Product Specifications

Thermo Scientific FH100

High Precision
Peristaltic Pump Tubing & Links

Thermo Scientific FH100 high precision peristaltic pump tubing and links are manufactured to exacting specifications to optimize accuracy, repeatability, and to provide enhanced tubing life. It provides better performance with longer pump life. Fully tested and quality assured to operate in Thermo Scientific peristaltic pumps. We offer four formulations for a broad range of chemical compatibility.

For use with FH100

Tubing Links

Features/Benefits

- Provides optimized performance for dosing and dispensing applications
- Retention collars ensure tube loading is correct
- Eliminate pull through in critical high performance applications
- Use tube fitting provided with each pack of links for easy installation

Continuous Tubing

Features/Benefits

- For critical purity application, BioPharm silicone tubing is available in continuous lengths
- Install this tubing from source to discharge eliminating extra fittings–source of contamination and dead volume
- Leave extra length on the discharge side after a period of operation, you can advance the tubing to a new length and extend the process run without disturbing the flow path

BioPharm Silicone Tubing (platinum-cured)

Features/Benefits

- Ideal for lab, biotech, and pharmaceutical applications
- Ultra-smooth inner surface minimizes particle entrapment
- Very low extractables with documented biocompatibility for sensitive applications

PharMed® BPT Tubing

Features/Benefits

- Ideal for tissue and cell culture work
- Over 10,000 hours of tubing life
- Resists ozone and UV radiation
- Noncytotoxic and nonhemolytic

Tygon® Tubing

Features/Benefits

- Ideal for general transfer applications
- Economical
- Nontoxic, nonaging, and nonoxidizing

Norprene® Food Tubing

Features/Benefits

- Ideal for high-temperature food and beverage applications
- Meets FDA and NSF standards
- Up to 10,000 hours of tubing life
- Best choice for pressure/vacuum applications
- Resists heat, ozone, acids, and alkalies
- Heat sealable and bondable
- Nonaging, nonoxidizing-Performance pump heads.
- Bioreactor process lines
- Sterile filling
- Diagnostic test products

