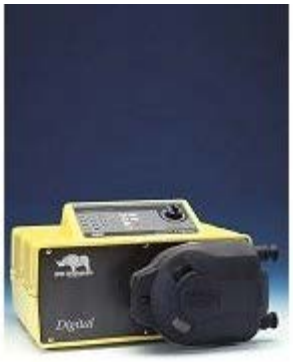
Printing tips ... Search manual for ... Go

Watson-Marlow Pumps Group

WATSON-MARLOW BREDEL E-MANUALS

m-624di-gb-01

Watson-Marlow 624Di pumps



Clickable index

Double clicking anywhere in the manual will take you back to this index.

Declaration of conformity

CE When this pump unit is used as a stand-alone pump it complies with: Machinery Directive 98/37/EC EN60204-1, Low Voltage Directive 73/23/EEC EN61010-1, EMC Directive 89/336/EEC, EN50081-1/EN50082-1.

Declaration of incorporation

When this pump unit is to be installed into a machine or is to be assembled with other machines for installations, it must not be put into service until the relevant machinery has been declared in conformity with the Machinery Directive 98/37/EC EN60204-1.

Responsible person: Christopher Gadsden, Managing Director, Watson-Marlow Limited, Falmouth, Cornwall TR11 4RU, England. Telephone +44 (0) 1326 370370 Fax +44 (0) 1326 376009.

Two 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 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 tubing and rollers 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

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 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.

This symbol, used on the pump and in this manual, means: Caution, risk of electric shock.

This symbol, used on the pump and in this manual, means: Caution, refer to accompanying documents.

This symbol, used on the pump and in this manual, means: Do not allow fingers to contact moving parts.

There are dangerous voltages (at mains potential) inside the pump. 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 using a minimum number of swept bends.
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 fit an extra length of pump tube in the system to enable tube transfer. This will extend tube life and minimise the downtime of the pumping circuit.
DO keep the track and rollers clean.

The self-priming nature of peristaltic pumps means valves are not required. Any valves fitted must cause no restriction to flow in the pumping circuit.

When using Marprene tubing, after the first 30 minutes of running, re-tension the tube in the pumphead. Open the guard, hold the tubing at one port whilst pulling the tube tight through the second port. This is to counteract the normal stretching that occurs with Marprene which can go unnoticed and result in poor tube life.

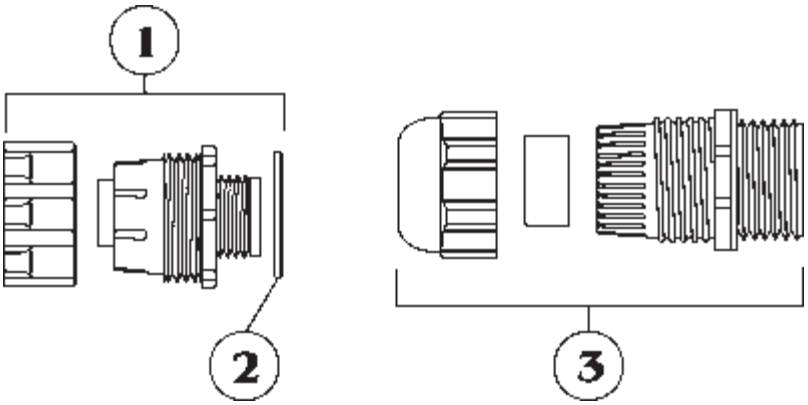
Tube selection The chemical compatibility list published in the Watson-Marlow catalogue is only a guide. If in doubt about the compatibility of a tube material and the duty fluid, request a tube sample card for immersion trials.

Installation

The 624Di is suitable for single-phase mains electricity supplies only.

To ensure correct lubrication of the gearbox the pump should be run only while its feet are standing on a horizontal surface. The pump should be positioned to allow a free flow of air around it.

- Remove the small transparent plate on the rear panel to gain access to the voltage selector and terminal block.
- Set the voltage selector to either 120V for 100-120V 50/60Hz single-phase AC supplies or 240V for 220-240V 50/60Hz single-phase AC supplies.
- Route the mains supply cable through the entry point to the right of the recess, and couple the cable to the terminal block as shown on the rear panel.
- There are two alternative connectors. One accepts 20mm rigid or flexible conduit, and the other accepts three core 0.75 square millimetre PVC sheathed mains cable (via the screwed adapter supplied) so that a mains lead can be used.
- Ensure that the mains lead is securely retained in the strain relief gland so that IP55 ingress protection is maintained.
- Securely replace the transparent plate and the gasket over the recess.



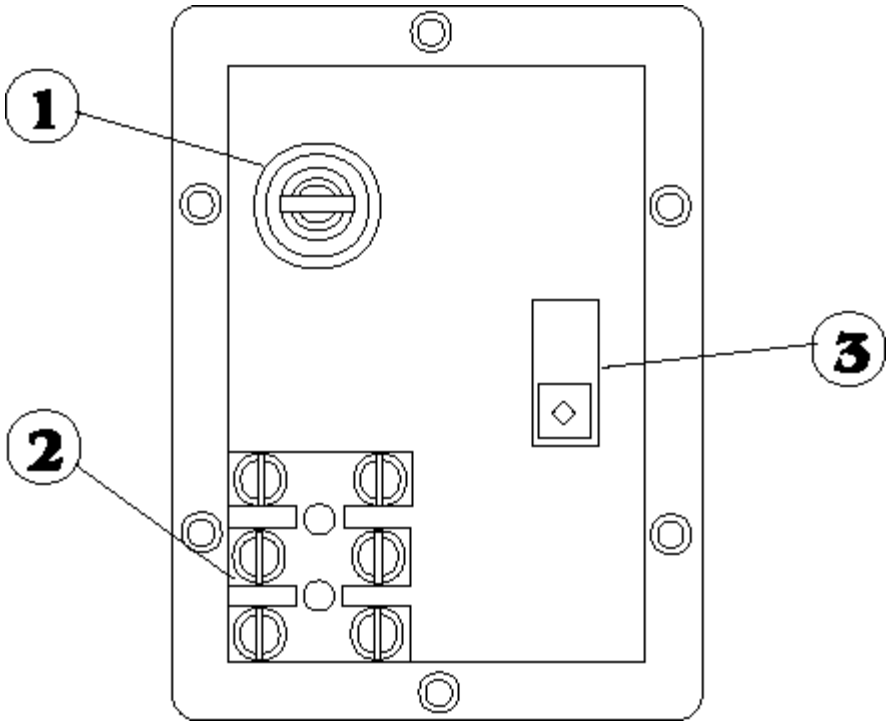
1. Armoured cable strain relief gland GR 0018
2. Washer GR 0019
3. Strain relief gland SL0020

Ingress protection standard will be compromised if the transparent plate is not replaced.

Rear panel recess

The pump rear panel recess houses the following:

1. Fuse holder
2. Terminal block
3. Voltage selection switch



Troubleshooting

Should the pump fail to operate, make the following checks to determine whether or not servicing is required.

- Check that the power switch is on.
- Check the mains supply is available at the pump.
- Check the voltage selector switch is in the correct position.
- Check the fuse in the mains socket.
- Check that the pump is not stalled by incorrect fitting of tubing.

User interfacing

When powering-up the pump the user will be taken into the main menu.

Use the Step key to move between menu options. Use the Enter key to confirm settings. Use the number keys to enter in settings. Use the Up or Down key to increase or decrease set values in the pump software i.e. ramp settings, date, rpm etc.

Dose permits the set-up of dose programs for dispensing. A dose can be initiated by using the Start button or external switching. The pump will allow up to 26 dosing programs to be stored and recalled at any time. A printer can be connected to the pump for recording of dispense runs. Batch and operator codes must be entered when using a printer.

Cal allows the pump to be calibrated for accurate dosing.

Manual allows continuous transfer/fluid metering via keypad control.

Auto enables analogue or RS232 control.

Setup displays and controls the user and factory settings for the correct operation of the pump.

The speed/volume flow rate of the drive is governed by the pumphead and tubing selected.

Dosing procedure

The Dosing program is outlined in the technical data section of the operating instruction in a flow chart format. Each step in the procedure is described to provide full understanding of the procedure.

Within the technical data section are mean values for dose time guidelines and accuracy figures recorded using Silicone tubing at zero suction and pressure. For the highest accuracy use small-bore tubing and maximum roller passes. Always use a calibration dose to ensure the highest accuracy possible.

Print audit routines

If a printer is connected, the completion of a dose run will automatically call the print routine. The first request will be to enter the operator ID.

Up to 16 characters can be entered. Digits and the decimal point are entered directly from the keypad. Alpha characters are entered by pressing Up or Down which call A to Z and Z to A respectively in circular rotation.

An alpha character is embedded by pressing Step. A numeric character is entered by pressing Step, any other numeric character, the decimal point or Up or Down.

On pressing Enter, the pump will request the input of a batch number.

Again, up to 16 characters can be entered as for the operator ID. When Enter is again pressed, the following information is printed out: date, time, dose size, specific gravity, dose interval, number of doses, initial ml/rev, recalibration data, operator ID, batch number and number of doses delivered.

Following the print-out a repeat dose option will be given.

Single dose command

Single doses can be dispensed on demand, with a count of the number of doses being kept.

Set the interval time to 0 SECONDS and the number of doses to 1.

To start single dosing, press Start or use an external start dose switch. The display will indicate the total number of completed doses up to a maximum of 99,999, after which the counter will restart at 0: dose 100,001 would be shown as 1.

Calibration procedure

Calibration of the 624Di is based on informing the pump under Cal of the pumphead and tubing which are to be used. Alternatively a calibration dose can be used. The calibration dose will run for a maximum of 4 minutes, but can be stopped at any time up to 4 minutes. The longer the calibration dose, the more accurate the calibration. Entering into the pump the physical volume or mass to complete the procedure will allow the pump to take into account ambient conditions and also the viscosity of the fluid.

Manual operation

- Switch power on.
- Change the set speed by pressing the Up or Down key. The minimum speed of the 624Di is 4 rpm.
- Change direction by pressing the CW/CCW key. Indication of direction of rotation is provided via the LCD display.
- Select the maximum speed: press the Up key and the Max key together. Select the minimum speed: press the Down key and the Max key together.
- Press Start to start the pump. Press Stop to stop the pump.

Auto operation

The pump will accept external control signals through the 25-pin cage clamp connector on the back panel. Remove the cover plate, ensuring that the gasket is not damaged. Feed the control wires through the cable glands and connect via the sprung cage clamps.

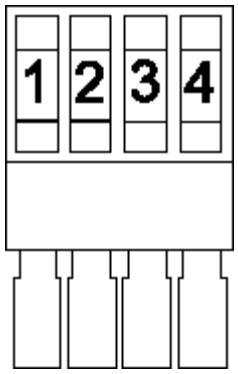
Analogue

This function enables the pump speed to be controlled via an external analogue process signal. Pressing Enter at analogue will call a confirmation of the analogue control signal settings. These can be reset under Setup (see section covering pump setup).

RS232

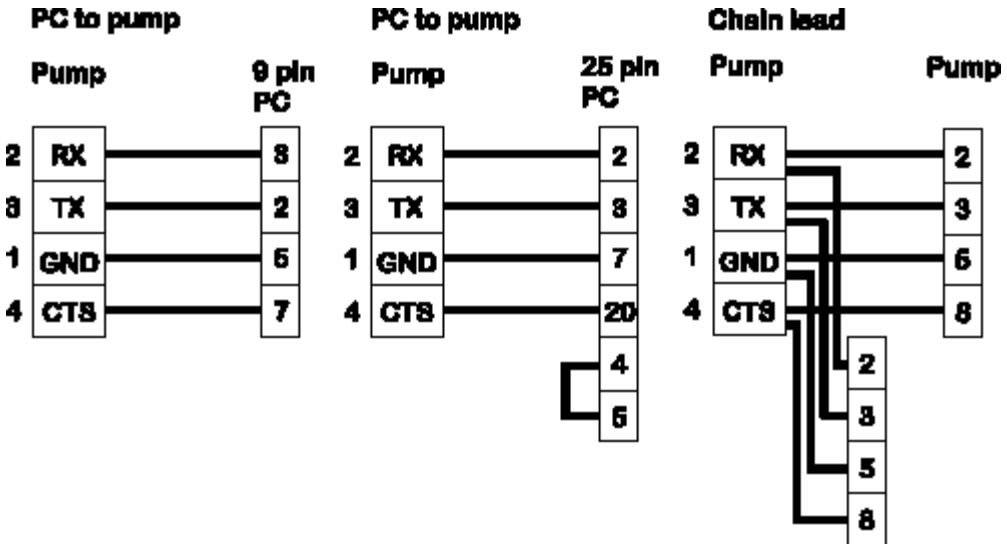
This facility gives full pump functionality under RS232 closed loop control via the 4-pin cage clamp. Up to 16 pumps can be linked while retaining individual pump control by using lead PR0036. A network kit is available from Watson-Marlow which includes Pumpnet 2, a DOS-compatible control program, and leads.

