

EL3-N

Orbital lobe pump
Installation and operating instructions

Publication: PB 0153

i Introduction

The EL3-N Orbital Lobe Pump has a unique pumphead with its three parts all made of a single material - Nitrile or Viton. When the pump is assembled, there is, in effect, no connection between the inside and outside surfaces other than the inlet and outlet ports.

ii Warranty

Watson-Marlow Limited warrants, subject to the conditions below, through either Watson-Marlow Limited or its authorized 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:

- 1 Products must be returned by pre-arrangement carriage paid to Watson-Marlow Limited or its authorized distributor.
- 2 All repairs or modifications must have been made by Watson-Marlow Limited or its authorized distributors or with the express permission of Watson-Marlow Limited or its authorized distributors.
- 3 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 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 .

iii Contents

1	Installation	. . .	. . .	page 3
2	Flow Graph	. . .	. . .	page 4
3	Attaching tubing	. . .	. . .	page 4
4	Specifications	. . .	. . .	page 4
5	Routine maintenance	.	. . .	page 4
6	Pumphead servicing	.	. . .	page 5
7	Port form configurations	.	. . .	page 6
8	Spares	. . .	. . .	page 6

iv Warning

When returning for servicing, in the current situation of heightened concern over the handling of hazardous materials, any equipment which has been contaminated with, or exposed to, body fluids, toxic chemicals or any other substance hazardous to health must be decontaminated. A certificate (a suitable blank form is included at the rear of this operating instruction), or signed statement that the equipment has been decontaminated must be attached to the shipping carton.

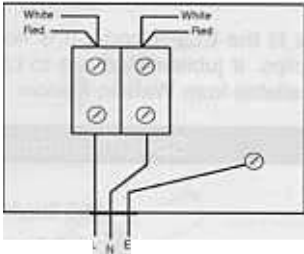
The EL3-N is designed for low pressure circulating duties and has a flow rate of 450 litre/hr, although this can be reduced by the use of a bypass valve.

This pump must be earthed. Ensure that the earth connection is properly made to the chassis bonding screw. Isolate mains before removing cover.

Single Phase: 200-250V or 100-120V

The wires of the mains lead should be colour coded in accordance with the following code: **Brown = Live, Blue = Neutral, Green/Yellow = Earth**

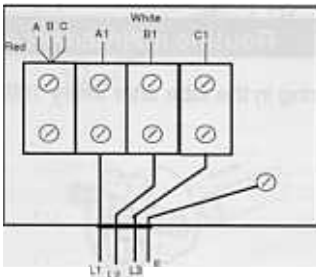
Terminal block connections should be made as follows:



To reverse the direction of flow, transpose the two white leads on the terminal block.

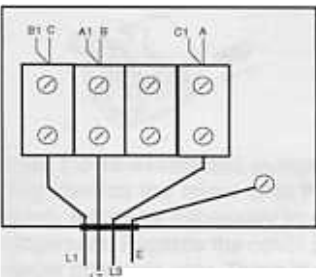
Three Phase: 380-440V

EL3-N pumps with three phase motors are despatched with connections made for 380-440V operation. Check that the terminal block connections have been made as follows:



To reverse the direction of flow, transpose any two of the incoming mains three phase leads.

Three Phase: 200-220V

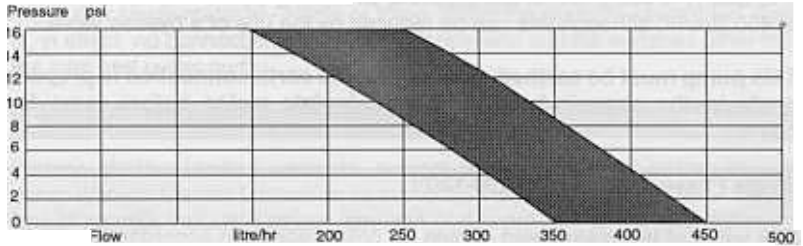


Connect lead A to lead C1

Connect lead B to lead A1

Connect lead C to lead B1

To reverse the direction of flow, transpose any two of the incoming mains three phase leads.