Pump tubing formulation	BioPharm Silicone Tubing (platinum-cured	PharMed BPT	Norprene Food (A 60 F)	Tygon Lab (R-3603)
Series number	**75-300-XXX**	**75-303-XXX**	**75-305-XXX**	**75-310-XXX**
Advantages	Ultra-smooth inner surface minimizes particle entrapment. Lower absorption; excellent biocompatibility; no leachable additive, DOP, or plasticizers. Very low extractables. Odorless and nontoxic, fungus-resistant. No taste imparted to transported fluids. Weather, ozone, corona, and radiation resistant.	Great for tissue and cell work—nontoxic and nonhemolytic. Long service life minimizes risk of fluid exposure; reduces tubing costs and pump downtime. Opaque to UV and visible light to protect light-sensitive fluids. Low gas permeability. High-pressure (100 psi) version available.	Similar to Norprene (06404) but with FDA approval. Excellent for food/dairy applications. Longest life, good flow consistency. Heat and ozone resistant. Good resistance to acids/alkalies. Heat sealable, nonaging, and nonoxidizing. High dielectric constant.	Inexpensive tubing for general laboratory applications. Clear for easy flow monitoring Handles virtually all inorganic chemicals. Nonaging, nonoxidizing. Low gas permeability. Good for viscous fluids. High dielectric constant.
Limitations	Do not use with concentrated solvents, oils, acids. Relatively high gas permeability.	Potential leaching of USP mineral oil or blend material.	Potential leaching of USP mineral oil or blend material	Limited pumping life. Potential leaching of plasticizer
Application suitability:				
Acids	Not recommended	Good	Good	Good
Alkalies	Not recommended	Good	Good	Good
Organic solvents	Not recommended	Not recommended	Not recommended	Not recommended
Pressure	Excellent	Good	Excellent	Good
Vacuum	Good	Good	Excellent	Good
Viscous fluids	Good	Excellent	Excellent	Excellent
Sterile fluids	Excellent	Excellent	Good	Poor
Physical characteristics and composition	Thermal set rubber. Siloxane polymers and amorphous silica. Excellent compression strength. Soft material; flexible. Translucent, clear to light amber.	Thermoplastic elastomer. Polypropylene-based material with USP mineral oil. Excellent tensile strength. Firm (stiff) material. Opaque, beige.	Thermoplastic elastomer Polypropylene-based material with USP mineral oil. Excellent tensile strength. Firm (stiff) material. Opaque, beige.	Thermoplastic. PVC-based material with plasticizer. Firm (stiff) material. Transparent, clear.
Temperature Range	—60 to 232°C (–75 to 450°F)	—51 to 132°C (–60 to 270°F)	–59 to 135°C (–60 to 270°F)	–50 to 74°C (–58 to 165°F)
Meets classifications	USP Class VI FDA 21 CFR 177.2600 Exceeds 3A sanitary standards European Pharmacopoeia (EP)	USP Class VI FDA 21 CFR 177.2600 NSF-listed (Standard 51). European Pharmacopoeia (EP)	FDA 21 CFR 177.2600 NSF-listed (Standard 51)	FDA 21 CFR 175.300
Gas permeability $\frac{cc \times mm}{(cm2 \times sec \times cm\ Hg) \times 10^{-10}}$	CO_2: 25,147 H_2: — O_2: 4715 N_2: 2284	CO_2: 1200 H_2: — O_2: 200 N_2: 80	CO_2: 1200 H_2: — O_2: 200 N_2: 80	CO_2: 360 H_2: 97 O_2: 80 N_2: 40
Cleaning/sterilization	Sterilize by ETO, autoclave, or gamma radiation up to 2.5 Mrad. To autoclave: coil loosely in nonlinting cloth or paper; autoclave at 121°C (250°F), 1 bar (15 psi) for 30 minutes.	Sterilize by ETO, autoclave, or gamma radiation up to 2.5 Mrad. Repeated autoclaving will not affect overall life.	Sterilize by autoclave. Repeated autoclaving will not affect overall life.	Sterilize with ETO or autoclave. To autoclave: Coil tubing loosely in nonlinting cloth or paper, autoclave at 121°C (250°F), 1 kg/cm2 (15 psi) for 30 minutes (tubing will appear milky); air dry at max 66°C (150°F) for 2 to 21⁄2 hours until clear.

		FH100 Flow Rates						FH100X Flow Rates			
Flowrate by Tubing Size	Tubing Size	13	14	16	25	17	18	15	24	35	36
	ml/min	0.50 – 40	2.0 – 150	6.5 – 550	16 – 1200	24 – 2000	368 – 3000	14 to 1200	24 to 2000	36 to 3000	48 to 4000
	Tubing I.D.	1/32	1/16	1/8	3/16	1/4	5/16	3/16	1/4	5/16	3/8
		0.08 mm	1.6 mm	3.2 mm	4.8 mm	6.4 mm	8.0 mm	4.8 mm	6.4 mm	8.0 mm	9.5 mm

		1.6 mm Wall - Use in FH100						2.4 mm wall- Use in FH100X			
	Formulation	Size 13	Size 14	Size 16	Size 25	Size 17	Size 18	Size 15	Size 24	Size 35	Size36
Precision	BioPharm Silicone	75-300-013	75-300-014	75-300-016	75-300-025	75-300-017	75-300-018	75-302-015	75-302-024	75-300-035	75-300-036
Precision Tubing Links	Norprene Food	75-305-130	75-305-140	75-305-160	75-305-250	75-305-170	75-305-180	75-305-155	75-305-245	75-305-355	75-305-365
	BioPharm Silicone	75-300-130	75-300-140	75-300-160	75-300-252	75-300-170	75-300-180	75-300-155	75-300-245	75-300-355	75-300-365
	Pharmed BPT	75-303-130	75-303-140	75-303-160	75-303-250	75-303-170	75-303-180	75-301-155	75-301-245	75-301-355	75-303-365
	Tygon	75-310-130	75-310-140	75-310-160	75-310-250	75-310-170	75-310-180	75-310-155	75-310-245	75-310-355	75-310-365

RoHS

Fluid Handling 28W092 Commercial Avenue Barrington, IL 60010 1-800-637-3739 1-847-381-7050 1-847-381-7053 fax www.thermoscientific.com/fluidhandling fluidhandling@thermofisher.com

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