



INNOVAPURE

Innovate a Pure Solution

Suzhou Innovapure Co., Ltd.

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INNOVAPURE
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Suzhou Innovapure Co., Ltd.

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Product Catalogue

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Innovapure® Company Introduction

Suzhou Innovapure Co., Ltd. is a high-tech company dedicated to providing a complete set of fluid transmission solutions. Deeply engaged in the development, production and marketing of fluid system components, fluid tubing, hose, peristaltic pump tubing, medical catheters, single-use systems and single use assembly products for biopharmaceutical applications.

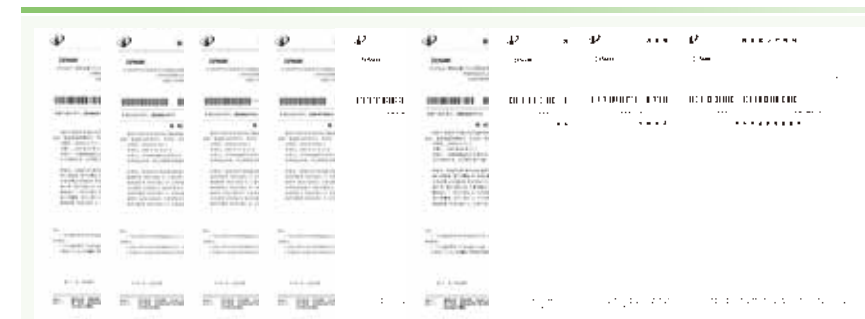
Our company is located in Suzhou City, Jiangsu Province. Two plants target different tubing products with a total of 3,500 square meters area of standard industrial workshop, and have built two ISO Class 7 clean production rooms that meets the ISO14644 standard.

They were fully constructed in accordance with the GMP standard and have passed the ISO 9001 quality system certification. The products fully meet GMP requirements of medical and biopharmaceutical customers.

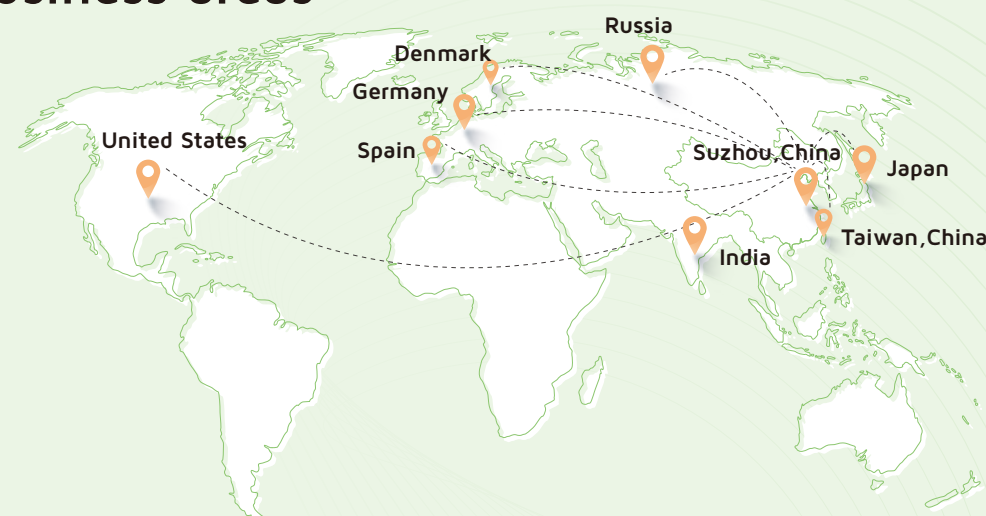
The company's main products include thermoplastic tubing, elastomer tubing, platinum cured silicone tubing, fluoropolymer tubing, multilayer tubing as well as customized new product development and OEM manufacturing, to provide the best customized solutions for customer needs in various markets and applications.

+ Company Profiles

- ISO 9001 quality system certificate
- NEBB ISO Class 7 Clean room certification
- Leading entrepreneurial talents titles
- Dozens of invention and utility model patent applications
- The products have passed multiple validation tests of FDA, USP, ISO 10993 and completed FDA DMF III registration



+ Business areas



+ Market and Application

+ Industrial and civil uses

- Peristaltic pump
- Coffee machine
- Beverage machine
- Inkjet Printers
- 3D printer
- Laboratory analysis instrument
- Household robot
- Automation equipment

+ Medical and Diagnostics

- In-vitro diagnostic equipment
- Medical equipment
- Ventilator
- Hemodialysis
- Medical catheter
- Medical Infusion Pump
- Medical Peristaltic Pump
- ECMO

+ Bio-pharmaceutical

- Cell culture
- Vaccine production
- Aseptic filling
- Chromatography and Filtration
- Single use system
- Cryopreservation
- Precision Peristaltic Pump for final filling process

+ Innovapure® Catalogue

Grade	Features	Regulations	Pump Use	Color	Duro	Steril-ization	Application Field				Page
							Ind.	Food	Med	Bio	
Innovaprene G 55	 • Low duro for micropump • Resistance to acid, alkali • Resistance to UV and ozone	RoHS REACH	Y	Black	55	Y	Y				13
Innovaprene GW 55	 • Low duro for micropump • Resistance to acid, alkali • Resistance to UV and ozone	RoHS REACH	Y	Beige	55	Y	Y				13
Innovaprene G 60	 • Ultra long pump life • Resistance to acid, alkali • Resistance to UV and ozone • -60 to 120C temperature range	RoHS REACH	Y	Black	65	Y	Y				11
Innovaprene GW 60	 • Ultra long peristaltic pump life • Resistance to acid, alkali • Resistance to UV and ozone • -60 to 120C temperature range	RoHS REACH	Y	Beige	65	Y	Y				14
Innovaprene GWC	 • Resistant to all kinds of alkaline detergents, cleaning agents, disinfectants • Suitable for small pump in household electronic devices	RoHS REACH	Y	Beige	55/65	Y	Y				14
Innovaprene F 55	 • Low duro for micropump • Resistance to acid, alkali • Resistance to UV and ozone • Food grade	FDA	Y	Beige	55	Y	Y	Y	Y		17
Innovaprene F 60	 • Ultra long peristaltic pump life • Resistance to acid, alkali • Resistance to UV and ozone • -60 to 120 degrees temp range • Food grade	FDA	Y	Beige	65	Y	Y	Y	Y		15
Innovaprene FW 60	 • Ultra long peristaltic pump life • Resistance to acid, alkali • Resistance to UV and ozone • Meet FDA food contact • Meet EU food contact	FDA EC No. 1935/2004	Y	White	65	Y	Y	Y	Y		17
Innovaprene xx S	 • Ultra long peristaltic pump life • Low spallation from inner wall		Y			Y	Y	Y	Y		18
★ Innovaprene P 60	 • Ultra long peristaltic pump life • Resistance to acid, alkali • ADCF • Bio-pharmaceutical grade • Sterilizable	FDA USP 87 USP Class VI ISO 10993 NSF 51	Y	Beige	65	Y	Y	Y	Y	Y	65
Innovaprene P 60 S	 • Ultra long peristaltic pump life • Low spallation from inner wall • ADCF • Bio grade • Sterilizable	FDA USP 87 USP Class VI ISO 10993 ADCF	Y	Beige	65	Y	Y	Y	Y	Y	67
Innovaprene HP	 • Ultra long peristaltic pump life • Low spallation from inner wall • ADCF • Bio-pharmaceutical grade • Up to 4 bar working pressure	FDA USP 87 USP Class VI ISO 10993 ADCF	Y	Beige	75	Y	Y	Y	Y	Y	68
★ Micro Bore Tubing (MBT)	 • Various materials are available • Customized stops color, stop distance and flared ends • Suitable for analytical instrument use • Accurate flow rate		Y				Y	Y	Y		19

Grade	Features	Regulations	Pump Use	Color	Duro	Steril-ization	Application Field				Page
							Ind.	Food	Med	Bio	
Innovalene 1185	 • TPU tubing • Transparent • Chemical resistance • UV resistance	RoHS REACH		Clear	85	Y	Y		Y		21
Innovalene 1280	 • TPU tubing • Transparent • Chemical resistance • Use under low temperature • Resistance to fuel and lubricant	RoHS REACH		Clear	80	Y	Y		Y		21
Innovalene 23/2400	 • EVA tubing • Use under low temperature • Chemical resistance	RoHS REACH		Clear	88-95	Y	Y		Y		22
Innovalene 3500	 • PVC tubing • Resistance to UV and ozone • Resistance to fuel, lubricant and ink • For peristaltic pump use	RoHS REACH	Y	Yellow	65		Y				24
Innovalene 4365	 • Resistance to corrosive chemicals • No staining, no absorption • For peristaltic pump use • Plasticizer free	RoHS REACH	Y	Clear	65	Y	Y		Y		27
Innovalene 4375	 • Resistance to corrosive chemicals • No staining, no absorption • Ultra smooth inner wall • Plasticizer free	RoHS REACH		Clear	75	Y	Y		Y		25
Innovalene 4375 BK	 • For 3D printer and ink printer • Resistance to ink and photo-sensitive chemicals • Resistance to corrosive chemicals • Opaque in black for UV block	RoHS REACH		Black	75		Y				25
Innovalene 4500	 • For peristaltic pump use • Resistance to chemicals • Plasticizer free • Weldable • Resistance to EtOH	FDA USP Class VI	Y	Clear	60	Y	Y		Y	Y	28
Innovalene XP	 • Long peristaltic pump life • Transparent • Resistance to corrosive chemicals • Plasticizer free	FDA	Y	Clear	65	Y	Y		Y		23
★ Innovalene MED 55	 • Low duro for micropump • Resistance to acid, alkali • Resistance to UV and ozone • Transparent • With stoppers	ISO10993	Y	Clear	55	Y	Y		Y		45
★ Innovalene MED 65	 • Ultra clear • Ultra smooth inner wall • For medical devices use • ISO 10993	FDA USP 87 ISO 10993		Clear	65	Y	Y		Y		43
Innovalene IND 65	 • Ultra clear • For industrial use • Cost effective • Non-DEHP	RoHS REACH		Clear	65		Y				29
Innovalene 66E	 • Ultra clear • Ultra smooth inner wall • PVC alternative • For medical devices • Plasticizer free	FDA USP 87 ISO 10993		Clear	65	Y	Y		Y		46

*Consult Innovapure representative for regulation compliance

+ Innovapure® Catalogue

Grade	Features	Regulations	Pump Use	Color	Duro	Steril-ization	Application Field				Page
							Ind.	Food	Med	Bio	
Innovalloy 3000	• Bilayer configuration • For micro pump use • Strong chemical resistance	RoHS REACH	Y	Clear	70	Y	Y	Y	Y		32
★ Innovalloy 4000	• Bilayer configuration • For peristaltic pump use • Strong chemical resistance	FDA RoHS REACH	Y	Beige	70	Y	Y	Y	Y		33
Innovalloy 62V	• Bilayer configuration • Transparent • Strong chemical resistance • For medical device	FDA RoHS REACH		Clear	50D	Y	Y	Y	Y		47
Innovalloy 7000	• Bilayer configuration • Transparent • Strong chemical resistance • For medical device • Flexible vs Innovalloy 8000	FDA RoHS REACH		Clear	50D 70A	Y	Y	Y	Y		51
Innovalloy 8000	• Bilayer configuration • Transparent • Strong chemical resistance • For medical device	FDA RoHS REACH		Clear	50D 85A	Y	Y	Y	Y		51
Innovalloy P 60	• Bilayer configuration • Strong chemical resistance • Ultra long pump life • Sterilizable	FDA ISO 10993	Y	Beige	70	Y	Y	Y	Y	Y	69
Innovafleur PTFE	• Made in clean room • Semi-conductor grade	FDA		White	60D	Y	Y	Y	Y		54
Innovafleur PFA/FEP	• Made in clean room • Semi-conductor grade	FDA REACH		Clear	60D	Y	Y	Y	Y		53
★ Innovafleur K	• FKM tubing • Resistance to corrosive chemical • For peristaltic pump use	FDA RoHS	Y	Black	60	Y	Y	Y	Y		39

Grade	Features	Regulations	Pump Use	Color	Duro	Steril-ization	Application Field				Page
							Ind.	Food	Med	Bio	
Innovasil G 50	• Pt cured silicone tubing • For industrial use	RoHS REACH	Y	Clear	50	Y	Y				37
★ Innovasil G 60 Ultra	• Pt cured silicone tubing • For industrial use • For peristaltic pump use • Ultra long pump life	RoHS REACH	Y	Clear	62	Y	Y				35
Innovasil HP	• Pt cured silicone tubing • For industrial use • For peristaltic pump use • 2 bar working pressure	FDA USP 87 USP Class VI ISO 10993 ADCF	Y	Clear	62	Y	Y	Y	Y	Y	38
Innovasil M	• Pt cured silicone tubing • For medical use	FDA RoHS REACH	Y	Clear	50/62	Y		Y	Y		52
★ Innovasil P 50	• Pt cured silicone tubing • For bio-pharma use • Stable flow rate for final filling • Full validation studies • USP & ISO 10993	FDA USP 87 USP Class VI ISO 10993 ADCF	Y	Clear	50	Y		Y	Y	Y	61
Innovasil P 50 Ultra	• Pt cured silicone tubing • For bio-pharma use • For peristaltic pump use • Long pump life • USP & ISO 10993	FDA USP 87 USP Class VI ISO 10993 ADCF	Y	Clear	50	Y		Y	Y	Y	63
Innovasil P 65	• Pt cured silicone tubing • For bio-pharma use • Stable flow rate for final filling • Full validation studies • USP & ISO 10993	FDA USP 87 USP Class VI ISO 10993 ADCF	Y	Clear	62	Y		Y	Y	Y	64
★ Innovaflex	• TPE tubing • For bio-pharma use • Thermal weldable • Full validation studies • USP & ISO 10993	FDA USP 87 USP Class VI ISO 10993 ADCF	Y	Clear	60	Y				Y	57
Innovaflex WT	• TPE tubing • For bio-pharma use • Thermal weldable • Full validation studies • USP & ISO 10993	FDA USP 87 USP Class VI ISO 10993 ADCF	Y	Opaque	60	Y				Y	59
Innovaflex ADC	• TPE tubing • For bio-pharma use • Full validation studies • USP & ISO 10993	FDA USP 87 USP Class VI ISO 10993 ADCF		Clear	50D	Y				Y	60
Single use assembly (SUA)	• For bio-pharma use • Customized design • Full validation studies • USP & ISO 10993 • Fully customized design		Y			Y			Y	Y	71
Innovafit parts	• For bio-pharma use • Packed in clean room • Sterilizable	RoHS REACH				Y			Y		73
Innovaseal Cryopreservation bag	• For bio-pharma use • Customized design • Full validation studies • USP & ISO 10993 • Flexible under -200 C	FDA USP 87 USP Class VI ISO 10993 ADCF				Y				Y	74

Industrial & Civilian use **Market Application**



Peristaltic pump



Environmental Analysis



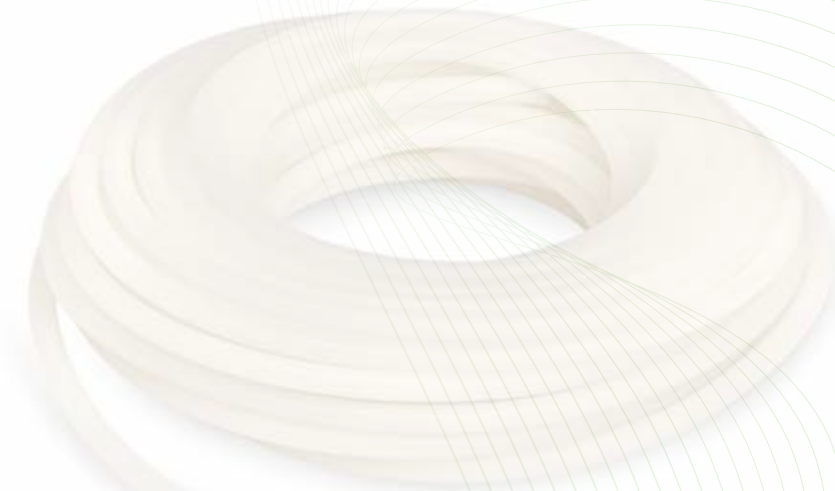
Cleaning equipment



Beverage filling



- Innovaprene F/G/FW/GW Peristaltic Pump Tubing
- Innovalloy Chemical Resistant Peristaltic Pump Tubing
- Innovafluor K/PTFE/PFA Fluoropolymer Tubing
- Innovalene EVA/LDPE/TPU/PVC Tubing
- Innovasil F/G Platinum Cured Silicone Tube



+ Innovaprene® G 60

Industrial grade peristaltic pump tubing



Ultra-long peristaltic pump life, RoHS/REACH compliant, suitable for various industrial and civil peristaltic pumps.

RoHS/REACH
Industrial Grade

The G/GW series have a low permanent compression deformation, which can ensure that the peristaltic pump tubing can rebound to its original shape even if it is continuously squeezed during the long-term use in peristaltic pump, ensuring the stability of the fluid transmission flow. At the same time, it adopts a specially developed formula,

complies with RoHS and REACH standards, and has high safety. It can be widely used in various high and low temperature environments (-60 degrees to 140 degrees), and gas transmission, chemical substance transportation, washing industries, 3D printing, mopping machines and sweepers are equipped with peristaltic pumps.

+ Features

- Long peristaltic pump life
- Stable flow rate reduces frequent calibration
- Good chemical resistance
- Beige or black UV resistant opaque
- Low gas permeability
- -60 degrees to 140 degrees use range
- Corresponding to various hardness from 55A to 70A
- Available in various metric and imperial sizes

+ Regulations & Certifications

- RoHS Compliant
- Compliant with REACH

+ Application

- Industrial Peristaltic Pumps
- Vacuum pump
- Gas transfer line
- Chemical Reagent Transfer H
- Washing machine
- Sweeper
- Mopping machine
- For other miniature peristaltic pumps

+ Innovaprene® G 60 Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Black
Shore A hardness, 5sec	ASTM D 2240		67
Density	ASTM D 792		0.97
Operating temperature		°C	-60°C to +140°C
UV Resistance			Excellent
Gas permeability rate			Medium
Water absorption rate			Low
Tensile strength at break	ASTM D 412	Mpa	6.80
Tensile elongation at break	ASTM D 412	%	500
Tear tensile strength	ASTM D1004-94	kN/m	22
Permanent compression set, 70°C22hrs	ASTM D395-98-B	%	18
Embrittlement temperature	ASTM D 746	°C	-60

+ Innovaprene® G 60 Inventorized Sizes*

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model No.	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Length Per Package (m) (foot)	Minimum Bending Radius	RECO Working Pressure	RECO Vacuum Pressure
PG60-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50	2mm		1.0bar
PG60-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50	3mm	6.8bar	1.0bar
PG60-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50	3mm		1.0bar
PG60-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50	3mm		1.0bar
PG60-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50	6mm		1.0bar
PG60-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50	6mm	2.1bar	1.0bar
PG60-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50	6mm	2.9bar	1.0bar
PG60-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50			
PG60-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50			
PG60-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50	6mm	2.5bar	1.0bar
PG60-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50			
PG60-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50	12mm	1.1bar	0.8bar
PG60-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50	12mm	1.6bar	1.0bar
PG60-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50			
PG60-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50			
PG60-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50	19mm	1.1bar	1.0bar
PG60-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50	12mm	1.6bar	1.0bar
PG60-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50	22mm	0.9bar	1.0bar
PG60-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50	19mm	1.3bar	1.0bar
PG60-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50	19mm	1.6bar	1.0bar
PG60-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50	32mm	0.9bar	0.7bar
PG60-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50	25mm	1.0bar	1.0bar
PG60-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50	35mm	0.6bar	0.5bar
PG60-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50	38mm	0.9bar	1.0bar
PG60-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50	29mm	1.1bar	1.0bar
PG60-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50	57mm	0.5bar	0.2bar
PG60-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50	76mm	0.5bar	0.5bar
PG60-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50	29mm	0.9bar	1.0bar
PG60-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50	80mm	1.3bar	1.2bar
PG60-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50	83mm	0.6bar	0.3bar
PG60-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25	70mm	0.8bar	0.7bar
PG60-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25			
PG60-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25	89mm	0.6bar	0.5bar
PG60-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25			
PG60-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25			
PG60-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25	127mm	0.5bar	0.2bar
PG60-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25			
PG60-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25			

*The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees

+ Innovaprene® G55 / GW55 Peristaltic Pump Tubing

The G/GW series have a low permanent compression deformation, which can ensure that the peristaltic pump can rebound to the original shape even if it is continuously squeezed during the long-term use of the peristaltic pump, ensuring the stability of the liquid transmission flow. At the same time, it adopts a specially developed formula, which improves the tolerance to various organic solvents and has a very high cost performance. It can be widely used in various high and low temperature environments(-60 degrees to 140 degrees), organic acid and alkali solution transportation, positive and negative in the field of compressed gas transmission.

With strong chemical resistance, weather resistance, ultraviolet resistance, good resilience and other advantages, it can be widely used in aviation equipment, household electronic products sweeping robot, mopping robot, fragrance machine, analytical instruments and other micro peristaltic pump.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckle, flaring, coding, laser etching, etc., and customized production.

+ Innovaprene® G 55/ GW 55 Product Specification

Industrial Grade Peristaltic Pump Tubing			
Feature	Low hardness peristaltic pump tubing is suitable for low torque miniature peristaltic pumps		
	- Steady flow - Chemical resistance, resistant to dye, detergent, vinegar, etc. - UV resistant and opaque -60°C to 140°C temperature range - RoHS and REACH compliant		
	Caution	- Avoid high rpm - Avoid back pressure	
		Material	Thermoplastic Elastomer
	Operating temperature range		
		-60 °C to +140°C	
Physical properties			
		Color	G55 Black / GW 55 Beige
		Shore A Hardness ASTM D 2240	58A
		Density ASTM D792	0.97 g/cm3
		Tensile Strength at Break ASTM D 412	5.80 MPa
		Tensile Elongation ASTM D 412	410 %
		Tear Strength ASTM D 1004-94	17 kN/m
		Permanent Compression Set 70°C 22Hrs ASTM D 395	22 %
Regulations and Certifications			
		RoHS, REACH	
Sterilization			
		121 °C 30 minutes steam sterilization single time	
		ETO ethylene oxide sterilized single time	
		25kGy irradiation sterilization single time	
Gas permeability			
		CO ₂ 1200	Gas volume [cm3] x wall thickness [mm] x Time [sec] x Pressure drop along pipe wall [cm Hg] X 10 ⁻¹⁰
		O ₂ 200	
		N ₂ 80	
Odor		none	
Toxicity		none	
Theoretical service life			
		at 0 bar life	800 hrs
		at 0.7 bar	400 hrs

+ Innovaprene® G55 / GW55 Nomenclature

Innovaprene® G 55 PG40- Innovaprene® GW 55 PW40-

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length* (m) (foot)
P□40-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50
P□40-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50
P□40-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50
P□40-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50
P□40-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50
P□40-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50
P□40-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50
P□40-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50
P□40-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50
P□40-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50
P□40-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50
P□40-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50
P□40-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50
P□40-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
P□40-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
P□40-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
P□40-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
P□40-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50
P□40-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
P□40-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
P□40-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
P□40-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
P□40-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
P□40-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
P□40-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
P□40-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
P□40-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
P□40-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
P□40-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
P□40-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
P□40-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
P□40-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
P□40-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
P□40-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
P□40-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
P□40-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
P□40-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
P□40-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

+ Innovaprene® GW60 / GWC Peristaltic Pump Tubing

- Longest service life of Innovaprene tubing material
- Excellent choice where high elasticity and good chemical resistance is needed

Innovaprene GW 60 is a peristaltic pump tubing with a hardness of Shore A67, which has a theoretical peristaltic pump service life of more than 1,000 hours and high cost performance.

Innovaprene GWC is a peristaltic pump tube with Shore A hardness of 58, which is specially adapted to low-torque micro peristaltic pumps. Compared with the GW55 series, it adopts a special formula. Under long-term immersion conditions, it has the advantages of invariability and resilience retention, and is suitable for applications such as commercial washing machines, sweepers and moppers.

Note

For detailed compatibility with various chemical solvents, please refer to "Innovaprene® Product Chemical Compatibility Information Sheet" or consult our sales personnel.

+ Innovaprene® GW60/ GWC Product Specification

Industrial Grade Peristaltic Pump Tubing				
Feature	Low hardness peristaltic pump tubing is suitable for low torque miniature peristaltic pumps			
	• Steady flow • Chemical resistance, resistant to dye, detergent, vinegar, etc. • UV resistant and opaque • -60°C to 140°C temperature range • RoHS and REACH compliant			
	Caution	• Avoid high rpm • Avoid back pressure		
		Material	• Thermoplastic Elastomer	
	Operating temperature range			
Physical properties	Shore A Hardness ASTM D 2240		Color	Beige
	Density ASTM D792			GW60 67A, GWC 58A
	Tensile Strength at Break ASTM D 412			0.97 g/cm3
	Tensile Elongation ASTM D 412			710 MPa
	Tear Strength ASTM D 1004-94			410 %
	Permanent Compression Set 70°C 22Hrs ASTM D 395			22kN/m
				24 %
Regulations and Certifications		RoHS, REACH		
Sterilization	121 °C 30 minutes steam sterilization single time			
	ETO ethylene oxide sterilized single time			
	25kGy irradiation sterilization single time			
Gas permeability	CO ₂	1200	Gas volume [cm3] x wall thickness [mm]	X 10 ⁻¹⁰
	O ₂	200	Inner Diameter Sectional Area [cm2] x Time [sec]	
	N ₂	80	x Pressure drop along pipe wall [cm Hg]	
Odor	none			
Toxicity	none			
Theoretical service life	at 0 bar life		1000 hrs	
	at 0.7 bar		500 hrs	

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length* (m) (foot)
PW60-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50
PW60-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50
PW60-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50
PW60-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50
PW60-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50
PW60-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50
PW60-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50
PW60-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50
PW60-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50
PW60-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50
PW60-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50
PW60-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50
PW60-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50
PW60-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
PW60-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
PW60-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
PW60-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
PW60-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50
PW60-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
PW60-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
PW60-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
PW60-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
PW60-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
PW60-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
PW60-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
PW60-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
PW60-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
PW60-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
PW60-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
PW60-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
PW60-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
PW60-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
PW60-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
PW60-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
PW60-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
PW60-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
PW60-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
PW60-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

+ Innovaprene® F/FW

Food grade peristaltic pump tubing*

Innovaprene® F / FW / S Peristaltic Pump Hose

+ Innovaprene® F 60 Typical physical properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Beige
Shore A hardness, 5sec	ASTM D 2240		67
Density	ASTM D 792		0.97
Operating temperature		°C	-60°C to +140°C
Anti-UV			Excellent
Gas permeability rate			Medium
Water absorption rate			Low
Tensile strength at break	ASTM D 412	Mpa	6.80
Tensile elongation at break	ASTM D 412	%	500
Tear tensile strength	ASTM D1004-94	kN/m	22
Permanent compression set, 70°C 22hrs	ASTM D395-98-B	%	18
Embrittlement temperature	ASTM D 746	°C	-60

+ Innovaprene® F 60 Inventoried Sizes*

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Length Per Package (m) (foot)	Minimum Bending Radius	RECO Working Pressure	RECO Vacuum Pressure
PF60-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50	2mm		1.0bar
PF60-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50	3mm	6.8bar	1.0bar
PF60-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50	3mm		1.0bar
PF60-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50	3mm		1.0bar
PF60-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50	6mm		1.0bar
PF60-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50	6mm	2.1bar	1.0bar
PF60-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50	6mm	2.9bar	1.0bar
PF60-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50			
PF60-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50			
PF60-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50	6mm	2.5bar	1.0bar
PF60-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50			
PF60-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50	12mm	1.1bar	0.8bar
PF60-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50	12mm	1.6bar	1.0bar
PF60-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50			
PF60-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50			
PF60-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50	19mm	1.1bar	1.0bar
PF60-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50	12mm	1.6bar	1.0bar
PF60-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50	22mm	0.9bar	1.0bar
PF60-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50	19mm	1.3bar	1.0bar
PF60-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50	19mm	1.6bar	1.0bar
PF60-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50	32mm	0.9bar	0.7bar
PF60-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50	25mm	1.0bar	1.0bar
PF60-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50	35mm	0.6bar	0.5bar
PF60-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50	38mm	0.9bar	1.0bar
PF60-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50	29mm	1.1bar	1.0bar
PF60-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50	57mm	0.5bar	0.2bar
PF60-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50	76mm	0.5bar	0.5bar
PF60-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50	29mm	0.9bar	1.0bar
PF60-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50	80mm	1.3bar	1.2bar
PF60-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50	83mm	0.6bar	0.3bar
PF60-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25	70mm	0.8bar	0.7bar
PF60-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25			
PF60-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25	89mm	0.6bar	0.5bar
PF60-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25			
PF60-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25			
PF60-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25	127mm	0.5bar	0.2bar
PF60-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25			
PF60-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25			

*The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees

For the detailed compatibility of Innovaprene™ F 60 with various chemical solvents, please refer to the "Innovaprene® Product Chemical Compatibility Information Sheet" or consult our sales staff

Ultra-long peristaltic pump service life, in line with FDA food contact standards, suitable for peristaltic pump tubing for various food and beverage applications.

Compliant with FDA food contact requirements

Food Grade

The F/FW series has a low permanent compression deformation, which can ensure that the peristaltic pump can rebound to the original shape even if it is continuously squeezed during the long-term use of the peristaltic pump, ensuring the stability of the liquid transmission flow. At the same time, it adopts a specially developed formula, which

complies with FDA 21CFR 177.2600 food contact standards, has extremely high safety, and can be widely used in various high and low temperature environments (-60 degrees to 140 degrees), food, beverages and dairy products. field of manufacturing and production.

+ Features

- Long peristaltic pump life
- Stable flow reduces frequent calibration
- Food Contact Safety
- Beige UV resistant opaque
- ow gas permeability
- -60 degrees to 140 degrees Corresponding to various
- Hardness from 55A to 70A
- Available in various metric and imperial sizes

+ Regulations & Certifications

- Compliant with FDA 21CFR 177.2600
- Conforms to EC No. 1935/2004*

*Innovaprene FW

+ Application

- Food field peristaltic pump
- Vacuum pump
- Gas transfer line
- Dairy Transfer Tubing
- Coffee machine
- Beverage filling

* Please consult your Innovaprene® sales representative for food contact compliance information

+ Innovaprene® F55 / FW60 Peristaltic pump tubing

The F55 series has a low permanent compression deformation, which can ensure that the peristaltic pump can rebound to the original shape even if it is continuously squeezed during the long-term use of the peristaltic pump, ensuring the stability of the liquid transmission flow. At the same time, with a specially developed formula, it has passed the FDA 21CFR 177.2600 test and can transmit and pump water-based food-based media*. Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckle, flaring, coding, laser etching, etc., and customized production.

In addition to passing the FDA 21CFR 177.2600 test, the FW60 series also passed the relevant test of EC No.1935/2004, and the raw materials comply with the EU material access list. The FW60 can be used in transfer and peristaltic pump applications.

Note

For detailed compatibility with various chemical solvents, please refer to "Innovaprene® Product Chemical Compatibility Information Sheet", and for food contact compliance information, please consult Innovaprene sales staff.

+ Innovaprene® F 55/ FW 60 Product Specification

Food grade peristaltic pump tubing			
Feature	Low hardness peristaltic pump tubing is suitable for low torque miniature peristaltic pumps		
	• Steady flow • Chemical resistance, resistant to dye, detergent, vinegar, etc. • UV resistant and opaque • -60°C to 140°C temperature range • Conforms to FDA and EC No.1935/2004 standards		
	Caution	• Avoid transferring fatty media • Please consult compliance information before transferring food contact media	
	Material	• Thermoplastic Elastomer	
Operating temperature range	-60 °C to +140°C		
Physical properties	Color	F55 Beige	FW 60 White
	Shore A Hardness ASTM D 2240	F55 58A	FW 60 65A
	Density ASTM D792	0.97 g/cm3	
	Tensile Strength at Break ASTM D 412	F55 5.8MPa	FW 60 9.5MPa
	Tensile Elongation ASTM D 412	F55 410%	FW 60 800%
	Tear Strength ASTM D 1004-94	F55 17 kN/m	FW 60 30kN/m
	Permanent Compression Set 70°C 22hrs ASTM D 395	F55 19%	FW 60 25%
Regulations and Certifications	F55 FDA 21CFR 177.2600		
	FW60 FDA 21CFR 177.2600, EC No. 1935/2004		
Sterilization	121 °C 30 minutes steam sterilization single time		
	ETO ethylene oxide sterilized single time		
	25kGy irradiation sterilization single time		
Gas permeability	CO ₂ 1200	$\frac{\text{Gas volume [cm}^3\text{]} \times \text{wall thickness [mm]}}{\text{Inner Diameter Sectional Area [cm}^2\text{]} \times \text{Time [sec]}} \times 10^{10}$	
	O ₂ 200		
N ₂ 80			
Odor	none		
Toxicity	none		
Theoretical service life	at 0 bar life	1000 hrs	
	at 0.7 bar	500 hrs	

+ Innovaprene® F55 / FW60 Nomenclature

Innovaprene® F 55

PF40-

Innovaprene® FW 60

PV60-

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length (m) (foot)
P□□0-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50
P□□0-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50
P□□0-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50
P□□0-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50
P□□0-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50
P□□0-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50
P□□0-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50
P□□0-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50
P□□0-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50
P□□0-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50
P□□0-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50
P□□0-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50
P□□0-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50
P□□0-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
P□□0-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
P□□0-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
P□□0-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
P□□0-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50
P□□0-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
P□□0-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
P□□0-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
P□□0-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
P□□0-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
P□□0-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
P□□0-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
P□□0-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
P□□0-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
P□□0-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
P□□0-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
P□□0-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
P□□0-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
P□□0-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
P□□0-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
P□□0-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
P□□0-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
P□□0-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
P□□0-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
P□□0-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

+ Innovaprene® S Low spallation peristaltic pump tubing

- Longest service life of Innovaprene tubing material
- Excellent choice where low spallation and good chemical resistance is needed

Peristaltic pump tubing is subjected to continuous shearing, extrusion and wear during long-term use, which will cause a small amount of pump tubing material debris to fall off the tubing wall. This debris builds up over time and can get mixed into the transfer medium, posing a potential contamination risk. Quality management of the purity of the transfer medium will require a certain degree of control over the inner wall stripping of the peristaltic pump tubing.

