

Peristaltic Tubing Specifications for Enyo

The Enyo drive unit combines two distinct types of peristaltic pump heads to offer dynamic flow flexibility. For maximum operational convenience, both pump head types fully accommodate cost-effective continuous bulk tubing as well as pre-configured 2-Stop/3-Stop collared tubing.

To ensure exact dosing precision and to protect the drive motors from mechanical damage, tubing selection must strictly follow the mandatory wall thickness specified for each pump head type. Saint-Gobain PharMed® BPT is the recommended material standard due to its superior mechanical longevity and low gas permeability in bioprocess applications.

Critical Tubing Selection & Flow Performance

Pump Head Type	Mandatory Wall Thickness	Inside Diameter (ID)	Outside Diameter (OD)	Branded Code (Masterflex / Thermo)	Max. Flow Range (at max. RPM)
MicroFlex <i>(2x Heads for low flow)</i>	0.85 mm ⚠ <i>Standard 1.6 mm lines will stall the motor!</i>	0.89 mm	2.59 mm	Suffix -26	0.3 to 8.5 mL/min
		1.42 mm	3.12 mm	Suffix -34	0.6 to 20.0 mL/min
		2.79 mm	4.49 mm	Suffix -48	Up to 50.0 mL/min
MiniFlex <i>(1x Head for high flow)</i>	1.60 mm ⚠ <i>Thinner walls will slip and cause zero flow!</i>	0.80 mm	4.00 mm	L/S 13	0.5 to 15.0 mL/min
		1.60 mm	4.80 mm	L/S 14	1.5 to 50.0 mL/min
		3.20 mm	6.40 mm	L/S 16	6.0 to 190.0 mL/min
		4.80 mm	8.00 mm	L/S 25	Up to 370.0 mL/min

(Note: For specialized microfluidic applications, smaller PharMed® microbore sizes down to 0.19 mm ID (Suffix -10) fit the MicroFlex head as well).

Web interface

[http://enyo-\[serial_number\].local:8080/webvisu.htm](http://enyo-[serial_number].local:8080/webvisu.htm)

Toggle switches for calibration, manual testing

Each of the 3 peri-pump has its own switch: A for pump 1, B for pump 2 and C for pump 3.

Upon startup, their LED indicators light with orange, and when the system is ready, the LED turns off.

Then, each switch can be toggled left to enable clockwise operation, or right for counterclockwise.

The speed is 30 rpm, independent from the web interface's setting. As long as a pump is running, its indicator lights illuminate green. When Enyo is started from the web interface, it turns red, signalling that the toggle switch has no effect.

Critical User Operation Tips

- **Loading Technique:** When inserting continuous bulk tubing into either the MicroFlex or MiniFlex head, lightly tension (stretch) the piece of tubing before fully closing the pump cover lid. This eliminates fluid pulsation and guarantees consistent volumetric flow from the very first minute.
- **Thick-Wall Restriction:** Never force a 1.6 mm wall thickness tube (like the L/S 14) into the MicroFlex head. It will block the roller mechanism and cause the NEMA stepper motor to stall.