Step to Network in the Main menu and press Enter. The pump will now be under RS232 control. The keypad Stop key will act as an emergency stop and disable RS232 settings if pressed.



Above: Connections for RS232 signals: 1 = GND, 2= RX, 3 = TX, 4 = CTS

Below: RS232 cabling shown for CTR handshake. Use only twin shielded RS232 cables.



RS232 settings

Baud = 9600; Stop bits = 2; Data bits = 8; Parity = None; Handshake = CTR or None; Auto echo = On.

The following codes will operate the 624Di under RS232 control. They must be directed to the pump from a computer serial port (or equivalent). Always terminate each command with a RETURN (ASCII CHR13).

nSPxxx	Load speed setting xxx to pump number n
nSI	Increment speed by 1rpm for pump n
nSD	Decrement speed by 1rpm for pump n
nGO	Start pump number n
nST	Stop pump number n
nRC	Change rotation direction for pump n
nRR	Set clockwise direction for pump n
nRL	Set counter-clockwise direction for pump n
nDOxxxxx,yyy	Set dose for pump number n in tachometer pulses (note 3)
nRS	Show status for pump number n (note 4)
nZY	Show status if pump n STARTed 1 or STOPped 0

nTC	Clear tachometer counter
nRT	Read tachometer counter
For writing to pump number n display	
nCA	Clear existing display; followed by:
nCH	"Home" cursor; followed by:
nW{text line 1}~{text line 2}@ (@ = terminator)	

Notes on control codes

1	n = pump number set in SETUP. For the command to operate on all networked pumps simultaneously, use # before the command.
2	There are 1046 tacho pulses per revolution at the maximum drive speed of 200rpm.
3	nDOxxxxxxxx where xxxxxxxx is any integer and is the target dose in tacho pulses. This can be extended to nDOxxxxxxxx,yyy where yyy is a "kick back" in tacho pulses with a limit of 255 (about 1 revolution on a 200rpm drive).
4	A show status command will prompt the 624Di to return a text string of the following layout: [pump type] [ml/rev] [pumphead] [tube size] [speed] [cw/ccw] [P/N] [pump number] [tacho count as a single integer] [stopped/running, 0 /1] [! = delimiter] eg 625Di 0.7 625L 4.8mm 100 CW P/N 1 157810 1 !
5	All networked pumps with the same n will respond to the same command.
6	There should be at least 10mS between consecutive commands.
7	When using the # to address all pumps, ensure that it will not generate a reply, eg nSS; the result will be unpredictable.

This is a typical short program for pump number 2:
OPEN "COM1:9600,N,8,2,CDO,CSO,DSO,OP10000" FOR RANDOM AS #1
PRINT #1, "2SP220" + CHR$(13)
DELAY (command depends on language being used)
PRINT #1, "2GO" + CHR$(13)
DELAY 5000
PRINT #1, "2ST" + CHR$(13)
CLOSE #1.

Setup

ROM - provides user with software identification.

Date/Time - Set during manufacture but can be reset to user requirements.

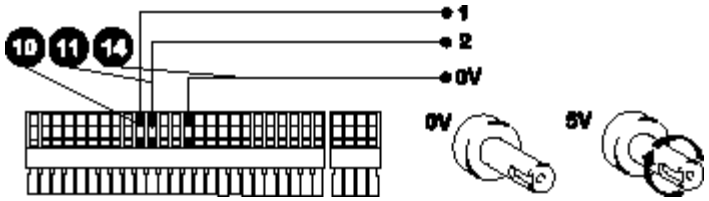
Beep - Audible signal on/off.

Ramp - Rate of acceleration/deceleration of the pump to/from maximum set speed at the beginning/end of a dose. 0 setting signifies no acceleration delay to maximum speed, 5 signifies the longest acceleration delay to maximum speed.

Drip - Brief reversal of the motor on dose completion ensures no extra drips of fluid are dispensed. 0 means no reverse and 5 means maximum reverse.

Baud - Speed of signal transmission. Default setting 9600, range of setting include 1200, 2400, 4800, 9600.

Auxiliary - Monitor the pump dosing or motor state/direction of rotation using 2 high (5V) /low (0V) auxiliary signals outputted via the pumps 25 pin cage clamp connector. Auxiliary signals can be used, for example, to command a turntable or conveyor to move when a dose has been completed.



Line 1 can be set to change state every time the motor runs, or only when the motor runs to dispense a dose. The signal can be set high or low when the motor runs. Line 2 changes state when the pump direction is changed. The screens allow the signal to be set high or low when the output shaft rotates clockwise.

Pump - When under RS232 control each individual pump must be identified. Select a number from 1-16.

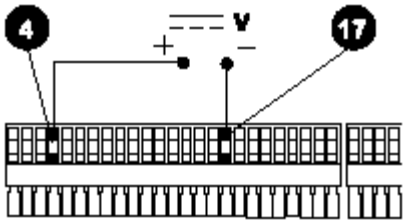
Max - Sets when the pump can be primed at maximum speed. Standard setting means Max is enabled during Manual and Setup. Always enabled means the unit can be primed at any time.

Default - Press Enter at "Yes" to restore factory defaults.

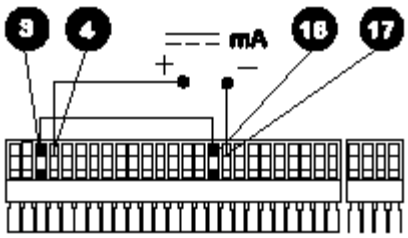
Autostart - If set to On when in Manual mode only, Autostart will allow the pump to restart pumping automatically after power-up following a mains supply interruption. If set to Off the pump will restart and return to the Main Menu.

Signal - Step to the desired process signal for analogue control and press Enter. Options available are 4-20mA, 0-10mA, 0-20mA, 0-5V, 0-10V These signal ranges correspond to 0-200rpm speed control. A confirmation screen will verify settings chosen. If the signal type required is not shown then use the "program" option to enter in the required signal levels. The pump is controllable by an analogue process signal of up to 30V or 32mA. The pump will provide an increasing flow rate for a rising control signal (non-inverted response) or an increasing flow rate for a falling control signal (inverted response).

For voltage modes a stable, variable DC voltage source can be used in conjunction with a DC voltmeter, (max 30V DC). (Refer to the 25 pin cage clamp connector wiring detail as an example of control circuitry) Circuit impedance 100kW. Polarity set for non-inverted response. Reverse polarity for inverted response.



For current modes the same DC source can be used in conjunction with a DC milliampere meter, (maximum 32mA). (See 25 pin cage clamp connector detail). Circuit impedance 250W. Polarity set for non-inverted response. Reverse polarity for inverted response.



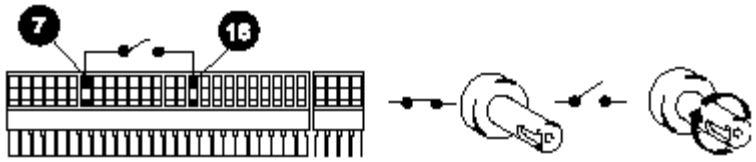
Trim - This function will match the pump's signal conditioner to the analogue process control signal if they do not fully coincide. The user will be asked to apply zero, 20% and the maximum voltage or current that is required to be the control signal. Press Enter after adjusting the process signal to each input level.

Never apply mains voltage across pins on the 25-pin cage clamp connector. Up to 5V TTL may be applied to pins 7 and 5, but do not apply voltage across any other pins. Failure to heed this warning could cause permanent damage not covered by warranty. Do not use the mains power switch to control the pump for a high repetition of stop starts. The auto-control facility should be used.

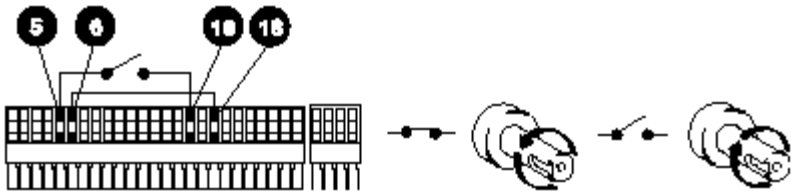
Remote control

Pause dose This function will pause a dose for as long as a remote switch remains closed then allows the dose to continue when the switch is opened. Under Manual mode it will also act as a remote stop/start. Connect remote switch as in the Stop/Start diagram. Open to run pump, close to pause or stop pump.

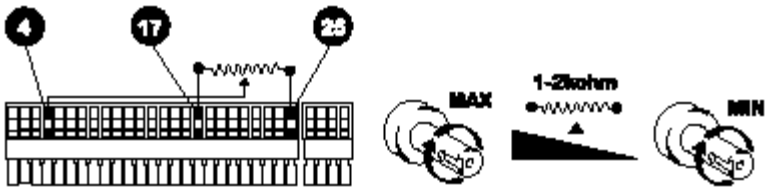
Stop/Start Connect remote switch between pins 7 and 16 of the 25-pin cage clamp connector. A TTL compatible logic input (Low 0V, High 5V) may be applied to pin 7. Low input stops the pump, high input runs the pump. With no connection, the pump will default to running.



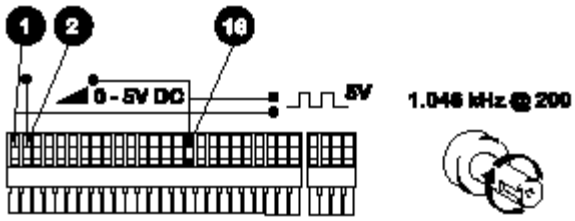
Direction Connect remote switch between pins 5 and 16 and disable the front panel reversing control by linking pins 6 and 18 of the 25 pin cage clamp connector. Open switch for clockwise rotation, close for counter-clockwise. Alternatively a TTL compatible logic input (Low 0V, High 5V) may be applied to pin 5. Low input will run the pump in a counter-clockwise direction, High input in a clockwise rotation. No connection; the pump will default to clockwise rotation.



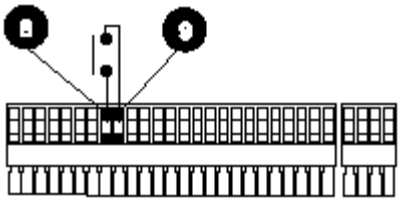
Speed A remote potentiometer nominally 1kW and 2kW minimum 0.25W should be wired as shown. When using a remote potentiometer, do not apply a voltage/current control input signal at the same time. The pump must be calibrated for 0-12V analogue signal control under the "PROGRAM" option of Signal in Setup. Alternatively, the potentiometer may be used for the calibration procedure, instead of using the minimum and maximum analogue process signal settings, if it is set to its minimum and maximum positions.



Tachometer output This facility can be used to indicate motor speed or total the number of motor revolutions.



Footswitch A footswitch or handswitch will initiate the dose. The 624Di includes software protection against spurious signals caused by bouncing of the switch contacts. This feature is permanently activated (software setting fixed on "other") and only switches without hardware debouncing should be used.



Care and maintenance

The only scheduled maintenance required for the 624Di is inspection of the motor brushes and their replacement before their length is less than 6mm. The life of the brushes will depend on the duty of the pump, but is expected to be a minimum of 3,000 hours at maximum speed.

If the pump requires cleaning, use a mild solution of detergent in water after removing the pumphead. Do not use strong solvents.

For gearbox rebuilds, use Lubriplate GR-132 (Bodine reference LG-23) only. This is a lithium combination type thickener, NL GI No.1 grade, non-corrosive extreme pressure lubricant. This product is water-resistant and resistant to a large degree to most other contaminants.

