MASTERFLEX® L/S 77240-30

OPERATING MANUAL:

MASTERFLEX® L/S® COMPACT VARIABLE-SPEED PUMPS

Model Nos.

77240-20
77240-30

A-1299-1129
Edition 01

Cole-Parmer®
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IXEF 1022 — Reg TM Solvay S.A. Properties
ERTALYTE TX — Reg TM of the Quadrant Group
NORPRENE — Reg TM Saint-Gobain Performance Plastics Corp.

PUMP FOR LIQUIDS
ORIGINAL INSTRUCTIONS

A-1299-1129

REV	ECR/ECN	DATE	DESCRIPTION	By
01	19171	2013-12-09	First Edition	BK

SAFETY PRECAUTIONS

DANGER: Remove power from the Pump System before any cleaning operation is started.

WARNINGS: Turn drive off before removing or installing tubing. Fingers or loose clothing could be caught in the rollers.

Stop the drive when changing the tubing or its position in the rotor mechanism (the rotor is partially exposed when the LOADING LEVER is in the open position).

Explanation of Symbols

CAUTION: Risk of Danger. Consult Operator's manual for nature of hazard and corrective actions.

CAUTION: Risk of crushing. Keep fingers away from rotor while pump is in operation. Stop pump before loading or unloading tubing.

CAUTION: Risk of electric shock. Consult Operator's manual for nature of hazard and corrective actions.

WARNING: Product Use Limitation

This product is not designed for, nor intended for use in patient connected applications; including, but not limited to, medical and dental use, and accordingly has not been submitted for FDA approval.

This product is not designed for, nor intended for use in hazardous duty areas as defined by ATEX or the NEC (National Electrical Code); including, but not limited to use with flammable liquids. Consult the factory for products suitable for these types of applications

NOTE: Use only MASTERFLEX precision tubing with MASTERFLEX pumps to ensure optimum performance. Use of other tubing may void applicable warranties.

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Section 1 Introduction

General Description

The MASTERFLEX® L/S® Compact Variable-Speed Pump is designed as an inexpensive variable speed pump. These 200 rpm drives accommodate one pump head for either one or two channels of tubing, depending on the model purchased, (77240-20 - single-channel, 77240-30 - dual-channel) at controlled speeds as low as 35 rpm.

The pre-installed Pump Head accepts several different tubing sizes for a wide range of flow rates. The unique over-center cam design and spring loaded tubing retention allows quick tubing changes and greatly reduced maintenance time. All units are supplied with a Universal Power Supply (Figure 1-1) which provides a DC output for connection to the Pump Drive.

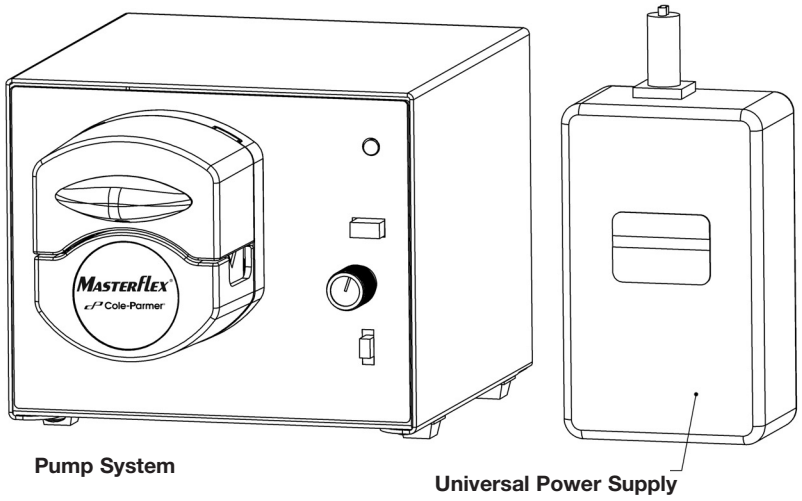


Figure 1-1. MASTERFLEX L/S Compact Variable-Speed Pump

The single-turn adjustable Speed Control, see Figure 1-2, provides variable flow operation. The green POWER On indicator lights whenever the pump is operating. The Power On/Direction Switch turns power on when either clockwise or counterclockwise pump rotor direction is selected. The MAX Button is used for priming and purging and operates the pump at maximum speed while depressed.