The Innovaprene series peristaltic pump tubing with "S" suffix adopts a special formula, which improves the wear resistance of the material and the peeling resistance of small molecular substances, and greatly improves the level of inner wall peeling caused by the long-term use of the peristaltic pump. Peristaltic pump tubing in various hardness levels, in addition to having a long peristaltic pump service life, improves the risk of potential contamination of the transfer medium.

+ Innovaprene® S Product Specification

Industrial & food grade peristaltic pump tubing			
Feature	Low hardness peristaltic pump tubing is suitable for low torque miniature peristaltic pumps		
	• Steady flow • Chemical resistance, resistant to dye, detergent, vinegar, etc. • UV resistant and opaque • -60°C to 140°C temperature range • RoHS and REACH compliant		
	Caution	• Avoid high rpm • Avoid back pressure	
		Material	• Thermoplastic Elastomer
	Operating temperature range		
Physical properties			
	Color	Beige or Black	
	Shore A Hardness ASTM D 2240	65-75A	
	Density ASTM D792	0.97 g/cm3	
	Tensile Strength at Break ASTM D 412	7.80 MPa	
	Tensile Elongation ASTM D 412	450 %	
	Tear Strength ASTM D 1004-94	25kN/m	
	Permanent Compression Set 70°C 22Hrs ASTM D 395	24 %	
Regulations and Certifications			
	RoHS, REACH		
Sterilization			
	121 °C 30 minutes steam sterilization single time		
	ETO ethylene oxide sterilized single time		
	25kGy irradiation sterilization single time		
Gas permeability			
	CO ₂ 1100	Gas volume [cm3] x wall thickness [mm]	
	O ₂ 180	Inner Diameter Sectional Area [cm2] x Time [sec]	
	N ₂ 70	x Pressure drop along pipe wall [cm Hg]	
Odor			
	none		
Toxicity			
	none		
Theoretical service life			
	at 0 bar life	1000 hrs	
	at 0.7 bar	500 hrs	

+ Innovaprene® F/G S Nomenclature

Innovaprene® F 60 S

PFL60-

Innovaprene® G 60 S

PGL60-

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length (m) (foot)
P□□0-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50
P□□0-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50
P□□0-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50
P□□0-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50
P□□0-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50
P□□0-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50
P□□0-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50
P□□0-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50
P□□0-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50
P□□0-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50
P□□0-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50
P□□0-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50
P□□0-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50
P□□0-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
P□□0-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
P□□0-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
P□□0-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
P□□0-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50
P□□0-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
P□□0-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
P□□0-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
P□□0-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
P□□0-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
P□□0-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
P□□0-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
P□□0-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
P□□0-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
P□□0-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
P□□0-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
P□□0-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
P□□0-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
P□□0-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
P□□0-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
P□□0-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
P□□0-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
P□□0-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
P□□0-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
P□□0-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

+ Innovaprene® MBT

MICRO-BORE TUBING

Micro bore tubing for analytical devices



Micro-bore peristaltic pump tubing with fine inner diameter and extremely low tolerance, specially developed for experimental analysis equipment and micro-peristaltic pumps. It is suitable for peristaltic pump tubes and liquid transmission lines in various CEMS, flue gas, water quality, ammonia nitrogen, and total phosphorus analysis equipment. A variety of materials can meet different liquid transmission needs.

Industrial Grade

Designed for CEMS flue gas analysis monitoring system, water quality analysis, ammonia nitrogen analysis, total phosphorus analysis and other analytical instruments used in the peristaltic pump and fluid system development of micro-inner diameter tubing products. From peristaltic pump tubing with long service life to fluid lines conveying various chemical reagents, this series of products adopts

smaller internal diameter tolerance to achieve repeated measurement accuracy, specially designed formula has good chemical resistance, and with a universal tube card to perfectly adapt to a variety of imported and domestic analytical equipment.

+ Features

- Tightly controlled Tolerance
- Guaranteed repeatable flow control
- Resistant to various chemical solutions
- Non-DEHP
- 3-stop or 2-stop fixing buckle
- Various tubing options
- Adapt to various domestic and imported equipment
- Provide customized services

+ Regulations & Certifications

- USP Class VI
- ISO10993

+ Application

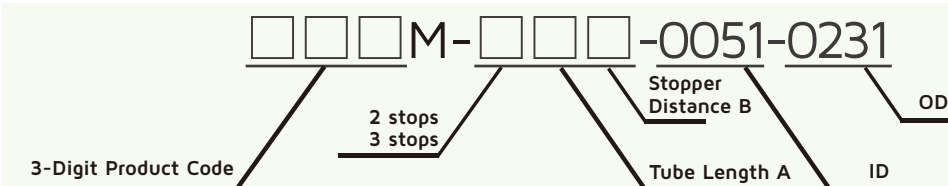
- CEMS equipment maintenance package
- Water quality analysis equipment
- Ammonia nitrogen analysis equipment
- Total phosphorus analysis equipment
- ICP-AES
- Other experimental analysis instruments

+ Innovaprene™ MBT Inventorized Sizes*

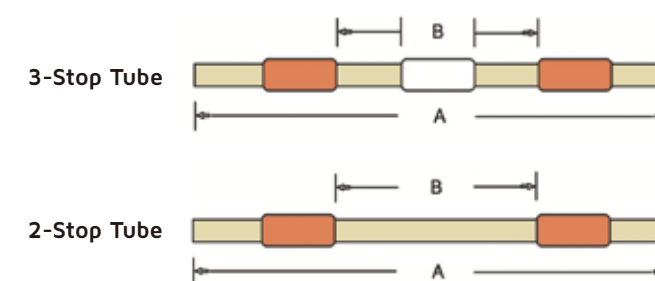
Cat. No.	Color Code	ID (mm)	ID (inch)	OD (mm)	OD (inch)	Wall Thickness (mm)	Wall Thickness (inch)
□□□M-□□□-0013-0193	Orange/Black	0.13	0.005	1.93	0.076	0.90	0.035
□□□M-□□□-0019-0199	Orange/Red	0.19	0.008	1.99	0.078	0.90	0.035
□□□M-□□□-0025-0205	Orange/Blue	0.25	0.010	2.05	0.081	0.90	0.035
□□□M-□□□-0038-0218	Orange/Green	0.38	0.015	2.18	0.086	0.90	0.035
□□□M-□□□-0044-0224	Green/Yellow	0.44	0.017	2.24	0.087	0.90	0.035
□□□M-□□□-0051-0231	Orange/Yellow	0.51	0.020	2.31	0.090	0.90	0.035
□□□M-□□□-0057-0237	white/yellow	0.57	0.022	2.37	0.092	0.90	0.035
□□□M-□□□-0064-0244	Orange/White	0.64	0.025	2.44	0.095	0.90	0.035
□□□M-□□□-0076-0246	Black/Black	0.76	0.030	2.46	0.096	0.85	0.033
□□□M-□□□-0089-0259	Tangerine/Orange	0.89	0.035	2.59	0.101	0.85	0.033
□□□M-□□□-0095-0265	White/Black	0.95	0.037	2.65	0.103	0.85	0.033
□□□M-□□□-0102-0272	White/White	1.02	0.040	2.72	0.106	0.85	0.033
□□□M-□□□-0114-0274	-	1.14	0.045	2.74	0.107	0.80	0.031
□□□M-□□□-0114-0284	Red/Red	1.14	0.045	2.84	0.111	0.85	0.033
□□□M-□□□-0122-0292	Red/Gray	1.22	0.048	2.92	0.115	0.85	0.033
□□□M-□□□-0130-0300	Gray/Gray	1.30	0.051	3.00	0.117	0.85	0.033
□□□M-□□□-0142-0312	Yellow/Yellow	1.42	0.056	3.12	0.123	0.85	0.033
□□□M-□□□-0152-0322	Yellow/Blue	1.52	0.060	3.22	0.127	0.85	0.033
□□□M-□□□-0159-0318	-	1.59	0.063	3.18	0.125	0.80	0.031
□□□M-□□□-0165-0335	Blue/Blue	1.65	0.065	3.35	0.132	0.85	0.033
□□□M-□□□-0175-0345	Blue/Green	1.75	0.069	3.45	0.134	0.85	0.033
□□□M-□□□-0185-0355	Green/Green	1.85	0.073	3.55	0.140	0.85	0.033
□□□M-□□□-0206-0376	Purple/Purple	2.06	0.081	3.76	0.147	0.85	0.033
□□□M-□□□-0229-0399	Purple/Black	2.29	0.090	3.99	0.156	0.85	0.033
□□□M-□□□-0254-0424	Purple/Orange	2.54	0.100	4.24	0.167	0.85	0.033
□□□M-□□□-0279-0449	Purple/White	2.79	0.110	4.49	0.176	0.85	0.033

*Other length or diameter can be customized

+ Innovapure® MBT nomenclature



- PP5 - Innovaprene® P 60 pharmaceutical grade peristaltic pump tubing with extra long pump life.
- L30 - Innovaprene® MED 55 is colorless and transparent, free of phthalic plasticizers, suitable for the transfer of chemical reagents.
- L35 - Innovaprene® 3500 is a clear yellow color suitable for the transfer of hydrocarbon solvents.
- FK4 - Innovaprene® K fluoroelastomer peristaltic pump tubing, resistant to strong acids, alkalis, toluene and other strong corrosive solvents.



Length A(mm)	Stop Distance B(mm)
A=120	M=560
B=150	N=810
C=175	O=725
D=195	P=1070
E=289	Q=740
F=325	R=485
G=350	S=1250
H=381	T=250
V=406	U=455
J=461	W=130
K=473	X=215
L=490	N=830

- Innovaprene® MBT series tubes can be composed of different materials and brands of peristaltic pump tubes, or a complete set of maintenance kits for various brands of analytical instruments can be customized according to customer needs. For details, please consult our sales staff.
- For the compatibility of various material tubes with respect to various chemical solvents, please refer to "Innovaprene®Product Chemical Compatibility Information Sheet" or consult our sales personnel.

+ Innovalene® 1185 / 1280
Thermoplastic Polyurethane Tubing

The 1185 series is made of thermoplastic polyurethane material, which has low gas permeability and good elasticity, and can be widely used in fluid transmission in industrial and medical industries. The 1280 series adopts a specially developed formula, which has improved resistance to various organic solvents, has extremely high cost performance, weather resistance and wear resistance, and can be widely used in various high and low temperature environments (-73 degrees to 93 degrees) , the delivery of organic acid-base solutions and petroleum, lubricating oil, fuel, etc., in the field of positive and negative pressure gas transmission.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckle, flaring, coding, laser etching, etc., and customized production.

+ Innovalene® 1185 / 1280
Product Specification

Industrial Grade Tubing			
Feature	Thermoplastic polyurethane		
	• Colorless and transparent • Chemical resistance, resistant to grease, fuel, etc. • Low temperature resistance • -73 degrees to 93 degrees temperature range • Comply with ROHS and REACH standards		
Caution	• Avoid folding • Avoid high temperature		
Material	• Thermoplastic polyurethane		
Operating temperature range	-73 °C to +93C		
Physical properties	Color Colorless & transparent		
	Shore A Hardness ASTM D 2240 1185 85A, 1280 82A		
	Density ASTM D792 1185 1.12g/cm3, 1280 1.20 g/cm3		
	Tensile Strength at Break ASTM D 412 1185 32MPa, 1280 42.0MPa		
	Tensile Elongation ASTM D 412 1185 600%, 1280 500 %		
	Tear Strength ASTM D 1004-94 70 kN/m		
	Permanent Compression Set 70°C 22Hrs ASTM D 395 1185 25%, 1280 68 %		
Regulations and Certifications	FDA, RoHS, REACH		
Sterilization	ETO ethylene oxide sterilized single time		
	25kGy irradiation sterilization single time		
Gas permeability	CO ₂ 360 Gas volume [cm3] x wall thickness [mm] x 10 ⁻¹⁰		
	O ₂ 80 Inner Diameter Sectional Area [cm2] x Time [sec]		
Odor	N ₂ 40 x Pressure drop along pipe wall [cm Hg]		
	none		
Toxicity	none		
Theoretical service life			



+ Innovalene® 1185 /1280 Nomenclature

Innovalene® 1185
L110-
Innovalene® 1280
L129-

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
L1□□-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
L1□□-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
L1□□-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
L1□□-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
L1□□-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
L1□□-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
L1□□-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
L1□□-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
L1□□-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
L1□□-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
L1□□-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
L1□□-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
L1□□-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
L1□□-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
L1□□-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
L1□□-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
L1□□-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
L1□□-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
L1□□-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
L1□□-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
L1□□-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
L1□□-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
L1□□-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
L1□□-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
L1□□-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
L1□□-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
L1□□-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
L1□□-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
L1□□-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
L1□□-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
L1□□-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
L1□□-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
L1□□-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
L1□□-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
L1□□-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
L1□□-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
L1□□-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
L1□□-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovalene® 2300/2400 EVA Tubing

- Longest service life of Innovalene tubing material
- Excellent choice where low temperature resistance and good chemical resistance is needed

Innovalene 2300 is an EVA tubing with a hardness of Shore A 88. It has a temperature range of -70 degrees to 75 degrees, high transparency, and high cost performance.

Innovalene 2400 is an EVA tubing with Shore A 96 hardness. Compared with the 2300 series, it adopts a special formula and can be used at a temperature range of -70 degrees to 90 degrees. It is highly transparent and resistant to vinegar, disinfectant, detergent, etc. Under long-term immersion conditions, it has the advantages of invariability and resilience retention, and is suitable for outdoor low temperature, washing industry and other applications.

Note

For detailed compatibility with various chemical solvents, please refer to "Innovaprene® Product Chemical Compatibility Information Sheet" or consult our sales personnel.



+ Innovalene® 2300 /2400 Nomenclature

Innovalene® 2300
L260-
Innovalene® 2400
L270-

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
L2□□-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
L2□□-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
L2□□-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
L2□□-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
L2□□-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
L2□□-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
L2□□-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
L2□□-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
L2□□-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
L2□□-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
L2□□-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
L2□□-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
L2□□-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
L2□□-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
L2□□-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
L2□□-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
L2□□-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
L2□□-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
L2□□-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
L2□□-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
L2□□-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
L2□□-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
L2□□-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
L2□□-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
L2□□-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
L2□□-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
L2□□-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
L2□□-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
L2□□-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
L2□□-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
L2□□-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
L2□□-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
L2□□-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
L2□□-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
L2□□-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
L2□□-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
L2□□-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
L2□□-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovalene® 2300/2400
Product Specification

Industrial Grade Tubing			
Feature	Steady flow		
	• Chemical resistance, resistant to dye, detergent, vinegar, etc. • UV resistant and opaque • -70 degrees to 75-90 degrees temperature range • Compliance with RoHS and REACH standards		
Caution	• Avoid folding • Avoid high temperature		
Material	Thermoplastic EVA elastomer		
Operating temperature range	-70°C to +75 (Innovalene 2300)-90 (Innovalene 2400)°C		
Physical properties	Color Colorless & transparent		
	Shore A Hardness ASTM D 2240 2300 88A, 2400 96A		
	Density ASTM D792 0.94g/cm3		
	Tensile Strength at Break ASTM D 412 15MPa		
	Tensile Elongation ASTM D 412 800 %		
	Tear Strength ASTM D 1004-94		
	Permanent Compression Set 70°C 22Hrs ASTM D 395		
Regulations and Certifications	RoHS, REACH		
Sterilization	ETO ethylene oxide sterilized single time		
	25kGy irradiation sterilization single time		
Gas permeability	CO ₂ 600 Gas volume [cm3] x wall thickness [mm] x 10 ⁻¹⁰		
	O ₂ 100 Inner Diameter Sectional Area [cm2] x Time [sec]		
Odor	N ₂ 40 x Pressure drop along pipe wall [cm Hg]		
	none		
Toxicity	none		
Theoretical service life			

+ Innovalene® XP Chemical Resistant Long Life Peristaltic Pump Tubing

Innovalene XP is a thermoplastic elastomer tubing with a hardness of Shore A 65. It has a temperature range of -73 degrees to 60 degrees. It is colorless and transparent without adding plasticizers. It has good resilience and good wear resistance. It can be used for long Time peristaltic pump use and other advantages.

Innovalene XP has FDA 21CFR 177.2600 certification, can be used in medical and biopharmaceutical fields, can be sterilized, and has good tolerance to most acids, alkalis, and organic solvents.

Prepared through special processing technology, it has a smooth inner surface, reduces hanging liquid and microbial residues, and avoids cross-contamination. With a wide range of certifications, it can be widely used in various industrial, food, chemical and laboratory fields.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckle, flaring, coding, laser etching, etc., and customized production.

+ Innovalene® XP Product Specification Peristaltic Pump Tubing

Feature	Pastic elastomer	
	• Colorless and transparent • Chemical resistance, resistance to grease, fuel, etc. • Peristaltic pump can be used for a long time • No plasticizer • Compliance with RoHS and REACH standards	
Caution	• Avoid folding • Avoid high temperature	
Material	• Thermoplastic elastomer	
Operating temperature range	-73 °C to +60C	
Physical properties	Color	Colorless & transparent
	Shore A Hardness ASTM D 2240	65A
	Density ASTM D792	0.88 g/cm3
	Tensile Strength at Break ASTM D 412	5.30 MPa
	Tensile Elongation ASTM D 412	600 %
	Tear Strength ASTM D 1004-94	21 kN/m
	Permanent Compression Set 70°C 22hrs ASTM D 395	37 %
Regulations and Certifications	FDA, RoHS, REACH	
Sterilization	125 degrees 30 minutes damp heat sterilization single time	
	ETO ethylene oxide sterilized single time	
Gas permeability	CO ₂ 1140	Gas volume [cm3] x wall thickness [mm]
	O ₂ 76	Inner Diameter Sectional Area [cm2] x Time [sec]
Odor	190	x Pressure drop along pipe wall [cm Hg]
	none	
Toxicity	none	
Theoretical service life	at 0 bar life	1000 hrs
	at 0.7 bar	400 hrs



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
L4X5-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
L4X5-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
L4X5-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
L4X5-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
L4X5-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
L4X5-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
L4X5-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
L4X5-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
L4X5-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
L4X5-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
L4X5-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
L4X5-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
L4X5-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
L4X5-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
L4X5-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
L4X5-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
L4X5-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
L4X5-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
L4X5-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
L4X5-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
L4X5-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
L4X5-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
L4X5-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
L4X5-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
L4X5-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
L4X5-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
L4X5-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
L4X5-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
L4X5-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
L4X5-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
L4X5-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
L4X5-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
L4X5-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
L4X5-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
L4X5-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
L4X5-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
L4X5-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
L4X5-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovalene® 3500 Fuel Resistant Peristaltic Pump Tubing

- Longest service life of Innovalene tubing material
- Excellent choice where peristaltic pump use and good chemical resistance is needed

Innovalene 3500 is a polyvinyl chloride elastomer hose with a Shore A hardness of 65. It is yellow and transparent, has good resilience and wear resistance, and is suitable for use in peristaltic pumps.

Innovalene 3500 has a special formula, which has the characteristics of anti-migration, anti-swelling and anti-penetration for hydrocarbons, lubricants, petroleum solvents, fuels, coolants, etc. It can be widely used in small fuel-driven handheld devices, automobiles, printing and other industries.



*Other calibers, lengths or packing methods can be customized

Note

For detailed compatibility with various chemical solvents, please refer to "Innovaprene® Product Chemical Compatibility Information Sheet" or consult our sales personnel.

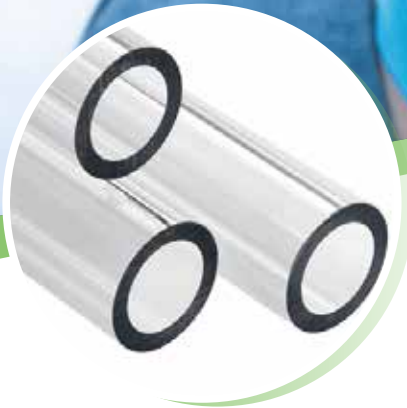
+ Innovalene® 3500 Product Specification Peristaltic Pump Tubing

Feature	• Stable flow, can be used with peristaltic pumps • Chemical resistance, resistant to dye, fuel oil, lubricants, etc. • No free • -35 degrees to 75 degrees temperature range, can be sterilized • Compliance with RoHS and REACH standards	
Caution	• Avoid high temperature • Avoid high pressure	
Material	• PVC compound	
Operating temperature range	-35 °C to +75C	
Physical properties	Color	yellow transparent
	Shore A Hardness ASTM D 2240	65A
	Density ASTM D792	1.24 g/cm3
	Tensile Strength at Break ASTM D 412	13.0 MPa
	Tensile Elongation ASTM D 412	380 %
	Tear Strength ASTM D 1004-94	38 N/mm
	Permanent Compression Set 70°C 22hrs ASTM D 395	62%
Regulations and Certifications	RoHS, REACH	
Sterilization	125 degrees 30 minutes damp heat sterilization single time	
	ETO ethylene oxide sterilized single time	
Gas permeability	CO ₂ 100	Gas volume [cm3] x wall thickness [mm]
	O ₂ 22	Inner Diameter Sectional Area [cm2] x Time [sec]
Odor	N ₂ 12	x Pressure drop along pipe wall [cm Hg]
	none	
Toxicity	none	
Theoretical service life	at 0 bar life	200 hrs
	at 0.7 bar	75 hrs

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
L35F-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
L35F-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
L35F-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
L35F-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
L35F-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
L35F-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
L35F-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
L35F-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
L35F-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
L35F-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
L35F-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
L35F-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
L35F-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
L35F-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
L35F-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
L35F-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
L35F-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
L35F-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
L35F-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
L35F-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
L35F-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
L35F-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
L35F-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
L35F-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
L35F-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
L35F-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
L35F-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
L35F-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
L35F-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
L35F-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
L35F-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
L35F-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
L35F-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
L35F-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
L35F-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
L35F-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
L35F-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
L35F-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovalene® 4375 (BK)

Chemical Resistant Transparent Tubing
Chemical Resistant Black Tubing



The transparent tubing is specially designed for the transmission of various chemical reagents, and the special formula ensures good resistance to various corrosive liquids, especially suitable for the transmission of acids, alkalis, ketones, and alcohols.

Compliant with FDA food contact requirements

Food Grade

The 4375 series is colorless and transparent, with a hardness of 75A, suitable for the transfer of chemical reagents and organic solvents. Good resistance to acids, bases, ketones, alcohol chemicals. Does not contain any plasticizers, pure and recyclable. Prepared through special processing technology, it has a smooth inner surface, reduc-

es hanging liquid and microbial residues, and avoids cross-contamination. With a wide range of certifications, it can be widely used in various industrial, food, chemical and laboratory fields. This product is also available in black levels.

+ Features

- Clear transparent or black
- Good chemical resistance
- Resistance to chemical swelling
- No added plasticizer
- 75A shore hardness
- Available in various metric and imperial sizes

+ Regulations & Certifications

- FDA 21CFR 177.2600
- RoHS
- REACH

+ Application

- Chemical reagent delivery
- Printing ink transfer
- Laboratory chemical reagent transfer
- Alcohol delivery
- Detergent and cleaner transfer

*For details of food contact compliance information, please Innovaprene® sales representative

+ Innovalene® 4375 Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Colorless transparent / black
Shore A hardness, 5 sec	ASTM D 2240		75
Density	ASTM D 792		0.88
Operating temperature			
UV resistance			Excellent
Gas permeability rate			Excellent
Water absorption rate			Low
Tensile strength at break	ASTM D 412	Mpa	13.2
Tensile elongation at break	ASTM D 412	%	900
Tear tensile strength	ASTM D1004-94	kN/m	42
Permanent compression set, 70°C22hrs	ASTM D395-98-B	%	
Embrittlement temperature	ASTM D 746	°C	

+ Innovalene® 4375 Inventoried Sizes*

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Length Per Package* (m) (foot)	Minimum Bending Radius	RECO Working Pressure	RECO Vacuum Pressure
L437-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50			1.0bar
L437-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50			1.0bar
L437-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50			1.0bar
L437-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50			1.0bar
L437-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50			1.0bar
L437-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50	6mm	3.5bar	1.0bar
L437-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50	3.2mm	5.6bar	1.0bar
L437-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50			
L437-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50			
L437-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50	6mm		1.0bar
L437-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50			
L437-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50			
L437-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50	6mm	3.5bar	1.0bar
L437-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50			
L437-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50			
L437-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50	13mm	2.6bar	1.0bar
L437-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50			1.0bar
L437-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50	19mm	2.2bar	1.0bar
L437-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50	19mm		
L437-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50	19mm		
L437-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50	32mm	1.8bar	1.0bar
L437-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50			
L437-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50	38mm	1.5bar	0.7bar
L437-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50	38mm		1.0bar
L437-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50	29mm	2.2bar	1.0bar
L437-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50			
L437-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50			
L437-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50	38mm	2.2bar	1.0bar
L437-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50			
L437-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50			
L437-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25	64mm	1.8bar	1.0bar
L437-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25			
L437-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25	70mm	1.5bar	0.7bar
L437-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25			
L437-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25			
L437-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25			
L437-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25	83mm	1.6bar	0.9bar
L437-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25			

*The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees
For the detailed compatibility of Innovalene™ 4375 with various chemical solvents, please refer to "Innovalene® Product Chemical Compatibility Information Sheet" or consult our sales staff

+ Innovalene® 4365 Chemical Resistant Transparent Peristaltic Pump Tubing

The 4365 series is a transparent hose specially designed for transporting various chemical reagents, using thermoplastic elastomer materials. Good resistance to various corrosive liquids is guaranteed by a special formula, and can be used for conventional peristaltic pumps. With low gas permeability, 65A hardness is suitable for peristaltic pumps. Good resistance to acids, bases, ketones, alcohol chemicals. Does not contain any plasticizers, pure and recyclable. Prepared through special processing technology, it has a smooth inner surface, reduces hanging liquid and microbial residues, and avoids cross-contamination. With a wide range of certifications, it can be widely used in various industrial, food, chemical and laboratory fields.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckle, flaring, coding, laser etching, etc., and customized production.

+ Innovalene® 4365 Product Specification

Peristaltic Pump Tubing																	
Feature	Thermoplastic elastomer • Colorless and transparent • Chemical resistance, resistant to grease, fuel, etc. • Can be used with peristaltic pump • No plasticizer • Comply with RoHS and REACH standards																
Caution	• Avoid folding • Avoid high temperature																
Material	• Thermoplastic elastomer																
Operating temperature range	-73 °C to +93C																
Physical properties	<table><tr><td>Color</td><td>Colorless & transparent</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>65A</td></tr><tr><td>Density ASTM D792</td><td>0.86 g/cm3</td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>6.20 MPa</td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>1000 %</td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>34 kN/m</td></tr><tr><td>Permanent Compression Set 70°C 22Hrs ASTM D 395</td><td>25 %</td></tr></table>			Color	Colorless & transparent	Shore A Hardness ASTM D 2240	65A	Density ASTM D792	0.86 g/cm3	Tensile Strength at Break ASTM D 412	6.20 MPa	Tensile Elongation ASTM D 412	1000 %	Tear Strength ASTM D 1004-94	34 kN/m	Permanent Compression Set 70°C 22Hrs ASTM D 395	25 %
Color	Colorless & transparent																
Shore A Hardness ASTM D 2240	65A																
Density ASTM D792	0.86 g/cm3																
Tensile Strength at Break ASTM D 412	6.20 MPa																
Tensile Elongation ASTM D 412	1000 %																
Tear Strength ASTM D 1004-94	34 kN/m																
Permanent Compression Set 70°C 22Hrs ASTM D 395	25 %																
Regulations and Certifications	FDA, RoHS, REACH																
Sterilization	ETO ethylene oxide sterilized single time 25kGy irradiation sterilization single time																
Gas permeability rate	<table><tr><td>CO₂</td><td>1140</td><td>Gas volume [cm³] x wall thickness [mm]</td></tr><tr><td>O₂</td><td>76</td><td>Inner Diameter Sectional Area [cm²] x Time [sec]</td></tr><tr><td>N₂</td><td>190</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table> X 10 ⁻¹⁰			CO ₂	1140	Gas volume [cm ³] x wall thickness [mm]	O ₂	76	Inner Diameter Sectional Area [cm ²] x Time [sec]	N ₂	190	x Pressure drop along pipe wall [cm Hg]					
CO ₂	1140	Gas volume [cm ³] x wall thickness [mm]															
O ₂	76	Inner Diameter Sectional Area [cm ²] x Time [sec]															
N ₂	190	x Pressure drop along pipe wall [cm Hg]															
Odor	none																
Toxicity	none																
Theoretical service life	at 0 bar life 500 hrs at 0.7 bar 200 hrs																



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length* (m) (foot)
L436-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50
L436-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50
L436-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50
L436-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50
L436-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50
L436-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50
L436-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50
L436-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50
L436-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50
L436-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50
L436-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50
L436-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50
L436-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50
L436-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
L436-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
L436-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
L436-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
L436-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50
L436-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
L436-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
L436-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
L436-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
L436-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
L436-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
L436-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
L436-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
L436-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
L436-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
L436-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
L436-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
L436-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
L436-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
L436-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
L436-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
L436-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
L436-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
L436-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
L436-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

+ Innovalene® 4500 Peristaltic Pump Tubing

- Longest service life of Innovalene tubing material
- Excellent choice where peristaltic pump use and good chemical resistance is needed

Innovalene 4500 is a thermoplastic elastomer hose with Shore A hardness of 60. It has a temperature range of -70 degrees to 125 degrees. It is transparent, plasticizer free, good resilience and wear resistance, and is suitable for use in peristaltic pumps and other applications.

In addition, the Innovalene 4500 is USP Class VI certified for use in the medical and bio-pharmaceutical fields and is fully ISO 10993 certified for biocompatibility, sterilization, and aseptic welding.

Note

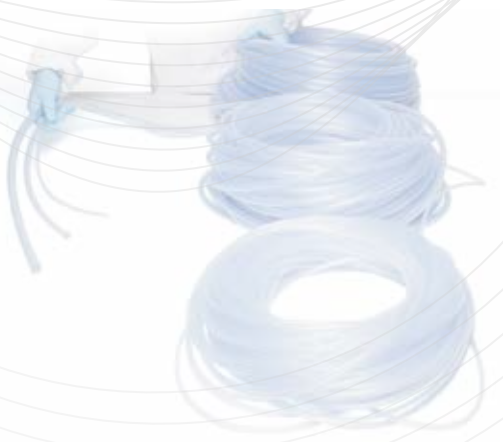
For detailed compatibility with various chemical solvents, please refer to "Innovaprene® Product Chemical Compatibility Information Sheet" or consult our sales personnel.

