

GENERAL DESCRIPTION

Masterflex® L/S® Standard pump heads accept Masterflex L/S precision pump tubing or high-performance precision pump tubing — ensuring optimal performance from your Masterflex pump. Select a pump head for one of the following precision tubing sizes: L/S 13, L/S 14, L/S 16, L/S 17, L/S 18; or one of the following high-performance precision tubing sizes: L/S 15, L/S 24, L/S 35, L/S 36.



APPLICATION

Ideal for fluid transfer applications requiring high accuracy and repeatability.

FEATURES & BENEFITS

- Tubing enters/exits on top of pump head
- Deliver flow rates from 0.001 to 2900 mL/min
- Precision molded housing and tubing cavity
- Each pump head is designed for one size of tubing—ensuring optimal occlusion and performance
- Adapts easily to OEM applications
- Interchangeable
- Stackable for multichannel pumping

TUBING SIZING CHART

Pump tubing size	Tube ID	Barb size	Flow rate – mL/rev	mL/min @ 600 rpm	Max pressure†	Max vacuum†	Suction lift
Precision tubing							
L/S 13	0.8 mm (1/32")	0.8 mm (1/16")	0.06	36	2.7 bar (40 psi)	660 mm Hg (26" Hg)	8.8 m H ₂ O (29 ft H ₂ O)
L/S 14	1.6 mm (1/16")	1.6 mm (1/16")	0.21	130			
L/S 16	3.1 mm (3/8")	3.1 mm (3/8")	0.8	480			
L/S 17	6.4 mm (1/4")	6.4 mm (1/4")	2.8	1700	1.4 bar (20 psi)	510 mm Hg (20" Hg)	6.7 m H ₂ O (22 ft H ₂ O)
L/S 18	7.9 mm (3/8")	9.5 mm (3/8")	3.8	2300	1.0 bar (15 psi)		
High-performance Precision tubing							
L/S 15	4.8 mm (3/16")	4.8 mm (3/16")	1.7	1000	2.7 bar (40 psi)	660 mm Hg (26" Hg)	8.8 m H ₂ O (29 ft H ₂ O)
L/S 24	6.4 mm (1/4")	6.4 mm (1/4")	2.8	1700			
L/S 35	7.9 mm (3/8")	9.5 mm (3/8")	3.8	2300	2.4 bar (35 psi)		
L/S 36	9.7 mm (3/8")	9.5 mm (3/8")	4.8	2900	1.4 bar (20 psi)		

†Actual performance varies depending upon tubing materials.