Guard safety warnings

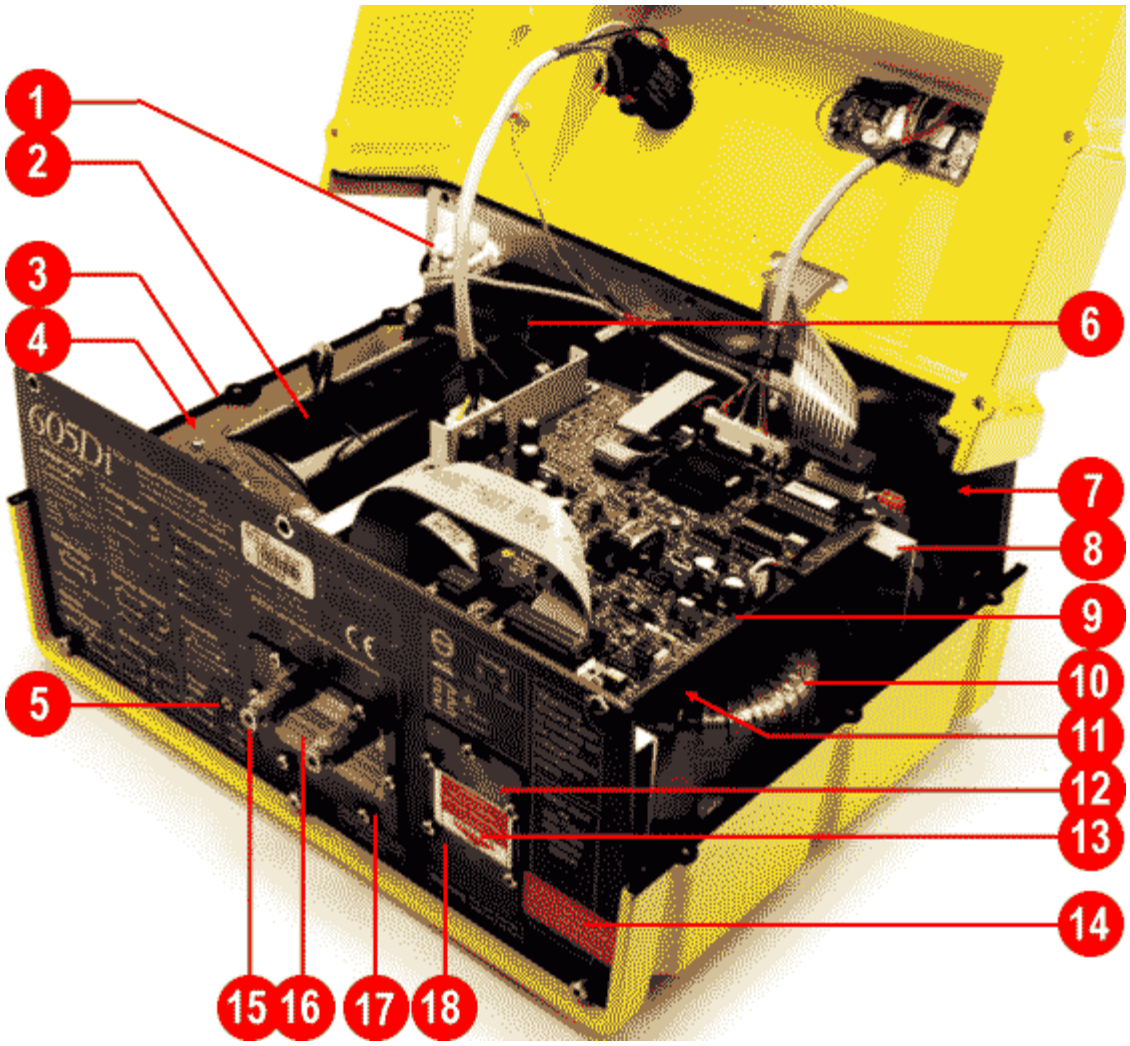
The 624Di will be remotely stopped and display a warning if the guard is opened during operation. This safety feature is enabled under Manual, Dose, Analogue and RS232 operation.

Specification

Maximum rotor speed	200 rpm
Power supply	100-120/220-240V /1/ 50/60Hz
Control range	50:1
Power consumption	300 VA
Fuse rating	Type T (anti-surge) 5A
Operating temperature range	5C to 40C
Storage temperature range	-40C to 70C
Weight 605Di/R	24.75kg (55lbs)
Weight 605Di/L	30.75kg (68lbs)
Noise	<72dBA at 1m
Standards	EN60529 (IP55)
	Machinery directive 98/37/EC EN60204-1
	Low voltage directive 73/23/EEC EN61010-1
	EMC directive 89/336/EEC EN50081-1/EN50082-1

Specific drive performance details such as loaded drive speed variation against mains supply voltage fluctuation and drive stability from a cold start to normal operating temperature are available on request. For further information please contact Watson-Marlow Technical Support Department.

Drive spares



Number	Spare	Description
1	TM0020	Terminal block 10A 12-way
2	BM0015	Motor brush
3	MR0691S	Gasket
4	MN0787M	Tacho disc
5	FN0271	M4 screw
6	MG0605	Motor/gearbox
7	MRA0194A	Pcb H bridge
8	MR0289S	Chassis
9	MRA0269A	Pcb cardinal
10	MRA0198A	Transformer
11	FA0002	Filter
12	MR0669S	Window cover
13	FS0043	Fuse 5A T type
14	CP0005	Blanking plug OD 20mm
15	CP0020	Blanking plug
16	MN1086S	Window cover
17	MN1087S	Window gasket
18	MR0771S	Window gasket

620RE, 620RE4 and 620R Key safety information

Before opening the pumphead guard please ensure that the following safety directions are followed.

- For close-coupled drives, ensure that the pump is isolated from mains voltage.
- Ensure that there is no pressure in the pipeline.
- If a tube failure has occurred, ensure that any product in the pumphead has been allowed to drain through the controlled waste to a suitable drain.
- Ensure that protective clothing and eye protection are worn if hazardous products are being pumped.

620RE, 620RE4 and 620R Safe-guarding

- Primary safety on 620 series pumps is provided by the tool-lockable pumphead guard. On electrically-powered cased 600 series pumps, secondary (backup) protection is provided in the form of an electrical interlock which stops the pump if the pumphead guard is opened (and only for so long as the guard is opened). The electrical interlock on cased pumps should never be used as primary protection. Always disconnect the mains power supply to the pump before opening the pumphead guard.
- Only primary protection through the tool-lockable guard is provided on pneumatically powered 620 series cased pumps. Only primary protection through the tool lockable pumphead guard is provided on 620 series pumps fitted with industrial AC motors, but an interface kit to allow mains power to be switched by the pumphead guard interlock is available as an extra-cost option.

620RE, 620RE4 and 620R Pumping conditions

Pressure and viscosity

- All pressure values in this operating instruction, from which performance and life figures have been calculated relate to peak pipeline pressures.
- Although rated to 4 bar working pressure, this pump will generate in excess of 4 bar working pressure if pipeline restrictions are in place. In instances where it is critical that a working pressure of 4 bar is not exceeded, pressure relief valves should be installed in the pipeline.
- For pumping duties of 2-4 bar pressure, only close coupled pumps should be used, fitted with 73 Shore hardness Marprene/Bioprene or standard STA-PURE tube elements. "M" in the tube element's product order code denotes suitability for high pressure use.
- When pumping duties of 0-2 bar pressure, use close coupled or cased pumps fitted with 64 Shore hardness elements or the standard range of continuous peristaltic pump tubing.
- Viscosity handling is maximised by using 73 Shore hardness Marprene/Bioprene or STA-PURE tube elements in the pumphead.
- Ensure that there is always a minimum of one metre of smooth bore flexible tubing connected to the discharge port of the pumphead. This will help minimise any impulse losses and pulsation in the pipeline. This is especially important with viscous fluids and rigid pipework.

620RE, 620RE4 and 620R Pump installation

A correctly engineered installation will promote the best possible tube life, so please ensure that the following guidelines are followed:

- Avoid tight pipeline bends, pipe reducers and excessive lengths of smaller bore tubing than that in the pumphead, particularly in pipelines on the suction side.
- Ensure that connecting pipe work and fittings are suitably rated to handle the predicted pipeline pressure.
- If rigid pipe work comes in close proximity to the pumphead, a drop out section of pipe work will simplify tube replacement.
- Ensure that the controlled waste blanking plug is in position if the controlled waste port is not in use. See below.



- It is advisable to use controlled waste pipe work if pumping hazardous, aggressive or abrasive fluids or products which will harden in contact with air.
- When connecting waste pipe work to the controlled waste port using the coupling adaptor supplied, ensure that there is adequate clearance underneath the pumphead. Waste pipe work should run to a suitable container or drain.
- The leak detector installation procedure is included in the leak detector kit.
- If unsure of an installation please contact your local Watson-Marlow Technical Support Office for further assistance.

620RE, 620RE4 and 620R General operation

Opening the pumphead guard

- Unlock the guard with a 5mm Allen key or a screw driver.
- Open the guard to its full extent. This creates the maximum clearance between the tube ports and guard to remove the tubing.

Engaging / disengaging the rollers

- The extent of travel of the roller release levers is indicated below. Do not try and force the levers beyond their normal extent of travel as this will damage the rotor.
- To engage the rollers snap the roller release levers counter clockwise making sure that the rollers locked out against the tubing. To disengage the rollers, snap the release levers clockwise to their disengaged position. For high pressure tubing elements or four roller pumpheads, the 5mm Allen key can be used to aid leverage when engaging/disengaging the rollers with the release levers.

Make sure that fingers are clear of the front face of the rotor hub when using the roller release levers.



Pre-load checks

- Before loading tubing, ensure that all rollers rotate freely, that the tube ports and location grooves are clean and that if in use, the controlled waste pipe work is free of any obstructions.

Closing the pumphead guard and start-up

- Ensure that the guard seal is clean, replacing it if necessary.
- Ensure that the rollers are engaged and locked out against the tubing
- Close the guard and push it against the track until the latch engages.
- Connect suitable pipe work to the pumphead using the appropriate connectors for the tube element.

Continuous tubing clamp location in 620R pumpheads

- Select the appropriate tube clamp set for the tubing size to be used.
- Locate the two "U"-shaped track clamp halves into the pumphead ports (The "U"-shape ensures correct loading)

- Locate the corresponding guard clamp halves which have raised "T" locating sections, into the slots on the inner guard face above and below the guard hinge. Push and slide into their locked position.
- Closing the guard will align the two halves of the clamp around the tubing.

620RE and 620RE4 tube element loading

- 620RE element pumpheads are factory set to accept Watson-Marlow LoadSure tube elements. Pumping performance will be adversely affected if LoadSure elements are not used.
- Disengage rollers
- Locate one of the "D"-shaped flanges into the lower port. (The "D" flange ensures that the element can only be loaded correctly).
- Wrap the tube element around the disengaged rollers of the rotor.
- Locate the second "D"-shaped flange into the upper port.
- Ensure the flat face of each "D" flange sits flush to the flange sealing face of the track.
- Engage rollers
- Close the guard and push it against the track until the latch engages.

Tube element loading

620RE, 620RE4 and 620R Continuous tube loading

- 620R continuous tubing pumpheads are factory set to accept Watson-Marlow 600 series 3.2mm wall tubing. Pumping performance will be adversely affected if Watson-Marlow tubing is not used.
- Select the tube clamp set which is correct for the tubing size to be used.
- Disengage rollers
- Locate one end of the tubing into the lower port "U" clamp and hold firmly in position.
- Wrap the tubing tightly around the retracted rollers, making sure that there is no twisting through its length.
- Locate the other end of the tubing into the upper port "U" clamp.
- Hold both ends of the tubing in one hand maintaining tension around the retracted rollers.
- Engage rollers
- Close the guard and push it against the track until the latch engages
- Ensure that continuous tubing is not loosely clamped at the pumphead ports.
- Ensure that when the pump is re-started all of the rollers have re-engaged. A roller which has not re-engaged will "click" continuously. No damage will occur if this happens but the roller should be re-engaged manually using the 5mm Allen key. Please refer to the Troubleshooting section.

Continuous tube loading

620RE, 620RE4 and 620R Tube element or continuous tube removal

- Unlock the guard and disengage the rollers.
- Disconnect the tubing from the external pipeline.
- Remove the tubing from the pumphead.

620RE, 620RE4 and 620R Maintenance

Scheduled maintenance

- The stainless steel pumping rollers run on sealed bearings and do not require lubrication.
- Remove the rotor and lubricate the follower rollers and roller engaging mechanisms with a lithium-based grease. This should be carried out every six months for intermittent duties and every three months for 24 hour duties.
- If fluid is spilled inside the pumphead, flush the pumphead out with water and mild detergent as soon as possible. If specific cleaning agents are required to clean the spillage, please consult Watson-Marlow Technical Support Office before proceeding, in order to confirm chemical compatibility.
- If the rotor needs to be removed, refer to the guidelines below.

Roller adjustment

620 pumpheads have provision for adjustment to reset the roller/track gap to compensate for wear after extended service in arduous applications.

Roller/track gaps can **only** be accurately judged without tubing in the pumphead. The gap

should be **4.6mm** for 3.2mm wall tubing and **5.5mm** for LoadSure elements.