+ Innovalene® 4500 Product Specification

Peristaltic Pump Tubing																
Feature	- Stable flow, can be used with peristaltic pumps - Chemical resistance, resistant to dye, detergent, vinegar, etc. - Biocompatibility, medical and biopharmaceutical grade -70 degrees to 125 degrees temperature range, can be sterilized - Compliant with USP ClassV, ISO 1093, RoHS and REACH															
Caution	- Avoid folding - Avoid high pressure															
Material	Thermoplastic elastomer															
Operating temperature range	-50°C to +130C															
Physical properties	<table><tr><td>Color</td><td>Colorless & transparent</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>60A</td></tr><tr><td>Density ASTM D792</td><td>0.89 g/cm3</td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>8.5 MPa</td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>1000 %</td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>38 N/mm</td></tr><tr><td>Permanent Compression Set 70°C 22Hrs ASTM D 395</td><td>41%</td></tr></table>		Color	Colorless & transparent	Shore A Hardness ASTM D 2240	60A	Density ASTM D792	0.89 g/cm3	Tensile Strength at Break ASTM D 412	8.5 MPa	Tensile Elongation ASTM D 412	1000 %	Tear Strength ASTM D 1004-94	38 N/mm	Permanent Compression Set 70°C 22Hrs ASTM D 395	41%
Color	Colorless & transparent															
Shore A Hardness ASTM D 2240	60A															
Density ASTM D792	0.89 g/cm3															
Tensile Strength at Break ASTM D 412	8.5 MPa															
Tensile Elongation ASTM D 412	1000 %															
Tear Strength ASTM D 1004-94	38 N/mm															
Permanent Compression Set 70°C 22Hrs ASTM D 395	41%															
Regulations and Certifications	RoHS, REACH															
Sterilization	125 degrees 30 minutes damp heat sterilization single time ETO ethylene oxide sterilized single time 25kGy irradiation sterilization single time															
Gas permeability	<table><tr><td>CO₂</td><td>600</td><td>Gas volume [cm3] x wall thickness [mm]</td></tr><tr><td>O₂</td><td>100</td><td>Inner Diameter Sectional Area [cm2] x Time [sec]</td></tr><tr><td>N₂</td><td>40</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table> X 10 ⁻¹⁰		CO ₂	600	Gas volume [cm3] x wall thickness [mm]	O ₂	100	Inner Diameter Sectional Area [cm2] x Time [sec]	N ₂	40	x Pressure drop along pipe wall [cm Hg]					
CO ₂	600	Gas volume [cm3] x wall thickness [mm]														
O ₂	100	Inner Diameter Sectional Area [cm2] x Time [sec]														
N ₂	40	x Pressure drop along pipe wall [cm Hg]														
Odor	none															
Toxicity	none															
Theoretical service life	at 0 bar life 500 hrs at 0.7 bar 200 hrs															

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length* (m) (foot)
L450-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50
L450-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50
L450-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50
L450-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50
L450-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50
L450-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50
L450-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50
L450-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50
L450-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50
L450-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50
L450-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50
L450-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50
L450-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50
L450-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
L450-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
L450-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
L450-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
L450-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50
L450-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
L450-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
L450-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
L450-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
L450-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
L450-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
L450-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
L450-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
L450-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
L450-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
L450-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
L450-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
L450-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
L450-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
L450-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
L450-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
L450-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
L450-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
L450-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
L450-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25



+ Innovalene® IND 65
Transparent PVC Tubing

Innovalene IND 65 is a polyvinyl chloride PVC hose with Shore A 65 hardness, a fluid transmission tubing specially developed for industrial fluid equipment, without using DEHP plasticizer. The tubing is colorless and highly transparent, with extremely high cost performance, and can be widely used in various industrial, chemical and laboratory fields.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckle, flaring, coding, laser etching, etc., and customized production.

High performance, cost efficiency, colorless and transparent, resistant to staining, suitable for in vitro diagnostic equipment waste liquid pipeline.



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
L316-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
L316-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
L316-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
L316-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
L316-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
L316-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
L316-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
L316-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
L316-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
L316-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
L316-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
L316-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
L316-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
L316-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
L316-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
L316-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
L316-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
L316-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
L316-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
L316-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
L316-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
L316-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
L316-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
L316-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
L316-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
L316-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
L316-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
L316-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
L316-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
L316-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
L316-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
L316-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
L316-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
L316-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
L316-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
L316-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
L316-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
L316-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovalloy® 3000
Peristaltic Pump Tubing

- Longest service life of Innovalloy tubing material
- Excellent choice where peristaltic pump use and good chemical resistance is needed

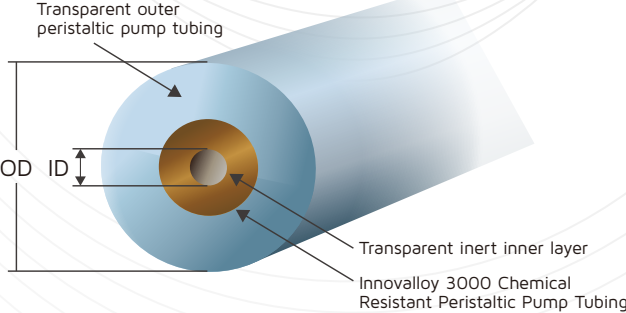
Innovalloy 3000 is a sandwich structure peristaltic pump hose with a Shore A hardness of 70. It is colorless and transparent, has good resilience and good wear resistance, and is suitable for use in peristaltic pumps.

Innovalloy 3000 has a special formula, which has the characteristics of anti-migration, anti-swelling and anti-penetration for hydrocarbons, lubricants, petroleum solvents, fuels, coolants, etc. It can be widely used in small fuel-driven handheld devices, automobiles, printing and other industries.



Note

For detailed compatibility with various chemical solvents, please refer to "Innovaprene® Product Chemical Compatibility Information Sheet" or consult our sales personnel.



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
A340-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
A340-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
A340-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
A340-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
A340-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
A340-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
A340-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
A340-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
A340-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
A340-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
A340-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
A340-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
A340-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
A340-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
A340-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
A340-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
A340-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
A340-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
A340-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
A340-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
A340-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
A340-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
A340-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
A340-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
A340-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
A340-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
A340-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
A340-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
A340-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
A340-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
A340-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
A340-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
A340-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
A340-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
A340-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
A340-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
A340-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
A340-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovalene® IND 65
Product Specification

Industrial Grade PVC Tubing																	
Feature	Polyvinyl chloride PVC																
	• Colorless and transparent • Chemical resistance etc. • Non DEHP • Compliance with RoHS and REACH standards																
Caution	• Avoid high pressure • Avoid high temperature																
Material	• PVC																
Operating temperature range	-50 °C to +75C																
Physical properties	<table><tr><td>Color</td><td>Colorless & transparent</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>65A</td></tr><tr><td>Density ASTM D792</td><td>1.18 g/cm3</td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>13.0 MPa</td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>350 %</td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>30 kN/m</td></tr><tr><td>Permanent Compression Set 70°C 22Hrs ASTM D 395</td><td>57 %</td></tr></table>			Color	Colorless & transparent	Shore A Hardness ASTM D 2240	65A	Density ASTM D792	1.18 g/cm3	Tensile Strength at Break ASTM D 412	13.0 MPa	Tensile Elongation ASTM D 412	350 %	Tear Strength ASTM D 1004-94	30 kN/m	Permanent Compression Set 70°C 22Hrs ASTM D 395	57 %
Color	Colorless & transparent																
Shore A Hardness ASTM D 2240	65A																
Density ASTM D792	1.18 g/cm3																
Tensile Strength at Break ASTM D 412	13.0 MPa																
Tensile Elongation ASTM D 412	350 %																
Tear Strength ASTM D 1004-94	30 kN/m																
Permanent Compression Set 70°C 22Hrs ASTM D 395	57 %																
Regulations and Certifications	RoHS, REACH																
Sterilization																	
Gas permeability	CO ₂ 563	$\frac{\text{Gas volume [cm3]} \times \text{wall thickness [mm]}}{\text{Inner Diameter Sectional Area [cm2]} \times \text{Time [sec]}}$ X 10 ⁻¹⁰															
	O ₂ 124																
	N ₂ 67	x Pressure drop along pipe wall [cm Hg]															
Odor	none																
Toxicity	none																
Theoretical service life																	

+ Innovalloy® 3000
Product Specification

Peristaltic Pump Tubing																								
Feature	• Stable flow, can be used with peristaltic pumps • Chemical resistance, resistance to dye, fuel oil, lubricant, etc. • Colorless and transparent • Temperature range from -35 degrees to 75 degrees, can be sterilized single time • Comply with RoHS and REACH standards																							
Caution	• Avoid high temperature • Avoid high pressure																							
Material	• Thermoplastic elastomer • Composite material																							
Operating temperature range	-35 °C to +75C																							
Physical properties	<table><tr><td></td><td>Color</td><td>Colorless & transparent</td></tr><tr><td></td><td>Shore A Hardness ASTM D 2240</td><td>70A</td></tr><tr><td></td><td>Density ASTM D792</td><td>0.89g/cm3</td></tr><tr><td></td><td>Tensile Strength at Break ASTM D 412</td><td>8.5 MPa</td></tr><tr><td></td><td>Tensile Elongation ASTM D 412</td><td>1000 %</td></tr><tr><td></td><td>Tear Strength ASTM D 1004-94</td><td>38 N/mm</td></tr><tr><td></td><td>Permanent Compression Set 70°C 22Hrs ASTM D 395</td><td>41%</td></tr></table>				Color	Colorless & transparent		Shore A Hardness ASTM D 2240	70A		Density ASTM D792	0.89g/cm3		Tensile Strength at Break ASTM D 412	8.5 MPa		Tensile Elongation ASTM D 412	1000 %		Tear Strength ASTM D 1004-94	38 N/mm		Permanent Compression Set 70°C 22Hrs ASTM D 395	41%
	Color	Colorless & transparent																						
	Shore A Hardness ASTM D 2240	70A																						
	Density ASTM D792	0.89g/cm3																						
	Tensile Strength at Break ASTM D 412	8.5 MPa																						
	Tensile Elongation ASTM D 412	1000 %																						
	Tear Strength ASTM D 1004-94	38 N/mm																						
	Permanent Compression Set 70°C 22Hrs ASTM D 395	41%																						
Regulations and Certifications	RoHS, REACH																							
Sterilization	125 degrees 30 minutes damp heat sterilization single time ETO ethylene oxide sterilized single time 25kGy irradiation sterilization single time																							
Gas permeability	<table><tr><td>CO₂</td><td>100</td><td>Gas volume [cm3] x wall thickness [mm]</td></tr><tr><td>O₂</td><td>22</td><td>Inner diameter sectional area [cm2] x Time [sec]</td></tr><tr><td>N₂</td><td>12</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table> X 10 ⁻¹⁰			CO ₂	100	Gas volume [cm3] x wall thickness [mm]	O ₂	22	Inner diameter sectional area [cm2] x Time [sec]	N ₂	12	x Pressure drop along pipe wall [cm Hg]												
CO ₂	100	Gas volume [cm3] x wall thickness [mm]																						
O ₂	22	Inner diameter sectional area [cm2] x Time [sec]																						
N ₂	12	x Pressure drop along pipe wall [cm Hg]																						
Odor	none																							
Toxicity	none																							
Theoretical service life	at 0 bar life 800 hrs at 0.7 bar 400hrs																							

+ Innovalene® F 65
Food contact grade PVC Tubing

Innovalene F 65 is a polyvinyl chloride PVC hose with Shore A 65 hardness, a fluid transmission tubing specially developed for food contact applications, without using DEHP plasticizer. The tubing is colorless and highly transparent, with extremely high cost performance, and can be widely used in various food, beverage, alcohol, fatty food or fatty oil manufacturing fields.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckle, flaring, coding, laser etching, etc., and customized production.

High performance, colorless and transparent, resistant to staining, suitable for in food contract applications such as beverage, coffee, fatty food, fatty oil, juice, vinegar, alcohol. Innovalene F 65 is in compliance with FDA 21CFR 177.300, GB4806.7, EC No 10/2011, RoHS and REACH regulations.



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
L326-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
L326-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
L326-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
L326-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
L326-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
L312-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
L326-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
L326-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
L326-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
L326-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
L326-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
L326-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
L326-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
L326-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
L326-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
L326-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
L326-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
L326-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
L326-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
L326-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
L326-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
L326-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
L326-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
L326-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
L326-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
L326-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
L326-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
L326-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
L326-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
L326-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
L326-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
L326-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
L326-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
L326-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
L326-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
L326-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
L326-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
L326-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovalene® F 65
Product Specification

Food Grade PVC Tubing										
Feature	Polyvinyl chloride PVC • Colorless and transparent • Food contact compliance • Non DEHP • Compliance with FDA 21CFR 177.300, GB4806.3, EC No 10/2011, RoHS and REACH standards									
Caution	• Avoid high pressure • Avoid high temperature									
Material	• PVC									
Operating temperature range	-50 °C to +75C									
Physical properties	Color	Colorless & transparent								
	Shore A Hardness ASTM D 2240	65A								
	Density ASTM D792	1.18 g/cm3								
	Tensile Strength at Break ASTM D 412	13.0 MPa								
	Tensile Elongation ASTM D 412	350 %								
	Tear Strength ASTM D 1004-94	30 kN/m								
	Permanent Compression Set 70°C 22Hrs ASTM D 395	35 %								
Regulations and Certifications	RoHS, REACH, FDA 21CFR 177.300, GB4806.7, EC 10/2011									
Sterilization										
Gas permeability	<table><tr><td>CO₂</td><td>563</td><td rowspan="3">$\frac{\text{Gas volume [cm3]} \times \text{wall thickness [mm]}}{\text{Inner Diameter Sectional Area [cm2]} \times \text{Time [sec]}} \times \text{Pressure drop along pipe wall [cm Hg]}$</td><td rowspan="3">$\times 10^{-10}$</td></tr><tr><td>O₂</td><td>124</td></tr><tr><td>N₂</td><td>67</td></tr></table>		CO ₂	563	$\frac{\text{Gas volume [cm3]} \times \text{wall thickness [mm]}}{\text{Inner Diameter Sectional Area [cm2]} \times \text{Time [sec]}} \times \text{Pressure drop along pipe wall [cm Hg]}$	$\times 10^{-10}$	O ₂	124	N ₂	67
CO ₂	563	$\frac{\text{Gas volume [cm3]} \times \text{wall thickness [mm]}}{\text{Inner Diameter Sectional Area [cm2]} \times \text{Time [sec]}} \times \text{Pressure drop along pipe wall [cm Hg]}$	$\times 10^{-10}$							
O ₂	124									
N ₂	67									
Odor	none									
Toxicity	none									
Theoretical service life										

+ Innovalene® W 65
PVC tubing meeting NSF51 criteria

- Longest service life of Innovalene tubing material
- Excellent choice where peristaltic pump use and good chemical resistance is needed

Innovalene W 65 is a polyvinyl chloride PVC hose with Shore A 65 hardness, a fluid transmission tubing specially developed for drinking water applications, without using DEHP plasticizer. The tubing is colorless and highly transparent, with extremely high cost performance, and can be widely used in various food, beverage, alcohol, fatty food or fatty oil manufacturing fields.

Innovalene W 65 is specially formulated and meets NSF 51/61 criteria.

Note

For detailed compatibility with various chemical solvents, please refer to "Innovalene® Product Chemical Compatibility Information Sheet" or consult our sales personnel.

+ Innovalene® W 65
Product Specification

PVC tubing meeting NSF 51 criteria																	
Feature	• Stable flow, can be used with peristaltic pumps • Chemical resistance, resistance to dye, fuel oil, lubricant, etc. • Colorless and transparent • Temperature range from -35 degrees to 75 degrees, can be sterilized single time • Comply with RoHS and REACH standards																
Caution	• Avoid high temperature • Avoid high pressure																
Material	• PVC • non-DEHP plasticizer																
Operating temperature range	-35 °C to +75C																
Physical properties	<table><tr><td>Color</td><td>Colorless & transparent</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>65A</td></tr><tr><td>Density ASTM D792</td><td>1.18g/cm3</td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>11.5 MPa</td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>350 %</td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>38 N/mm</td></tr><tr><td>Permanent Compression Set 70°C 22Hrs ASTM D 395</td><td>35%</td></tr></table>			Color	Colorless & transparent	Shore A Hardness ASTM D 2240	65A	Density ASTM D792	1.18g/cm3	Tensile Strength at Break ASTM D 412	11.5 MPa	Tensile Elongation ASTM D 412	350 %	Tear Strength ASTM D 1004-94	38 N/mm	Permanent Compression Set 70°C 22Hrs ASTM D 395	35%
Color	Colorless & transparent																
Shore A Hardness ASTM D 2240	65A																
Density ASTM D792	1.18g/cm3																
Tensile Strength at Break ASTM D 412	11.5 MPa																
Tensile Elongation ASTM D 412	350 %																
Tear Strength ASTM D 1004-94	38 N/mm																
Permanent Compression Set 70°C 22Hrs ASTM D 395	35%																
Regulations and Certifications	RoHS, REACH, NSF 51/61																
Sterilization	125 degrees 30 minutes damp heat sterilization single time ETO ethylene oxide sterilized single time 25kGy irradiation sterilization single time																
Gas permeability	<table><tr><td>CO₂</td><td>560</td><td>Gas volume [cm3] x wall thickness [mm]</td><td rowspan="3">X 10⁻¹⁰</td></tr><tr><td>O₂</td><td>122</td><td>Inner diameter sectional area [cm2] x Time [sec]</td></tr><tr><td>N₂</td><td>52</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table>			CO ₂	560	Gas volume [cm3] x wall thickness [mm]	X 10 ⁻¹⁰	O ₂	122	Inner diameter sectional area [cm2] x Time [sec]	N ₂	52	x Pressure drop along pipe wall [cm Hg]				
CO ₂	560	Gas volume [cm3] x wall thickness [mm]	X 10 ⁻¹⁰														
O ₂	122	Inner diameter sectional area [cm2] x Time [sec]															
N ₂	52	x Pressure drop along pipe wall [cm Hg]															
Odor	none																
Toxicity	none																
Theoretical service life																	

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
L336-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
L336-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
L336-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
L336-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
L336-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
L332-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
L336-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
L336-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
L336-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
L336-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
L336-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
L336-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
L336-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
L336-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
L336-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
L336-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
L336-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
L336-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
L336-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
L336-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
L336-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
L336-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
L336-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
L336-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
L336-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
L336-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
L336-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
L336-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
L336-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
L336-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
L336-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
L336-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
L336-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
L336-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
L336-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
L336-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
L336-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
L336-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

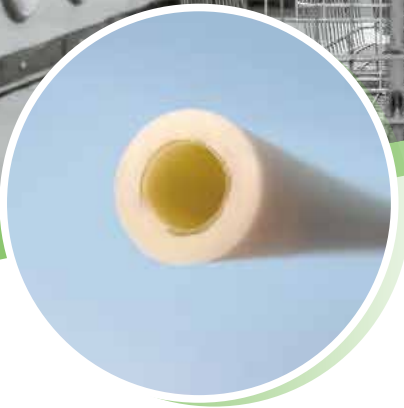


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Innovalloy® 4000 (BK)

Chemical Resistant Peristaltic Pump Tubing

Chemical Resistant Black Peristaltic Pump Tubing



The special structural hose designed for the transmission of various chemical reagents ensures good resistance to various corrosive liquids, and is especially suitable for the transmission of acids, alkalis, ketones, and alcohols.

Compliant with FDA food contact requirements

Food Grade

Innovalloy 4000 series has a low permanent compression deformation, which can ensure that the peristaltic pump can rebound to the original shape even if it is continuously squeezed in the long-term use of the peristaltic pump, ensuring the stability of the liquid transmission flow. At the same time, it adopts a double-layer structure, and the

special corrosion-resistant inner layer material ensures good resistance to strong acids, strong alkalis and most organic solvents, and can be widely used in various high and low temperature environments (-50 degrees to 80 degrees), organic acid-base solution delivery, laboratory, medical and pharmaceutical peristaltic pump applications.

+ Features

- Beige or black
- Long peristaltic pump life
- Good chemical resistance
- Resistance to chemical swelling
- Plasticizer free
- Very low gas permeability
- 70A shore hardness
- Available in various metric and imperial sizes

+ Regulations & Certifications

- Compliant with FDA 21CFR 177.2600
- RoHS
- REACH

+ Application

- Chemical reagent transfer
- Printing ink transfer
- Laboratory chemical reagent transfer
- Alcohol delivery
- Detergent and Cleaner Transfer
- Gas transfer line
- Other corrosive liquid transfer lines

*For details of food contact compliance information, please Innovaprene® sales representative

+ Innovalloy® 4000 Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Beige or Black
Shore A hardness, 5sec	ASTM D 2240		70
Density	ASTM D 792		0.97
Operating temperature			-50°C to +80°C
UV Resistance			Excellent
Gas permeability rate			Low
Water absorption rate			Low
Tensile strength at break	ASTM D 412	Mpa	7.2
Tensile elongation at break	ASTM D 412	%	420
Tear tensile strength	ASTM D1004-94	kN/m	22
Permanent compression set, 70°C22hrs	ASTM D395-98-B	%	25
Embrittlement temperature	ASTM D 746	°C	-60

+ Innovalloy® 4000 Inventoried Sizes*

Cat. No.	Model	ID		OD		Wall Thickness		Length Per Package		Minimum Bending Radius	RECO Working Pressure	RECO Vacuum Pressure
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)			
A460-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50	2mm		1.0bar
A460-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50	3mm	6.8bar	1.0bar
A460-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50	3mm		1.0bar
A460-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50	3mm		1.0bar
A460-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50	6mm		1.0bar
A460-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50	6mm	2.1bar	1.0bar
A460-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50	6mm	2.9bar	1.0bar
A460-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50			
A460-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50			
A460-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50	6mm	2.5bar	1.0bar
A460-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50			
A460-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50	12mm	1.1bar	0.8bar
A460-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50	12mm	1.6bar	1.0bar
A460-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50			
A460-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50			
A460-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50	19mm	1.1bar	1.0bar
A460-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50	12mm	1.6bar	1.0bar
A460-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50	22mm	0.9bar	1.0bar
A460-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50	19mm	1.3bar	1.0bar
A460-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50	19mm	1.6bar	1.0bar
A460-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50	32mm	0.9bar	0.7bar
A460-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50	25mm	1.0bar	1.0bar
A460-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50	35mm	0.6bar	0.5bar
A460-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50	38mm	0.9bar	1.0bar
A460-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50	29mm	1.1bar	1.0bar
A460-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50	57mm	0.5bar	0.2bar
A460-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50	76mm	0.5bar	0.5bar
A460-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50	29mm	0.9bar	1.0bar
A460-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50	80mm	1.3bar	1.2bar
A460-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50	83mm	0.6bar	0.3bar
A460-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25	70mm	0.8bar	0.7bar
A460-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25			
A460-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25	89mm	0.6bar	0.5bar
A460-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25			
A460-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25			
A460-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25	127mm	0.5bar	0.2bar
A460-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25			
A460-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25			

*The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees. For the detailed compatibility of Innovalloy™ 4000 with various chemical solvents, please refer to "Innovalene® Product Chemical Compatibility Information Sheet" or consult our sales staff

+ Innovasil® G 60 Ultra

Platinum-cured Silicone Pump Tubing

Innovasil® G 60 Ultra Peristaltic pump silicone tubing

+ Innovasil® G 60 Ultra Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Colorless & transparent
Shore A hardness, 5sec	ASTM D 2240		60
Density	ASTM D 792		1.13
Operating temperature			-60°C to +200°C
UV Resistance			Medium
Gas permeability rate			High
Water absorption rate			Low
Tensile strength at break	ASTM D 412	Mpa	9.6
Tensile elongation at break	ASTM D 412	%	630
Tear tensile strength	ASTM D1004-94	kN/m	55
Permanent compression set, 23°C22hrs	ASTM D395-98-B	%	8.5
Peristaltic pump life	600rpm,no back pressure,17#Hose	Hrs	300

+ Innovasil® G 60 Ultra Inventoried Sizes*

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Length Per Package ¹		Minimum Bending Radius	RECO Working Pressure ²	RECO Vacuum Pressure
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)			
SGU49-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50	3mm		1.0bar
SGU49-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50	3mm	1.5bar	1.0bar
SGU49-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50	3mm		1.0bar
SGU49-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50	3mm		1.0bar
SGU49-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50	3mm	1.0bar	1.0bar
SGU49-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50	6mm	1.0bar	1.0bar
SGU49-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50	6mm	1.5bar	1.0bar
SGU49-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50			
SGU49-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50	6mm		
SGU49-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50	6mm	1.2bar	1.0bar
SGU49-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50			
SGU49-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50	10mm	0.6bar	
SGU49-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50	13mm	1.0bar	1.0bar
SGU49-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50			
SGU49-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50			
SGU49-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50	13mm	0.8bar	1.0bar
SGU49-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50	10mm	1.0bar	1.0bar
SGU49-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50	19mm	0.6bar	1.0bar
SGU49-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50	16mm	0.8bar	
SGU49-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50	16mm	1.0bar	
SGU49-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50	32mm	0.5bar	1.0bar
SGU49-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50	16mm	0.7bar	
SGU49-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50	38mm	0.6bar	0.7bar
SGU49-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50	25mm	0.8bar	1.0bar
SGU49-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50	25mm	0.4bar	1.0bar
SGU49-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50			
SGU49-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50	76mm	0.3bar	
SGU49-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50	38mm	0.6bar	1.0bar
SGU49-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50			
SGU49-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50	76mm	0.4bar	
SGU49-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25	64mm	0.5bar	1.0bar
SGU49-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25			
SGU49-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25	64mm	0.5bar	0.7bar
SGU49-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25			
SGU49-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25			
SGU49-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25	127mm	0.3bar	
SGU49-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25			0.9bar
SGU49-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25			

Specially formulated silicone peristaltic pump tubing with long service life and low flow attenuation. The special extrusion process ensures the smoothness of the inner wall and has high chemical resistance, especially suitable for long-term use in the industrial field.

Compliant with FDA food contact requirements

Food Grade

The G60 Ultra series are different from ordinary silicone tubes. The formula of this product is specially formulated to have good resilience, creep resistance, low permanent compression deformation, and high wear resistance. It is a pump tube with long service life of peristaltic pumps. product. The inner wall is designed through a special

extrusion process, with extremely low surface roughness, which is more conducive to reducing internal residence. It can be widely used in the pumping transmission of various reagents and fluids in the industrial and food fields.

+ Features

- Colorless and transparent
- Food grade
- Long peristaltic pump life
- Stable flow curve
- Smooth inner wall reduces residue and fouling
- Shore A 60 hardness
- Available in various metric and imperial sizes

+ Regulations & Certifications

- Compliant with FDA 21CFR 177.2600
- RoHS
- REACh

+ Application

- Peristaltic pump
- fluid transfer

*For details of food contact compliance information, please Innovaprene® sales representative

The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees. For the detailed compatibility of Innovasil™ G 60 Ultra with various chemical solvents, please refer to "Innovalene® Product Chemical Compatibility Information Sheet" or consult our sales staff

+ Innovasil® G 50
Peristaltic Pump Silicone Tubing

Innovasil G 50 is a platinum-cured silicone tubing with a hardness of Shore A 50. It is a fluid transmission and peristaltic pump tubing specially developed for fluid equipment in the industrial and food industries. It is a silicone peristaltic pump tube with a special formula, long service life and low flow attenuation. The special extrusion process ensures the smoothness of the inner wall, which has high chemical resistance and is especially suitable for long-term use in the industrial and food fields.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckles, punching and coding, laser etching, etc., and customized production.



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
SG29-201-0051-0368	112#	0.51	1/50	3.68		1.59	1/16	15.2	50
SG29-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
SG29-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
SG29-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
SG29-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
SG29-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
SG29-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
SG29-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
SG29-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
SG29-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
SG29-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
SG29-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
SG29-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
SG29-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
SG29-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
SG29-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
SG29-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
SG29-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
SG29-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
SG29-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
SG29-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
SG29-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
SG29-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
SG29-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
SG29-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
SG29-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
SG29-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
SG29-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
SG29-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
SG29-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
SG29-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
SG29-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
SG29-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
SG29-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
SG29-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
SG29-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
SG29-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
SG29-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovasil® HP Pressure-resistant
Peristaltic Pump Silicone Tubing

- Longest service life of Innovasil tubing material
- Excellent choice where peristaltic pump use and good working pressure resistance is needed

Innovasil HP is a platinum-cured silicone peristaltic pump hose with Shore A hardness of 70. It is colorless and transparent, has good resilience and good wear resistance. It can be used under 2 bar pressure or back pressure, and can be used for high-pressure peristaltic pumps and other advantages.

Note

For detailed compatibility with various chemical solvents, please refer to "Innovaprene® Product Chemical Compatibility Information Sheet" or consult our sales personnel.

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
SH69-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
SH69-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
SH69-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
SH69-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
SH69-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
SH69-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
SH69-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
SH69-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
SH69-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
SH69-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
SH69-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
SH69-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
SH69-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
SH69-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
SH69-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
SH69-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
SH69-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
SH69-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
SH69-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
SH69-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
SH69-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
SH69-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
SH69-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
SH69-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
SH69-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
SH69-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
SH69-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
SH69-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
SH69-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
SH69-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
SH69-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
SH69-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
SH69-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
SH69-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
SH69-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
SH69-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
SH69-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
SH69-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovasil® G 50
Product Specification

Peristaltic Pump Tubing																	
Feature	Platinum cured silicone tubing • Colorless and transparent • Suitable for peristaltic pumps • Compliant with RoHS, REACH, FDA standards																
Caution	• Avoid high pressure																
Material	• Platinum cured silicone																
Operating temperature range	-40 °C to +200C																
Physical properties	<table><tr><td>Color</td><td>Colorless & transparent</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>50 A</td></tr><tr><td>Density ASTM D792</td><td>1.15 g/cm3</td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>9.2 MPa</td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>750 %</td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>45 kN/m</td></tr><tr><td>Permanent Compression Set 23°C 22Hrs ASTM D 395</td><td>5.5 %</td></tr></table>			Color	Colorless & transparent	Shore A Hardness ASTM D 2240	50 A	Density ASTM D792	1.15 g/cm3	Tensile Strength at Break ASTM D 412	9.2 MPa	Tensile Elongation ASTM D 412	750 %	Tear Strength ASTM D 1004-94	45 kN/m	Permanent Compression Set 23°C 22Hrs ASTM D 395	5.5 %
Color	Colorless & transparent																
Shore A Hardness ASTM D 2240	50 A																
Density ASTM D792	1.15 g/cm3																
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Tear Strength ASTM D 1004-94	45 kN/m																
Permanent Compression Set 23°C 22Hrs ASTM D 395	5.5 %																
Regulations and Certifications	RoHS, REACH, FDA																
Sterilization	125 degrees 30 minutes damp heat sterilization single time ETO ethylene oxide sterilized single time 25kGy irradiation sterilization single time																
Gas permeability	<table><tr><td>CO₂</td><td>25147</td><td>Gas volume [cm3] x wall thickness [mm]</td></tr><tr><td>O₂</td><td>4715</td><td>Inner Diameter Sectional Area [cm2] x Time [sec]</td></tr><tr><td>N₂</td><td>2284</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table> X 10 ⁻¹⁰			CO ₂	25147	Gas volume [cm3] x wall thickness [mm]	O ₂	4715	Inner Diameter Sectional Area [cm2] x Time [sec]	N ₂	2284	x Pressure drop along pipe wall [cm Hg]					
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O ₂	4715	Inner Diameter Sectional Area [cm2] x Time [sec]															
N ₂	2284	x Pressure drop along pipe wall [cm Hg]															
Odor	none																
Toxicity	none																
Theoretical service life	at 0 bar life 120 hrs at 0.7 bar 50 hrs																

+ Innovasil® HP
Product Specification

Peristaltic Pump Tubing																	
Feature	• Can withstand 2bar working pressure and can be used with peristaltic pumps • Chemical resistance, resistant to lye, fuel oil, lubricants, etc. • Colorless and transparent • Temperature range from -40°C to 200°C, can be sterilized once • Compliance with RoHS and REACH standards																
Caution																	
Material	• Platinum vulcanized silicone																
Operating temperature range	-40°C to +200C																
Physical properties	<table><tr><td>Color</td><td>Colorless & transparent</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>70A</td></tr><tr><td>Density ASTM D792</td><td>1.15 g/cm3</td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>9.5 MPa</td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>500 %</td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>55 N/mm</td></tr><tr><td>Permanent Compression Set 23°C 22Hrs ASTM D 395</td><td>15%</td></tr></table>			Color	Colorless & transparent	Shore A Hardness ASTM D 2240	70A	Density ASTM D792	1.15 g/cm3	Tensile Strength at Break ASTM D 412	9.5 MPa	Tensile Elongation ASTM D 412	500 %	Tear Strength ASTM D 1004-94	55 N/mm	Permanent Compression Set 23°C 22Hrs ASTM D 395	15%
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Permanent Compression Set 23°C 22Hrs ASTM D 395	15%																
Regulations and Certifications	RoHS, REACH																
Sterilization	125 degrees 30 minutes damp heat sterilization single time ETO ethylene oxide sterilized single-shot 25kGy irradiation sterilization single time																
Gas permeability	<table><tr><td>CO₂</td><td>25147</td><td>Gas volume [cm3] x wall thickness [mm]</td></tr><tr><td>O₂</td><td>4715</td><td>Inner Diameter Sectional Area [cm2] x Time [sec]</td></tr><tr><td>N₂</td><td>2284</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table> X 10 ⁻¹⁰			CO ₂	25147	Gas volume [cm3] x wall thickness [mm]	O ₂	4715	Inner Diameter Sectional Area [cm2] x Time [sec]	N ₂	2284	x Pressure drop along pipe wall [cm Hg]					
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N ₂	2284	x Pressure drop along pipe wall [cm Hg]															
Odor	none																
Toxicity	none																
Theoretical service life	at 0 bar life 200 hrs at 0.7 bar 200hrs																

+ Innovaf fluor® K

Viton® Peristaltic Pump Tubing

Food Grade*

Innovaf fluor® K Viton Peristaltic Pump Tubing

+ Innovaf fluor® K Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Black
Shore A hardness, 5sec	ASTM D 2240		60
Density	ASTM D 792		1.90
Operating temperature		°C	-30°C to +200°C
UV Resistance			Excellent
Gas permeability			CO ₂ 38, O ₂ 14, N ₂ 15
Water absorption			Low
Tensile strength at break	ASTM D 412	Mpa	15.10
Tensile elongation at break	ASTM D 412	%	410
Tear tensile strength	ASTM D1004-94	kN/m	18
Permanent compression set, 70°C 22hrs	ASTM D395-98-B	%	30
Embrittlement temperature	ASTM D 746	°C	-50

+ Innovaf fluor® K Inventoried Sizes*

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Length Per Package ¹		Minimum Bending Radius	RECO Working Pressure ²	RECO Vacuum Pressure
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)			
FK40-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50			
FK40-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50			
FK40-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50			
FK40-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50			
FK40-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50			
FK40-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50			
FK40-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50			
FK40-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50			
FK40-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50			
FK40-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50			
FK40-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50			
FK40-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50			
FK40-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50			
FK40-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50			
FK40-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50			
FK40-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50			
FK40-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50			
FK40-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50			
FK40-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50			
FK40-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50			
FK40-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50			
FK40-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50			
FK40-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50			
FK40-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50			
FK40-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50			
FK40-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50			
FK40-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50			
FK40-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50			

Viton® peristaltic pump tubing with Shore A 60 hardness complies with FDA food contact standards and is suitable for transporting various strong acids, alkalis and strong corrosive solutions.