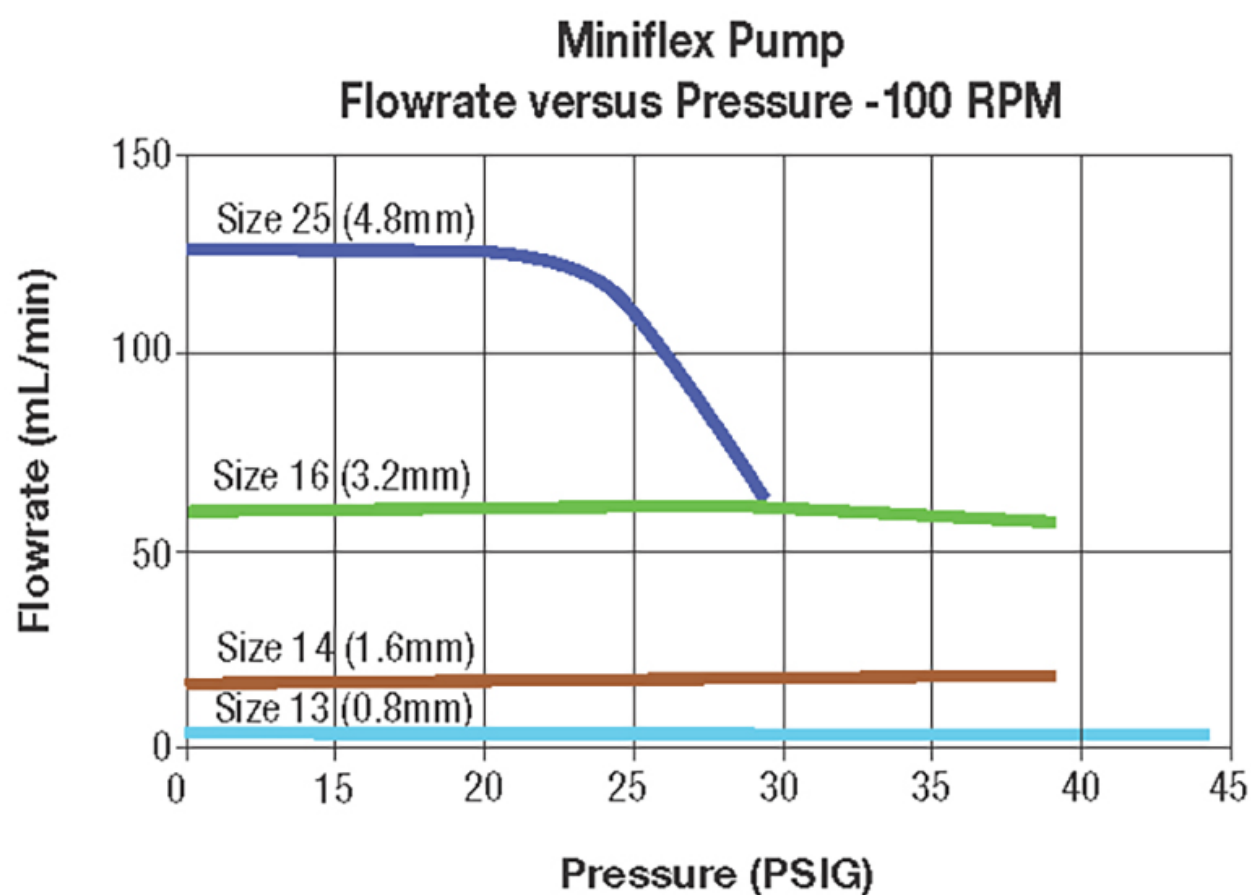
Procurement Note for Purchasing Teams

Different suppliers use different catalogue methodologies. Saint-Gobain and generic distributors typically list tubing by physical dimensions. Masterflex and Thermo Fisher use branded nomenclature (like "L/S 14" or "Suffix -26").

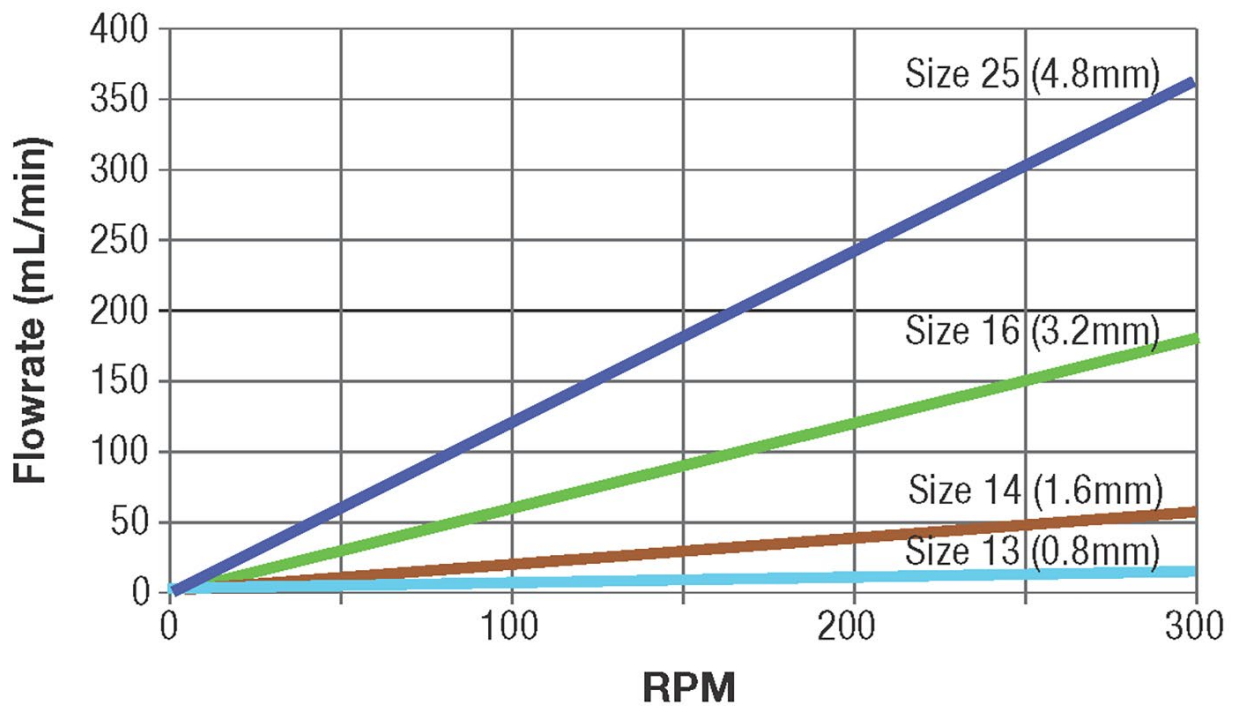
If your vendor does not recognize the branded codes, simply search their catalogue using the Inside Diameter (ID) × Outside Diameter (OD) dimensions in millimeters provided in the chart above. This ensures you will receive the exact correct material and mandatory wall thickness.

Flow Rates and Tubing Selection

Tubing Suffix*	Tubing ID* in (mm)	Flow Rate		
		10 rpm ($\mu\text{L}/\text{min}$)	80 rpm ($\mu\text{L}/\text{min}$)	300 rpm ($\mu\text{L}/\text{min}$)
-10	0.007 (0.19)	13.0	100	425
-14	0.015 (0.38)	50.5	400	1650
-18	0.020 (0.51)	87.0	700	2900
-24	0.030 (0.76)	185	1450	6250
-28	0.040 (1.02)	315	2500	1040
-32	0.051 (1.30)	485	3850	16300
-36	0.060 (1.52)	635	5100	21300
-40	0.073 (1.85)	885	7100	29800
-44	0.090 (2.29)	1250	9350	41000
-48	0.110 (2.79)	1650	11000	50000



**Miniflex Pump
Flowrate versus RPM**



**Miniflex Pump
Flowrate versus Suction-100 RPM**

