

MASTERflex®

L/S®

Easy-Load® II Pump Heads

Guide

MFLX77200-3X

MFLX77200-6X

MFLX77201-6X



MASTERflex®

A-1299-0620B Ed. 21

*EN809 manufactured by Masterflex LLC
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Safety Precautions



Warning: Turn drive off before removing or installing tubing; fingers or loose clothing can be caught in rollers.

Warning: Stop drive operation when changing tubing or its position in the rotor mechanism (the rotor is partially exposed when the loading lever is in its open position).



WARNING: PRODUCT USE LIMITATIONS

These products are not designed for, nor intended for use in patients-connected applications; including but not limited to medical and dental use, and have not been submitted for FDA approval.

TIP: Use only Masterflex precision tubing with Masterflex pumps to ensure optimum performance. Using other tubing may void applicable warranties.



Caution: Before mounting a pump head or loading tubes verify that pump rollers are clean and free of defects.



Caution: When using hazardous chemicals and biological agents, take all suitable protective measures such as wearing protective glasses and gloves which are resistant to the substances used. Follow local and national regulation for safe operation and maintenance of the system.

Explanation of Symbol



Caution: Risk of Danger
Consult this guide for the nature of hazards and the corrective actions to take.



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

PUMP FOR LIQUIDS ORIGINAL INSTRUCTIONS

Specifications

Number of Rollers	4
Maximum Pump Speed	600 RPM
Nominal Torque Load Running	Up to 90 oz-in (6.5 kg-cm)
Housing Material	Polyphenylene Sulfide (PPS), Acetal, Nylon
Roller/Bearing Materials	Cold-Rolled Steel (CRS)/Stainless Steel (SS)
Rotor Materials	Stainless Steel (SS)
Operating Temperature†	32° to 104°F (0° to 40°C)
Storage Temperature	-49°F to 149°F (-45° to 65°C)
Humidity	0% to 90% (non-condensing)
Dimensions W x H x D: Operating	4 in X 4¼ in X 2¼ in (102 mm X 121 mm X 70 mm)
Dimensions W x H x D: Open	4 in X 5½ in X 2¼ in (102 mm 140 mm X 70 mm)
Weight	1.4 lb. (0.6 kg)
Noise Level	<70 dBA @ 1 Meter
Compliance (for CE mark)	EN809 (EU Machinery Directive)

Typical Flow, Pressure, and Vacuum Data

L/S* Tubing	Flow Rate		Max Discharge Pressure* PSIG (bar)	Vacuum* @ 600 RPM in (min) Hg	Suction Lift* @ 600 RPM ft. (m) H ₂ O
	@ 1 RPM mL/Rev	@ 600 RPM mL/min			
L/S 13	0.06	36	40 (2.7)	26 (660)	29 (8.8)
L/S 14	0.22	130	40 (2.7)	26 (660)	29 (8.8)
L/S 16	0.80	480	40 (2.7)	26 (660)	29 (8.8)
L/S 25	1.7	1000	35 (2.4)	26 (660)	29 (8.8)
L/S 17	2.8	1700	20 (1.4)	20 (510)	22 (6.7)
L/S 18	3.8	2300	5 (1.0)	20 (510)	22 (6.7)
L/S 15	1.7	1000	40 (2.7)	26 (660)	29 (8.8)
L/S 24	2.8	1700	40 (2.7)	26 (660)	29 (8.8)
L/S 35	3.8	2300	35 (2.4)	26 (660)	29 (8.8)
L/S 36	4.8	2900	20 (1.4)	24 (610)	27 (8.3)

* Testing with NORPRENE®, PHARMED® BPT, and TYGON® tubing; values will be less with silicone and C-FLEX®.

† Use in this temperature range for continuous-duty operation with no decrease in performance or product life. Pump heads will work outside this temperature range with some possible reduction in performance and product life.

Introduction and General Description

Easy-Load II Pump Heads when combined with Masterflex L/S drives, or compatible system, are designed to provide simple easy-to-use peristaltic pump systems. A pump head accepts several different tubing sizes for a wide range of flow rates. The unique over-center cam design and automatic tubing retention allows quick tubing changes and greatly reduced maintenance time.

Each pump is supplied with a 15 in (38.1 cm) length of tubing, one mounting hardware package, and this guide. Note that a flat-blade or Philips screwdriver (not supplied) is required to complete installation.

Masterflex pumps are self-priming, can operate dry without damage, are suitable for most chemicals, and contain no valves or seals.

Drive Compatibility and Setup

The L/S Easy-Load II Pump Head is compatible with most Masterflex drives with a standard tang interface. Mount a pump head using the two supplied mounting screws (see Figure 1 below.)

TUBE LOADING

1. Verify the pump drive is off.
2. Rotate the loading lever to the left to open the pump (see Figure 2 below).
3. Load the correct tubing between the retainers.
4. Rotate the loading lever to the right to close (see Figure 3).