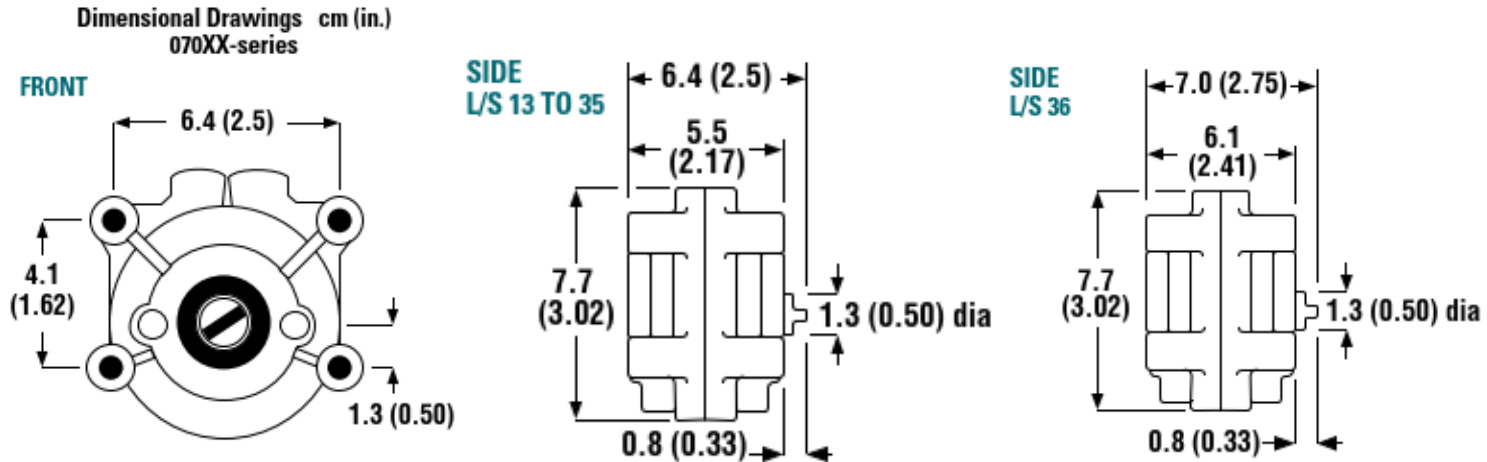
ORDERING INFORMATION

Pump tubing size	PC housing		PPS housing
	CRS rotor	SS rotor	SS rotor
For Precision tubing			
L/S 13	MFLX07013-20	MFLX07013-21	MFLX07013-52
L/S 14	MFLX07014-20	MFLX07014-21	MFLX07014-52
L/S 16	MFLX07016-20	MFLX07016-21	MFLX07016-52
L/S 17	MFLX07017-20	MFLX07017-21	MFLX07017-52
L/S 18	MFLX07018-20	MFLX07018-21	MFLX07018-52
For High-performance Precision tubing			
L/S 15	MFLX07015-20	MFLX07015-21	MFLX07015-52
L/S 24	MFLX07024-20	MFLX07024-21	MFLX07024-52
L/S 35	MFLX07035-20	MFLX07035-21	-
L/S 36	MFLX07036-20	MFLX07036-21	-

PC = polycarbonate PPS = polyphenylene sulfide
 CRS = cold-rolled steel SS = stainless steel

DIMENSIONS / DRAWING

2D Drawing:



SPECIFICATIONS

Catalog number	MFLX070XX-20 and -30 Series	MFLX070XX-21 and -31 Series	MFLX070XX-52 Series
Performance specifications			
Flow capacity	0.001 to 2900 mL/min (0 to 46 GPH) †		
Max rpm	600		
Number of rollers	3		
Open-head sensor	N/A		
Torque Specifications‡ (A single head, pumping water at 0 psi (0 bar), 21°C (70°F))			
Norprene®, PharMed® BPT	Starting torque	18.0 kg-cm (250 oz-in)	
	Running torque	5.8 kg-cm (80 oz-in)	
Tygon®, Viton®	Starting torque	27.7 kg-cm (385 oz-in)	
	Running torque	4.6 kg-cm (64 oz-in)	
C-Flex®, Silicone	Starting torque	5.8 kg-cm (80 oz-in)	
	Running torque	2.2 kg-cm (30 oz-in)	
Physical specifications			
Housing material	Clear polycarbonate		Polyphenylene sulfide
Rotor material	Cold-rolled steel	Stainless Steel	
Operating temperature	0 to 40°C (32 to 104°F)		
Shipping weight	0.54 kg (1.18 lb.)		

† Depending on pump head and tubing selected.

‡ Actual Torque depends on tubing size and formulation.

MULTICHANNEL CAPABILITIES

Mount up to four pump heads depending on the drive. Order hardware based on the number of pump heads to be mounted.



PUMP HOUSING SPECIFICATION

Clear Polycarbonate (PC)

- General-purpose applications
- Pump head operation visible through housing
- Select from CRS/Buna N or 300-series SS/PTFE shielded ball-bearing

Polyphenylene Sulfide (PPS)

- Better protection from corrosive liquids/vapors than PC
- 300-series stainless steel shielded ball-bearing

ROLLER/ROTOR SPECIFICATION

Plated Cold-Rolled Steel (CRS)

- General-purpose applications
- Ball-bearing construction
- Continuous duty up to 600 rpm

300-Series Stainless Steel (SS)