If the gap is more than 0.2mm greater than these dimensions, the following may be carried out:

- Note the number on the roller arm to which the engraved line on the hexagon-headed main roller pin corresponds.
- Remove the circlip (snap-ring) and roller pin.
- Relocate the main roller pin, resetting the engraved line to one number lower. For example, if the engraved line was at "-1", reset it to "-2" to reduce the roller track gap.
- Ensure the roller pin is correctly seated into the roller arm thrust washer. Replace the circlip.

Rotor removal and re-location

- Remove the rotor cover and central locating bolt using a 5mm Allen key. Pull the rotor off the keyed shaft, remove the key and clean thoroughly. Do not use tools to lever the rear face of the rotor away from the inner face of the track, it should come off by hand.
- To replace the rotor, locate the key into the keyway and apply a thin layer of grease over the shaft and key. Align the keyway of the rotor to the shaft key and slide the rotor into position, ensuring that a positive "stop" is achieved and ensure that the full length of the drive shaft is fitted into the rotor.

- Do not force the rotor into position. The rotor will slide into place easily if correctly aligned.
- Tighten the hexagonal locating bolt to a nominal torque of 10Nm using a 5mm Allen key.
- The rotor bolt, which is impregnated with "Loctite 218" thread lock, should be subjected to a maximum of three removals/relocations before renewal. To avoid rotor bolt renewal after three removals, apply "Loctite 222" thread lock to the rotor thread before relocation. This is critical to ensure prolonged, secure location of the rotor hub to the drive shaft. **Failure to complete this action will invalidate the terms and conditions of the pumphead warranty**.
- Replace the rotor cover.

When closing the guard, check it does not make contact with the rotor. If it does, then the rotor has been fitted incorrectly. Re-open the guard, remove and refit the rotor, and close the guard.

Track removal (cased drives)

- Remove the rotor.
- Disconnect the controlled waste pipework if attached.
- Loosen the two track-retaining screws using a screwdriver.
- Withdraw the track slightly from the front plate to expose the guard interlock connection.
- Disconnect the guard interlock by manually removing the cable plug from the track.
- Withdraw the track fully from the cased drive.

Track re-location (cased drives)

- Ensure that the track is clean and that the spacer washer and gearbox boss alignment rings are still in position.
- Offer the track up to the front panel of the cased drive and re-connect the guard interlock cable plug.
- Fit the track over the gearbox boss.
- Align the track horizontally so that the location holes are aligned with the front plate threaded holes.
- Tighten the two retaining screws using a screwdriver.
- Re-connect the guard interlock controlled waste pipework if required.

620RE, 620RE4 and 620R CIP and SIP

General

- Unlock the guard and disengage the rollers within the tube zone.
- Close the guard and squeeze against the track until the latch clicks.
- Observe a 1m safety area.

CIP

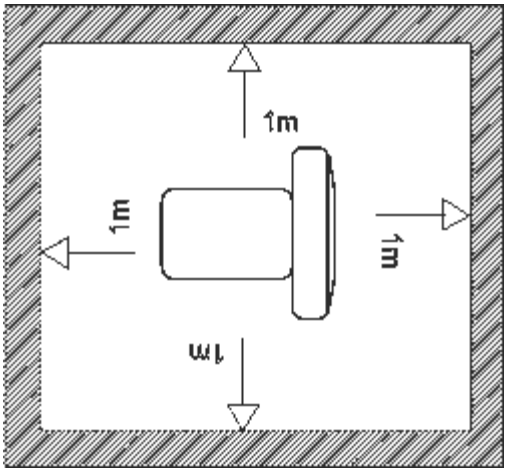
- LoadSure tube elements and continuous tubing can be cleaned using CIP processes.
- Ensure that the tubuing material is chemically compatible with the cleaning agent that is to be used.
- If cleaning agents are spilled over the pumphead, wash down immediately.
- Ensure that controlled waste pipework is fitted to allow a safe release of cleaning agent in the event of a tube failure.

SIP

- Only STA-PURE tube elements can be used in a steam in place sterilisation processes.
- STA-PURE tubing elements can be sterilised to 3A Class two and FDA minimum recommended standard which is 121C (250F) at 1bar (14.5 psi) saturated steam for 20 minutes.
- Monitor the process continuously .
- If a tube failure occurs, shut down the process. Do not touch the pumphead until a 20 minute cooling period has been observed.

Ensure a 20 minute acclimatisation period is observed before running the pump following SIP.

- Ensure that controlled waste pipework is fitted to allow a safe release of steam in the event of a tube failure..
- Ensure a 1m safety zone is maintained around the pumphead during SIP cycles.



Ensure that the pumphead door is closed and locked before SIP cleaning commences.

620RE, 620RE4 and 620R Pumphead spares

Number	Spare	Description
1		Tube clamp pack: p/n 069.4101.000
2	MR2052C	Oddie fastener
2	MR2053B	Clip: Oddie retainer
2	MR2054T	Oddie washer
2	SG0021	Oddie spring
2	CX0150	Oddie circlip (snap ring)
3	MRA0251A	Track assembly (continuous pumphead) - includes guard
3	MRA0297A	Track assembly (element pumphead) - includes guard

3	MR2000C	Track
4	MRA0249A	Roller assembly element pumphead
<4>	MRA0250A	Roller assembly continuous pumphead
5	MR2027T	Controlled waste threaded fitting 620R
6	MR2028M	Controlled waste port blanking plug
7	MR2018T	Hinge pin
8	MR2055M	Rotor cover
9	MR2021B	Seal - guard
10	MR2002M	Guard without latch and seal
11	MR2015T	Follower roller spindle
12	CX0148	Roller assembly circlip (snap-ring) E type 6 dia
12	MR2014T	Stainless steel roller spindle
12	MR2010T	Thrust washer
13	MR2096T	Controlled waste threaded fitting locking nut
14	MRA0320A	Rotor assembly 2-roller element
14	MRA0321A	Rotor assembly 4-roller element
14	MRA0322A	Rotor assembly 2-roller continuous
15	MR2058B	Grommet - door switch
16	XX0220	Key - metal
17	MR2029T	Cased drive MG605 shaft/rotor hub spacer
18	MR2059T	Adaptor - Bodine (white polypropylene ring)
19	FN0488	Cased drive track locating screw M6x10 locating bolt
20	FN0523	Close-coupled track locating screw M6x20 locating bolt
21	FN0581	Rotor locating washer M6
22	FN0520	Rotor locating bolt M6 x 25
23	TT0006	5mm Allen key
24	MA0017	Guard magnet
	CN0187	Plug blanking 10.72M
	MRA0268A	Cased drive door switch assembly
	MRA0279A	Close-coupled door switch assembly

625L Pumphead

The twin offset track design of the 625L utilises 4.0mm wall double-Y tube elements to overcome pulsation for accurate dosing and dispensing. The 625L accepts Silicone and Marprene tubing up to 16.0mm bore. Use 4.0mm wall tube for transfer for the highest performance and improved viscous fluid handling.

Alternatively the 625L will run with two separate tubes although some channel to channel variance and minimal pulsation may be experienced. For separate tube fitting or twin tube inlet to single tube outlet fitting tube clamping blocks must be used.

625L Installation

Remove the mounting plate cover and track from the 625L. Locate 625L to pump. Tighten top and bottom mounting plate screws. To remove the pumphead lift off the mounting plate cover and track, loosen the top and bottom mounting plate securing screws and ease pumphead away from the pump.

625L Tube loading

Double-Y element

Lift the track locating levers and remove the track. Locate one end of double-Y element over one of the 625L clamping pegs. Stretch the element over the rotor and locate the other end of the element over the second 625L clamping peg. Replace the track and push down the track locating levers. (See pumphead installation).

Twin inlet tubes

Lift the track locating levers and remove the track. Twist and remove the 625L inlet clamping peg. Connect the twin inlet tubes and outlet tube using the appropriate Y-piece connector and clamps. Fit the inlet tubes into the correct size clamping block. Locate the clamping block onto the 625L (push down and twist locking fastener to secure). Stretch the tubes over the rotor and locate the Y-piece end of the element over the second 625L clamping peg. Replace the track and push down the track locating levers.

Two independent tubes

Lift the track locating levers and remove the track. Twist and remove the 625L clamping pegs. Fit the two tubes into the correct size clamping blocks. Distance between blocks = 230mm for up to 8.0mm bore; 240mm for 12.0mm and 16.0mm bore. Fit the inlet tube clamping block to the 625L. Stretch the tubes over the rotor and fit second tube clamping block to the 625L. Replace the track and push down the track locating levers. When using Marprene it is important to check the distance between the clamping blocks after 30 minutes running time.



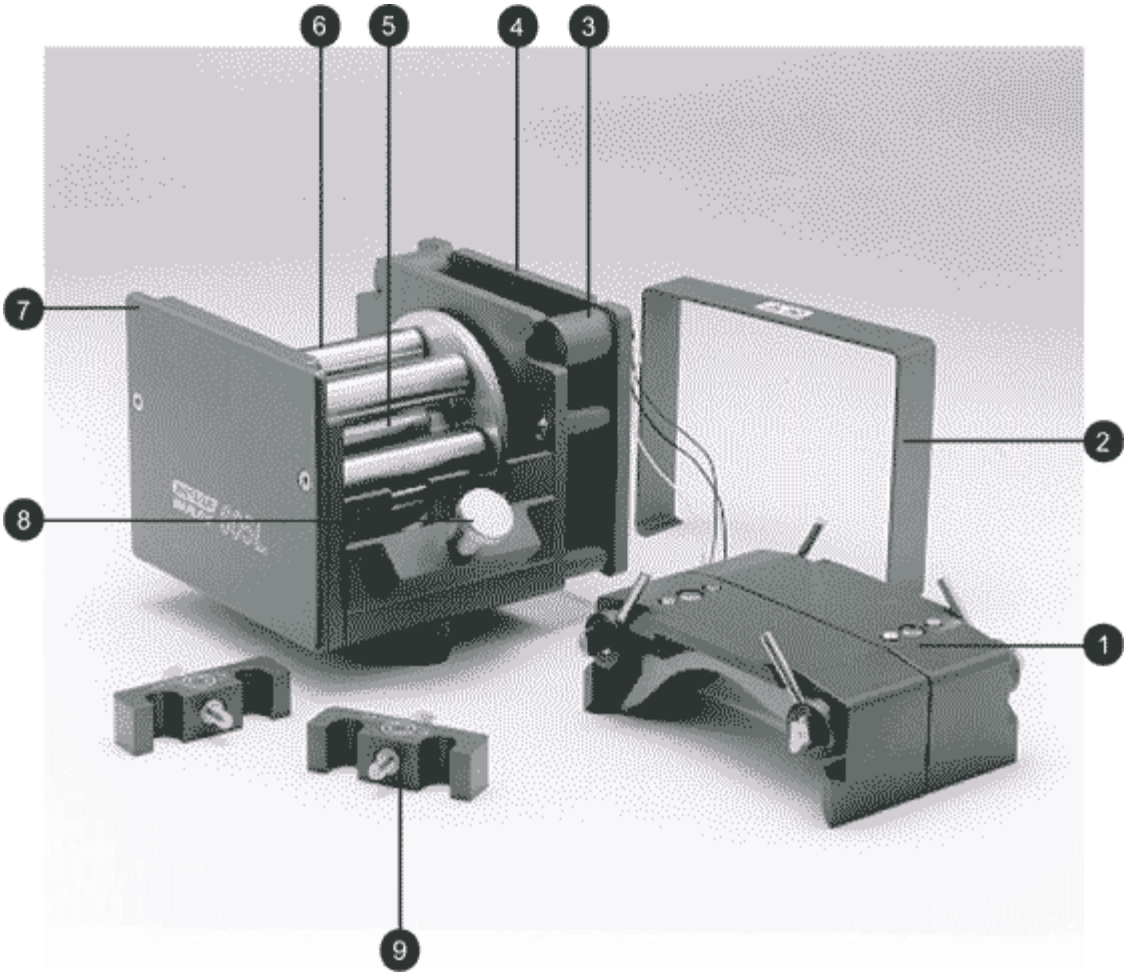
625L Care and maintenance

Check all moving parts for freedom of movement occasionally. If aggressive fluids are spilt onto the pumphead, clean using a mild detergent only.

625L Track adjustment

The track is set for 4.0mm wall tubing up to 16.0mm bore. Alteration of this setting using the pan head screws may be necessary to optimise performance if non-standard tubing is used. The factory setting is 20.3mm vertically from the rotor side of the sprung track to the top of the track cover.