Warning: Stop the drive before changing tubing or its position in the rotor; the rotor is partially exposed when the loading lever is in its open position.

TIP: For optimum tubing life, keep tubing straight when entering or exiting the pump.

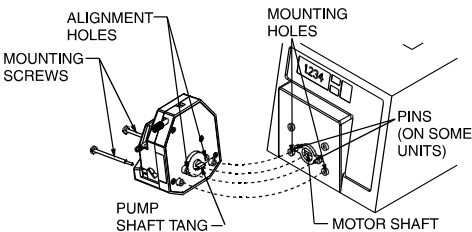


Figure 1 Setup

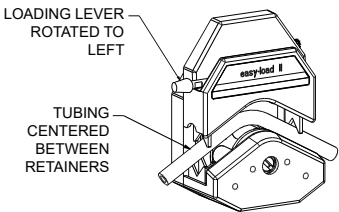


Figure 2 Open & Load

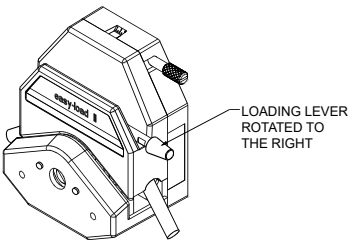


Figure 3 Close Pump

Pump Parameters

Pump Head No.	Pump Material	Occlusion	Shaft Length	L/S Tubing
MFLX77200-30	PPS/SS	Fixed	Short	L/S 13, 14, 16, 25, 17, 18
MFLX77200-32	PPS/SS	Fixed	Short	L/S 15, 24, 35, 36
MFLX77200-50	PPS/CRS	Fixed	Short	L/S 13, 14, 16, 25, 17, 18
MFLX77202-50	PPS/CRS	Fixed	Short	L/S 13, 14, 16, 25
MFLX77200-52	PPS/CRS	Fixed	Short	L/S 15, 24, 35, 36
MFLX77200-60	PPS/SS	Fixed	Short	L/S 13, 14, 16, 25, 17, 18
MFLX77202-60	PPS/SS	Fixed	Short	L/S 13, 14, 16, 25
MFLX77200-62	PPS/SS	Fixed	Short	L/S 15, 24, 35, 36
MFLX77200-70	PPS/CRS	Fixed	Long	L/S 13, 14, 16, 25, 17, 18
MFLX77200-72	PPS/CRS	Fixed	Long	L/S 15, 24, 35, 36
MFLX77200-80	PPS/SS	Fixed	Long	L/S 13, 14, 16, 25, 17, 18
MFLX77200-82	PPS/SS	Fixed	Long	L/S 15, 24, 35, 36
MFLX77201-60	PPS/SS	Adjustable	Short	L/S 13, 14, 16, 25, 17, 18
MFLX77201-62	PPS/SS	Adjustable	Short	L/S 15, 24, 35, 36

Two-Channel L/S Easy-Load II Tube Loading for Pump Heads MFLX77202-50 & MFLX77202-60

Load two tubes. Tube sizes can be L/S 13, 14, 16 or 25. For proper tube retention, both tubes *must be the same size and material* (see Figure 4 below).

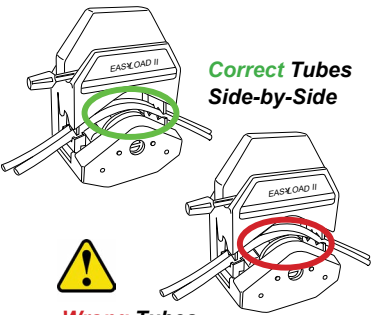
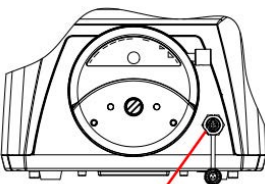
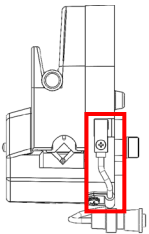


Figure 4

Open-Head Sensor Pump Model

Pump head drive model MFLX77202-30 and -32, are equipped with an open-head sensor (OHS). When mounted on an open-head sensor drive, the sensor will automatically shutdown the drive if the pump head is opened (OHS highlighted at right).



Open head sensor for L/S drive models 07514-30 and 07514-80

Adjusting Occlusion

MFLX77201-60 and MFLX77201-62 *only*:
on top of the pump head find the occlusion
adjustment dial (see Figure 5 at right).

- Select **3** for nominal performance
- Select **4** or **5** for increased pressure/
vacuum but with reduced tubing life
- Select **1** or **2** for longer life, with less
pressure and vacuum

TIP

For optimum performance turn the occlusion
adjustment dial to "1" after loading. Start drive
and adjust dial until pump primes and fluid
begins to flow. (Occlusion usually does not
need to be readjusted when changing tubing.)

