

## + 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 MBT Series



\*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)
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® MED 55 Product Specification

Feature	PVC polyvinyl chloride elastomer														
	<ul style="list-style-type: none"> <li>Colorless and transparent, the inner wall is smooth without residue</li> <li>Chemical resistance, common acid and alkali, etc.</li> <li>High elasticity, long service life of peristaltic pump</li> <li>+35 degrees to 75 degrees temperature range</li> <li>Compliant with RoHS and REACH, ISO10933 standard</li> </ul>														
Caution	<ul style="list-style-type: none"> <li>Avoid high pressure</li> <li>Avoid high temperature</li> </ul>														
Material	PVC polyvinyl chloride elastomer														
Operating temperature range	-35°C to +75°C														
Physical properties	<table border="0"> <tr> <td>Color</td> <td>Colorless &amp; transparent</td> </tr> <tr> <td>Shore A Hardness ASTM D 2240</td> <td>55A</td> </tr> <tr> <td>Density ASTM D 792</td> <td>1.20 g/cm<sup>3</sup></td> </tr> <tr> <td>Tensile Strength at Break ASTM D 412</td> <td>18 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>31 N/m</td> </tr> <tr> <td>Permanent Compression Set 70°C 22hrs ASTM D 395</td> <td>45%</td> </tr> </table>	Color	Colorless & transparent	Shore A Hardness ASTM D 2240	55A	Density ASTM D 792	1.20 g/cm <sup>3</sup>	Tensile Strength at Break ASTM D 412	18 MPa	Tensile Elongation ASTM D 412	500%	Tear Strength ASTM D 1004-94	31 N/m	Permanent Compression Set 70°C 22hrs ASTM D 395	45%
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Tear Strength ASTM D 1004-94	31 N/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	<table border="0"> <tr> <td>CO<sub>2</sub></td> <td>560</td> <td>Gas volume [cm<sup>3</sup>] x wall thickness [mm]</td> </tr> <tr> <td>O<sub>2</sub></td> <td>125</td> <td>Inner Diameter Sectional Area [cm<sup>2</sup>] x Time [sec] x 10<sup>-6</sup></td> </tr> <tr> <td>N<sub>2</sub></td> <td>70</td> <td>x Pressure drop along pipe wall [cm Hg]</td> </tr> </table>	CO <sub>2</sub>	560	Gas volume [cm <sup>3</sup> ] x wall thickness [mm]	O <sub>2</sub>	125	Inner Diameter Sectional Area [cm <sup>2</sup> ] x Time [sec] x 10 <sup>-6</sup>	N <sub>2</sub>	70	x Pressure drop along pipe wall [cm Hg]					
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N <sub>2</sub>	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® 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**  
For detailed compatibility with various chemical solvents, please refer to "Innovalene® Product Chemical Compatibility Information Sheet" or consult our sales personnel.

## + Innovalene® 66E Medical Grade TPE Tubing

Feature	Thermoplastic elastomer														
	<ul style="list-style-type: none"> <li>Alternative to PVC, no plasticizer</li> <li>Chemical resistance, resistant to dye, detergent, vinegar, etc.</li> <li>The inner wall is smooth without residue</li> <li>+30 degrees to 130 degrees temperature range</li> <li>Compliance with RoHS and REACH standards</li> </ul>														
Caution	<ul style="list-style-type: none"> <li>Avoid folding</li> <li>Avoid high temperature</li> </ul>														
Material	Thermoplastic elastomer														
Operating temperature range	-60 °C to +140°C														
Physical properties	<table border="0"> <tr> <td>Color</td> <td>Colorless &amp; transparent</td> </tr> <tr> <td>Shore A Hardness ASTM D 2240</td> <td>65A</td> </tr> <tr> <td>Density ASTM D 792</td> <td>0.89 g/cm<sup>3</sup></td> </tr> <tr> <td>Tensile Strength at Break ASTM D 412</td> <td>19.9 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 N/m</td> </tr> <tr> <td>Permanent Compression Set 70°C 22hrs ASTM D 395</td> <td>60%</td> </tr> </table>	Color	Colorless & transparent	Shore A Hardness ASTM D 2240	65A	Density ASTM D 792	0.89 g/cm <sup>3</sup>	Tensile Strength at Break ASTM D 412	19.9 MPa	Tensile Elongation ASTM D 412	600%	Tear Strength ASTM D 1004-94	45 N/m	Permanent Compression Set 70°C 22hrs ASTM D 395	60%
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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 border="0"> <tr> <td>CO<sub>2</sub></td> <td>1200</td> <td>Gas volume [cm<sup>3</sup>] x wall thickness [mm]</td> </tr> <tr> <td>O<sub>2</sub></td> <td>500</td> <td>Inner Diameter Sectional Area [cm<sup>2</sup>] x Time [sec] x 10<sup>-6</sup></td> </tr> <tr> <td>N<sub>2</sub></td> <td>100</td> <td>x Pressure drop along pipe wall [cm Hg]</td> </tr> </table>	CO <sub>2</sub>	1200	Gas volume [cm <sup>3</sup> ] x wall thickness [mm]	O <sub>2</sub>	500	Inner Diameter Sectional Area [cm <sup>2</sup> ] x Time [sec] x 10 <sup>-6</sup>	N <sub>2</sub>	100	x Pressure drop along pipe wall [cm Hg]					
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### + 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.

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