EN60529 (IP31)
	Machinery Directive: 89/392/EEC
	EN60204-1
	Low Voltage Directive: 73/23/EEC
	EN61010-1
	EMC Directive: 89/336/EEC
	EN50081-1/EN50082-1

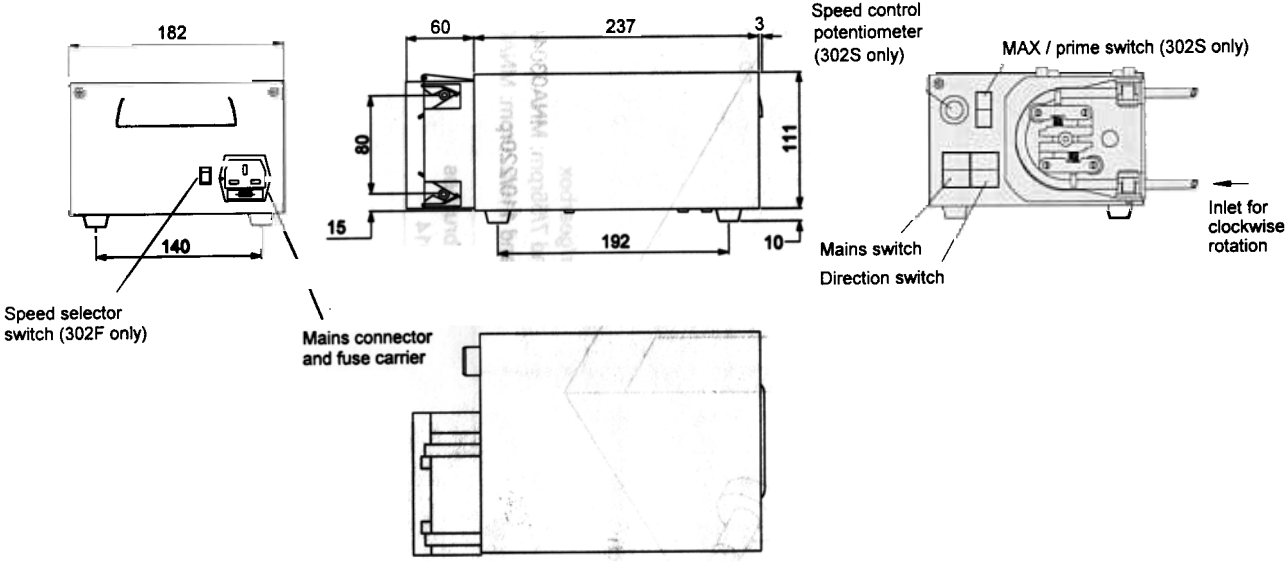
Spares

302S only:
Potentiometer
MN 0596B

Locking knob
MN 0799M
MN 0800B
MN 0802M

Mains connector
US 0045
Fuse
FS 0045




182
60
237
3
Speed control
potentiometer
(302S only)
MAX / prime switch (302S only)
80
111
15
192
10
140
Inlet for
clockwise
rotation
Mains switch
Direction switch
Speed selector
switch (302F only)
Mains connector
and fuse carrier

Decontamination certificate

Watson-Marlow Limited Health and Safety Declaration

1.0 This procedure is a legal requirement in the UK and **must** be used when returning pumps and equipment for service at Watson-Marlow (or its distributor).

2.0 **Pumps returned for service must be cleaned. You are responsible for their decontamination.**

3.0 Either fax this form or send by first class post to Watson-Marlow (or its distributor) to **ensure** that we have the information **before** receipt of the equipment.

A further copy must be attached to the **outside** of the shipping case.

Failure to complete the form or comply with the procedure will cause delays in servicing the equipment.

4.0 Company .....

Address .....

..... Post Code.....

Telephone ..... Fax number.....

5.0 Please complete **all** the following sections

5.1 Pump Type.....

5.2 Serial number.

5.3 Details of substances pumped

5.3.1 Chemical names:
(a) .....
(b) .....
(c) .....
(d) .....

5.3.2 Precautions to be taken in handling these substances:
(a) .....
(b) .....
(c) .....
(d) .....

5.3.3 Action to be taken in the event of human contact:
(a) .....
(b) .....
(c) .....
(d) .....

5.3.4 Cleaning fluid to be used if residue of chemicals is found during servicing:
(a) .....
(b) .....
(c) .....
(d) .....

5.4 If substances are not hazardous nor toxic, please complete section 5.4.1.
If substances are hazardous or toxic, please complete section 5.4.2.

5.4.1 I hereby confirm that the equipment specified has not pumped nor come into contact with any toxic or hazardous substances.

Signed...
Name.....
Position..
Date.....

5.4.2 I hereby confirm that the only toxic or hazardous substance(s) that the equipment specified has pumped or come into contact with are those named, and that the information given is correct and the carrier has been informed if the consignment is of a hazardous nature.

Signed.....
Name.....
Position..... .....
Date..... .....

5.5 Carrier to be used
.....
Delivery date

5.6 Fault description or any other information
.....
.....
.....

IMPORTANT Before returning any product for service, this form **must** be completed and sent to Watson-Marlow, or its subsidiary, or its official distributor undertaking the service

Watson-Marlow Limited, Falmouth, Cornwall TR11 4RU, England. Tel 01326 370370, Fax 01326 376009