Compliant with FDA food contact requirements

Food Grade

K series are low hardness Viton® peristaltic pump tubing. It has strong chemical resistance and corrosion resistance, which can ensure that the flow rate of the peristaltic pump can be kept stable even if it is continuously squeezed and corroded by corrosive liquids during the long-term use of the peristaltic pump. At the same time, it complies with the

FDA 21CFR 177.2600 food contact standard and has extremely high safety. It can be widely used in various high and low temperature environments (-30 degrees to 200 degrees), food, beverages, strong acids and alkalis, and corrosive chemical reagents delivery, manufacturing and production process.

+ Features

- Low hardness suitable for peristaltic pumps
- Strong corrosion resistance
- Food contact safety
- Black UV resistant and opaque
- Low gas permeability
- -30 degrees to 200 degrees temperature range
- Suitable for 2-stop or 3-stop customization for micro pump
- Available in various metric and imperial sizes

+ Regulations & Certifications

- Compliant with FDA 21CFR 177.2600
- RoHS
- REACH

+ Application

- Peristaltic pump
- Medical equipment
- Gas transfer line
- Laboratory use
- 3D printer
- Semiconductor Industry
- Chemical processing
- Printing and dyeing

*For details of food contact compliance information, please consult an Innovaprene® sales representative
Viton® is trademark of Chemours

For the detailed compatibility of Innovaf fluor™ K with various chemical solvents, please refer to the "Innovaprene® Product Chemical Compatibility Information Sheet" or consult our sales staff

The Medical Market Application



Infusion Pump



Analytic and inspection
devices



In-vitro diagnostic devices



Medicine filling



- Innovaprene P/ LSP peristaltic pump tubing
- Innovalloy 7000/8000 chemical resistant tubing
- Innovafluor K/PTFE/PFA fluoropolymer tubing
- Innovalene EVA/LDPE/TPU/PVC fluid transfer tubing
- Innovasil M platinum-cured silicone tubing

+ Innovalene® MED 65

Medical Grade PVC Tubing



MED 65 is specially developed for medical applications such as medical infusion pumps, in vitro diagnostic equipment, medical dialysis equipment, respiratory equipment, infusion equipment, etc., especially suitable for applications in the medical field.

USP 87

ISO 10993

Innovalene MED 65 is a special fluid transmission tubing specially developed for medical applications such as medical infusion pumps, in vitro diagnostic equipment, medical dialysis equipment, respiratory equipment, and infusion-equipment. It does not include any DEHP plasticizer and is suitable for various sterilization methods, with extensive safety certification and good biocompatibility. The tubing is colorless and highly transparent. Through the use of special

formula, and special processing technology to ensure the non-infiltration of the inner surface, effectively control the roughness, with an ultra-smooth inner surface, it can effectively reduce the liquid suspension and other liquid residue, reduce the absorption and pollution of the circulation medium, especially suitable for in vitro diagnostic equipment and other medical applications.

+ Features

- High transparency and clear
- Suitable for contact with human body fluids
- Non-DEHP
- Applicable to various sterilization methods
- Clean room production
- Shore A 65 hardness
- Available in various metric and imperial sizes

+ Compliance

- ISO 10993
- USP 87
- ADCF
- FDA 21CFR 177.2600

+ Application

- In Vitro Diagnostic Devices (IVD)
- Medical dialysis equipment
- Respiratory equipment
- Medical Infusion pump
- Medical peristaltic pump

+ Innovalene® MED 65 Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Colorless & transparent
Shore A hardness, 5sec	ASTM D 2240		65
Density	ASTM D 792		1.18
Operating temperature		°C	-50°C to +75°C
UV Resistance			Medium
Gas permeability			Low
Water absorption rate			Low
Tensile strength at break	ASTM D 412	Mpa	13.0
Tensile elongation at break	ASTM D 412	%	330
Tear tensile strength	ASTM D1004-94	kN/m	30
Permanent compression set, 70°C22hrs	ASTM D395-98-B	%	55
Sterilization method			Damp heat, ethylene oxide,irradiation 25kGy

+ Innovalene® MED 65 Categorized Sizes*

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Length Per Package* (m) (foot)	Minimum Bending Radius	RECO Working Pressure	RECO Vacuum Pressure
L306-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50	3mm		1.0bar
L306-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50	3mm	8.6bar	1.0bar
L306-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50	3mm		1.0bar
L306-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50	3mm		1.0bar
L306-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50	4mm		1.0bar
L306-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50	6mm	4.8bar	1.0bar
L306-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50	3mm	8.6bar	1.0bar
L306-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50			
L306-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50	6mm		
L306-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50	6mm	6.0bar	1.0bar
L306-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50			
L306-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50	12mm	2.5bar	0.8bar
L306-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50	10mm	4.8bar	1.0bar
L306-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50			
L306-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50	13mm	3.8bar	1.0bar
L306-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50	16mm	3.5bar	1.0bar
L306-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50	3mm	4.8bar	1.0bar
L306-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50	25mm	2.5bar	1.0bar
L306-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50	19mm	3.9bar	1.0bar
L306-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50	16mm	4.8bar	1.0bar
L306-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50	35mm	2.1bar	0.5bar
L306-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50	25mm	3.0bar	1.0bar
L306-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50	35mm	1.8bar	0.3bar
L306-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50	38mm	2.5bar	0.8bar
L306-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50	29mm	3.4bar	1.0bar
L306-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50	57mm	1.8bar	0.3bar
L306-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50	73mm	1.6bar	0.2bar
L306-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50	45mm	2.5bar	0.8bar
L306-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50	80mm	2.8bar	1.2bar
L306-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50	76mm	2.1bar	0.8bar
L306-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25	60mm	2.1bar	0.5bar
L306-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25			
L306-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25	83mm	2.1bar	0.5bar
L306-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25			
L306-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25			
L306-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25	130mm	1.6bar	0.2bar
L306-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25			
L306-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25			

*The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees
For the detailed compatibility of Innovalene™ MED 65 with various chemical solvents, please refer to "Innovalene® Product Chemical Compatibility Information Sheet" or consult our sales staff

Company Profile
Product portfolio
Chemical Resistance Table
Product Selection Guide
Glossary Notes

+ Innovalene® MED 55
Medical Grade PVC Peristaltic Pump Tubing

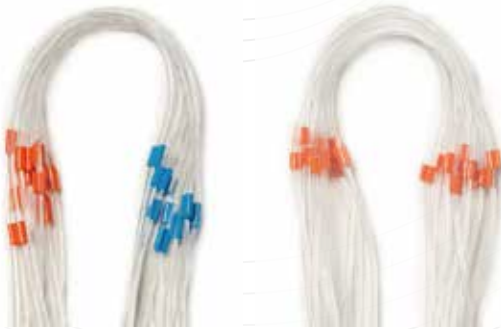
MED 55 series adopts the soft material of PVC with the hardness of Shore A 55, which has a lower permanent compression deformation through a specially developed formula, and the related formula has been adjusted for wear resistance, so that it has the advantages of stable flow and long service time in the use of peristaltic pump, especially suitable for low torque micro peristaltic pump. At the same time, it has an ultra-smooth inner wall, which reduces the residual and absorption of liquid medium in the tube. It can be used in a variety of sterilization methods, with a wide range of safety certification and biocompatibility testing, especially suitable for medical infusion pumps, in vitro diagnostic equipment, medical dialysis equipment, respiratory equipment, analytical instruments and other liquid flow system.

Using precision extrusion process, strictly control of size tolerance, and can determine the cutting length. Can also be bonded buckle, flaring, coding, laser etching and other secondary treatment process, customized production.

+ Innovalene® MED 55
Product Specification

Medical grade peristaltic pump tubing			
Feature	PVC polyvinyl chloride elastomer		
	• Colorless and transparent, the inner wall is smooth without residue • Chemical resistance, common acid and alkali, etc. • High elasticity, long service life of peristaltic pump • -35 degrees to 75 degrees temperature range • Compliant with RoHS and REACH, ISO1093 standard		
Caution	• Avoid high pressure • Avoid high temperature		
Material	• PVC polyvinyl chloride elastomer		
Operating temperature range	-35°C to +75°C		
Physical properties		Color	Colorless & transparent
	Shore A Hardness ASTM D 2240	55A	
	Density ASTM D792	1.20 g/cm3	
	Tensile Strength at Break ASTM D 412	18 MPa	
	Tensile Elongation ASTM D 412	500 %	
	Tear Strength ASTM D 1004-94	31 kN/m	
	Permanent Compression Set 70°C 22Hrs ASTM D 395	45%	
Regulations and Certifications	ISO 10933, FDA, RoHS, REACH		
Sterilization	ETO ethylene oxide sterilized single-shot 25kGy irradiation sterilization single time		
Gas permeability	CO ₂ 560	$\frac{\text{Gas volume [cm}^3\text{]} \times \text{wall thickness [mm]}}{\text{Inner Diameter Sectional Area [cm}^2\text{]} \times \text{Time [sec]}} \times 10^{-10}$	
	O ₂ 125		
	N ₂ 70	x Pressure drop along pipe wall [cm Hg]	
Odor	none		
Toxicity	none		
Theoretical service life	at 0 bar life	800 hrs	
	at 0.7 bar	300 hrs	

+ Innovalene® MED 55 MBT Series



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
L305-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
L305-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
L305-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
L305-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
L305-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
L305-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
L305-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
L305-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
L305-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
L305-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
L305-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
L305-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
L305-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
L305-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
L305-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
L305-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
L305-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
L305-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
L305-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
L305-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
L305-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
L305-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
L305-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
L305-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
L305-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
L305-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
L305-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
L305-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
L305-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
L305-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
L305-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
L305-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
L305-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
L305-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
L305-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
L305-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
L305-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
L305-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovalene® 66E
Medical Grade TPE Tubing

- Longest service life of Innovalene tubing material
- Excellent choice where PVC replacement and good chemical resistance is needed

Innovalene 66E is a thermoplastic elastomer tubing with a Shore A hardness of 65. It is colorless, highly transparent, and has extremely low extractables. It can be heat-sealed and welded. Due to the perfect biocompatibility verification, animal-free, sterilizable, and does not contain any plasticizers, it can replace polyvinyl chloride PVC hoses for in vitro diagnostic equipment, cell culture, and other medical and biological equipment. in the flow system.

Products and raw materials can be traced throughout the whole process, perfectly replacing similar imported products.

Note

*Innovalene 75E is a TPE tubing grade with higher hardness at Shore A 75, and is also available upon customer's request.

+ Innovalene® 66E
Product Specification

Medical Grade Tubing																
Feature	Thermoplastic elastomer															
	• Alternative to PVC, no plasticizer • Chemical resistance, resistant to dye, detergent vinegar, etc. • The inner wall is smooth without residue • -30 degrees to 130 degrees temperature range • Compliance with RoHS and REACH standards															
Caution	• Avoid folding • Avoid high temperature															
Material	• Thermoplastic elastomer															
Operating temperature range	-60 °C to +140°C															
Physical properties	<table><tr><td>Color</td><td>Colorless & transparent</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>65A</td></tr><tr><td>Density ASTM D792</td><td>0.89 g/cm3</td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>11.9 MPa</td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>600 %</td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>45 kN/m</td></tr><tr><td>Permanent Compression Set 70°C 22Hrs ASTM D 395</td><td>80%</td></tr></table>		Color	Colorless & transparent	Shore A Hardness ASTM D 2240	65A	Density ASTM D792	0.89 g/cm3	Tensile Strength at Break ASTM D 412	11.9 MPa	Tensile Elongation ASTM D 412	600 %	Tear Strength ASTM D 1004-94	45 kN/m	Permanent Compression Set 70°C 22Hrs ASTM D 395	80%
Color	Colorless & transparent															
Shore A Hardness ASTM D 2240	65A															
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Tear Strength ASTM D 1004-94	45 kN/m															
Permanent Compression Set 70°C 22Hrs ASTM D 395	80%															
Regulations and Certifications	FDA, ISO 10993, RoHS, REACH															
Sterilization	121 °C 30 minutes steam sterilization single pass ETO ethylene oxide sterilized single-shot 25kGy irradiation sterilization single time															
Gas permeability	<table><tr><td>CO₂</td><td>1200</td><td>Gas volume [cm3] x wall thickness [mm]</td></tr><tr><td>O₂</td><td>500</td><td>Inner Diameter Sectional Area [cm2] x Time [sec]</td></tr><tr><td>N₂</td><td>100</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table> X 10 ⁻¹⁰		CO ₂	1200	Gas volume [cm3] x wall thickness [mm]	O ₂	500	Inner Diameter Sectional Area [cm2] x Time [sec]	N ₂	100	x Pressure drop along pipe wall [cm Hg]					
CO ₂	1200	Gas volume [cm3] x wall thickness [mm]														
O ₂	500	Inner Diameter Sectional Area [cm2] x Time [sec]														
N ₂	100	x Pressure drop along pipe wall [cm Hg]														
Odor	none															
Toxicity	none															
Theoretical service life																

+ Innovalene® 66E to replace PVC tubing

PVC tubings have been widely used in many fields. However, such PVC products are hazardous to both the environment and personal health. The incineration of PVC containing these wastes results in the release of hydrochloric acid, and PVC is considered a major contributor to the source of hydrogen chloride in incineration flue gases. In addition, PVC may contribute to the formation of polychlorinated dibenzodioxins and furan toxins during incineration.

When using products made of PVC materials, how to avoid plasticizers in PVC from entering blood, food, beverages, or other liquids that are transmitted is also considered a potential risk that needs to be addressed. In order to produce flexible PVC products, it is inevitable to use plasticizers or processing aids. Exposure to these processing aids or plasticizers, such as diethyl phosphite (DEHP), raises many health concerns. Specifically, DEHP is suspected of reducing the oxygen-transporting capacity of platelets in the blood and is suspected of being reproductively toxic, especially to the reproductive system of young males. Therefore, in recent years, both at home and abroad have been researching and looking for solutions that can replace PVC tubings.

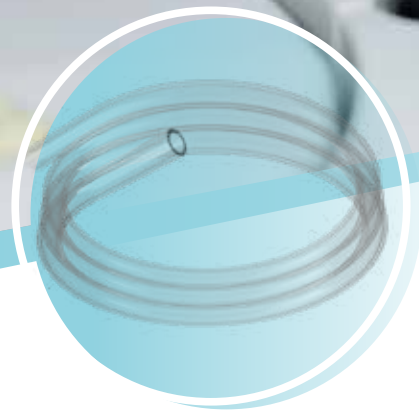
As a plasticizer-free thermoplastic elastomer TPE material, Innovalene 66E, as one of the perfect alternatives to PVC tubings, is being used more and more in more industries.

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
L460-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
L460-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
L460-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
L460-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
L460-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
L460-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
L460-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
L460-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
L460-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
L460-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
L460-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
L460-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
L460-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
L460-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
L460-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
L460-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
L460-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
L460-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
L460-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
L460-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
L460-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
L460-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
L460-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
L460-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
L460-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
L460-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
L460-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
L460-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
L460-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
L460-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
L460-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
L460-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
L460-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
L460-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
L460-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
L460-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
L460-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
L460-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

*Other calibers, lengths or packing methods can be customized

+ Innovalloy® 62V

Medical Grade Bilayer Tubing



Innovalloy 62V is specially developed for medical applications when corrosive chemicals are used. Benefit from specially design bilayer structure, inert inner layer provide superior chemical resistance while the tubing remians its clarity. It is widely used in diagnostic equipment and other IVD devices.

FDA

ISO 10993

Innovalloy 62V is a special fluid transmission tubing specially developed for medical applications such as medical infusion pumps, in vitro diagnostic equipment, medical dialysis equipment, respiratory equipment, and infusionequipment. It does not include any DEHP plasticizer and is suitable for various sterilization methods, with extensive safety certification and good biocompatibility. The tubing is colorless and highly transparent. Through the use of special formula, and

special processing technology to ensure the non-infiltration of the inner surface, effectively control the roughness, with an ultra-smooth inner surface, it can effectively reduce the liquid suspension and other liquid residue, reduce the absorption and pollution of the circulation medium, especially suitable for in vitro diagnostic equipment and other medical applications.

+ Features

- High transparency and clear
- Suitable for contact with human body fluids
- Non-DEHP
- Applicable to various sterilization methods
- Clean room production
- Shore D 50 hardness
- Available in various metric and imperial sizes

+ Compliance

- ISO 10993
- ADCF
- FDA 21CFR 177.2600
- RoHS & REACH

+ Application

- In Vitro Diagnostic Devices (IVD)
- Medical dialysis equipment
- Respiratory equipment
- Industrial equipment
- Ink printer

+ Innovalloy® 62V Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Colorless & transparent
Shore A hardness, 5sec	ASTM D 2240		82
Density	ASTM D 792		1.27
Operating temperature		°C	-50°C to +75°C
UV Resistance			Medium
Gas permeability			Low
Water absorption rate			Low
Tensile strength at break	ASTM D 412	Mpa	24.0
Tensile elongation at break	ASTM D 412	%	450
Tear tensile strength	ASTM D1004-94	kN/m	87
Permanent compression set, 70°C22hrs	ASTM D395-98-B	%	35
Sterilization method			Damp heat, ethylene oxide,irradiation 25kGy

+ Innovalloy® 62V Categorized Sizes*

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Length Per Package* (m) (foot)	Minimum Bending Radius	RECO Working Pressure*	RECO Vacuum Pressure
A62V-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50	3mm		1.0bar
A62V-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50	3mm	8.6bar	1.0bar
A62V-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50	3mm		1.0bar
A62V-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50	3mm		1.0bar
A62V-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50	4mm		1.0bar
A62V-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50	6mm	4.8bar	1.0bar
A62V-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50	3mm	8.6bar	1.0bar
A62V-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50			
A62V-201-0200-0350	Metric size	2.00	3.50	0.75	15.2 50	6mm		
A62V-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50	6mm	6.0bar	1.0bar
A62V-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50			
A62V-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50	12mm	2.5bar	0.8bar
A62V-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50	10mm	4.8bar	1.0bar
A62V-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50			
A62V-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50	13mm	3.8bar	1.0bar
A62V-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50	16mm	3.5bar	1.0bar
A62V-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50	3mm	4.8bar	1.0bar
A62V-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50	25mm	2.5bar	1.0bar
A62V-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50	19mm	3.9bar	1.0bar
A62V-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50	16mm	4.8bar	1.0bar
A62V-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50	35mm	2.1bar	0.5bar
A62V-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50	25mm	3.0bar	1.0bar
A62V-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50	35mm	1.8bar	0.3bar
A62V-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50	38mm	2.5bar	0.8bar
A62V-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50	29mm	3.4bar	1.0bar
A62V-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50	57mm	1.8bar	0.3bar
A62V-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50	73mm	1.6bar	0.2bar
A62V-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50	45mm	2.5bar	0.8bar
A62V-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50	80mm	2.8bar	1.2bar
A62V-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50	76mm	2.1bar	0.8bar
A62V-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25	60mm	2.1bar	0.5bar
A62V-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25			
A62V-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25	83mm	2.1bar	0.5bar
A62V-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25			
A62V-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25			
A62V-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25	130mm	1.6bar	0.2bar
A62V-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25			
A62V-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25			

*The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees
For the detailed compatibility of Innovalloy™ 62V with various chemicals, please refer to "Innovalloy® Product Chemical Compatibility Information Sheet" or consult sales representative

+ Innovalloy® 62F
Medical Grade Bilayer Tubing

The Innovalloy 62F are designed with a transparent double-layer structure. The inert inner layer provides excellent chemical resistance, dye resistance and other characteristics, and the outer layer provides flexibility of different hardness. It is suitable for a variety of industrial, food and medical applications.

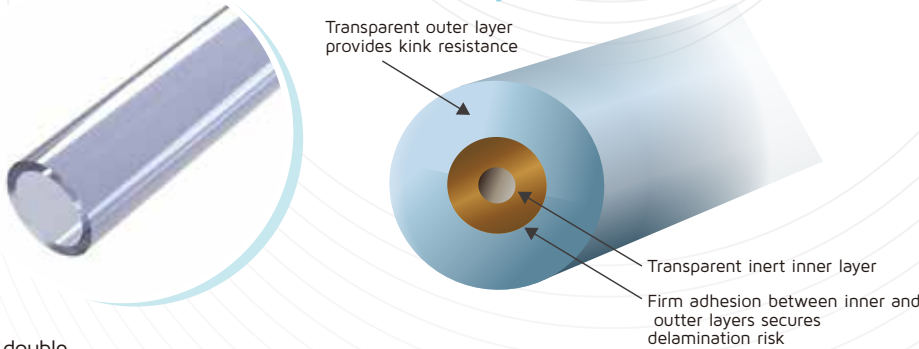
Innovalloy 62F is colorless transparent sandwich structure, which can easily observe the internal liquid flow state. At the same time, the double layer structure, the special corrosion resistant inner layer material ensures good resistance to strong acids, alkali, butanone, acetone, ether , toluene and most organic solvents, and the transparent flexible outer layer provides a certain flexibility. It can be widely used in various high and low temperature environments (-80 degrees to 70 degrees), organic acid-base solution transportation, laboratory, medical fluid transportation and industrial chemical transportation applications.

Using precision extrusion process, strict control of size tolerance, and can determine the cutting length. Can also be bonded buckle, flaring, coding, laser etching and other secondary treatment process, customized production.

+ Innovalloy® 62F
Product Specification

Medical Grade Tubing			
Feature	Composite material		
	• Colorless and transparent, the inner wall is smooth without residue		
Caution	• Double-layer structure, the inner layer is resistant to chemicals, conventional acids and alkalis, etc.		
	• Resistant to staining		
Material	• -80 degrees to 70 degrees temperature range		
	• Compliant with RoHS and PEACH, ISO1093 standard		
Operating temperature range	• Avoid high pressure		
	• Avoid high temperature		
Physical properties	• Composite materials		
Regulations and Certifications	ISO 10933, FDA, RoHS, REACH		
Sterilization	121 °C 30 minutes steam sterilization single pass		
	ETO ethylene oxide sterilized single-shot		
Gas permeability	25kGy irradiation sterilization single time		
Odor Toxicity	CO ₂ 560 Gas volume [cm3] x wall thickness [mm] x 10 ⁻¹⁰		
	O ₂ 125 Inner Diameter Sectional Area [cm2] x Time [sec]		
Theoretical service life	N ₂ 70 x Pressure drop along pipe wall [cm Hg]		
	none		
	none		

+ Innovalloy® 62F



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
A62F-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
A62F-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
A62F-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
A62F-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
A62F-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
A62F-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
A62F-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
A62F-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
A62F-201-0200-0350	Metric size	2.00		4.00		1.00		15.2	50
A62F-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
A62F-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
A62F-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
A62F-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
A62F-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
A62F-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
A62F-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
A62F-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
A62F-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
A62F-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
A62F-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
A62F-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
A62F-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
A62F-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
A62F-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
A62F-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
A62F-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
A62F-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
A62F-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
A62F-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
A62F-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
A62F-201-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
A62F-201-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
A62F-201-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
A62F-201-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
A62F-201-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
A62F-201-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
A62F-201-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
A62F-201-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovalloy® 62U
Medical Grade Bilayer Tubing

- Crystal clear for good observation media flow
- Excellent chemical resistance against strong and corrosive chemicals

Innovalloy 62U is a special fluid transmission tubing specially developed for medical applications such as medical infusion pumps, in vitro diagnostic equipment, medical dialysis equipment, respiratory equipment, and infusion-equipment. It does not include any DEHP plasticizer and is suitable for various sterilization methods, with extensive safety certification and good biocompatibility. The tubing is colorless and highly transparent. Through the use of special formula, and special processing technology to ensure the non-infiltration of the inner surface, effectively control the roughness, with an ultra-smooth inner surface, it can effectively reduce the liquid suspension and other liquid residue, reduce the absorption and pollution of the circulation medium, especially suitable for in vitro diagnostic equipment and other medical applications.

Compared with Innovalloy 62V and Innovalloy 62F, it is more flexible and has the minimum bend radius which enables Innovalloy 62U to be more flexible for device with limited space.

+ Innovalloy® 62U
Product Specification

Medical grade tubing			
Feature	Composite material		
	• Colorless and transparent		
Caution	• Inner layer is resistant to chemicals, acetone, butanone, conventional acids and alkalis, etc.		
	• Lower hardness and more flexible		
Material	• -80 degrees to 70 degrees temperature range		
	• Compliant with RoHS and PEACH, ISO1093 standard		
Operating temperature range	• Avoid high pressure		
	• Composite material		
Physical properties			
Regulations and Certifications	FDA, ISO 10993, RoHS, REACH		
Sterilization	121 °C 30 minutes steam sterilization single pass		
	ETO ethylene oxide sterilized single-shot		
Gas permeability	25kGy irradiation sterilization single time		
Odor Toxicity	CO ₂ 560 Gas volume [cm3] x wall thickness [mm] x 10 ⁻¹⁰		
	O ₂ 125 Inner Diameter Sectional Area [cm2] x Time [sec]		
Theoretical service life	N ₂ 70 x Pressure drop along pipe wall [cm Hg]		
	none		
	none		



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
A62U-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
A62U-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
A62U-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
A62U-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
A62U-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
A62U-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
A62U-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
A62U-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
A62U-201-0200-0350	Metric size	2.00		4.00		1.00		15.2	50
A62U-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
A62U-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
A62U-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
A62U-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
A62U-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
A62U-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
A62U-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
A62U-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
A62U-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
A62U-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
A62U-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
A62U-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
A62U-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
A62U-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
A62U-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
A62U-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
A62U-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
A62U-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
A62U-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
A62U-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
A62U-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
A62U-201-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
A62U-201-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
A62U-201-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
A62U-201-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
A62U-201-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
A62U-201-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
A62U-201-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
A62U-201-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovalloy® 7000 / 8000 Medical Grade Bilayer Tubing

The Innovalloy 7000 and 8000 series are designed with a transparent double-layer structure. The inert inner layer provides excellent chemical resistance, dye resistance and other characteristics, and the outer layer provides flexibility of different hardness. It is suitable for a variety of industrial, food and medical applications.



Innovalloy 7000/8000 series is colorless transparent sandwich structure, which can easily observe the internal liquid flow state. At the same time, the double layer structure, the special corrosion resistant inner layer material ensures good resistance to strong acids, alkali and most organic solvents, and the transparent flexible outer layer provides a certain flexibility. It can be widely used in various high and low temperature environments (-80 degrees to 70 degrees), organic acid-base solution transportation, laboratory, medical fluid transportation and industrial chemical transportation applications.

Using precision extrusion process, strict control of size tolerance, and can determine the cutting length. Can also be bonded buckle, flaring, coding, laser etching and other secondary treatment process, customized production.

+ Innovalloy® 7000 / 8000 Product Specification

Medical Grade Tubing		
Feature	Composite material	
	- Colorless and transparent, the inner wall is smooth without residue - Double-layer structure, the inner layer is resistant to chemicals, conventional acids and alkalis, etc. - Resistant to staining -80 degrees to 70 degrees temperature range - Compliant with RoHS and PEACH, ISO1093 standard	
Caution	- Avoid high pressure - Avoid high temperature	
Material	Composite material	
Operating temperature range	-80°C to +70°C	
Physical properties	Color	Colorless & transparent
	Shore A Hardness ASTM D 2240	7000 70A, 8000 85A
	Density ASTM D792	0.94 g/cm3
	Tensile Strength at Break ASTM D 412	40 MPa
	Tensile Elongation ASTM D 412	500 %
	Tear Strength ASTM D 1004-94	45 kN/m
	Permanent Compression Set 70°C 22Hrs ASTM D 395	55%
Regulations and Certifications	ISO 10933, FDA, RoHS, REACH	
Sterilization	121 °C 30 minutes steam sterilization single pass	
	ETO ethylene oxide sterilized single-shot	
Gas permeability	25kGy irradiation sterilization single time	
	CO_2 560 Gas volume [cm3] x wall thickness [mm] x 10 ⁻¹⁰	
Odor Toxicity	O_2 125 Inner Diameter Sectional Area [cm2] x Time [sec]	
	N_2 70 x Pressure drop along pipe wall [cm Hg]	
Theoretical service life	none	
	none	

+ Innovalloy® 7000 / 8000 Nomenclature

Innovalloy® 7000 A7DO-
Innovalloy® 8000 A8DO-

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
A□DO-201-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
A□DO-201-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
A□DO-201-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
A□DO-201-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
A□DO-201-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
A□DO-201-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
A□DO-201-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
A□DO-201-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
A□DO-201-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
A□DO-201-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
A□DO-201-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
A□DO-201-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
A□DO-201-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
A□DO-201-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
A□DO-201-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
A□DO-201-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
A□DO-201-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
A□DO-201-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
A□DO-201-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
A□DO-201-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
A□DO-201-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
A□DO-201-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
A□DO-201-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
A□DO-201-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
A□DO-201-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
A□DO-201-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
A□DO-201-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
A□DO-201-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
A□DO-201-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
A□DO-201-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
A□DO-101-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
A□DO-101-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
A□DO-101-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
A□DO-101-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
A□DO-101-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
A□DO-101-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
A□DO-101-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
A□DO-101-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovasil® M 50 Medical Grade Pt-cured Silicone Tubing

- Longest service life of Innovasil tubing material
- Excellent choice where pure silicone tubing and good pump life is needed

Innovasil M 50 is a Shore A 50 hardness medical grade silicone tube, using platinum vulcanized high purity silicone raw material, through a special formulation design for good peristaltic pump life and excellent flow stability. High purity, low protein adsorption, perfect biocompatibility verification, especially suitable for medical equipment and medical field fluid transfer applications.

Innovasil M 50 has been developed for fluid transfer applications in the medical field. The Innovasil M 50 is manufactured and packaged in a NEBB certified ISO Classs Class 7 clean production facility using a platinum cured system and a high purity silicone rubber with a special post-treatment process, resulting in high purity and low particles contamination. At the same time, the advanced process ensures that the product has a very smooth inner surface, which minimizes protein binding and ensures a high purity of the finished product. The whole batch of raw materials and production process can be traced back, and has perfect biocompatibility and FDA certification report.

+ Innovasil® M 50 Product Specification

Medical grade peristaltic pump tubing		
Feature	Platinum cured silicone tubing	
	- Suitable for use with peristaltic pumps - Chemical resistance, resistance to lye, detergent, vinegar, etc. - Smooth inner wall with low spalling - Clean room production - Sterilizable	
Caution	Avoid high pressure	
Material	Platinum cured silicone tubing	
Operating temperature range	-40°C to +200°C	
Physical properties	Color	Colorless & transparent
	Shore A Hardness ASTM D 2240	50A
	Density ASTM D792	1.14 g/cm3
	Tensile Strength at Break ASTM D 412	9.7 MPa
	Tensile Elongation ASTM D 412	1000 %
	Tear Strength ASTM D 1004-94	45 kN/m
	Permanent Compression Set 23°C 22Hrs ASTM D 395	17%
Regulations and Certifications	FDA, ISO 10993, RoHS, REACH	
Sterilization	121 °C 30 minutes steam sterilization single pass	
	ETO ethylene oxide sterilized single-shot	
Gas permeability	25kGy irradiation sterilization single time	
	CO_2 25147 Gas volume [cm3] x wall thickness [mm] x 10 ⁻¹⁰	
Odor Toxicity	O_2 4715 Inner Diameter Sectional Area [cm2] x Time [sec]	
	N_2 2284 x Pressure drop along pipe wall [cm Hg]	
Theoretical service life	none	
	none	
	at 0 bar life 120 hrs	
	at 0.7 bar 50 hrs	

+ Innovasil® M Series also includes M 60 Shore A60 durometer, & Innovasil M 50/60 Ultra Long Life Peristaltic Pump Tubing Specifications



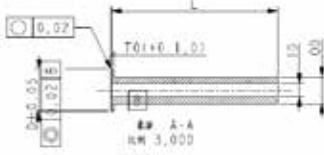
*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
SM29-202-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
SM29-202-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
SM29-202-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
SM29-202-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
SM29-202-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
SM29-202-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
SM29-202-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
SM29-202-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
SM29-202-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
SM29-202-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
SM29-202-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
SM29-202-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
SM29-202-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
SM29-202-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
SM29-202-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
SM29-202-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
SM29-202-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
SM29-202-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
SM29-202-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
SM29-202-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
SM29-202-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
SM29-202-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
SM29-202-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
SM29-202-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
SM29-202-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
SM29-202-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
SM29-202-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
SM29-202-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
SM29-202-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
SM29-202-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
SM29-102-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
SM29-102-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
SM29-102-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
SM29-102-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
SM29-102-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
SM29-102-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
SM29-102-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
SM29-102-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovafluor® PFA / FEP
Semi-conductor Grade Fluororesin Tube

The Innovafluor PFA and FEP series fluororesin tubeing has excellent chemical and physical properties and can be used over a wide temperature range ranging from -200 to 260 degrees Celsius depending on the polymer type. Most of these fluororesinous polymers have similar physical and chemical properties, with the main differences being temperature, transparency and mechanical strength. No plasticizer, stabilizer and other fillers, pure and pollution-free. Unlike metal and rubber, there is no corrosion and oxidation. Unlike plastic, it is not corroded by solvents, acids, bases, and hydrocarbon fuels. It can be widely used in industrial, food, analytical instruments, medical and biological pharmaceutical fields where corrosion resistance is required. And different colors can be customized according to customer requirements.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. Secondary flanging, flaring, coding, laser etching and other secondary treatment processes can also be used for customized production.