2**Flow graph****3****Attaching tubing**

12.7mm bore flexible tubing should be used to fit the EL3-N ports. It is not normally necessary to secure the tubing with clips. If jubilee clips are to be used, stainless steel port reinforcements are available from Watson-Marlow.

4**Specifications**

Maximum flow rate	450 litre/hr
Maximum delivery head	8 psi, 0.5 bar
Direction of flow	Reversible
Dimensions: Length	260mm
Height	140mm
Width	140mm
Weight	6kg

5**Routine maintenance**

A little light oil should be dropped into the bearing in the lobe after every 1000 hours running.

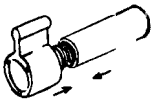
The pumphead can be removed from the motor by releasing the three wingnuts and drawing the complete pumphead clear of the fixing studs. The tufnol washer should be left in position if undamaged. Remove the support spring from the bellows. To separate the lobe from the pumphead body, raise the bellows flange from its recess, fold it over and push it through the body cavity.

To fit the lobe and bellows into the pumphead body, a 150mm (approximately) length of cardboard or plastic tubing with an outside diameter of 25mm (approximately) and an inside diameter of 22mm (approximately) will be required.

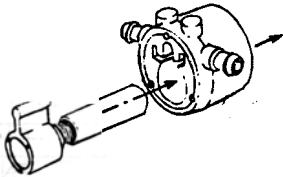
Proceed as follows:



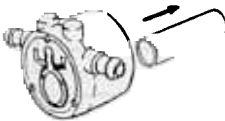
Remove bellows support spring.



Fold bellows flange into one end of the 25mm diameter tube.



Slide the other end of the tube through the pumphead body and fit the lobe into the body cavity.



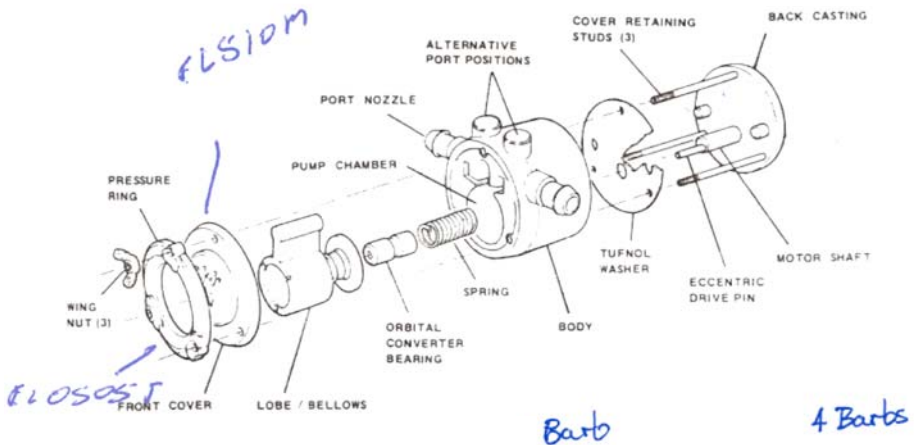
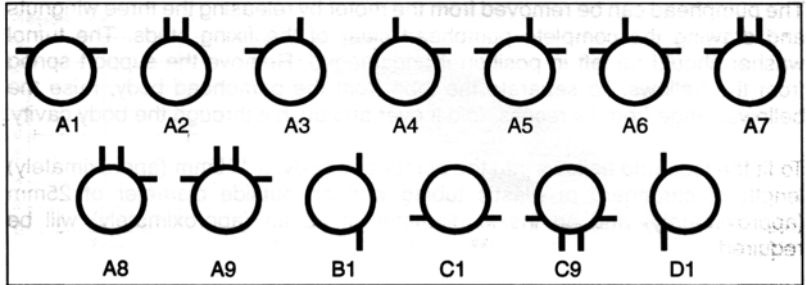
Extract the fitting tube and seat the bellows flange into the recess.



