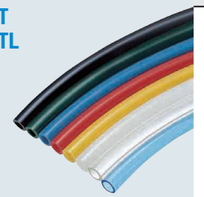
# Tubes

## Water Resistant Polyurethane / Soft Polyurethane / Nylon / Pressure Resistant Nylon / Soft Nylon

### Water Resistant Polyurethane Tubes

**PUT**
**PUTL**



**Material:** Polyurethane

| Part Number Type | Part Number Outer Dia. (mm) | Standard Length (m) PUT | Config. Length (0.5 m Increment) PUTL | Tube Color | Inner Diameter (mm) | Min. Bending Radius (mm) | Outer Dia. Accuracy (mm) | Mass (kg/m) | Available Types for Configurable Length 1–4 pc(s). | 5–9 |
|---|---|---|---|---|---|---|---|---|---|---|
| PUT Standard Length<br>PUTL Configurable Length | 3.2 | 10<br>20 | 0.5–9.5<br>10.5–19.5 | B Black<br>C Transparent | 1.8 | 7 | ±0.1 | 0.0064 | — | — |
| | 4 | 10<br>20<br>100 | | B Black<br>C Transparent<br>W White<br>R Red<br>Y Yellow<br>BL Blue<br>G Green<br>CB Transparent Blue | 2.5 | 5 | | 0.009 | • | • |
| | 6 | 10<br>20<br>100 | | | 4 | 12 | | 0.019 | • | • |
| | 8 | 10<br>20<br>100 | | | 5 | 15 | | 0.037 | • | • |
| | 10 | 10<br>20<br>100 | | | 6.5 | 25 | +0.1<br>-0.15 | 0.055 | • | • |
| | 12 | 10<br>20<br>100 | | | 8 | 28 | | 0.076 | • | • |
| | 16 | 10<br>20 | | B Black | 11 | 30 | | 0.127 | • | • |

### Soft Polyurethane Tubes

**PUTY**
**PUTYL**

**Material:** Soft Polyurethane

| Part Number Type | Part Number Outer Dia. (mm) | Standard Length (m) PUTY | Config. Length (0.5 m Increment) PUTYL | Tube Color | Inner Diameter (mm) | Min. Bending Radius (mm) | Outer Dia. Accuracy (mm) | Mass (kg/m) |
|---|---|---|---|---|---|---|---|---|
| PUTY Standard Length<br>PUTYL Configurable Length | 4 | 10<br>20 | 0.5–9.5<br>10.5–19.5 | B Black | 2.5 | 17 | +0.05<br>-0.2 | 0.009 |
| | 6 | 10<br>20 | | | 4 | 28 | | 0.019 |
| | 8 | 10<br>20 | | C Transparent | 5 | 36 | | 0.037 |
| | 10 | 10<br>20 | | | 6.5 | 45 | | 0.055 |

ⓘ Use Inserts for Soft Tubes on **(P.3477)** when connecting these tubes to One-Touch Couplings.

### Nylon Tubes

**PUTN**
**PUTNL**

**Material:** Nylon (Polyamide)

| Part Number Type | Part Number Outer Dia. (mm) | Standard Length (m) PUTN | Config. Length (0.5 m Increment) PUTNL | Tube Color | Inner Diameter (mm) | Min. Bending Radius (mm) | Outer Dia. Accuracy (mm) | Burst Pressure (MPa) | Normal Pressure (MPa) | Mass (kg/m) | Available Types for Config. Length 1–4 pc(s). | 5–9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PUTN Standard Length<br>PUTNL Configurable Length | 3.2 | 10<br>20 | 0.5–9.5<br>10.5–19.5 | B Black<br>W White | 2 | 7 | +0.05<br>-0.10 | 5.4 | 1.8 | 0.0052 | — | — |
| | 4 | 10<br>20 | | | 2.5 | 10 | ±0.05 | 6.0 | 2.0 | 0.008 | • | • |
| | 6 | 10<br>20 | | | 4 | 20 | | 5.1 | 1.7 | 0.017 | • | • |
| | 8 | 10<br>20 | | | 6.0 | 30 | | 3.9 | 1.3 | 0.026 | • | • |
| | 10 | 10<br>20 | | | 7.5 | 40 | | 3.6 | 1.2 | 0.040 | • | • |
| | 12 | 10<br>20 | | | 9.0 | 55 | | 3.6 | 1.2 | 0.053 | • | • |