+ Innovafluor® PFA / FEP
Product Specification

PFA/FEP Tubing		
Feature	Clear or black, chemical resistant • Colorless, transparent or black, the inner wall is smooth without residue • Chemical resistance, common acid and alkali, etc. • Resistant to staining • -80 degrees to 260 degrees temperature range • Conform to RoHS and REACH, ISO1093 standard	
Caution	• Avoid folding	
Material	• PFA/FEP fluororesin	
Operating temperature range	-200°C to +260°C	
Physical properties	Color Shore A Hardness ASTM D 2240 Density ASTM D792 Tensile Strength at Break ASTM D 412 Tensile Elongation ASTM D 412 Tear Strength ASTM D 1004-94 Permanent Compression Set 70°C 22Hrs ASTM D 395	Colorless transparent / black PFA 60D, FEP 55D 2.17 g/cm3 18 MPa 300 %
Regulations and certifications	ISO 10933, FDA, RoHS, REACH	
Sterilization	121 °C 30 minutes steam sterilization single pass ETO ethylene oxide sterilized single-shot	
Gas permeability	CO ₂ O ₂ N ₂	$\frac{\text{Gas volume [cm}^3\text{]} \times \text{wall thickness [mm]}}{\text{Inner Diameter Sectional Area [cm}^2\text{]} \times \text{Time [sec]}} \times 10^{-10}$ x Pressure drop along pipe wall [cm Hg]
Odor	none	
Toxicity	none	
Theoretical service life		



+ Innovafluor® PFA / FEP nomenclature

Innovafluor® PFA
F5D0-
Innovafluor® FEP
F3D0-

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length* (m) (foot)
F□D0-041-0050-0150	Metric size	0.50	1.50	0.50	100
F□D0-041-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	100
F□D0-041-0100-0200	Metric size	1.00	2.00	0.50	100
F□D0-041-0150-0250	Metric size	1.50	2.50	0.50	100
F□D0-041-0100-0300	Metric size	1.00	3.00	1.00	100
F□D0-041-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	100
F□D0-041-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	100
F□D0-041-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	100
F□D0-041-0200-0400	Metric size	2.00	4.00	1.00	100
F□D0-041-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	100
F□D0-041-0300-0500	Metric size	3.00	5.00	1.00	100
F□D0-041-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	100
F□D0-041-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	100
F□D0-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
F□D0-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
F□D0-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
F□D0-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
F□D0-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50
F□D0-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
F□D0-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
F□D0-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
F□D0-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
F□D0-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
F□D0-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
F□D0-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
F□D0-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
F□D0-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
F□D0-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
F□D0-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
F□D0-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
F□D0-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
F□D0-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
F□D0-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
F□D0-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
F□D0-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
F□D0-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
F□D0-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
F□D0-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

+ Innovafluor® PTFE
Semi-conductor Grade PTFE Tube

- Longest service life of Innovafluor tubing material
- Excellent choice where fluoropolymer tubing and good chemical resistance is needed

Innovafluor PTFE series fluororesin tubing has excellent chemical and physical properties and can be used in a wide temperature range, up to 400 degrees Celsius depending on the type of polymer. These fluororesin polymers are free of plasticizers, stabilizers and other fillers and are pure and pollution-free. Unlike metal and rubber, it is non-corrosive and oxidizing. Unlike plastics, it will not be corroded by solvents, acids and bases, and hydrocarbon fuels, and can be widely used in industries that require corrosion resistance, food, analytical instruments, medical and biopharmaceutical fields. And different colors can be customized according to customer requirements.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. Secondary flanging, flaring, coding, laser etching and other secondary treatment processes can also be used for customized production.

+ Innovafluor® PTFE Series can also be produced in a clean room, with strictly controlled the level of micro particles, and can carry out other post treatment such as flanging at each end

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length* (m) (foot)
F440-041-0050-0150	Metric size	0.50	1.50	0.50	100
F440-041-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	100
F440-041-0100-0200	Metric size	1.00	2.00	0.50	100
F440-041-0150-0250	Metric size	1.50	2.50	0.50	100
F440-041-0100-0300	Metric size	1.00	3.00	1.00	100
F440-041-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	100
F440-041-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	100
F440-041-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	100
F440-041-0200-0400	Metric size	2.00	4.00	1.00	100
F440-041-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	100
F440-041-0300-0500	Metric size	3.00	5.00	1.00	100
F440-041-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	100
F440-041-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	100
F440-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
F440-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
F440-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
F440-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
F440-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50
F440-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
F440-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
F440-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
F440-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
F440-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
F440-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
F440-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
F440-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
F440-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
F440-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
F440-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
F440-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
F440-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
F440-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
F440-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
F440-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
F440-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
F440-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
F440-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
F440-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

+ Innovafluor® PTFE
Product Specification Sheet

PTFE tubing		
Feature	PTFE • Colorless, transparent or black, the inner wall is smooth without residue • Chemical resistance, common acid and alkali, etc. • Resistant to staining • 80 degrees to 400 degrees temperature range • Comply with PHS and REACH, ISO1093 standard	
Caution	• Avoid high pressure	
Material	• PTFE	
Operating temperature range	-200°C to +400°C	
Physical properties	Color Shore A Hardness ASTM D 2240 Density ASTM D792 Tensile Strength at Break ASTM D 412 Tensile Elongation ASTM D 412 Tear Strength ASTM D 1004-94 Permanent Compression Set 23°C 22Hrs ASTM D 395	Colorless & transparent 60D 2.17 g/cm3 18 MPa 300 %
Regulations and Certifications	FDA, ISO 10993, RoHS, REACH	
Sterilization	121 °C 30 minutes steam sterilization single pass ETO ethylene oxide sterilized single-shot	
Gas permeability	CO ₂ O ₂ N ₂	$\frac{\text{Gas volume [cm}^3\text{]} \times \text{wall thickness [mm]}}{\text{Inner Diameter Sectional Area [cm}^2\text{]} \times \text{Time [sec]}} \times 10^{-10}$ x Pressure drop along pipe wall [cm Hg]
Odor	none	
Toxicity	none	
Theoretical service life		

The Bio-pharmaceutical Market Application



Cell culture



Fluid transfer



Filtration chromatography



Final filling



- Innovaprene P / LSP peristaltic pump tubing
- Innovaflex weldable thermoplastic elastomer tubing
- Innovasil P / P Ultra Pt-cured silicone tubing
- Single use assembly (SUA)
- Innovafit fitting, connectors and accessories
- Innovaseal cryopreservation bag



+ Innovaflex®

FDA DMF III Registration No. 037210
Biopharmaceutical Grade Weldable TPE Tubing



+ Features

- For peristaltic pump use
- No silicone oil addition
- Low permeability
- Low protein binding
- Steam, irradiation, ETO sterilizable
- Dual bags packaging, lot traceable
- Meet biocompatibility requirements
- Extensive extractables studies
- ISO Class 7 clean room production
- Superior welding strength
- Translucent
- Shore A 60 hardness

+ Compliance

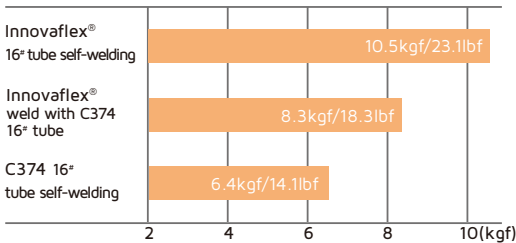
- ISO 10993-3, 4, 5, 6, 11
- USP 87/88 Class VI
- ADCF
- FDA DMF III
- USP665/BPOG Extractables studies
- FDA 21CFR 177.2600
- USP 788,85,643
- USP 661

FDA, USP, ISO10993
Pharmaceutical Grade

Innovaflex is a aseptically weldable thermoplastic elastomer tubing specially developed for biopharmaceutical applications. In addition to having a much longer service life than the silicone tubing, the selection of raw materials is safe and validated, completely free of silicone oil or animal derived ingredients, and produced in an ISO Class 7 environment under NEBB certification. It offers next generation performance and robust supply chain required for

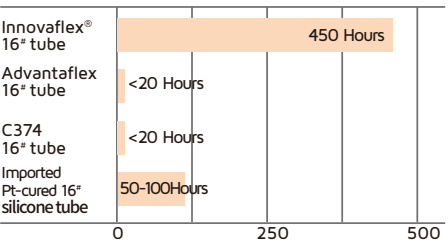
critical pharmaceutical applications. Innovaflex is certified animal component free and has been extensively tested in accordance with numerous USP and ISO 10993 standards. It meets the requirements as specified in the current USP Class VI plastics tests and is non-cytotoxic. Innovaflex has been thoroughly tested and offers exceptional performance over a wide range of working conditions and usage models.

Innovaflex® Welding Strength Test Results



Five standard size 16 tubes were used, sterilized by 25kGy irradiation, and after homogeneous or heterogeneous welding using a GE STF-IRC welding machine, the tensile strength at break n=5 was tested and averaged.

Innovaflex® Peristaltic Pump Life Test



Using 16# standard size pump tube, back pressure 1.5Bar, pumping purified water, running in four-roller peristaltic pump head at room temperature with 600 rpm until the pump tube rupture or flow rate drops to 30% of the initial value.

+ Innovaflex® Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Colorless & transparent
Shore A hardness, 5sec	ASTM D 2240		60
Density	ASTM D 792		0.89
Operating temperature			-60°C to +130°C
Gas permeability			Medium
Water absorption			Low
Tensile strength at break	ASTM D 412	Mpa	6.5
Tensile elongation at break	ASTM D 412	%	650
Tear tensile strength	ASTM D1004-94	kN/m	55
Permanent compression set, 23°C 22hrs	ASTM D395-98-B	%	19
Peristaltic pump life	600rpm, no back pressure, 17# Hose	Hrs	450
Sterilization method	125°C for 30 mins damp heat sterilization, ethylene oxide sterilization, irradiation (max 40kGy) sterilization		

+ Innovaflex® Inventoried Sizes*

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Length Per Package (m) (foot)	Minimum Bending Radius	RECO Working Pressure	RECO Vacuum Pressure
XP40-202-0050-0150	Metric size	0.50	1.50	0.50	15.2 50	3mm		1.0bar
XP40-202-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50	3mm	1.5bar	1.0bar
XP40-202-0100-0200	Metric size	1.00	2.00	0.50	15.2 50	3mm		1.0bar
XP40-202-0150-0250	Metric size	1.50	2.50	0.50	15.2 50	3mm		1.0bar
XP40-202-0100-0300	Metric size	1.00	3.00	1.00	15.2 50	3mm	1.0bar	1.0bar
XP40-202-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50	6mm	1.0bar	1.0bar
XP40-202-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50	6mm	1.5bar	1.0bar
XP40-202-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50			
XP40-202-0200-0400	Metric size	2.00	4.00	1.00	15.2 50	6mm		
XP40-202-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50	6mm	1.2bar	1.0bar
XP40-202-0300-0500	Metric size	3.00	5.00	1.00	15.2 50			
XP40-202-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50	10mm	0.6bar	
XP40-202-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50	13mm	1.0bar	1.0bar
XP40-202-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50			
XP40-202-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50			
XP40-202-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50	13mm	0.8bar	1.0bar
XP40-202-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50	10mm	1.0bar	1.0bar
XP40-202-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50	19mm	0.6bar	1.0bar
XP40-202-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50	16mm	0.8bar	
XP40-202-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50	16mm	1.0bar	
XP40-202-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50	32mm	0.5bar	1.0bar
XP40-202-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50	16mm	0.7bar	
XP40-202-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50	38mm	0.6bar	0.7bar
XP40-202-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50	25mm	0.8bar	1.0bar
XP40-202-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50	25mm	0.4bar	1.0bar
XP40-202-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50			
XP40-202-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50	76mm	0.3bar	
XP40-202-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50	38mm	0.6bar	1.0bar
XP40-202-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50			
XP40-202-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50	76mm	0.4bar	
XP40-102-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25	64mm	0.5bar	1.0bar
XP40-102-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25			
XP40-102-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25	64mm	0.5bar	0.7bar
XP40-102-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25			
XP40-102-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25			
XP40-102-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25	127mm	0.3bar	
XP40-102-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25			0.9bar
XP40-102-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25			

The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees. For the detailed compatibility of Innovaflex® with various chemical solvents, please refer to "Innovaflex® Product Chemical Compatibility Information Sheet" or consult our sales staff.

+ Innovaflex® WT Opaque Pharmaceutical Tubing

The Innovaflex WT has been developed specifically for use in biopharmaceutical single-use systems enabling opaque in white to avoid light and UV influence in cell culture process. Combined with a special formular and produced and packaged in a NEBB certified ISO Classs Level 7 clean room, Innovaflex has high purity and extremely low levels of particulates.

At the same time, advanced extrusion processes ensure that the product has a very smooth inner surface, which minimizes protein binding and ensures high purity of the finished product. Innovaflex WT is similar to Innovaflex and is able to be thermally welded via aseptic welding machine under the same operating conditions. A full extractables studies by the third-party lab in the United States is available upon request.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckles, shaping, coding, laser etching, etc., and customized production.

+ Innovaflex® WT Product Specification

Pharmaceutical grade Thermoplastic Elastomer tubing																							
Feature	Thermoplastic elastomer tubing - Thermally weldable - Chemical resistance, resistant to dye, detergent, vinegar, etc. - Opaque in white, UV resistance - Clean room production and packing - Sterilizable																						
Caution	Avoid high pressure																						
Material	Thermoplastic elastomer																						
Operating temperature range	-40°C to +135C																						
Physical properties	<table><tr><td></td><td>Color</td><td>White</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>60A</td><td></td></tr><tr><td>Density ASTM D792</td><td>0.89 g/cm3</td><td></td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>9.7 MPa</td><td></td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>1000 %</td><td></td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>45 kN/m</td><td></td></tr><tr><td>Permanent Compression Set 70°C 22Hrs ASTM D 395</td><td>17%</td><td></td></tr></table>			Color	White	Shore A Hardness ASTM D 2240	60A		Density ASTM D792	0.89 g/cm3		Tensile Strength at Break ASTM D 412	9.7 MPa		Tensile Elongation ASTM D 412	1000 %		Tear Strength ASTM D 1004-94	45 kN/m		Permanent Compression Set 70°C 22Hrs ASTM D 395	17%	
	Color	White																					
Shore A Hardness ASTM D 2240	60A																						
Density ASTM D792	0.89 g/cm3																						
Tensile Strength at Break ASTM D 412	9.7 MPa																						
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Tear Strength ASTM D 1004-94	45 kN/m																						
Permanent Compression Set 70°C 22Hrs ASTM D 395	17%																						
Regulations and Certifications	FDA, ISO 10993, USP, RoHS, REACH																						
Sterilization	121 °C 30 minutes steam sterilization single pass ETO ethylene oxide sterilized single-shot 25kGy irradiation sterilization single time																						
Gas permeability	<table><tr><td>CO₂ 1200</td><td>Gas volume [cm³] x wall thickness [mm]</td></tr><tr><td>O₂ 200</td><td>Inner Diameter Sectional Area [cm²] x Time [sec]</td></tr><tr><td>N₂ 80</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table> X 10 ⁻¹⁰		CO ₂ 1200	Gas volume [cm ³] x wall thickness [mm]	O ₂ 200	Inner Diameter Sectional Area [cm ²] x Time [sec]	N ₂ 80	x Pressure drop along pipe wall [cm Hg]															
CO ₂ 1200	Gas volume [cm ³] x wall thickness [mm]																						
O ₂ 200	Inner Diameter Sectional Area [cm ²] x Time [sec]																						
N ₂ 80	x Pressure drop along pipe wall [cm Hg]																						
Odor	none																						
Toxicity	none																						
Theoretical service life	at 0 bar life 200 hrs at 0.7 bar 90 hrs																						



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length* (m) (foot)
XW40-202-0050-0150	Metric size	0.50	1.50	0.50	15.2 50
XW40-202-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50
XW40-202-0100-0200	Metric size	1.00	2.00	0.50	15.2 50
XW40-202-0150-0250	Metric size	1.50	2.50	0.50	15.2 50
XW40-202-0100-0300	Metric size	1.00	3.00	1.00	15.2 50
XW40-202-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50
XW40-202-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50
XW40-202-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50
XW40-202-0200-0400	Metric size	2.00	4.00	1.00	15.2 50
XW40-202-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50
XW40-202-0300-0500	Metric size	3.00	5.00	1.00	15.2 50
XW40-202-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50
XW40-202-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50
XW40-202-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
XW40-202-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
XW40-202-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
XW40-202-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
XW40-202-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15 2 50
XW40-202-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
XW40-202-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
XW40-202-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
XW40-202-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
XW40-202-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
XW40-202-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
XW40-202-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
XW40-202-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
XW40-202-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
XW40-202-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
XW40-202-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
XW40-202-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
XW40-102-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
XW40-102-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
XW40-102-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
XW40-102-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
XW40-102-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
XW40-102-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
XW40-102-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
XW40-102-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

+ Innovaflex® ADC Pharmaceutical Grade Tubing for ADC

- Longest service life of Innovaflex tubing material
- Excellent choice where purity and good chemical resistance are needed

Innovaflex ADC is a biopharmaceutical grade TPE tube with Shore A 85 hardness. Specifically for use in biopharmaceutical single-use systems using a specially formulated resin material. Combined with a special post-treatment process and produced and packaged in a NEBB certified ISO Classs Level 7 clean room, the product has high purity and extremely low levels of particulates. At the same time, advanced extrusion processes ensure that the product has a very smooth inner surface, which minimizes protein binding and ensures high purity of the finished product. The unique property of Innovaflex ADC is its chemical resistance against DMSO and DMF aggressive solvents and it is particularly suitable for use in ADC application. A full extractables studies by the third-party lab in the United States is available upon request.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckles, shaping, coding, laser etching, etc., and customized production.

+ Innovaflex® ADC Product Specification

Pharmaceutical grade tubing for ADC application																							
Feature	Thermoplastic elastomer tubing - Suitable for use with DMSO and DMF solvents - Chemical resistance, resistant to dye, detergent, vinegar, etc. - Smooth inner wall with low spalling - Clean room production and packing - Sterilizable																						
Caution	Avoid high pressure																						
Material	Thermoplastic elastomer																						
Operating temperature range	-40°C to +135C																						
Physical properties	<table><tr><td></td><td>Color</td><td>Colorless & transparent</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>85A</td><td></td></tr><tr><td>Density ASTM D792</td><td>0.89 g/cm3</td><td></td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>8.5 MPa</td><td></td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>1000 %</td><td></td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>38 kN/m</td><td></td></tr><tr><td>Permanent Compression Set 23°C 22Hrs ASTM D 395</td><td>17%</td><td></td></tr></table>			Color	Colorless & transparent	Shore A Hardness ASTM D 2240	85A		Density ASTM D792	0.89 g/cm3		Tensile Strength at Break ASTM D 412	8.5 MPa		Tensile Elongation ASTM D 412	1000 %		Tear Strength ASTM D 1004-94	38 kN/m		Permanent Compression Set 23°C 22Hrs ASTM D 395	17%	
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Regulations and Certifications	FDA, ISO 10993, USP, RoHS, REACH																						
Sterilization	121 °C 30 minutes steam sterilization single time ETO ethylene oxide sterilized single time 25kGy irradiation sterilization single time																						
Gas permeability	<table><tr><td>CO₂ 1200</td><td>Gas volume [cm3] x wall thickness [mm]</td></tr><tr><td>O₂ 200</td><td>Inner Diameter Sectional Area [cm2] x Time [sec]</td></tr><tr><td>N₂ 80</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table> X 10 ⁻¹⁰		CO ₂ 1200	Gas volume [cm3] x wall thickness [mm]	O ₂ 200	Inner Diameter Sectional Area [cm2] x Time [sec]	N ₂ 80	x Pressure drop along pipe wall [cm Hg]															
CO ₂ 1200	Gas volume [cm3] x wall thickness [mm]																						
O ₂ 200	Inner Diameter Sectional Area [cm2] x Time [sec]																						
N ₂ 80	x Pressure drop along pipe wall [cm Hg]																						
Odor	none																						
Toxicity	none																						
Theoretical service life	at 0 bar life at 0.7 bar																						

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length* (m) (foot)
XA50-202-0050-0150	Metric size	0.50	1.50	0.50	15.2 50
XA50-202-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50
XA50-202-0100-0200	Metric size	1.00	2.00	0.50	15.2 50
XA50-202-0150-0250	Metric size	1.50	2.50	0.50	15.2 50
XA50-202-0100-0300	Metric size	1.00	3.00	1.00	15.2 50
XA50-202-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50
XA50-202-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50
XA50-202-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50
XA50-202-0200-0400	Metric size	2.00	4.00	1.00	15.2 50
XA50-202-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50
XA50-202-0300-0500	Metric size	3.00	5.00	1.00	15.2 50
XA50-202-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50
XA50-202-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50
XA50-202-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
XA50-202-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
XA50-202-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
XA50-202-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
XA50-202-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15 2 50
XA50-202-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
XA50-202-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
XA50-202-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
XA50-202-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
XA50-202-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
XA50-202-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
XA50-202-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
XA50-202-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
XA50-202-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
XA50-202-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
XA50-202-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
XA50-202-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
XA50-102-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
XA50-102-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
XA50-102-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
XA50-102-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
XA50-102-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
XA50-102-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
XA50-102-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
XA50-102-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

+ Innovasil® P 50

FDA DMF III Registration No. 037209
Biopharmaceutical Platinum-cured Silicone Tubing



Platinum cured high-purity silicone tubing is designed with a special formula to have a good service life and excellent flow stability in the peristaltic pump. At the same time, a special post-treatment process is adopted to reduce the leachate to an extremely low level, and it has a complete validation report and extractables studies, which is especially suitable for use in biopharmaceutical up and down stream process.

Pharmaceutical Grade

Innovasil® P 50 is specially developed for use in single-use systems for biopharmaceuticals. It is platinum cured and uses high-purity silicone raw materials, with a special post-treatment process, and is produced and packaged in an ISO Class 7 clean room certified by NEBB, so that the product has high purity and extremely low level of leachables. At the same time, the advanced technology ensures that the product has a very smooth inner surface, which

minimizes protein binding and ensures high purity of the finished products. A special post-treatment is applied to all products to ensure minimum leachables and D4, D5, D6 impurity. Each roll of tubing is laser etched on the surface for lot tracing and each batch of raw materials and production process are fully recorded and traced. A full extractables studies by the third-party lab in the United States is available upon request.

+ Features

- Suitable for use with peristaltic pumps
- Low protein binding
- Low leachable levels
- ISO class 7 clean room production
- Controlled D4, D5, D6 levels
- Full extractables studies
- No animal origin, no pyrogens
- Custom sizes and pack lengths available

+ Regulations & Certifications

- ISO 10993-3, 4, 5, 10, 11
- USP 87/88 Class VI
- ADCF
- FDA DMF III
- USP665/BPOG Extractables Research
- FDA 21CFR 177.2600
- USP 788,85,643,71
- EP 3.1.9
- USP 381, 661

+ Application

- Peristaltic pump application in pharmaceutical production process
- Disposable System Fluid Transfer
- Aseptic filling
- Vaccine production
- Buffer transfer
- Cell culture
- Cell collection
- Filtration and purification

+ Innovasil® P 50 Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Colorless & transparent
Shore A hardness, 5sec	ASTM D 2240		50
Density	ASTM D 792		1.13
Operating temperature			-60°C to +200°C
Gas permeability			High
Water absorption			Low
Tensile strength at break	ASTM D 412	Mpa	9.6
Tensile elongation at break	ASTM D 412	%	630
Tear tensile strength	ASTM D1004-94	kN/m	55
Permanent compression set, 23°C 22hrs	ASTM D395-98-B	%	8.5
Peristaltic pump life	600rpm, no back pressure, 17#Hose	Hrs	120
Sterilization method	125°C for 30 mins damp heat sterilization, ethylene oxide sterilization, irradiation (max 40kGy) sterilization		

+ Innovasil® P 50 Inventoried Sizes*

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Length Per Package*		Minimum Bending Radius	RECO Working Pressure	RECO Vacuum Pressure
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)			
SP29-202-0051-0368	112#	0.51	1/50	3.68		1.59	1/16	15.2	50	3mm		1.0bar
SP29-202-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50	3mm	1.5bar	1.0bar
SP29-202-0100-0200	Metric size	1.00		2.00		0.50		15.2	50	3mm		1.0bar
SP29-202-0150-0250	Metric size	1.50		2.50		0.50		15.2	50	3mm		1.0bar
SP29-202-0100-0300	Metric size	1.00		3.00		1.00		15.2	50	3mm	1.0bar	1.0bar
SP29-202-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50	6mm	1.0bar	1.0bar
SP29-202-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50	6mm	1.5bar	1.0bar
SP29-202-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50			
SP29-202-0200-0400	Metric size	2.00		4.00		1.00		15.2	50	6mm		
SP29-202-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50	6mm	1.2bar	1.0bar
SP29-202-0300-0500	Metric size	3.00		5.00		1.00		15.2	50			
SP29-202-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50	10mm	0.6bar	
SP29-202-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50	13mm	1.0bar	1.0bar
SP29-202-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50			
SP29-202-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50			
SP29-202-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50	13mm	0.8bar	1.0bar
SP29-202-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50	10mm	1.0bar	1.0bar
SP29-202-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50	19mm	0.6bar	1.0bar
SP29-202-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50	16mm	0.8bar	
SP29-202-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50	16mm	1.0bar	
SP29-202-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50	32mm	0.5bar	1.0bar
SP29-202-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50	16mm	0.7bar	
SP29-202-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50	38mm	0.6bar	0.7bar
SP29-202-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50	25mm	0.8bar	1.0bar
SP29-202-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50	25mm	0.4bar	1.0bar
SP29-202-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50			
SP29-202-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50	76mm	0.3bar	
SP29-202-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50	38mm	0.6bar	1.0bar
SP29-202-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50			
SP29-202-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50	76mm	0.4bar	
SP29-102-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25	64mm	0.5bar	1.0bar
SP29-102-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25			
SP29-102-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25	64mm	0.5bar	0.7bar
SP29-102-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25			
SP29-102-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25			
SP29-102-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25	127mm	0.3bar	
SP29-102-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25			0.9bar
SP29-102-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25			

*The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees. For the detailed compatibility of Innovasil® P 50 with various chemical solvents, please refer to "Innovalene® Product Chemical Compatibility Information Sheet" or consult our sales staff.

+ Innovasil® P 50 Ultra Peristaltic Pump Silicone Tubing

The Innovasil P 50 Ultra series has been developed specifically for use in biopharmaceutical single-use systems using a platinum curing system and high purity silicone rubber raw materials. Combined with a special post-treatment process and produced and packaged in a NEBB certified ISO Classs Level 7 clean room, the product has high purity and extremely low levels of particulates. At the same time, advanced extrusion processes ensure that the product has a very smooth inner surface, which minimizes protein binding and ensures high purity of the finished product. A special post-treatment is applied to all products to ensure minimum leachables and D4, D5, D6 impurity. A full extractables studies by the third-party lab in the United States is available upon request.

The Ultra series is specially formulated to significantly increase the life of peristaltic pumps while maintaining flow stability.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckles, shaping, coding, laser etching, etc., and customized production.

+ Innovasil® P 50 Ultra Product Specification

Pharmaceutical grade peristaltic pump silicone tubing																	
Feature	Platinum cured silicone tubing - Suitable for use with peristaltic pumps - Chemical resistance, resistant to dye, detergent, vinegar, etc. - Smooth inner wall, low spalling - Clean room production - Sterilizable																
Caution	• Avoid high pressure																
Material	• Platinum cured silicone																
Operating temperature range	-40°C to +200C																
Physical properties	<table><tr><td>Color</td><td>Colorless & transparent</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>50A</td></tr><tr><td>Density ASTM D792</td><td>1.14 g/cm3</td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>9.7 MPa</td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>1000 %</td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>45 kN/m</td></tr><tr><td>Permanent Compression Set 70°C 22Hrs ASTM D 395</td><td>17%</td></tr></table>			Color	Colorless & transparent	Shore A Hardness ASTM D 2240	50A	Density ASTM D792	1.14 g/cm3	Tensile Strength at Break ASTM D 412	9.7 MPa	Tensile Elongation ASTM D 412	1000 %	Tear Strength ASTM D 1004-94	45 kN/m	Permanent Compression Set 70°C 22Hrs ASTM D 395	17%
Color	Colorless & transparent																
Shore A Hardness ASTM D 2240	50A																
Density ASTM D792	1.14 g/cm3																
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Tear Strength ASTM D 1004-94	45 kN/m																
Permanent Compression Set 70°C 22Hrs ASTM D 395	17%																
Regulations and Certifications	FDA, ISO 10993, USP, RoHS, REACH																
Sterilization	121 °C 30 minutes steam sterilization single pass ETO ethylene oxide sterilized single-shot 25kGy irradiation sterilization single time																
Gas permeability	<table><tr><td>CO₂ 25147</td><td>Gas volume [cm3] x wall thickness [mm]</td><td rowspan="3">$\times 10^{-10}$</td></tr><tr><td>O₂ 4715</td><td>Inner Diameter Sectional Area [cm2] x Time [sec]</td></tr><tr><td>N₂ 2284</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table>			CO ₂ 25147	Gas volume [cm3] x wall thickness [mm]	$\times 10^{-10}$	O ₂ 4715	Inner Diameter Sectional Area [cm2] x Time [sec]	N ₂ 2284	x Pressure drop along pipe wall [cm Hg]							
CO ₂ 25147	Gas volume [cm3] x wall thickness [mm]	$\times 10^{-10}$															
O ₂ 4715	Inner Diameter Sectional Area [cm2] x Time [sec]																
N ₂ 2284	x Pressure drop along pipe wall [cm Hg]																
Odor	none																
Toxicity	none																
Theoretical service life	at 0 bar life 200 hrs at 0.7 bar 90 hrs																



*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
SPU29-202-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
SPU29-202-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
SPU29-202-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
SPU29-202-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
SPU29-202-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
SPU29-202-0159-0318		1.59	1/16	3.18	1/8	0.79	1/32	15.2	50
SPU29-202-0159-0476	14#	1.59	1/16	4.76	3/16	1.59	1/16	15.2	50
SPU29-202-0159-0635	119#	1.59	1/16	6.35	1/4	2.38	3/32	15.2	50
SPU29-202-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
SPU29-202-0238-0556	19#	2.38	3/32	5.56	7/32	1.59	1/16	15.2	50
SPU29-202-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
SPU29-202-0318-0476		3.18	1/8	4.76	3/16	0.79	1/32	15.2	50
SPU29-202-0318-0635	16#	3.18	1/8	6.35	1/4	1.59	1/16	15.2	50
SPU29-202-0318-0794	120#	3.18	1/8	7.94	5/16	2.38	3/32	15.2	50
SPU29-202-0397-0714		3.97	5/32	7.14	9/32	1.59	1/16	15.2	50
SPU29-202-0476-0794	25#	4.76	3/16	7.94	5/16	1.59	1/16	15.2	50
SPU29-202-0476-0953	15#	4.76	3/16	9.53	3/8	2.38	3/32	15.2	50
SPU29-202-0635-0953	17#	6.35	1/4	9.53	3/8	1.59	1/16	15.2	50
SPU29-202-0635-1111	24#	6.35	1/4	11.11	7/16	2.38	3/32	15.2	50
SPU29-202-0635-1270	26#	6.34	1/4	12.70	1/2	3.18	1/8	15.2	50
SPU29-202-0794-1111	18#	7.94	5/16	11.11	7/16	1.59	1/16	15.2	50
SPU29-202-0794-1270	35#	7.94	5/16	12.70	1/2	2.38	3/32	15.2	50
SPU29-202-0953-1270	96#	9.53	3/8	12.70	1/2	1.59	1/16	15.2	50
SPU29-202-0953-1429	36#	9.53	3/8	14.29	9/16	2.38	3/32	15.2	50
SPU29-202-0953-1588	73#	9.53	3/8	15.88	5/8	3.18	1/8	15.2	50
SPU29-202-1111-1429		11.11	7/16	14.29	9/16	1.59	1/16	15.2	50
SPU29-202-1270-1588		12.70	1/2	15.88	5/8	1.59	1/16	15.2	50
SPU29-202-1270-1905	82#	12.70	1/2	19.05	3/4	3.18	1/8	15.2	50
SPU29-202-1270-2223	88#	12.70	1/2	22.23	7/8	4.76	3/16	15.2	50
SPU29-202-1588-2064		15.88	5/8	20.64	13/16	2.38	3/32	15.2	50
SPU29-102-1588-2223	184#	15.88	5/8	22.23	7/8	3.18	1/8	7.62	25
SPU29-102-1588-2540	89#	15.88	5/8	25.4	1	4.76	3/16	7.62	25
SPU29-102-1905-2540		19.05	3/4	25.4	1	3.18	1/8	7.62	25
SPU29-102-1905-2858	191#	19.05	3/4	28.58	1-1/8	4.76	3/16	7.62	25
SPU29-102-1905-3175	91#	19.05	3/4	31.75	1-1/4	6.35	1/4	7.62	25
SPU29-102-2540-3175		25.40	1	31.75	1-1/4	3.18	1/8	7.62	25
SPU29-102-2540-3493	92#	25.40	1	34.93	1-3/8	4.76	3/16	7.62	25
SPU29-102-2540-3810		25.40	1	38.10	1-1/2	6.35	1/4	7.62	25

+ Innovasil® P 65 Pharmaceutical Grade Silicone Tubing

- Longest service life of Innovasil tubing material
- Excellent choice where purity and good pumping performance is needed

The Innovasil P 65 series are a biopharmaceutical grade Pt-cured silicone tube with Shore A 65 hardness. Specifically for use in biopharmaceutical single-use systems using a platinum curing system and high purity silicone rubber raw materials. Combined with a special post-treatment process and produced and packaged in a NEBB certified ISO Classs Level 7 clean room, the product has high purity and extremely low levels of particulates. At the same time, advanced extrusion processes ensure that the product has a very smooth inner surface, which minimizes protein binding and ensures high purity of the finished product. A special post-treatment is applied to all products to ensure minimum leachables and D4, D5, D6 impurity. A full extractables studies by the third-party lab in the United States is available upon request.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding buckles, shaping, coding, laser etching, etc., and customized production.