General Description (continued)

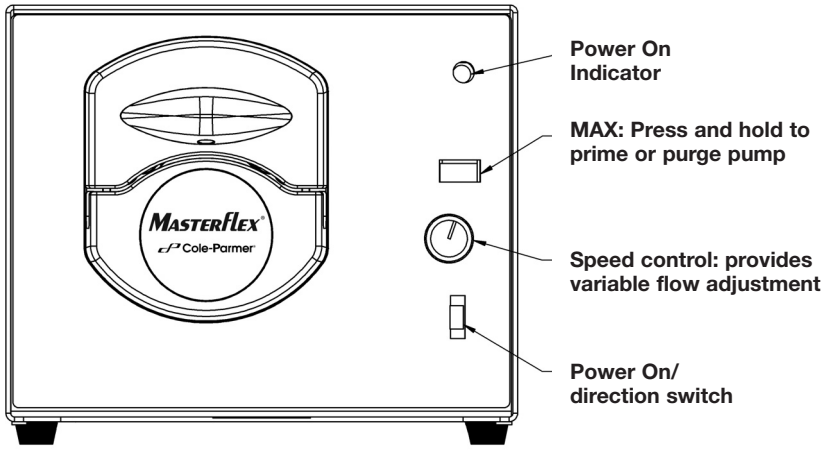


Figure 1-2. Pump System—Front Panel

The rear panel, Figure 1-3, contains a DC power input jack for connection of primary power and a 4-terminal barrier strip for connection of remote start/stop and for a DC backup supply. Remote Start/Stop: Terminals 3 and 4 on the rear panel terminal strip, (Figure 1-3) are used for remote start/stop operation. Pump direction and speed are not remotely controllable. In non-remote operation, these terminals are connected together by a shorting bar. For remote control by switch closure, remove the shorting bar and connect the two terminals of an isolated remote control switch or relay to terminals 3 and 4. A closure of the remote switch contacts will turn the pump system on. Opening the contact will turn the pump system off.

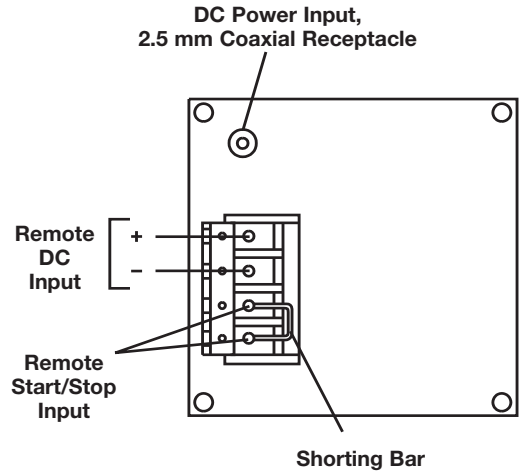


Figure 1-3. Pump Drive — Rear Panel

General Description (continued)

WARNING: Turn drive off before removing or installing tubing. Fingers or loose clothing could be caught in the rollers.

Tubing Accepted: Single-Channel Pump Head can be used with MASTERFLEX precision tubing sizes L/S 13, L/S 14, L/S 16 & L/S 25 in all formulations. For Dual-Channel Pump Head usage you may use L/S 13, L/S 14 & L/S 16 size tubing in all formulations.

NOTE: Use only MASTERFLEX precision tubing with MASTERFLEX pumps to ensure optimum performance. Use of other tubing may void applicable warranties.

Section 2 Setup and Operation

1. Unpack the drive system: save packaging material until proper product operation has been verified.

2. Load tubing.

3. Connect the external power supply to the applicable input voltage source and the output of the external power supply to the DC input connector on the pump unit. (See Figure 1-3.)

   NOTE: The power supply output connection is center positive (+).

4. Terminals 1 and 2 on the rear panel barrier terminal strip, provide a means for connecting a remote DC power source. The positive (+) terminal is terminal 1. The negative (–) terminal is terminal 2. (See Figure 1-3.)

   NOTE: Input voltage must not exceed 15V DC or equipment may be damaged. A minimum of 11V DC is required for proper operation.