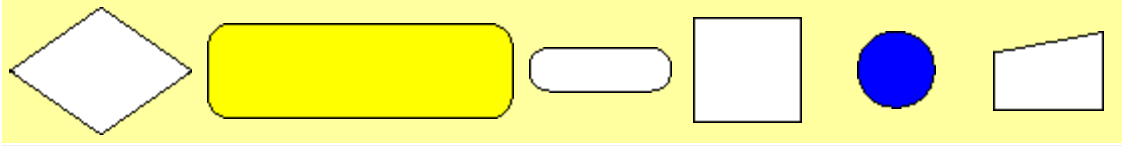
625L Pumphead spares



Number	Spare	Description
1	MRA0141A	Track assembly
2	MR0851S	Cover plate
3	SW0050	Proximity switch
4	MRA0143A	Adaptor
5	BB0018	Shaft bearing

6	MRA0150A	Rotor assembly
7	MR0850S	Front plate
8	MRA0144A	Tuibe locating peg
	069.4001.000	Tube clamp set

625L Operation



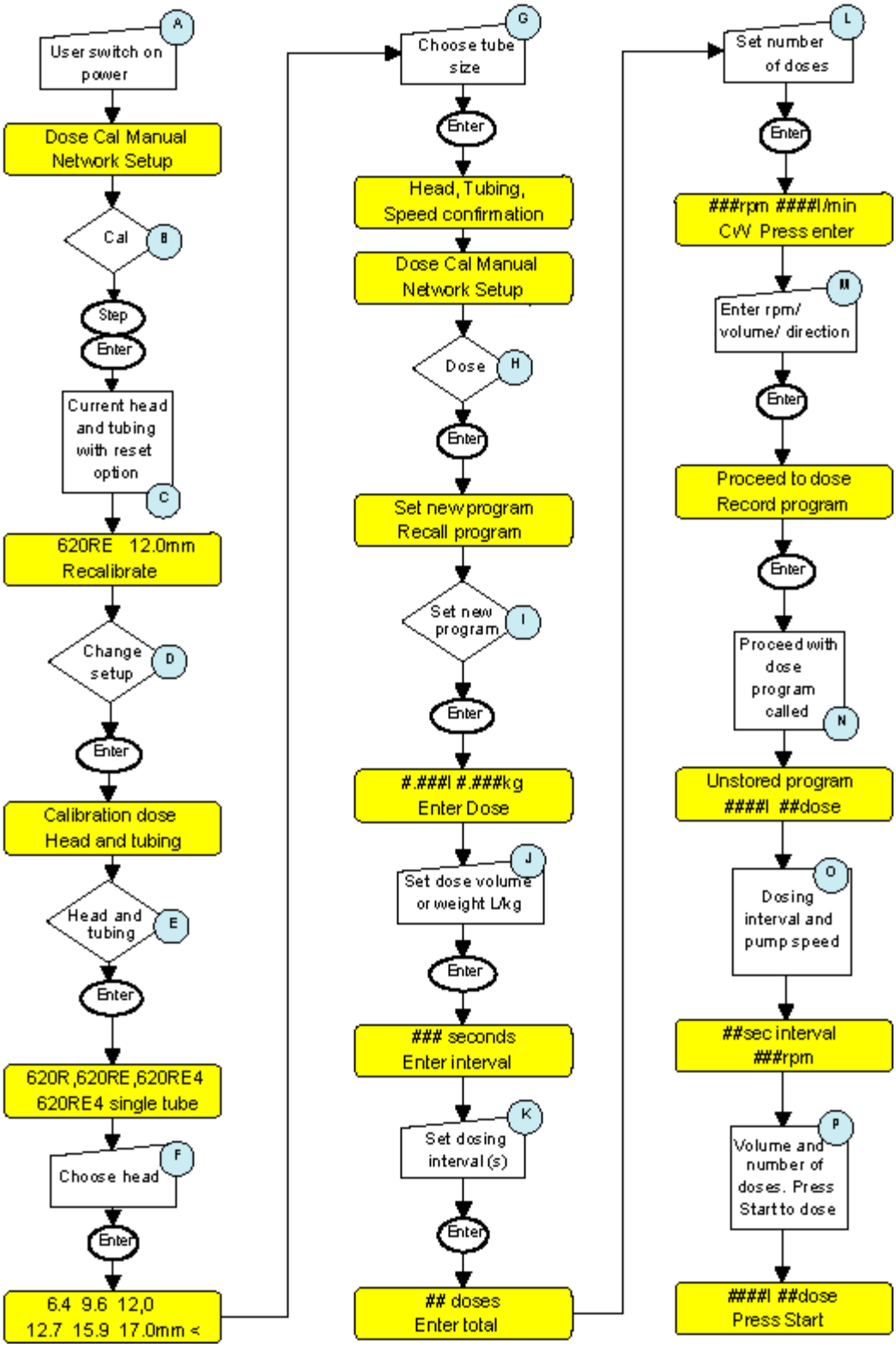
User decision | Pump screen display | Terminal | Operation | Flow connector | Manual input

Instruction reference | Keypad functions

Quick start

A. Switch on power to drive.
B. User decision to calibrate.
C. Indication of head and tubing to which pump is currently calibrated.
D. If set-up not correct change existing set-up.
E. Select head and tubing.
F. Choose the pumphead required.
G. Choose the tube size. Selection confirmed.
H. Select Dose from Main menu.
I. Set a new dose program.
J. Set the volume or weight to be dosed.
K. Set the time interval between doses.
L. Set the number of doses to be dispensed.
M. Set the pump speed or volume flow rate.
N. Proceed to dose with using set parameters.
O. Verification of interval between doses and pump speed.
P. Verification of volume and number of doses, press Start.

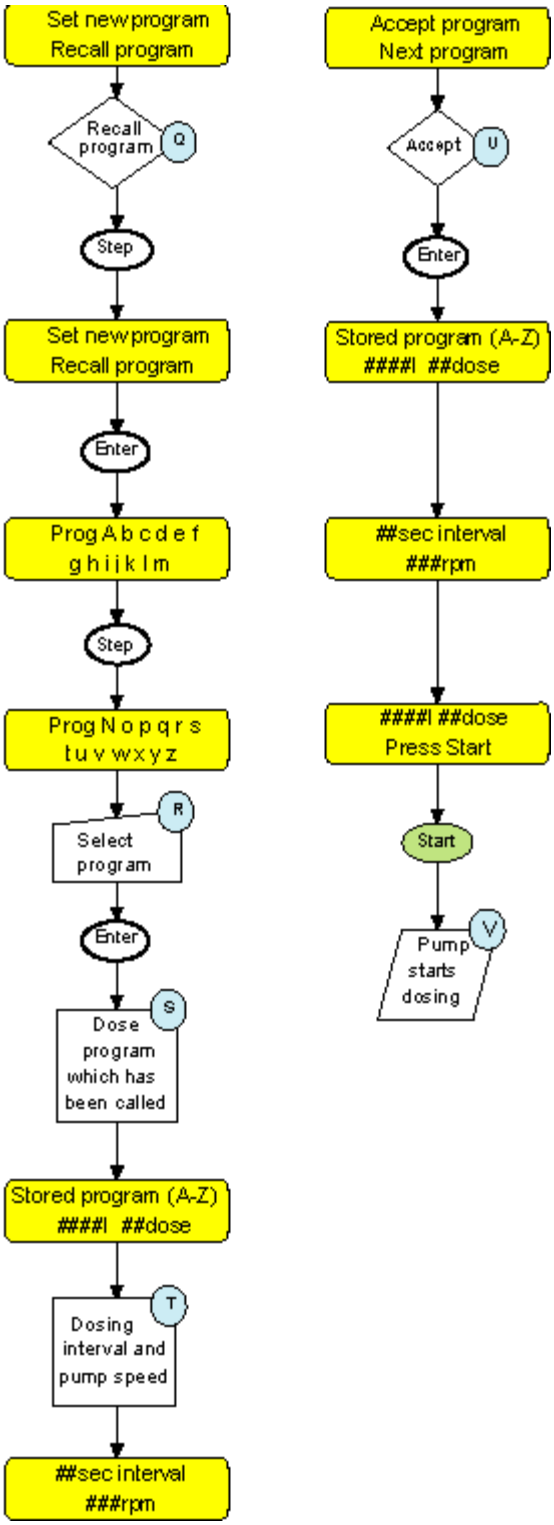
Quick start



Recall program

Q. Recall previously set program from memory.
R. Select required program.
S. Verification of selected dose program.
T. Verification of interval between dose shots and pump speed.
U. User decision to accept chosen program. Repeated verification of dose parameters.

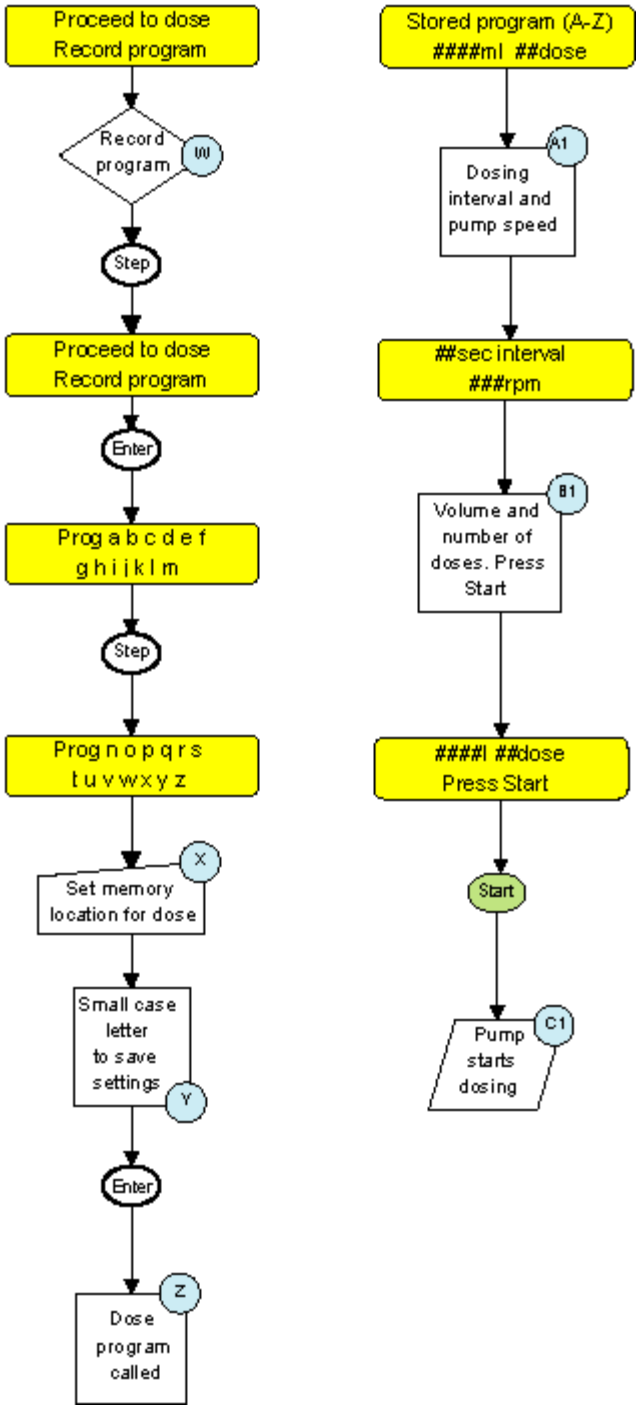
Recall program



Record program

V. Pump starts.
W. User decision to record a set of dose program settings.
X. Select the memory location.
Y. Small case letters indicate an empty memory location.
Z. Verification of saved dose program.
A1. Verification of time interval between dose shots and pump speed.
B1. Verification of volume and number of doses, press Start
C1. Pump starts dosing.