+ Innovasil® P 65 Product Specification

Pharmaceutical grade peristaltic pump silicone tubing																
Feature	Platinum cured silicone tubing - Suitable for use with peristaltic pumps - Chemical resistance, resistant to dye, detergent, vinegar, etc. - Smooth inner wall with low spalling - Clean production - Sterilizable															
Caution	• Avoid high pressure															
Material	• Platinum cured silicone															
Operating temperature range	-40°C to +200C															
Physical properties	<table><tr><td>Color</td><td>Colorless & transparent</td></tr><tr><td>Shore A Hardness ASTM D 2240</td><td>65A</td></tr><tr><td>Density ASTM D792</td><td>1.15 g/cm3</td></tr><tr><td>Tensile Strength at Break ASTM D 412</td><td>9.7 MPa</td></tr><tr><td>Tensile Elongation ASTM D 412</td><td>1000 %</td></tr><tr><td>Tear Strength ASTM D 1004-94</td><td>45 kN/m</td></tr><tr><td>Permanent Compression Set 23°C 22Hrs ASTM D 395</td><td>17%</td></tr></table>		Color	Colorless & transparent	Shore A Hardness ASTM D 2240	65A	Density ASTM D792	1.15 g/cm3	Tensile Strength at Break ASTM D 412	9.7 MPa	Tensile Elongation ASTM D 412	1000 %	Tear Strength ASTM D 1004-94	45 kN/m	Permanent Compression Set 23°C 22Hrs ASTM D 395	17%
Color	Colorless & transparent															
Shore A Hardness ASTM D 2240	65A															
Density ASTM D792	1.15 g/cm3															
Tensile Strength at Break ASTM D 412	9.7 MPa															
Tensile Elongation ASTM D 412	1000 %															
Tear Strength ASTM D 1004-94	45 kN/m															
Permanent Compression Set 23°C 22Hrs ASTM D 395	17%															
Regulations and Certifications	FDA, ISO 10993, USP, RoHS, REACH															
Sterilization	121 °C 30 minutes steam sterilization single time ETO ethylene oxide sterilized single time 25kGy irradiation sterilization single time															
Gas permeability	<table><tr><td>CO₂ 25147</td><td>Gas volume [cm3] x wall thickness [mm]</td><td rowspan="3">X 10⁻¹⁰</td></tr><tr><td>O₂ 4715</td><td>Inner Diameter Sectional Area [cm2] x Time [sec]</td></tr><tr><td>N₂ 2284</td><td>x Pressure drop along pipe wall [cm Hg]</td></tr></table>		CO ₂ 25147	Gas volume [cm3] x wall thickness [mm]	X 10 ⁻¹⁰	O ₂ 4715	Inner Diameter Sectional Area [cm2] x Time [sec]	N ₂ 2284	x Pressure drop along pipe wall [cm Hg]							
CO ₂ 25147	Gas volume [cm3] x wall thickness [mm]	X 10 ⁻¹⁰														
O ₂ 4715	Inner Diameter Sectional Area [cm2] x Time [sec]															
N ₂ 2284	x Pressure drop along pipe wall [cm Hg]															
Odor	none															
Toxicity	none															
Theoretical service life	at 0 bar life 250 hrs at 0.7 bar 130 hrs															

Cat. No.	Model	ID		OD		Wall Thickness		Per Package Length*	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(m)	(foot)
SP59-202-0050-0150	Metric size	0.50		1.50		0.50		15.2	50
SP59-202-0079-0397	13#	0.79	1/32	3.97	5/32	1.59	1/16	15.2	50
SP59-202-0100-0200	Metric size	1.00		2.00		0.50		15.2	50
SP59-202-0150-0250	Metric size	1.50		2.50		0.50		15.2	50
SP59-202-0100-0300	Metric size	1.00		3.00		1.00		15.2	50
SP59-202-0159-0318		1.59	1/16	3.18		0.79	1/32	15.2	50
SP59-202-0159-0476	14#	1.59	1/16	4.76		1.59	1/16	15.2	50
SP59-202-0159-0635	119#	1.59	1/16	6.35		2.38	3/32	15.2	50
SP59-202-0200-0400	Metric size	2.00		4.00		1.00		15.2	50
SP59-202-0238-0556	19#	2.38	3/32	5.56		1.59	1/16	15.2	50
SP59-202-0300-0500	Metric size	3.00		5.00		1.00		15.2	50
SP59-202-0318-0476		3.18	1/8	4.76		0.79	1/32	15.2	50
SP59-202-0318-0635	16#	3.18	1/8	6.35		1.59	1/16	15.2	50
SP59-202-0318-0794	120#	3.18	1/8	7.94		2.38	3/32	15.2	50
SP59-202-0397-0714		3.97	5/32	7.14		1.59	1/16	15.2	50
SP59-202-0476-0794	25#	4.76	3/16	7.94		1.59	1/16	15.2	50
SP59-202-0476-0953	15#	4.76	3/16	9.53		2.38	3/32	15.2	50
SP59-202-0635-0953	17#	6.35	1/4	9.53		1.59	1/16	15.2	50
SP59-202-0635-1111	24#	6.35	1/4	11.11		2.38	3/32	15.2	50
SP59-202-0635-1270	26#	6.34	1/4	12.70		3.18	1/8	15.2	50
SP59-202-0794-1111	18#	7.94	5/16	11.11		1.59	1/16	15.2	50
SP59-202-0794-1270	35#	7.94	5/16	12.70		2.38	3/32	15.2	50
SP59-202-0953-1270	96#	9.53	3/8	12.70		1.59	1/16	15.2	50
SP59-202-0953-1429	36#	9.53	3/8	14.29		2.38	3/32	15.2	50
SP59-202-0953-1588	73#	9.53	3/8	15.88		3.18	1/8	15.2	50
SP59-202-1111-1429		11.11	7/16	14.29		1.59	1/16	15.2	50
SP59-202-1270-1588		12.70	1/2	15.88		1.59	1/16	15.2	50
SP59-202-1270-1905	82#	12.70	1/2	19.05		3.18	1/8	15.2	50
SP59-202-1270-2223	88#	12.70	1/2	22.23		4.76	3/16	15.2	50
SP59-202-1588-2064		15.88	5/8	20.64		2.38	3/32	15.2	50
SP59-102-1588-2223	184#	15.88	5/8	22.23		3.18	1/8	7.62	25
SP59-102-1588-2540	89#	15.88	5/8	25.4		4.76	3/16	7.62	25
SP59-102-1905-2540		19.05	3/4	25.4		3.18	1/8	7.62	25
SP59-102-1905-2858	191#	19.05	3/4	28.58		4.76	3/16	7.62	25
SP59-102-1905-3175	91#	19.05	3/4	31.75		6.35	1/4	7.62	25
SP59-102-2540-3175		25.40	1	31.75		3.18	1/8	7.62	25
SP59-102-2540-3493	92#	25.40	1	34.93		4.76	3/16	7.62	25
SP59-102-2540-3810		25.40	1	38.10		6.35	1/4	7.62	25

+ Innovaprene® P 60

Pharmaceutical Grade Peristaltic Pump Tubing*



Ultra-long peristaltic pump service life and meets FDA, USP Class VI, USP 87, ISO 10993 biocompatibility standards.

Biopharmaceutical grade peristaltic pump tubing

Pharmaceutical Grade

The P series has a low permanent compression deformation, which can ensure that the peristaltic pump can rebound to the original shape even if it is continuously squeezed during the long-term use of the peristaltic pump, ensuring the stability of the liquid transmission flow. At the same time, it adopts a specially developed formula that

complies with FDA USP Class VI, USP 87, ISO 10993 biocompatibility standards, has extremely high safety, and can be widely used in various high and low temperature environments (-60 degrees to 140 degrees), and in the field of manufacturing and production of biopharmaceuticals products and cell culture process.

+ Features

- Long peristaltic pump life
- Stable flow reduces frequent calibration
- Biocompatibility
- Beige color, UV resistant
- Low gas permeability
- -60 degrees to 140 degrees use range
- Dual bags packaging, batch traceable
- Available in various metric and imperial sizes

+ Regulations & Certifications

- FDA 21CFR 177.2600
- USP 87
- USP Class VI
- ISO 10993
- ADCF

+ Application

- Peristaltic pumps in pharmaceutical production
- Disposable System Fluid Transfer
- Vaccine production
- Medium transfer
- Filtration and purification buffer transfer
- Analytical equipment
- Industrial and Medical uses
- Peristaltic Pump Applications

* For compliance information, please consult innovapure sales representative

+ Innovaprene® P 60 Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Beige
Shore A hardness, 5sec	ASTM D 2240		66
Density	ASTM D 792		0.97
Operating temperature		°C	-60°C to +140°C
UV resistance			Excellent
Gas permeability			Medium
Water absorption			Low
Tensile strength at break	ASTM D 412	Mpa	6.70
Tensile elongation at break	ASTM D 412	%	620
Tear tensile strength	ASTM D1004-94	kN/m	40
Permanent compression set, 70°C22hrs	ASTM D395-98-B	%	18
Embrittlement temperature	ASTM D 746	°C	-40

+ Innovaprene® P 60 Inventoried Sizes*

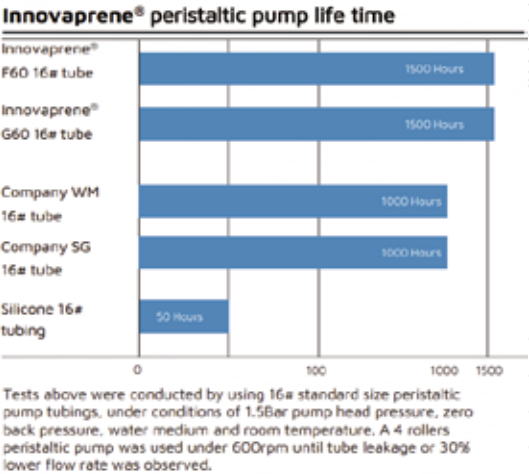
*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Length Per Package ¹ (m) (foot)	Minimum Bending Radius	RECO Working Pressure ²	RECO Vacuum Pressure
PP50-202-0050-0150	Metric size	0.50	1.50	0.50	15.2 50	2mm		1.0bar
PP50-202-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50	3mm	6.8bar	1.0bar
PP50-202-0100-0200	Metric size	1.00	2.00	0.50	15.2 50	3mm		1.0bar
PP50-202-0150-0250	Metric size	1.50	2.50	0.50	15.2 50	3mm		1.0bar
PP50-202-0100-0300	Metric size	1.00	3.00	1.00	15.2 50	6mm		1.0bar
PP50-202-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50	6mm	2.1bar	1.0bar
PP50-202-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50	6mm	2.9bar	1.0bar
PP50-202-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50			
PP50-202-0200-0400	Metric size	2.00	4.00	1.00	15.2 50			
PP50-202-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50	6mm	2.5bar	1.0bar
PP50-202-0300-0500	Metric size	3.00	5.00	1.00	15.2 50			
PP50-202-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50	12mm	1.1bar	0.8bar
PP50-202-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50	12mm	1.6bar	1.0bar
PP50-202-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50			
PP50-202-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50			
PP50-202-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50	19mm	1.1bar	1.0bar
PP50-202-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50	12mm	1.6bar	1.0bar
PP50-202-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50	22mm	0.9bar	1.0bar
PP50-202-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50	19mm	1.3bar	1.0bar
PP50-202-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50	19mm	1.6bar	1.0bar
PP50-202-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50	32mm	0.9bar	0.7bar
PP50-202-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50	25mm	1.0bar	1.0bar
PP50-202-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50	35mm	0.6bar	0.5bar
PP50-202-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50	38mm	0.9bar	1.0bar
PP50-202-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50	29mm	1.1bar	1.0bar
PP50-202-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50	57mm	0.5bar	0.2bar
PP50-202-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50	76mm	0.5bar	0.5bar
PP50-202-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50	29mm	0.9bar	1.0bar
PP50-202-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50	80mm	1.3bar	1.2bar
PP50-202-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50	83mm	0.6bar	0.3bar
PP50-102-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25	70mm	0.8bar	0.7bar
PP50-102-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25			
PP50-102-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25	89mm	0.6bar	0.5bar
PP50-102-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25			
PP50-102-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25			
PP50-102-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25	127mm	0.5bar	0.2bar
PP50-102-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25			
PP50-102-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25			

¹The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees
For the detailed compatibility of Innovaprene™ P 60 with various chemical solvents, please refer to "Innovaprene™ Product Chemical Compatibility Information Sheet" or consult our sales staff

+ Innovaprene® P 60 S Peristaltic Pump Tubing

Innovaprene S serie pump tubing specializes for low spallation in pump use. Due to continuous shear, extrusion and wear, a small amount of pump tube material debris is shed from the tube wall. These debris accumulate over time and can be mixed into the transport medium, posing a potential contamination risk. For the quality management of the purity of the transmission medium, it will require a certain degree of control of the inner wall stripping of the peristaltic pump tubing.



The Innovaprene P60 series peristaltic pump tubes with the "S" extension are specially formulated to improve the wear resistance of the material and the peel resistance of small molecules, which greatly improves the level of inner wall peel caused by the use of the peristaltic pump for a long time. The peristaltic pump tube at various hardness levels, in addition to having a long peristaltic pump service life, improves the risk of potential contamination of the transmission medium.

Adopt precision extrusion process, strictly control the dimensional tolerance, and can customize the cutting length. It can also be used for secondary treatment processes such as bonding stoppers, flaring, marking, laser etching, etc., and customized production.

+ Innovaprene® P 60 S Product Specification

Pharmaceutical grade peristaltic pump tubing			
Feature	Very low amount of inner wall spalling		
	• Steady flow • Chemical resistance, resistant to dye, detergent, vinegar, etc. • UV resistant and opaque • -60 degrees to 140 degrees temperature range • Comply with ROHS and REACH standards		
	Caution	• Avoid high temperature • Avoid back pressure	
		Material • Thermoplastic elastomer	
	Operating temperature range		
-60 °C to +140°C			
Physical properties	Color		Beige
	Shore A Hardness ASTM D 2240		72A
	Density ASTM D792		0.97 g/cm3
	Tensile Strength at Break ASTM D 412		7.80 MPa
	Tensile Elongation ASTM D 412		650 %
	Tear Strength ASTM D 1004-94		40kN/m
Permanent Compression Set 70°C 22Hrs ASTM D 395			20%
Regulations and Certifications		FDA, USP 87, USP Class VI, ISO 10993, ADCF	
Sterilization	121 °C 30 minutes steam sterilization single pass		
	ETO ethylene oxide sterilized single-shot		
25kGy irradiation sterilization single time			
Gas permeability	CO ₂	1100 Gas volume [cm ³] x wall thickness [mm]	X 10 ⁻¹⁰
	O ₂	180Inner Diameter Sectional Area [cm ²] x Time [sec]	
	N ₂	70 x Pressure drop along pipe wall [cm Hg]	
Odor	none		
Toxicity	none		
Theoretical service life	at 0 bar life	1000 hrs	
	at 0.7 bar	500 hrs	

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length* (m) (foot)
PPL50-202-0050-0150	Metric size	0.50	1.50	0.50	15.2 50
PPL50-202-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50
PPL50-202-0100-0200	Metric size	1.00	2.00	0.50	15.2 50
PPL50-202-0150-0250	Metric size	1.50	2.50	0.50	15.2 50
PPL50-202-0100-0300	Metric size	1.00	3.00	1.00	15.2 50
PPL50-202-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50
PPL50-202-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50
PPL50-202-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50
PPL50-202-0200-0400	Metric size	2.00	4.00	1.00	15.2 50
PPL50-202-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50
PPL50-202-0300-0500	Metric size	3.00	5.00	1.00	15.2 50
PPL50-202-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50
PPL50-202-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50
PPL50-202-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
PPL50-202-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
PPL50-202-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
PPL50-202-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
PPL50-202-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50
PPL50-202-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
PPL50-202-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
PPL50-202-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
PPL50-202-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
PPL50-202-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
PPL50-202-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
PPL50-202-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
PPL50-202-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
PPL50-202-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
PPL50-202-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
PPL50-202-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
PPL50-202-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
PPL50-102-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
PPL50-102-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
PPL50-102-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
PPL50-102-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
PPL50-102-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
PPL50-102-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
PPL50-102-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
PPL50-102-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

*Other calibers, lengths or packing methods can be customized

+ Innovaprene® HP Peristaltic Pump Tubing

- Longest service life of Innovaprene tubing material
- Excellent choice where high pressure resistance and good chemical resistance is needed

Innovaprene HP is a peristaltic pump tubing with Shore A 75 hardness, which has the characteristics of working under 4 bar pressure and is suitable for high-speed canning and transmission

The tubing can be further post treated to enable flare ends, assembled with stoppers, so that it is easy to connect with other fluid pipelines.

*Other calibers, lengths or packing methods can be customized

Note

For detailed compatibility with various chemical solvents, please refer to "Innovaprene® Product Chemical Compatibility Information Sheet" or consult our sales personnel.

+ Innovaprene® HP Product Specification

Industrial & Pharmaceutical Grade Peristaltic Pump Tubing			
Feature	High-pressure resistant peristaltic pump tubing is suitable for high-flow, high-pressure transmission peristaltic pumps		
	- Withstand 4bar working pressure - Chemical resistance, resistant to dye, detergent, vinegar, etc. - UV resistant and opaque -60 degrees to 140 degrees temperature range - RoHS and REACH compliant		
	Caution		
	Avoid high rpm		
	Material		
Thermoplastic elastomer			
Operating temperature range			
-60 °C to +140°C			
Physical properties			
		Color	Beige
		Shore A Hardness ASTM D 2240	75A
		Density ASTM D792	0.97 g/cm3
		Tensile Strength at Break ASTM D 412	8.80 MPa
		Tensile Elongation ASTM D 412	500 %
		Tear Strength ASTM D 1004-94	
		Permanent Compression Set 70°C 22Hrs ASTM D 395	248%
Regulations and Certifications			
RoHS, REACH			
Sterilization			
121 °C 30 minutes steam sterilization single pass			
ETO ethylene oxide sterilized single-shot			
25kGy irradiation sterilization single time			
Gas permeability			
		CO ₂ 1000 Gas volume [cm3] x wall thickness [mm]	X 10 ⁻¹⁰
		O ₂ 170 Inner Diameter Sectional Area [cm2] x Time [sec]	
		N ₂ 60 x Pressure drop along pipe wall [cm Hg]	
Odor			
none			
Toxicity			
none			
Theoretical service life			
		at 0 bar life	800 hrs
		at 4 bar	100 hrs

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Per Package Length* (m) (foot)
PWH60-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50
PWH60-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50
PWH60-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50
PWH60-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50
PWH60-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50
PWH60-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50
PWH60-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50
PWH60-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50
PWH60-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50
PWH60-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50
PWH60-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50
PWH60-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50
PWH60-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50
PWH60-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50
PWH60-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50
PWH60-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50
PWH60-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50
PWH60-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50
PWH60-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50
PWH60-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50
PWH60-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50
PWH60-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50
PWH60-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50
PWH60-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50
PWH60-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50
PWH60-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50
PWH60-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50
PWH60-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50
PWH60-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50
PWH60-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50
PWH60-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25
PWH60-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25
PWH60-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25
PWH60-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25
PWH60-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25
PWH60-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25
PWH60-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25
PWH60-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25

+ Innovalloy® P 60

Pharmaceutical Grade Bi-layer Peri-staltic Pump Tubing



The special structural tubing is designed for the transmission of various chemical reagents ensures good resistance to various corrosive liquids, and is particularly suitable for the transmission of acids, alkalis, ketones, and alcohols.

Comply with USP, ISO 10993 requirements

Pharmaceutical Grade

The Innovalloy P 60 series has a low permanent compression deformation, which guarantees that it can bounce back to the initial form even under continuous extrusion during prolonged peristaltic pump use, ensuring the stability of the liquid transfer flow. At the same time, the bi-layer structure, the special corrosion-resistant inner material ensures the

good resistance to strong acids, strong alkalis and most organic solvents, and can be widely used in high and low temperature environments (-50 degrees to 80 degrees), organic acid and alkali solution transportation, laboratory, medical and pharmaceutical applications.

+ Features

- Beige color
- Long peristaltic pump life
- Good chemical resistance
- Resistance to chemical swelling
- Plasticizer free
- Very low gas permeability
- Shore A 70 hardness
- Available in various metric and imperial sizes

+ Regulations & Certifications

- FDA 21CFR 177.2600
- ISO 10993
- RoHS
- REACH

+ Application

- Chemical Reagent Delivery
- Formulation delivery
- Laboratory chemical reagent transfer
- Buffer transfer
- Medium transfer
- Gas transfer line
- Corrosive liquid transfer lines

+ Innovalloy® P 60 Typical Physical Properties

Physical Properties Table	Test Methods	Unit	Typical Value
Color	-		Beige
Shore A hardness, 5sec	ASTM D 2240		70
Density	ASTM D 792		0.97
Operating temperature			-50°C to +80°C
UV resistance			Excellent
Gas permeability			Low
Water absorption			Low
Tensile strength at break	ASTM D 412	Mpa	7.2
Tensile elongation at break	ASTM D 412	%	420
Tear tensile strength	ASTM D1004-94	kN/m	22
Permanent compression set, 70°C22hrs	ASTM D395-98-B	%	25
Embrittlement temperature	ASTM D 746	°C	-60

+ Innovalloy® P 60 Inventoried Sizes*

*Other calibers, lengths or packing methods can be customized

Cat. No.	Model	ID (mm) (inch)	OD (mm) (inch)	Wall Thickness (mm) (inch)	Length Per Package ¹ (m) (foot)	Minimum Bending Radius	RECO Working Pressure ²	RECO Vacuum Pressure
A4PO-201-0050-0150	Metric size	0.50	1.50	0.50	15.2 50	2mm		1.0bar
A4PO-201-0079-0397	13#	0.79 1/32	3.97 5/32	1.59 1/16	15.2 50	3mm	6.8bar	1.0bar
A4PO-201-0100-0200	Metric size	1.00	2.00	0.50	15.2 50	3mm		1.0bar
A4PO-201-0150-0250	Metric size	1.50	2.50	0.50	15.2 50	3mm		1.0bar
A4PO-201-0100-0300	Metric size	1.00	3.00	1.00	15.2 50	6mm		1.0bar
A4PO-201-0159-0318		1.59 1/16	3.18 1/8	0.79 1/32	15.2 50	6mm	2.1bar	1.0bar
A4PO-201-0159-0476	14#	1.59 1/16	4.76 3/16	1.59 1/16	15.2 50	6mm	2.9bar	1.0bar
A4PO-201-0159-0635	119#	1.59 1/16	6.35 1/4	2.38 3/32	15.2 50			
A4PO-201-0200-0400	Metric size	2.00	4.00	1.00	15.2 50			
A4PO-201-0238-0556	19#	2.38 3/32	5.56 7/32	1.59 1/16	15.2 50	6mm	2.5bar	1.0bar
A4PO-201-0300-0500	Metric size	3.00	5.00	1.00	15.2 50			
A4PO-201-0318-0476		3.18 1/8	4.76 3/16	0.79 1/32	15.2 50	12mm	1.1bar	0.8bar
A4PO-201-0318-0635	16#	3.18 1/8	6.35 1/4	1.59 1/16	15.2 50	12mm	1.6bar	1.0bar
A4PO-201-0318-0794	120#	3.18 1/8	7.94 5/16	2.38 3/32	15.2 50			
A4PO-201-0397-0714		3.97 5/32	7.14 9/32	1.59 1/16	15.2 50			
A4PO-201-0476-0794	25#	4.76 3/16	7.94 5/16	1.59 1/16	15.2 50	19mm	1.1bar	1.0bar
A4PO-201-0476-0953	15#	4.76 3/16	9.53 3/8	2.38 3/32	15.2 50	12mm	1.6bar	1.0bar
A4PO-201-0635-0953	17#	6.35 1/4	9.53 3/8	1.59 1/16	15.2 50	22mm	0.9bar	1.0bar
A4PO-201-0635-1111	24#	6.35 1/4	11.11 7/16	2.38 3/32	15.2 50	19mm	1.3bar	1.0bar
A4PO-201-0635-1270	26#	6.34 1/4	12.70 1/2	3.18 1/8	15.2 50	19mm	1.6bar	1.0bar
A4PO-201-0794-1111	18#	7.94 5/16	11.11 7/16	1.59 1/16	15.2 50	32mm	0.9bar	0.7bar
A4PO-201-0794-1270	35#	7.94 5/16	12.70 1/2	2.38 3/32	15.2 50	25mm	1.0bar	1.0bar
A4PO-201-0953-1270	96#	9.53 3/8	12.70 1/2	1.59 1/16	15.2 50	35mm	0.6bar	0.5bar
A4PO-201-0953-1429	36#	9.53 3/8	14.29 9/16	2.38 3/32	15.2 50	38mm	0.9bar	1.0bar
A4PO-201-0953-1588	73#	9.53 3/8	15.88 5/8	3.18 1/8	15.2 50	29mm	1.1bar	1.0bar
A4PO-201-1111-1429		11.11 7/16	14.29 9/16	1.59 1/16	15.2 50	57mm	0.5bar	0.2bar
A4PO-201-1270-1588		12.70 1/2	15.88 5/8	1.59 1/16	15.2 50	76mm	0.5bar	0.5bar
A4PO-201-1270-1905	82#	12.70 1/2	19.05 3/4	3.18 1/8	15.2 50	29mm	0.9bar	1.0bar
A4PO-201-1270-2223	88#	12.70 1/2	22.23 7/8	4.76 3/16	15.2 50	80mm	1.3bar	1.2bar
A4PO-201-1588-2064		15.88 5/8	20.64 13/16	2.38 3/32	15.2 50	83mm	0.6bar	0.3bar
A4PO-101-1588-2223	184#	15.88 5/8	22.23 7/8	3.18 1/8	7.62 25	70mm	0.8bar	0.7bar
A4PO-101-1588-2540	89#	15.88 5/8	25.4 1	4.76 3/16	7.62 25			
A4PO-101-1905-2540		19.05 3/4	25.4 1	3.18 1/8	7.62 25	89mm	0.6bar	0.5bar
A4PO-101-1905-2858	191#	19.05 3/4	28.58 1-1/8	4.76 3/16	7.62 25			
A4PO-101-1905-3175	91#	19.05 3/4	31.75 1-1/4	6.35 1/4	7.62 25			
A4PO-101-2540-3175		25.40 1	31.75 1-1/4	3.18 1/8	7.62 25	127mm	0.5bar	0.2bar
A4PO-101-2540-3493	92#	25.40 1	34.93 1-3/8	4.76 3/16	7.62 25			
A4PO-101-2540-3810		25.40 1	38.10 1-1/2	6.35 1/4	7.62 25			

¹The recommended working pressure is the calculated value of the burst pressure measured by ASTM D1599 at a ratio of 1:4 at 23 degrees
For the detailed compatibility of Innovalloy® P 60 with various chemical solvents, please refer to "Innovalene® Product Chemical Compatibility Information Sheet" or consult our sales staff

+ Single use assembly

Fully Customized SUA Designs via LSR Integration Technology



From individual filling lines to complex processes such as cell culture and purification, we offer solutions to meet your process requirements. Single-use integrated products through pre-sterilization, closed systems eliminate cross-contamination between batches, reducing the need for extensive cleaning operations. Shorten the batch production cycle and save the verification cost, improve the production efficiency.

Pharmaceutical Grade

Innovapure SUA products through LSR overmolding technology can be seamlessly integrated between silicone tubing, filter, bags and other components through the LSR molding process and benefit from smooth flow path, uniform material, solid connection. Compared with traditional assembly methods by fittings and joints, it eliminates the risk of dead corner residual liquid caused by the use of the joint, and also eliminates the reduction of cell yield caused by the shear

from the sharp edge of the joint, and completely eliminates the potential leakage risk caused by the loosening of the joint, is a new generation of single-use system solution for biopharmaceutical uses. It is fully customized upon customers' requirement and can be delivered within short lead time.

+ Features

- Suitable for use with peristaltic pumps
- Avoid the use of joints and ties
- Eliminate risk of leakage
- Smooth flow path increases cell culture yield
- No dead ends and no liquid residual in the flow path
- Integrated and convenient to use by end users
- ISO class 7 clean room production and packing
- Fully customized production and pre-sterilizable

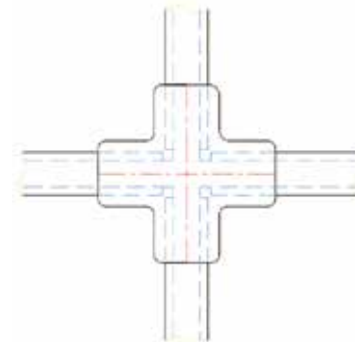
+ Compliance

- ISO 10993-3, 4, 5, 10, 11
- USP 87/88 Class VI
- ADCF
- FDA DMF III
- USP665/BPOG Extractables studies
- FDA 21CFR 177.2600
- USP 788,85,643,71
- EP 3.1.9
- USP 381, 661

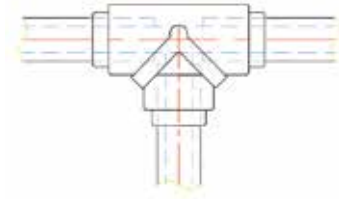
+ Optional Components

- Innovasil P 50/65 silicone tubing
- Innovaflex weldable TPE tubing
- Cross joint
- T shape joint
- Y shape joint
- L shape joint
- Straight connector
- TC flange, gasket, pressure sensor

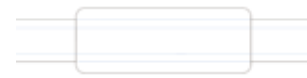
+ Innovapure® Single Use Assembly Components



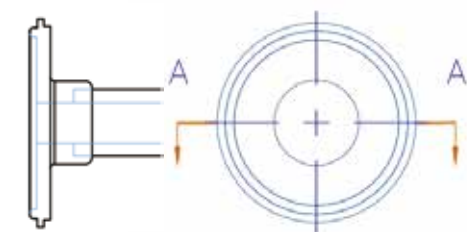
Cross Connection



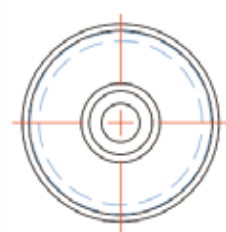
T-Joint



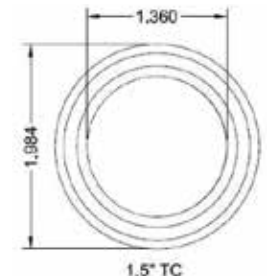
Straight Connection



TC 25/50 flange

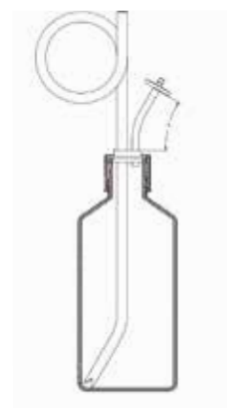
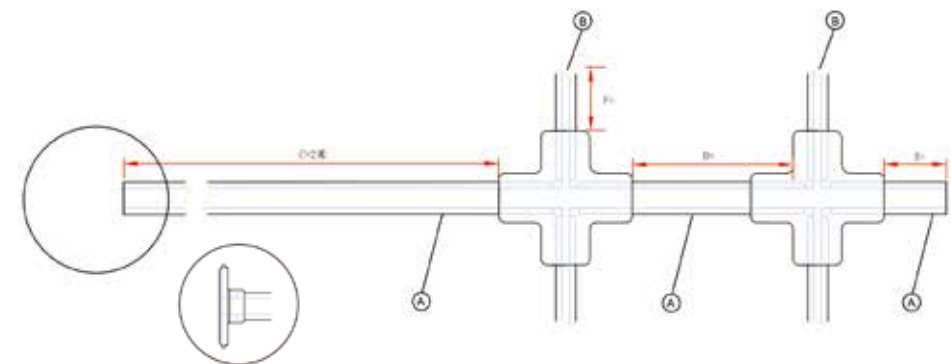


TC 25/50 Gasket



TC 25/50 Pressure Sensor Gasket

+ Innovapure® Single Use Assemblies



+ 1 Use confirmation

- Use requirements: hardness, pressure, size, tolerance, length, connection, peristaltic pump conditions, fluid media, other accessories, sterilization, packaging.
- Verification requirements: biocompatibility, integrity testing, insoluble particles, endotoxin, heat source, pressure resistance, sterilization level.