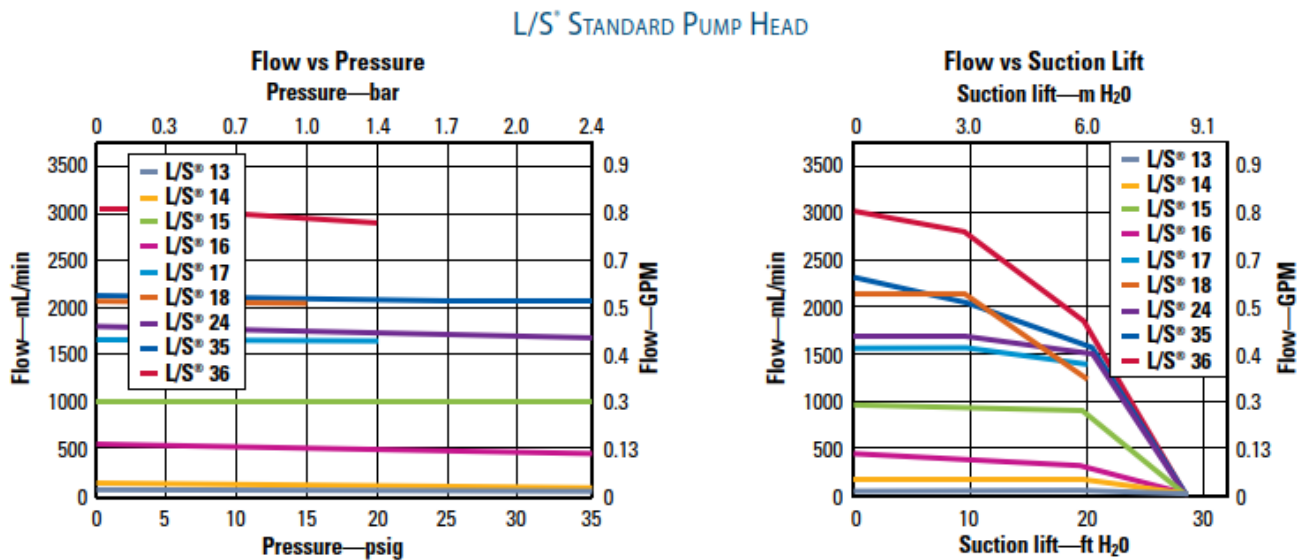
- Corrosive fluids
- Shielded ball-bearing construction (higher life expectancy compared to CRS)
- Continuous duty up to 600 rpm

SINGLE PUMP HEAD LOADING



1. Disassemble pump head. Load tubing.
2. Reassemble two halves and mount on drive.
3. Use the loading key (included) to ensure proper tubing alignment and tension

PUMP CURVES



PUMPING VISCOUS FLUIDS

Pumping fluids with higher viscosity will have an impact on flow performance. To maximize the pumping efficiency when pumping viscous fluids follow the below steps:

1. Slow down the speed of your pump. Increasing the speed beyond a certain point for high viscosity will not have any effect on flow rate. The maximum efficient speed of the pump decreases as viscosity increases and tubing size decreases.
2. Choose a larger size pump head/tubing than required to pump water.
3. Select higher durometer tubing such as Chem-Durance® Bio, GORE® PCS and PFL, Norprene®, PharmaPure®, PharMed® BPT, and or Tygon® E-LFL. Performance will be better because the tubing returns to its original shape quickly after pump head occlusion.
4. Choose a high-performance head/tubing. The thicker tubing wall will allow the tubing to return to its original shape quicker than precision tubing which allows for greater suction force.
5. Select a tubing with a smooth bore to decrease frictional forces.
6. Position the pump as close to, or below the level of the inlet fluid to reduce suction lift (flooded suction)
7. Decrease the viscosity of the fluid. Heat the fluid, if possible, to reduce viscosity.

PARTICULATES

Peristaltic pumps are generally well suited for pumping abrasive slurries due to their low shear and quick tubing changes compared to pumps with multiple wetted parts. However, steps should be taken to improve pump performance and life. Soft particles should have an ID less than 25% of the ID of the tubing. Hard particles should be even smaller in relation to the ID of the tubing (less than 5%). Maintaining these ratios will reduce the rate that the tubing is being worn from the inside.

COMPLETE SYSTEMS

Order components for complete system. Use only L/S® Masterflex® Pump Tubing for optimal performance.

- Pump Drive
- L/S Pump Heads (this brochure)
- L/S Pump Tubing

PUMP HEAD ACCESSORIES

Model Number	Description
MFLX07013-04	Mounting hardware for one (L/S 13 to L/S 35) Standard pump head
MFLX07013-05	Mounting hardware for two (L/S 13 to L/S 35) Standard pump heads
MFLX07013-08	Mounting hardware for three (L/S 13 to L/S 35) Standard pump heads
MFLX07013-09	Mounting hardware for four (L/S 13 to L/S 35) Standard pump heads
MFLX07036-01	Mounting hardware for one (L/S 36) Standard pump head
MFLX07036-02	Mounting hardware for two (L/S 36) Standard pump heads
MFLX07013-90	Replacement tubing loading key for L/S Standard pumps



Tubing Loading Key (included)



Model MFLX07015-52 (PPS housing)