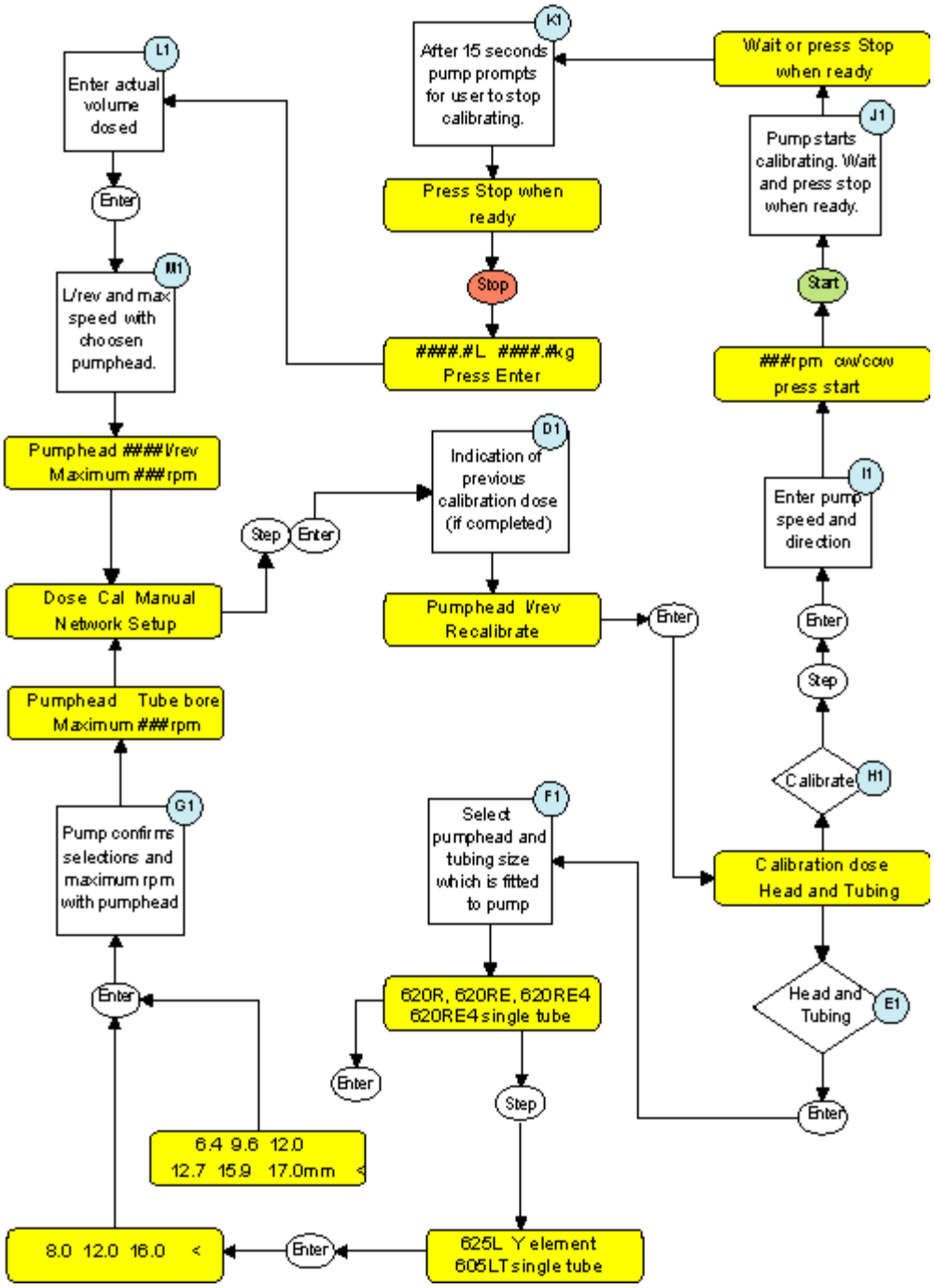
Record program



Calibration

D1. Indication of previous calibration (if completed).
E1. Decision to calibrate pump to new pumphead and tubing size.
F1. Select the pumphead and tubing which is fitted to pump.
G1. Confirmation of user selections. Maximum pump speed is governed by pumphead fitted.
H1. Decision to calibrate pump using a calibration dose.
I1. Enter calibration speed and direction.
J1. Pump starts to calibrate. Press stop when ready.
K1. After 15 seconds pump will prompt user to stop calibrating.
L1. Measure and then enter the actual volume that has been dosed during calibration.
M1. Indication of pumphead, ml/rev and maximum rpm which is governed by the pumphead.

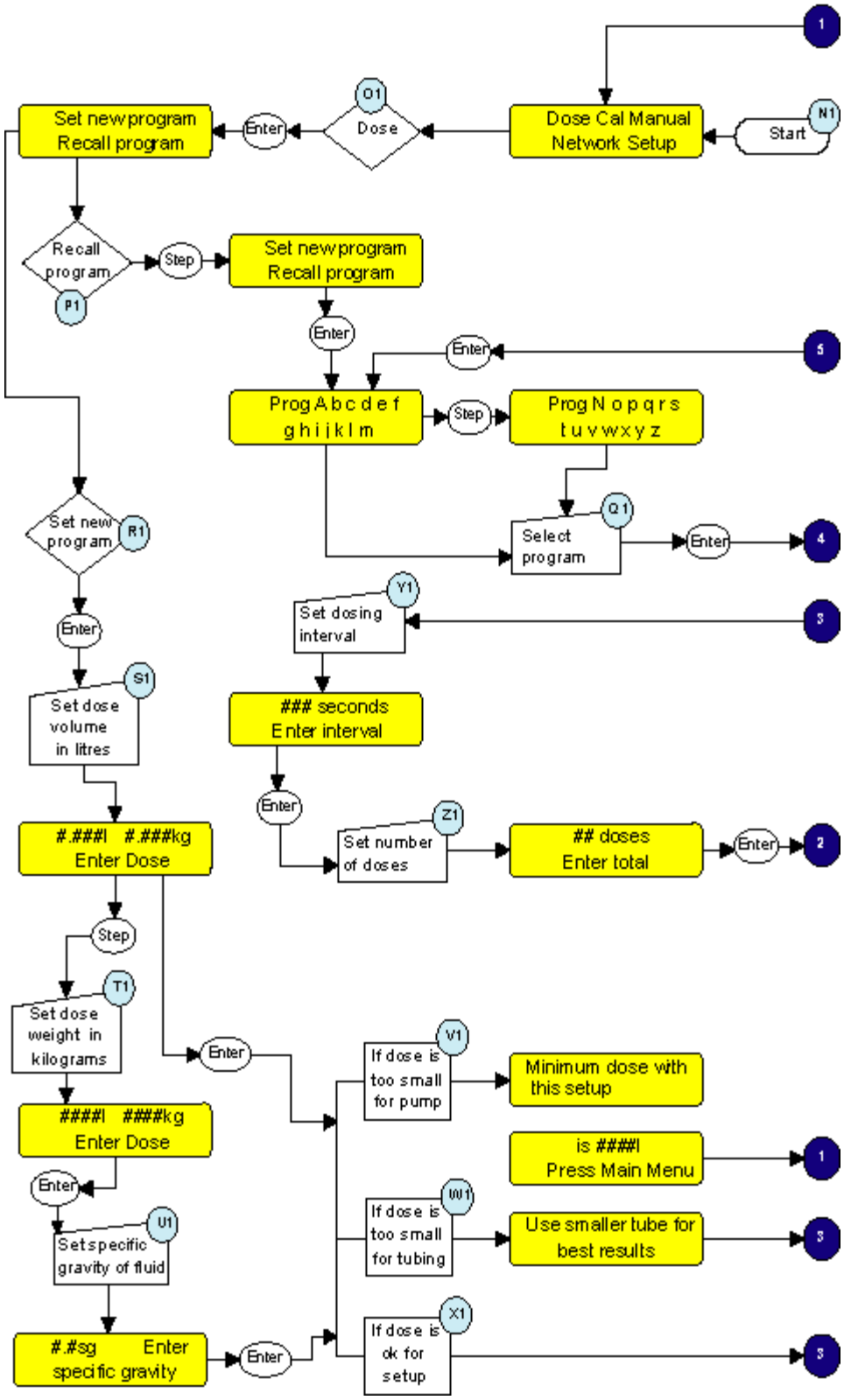
Calibration



Dose (1)

N1. Switch on pump and Main menu is called .
O1. User chooses dose option.
P1. Recal program option available only if program has previously been saved.
Q1. User recalls a preset program. Large case letters denote a stored program
R1. Decision to set a new dose program.
S1. Enter dose volume in ml (0.001L<Dose<9999L).
T1. Enter dose weight in grams (0.001kg<Dose<9999kg).
U1. Set the specififc gravity of the fluid (Maximum 5.0).
V1. Dose is too small for pump (Minimum dose set should require 5 rotor revolutions).
W1. Dose is too small for tubing.
X1. Dose is ok for setup.
Y1. Set time interval between doses (0.1s<Time<6550s).
Z1. Set total number of doses (up to 9999 doses).

Dose (1)

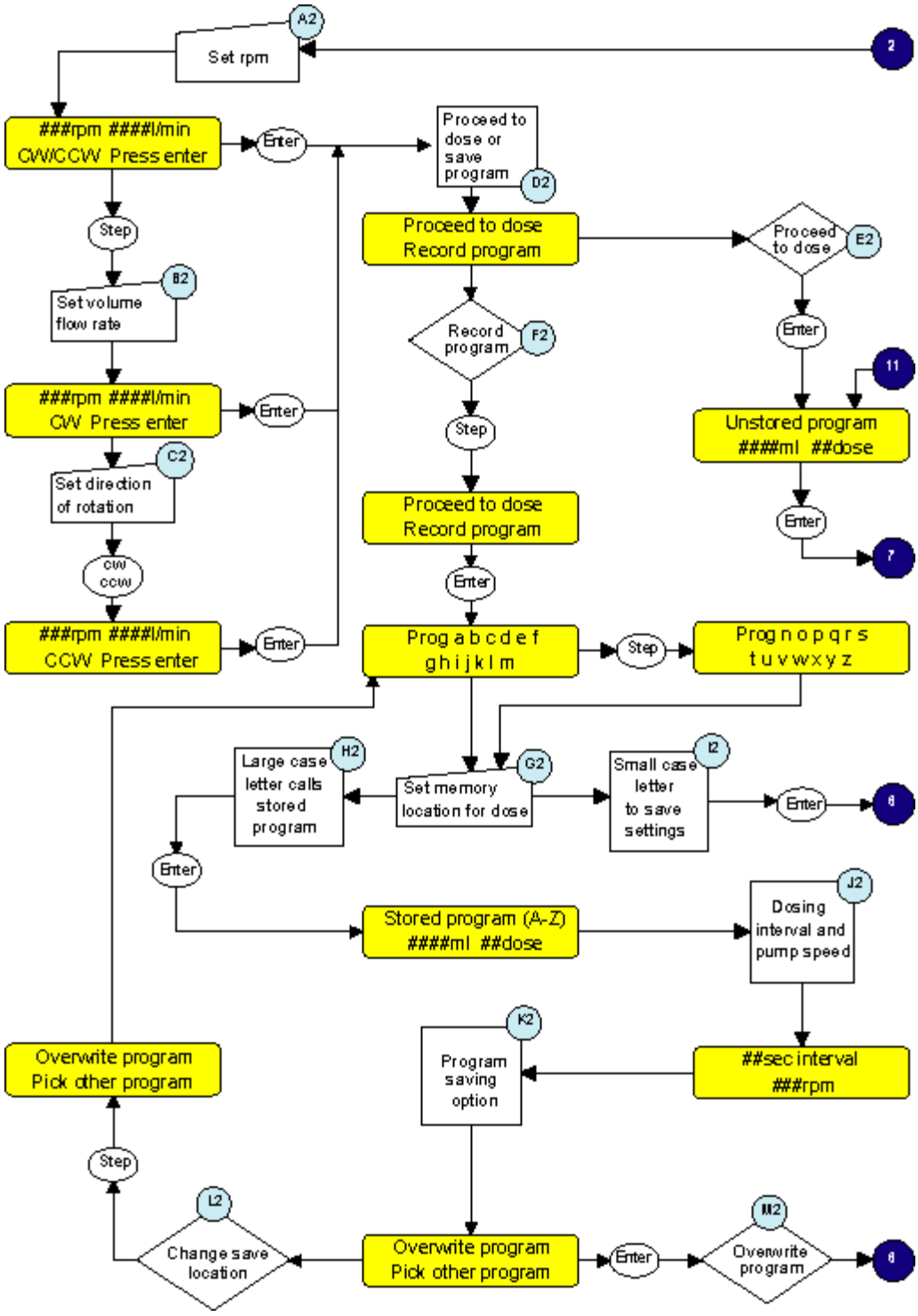


Dose (2)

A2. Set drive speed.
B2. Set volume flow rate.
C2. Set direction of rotation of drive.
D2. Proceed to dose or save program.
E2. Proceed to dose.
F2. Record program.
G2. Set the memory location for the dose parameters.
H2. Choosing a capital letter will call the existing program settings within that memory location.

I2. Choosing a small case letter will call the dose settings to be saved.
J2. Indication of dosing interval and pump speed.
K2. Overwrite existing program or save to different memory location.
L2. Decision to choose new memory location.
M2. Decision to overwrite existing program.