+ 2 Design Confirmation

- Sketches
- Drawing Confirmation
- Specification Confirmation
- Delivery Confirmation
- Quotation Confirmation
- Sample confirmation

+ 3 Custom production

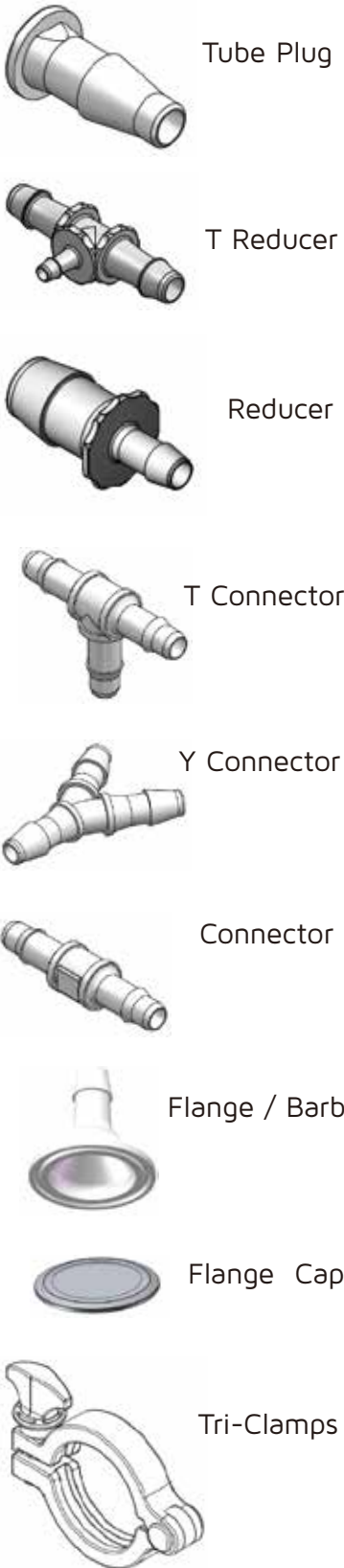
- Customized production
- Quality inspection
- Sterilization
- Shipment

For detailed compatibility with various chemical solvents, please refer to "Innovapure® Product Chemical Compatibility Information Sheet" or consult our sales personnel

+ Innovafit® Fluid System Accessories

+ Innovafit® Fittings, Clamps, Parts Specification

Innovafit				
Cat. No.	Parts Name	Material	Specification	Package
TPT500PP50	Innovafit Tube Plug	PP	1/2"	50 PCS
TPT375PP1X	Innovafit Tube Plug	PP	3/8"	100 PCS
TPT250PP1X	Innovafit Tube Plug	PP	1/4"	100 PCS
TPT125PP1X	Innovafit Tube Plug	PP	1/8"	100 PCS
TPRT382141PP1X	Innovafit T Reducer	PP	3/8"X2-1/4"X1"	100 PCS
TPRT382121PP50	Innovafit T Reducer	PP	3/8"X2-1/2"X1"	50 PCS
TPRT122381PP1X	Innovafit T Reducer	PP	1/2"X2-3/8"X1"	100 PCS
TPR375X500PP50	Innovafit Reducer	PP	3/8"X1/2"	50 PCS
TPR250X500PP50	Innovafit Reducer	PP	1/4"X1/2"	50 PCS
TPR250X375PP1X	Innovafit Reducer	PP	1/4"X3/8"	100 PCS
TPR125X250PP1X	Innovafit Reducer	PP	1/8"X1/4"	100 PCS
TPNY500PP50	Innovafit Y Connector	PP	1/2"	50 PCS
TPNY375PP1X	Innovafit Y Connector	PP	3/8"	100 PCS
TPNY250PP1X	Innovafit Y Connector	PP	1/4"	100 PCS
TPNY125PP1X	Innovafit Y Connector	PP	1/8"	100 PCS
TPNT500PP50	Innovafit T Connector	PP	1/2"	50 PCS
TPNT375PP1X	Innovafit T Connector	PP	3/8"	100 PCS
TPNT250PP1X	Innovafit T Connector	PP	1/4"	100 PCS
TPNT125PP1X	Innovafit T Connector	PP	1/8"	100 PCS
TPNS500PP50	Innovafit Connector	PP	1/2"	50 PCS
TPNS375PP1X	Innovafit Connector	PP	3/8"	100 PCS
TPNS250PP1X	Innovafit Connector	PP	1/4"	100 PCS
TPNS125PP1X	Innovafit Connector	PP	1/8"	100 PCS
TPFB50X750PP50	Innovafit Flange/Barb	PP	TC50X3/4"	50 PCS
TPFB50X500PP50	Innovafit Flange/Barb	PP	TC50X1/2"	50 PCS
TPFB50X375PP1X	Innovafit Flange/Barb	PP	TC50X3/8"	100 PCS
TPFB50X250PP1X	Innovafit Flange/Barb	PP	TC50X1/4"	100 PCS
TPFB50X1000PP50	Innovafit Flange/Barb	PP	TC50X1"	50 PCS
TPFB25X750PP50	Innovafit Flange/Barb	PP	TC25X3/4"	50 PCS
TPFB25X500PP50	Innovafit Flange/Barb	PP	TC25X1/2"	50 PCS
TPFB25X375PP1X	Innovafit Flange/Barb	PP	TC25X3/8"	100 PCS
TPFB25X250PP1X	Innovafit Flange/Barb	PP	TC25X1/4"	100 PCS
TPFB25X125PP1X	Innovafit Flange/Barb	PP	TC25X1/8"	100 PCS
TPE50PP10	Innovafit Flange Cap	PP	TC50	10 PCS
TPE25PP10	Innovafit Flange Cap	PP	TC25	10 PCS
TPC50AF10	Innovafit Tri-Clamps	PA/GF	TC50	10 PCS
TPC25AF10	Innovafit Tri-Clamps	PA/GF	TC25	10 PCS



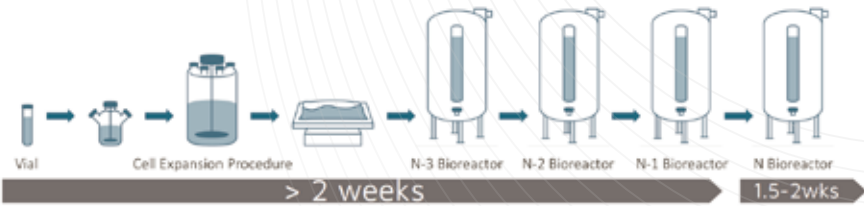
Many Innovafit® Fittings, Clamps and Parts are not shown in catalogue due to space reason, please contact us to find more.

+ Innovaseal® Cryopreservation bags

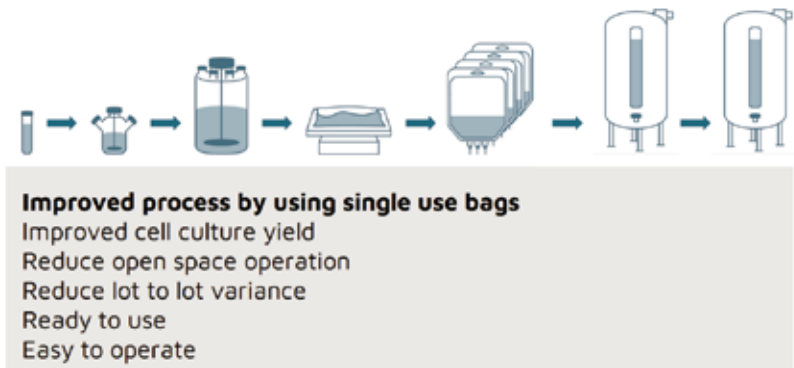
+ Traditional cell culture process

Cell Culture Process

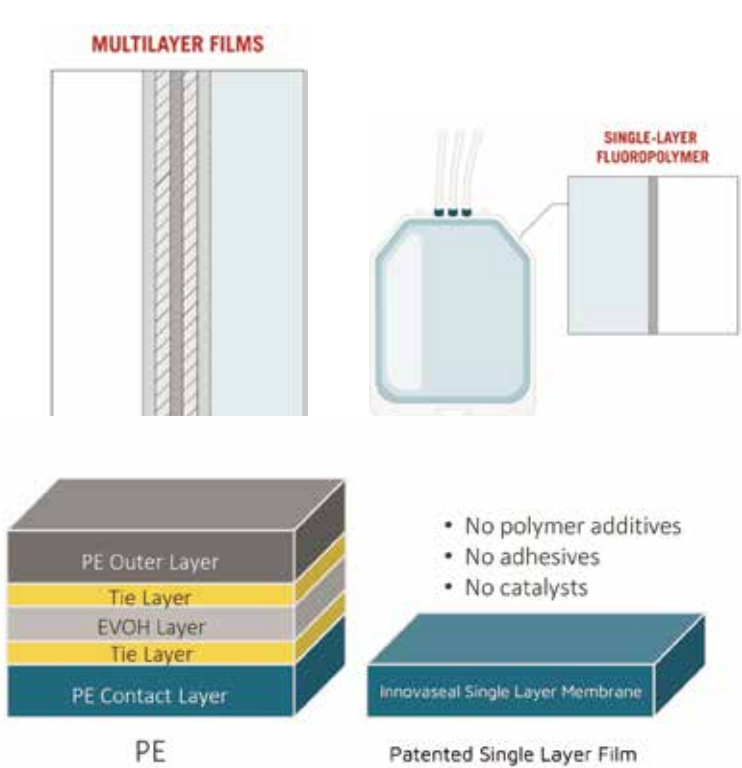
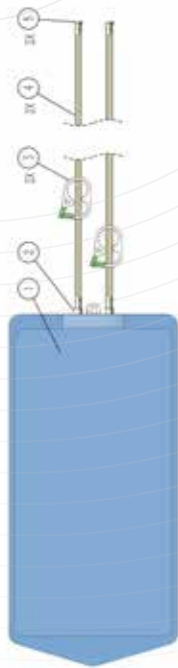
From 2mL to reactor level



+ Single use system for cell culture



- Longest service life of Innovaseal film material
- Excellent choice where ultra low temperature and good cell culture performance is needed



Single layer film
Flexible under -200C
Low E/L level
Gamma resistance
Ultra low particulate
For cryopreservation use

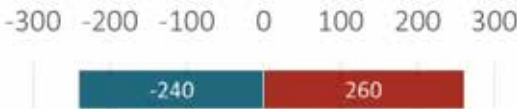


Innovaseal film chemical resistance

Chemical	PE	Innovaseal Film
Dimethyl Sulfoxide (DMSO)	Yellow	Green
Hydrofluoric Acid	Yellow	Green
Sodium Citrate	Red	Green
Polyethylene Glycol	Red	Green
Ethanol	Yellow	Green

● Go ● Caution ● Stay ○ Data not found

Operation temperature range of Innovaseal film





CHEMICAL RESISTANCE PROPERTIES OF INNOVAPURE® TUBING

This table does not account for any environmental or physical conditions that our products may be exposed to, such as temperature, humidity or pressure, and only reflect the relative ability of various polymer materials to resist specific chemicals. It is highly recommended that the users test the products under their own conditions before using them with specific chemicals. It is the user's responsibility to determine that the product is safe and technically suitable for its intended use. The data presented here is based on a compilation of publicly available chemical resistance data. This table is for comparison purposes only and we make no claims or warranties as to its accuracy. We do not assume any liability in connection with the use of information contained herein or otherwise.

Legend : A Excellent B Good C Fair D Poor/Not Recommended

NOTE: Innovapure makes no representation or warranty with respect to the susceptibility of any fluid to become contaminated or undergo changes in properties or composition as a result of possible extraction of tubing ingredients by the fluid to be transmitted.

w = Water Alc = Alcohol
* If concentration is not indicated, assume 100% concentration or the maximum percent solubility in water.
** Chemical resistance ratings based on inner liner material.
NOTE: Concentrations of room temperature liquids are given in % volume. Concentrations of room temperature solids are given in % weight.

MATERIAL	CAS#	Functional Group	Class/Use	Innovapure®																					
				G / GW	GWC	S / FW	F / HP	P	1185	1280	2300 / 2400	3500	4365 / 4375	4500	66E	XP	MED 55 / 65	LDPE / HDPE	4000 / P	5000 / 7000	8000	K	PFA/PE/PTFE	G / M / P / HP	
1-Chloro-1-Nitroethane	598-92-5	Nitro		C	C	C	C	-	-	-	-	D	D	-	-	-	-	-	-	-	-	D	A	D	D
Acetaldehyde	75-07-0	Aldehyde	Precursor	A/B	A/B	A/B	A/B	D	D	B	C	B	A	A	D	C	B	B	B	D	B	C/D	A	C	A
Acetamide	60-35-5	Amide	Solvent Polar	A	B	A	A	-	-	-	D	A	A	A	A	A	A	A	A/B	A	A/B	A	B	A	-
Acetate Solvent	GEN		Acetate Solvent	B	B	B	B	D	D	C	D	A/B	C/D	C/D	D	A/B	A/B	A/B	A/B	A/B	A/B	D	A	D	C/D
Acetic Acid Glacial	64-19-7	Acid - Weak	Precursor	B	B	B	B	C/D	C/D	D	C	A	A	A	B	C	C	A/B	A/B	A	A/B	C/D	A	B	B
Acetic Acid, 05%	64-19-7	Acid - Weak	Precursor	A	A	A	A	A	C	D	A	A	A	A	A	A	A	A	A	A	A	A	A	A	-
Acetic Acid, 20%	64-19-7	Acid - Weak	Precursor	-	-	-	-	-	-	A	B	-	-	-	-	B	-	-	-	-	-	-	-	-	-
Acetic Acid, 30%	64-19-7	Acid - Weak	Precursor	-	-	-	-	-	-	A/C	D	-	-	-	-	D	-	-	-	-	A	A/B	-	A	-
Acetic Acid, 50%	64-19-7	Acid - Weak	Precursor	-	-	-	-	-	-	C	A/C	A/B	-	-	A	A/C	A/B	A/B	A/B	A	A/B	-	A	-	-
Acetic Acid, 80%	64-19-7	Acid - Weak	Precursor	-	-	-	-	-	-	C	D	-	-	-	D	-	-	-	-	-	-	A	-	-	-
Acetic Anhydride	108-24-7	Anhydride	Precursor	A	A	A	A	D	D	C	D	D	A	A	D	D	D	D	D	D	D	D	C	A	-
Acetone	67-64-1	Ketone	Solvent Polar	A	A	A	A	D	D	C	C	A/B	B	B	D	C	A/B	A/B	D	A/B	D	A	B	B	-
Acetonitrile	75-05-8	Nitrile	Solvent Polar	A	A	A	A	-	-	-	D	A	-	-	D	D	A	A	A/B	A	D	A	-	-	-
Acetophenone	98-86-2	Aromatic / Ketone	Precursor	B	B	B	B	-	-	-	D	D	-	-	-	D	D	D	A/D	D	A	D	-	-	-
Acetyl Acetone	123-54-6	Ketone	Precursor	-	-	-	-	-	-	-	D	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Acetyl Chloride	75-36-5	Halogen	Precursor	B	B	B	B	C/D	D	-	D	-	D	D	-	-	-	-	-	-	A/B	A	C	D	-
Acetylene	74-86-2	HC Aliphatic	Fuel	A	A	A	A	A	B/C	C	D	B	-	-	A	-	B	-	-	-	-	A	B	A	-
Acetylsalicylic Acid (Aspirin)	50-78-2	Acid / Ester	Medicine	C	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acid - Strong	GEN	Acid - Strong		A/D	A/D	A/D	A/D	A/D	D	D	D	A/B	A/B	B	B	A/D	A/B	A/B	A/B	A/B	A/B	A	D	B	-
Acid - Weak	GEN	Acid - Weak		A	A	A	A	D	D	A	A	B	B	A	A	A	A	A	A	A	A	A	A	B	-
Acrolein (Acryaldehyde)	107-02-8	Aldehyde	Precursor	A	A	A	A	-	-	-	-	-	D	D	-	-	-	-	-	-	-	B	A	-	D
Acrylonitrile	107-13-1	Nitrile	Precursor	A/D	A/D	A/D	A/D	D	D	-	D	A	C	C	A	D	A	A	A/B	A	C/D	A	D	C	-
Adipic Acid	124-04-9	Acid	Precursor	B	B	B	B	A	B	A	A/B	A	A	A	A	A/B	A	A	A	A	A	A	-	-	-
Aero Lubriplate	na	Lithium Grease		C	C	C	C	C	-	-	-	-	B	B	-	-	-	-	-	-	-	-	-	-	-
Alanine	302-772-7	Amino Acid	Amino Acid	-	-	-	-	-	-	-	A/D	A	-	-	A	A/D	A	A	B	A	-	-	-	-	-
Alcohol - Aliphatic	GEN	Alcohol		A/B	A/B	A/B	A/B	B	B	A	B	A	A	A	B	A	A	B	A	A	A/B	A	B	A	-
Aldehyde	GEN	Aldehyde		C	C	C	C	C	D	-	C	B	B	B	C	C	B	B	B	B	D	A	B	B	-
Alkane	30812-87-4	Aromatic / Halogen		D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Allyl Alcohol (2-propenol)	107-18-6	Alcohol	Precursor	A	A	A	A	C	C	A	B	A	A	A	A	B	A	A	A	A	A	B	A	-	-
Allyl Bromide	106-95-6	HC Halogen	Precursor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	B	A	-	-
Allyl Chloride	107-05-1	HC Halogen	Precursor	-	-	-	-	-	D	D	B	D	-	-	B	B	-	D	-	-	-	-	-	-	-
Aluminum Acetate	139-12-8	Ester	Antiseptic	A	A	A	A	A	B	C	-	A	-	-	A	-	-	-	-	-	-	-	-	-	-
Aluminum Ammonium Sulfate	7784-25-0	Sulfate		B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum Bromide	7727-15-3	Catalyst		B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum Chloride	7446-70-0	Acid - Lewis	Catalyst	A	A	A	A	A	B	B	B	A/B	A	B	B	A	A/B	A	A	A	A	A	B	B	-
Aluminum Fluoride	7784-18-1			A	A	A	A	C	C	B	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum Hydroxide	21645-51-2		Precursor	A	A	A	A	B	C	B	A	-	-	-	-	A	A	A	A	A	A	A	-	-	-
Aluminum Nitrate	13473-90-0	Nitrate	Oxidizing Agent	A	A	A	A	B	C	A	B	-	-	-	-	B	-	-	-	-	-	-	-	-	-
Aluminum Phosphate	7784-30-7	Phosphate	Dessicant	A	A	A	A	A	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum Potassium Sulfate (Alum)	10043-67-1	Acid	Water Treatment	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum Salts	na			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum Sulfate	10043-01-3	Acid	Water Treatment	A	A	A	A	B	B	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amine	GEN	Amine		A	A	A	A	A	C	C	-	B	D	D	D	B	B	D	D	D	B	D	A	C	D
Amino Acids	na	Amino Acid		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia 10%	7664-41-7	Base - Weak	Cleaner	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia 25%	7664-41-7	Base - Weak	Cleaner	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia Anhydrous	7664-41-7	Base - Weak	Cleaner	A	A	A	A	B	B/C	A	B/A	D	D	A	A/B	A	A	A	D	A	D	A	D	B/C	D
Ammonia Gas (Cold)	7664-41-7	Base - Weak	Cleaner	A	A	A	A	-	-	-	A	C	-	D	D	-	C	-	-	-	D	-	D	A	D
Ammonia Gas (hot)	7664-41-7	Base - Weak	Cleaner	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	-	D	-	-
Ammonia Liquids	7664-41-7	Base - Weak	Cleaner	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Acetate	631-61-8	Ester	Buffer	A	A	A	A	A	C/D	C/D	-	A/B	A	D	D	-	A/B	A	A	A	A	A	-	-	-
Ammonium Bicarbonate	1066-33-7	Base	Food Additive	A	A	A	A	A	C	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Bifluoride	1341-49-7	Acid	Ethant	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Carbonate	506-87-6	Food Additive		A	A	A	A	B	B	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Casenite	9005-42-9			A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Chloride	12125-02-9	Acid		A	A	A	A	-	-	-	-	A	A	A	A	A	A	A	A	A	A	A	B/C	A	-
Ammonium Dichromate	7789/9/5	Acid		A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Fluoride	12125-01-8	Acid	Ethant	B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Glycolate	na	Acid - Weak		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Hydroxide	1336-21-5	Base - Weak	Cleaner	A	A	A	A	A/B	B	-	A/B	A	B	B	A	A/B	A	A	A	A	A	A/B	A	A/B	B
Ammonium Nitrate	6484-52-2			A	A	A	A	A	B	B/C	A/B	-	A	A	-	A/B	-	-	-	-	-	-	-	-	-
Ammonium Nitrite	13446-48-5	Pesticide		A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Oxalate	1113-38-8			A	A	A	A	-	-	-	-	A/B	A	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Persulfate	7727-54-0	Sulfate	Oxidizing Agent	A	A	A	A	B	B	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Phosphate	10124-31-9			A	A	A	A	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	-
Ammonium Phosphate Monobasic	7722-76-1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Phosphate Tri	10361-65-6	Fertilizer		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Salts	na	Salt		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Sulfamate	7773-06-0	Herbicide		A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Sulfate	7783-20-2	Fertilizer		A	A	A	A	B	B	A	A	-	-	-	-	-	-								

MATERIAL	CAS#	Functional Group	Class/Use	Innovapure® G /GW	Innovapure® GWC	Innovapure® F / FW	Innovapure® S / HP	Innovapure® P	Innovalene® 1185	Innovalene® 1280	Innovalene® 2300 / 2400	Innovalene® 3500	Innovalene® 4365 / 4375	Innovalene® 4500	Innovalene® 66E	Innovalene® XP	Innovalene® MED 55 / 65	Innovalloy® LDPE / HDPE	Innovalloy® 4000 / P	Innovalloy® 5000 / 7000	Innovalloy® 6000	Innovafuor® 8000	Innovafuor® K	Innovasil® PFA/PEP/PTEE	Innovasil® G / M / P / HP	Innovaflex®
Chloroacetic Acid	79-11-8	Acid	Precursor	B	B	B	B	C/D	D	D	A	A	D	D	D	A	A	A	A	A/D	A	B/D	A	D	D	
Chloroacetone	78-95-5	Ketone	Precursor	C	C	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-	-	B/D	A	D	D	
Chloroacetophenone (para)	99-91-2	Aromatic / Ketone	Irritant	-	-	-	-	-	-	D	A	-	-	-	D	A	A	A	D	A	-	A	-	-	-	
Chlorobutadiene	na	HC Halogen		C	C	C	C	C	-	-	-	D	D	-	-	-	-	-	-	-	-	A	D	D		
Chlorododecane	na	HC Halogen		D	D	D	D	-	-	-	-	D	D	-	-	-	-	-	-	-	-	A	D	D		
Chloroethylbenzene (ortho)	89-96-3	Aromatic / Halogen		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-		
Chloroform	67-66-3	Halogen	Reagent	C	C	C	C	C	D	D	D	D	D	D	D	C	C	C	A	C	A	A	D	D		
Chloromethane	74-87-3	Halogen	Reagent	D	D	D	D	D	-	D	-	D	D	-	D	-	-	-	A	-	A/B	A	D	D		
Chloronaphthalene	25586-43-0	Aromatic / Halogen		D	D	D	D	-	-	-	D	D	-	-	-	-	-	-	A	-	A	-	-	D		
Chlorophenol	na		Pesticide	C	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	B	A	-		
Chlorosulfonic Acid (Wet)	7790-94-5		Precursor	D	D	D	D	D	D	C	-	D	D	-	C	-	-	-	C	-	D	A	D	D		
Chlorotoluene	na	Aromatic / Halogen		C	C	C	C	-	-	-	-	D	D	-	-	-	-	-	-	-	-	A	D	D		
Chromic Acid 05-10%	7738-94-5	Acid - Strong	Oxidizing Agent	A	A	A	A	C	D	B	A	A	B	C	B	A	A	A	A	A	A	A	C	B		
Chromic Acid 20-30%	7738-94-5	Acid - Strong	Oxidizing Agent	D	D	D	D	D	B/C	A/B	A	C	B	A	A/B	A	A	A	A	A	A	A	D	C		
Chromic Acid 50%	7738-94-5	Acid - Strong	Oxidizing Agent	A	A	A	A	A	D	D	C	D	A	D	A	D	A	A	A	A	A	A	-	D		
Chromic Acid 96%	7738-94-5	Acid - Strong	Oxidizing Agent	-	-	-	-	C/D	D	-	D	D	D	D	B	D	D	D	A	D	A	A	C	D		
Cider (Apple Juice)	na		Food Additive	A	A	A	A	-	-	A	A	D	D	-	A	A	A	A	A	A	A	A	A	D		
Cinnamon Oil	8007-90-5		Plant Oil	C	C	C	C	C	-	-	D	D	-	B	D	D	D	-	D	D	A	-	-	-		
Citric Acid	77-92-9	Acid	Food Additive	A	A	A	A	B	B	A	A/B	A	A	A	A	A	A	A	A	A	A	A	A/B	A		
Clove Oil	8000-34-8		Plant Oil	C	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Coal Tar (Creosote)	na			D	D	D	D	C	C	D	B	-	D	D	-	B	-	-	-	-	-	A	D	D		
Cobalt Chloride	7646-79-9			A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	B	-		
Coca Cola Syrup	na		Food Additive	A	A	A	A	-	-	A	A	A	A	A	A	A	A	A	A	A	B	A	A	A		
Coconut Oil (Coconut Butter)	8001-31-8		Food Additive	B	B	B	B	-	-	C	A	-	B	B	-	A	-	-	-	-	A	A	A	B		
Coffee	na		Food Additive	A	A	A	A	-	-	C	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
Coke Oven Gas	na		Fuel	B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	B	-		
Koalanol	na	Silicate Ester	Coolant	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Copper Acetate	142-71-2	Ester	Oxidizing Agent	A	A	A	A	B	B	-	A	-	A	A	-	-	-	-	-	-	D	A	D	A		
Copper Chloride	na			A	A	A	A	A	A	A	-	A	A	-	A	-	-	-	-	-	A	A	A	A		
Copper Cyanide	544-92-3		Catalyst	A	A	A	A	A	C	A	A	-	A	A	-	A	-	-	-	-	-	A	A	A		
Copper Fluoroborate	38465-60-0			A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Copper Nitrate	na	Nitrate		A	A	A	A	A	C	A	A	-	A	A	-	A	-	-	-	-	-	-	-	-		
Copper Sulfate	7758-98-7	Sulfate		A	A	A	A	B	C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
Corn Oil	8001-30-7		Plant Oil	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Cottonseed Oil	8001-29-4		Plant Oil	A	A	A	A	A	B	A	A	-	A	A	-	A	-	-	-	-	-	-	-	-		
Cresols (methyl phenols)	na	Alcohol / Aromatic	Disinfectant	B	B	B	B	B	D	D	D	D	D	A	D	D	D	D	A	D	A	D	D	D		
Crotonaldehyde	4170-30-3	Aldehyde	Precursor	B	B	B	B	B	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Cumene	98-82-8	HC Aromatic	Precursor	D	D	D	D	-	-	-	D	C	-	-	-	D	C	C	C	-	C	A	D	-		
Cutting Oil (Sulfur Base)	na			D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Cutting Oil (Water Soluble)	na			D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Cyclohexane	110-82-7	HC Aliphatic	Precursor	C/D	C/D	C/D	C/D	C/D	B	B	C	B/D	C	B	B	D	B/D	C	C	C	A	C	A	D	B	
Cyclohexanol	108-93-0	Alcohol	Precursor	D	D	D	D	D	B	C	A	D	-	A	A	-	D	-	-	-	-	A	D	A		
Cyclohexanone	108-94-1	Ketone	Precursor	D	D	D	D	D	D	C	A	D	D	B	B	D	D	D	B	D	D	D	D	B		
Cyclopentane	287-92-3	HC Aliphatic	Precursor	-	-	-	-	-	-	-	D	D	-	-	-	D	D	D	D	A	D	-	-	-		
Decalin	91-17-8	HC Aliphatic	Solvent Nonpolar	C	C	C	C	C	D	D	-	A	B	-	-	-	A	B	B	B	A	B	A	D	-	
Decanal	112-31-2	Aldehyde		D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Decane	124-18-5	HC Aliphatic		B	B	B	B	D	-	-	C	C	-	-	-	C	C	C	C	A	C	A	B	-		
Decanol	112-30-1	Alcohol		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	B	A	-		
Degreasing Fluid (Chlorinated)	na	Halogen	Degreasing	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-		
Detergent Solutions	na			B	A	B	B	B	A	B	-	A	-	A	-	A	-	-	-	-	-	A	A	A		
Developing Fluids (Photo)	na			A	A	A	A	A	D	D	A	-	A	A	-	A	-	-	-	-	-	A	A	A		
Diacetone Alcohol (Diacetol)	123-42-2	Ketone	Precursor	B/C	B/C	B/C	B/C	B/C	B	B	-	D	C	C/D	C/D	-	D	C	C	C	A/C	C	C/D	A	B	C/D
Diammonium phosphate	7783-28-0		Fertilizer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Diamylamine	2050-92-2	Amine	Precursor	B	B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	D	A	-		
Diazinon	333-41-5	Acid	Insecticide	D	D	D	D	-	-	-	-	D	D	-	-	-	-	-	-	-	-	B	A	-	D	
Dibenzyl Ether	103-50-4	Ether	Flavoring	C	C	C	C	C	D	D	-	D	-	-	-	-	-	-	C	-	C/D	A	-	-		
Dibenzyl Sebacate	140-24-9	Aromatic / Diester		C	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-	-	A/B	A	C	-		
Dibromoethyl Benzene	na	Aromatic / Halogen		C	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-	-	A/B	A	D	-		
Dibutyl Ether	142-96-1	Ether	Solvent Nonpolar	B/C	B/C	B/C	B/C	B/C	D	D	-	-	C	C	-	-	-	-	-	-	A	-	C	D	C	
Dibutyl Phthalate (DBP)	84-74-2	Phthalate	Plasticizer	B	B	B	B	B	C/D	D	-	D	C	A	A	C	D	C	C	C	D	C	B/C	A	B	A
Dibutyl Sebacate	109-43-3	Ester	Precursor	B	B	B	B	B	-	-	-	-	A	A	-	-	-	-	-	-	D	B	A	B	A	
Dibutylamine	111-92-2	Amine	Inhibitor	C	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-	-	B	-	D	A	C	
Dichloroacetic Acid	79-43-6	Acid		B	B	B	B	B	D	D	-	-	B	B	-	-	-	-	-	-	D	A	-	B		
Dichlorobenzene (ortho)	95-50-1	Aromatic / Halogen	Precursor	D	D	D	D	D	C	C	D	C	D	C	C	C	C	C	A	C	A	A	D	C		
Dichlorobenzene (para)	106-46-7	Aromatic / Halogen	Precursor	D	D	D	D	D	-	D	D	C	C	D	-	D	C	C	C	A	C	A	A	-	D	
Dichlorobutane	na	Halogen	Precursor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dichloroethane	1300-21-6	HC Halogen		D	D	D	D	D	D	D	-	D	-	C	C	-	D	-	-	-	A	-	B	A	-	C
Dichloroisopropyl Ether	108-60-1	Ether		D	D	D	D	-	-	-	-	D	D	-	-	-	-	-	-	-	-	C	A	D	D	
Dicyclohexylamine	101-83-7	Amine	Precursor	B	B	B	B	D	-	-	-	-	-	-	-	-	-	-	-	-	-	D	A	-		
Diesel Fuel	na	Petroleum	Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Di-Ester Synthetic Lubricants	na	Ester	Lubricant	D	D	D	D	-	-	-	-	D	D	-	-	-	-	-	-	-	-	A	A	-	D	
Diethanolamine	111-42-2	Amine	Inhibitor	-	-	-	-	-	-	-	-	D	D	-	-	-	-	-	-	-	-	-	-	-	D	
Diethyl Benzene	105-58-8	HC Aromatic		C	C	C	C	C	D	D	-	D	D	-	-	-	-	-	-	-	D	A	D	-		
Diethyl Carbonate	105-58-8	Ester	Solvent Nonpolar	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Diethyl Ether	60-29-7	Ether	Solvent Nonpolar	B	B	B	B	B	A	A	D	C/D	D	C	C	D	C/D	D	D	D	A/B	D	D	A	D	C
Diethyl Ketone	96-22-0	Ketone	Solvent Borderline	-	-	-	-	-	-	-	D	B/D	-	-	-	C	D	B/D	B/D	B/D	D	-	-	-	-	
Diethyl Malonate	105-53-3	Ester	Food Additive	-	-	-	-	-	-	-	-	B/D	A	-	-	-	B/D	A	A	D	A	-	-	-	-	
Diethyl Phthalate (DEP)	84-66-2	Phthalate	Plasticizer	A	A	A	A	A	-	-	-	-	A	A	-	-	-	-	-	-	-	C	A	-	A	
Diethyl Sebacate	110-40-7	Ester		B	B	B	B	B	-	-	-	-	A	A	-	-	-	-	-	-	A/B	A	B	A		
Diethyl Sulfate	64-67-5	Sulfate	Precursor	B	B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Diethylamine	109-89-7	Amine	Inhibitor	C	C	C	C	-	-	-	D	D														