### Pressure Resistant Nylon Tubes

**PUTHP**
**PUTHPL**

RoHS10 **Material:** Nylon (Polyamide)

| Part Number Type | Part Number Outer Dia. (mm) | Standard Length (m) PUTHP | Config. Length (0.5 m Increment) PUTHPL | Tube Color | Inner Diameter (mm) | Min. Bending Radius (mm) | Outer Dia. Accuracy (mm) | Burst Pressure (MPa) | Normal Pressure (MPa) | Mass (kg/m) |
|---|---|---|---|---|---|---|---|---|---|---|
| PUTHP Standard Length<br>PUTHPL Configurable Length | 4 | 10<br>20 | 0.5–9.5<br>10.5–19.5 | B Black<br>W White | 2.5 | 15 | ±0.05 | 8.8 | 2.9 | 0.008 |
| | 6 | 10<br>20 | | | 4 | 25 | +0.05<br>-0.1 | 7.7 | 2.6 | 0.017 |
| | 8 | 10<br>20 | | | 6 | 35 | | 5.5 | 1.8 | 0.023 |
| | 10 | 10<br>20 | | | 8 | 50 | | 5.1 | 1.7 | 0.029 |
| | 12 | 10<br>20 | | | 9 | 55 | | 5.5 | 1.8 | 0.052 |
| | 16 | 10<br>20 | | | 12.8 | 100 | +0.05<br>-0.15 | 4.0 | 1.3 | 0.076 |

### Soft Nylon Tubes

**PUTNS**
**PUTNSL**

**Material:** Nylon

| Part Number Type | Part Number Outer Dia. (mm) | Standard Length (m) PUTNS | Config. Length (0.5 m Increment) PUTNSL | Tube Color | Inner Diameter (mm) | Min. Bending Radius (mm) | Outer Dia. Accuracy (mm) | Mass (kg/m) |
|---|---|---|---|---|---|---|---|---|
| PUTNS Standard Length<br>PUTNSL Configurable Length | 4 | 20 | 0.5–19.5 | B Black<br>W White | 2.5 | 9 | ±0.1 | 0.009 |
| | 6 | | | | 4 | 14 | | 0.017 |
| | 8 | | | | 6 | 25 | | 0.023 |
| | 10 | | | | 7.5 | 30 | | 0.036 |
| | 12 | | | | 9 | 34 | | 0.052 |

**Part Number Example**

| Part Number | - | Length | - | Color |
|---|---|---|---|---|
| PUT4 | - | 10 | - | B |
| PUTNL8 | - | 2.5 | - | W |



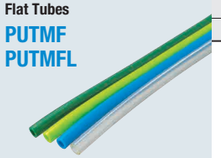


# Tubes

## Flat / Water Resistant Polyurethane Spiral / Multi-Spiral / Slit Spiral / Sputtering Resistant / Vacuum

### Flat Tubes

**PUTMF**
**PUTMFL**



**Material:** Polyurethane

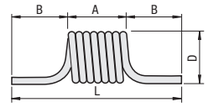
| Part Number Type | Part Number Outer Dia. (mm) | Number of Bores | Standard Length (m) PUTMF | Configurable Length (0.5 m Increment) PUTMFL | Inner Diameter (mm) | Min. Bending Radius (mm) | Mass (kg/m) |
|---|---|---|---|---|---|---|---|
| PUTMF Standard Length<br>PUTMFL Configurable Length | 4 | 2 | 20 | 0.5–19.5 | 2 | 15 | 0.022 |
| | | 3 | | | 2 | | 0.033 |
| | | 4 | | | | | 0.044 |
| | 6 | 2 | | | 4 | 25 | 0.038 |
| | | 3 | | | | | 0.057 |
| | | 4 | | | | | 0.076 |
| | 8 | 2 | | | 5 | 40 | 0.074 |
| | | 3 | | | | | 0.111 |
| | | 4 | | | | | 0.148 |
| | 10 | 2 | | | 6.5 | 55 | 0.110 |
| | | 3 | | | | | 0.165 |
| | | 4 | | | | | 0.220 |
| | 12 | 2 | | | 8 | 65 | 0.152 |
| | | 3 | | | | | 0.220 |
| | | 4 | | | | | 0.304 |