Dose (2)

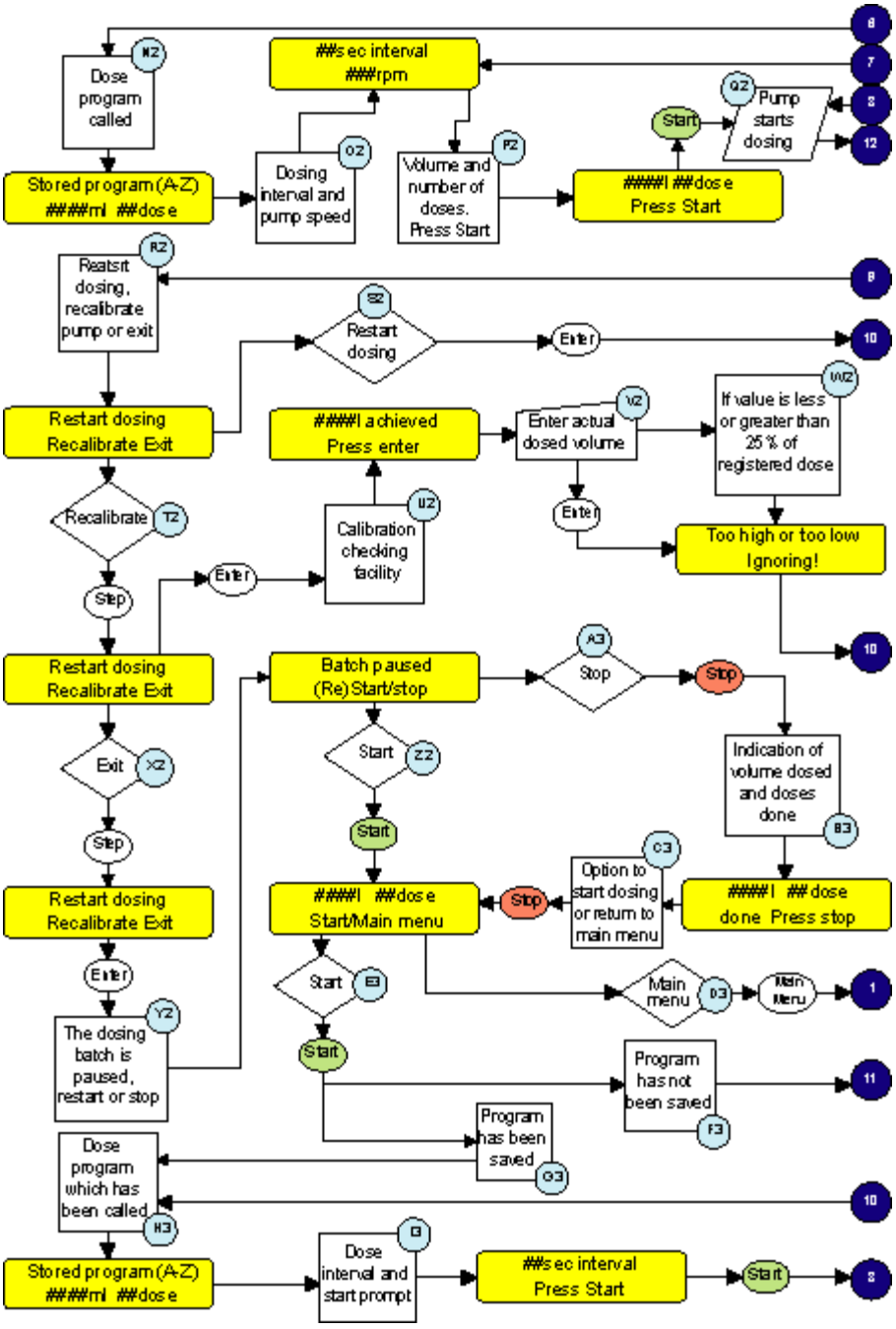


Dose (3)

N2. Dose program called for use.
O2. Indication of dosing time interval and pump speed.
P2. Volume/weight set and number of dose shots. Press start.
Q2. Pump starts dosing run.
R2. Option to restart dosing, re-calibrate pump or exit from dosing.
S2. Restart dosing.

T2. Decision to re-calibrate pump.
U2. Prompt to enter volume which pump is physically dosing during each shot.
V2. Measure and then enter manually the actual volume/weight which has been dosed.
W2. Default tolerance limit of +/-25% of pre-set dose volume on actual dosing volume entered.
X2. Decision to exit from dose program.
Y2. The dosing batch is paused. Option to restart or stop.
Z2. Decision to re-start dosing.
A3. Decision to stop dosing.
B3. Indication of volume/weight dosed and number of doses completed.
C3. Option to restart dosing or return to Main menu.
D3. Return to Main menu.
E3. Start dosing.
F3. Unsaved dose settings will be called.
G3. Saved dose setting will be called.
H3. Indication of dose program which has been called.
I3. Dosing time interval and start prompt.

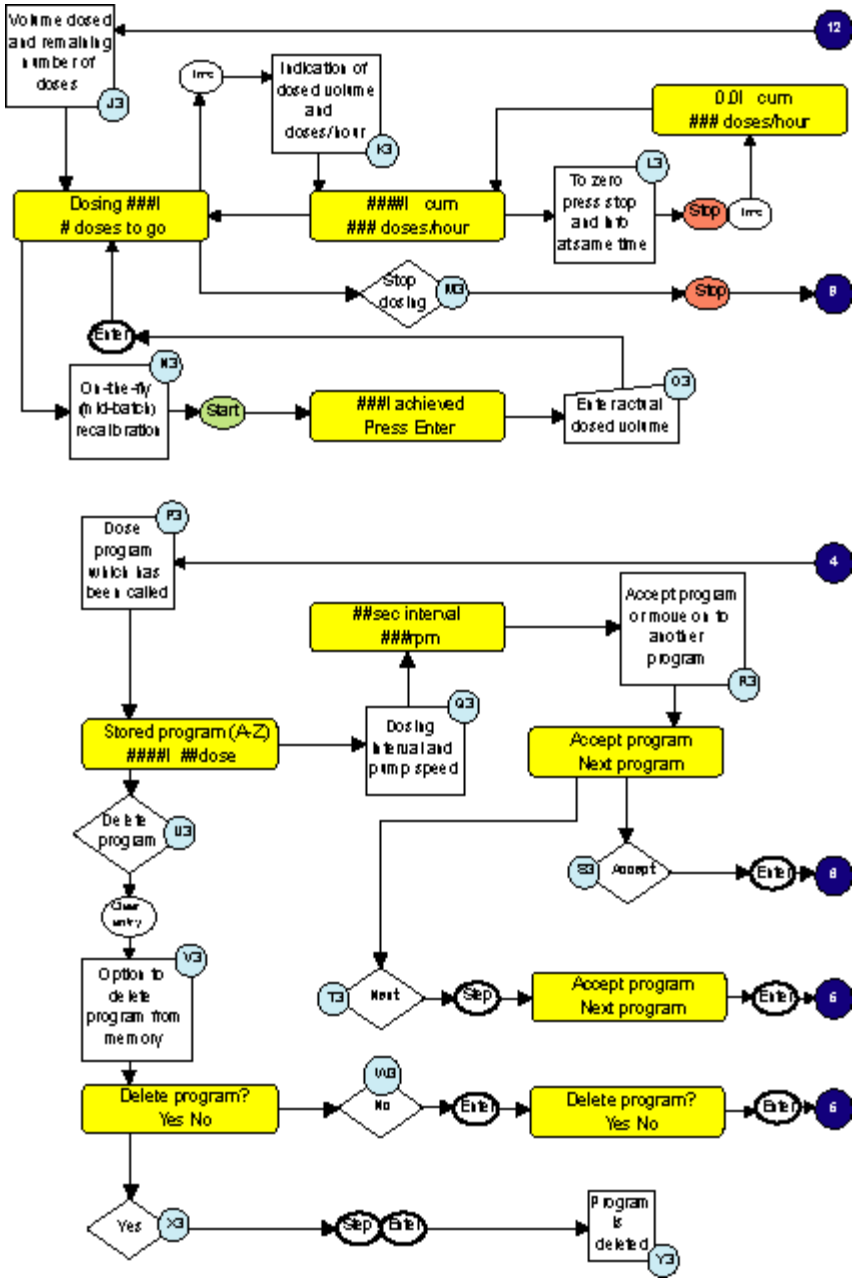
Dose (3)



Dose (4)

J3. Indication of volume/weight dosed and number of doses remaining.
K3. Indication of volume/weight dosed and number of doses/hour.
L3. Option to zero the cumulative volume register.
M3. Decision to stop dosing.
N3. On-the-fly (mid batch) re-calibration facility.
O3. Enter actual volume dosed and pump will re-calibrate itself over 5 dose shots.
P3. Indication of dose volume/weight and number of doses in program called.
Q3. Verification of time interval between dose shots and pump speed.
R3. Accept called program for dose or choose another program from memory.
S3. Decision to accept program.
T3. Move to next program in memory.
U3. Decision to delete program from memory.
V3. Option to delete program from memory.
W3. Decision to not delete program.
X3. Decision to delete program.
Y3. Program is deleted.

Dose (4)



625L Error Messages

Programs and setup lost

press enter

This screen indicates corruption of the RAM or that the EPROM has been changed. In either case pressing Enter will re-initialise the RAM and clear the error.

check drive and setup now

This screen indicates that the motor has stalled or that a loss of tachometer pulses has been selected. Clear the cause of stalling and power the pump off and on. If the error persists seek qualified assistance.

Rs232 parameter error

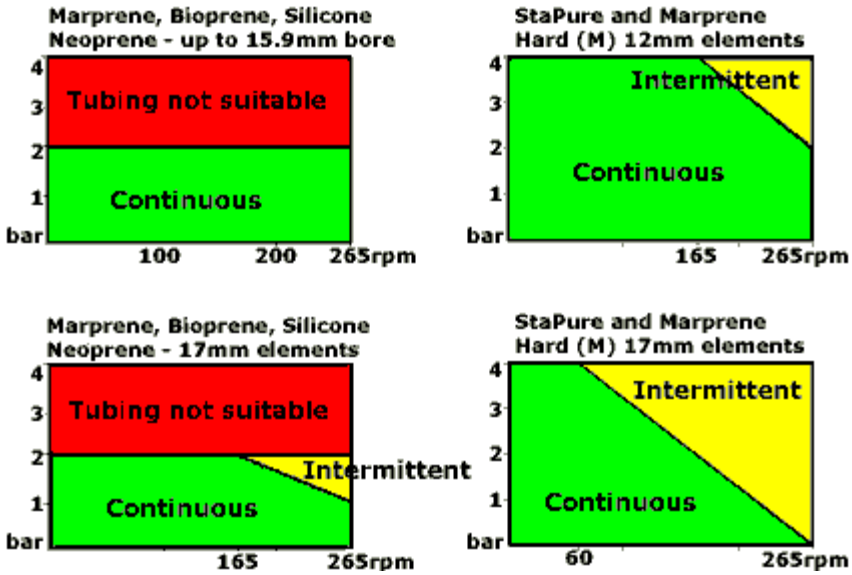
Signifies an illegal command string when under RS232 control.

data corrupted! recalibrate

A corruption of data has been detected. Switch unit off and on. Re-calibrate using Head and Tubing first followed by a calibration dose if necessary.

620RE, 620RE4 and 620R Technical data

Performance envelope of the 620R, 620RE and 620RE4 mark II rotor



Flow rates

Flow rates for the 624Di/R and 624Di/L were obtained pumping water at 20C with negligible 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.

620RE, 620RE4 and 620R Flow rates

Tube bore | Tube number - # | rpm | Pressure (+) | Suction (-)

Note: Flow rates quoted have been rounded for simplicity, but are accurate to within 5% - well within the normal tubing tolerance variation of flow rate. They should therefore be

taken as a guide. Real flow rates in any application must be determined empirically.