MATERIAL	CAS#	Functional Group	Class/Use	Innovapure® G /GW	Innovapure® GWC	Innovapure® F / FW	Innovapure® S / HP	Innovapure® P	Innovapure® 1185	Innovapure® 1280	Innovapure® 2300 / 2400	Innovapure® 3500	Innovapure® 4365 / 4375	Innovapure® 4500	Innovapure® 66E	Innovapure® XP	Innovapure® MED 55 / 65	Innovapure® LDPE / HDPE	Innovapure® 4000 / P	Innovapure® 5000 / 7000	Innovapure® 6000	Innovapure® 8000	Innovapure® K	Innovapure® PFA/FEP/PTFE	Innovapure® G / MJ / P / HP
Freon 14	75-73-0	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon 142b	75-68-3	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon 152a	75-37-6	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon 21	75-43-4	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon 218	76-19-7	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon 22	75-45-6	HC Halogen	Refrigerant	D	D	D	D	C	C	-	A/D	-	D	D	-	A/D	-	-	-	-	-	-	-	-	-
Freon 31	593-70-4	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon 32	75-10-5	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon C 318	115-25-3	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon TA	58481-78-0	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon TMC	na	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon TP-35	na	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon TWD-602	na	HC Halogen	Refrigerant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fruit Juice	na		Food Additive	A	A	A	A	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Fuel	GEN	Petroleum	Fuel	C	C	C	C	C	B	B	-	A/D*	C	B	B	B	A/D*	C	C	C	A	C	A	D	B
Fuel Oil	na	Petroleum	Fuel	C	C	C	C	B	B	D	A/D*	C	B	B	B	A/D*	C	C	C	A	C	A	A	D	B
Fumaric Acid (Boletic Acid)	110-17-8	Acid	Food Additive	A	A	A	A	-	-	-	-	B	B	-	-	-	-	-	-	-	-	-	-	-	-
Furan	110-00-9		Precursor	A	A	A	A	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Furfural (Ant Oil)	98-01-1	Aldehyde	Precursor	A	A	A	A	-	-	D	D	-	B	B	-	D	-	-	-	-	-	-	-	-	-
Furfuryl Alcohol	98-00-0	Hydroxymethyl	Precursor	C	C	C	C	D	D	D	-	A	B	B	-	-	-	-	-	-	-	-	-	-	-
Fusel Alcohols	na	Alcohol		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gallic Acid	149-91-7	Acid	Precursor	B	B	B	B	C	D	A	A	-	D	D	-	A	-	-	-	-	-	-	-	-	-
Gasoline	na	Petroleum	Fuel	C	C	C	C	C	B	B	-	D*	C/D	D	D	B	D*	C/D	C/D	C/D	A	C/D	A	D	D
Gelatin	9000-70-8		Gelling Agent	A	A	A	A	C	B	A	D	-	A	A	-	D	-	-	-	-	-	-	-	-	-
Glue	na			A	A	A	A	B	B	-	A/C	-	A	A	-	A/C	-	-	-	-	-	-	-	-	-
Glutaraldehyde	111-30-8	Aldehyde	Water Treatment	-	-	-	-	-	-	C	A	-	-	-	-	C	A	A	A	A	A	-	-	-	-
Glycerine (Glycerol)	51-81-5	Alcohol	Food Additive	A	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Glycol	GEN			A	A	A	A	B	B	A	C	A	B	B	A	C	A	A	A	A	A	A	A	B	B
Grape Juice	na		Food Additive	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grapefruit Oil	8016-20-4		Plant Oil	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grease (Ester Base)	na	Ester	Lubricant	B	B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grease (Petroleum Base)	na	Petroleum	Lubricant	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grease (Silicone Base)	na	Silicone	Lubricant	B	B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Greases	na		Lubricant	D	D	D	D	A/B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Halothane	151-67-7	HC Halogen	Anesthetic	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Halowax Oil	na		Oil	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Helium	7440-59-7		Gas	A	A	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptane	142-82-5	HC Aliphatic	Solvent Nonpolar	C	C	C	C	C	A	D	D	C/D	A	A	B	D	C/D	C/D	C/D	A	C/D	A	A	-	A
Hexadecane	544-76-3	HC Aliphatic	Fuel	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexaldehyde	66-25-1	Aldehyde	Food Additive	C	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexane	110-54-3	HC Aliphatic	Solvent Nonpolar	C/D	C/D	C/D	C/D	A	B	-	B	D	A	A	B	B	D	D	D	A	D	A	A	D	A
Hexanol (1-Hexanol)	111-27-3	Alcohol		B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexaoxatricosane	143-29-3	Ether	Plasticizer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexene	592-41-6	HC Aliphatic	Precursor	-	-	-	-	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexylene Glycol	107-41-5	Alcohol	Glycol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Houghto-Safe 1010	na	Phosphate Ester	Hydraulic Fluid	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Houghto-Safe 1055	na	Phosphate Ester	Hydraulic Fluid	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Houghto-Safe 1120	na	Phosphate Ester	Hydraulic Fluid	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Houghto-Safe 271 (Water & Glyc	na	Alcohol	Glycol	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Houghto-Safe 5040 (Water/Oil E	na		Oil	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Houghto-Safe 620	na	Alcohol	Glycol	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydraulic Oil (Petroleum)	na	Petroleum	Hydraulic Fluid	D	D	D	D	D	C	C	-	D*	-	C	C	-	D*	-	-	-	-	-	-	-	-
Hydraulic Oil (Synthetic)	na		Hydraulic Fluid	D	D	D	D	D	C	C	-	D	-	A	A	-	D	-	-	-	-	-	-	-	-
Hydrazine (Diamine)	302-01-2	Hydrazine	Precursor	A	A	A	A	A	D	D	-	D	A	A	A	D	D	D	A	D	D	A	C/D	A	-
Hydrobromic Acid 20-40%	10035-10-6	Acid - Strong	Precursor	A	A	A	A	A	C	D	B	A	-	A	A	-	-	-	-	-	-	-	-	-	-
Hydrobromic Acid 70-100%	10035-10-6	Acid - Strong	Precursor	B	B	B	B	B	D	D	-	A/B	A	-	-	A	A/B	A	A	A	A	A	D	-	-
Hydrocarbon - Aliphatic	GEN	HC Aliphatic		C	C	C	C	C	B	B	C	C	C	C	C	C	C	C	A	C	A	D	B	C	-
Hydrocarbon - Aromatic	GEN	HC Aromatic		C	C	C	C	C	C	C/D	D	C	C	B	D	C	C	C	C	A	C	A	D	B	-
Hydrocarbon - Halogenated	GEN	HC Halogen		D	D	D	D	D	D	D	C/D	D	C	C	D	C/D	D	D	D	A	D	A	D	C	-
Hydrochloric Acid	7647-01-0	Acid - Strong	Precursor	B	B	B	B	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrochloric Acid 05%	7647-01-0	Acid - Strong	Precursor	-	-	-	-	-	A	C	A	B	A	A	A	B	A	A	A	A	-	-	-	-	-
Hydrochloric Acid 10-20%	7647-01-0	Acid - Strong	Precursor	A	A	A	A	B	D	A	B	-	A	A	-	B	-	-	-	-	-	-	-	-	-
Hydrochloric Acid 20%	7647-01-0	Acid - Strong	Precursor	B	B	B	B	B	B	C	-	B	A	A	A	B	A	A	A	A	A	A	B	A	-
Hydrochloric Acid 35-37%	7647-01-0	Acid - Strong	Precursor	B	B	B	B	D	D	B	B/C	A	B	B	A	B/C	A	A	A	A	A	A/B	A	D	B
Hydrocyanic Acid	74-90-8	Acid - Weak	Precursor	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrofluoric Acid 04%	7664-39-2	Acid - Strong	Precursor	-	-	-	-	B	C	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrofluoric Acid 20%	7664-39-3	Acid - Strong	Precursor	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrofluoric Acid 40-50%	7664-39-3	Acid - Strong	Precursor	D	D	D	D	D	C	D	A	C	A	D	D	A	C	A	A	A	A	A	D	D	-
Hydrofluoric Acid 75%	7664-39-3	Acid - Strong	Precursor	D	D	D	D	D	D	C	D	A	C	-	D	-	C	-	-	-	-	-	-	-	-
Hydrofluoric Acid Conc.	7664-39-3	Acid - Strong	Precursor	D	D	D	D	D	B/C	C	-	D	-	D	D	-	D	-	-	-	-	-	-	-	-
Hydrogen	1333-74-0		Gas	A	A	A	A	A/B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrogen Peroxide 03-10%	7722-84-1	Peroxide	Oxidizing Agent	-	-	-	-	-	A	B	A	A	A	A	A	A	A	A	A	A	-	-	-	-	-
Hydrogen Peroxide 30%	7722-84-1	Peroxide	Oxidizing Agent	-	-	-	-	-	B	B	A	B	A	A	A	A/B	A	A	A	A	A	-	-	-	-
Hydrogen Peroxide 90%	7722-84-1	Peroxide	Oxidizing Agent	B	B	B	B	B	B	D	A/D	A	D	D	C	A/D	A	A	A/B	A	A/B	A	B/C	D	-
Hydrogen Sulfide	2148878		Precursor	A	A	A	A	A	C	D	A	A	-	A	A	-	-	-	-	-	-	-	-	-	-
Hydrogen Sulfide Dry	2148878		Precursor	A	A	A	A	A	C/D	D	A	A	-	A	A	-	-	-	-	-	-	-	-	-	-
Hydroquinone	123-31-9	Alcohol / Aromatic	Reducing Agent	A	A	A	A	A	D	D	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxyacetic Acid	79-14-1	Acid / Alcohol		A	A	A	A	B	B/C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydne	na	Amine	Fuel Rocket	D	D																				

MATERIAL	CAS#	Functional Group	Class/Use	Innovapure® G/GW	Innovapure® GWC	Innovapure® F / FW	Innovapure® S / HP	Innovapure® P	Innovapure® 1185	Innovapure® 1280	Innovapure® 2300 / 2400	Innovapure® 3500	Innovapure® 4365 / 4375	Innovapure® 4500	Innovapure® 66E	Innovapure® XP	Innovapure® MED 55 / 65	Innovapure® LDPE / HDPE	Innovapure® 4000 / P	Innovapure® 5000 / 7000	Innovapure® 6000	Innovapure® 8000	Innovapure® K	Innovapure® PFA/PEP/PTE	Innovapure® G / M / P / HP
MIL-L-7808	na	Ester		-	-	-	-	A/B	B/C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mineral Oil	8012-95-1	Petroleum	Oil	D	D	D	D	D	A	A	C	B	B	B	B	B	B	B	A	B	A	A	B	B	-
MLO-7277 Hydr.	na	Petroleum	Hydraulic Fluid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MLO-75557	na	Petroleum	Hydraulic Fluid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MLO-8200 Hydr.	na	Silicate Ester		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MLO-8515	na	Silicate Ester		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molasses	68476-78-8		Food Additive	A	A	A	A	A	B	D	A	A	-	A	A	-	A	-	-	-	-	-	-	-	-
Mono- & Di- nitrotoluene (40/60)	na	Aromatic / Nitro		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monochlorobenzene	108-90-7	Aromatic / Halogen	Solvent Borderline	C/D	C/D	C/D	C/D	C/D	-	-	D	D	C/D	C/D	D	D	D	D	D	A	D	A	D	C/D	-
Monocyclic Terpene	95327-98-3	HC Aliphatic		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Motor Oil 20W, 10W40	na	Petroleum	Oil	-	-	-	-	-	-	-	B	-	-	-	B	-	-	-	-	-	-	-	-	-	-
Mustard	na		Food Additive	A	A	A	A	A	A	-	A	-	B	B	-	A	-	-	-	-	-	-	-	-	-
Naphthalene	91-20-3	HC Aromatic	Fumigant	C	C	C	C	C	B	B/C	D	D	-	D	D	-	D	-	-	-	-	-	-	-	-
Naphthenic Acid	1338-24-5	Acid		B	B	B	B	B	-	-	-	D	D	-	-	-	-	-	-	-	-	-	-	-	-
Natural Gas	na	HC Aliphatic	Fuel	C	C	C	C	C	B	B	D	A	-	D	D	-	A	-	-	-	-	-	-	-	-
Neatsfoot Oil	8002-64-0			B	B	B	B	B	-	-	-	D	D	-	-	-	-	-	-	-	-	-	-	-	-
Neohexane	75-83-2	HC Aliphatic		-	-	-	-	-	-	-	-	D	D	-	-	-	-	-	-	-	-	-	-	-	-
Neville Acid	84-87-7			A	A	A	A	A	-	-	-	D	D	-	-	-	-	-	-	-	-	-	-	-	-
Niacin	59-67-6	Acid		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel Acetate	373-02-4	Ester	Electroplating	A	A	A	A	A	-	-	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel Ammonium Sulfate	15699-18-0			A	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel Chloride	7718-54-9			A	A	A	A	A	B	A	A	-	A	A	-	-	-	-	-	-	-	-	-	-	-
Nickel Nitrate	13138-45-9			A	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel Salts	na			A	A	A	A	A	C/D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel Sulfate	7786-81-4			A	A	A	A	A	B	A	A	-	A	A	-	-	-	-	-	-	-	-	-	-	-
Nicotine	54-11-5			-	-	-	-	-	-	-	-	B	B	-	-	-	-	-	-	-	-	-	-	-	-
Nitric Acid 01 - 10%	7697-37-2	Acid - Strong	Precursor	B	B	B	B	B	D	D	B	B	A	A	A	B	A	A	A	A	A	A	B	A	-
Nitric Acid 20%	7697-37-2	Acid - Strong	Precursor	B	B	B	B	B	D	D	B	B	A	B	A	A	A	A	A	A	A	B	B	-	-
Nitric Acid 50%	7697-37-2	Acid - Strong	Precursor	C	C	C	C	C	D	D	C	C	B	C	D	C	B	B	B	A	B	A	C	-	-
Nitric Acid 50-65% (Boiling)	7697-37-2	Acid - Strong	Precursor	C	C	C	C	C	D	D	-	D	D	-	D	-	-	-	-	-	-	-	-	-	-
Nitric Acid 70%	7697-37-2	Acid - Strong	Precursor	D	D	D	D	D	D	D	D	C	D	D	D	C	C	C	A/D	C	-	-	-	-	-
Nitric Acid Concentrated	7697-37-2	Acid - Strong	Precursor	C	C	C	C	C	D	D	D	D	C/D	D	D	-	D	C/D	C/D	A/B	A	D	D	-	-
Nitrobenzene	98-95-3	Aromatic / Nitro	Precursor	B	B	B	B	B	D	D	D	D	D	D	D	D	D	A/B	D	A/B	A	D	D	-	-
Nitroethane	79-24-3	Nitro	Solvent Polar	A	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen	7727-37-9			A	A	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen Tetroxide	10544-72-6		Propellant	D	D	D	D	-	-	-	-	B	B	-	-	-	-	-	-	-	-	-	-	-	-
Nitroglycerine	55-63-0	Nitro	Explosive	A	A	A	A	A	D	D	-	A	-	D	D	-	-	-	-	-	-	-	-	-	-
Nitromethane	75-52-5	Nitro	Stabilizer	A	A	A	A	A	D	D	-	B	D	C	C	-	B	D	D	D	A	D	C	-	-
Nitropropane	na	Nitro	Solvent Polar	B	B	B	B	B	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrous Acid	7782-77-6	Acid	Precursor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrous Oxide	10024-97-2		Oxidizing Agent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Octachlorotoluene	2605-69-8	Aromatic / Halogen		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Octadecane	593-45-3	HC Aliphatic		B	B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Octane	111-65-9	HC Aliphatic	Fuel	B	B	B	B	B	A	-	D	A	D	D	A	D	A	A	A	A	A	D	D	-	-
Octanol (n-Octanol)	111-87-5	Alcohol	Precursor	B	B	B	B	B	D	D	-	D	-	A	D	-	-	-	-	-	-	-	-	-	-
Octyl Acetate	112-14-1	Ester	Flavoring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oils, Crude(Asphalt Base)	na	Petroleum	Oil	D	D	D	D	-	-	-	-	B	B	-	-	-	-	-	-	-	-	-	-	-	-
Oleic Acid	112-80-1	Fatty Acids		D	D	B	B	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oleic Acid Triglyceride	122-32-7	Fatty Acids		D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Olive Oil	na	Fatty Acids		B	B	B	B	B	C	-	C	-	D	D	-	-	-	-	-	-	-	-	-	-	-
Orange Oil	8028-48-6		Plant Oil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Solvents	GEN		Organic Solvents	C	C	C	C	C	D	D	-	D	B	D	D	C	D	B	B	B	A	D	-	-	-
Oronite 8200	na	Ether / Silicone	Hydraulic Fluid	-	-	-	-	-	-	-	-	B	B	-	-	-	-	-	-	-	-	-	-	-	-
Oronite 9515	na	Ether / Silicone	Hydraulic Fluid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outdoor Exposure	GEN			A	A	A	A	A	B	B	A	C/D	-	B	B	-	C/D	-	-	-	-	-	-	-	-
Oxalic Acid	144-62-7	Acid	Reducing Agent	-	-	-	-	-	-	-	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxalic Acid 5-10%	144-62-7	Acid		A	A	A	A	A	A/B	-	B	A	D	D	A	B	A	A	A	A	A	A	-	-	-
Oxidizing Agent, Strong	GEN		Oxidizing Agent	A/D	A/D	A/D	A/D	A/D	D	D	-	B	B	D	D	B	B	B	B	A	B	A	C/D	D	-
Oxygen	7782-44-7	Gas		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen (200-400oF)	7782-44-7	Gas		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen (liquid)	7782-44-7	Gas		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen cold	7782-44-7	Gas		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ozone	10028-15-6	Water Treatment		A	A	A	A	A	C	C	D	C	A/B	C	C	D	C	A/B	A/B	A/B	A/B	A	A	C	-
Paint Thinner	na		Solvent Nonpolar	C	C	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Palm Oil	8002-75-3		Plant Oil	B	B	B	B	B	B	B	-	C	-	-	-	-	-	-	-	-	-	-	-	-	-
Palmitic Acid	57-10-3	Fatty Acids	Precursor	B	B	B	B	B	A	A	C	C	-	A	-	C	-	-	-	-	-	-	-	-	-
Paraffin	8002-74-2	HC Aliphatic		A	A	A	A	A	A	A	C	B	-	D	D	-	-	-	-	-	-	-	-	-	-
Paraformaldehyde	30525-89-4		Plastic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paraldehyde	123-63-7		Solvent Borderline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peanut Oil	2228777		Plant Oil	B	B	B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachloroethane	76-01-7	HC Halogen		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachloroethylbenzene	606-07-5	Aromatic / Halogen		D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	87-86-5	Aromatic / Halogen	Pesticide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentane	109-66-0	HC Aliphatic	Solvent Nonpolar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentanol	71-41-0	Alcohol		A	A	A	A	A	C	C/D	-	D	A	A	A	A	D	A	A	A	A	A/B	A	D	A
Peppermint Oil	8006-90-4		Plant Oil	C	C	C	C	C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perchloric Acid	7601-90-3	Acid - Strong	Oxidizing Agent	D	D	D	D	D	D	D	B	B/D	B	B	B	D	B/D	B	B	B	A	B	D	B	-
Perchloroethylene	127-18-4	HC Halogen	Solvent Nonpolar	D	D	D	D	D	-	-	D	D	-	-	D	D	D	D	-	-	-	-	-	-	-
Petroleum - Above 250oF	na	Petroleum	Oil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Petroleum Crude	na	Petroleum	Oil	B	B	B	B	B	A/B	B	D	D	-	D	-	-	-	-	-	-	-	-	-	-	-
Petroleum Crude Oil	na	Petroleum	Oil	C/D	C/D	C/D	C/D	C/D	A/B	B	B	D													

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Innovapure®

Product Selection Guide

01

The choice of tubing products is often determined according to the application environment and application requirements. There are many factors to consider before determining the tubing material and tubing brand. The points below are listed to help guide you in selecting the appropriate Innovapure® tubing products for your particular application.

02

Lifetime and cost: The service conditions faced by the peristaltic pumps are worse than those for ordinary tubing, so the performance requirements for tubing are higher, especially tubing with better resilience will have a longer service life. In the long run, the longer the service life of the tubing, the lower the operating cost. The fewer pump tube replacements, the less maintenance costs and down-time. Pump tube manufacturers should provide test data to support their claimed pump tube life and flow fluctuation range. In any case, when designing a system, engineers should have an understanding of the average life of the tubing so that the end user can plan for preventive maintenance so that the pump tubing can be replaced before it fails. Pump tube suppliers with extensive technical knowledge can provide users with useful information to select the right pump tubing material for the specific application.

03

Chemical compatibility: The tubing must have chemical compatibility with the fluid to be pumped in order to have good pumping performance and safety performance. Peristaltic pump tube is in contact with chemical fluid under pressure conditions, should use specially developed for the pump tube chemical resistance table, otherwise it will make the pump tube failure or damage leakage. When the user refers to the chemical resistance table, each component of the solution, not only the main component, should be checked for compatibility with the tube to be used. If a chemical substance is not included in the chemical resistance table, or if the operating environmental conditions of an operation are too different from the conditions specified in the table, you can use immersion tests to obtain more reliable information, or contact our sales engineers.

04

Temperature range of the operating environment: The operating temperature range of the pump tube is another important factor to consider. Some tubing, such as silicone rubber, have a wide temperature range and are suitable for both high and low temperature processes, while some tubing are only suitable for a smaller temperature range. Before selecting the tube, the end user should first find out the maximum and minimum temperature in the system, and then ensure that the selected pump tubing works safely in this temperature range. In applications where a gradual increase in temperature is required, the end user should consider the effect of temperature on the chemical resistance and pressure bearing capacity of the pump tube. When the temperature increases, the bearing capacity of the pump tube will decrease.

05

Pressure range of use environments: The introduction of pressure-resistant pump tubes has extended the range of peristaltic pumps to unprecedented applications where back pressure is generated when fluid is pushed through a filter or through a flowmeter or valve. Before selecting the tube, the user should first make sure that all the pressure sources in the system are understood and the total pressure of the system has been obtained. When selecting the pump tube for the peristaltic pump, the user should ensure that the pressure in the system does not exceed the recommended working pressure of the pump tube. When the system pressure greatly exceeds the bearing capacity of the pump tubing, the pump tubing will burst and spew out fluid, endangering the safety. After selecting a tube, it should be used to ensure that the pressure is maintained within the pressure range recommended by the manufacturer.

06

Size, tolerance and minimum bending radius requirements: the size here mainly refers to the inner diameter and thickness of the pump tube, the size of the pump tube is directly related to the pumping flow, so it is necessary to calculate the best size or the best size range of the pump tube. Tolerance is the allowable error of the size of the pump tube, the smaller the tolerance, the smaller the performance deviation of the pump tube, the better the consistency and repeatability. Some pump tubes have very small manufacturing tolerances, and their dimensional deviations are strictly controlled when extruded. Pump tubes with smaller tolerances are slightly more expensive to manufacture, but are worth the cost compared to the increase in pumping performance. The minimum bending radius usually measures the degree of bending of the tube and needs to be determined according to the operating conditions.

07

Hardness, transparency and color requirements: a certain type of peristaltic pump needs a suitable tube or hose hardness with it to achieve the balance of peristaltic pump torque and flow. The Innovapure tubing hardness range is wide and can be freely matched. Whether a transparent tubing should be used depends first on whether the operator needs to observe the condition of the fluid in the tube at any time, and whether the fluid is sensitive to light. If the operator needs to observe the fluid, bubbles, particles, pollution and other conditions in the tube at any time, the transparent tube should be selected, and if the solution is not suitable for exposure. Opaque tubing should be selected.

08

Regulatory Requirements Industry Certification Requirements: For the pharmaceutical industry, regulatory certification is essential. In the industry, every item that comes into contact with the final product must meet specific standards and guidelines. For this reason, many pump tube materials are developed in strict accordance with regulatory requirements. These regulations include the United States Pharmacopoeia (USP), the European Pharmacopoeia (EP), the United States Food and Drug Administration (FDA), the United States Department of Agriculture (USDA), and the National Health Foundation (NSF). Of course, it is not enough to claim that certain materials comply with certain regulations. The pump tube manufacturer shall, upon request, provide the user with a certificate proving that the tube complies with this regulation. This allows the user to provide the necessary certificates to prove that the pump system complies with the necessary regulatory permits.

09

Whether sterilization and cleaning methods are required: Medical and pharmaceutical customers often need to sterilize tube products before use, and the sterilization methods adopted by different customers are also different. "Innovapure" tubing can basically meet the sterilization of ethylene oxide (ETO), hot steam (Autoclave) and radiation (Gamma radiation) at the same time, to meet the different sterilization needs of customers. At the same time, for pharmaceutical customers, sterilization dose mapping study was carried out according to ISO11137 Vdmax25 method, and BioBurden of production environment was monitored, and a verified dual bags packaging and traceability system was adopted to fully meet the sterilization needs of biopharmaceutical applications.

10

Spallation and Extractables & Leachables requirements: Medical and pharmaceutical customers often have specific requirements in their field, such as extremely low spallation to reduce potential contamination risks and the need for extensive leachables studies of tubing materials. To understand the potential impact on the product later. Innovapure's tube products have been subjected to extractables studies in the third party laboratories to provide comprehensive extractables safety recommendations. At the same time, our low spallation grade has a special treatment, the spallation from inner wall is extremely low, effectively reducing the potential risk of contamination, to meet the high-end needs of food, medical and pharmaceutical customers.

11

Connection and packaging: The connection of tubes to joints, reactors, mixers, bags etc., is also an aspect to consider. Our products can be matched with popular third-party CPC, Qosina, Nordson and other standard connectors and fittings to form a reliable fluid system, or can be designed to be connected as a whole assembly through the LSR integration solution. According to the special needs of customers, the ID/OD caliber, coil length, marking, printing and packaging of the tube can be customized, please contact sales and service personnel for details.

*If you have any other questions, please contact the sales staff.

Length,pressure,flow,volume,temperature & speed conversions		
Length	Pressure	Flow
1 inches (in)	1 lbs/in² (psi)	1 liters/min
0.0833 feet (ft)	0.0689 bars	0.2642 gallons/min
0.0278 yards (yds)	6894.757 pascals (pa)	0.0353 cubic feet/min
25.4 millimeters (mm)	6.8947 kilopascals (kpa)	16.6693 cubic centimeters/sec
2.54 centimeters (cm)	0.068 atmospheres (atm)	0.06 cubic meters/h
0.0254 meters (m)	27.7303 inches H2O	
	2.0360 inches Hg at 32°F	
Volume	Temperature	Speed
1 liters (l)	1°C=33.8 °F	1 m/min
0.001 cubic meters (m3)	1 °F =-17.22°C	0.001 km/min
1.8162 pints (dry)		0.06 km/hr
0.9081 quarts (dry)		0.0547 ft/sec
1.0567 quarts (liquid)		3.2811 ft/min
0.227 gallons (dry)		1.6668 cm/sec
0.2642 gallons (liquid)		0.0167 m/sec
61.0233 cubic inches (in3)		
0.0353 cubic feet (f3)		
1000 cubic centimeters (cm3)		

Metric & Imperial Comparison Table		
Strength	Stiffness	Length
Convert:	Convert:	Convert:
Newton to kilogram---multiply by 0.1020	kg/mm to lb/in---multiply by 55.9980	inches to meters---multiply by 0.0254
Newtons to pounds --- multiply by 0.2249	Kilograms/mm to Newtons/inch---multiply by 9.8070	mm to m---multiply by 0.0010
Kilograms to Newtons---multiply by 9.8070	lb/in to kg/mm---multiply by 0.0179	inches to feet---multiply by 0.0833
Kilograms to pounds---multiply by 2.2046	lb/in to N/mm---multiply by 0.1751	mm to feet---multiply by 0.0033
Pounds to Newtons --- multiply by 4.4480	Newton/mm to kg/mm---multiply by 0.1020	inches to millimeters ---multiply by 25.4
Pounds to kilograms --- multiply by 0.4536	Newton/mm to lb/in---multiply by 5.7099	mm to inches---multiplied by 0.0394

Pump Section	Peristaltic Pump Tubing					
						
Inside diameter	0.8 mm (0.03")	0.8 mm (0.03")	3.1 mm (0.12")	4.8 mm (0.19")	6.4 mm (0.25")	7.9 mm (0.31")
Adaptive plug size	1.6 mm (1/16")	1.6 mm (1/16")	3.2 mm(1/8")	4.8 mm (3/16")	6.4 mm (1/4")	9.5 mm (3/8")
Flow range (predicted value) 01-600rpm corresponding flow	0.06 to 36 mL/min	0.06 to 36 mL/min	0.8 to 480 mL/min	1.7 to 1000 mL/min	2.8 to 1700 mL/min	3.8 to 2300 mL/min
Withstand voltage	2.7 bar (40 psig)		2.7 bar (40 psig)	2.4 bar (35 psig)	1.4 bar (20 psig)	1.0 bar (15 psig)
Vacuum	660 mm Hg (26" Hg)		660 mm Hg (26" Hg)		510 mm Hg (20" Hg)	
Suction lift	8.8 m H2O (29 ft H2O)		8.8 m H2O (29 ft H2O)		6.7 m H2O (22 ft H2O)	

Pump Section	Peristaltic Pump Tubing			
				
Inner diameter	4.8 mm (0.19")	6.4 mm (0.25")	7.9 mm (0.31")	9.7 mm (0.38")
Adaptive plug size	4.8 mm (3/16")	6.4 mm(1/4")	9.5 mm (3/8")	9.5 mm (3/8")
Flow range (predicted value) 01-600rpm corresponding flow	1.7 to 1000 mL/min (1.8 to 1100 mL/min)	2.8 to 1700 mL/min (3.0 to 1800 mL/min)	3.8 to 2300 mL/min (4.3 to 2600 mL/min)	4.8 to 2900 mL/min (5.8 to 3400 mL/min)
Withstand voltage	2.7 bar (40 psig)		2.4 bar (35 psig)	1.4 bar (20 psig)
Vacuum	660 mm Hg (26" Hg)		660 mm Hg (26" Hg)	610 mm Hg (24" Hg)
Suction lift	8.8 m H2O (29 ft H2O)		8.8 m H2O (29 ft H2O)	8.3 m H2O (27 ft H2O)

Pump Section	Peristaltic Pump Tubing			Peristaltic Pump Tubing		
						
Inner diameter	6.4 mm (0.25")	9.5 mm (0.37")	12.7 mm (0.5")	9.5 mm (0.37")	12.7 mm (0.5")	15.88 mm (0.62")
Adaptive plug size	6.4 mm (1/4")	9.5 mm (3/8")	12.7 mm(1/2")	9.5 mm(3/8")	12.7 mm (1/2")	15.88 mm (5/8")
Flow range (predicted value) 01-600rpm corresponding flow	0.01 to 4 LPM (0.002 to 1.1 GPM)	0.02 to 13 LPM (0.005 to 3.5 GPM)	0.01 to 8 LPM (0.002 to 2.1 GPM)	0.01 to 8 LPM (0.002 to 2.1 GPM)	0.02 to 17 LPM (0.005 to 4.5 GPM)	0.03 to 19 LPM (0.007 to 5.0 GPM)
withstand voltage	2.7 bar (40 psig)	1.4 bar (20 psi)	2.7 bar (40 psi)	2.7 bar (40 psi)	2.4 bar (35 psi)	1.4 bar (20 psi)
Vacuum	660 mm Hg (26" Hg)	510 mm Hg (20" Hg)	660 mm Hg (26" Hg)	660 mm Hg (26" Hg)	610 mm Hg (24" Hg)	610 mm Hg (24" Hg)
Suction lift	8.8 m H2O (29 ft H2O)	7.0 m H2O (23 ft H2O)	8.8 m H2O (29 ft H2O)	8.8 m H2O (29 ft H2O)	8.2 m H2O (27 ft H2O)	8.2 m H2O (27 ft H2O)

*Results are based on the following test conditions: 0 psi at inlet, 0.5 psi at outlet; water temperature at 22°C (72°F).
*Actual performance varies depending on tubing formulation—values shown are for firm tubing.

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Full name of relevant certification

- * USP ClassVI (United States Pharmacopoeia medical level 6 certification)
- * ISO 10993-4 (Biological Assessment of Medical Equipment Part 4)
- * ISO10993-5 (Biological Value of Medical Devices Part 5)
- * EC 2002/72/EC (EU food contact plastic materials and products testing)
- * FDA (National Food and Drug Administration)
- * NSF 51 (NSF51 drinking water safety test)



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Disclaimer

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+ **Notes**

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