5. The drive system can be set to operate in either a clockwise or a counterclockwise direction. The same control used to select direction also turns power on or off. To operate in a clockwise direction place direction control switch in the "up" position. The POWER indicator should light and the fluid will flow from left to right. To operate in a counterclockwise direction, place direction switch in the "down" position. The POWER indicator should light and the fluid will flow from right to left. To turn pump off, place switch in the "center" position.

6. The pump speed is controlled by the variable speed control. Turning the control clockwise increases the speed. Tubing life is decreased with increased operating speed. Speed can be controlled up to a 6:1 range.

Section 3 Installation

Tube Loading Single-Channel Pump

1. Be sure pump drive is turned off.
2. Rotate the handle to the left (CCW) to open pump.
3. Load tubing of the correct size. Center tubing between retainers. (Figure 3-1)
4. With correct tubing loaded, check that tubing is between retainer notches, rotate handle to the right (CW) to close.
5. Pump Head will be fully closed when handle is at the horizontal position against the cam stop. (Figure 3-2)
6. Lightly pull tubing from both sides to remove any excess tubing in the Pump Head and seat tubing in retainers.

Figure 3-1. Open and Load

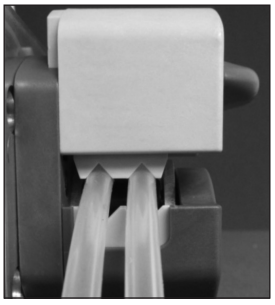
Figure 3-2. Close Pump

Tube Loading Dual-Channel Pump

1. See above steps 1-2.
2. Load tubing of the correct size starting with rear tube position. Center tubing between retainers. (Figure 3-3)
3. With correct tubing loaded, check that tubing is positioned with the retainer notches, rotate handle to the right (CW) to close.
4. Pump Head will be fully closed when handle is at the horizontal position against the cam stop. (Figure 3-2)
5. Lightly pull tubing from both sides to remove any excess tubing in the Pump Head and seat tubing in retainers

Figure 3-3. Dual-Channel

Figure 3-4. Side View



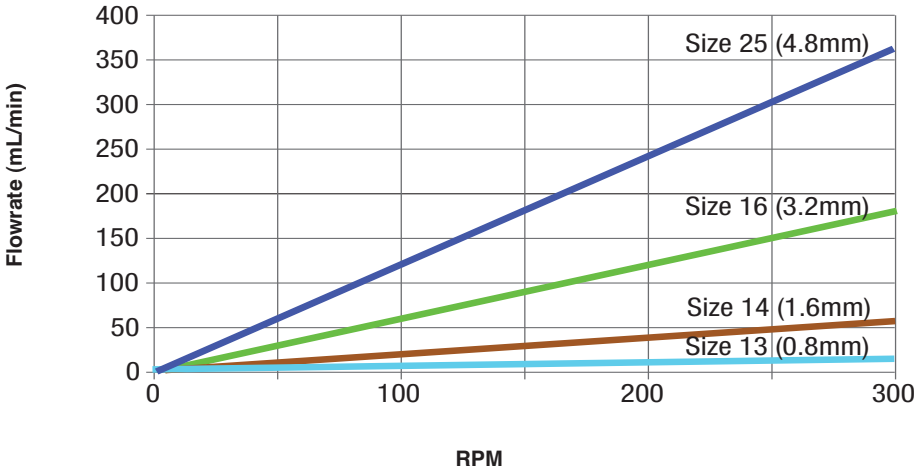
WARNING: Stop the drive when changing the tubing or its position in the rotor mechanism (the rotor is partially exposed when the LOADING HANDLE is in the open position).

NOTES: For optimum tubing life, keep tubing straight where it enters and exits.