620R

Flow rates: Marprene, Bioprene					
	mm	**6.4**	**9.6**	**12.7**	**15.9**
	inch	**1/4**	**3/8**	**1/2**	**5/8**
	#	**26**	**73**	**82**	**184**
	4-200 (l/min)	0.05 - 2.6	0.10 - 5.0	0.16 - 8.0	0.21 - 10
	4-200 (USGPM)	0.01 - 0.7	0.03 - 1.3	0.04 - 2.1	0.06 - 2.6

Flow rates: Silicone					
	mm	**6.4**	**9.6**	**12.7**	**15.9**
	inch	**1/4**	**3/8**	**1/2**	**5/8**
	#	**26**	**73**	**82**	**184**
	4-200 (l/min)	0.05 - 2.4	0.11 - 5.4	0.17 - 8.4	0.22 - 14
	4-200 (USGPM)	0.01 - 0.6	0.03 - 1.4	0.04 - 2.2	0.06 - 3.6

Flow rates: Neoprene, STA-PURE					
	mm	**6.4**	**9.6**	**12.7**	**15.9**
	inch	**1/4**	**3/8**	**1/2**	**5/8**
	#	**26**	**73**	**82**	**184**
	4-200 (l/min)	0.05 - 2.4	0.10 - 5.0	0.16 - 8.0	0.24 - 12
	4-200 (USGPM)	0.01 - 0.6	0.03 - 1.3	0.04 - 2.1	0.06 - 3.2

620RE

Flow rates: Marprene TM, Bioprene TM			
	mm	**12**	**17**
		LoadSure	**LoadSure**
	4-200 (l/min)	0.15 - 7.4	0.24 - 12
	4-200 (USGPM)	0.04 - 2.0	0.06 - 3.1

Flow rates: Marprene TL, Bioprene TL			
	mm	**12**	**17**
		LoadSure	**LoadSure**
	4-200 (l/min)	0.15 - 7.4	0.27 - 13
	4-200 (USGPM)	0.04 - 2.0	0.07 - 3.6

Flow rates: Silicone			
	mm	**12**	**17**
		LoadSure	**LoadSure**
	4-200 (l/min)	0.15 - 7.7	0.24 - 12
	4-200 (USGPM)	0.04 - 2.0	0.06 - 3.2

Flow rates: Neoprene, STA-PURE

	mm	12	17
		LoadSure	LoadSure
	4-200 (l/min)	0.16 - 8.0	0.29 - 14
	4-200 (USGPM)	0.04 - 2.1	0.08 - 3.8

620RE4

Flow rates: Marprene TM, Bioprene TM			
	mm	12	17
		LoadSure	LoadSure
	4-200 (l/min)	0.13 - 6.3	0.16 - 8.2
	4-200 (USGPM)	0.03 - 1.7	0.04 - 2.2

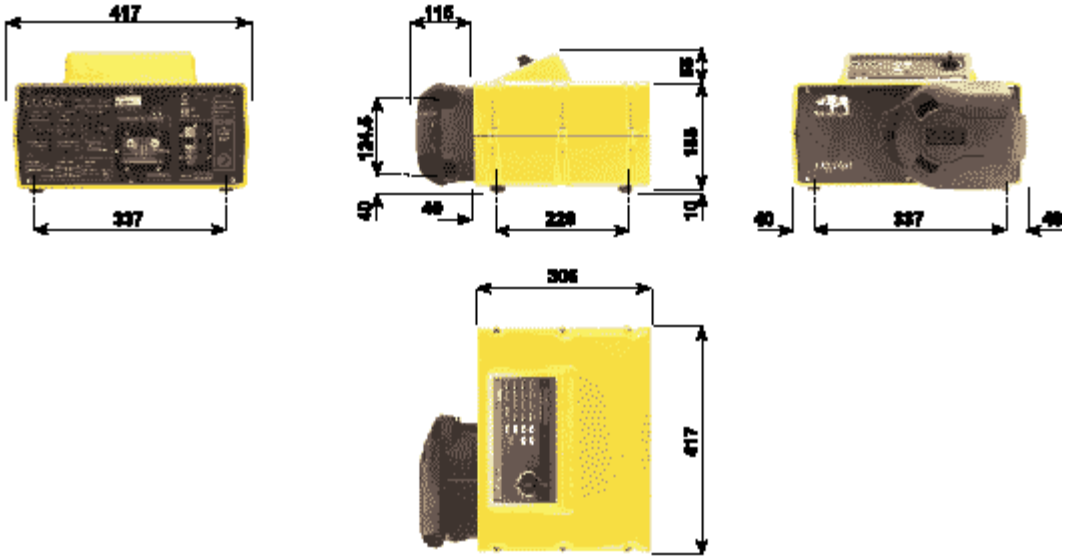
Flow rates: Marprene TL, Bioprene TL			
	mm	12	17
		LoadSure	LoadSure
	4-200 (l/min)	0.13 - 6.3	0.19 - 9.4
	4-200 (USGPM)	0.03 - 1.7	0.05 - 2.5

Flow rates: Silicone			
	mm	12	17
		LoadSure	LoadSure
	4-200 (l/min)	0.13 - 6.6	0.17 - 8.5
	4-200 (USGPM)	0.03 - 1.7	0.05 - 2.3

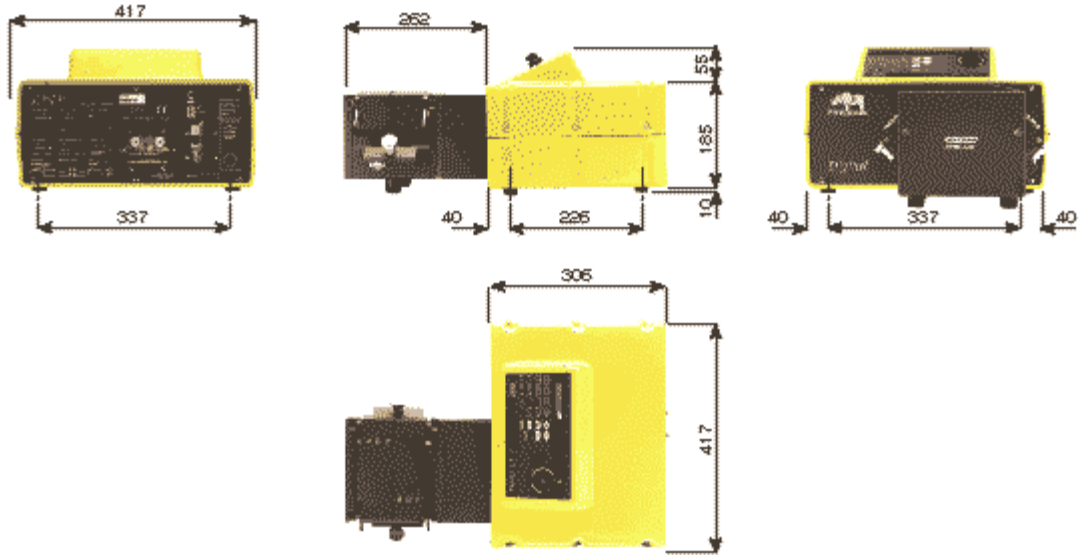
Flow rates: Neoprene, STA-PURE			
	mm	12	17
		LoadSure	LoadSure
	4-200 (l/min)	0.14 - 6.8	0.20 - 10
	4-200 (USGPM)	0.04 - 1.8	0.05 - 2.7

Dimensions in mm

624Di/R



624Di/L



620R product codes

mm	inch	#	Marprene	Bioprene	Peroxide silicone	Platinum silicone
6.4	1/4	26	902.0064.032	903.0064.032	910.0064.032	913.0064.032
9.6	3/8	73	902.0096.032	903.0096.032	910.0096.032	913.0096.032
12.7	1/2	82	902.0127.032	903.0127.032	910.0127.032	913.0127.032
15.9	5/8	184	902.0159.032	903.0159.032	910.0159.032	913.0159.032
mm	inch	#	STA-PURE	Neoprene	Butyl	Tygon
6.4	1/4	26	960.0064.032	920.0064.032	930.0064.032	950.0064.032
9.6	3/8	73	960.0096.032	920.0096.032	930.0096.032	950.0096.032
12.7	1/2	82	960.0127.032	920.0127.032	930.0127.032	950.0127.032
15.9	5/8	184	960.0159.032	920.0159.032	930.0159.032	950.0159.032
				Gore		

mm	inch	#	Fluorel	fluoroelastomer /PTFE
6.4	1/4	26	970.0064.032	965.0064.032
9.6	3/8	73	970.0096.032	965.0096.032
12.7	1/2	82	970.0127.032	965.0127.032
15.9	5/8	184	970.0159.032	965.0159.032

620RE and 620RE4 LoadSure product codes

	12mm DIN 15	12mm Tri-clamp 3/4in	17mm DIN 15	17mm Tri-clamp 3/4in
STA-PURE	960.0120.PFD	960.0120.PFT	960.0170.PFD	960.0170.PFT
Gore fluoroelastomer /PTFE	965.0120.PFD	965.0120.PFT	965.0170.PFD	965.0170.PFT
Bioprene TM	903.M120.PFD	903.M120.PFT	903.M170.PFD	903.M170.PFT
Bioprene	903.0120.PFD	903.0120.PFT	903.0170.PFD	903.0170.PFT
Platinum silicone	913.0120.PFD	913.0120.PFT	913.0170.PFD	913.0170.PFT
	12mm Cam and Groove 3/4in	17mm Cam and Groove 3/4in		
Marprene TM	902.M120.PPC	902.M170.PPC		
Marprene	902.0120.PPC	902.0170.PPC		
Peroxide silicone	910.0120.PPC	910.0170.PPC		
Neoprene	920.0120.PPC	920.0170.PPC		

620R dosing guidelines

L ? s ? ✔						
ml (± 1%)	50	100	250	500	1000	2500
mm	6.4	9.6	12.7	15.9	15.9	15.9
~ s (sec)	1.5	1.6	2.2	2.8	5.2	12.5
ml (± 2%)	50	100	250	500	1000	2500
mm	9.6	12.7	15.9	15.9	15.9	15.9
~ s (sec)	1.0	1.1	1.6	2.8	5.2	12.5

625L dosing guidelines

L ? s ? ✔					
ml (± 0.5%)	200	500	1000	2000	5000
mm	12.0	16.0	16.0	16.0	16.0
~ s (sec)	1.8	3.5	7.1	14.1	35.3
ml (± 1%)	200	500	1000	2000	5000
mm	16.0	16.0	16.0	16.0	16.0
~ s (sec)	1.4	3.5	7.1	14.1	35.3
ml (± 2%)	200	500	1000	2000	5000

mm	16.0	16.0	16.0	16.0	16.0
~ s (sec)	1.4	3.5	7.1	14.1	35.3

625L product codes

< tr>

mm	STA-PURE	Gore fluoroelastomer	Platinum silicone	Marprene
8.0	960.E080.K40	965.E080.K40	913.AE80.K40	902.E080.K40
12.0	960.E120.K40	965.E120.K40	913.A12E.K40	902.E120.K40
16.0	960.E160.040	965.E160.040	913.A16E.040	902.E160.040

625L (4mm) product codes

< tr>

mm	Bioprene	Platinum silicone	Marprene
8.0	903.0080.040	913.A080.040	902.0080.040
12.0	903.0120.040	913.A120.040	902.0120.040
16.0	903.0160.040	913.A160.040	902.0160.040

625L Y-piece product codes

mm	
8.0	999.3096.K00
12.0	999.3120.K00
16.0	CN0125

Trademarks and disclaimer

Watson-Marlow, Loadsure, Bioprene and Marprene are trademarks of Watson-Marlow Limited.
TYGON is a trademark of the Saint Gobain Performance Plastics Company.
STA-PURE is a trademark of W L Gore & Associates.

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.

Patient-connected use: warning

Warning, These products are not designed for use in, and should not be used for patient connected applications.

Publication history

m-624di-gb-01.htm: Watson-Marlow 624Di
First electronically published 12 02.

Decontamination certificate

In compliance with the *UK Health and Safety at Work Act* and the *Control of Substances Hazardous to Health Regulations*, you are required to declare the substances which have been in contact with product(s) you return to Watson-Marlow or its subsidiaries or distributors. Failure to do so will cause delays. Please ensure that you fax us this form and receive an RGA (Returned Goods Authorisation) before you despatch the product(s). A copy of this form must be attached to the outside of the packaging containing the

product(s). Please complete a separate decontamination certificate for each product.

You are responsible for cleaning and decontaminating the product(s) before return.

Your name		**Company**	
Address			
Postcode / zip		**Country**	
Telephone		**Fax**	
Product type		**Serial number**	
To speed the repair, please describe all known faults			

The product has ... ○ Been used ○ Not been used

If the product has been used, please complete all the following sections. If the product has not been used, please just sign this form.

Names of chemicals handled with product(s)	
Precautions to be taken in handling these chemicals	
Action to be taken in the event of human contact	

I understand that the personal data collected will be kept confidentially in accordance with the UK Data Protection Act 1998.

Signature		**RGA number**	
		Your position	
		Date	

Please print out, sign and fax to Watson-Marlow Pumps at +44 1326 376009.