Replace the bellows support spring.

Locate the re-assembled pumphead on to the three fixing studs and push gently towards the motor until the eccentric on the motor shaft engages the bearing. It may be necessary to rotate the motor shaft by hand to achieve this engagement. Replace the cover plate and the three wingnuts. Tighten the nuts to finger tightness only. There is no advantage in overtightening.

Pumphead servicing



Spares		Nitrile	Viton
Wing nut	3 required	FN1191	FN1191
Pressure ring		EL 0505T	EL 0505T
Front cover		EL510M	EL514M
Bellows and bearing		ELA0006A	ELA0005A
Spring		EL 0507B	EL 0507B
Body	A1, B1, C1, D1	<u>EL 0515M</u>	EL 0524M
Body	A2	EL 0516M	EL 0525M
Body	A3	EL 0517M	EL 0526M
Body	A4	EL 0518M	EL 0527M
Body	A5	EL 0519M	EL 0528M
Body	A6	EL 0520M	EL 0529M
Body	A7	EL 0521M	EL 0530M
Body	A8	EL 0522M	EL 0531M
Body	A9, C9	<u>EL 0523M</u>	EL 0532M
Tufnol washer		EL 0502S	EL 0502S
Stud	3 required	EL 0503T	EL0503T
Back casting		ELA0024A	ELA0024A
Eccentric pin		FN 2622	FN 2622

Watson-Marlow Limited Health and Safety clearance

1.0 Pumps returned for service should be cleaned. If they have been contaminated with, or exposed to, body fluids, toxic chemicals or any other substance hazardous to health you are responsible for its decontamination.

2.0 This Form must be used when returning pumps and equipment for service at Watson-Marlow (or its distributor).

3.0 A completed copy of this form should be Faxed (Fax number 0326 76009) or sent 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 should be attached to the outside of the shipping case.

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

4.0 Company _____

Address _____

Phone _____

Post code _____

Fax number _____

5.0 Please complete 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) _____

5.5 If substances are not hazardous or toxic, please complete section 5.5.1.

If substances are hazardous or toxic, please complete section 5.5.2.

5.5.1 I hereby confirm that the equipment specified has not pumped or come into contact with any toxic or hazardous substances.

Signed _____

Name _____

Position _____

Date _____

5.3.2 Precautions to be taken in handling these substances:

(a) _____

(b) _____

(c) _____

(d) _____

5.5.2 I hereby confirm that the only toxic or hazardous substances 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 of the hazardous nature of the consignment.

5.3.3 Action to be taken in the event of human contact:

(a) _____

(b) _____

(c) _____

(d) _____

Signed _____

Name _____

Position _____

Date _____

5.3.4 Cleaning fluid to be used if residue of chemicals is found during servicing:

(a) _____

(b) _____

(c) _____

(d) _____

5.6 Carrier to be used _____

Delivery date _____

5.4 Any further relevant information:

Important

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

Declaration of incorporation

We declare that when any pump or drive unit listed below is used with any suitable Watson-Marlow pumphead (also listed below) and intended for installation into machines or are to be assembled with other machines into machines, it must not be put into service until the machinery into which it has been incorporated has been declared to be in conformity with the provisions of the

Machinery Directive 91/368/EEC EN60204-1

Drives	Baseplates	Pumpheads	Accessories	
102FS	501B	101R	505AA	501TF
102FD	601B	102R	505BA	505AV
102FDC	701B	303D	505LA	505AF
303FAC		303X	505L	505AH
303FDC		304D	501RL	605AF
303FC		304X	501RL2	605AV
303FD		306D	601R	101SCB
501F		306X	605L	303SCB
501FAC		304MC	701R	501TH
501FDC		308MC	701RE	Tube monitor
601F			701RX	Mains interface
			701RXE	

**WATSON
MARLOW**

Responsible person: A S Balding, Managing Director,
Watson-Marlow Limited, Falmouth, Cornwall, TR11 4RU, England.
Phone 01326 370370 Fax 01326376009