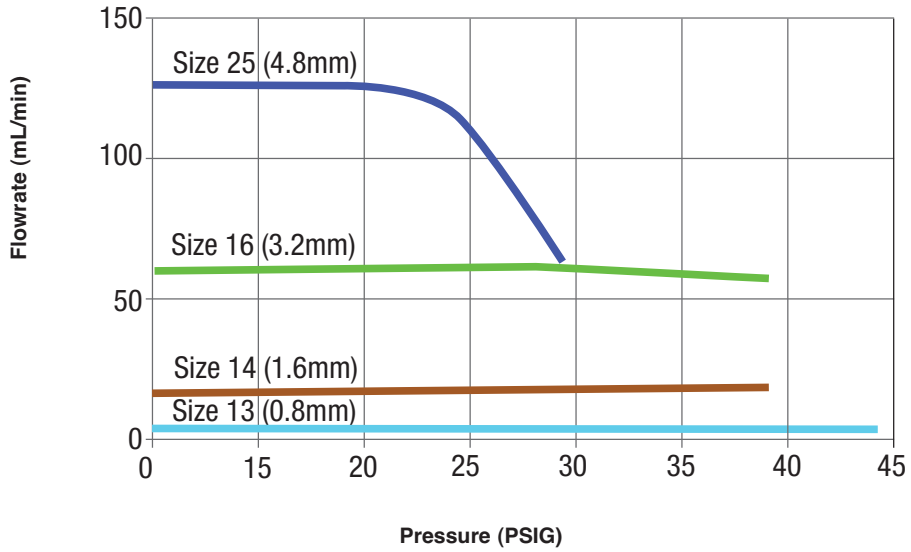
Tubing retainers are spring loaded and do not need to be adjusted when changing tubing of the same type and size.

Typical Flow, Pressure and Vacuum Data

Tabel 3-1. MASTERFLEX L/S Pump Flowrate versus RPM



Tabel 3-2. MASTERFLEX L/S Pump Flowrate versus Pressure

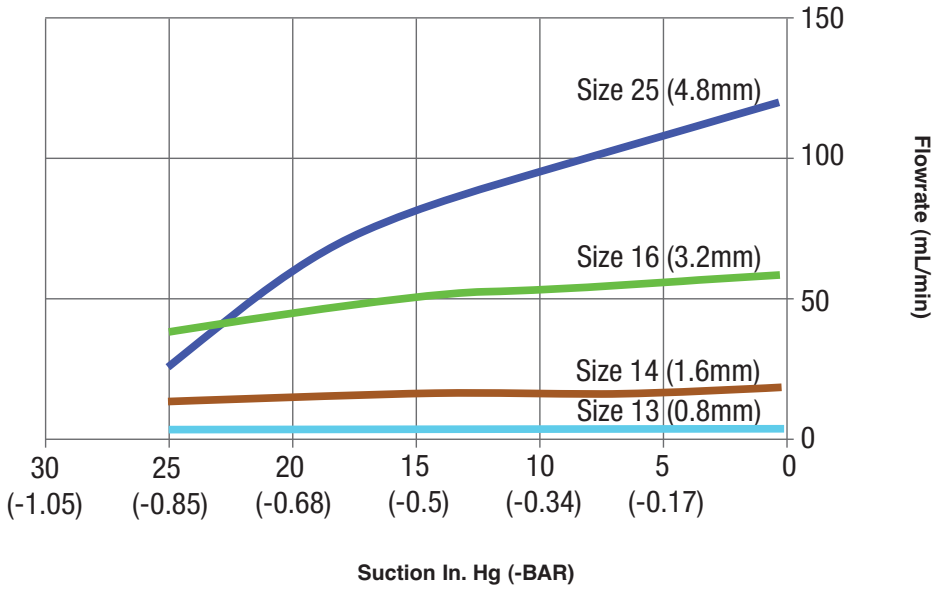


NOTES: Flows shown are per channel. Dual-Channel Pump Head accepts sizes L/S 13, L/S 14 & L/S 16 only. Size L/S 25 tubing, Single-Channel only.

Performance values based on NORPRENE® Food tubing, pumping water at 100 RPM. Actual results may differ between tubing formulations and conditions.

Typical Flow, Pressure and Vacuum Data (continued)

Tabel 3-3. MASTERFLEX L/S Pump Flowrate versus Suction



NOTES: Flows shown are per channel. Dual-Channel Pump Head accepts sizes L/S 13, L/S 14 & L/S 16 only. Size L/S 25 tubing, Single-Channel only.

Performance values based on NORPRENE® Food tubing, pumping water at 100 RPM. Actual results may differ between tubing formulations and conditions.

Section 4 Maintenance

Motor/Brush Replacement

The motor used in this inexpensive drive is not serviceable or repairable and has brushes which cannot be replaced. The motor is rated for a continuous duty life of 3000 operating hours minimum. Operation at other than continuous duty cycles will result in longer motor life. If motor failure for whatever reason occurs, the motor must be replaced.