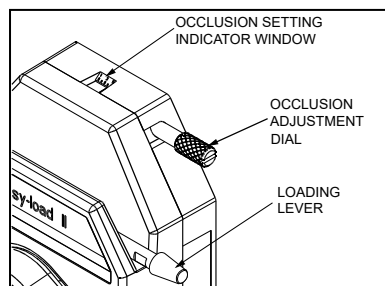


Figure 5 Adjust Occlusion

Multi-Channel Mounting

L/S Easy-Load II Pump Heads can be mounted in tandem (up to four) depending on
torque capabilities of the drive (see Figure 6 below).

Special mounting hardware is required, see next page for Replacement Parts and
Accessories details.



Caution: Do not overtighten mounting screws.

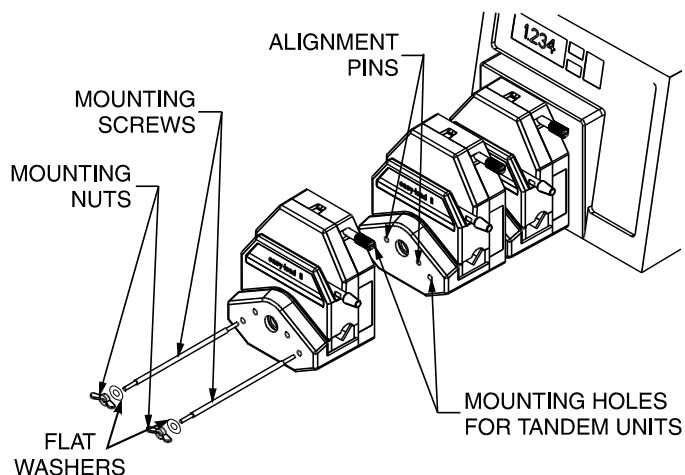


Figure 6 Multi-channel Mounting

NOTE:

L/S Easy-Load II Pump Heads can be used in any combination with other L/S Easy-Load
Pump Heads. Longer L/S Easy-Load II mounting hardware is required (not supplied).
See upcoming Replacement Parts and Accessories for mounting hardware details.

Maintenance and Cleaning

No lubrication is required for the pump head. Use a mild detergent solution to clean the
pump head. Do not immerse or use excessive fluid. To disassemble the pump for replacing
a rotor see the six-step Replacing Rotor instructions below.

Repair is limited to the replacement of the rotor assembly. Contact your dealer for further
repair information.

See Replacement Parts and Accessories below for parts ordering details.

Replacing Rotor

1. Remove pump head from drive.
2. Remove pump head rear cover.
3. Remove two screws (see Figure 7).
4. Remove rotor assembly.
5. Install new rotor assembly and
secure two screws.
6. Reinstall pump head rear cover.

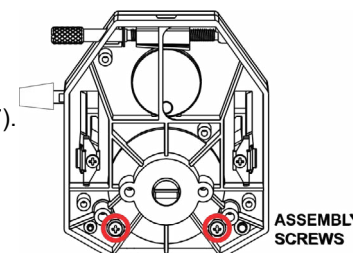


Figure 7 Replacing Rotor

Replacement Parts and Accessories

Rotor Assembly			
Pump Head No.	Short Shaft Order No.	Pump Head No.	Long Shaft Order No.
MFLX77200-30	MFLX77200-68	MFLX77200-52	MFLX77200-59
MFLX77200-32	MFLX77200-68	MFLX77200-62	MFLX77200-69
MFLX77200-50	MFLX77200-58	MFLX77201-62	MFLX77200-69
MFLX77202-50	MFLX77200-58	MFLX77200-82	MFLX77200-89
MFLX77200-60	MFLX77200-68		
MFLX 77202-60	MFLX77200-68		
MFLX77201-60	MFLX77200-68		
MFLX77200-80	MFLX77200-88		

Mounting Hardware for L/S Easy-Load II Pump Heads

Hardware sets contain #8-32 screws, washers, and wingnuts for two-head,
three-head, and four-head pump configurations.

Mounting Hardware	
Heads to be Mounted	Stainless Steel Ordering No.
1	MFLX77200-01
2	MFLX77200-02
3	MFLX77200-03
4	MFLX77200-04

Tubing Retainer Kit	
Pump Head No.	Ordering No.
MFLX77200-30,-32-50,-60, MFLX77201-60	MFLX77200-90
MFLX77200-52, -62, -82	MFLX77200-92
MFLX77200-50, MFLX77202-60	MFLX77200-94

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 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 two (2) years from date of purchase.

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 NEGLIGENCE, (IV) IMPROPER TESTING, OPERATION, MAINTENANCE, SERVICE, OR REPAIR, OR INSTALLATION, OR STORAGE, (V) UNAUTHORIZED ALTERATION OR MODIFICATION, OR (B) POST-EXPIRATION DATED MATERIALS.

Product Return

To limit charges and delays, contact the seller or manufacturer for authorization and shipping instructions before returning the pump head, either within or outside of the warranty period. When returning the product, please state the reason for the return. For your protection, pack the pump head 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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