

Peristaltic Pump Tubing

Features of peristaltic pump tubing

- Good flexibility. Spring back after pressed radially
- Good wear abrasion resistance
- A certain extent pressure bearing capabilities
- Lower gas permeability
- Low absorption, good temperature resistance, not easy to aging, not swelling, anti-corrosion, fewer extractable

Tubing parameters

Inner diameter and wall thickness are the main parameters of the tubing. Different manufacturers have different notations. Such as: specification codes or inner diameter × wall thickness.

Tubing materials

Silicon rubber, rubber, plastic, synthetic material, etc. Different materials have different characteristics and different applications.

Tubing selection factors

Chemical Compatibility

When transfer different fluids, the tubing should have good chemical characteristics, which is chemical compatibility. Such as: low absorption, good temperature resistance, not easy to aging, not swelling, anti-corrosion, fewer extractable

Chemical resistance decreases as temperature increases. Chemicals that have no effect on the tubing at room temperature could attack the tubing at elevated temperatures.

Chemical compatibility test method:

When the chemical compatibility of the tubing is uncertain, an immersion test is needed. In an immersion test, a small piece of tubing is weighed, and its diameter and length are measured. The tubing then is immersed in a closed vessel with the chemical in question for a minimum of 48 hours. Afterward, the test piece of tubing is rinsed, dried, weighed and measured, and any changes are recorded. The tubing also should be examined for signs of softening or embrittlements, which indicate the chemical has attacked the tubing.

If the tubing survives the test without discoloration, swelling, cracking, loss of flow or other signs of deterioration, then it is compatible with the fluid.

Pressure

Peristaltic pump applications typically have been limited by the pressure capabilities of the tubing.

If the pressure is too high, the tubing could swell, resulting in an improper fit through the pump head, which causes excessive wear and tubing failure

The factors which affect the pressure are material, the proportion of diameter and wall thickness, etc.

Temperature

The working temperature range of a tubing material is another important consideration. Different materials have different temperature range.

Dimension

The size of the tubing has a direct effect on the amount of fluid delivered. Well-designed pumps are engineered to work with an optimum tubing size or range of tubing sizes, taking into account the tubing's inner diameter and wall thickness. The inner diameter determines the amount of fluid delivered with each turn of the rotor. The wall thickness affects the tubing's ability to spring back to its original shape after each compression, which has a great influence on the overall life of the tubing.

Regulatory Approval

Many tubing materials are designed to meet these various regulatory approvals, including those issued by the United States Pharmacopoeia (USP), European Pharmacopoeia (EP), U.S. Food and Drug Administration (FDA), U.S. Department of Agriculture (USDA) and National Sanitation Foundation (NSF).

Tubing Flex Life

Different tubing materials have differing abilities to withstand the repeated squeezing action of the rollers. In general, each tubing size, tubing material, pump head style, and operating speed in combination has its own life characteristics. Service life, or flex life in the pump, is the primary concern in a new application. Pump performance is very consistent in a specific application. Maximize the life of a pump system by selecting a tubing material that offers long flex life, using thicker wall tubing, and/or by operating a larger pump at slower speed.

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TIN THANH PHAT CO., LTD

Peristaltic Pump Tubing

Common Tubing Material

Silicone tubing: Ultra-smooth inner liner with extremely low leachables, low protein adsorption, good flexibility and wide temperature range -51 to 238°C.

Various materials tubings are available.

Tubing Specifications:

Micro & small flow tubing

Tubing Sizes		0.13×0.86	0.5×0.86	0.86×0.86	1.52×0.86	2.06×0.86	2.4×0.86	2.79×0.86	3.17×0.86	1×1	2×1	3×1
Tubing cross sections (1:1)												
Wall thickness (mm)		0.86									1.0	
Inner diameter (mm)		0.13	0.5	0.86	1.52	2.06	2.4	2.79	3.17	1.0	2.0	3.0
Maximum pressure (Mpa)	Continuous	0.1										
	Intermittent	0.1										

Medium flow tubing

Tubing Sizes		13#	14#	19#	16#	25#	17#	18#	15#	24#	35#	36#	
Tubing cross sections (1:1)													
Wall thickness of domestic tubing (mm)		1.6						2.4					
Wall thickness of imported tubing (inch)		1/16"						3/32"					
Inner diameter of domestic tubing (mm)		0.8	1.6	2.4	3.1	4.8	6.4	7.9	4.8	6.4	7.9	9.6	
Inner diameter of imported tubing (inch)		1/32"	1/16"	3/32"	1/8"	3/16"	1/4"	5/16"	3/16"	1/4"	5/16"	3/8"	
Maximum pressure (Mpa)	Continuous	0.17			0.14	0.10	0.07	0.17			0.14		
	Intermittent	0.27			0.24	0.14	0.10	0.27			0.24		

Industrial tubing

Tubing Sizes		73#	82#	86#	90#	88#	92#
Tubing cross sections (1:1)							
Wall thickness of domestic tubing (mm)		3.3			6.3		4.8
Wall thickness of imported tubing (inch)		1/8"			1/4"		3/16"
Inner diameter of domestic tubing (mm)		9.6	12.7	9.6	19	12.7	25.4
Inner diameter of imported tubing (inch)		3/8"	1/2"	3/8"	3/4"	1/2"	1"
Maximum pressure (Mpa)	Continuous	0.17		0.07		0.14	
	Intermittent	0.27		0.14		0.14	

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