No lubrication is required for the Pump Head, all sealed bearing are used. There are no customer serviceable parts. Contact dealer for further repair information.

Cleaning

DANGER: Remove power from the Pump System before any cleaning operation is started.

Keep the drive system enclosure clean with mild detergents. Do not immerse or use excessive fluid when cleaning.

Section 5 Specifications

Pump System

Output

Operating Speed:	35 to 200 rpm
Number of Pump Heads:	1
Torque Load:	20 oz-in, maximum
Direction of rotation:	Clockwise and Counterclockwise

Input

Operating Voltage/Frequency:	
Model 77240-20 & -30	115V AC nominal, 50/60 Hz (90–130V AC) @500 mA AC 230V AC nominal, 50/60 Hz (190–260V AC) @300 mA AC 13.5V DC nominal (11.0–15.0V DC) @ 2.4 A DC
Installation Category:	
Model 77240-20 & -30	Category I per IEC664 (Signal Level)
Remote Start/Stop:	Contact closure connection at terminal strip contacts 3 and 4

Construction

Dimensions (L × W × H):	8.67 in x 5.24 in x 4.50 in (220.2 mm x 133.1 mm x 114.3 mm)
Weight:	4.10 lbs (1.86 kgs)

Drive

Color:	White
Material:	Painted Steel
Enclosure Rating:	IP22 per IEC60529

Pump Head

Color:	White/Gray
Housing material:	IXEF® 1022
Roller material:	ERTALYTE® TX
Bearing material:	Sealed bearings
Rotor materials:	Anodized aluminum and Stainless steel

Environment

Operating Temperature:	32°F to 104°F (0°C to 40°C)
Storage Temperature:	–49°F to 149°F (–45°C to 65°C)
Humidity (Non-cond):	10% to 90%
Altitude:	6600 ft (2000 m)
Noise Level:	<70dBa @ 1 meter
Pollution Degree:	Pollution Degree 2 per IEC664
Compliance: (for CE mark)	EN809 (EU Machinery Directive) EN61326-1/A2: 2001 (EMC Directive) Converter is UL listed and CSA approved. Regulatory agency specifications not applicable to the balance of the unit due to low voltage.

Section 6 Warranty, Product Return and Technical Assistance

Warranty

Use only MASTERFLEX precision tubing with MASTERFLEX pumps to ensure optimum performance. Use of other tubing may void applicable warranties.

This product is warranted against defects in material or workmanship, and at the option of the manufacturer or distributor, any defective product will be repaired or replaced at no charge, or the purchase price will be refunded to the purchaser, provided that: (a) the warranty claim is made in writing within the period of time specified on the warranty card, (b) proof of purchase by bill of sale or receipted invoice is submitted concurrently with the claim and shows that the product is within the applicable warranty period, and (c) the purchaser complies with procedures for returns set forth in the general terms and conditions contained in the manufacturer's or distributor's most recent catalog.

This warranty shall not apply to: (a) defects or damage resulting from: (i) misuse of the product, (ii) use of the product in other than its normal and customary manner, (iii) accident or neglect, (iv) improper testing, operation, maintenance, service, repair, installation, or storage, (v) unauthorized alteration or modification, or (b) post-expiration dated materials.

THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER, AND THE MANUFACTURER AND DISTRIBUTOR DISCLAIM ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO EMPLOYEE, AGENT, OR REPRESENTATIVE OF THE MANUFACTURER OR DISTRIBUTOR IS AUTHORIZED TO BIND THE MANUFACTURER OR DISTRIBUTOR TO ANY OTHER WARRANTY. IN NO EVENT SHALL THE MANUFACTURER OR DISTRIBUTOR BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES.

The warranty period for this product is one (1) year from date of purchase.

Product Return

To limit charges and delays, contact the seller or Manufacturer for authorization and shipping instructions before returning the product, either within or outside of the warranty period. When returning the product, please state the reason for the return. For your protection, pack the product carefully and insure it against possible damage or loss. Any damages resulting from improper packaging are your responsibility.

Technical Assistance

If you have any questions about the use of this product, contact the Manufacturer or authorized seller.

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