ⓘ Color Matching: 2-Bore=Clear/Blue; 3-Bore=Clear/Blue/Light Green; 4-Bore=Clear/Blue/Light Green/Green

### Water Resistant Polyurethane Spiral Tubes

**PUTSP**

RoHS10

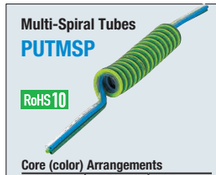



**Material:** Polyurethane

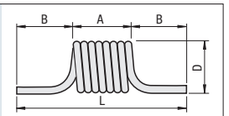
| Part Number Type | Part Number Outer Dia. (mm) | Operating Limit Length ⓘ (mm) | Tube Color | Inner Dia. (mm) | D | L | A | B | Min. Bending Radius ⓘ (mm) | O.D. Accuracy (mm) | Mass (kg/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PUTSP | 4 | 700 | B Black | 2 | 21 | 460 | 60 | 200 | 5 | ±0.1 | 0.009 |
| | | 1000 | | | | 520 | 120 | | | | |
| | | 1300 | | | | 580 | 180 | | | | |
| | 6 | 850 | | 4 | 38 | 490 | 90 | | 12 | | 0.019 |
| | | 1300 | | | | 580 | 180 | | | | |
| | | 1750 | | | | 670 | 270 | | | | |
| | 8 | 1000 | | 5 | 42 | 520 | 120 | | 15 | | 0.037 |
| | | 1600 | | | | 640 | 240 | | | | |
| | | 2200 | | | | 760 | 360 | | | | |
| | 10 | 1150 | | 6.5 | 52 | 550 | 150 | | 25 | +0.1<br>-0.15 | 0.055 |
| | | 1900 | | | | 700 | 300 | | | | |
| | | 2650 | | | | 850 | 450 | | | | |
| | 12 | 1300 | | 8 | 67 | 580 | 180 | | 28 | | 0.076 |
| | | 2200 | | | | 760 | 360 | | | | |
| | | 3100 | | | | 940 | 540 | | | | |

### Multi-Spiral Tubes

**PUTMSP**



RoHS10




| No. of Bores \ Color | Transparent | Blue | Light Green | Green |
|---|---|---|---|---|
| 2 | (1) | (2) | — | — |
| 3 | (1) | (2) | (3) | — |
| 4 | (1) | (2) | (3) | (4) |

**Core (color) Arrangements**

| 2 Bores | 3 Bores | 4 Bores |
|---|---|---|
| ①② | ①②③ | ③④<br>①② |

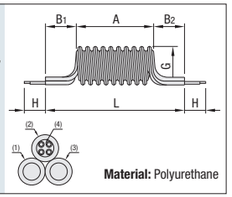
**Material:** Polyurethane

| Part Number Type | Part Number O.D. (mm) | No. of Bores | Nominal Length | Operating Limit Length ⓘ (mm) | Inner Dia. (mm) | Min. Bending Radius ⓘ (mm) | D | L | A | B |
|---|---|---|---|---|---|---|---|---|---|---|
| PUTMSP | 4 | 2 | 700 | 787 | 2 | 15 | 21 | 529 | 129 | 200 |
| | | 3 | 800 | 885 | | | 27 | 594 | 194 | 200 |
| | | 4 | 700 | 787 | | 40 | 35 | 529 | 129 | 200 |
| | 6 | 2 | 900 | 985 | 4 | 25 | 38 | 595 | 195 | 200 |
| | | 3 | 1100 | 1133 | | | 44 | 693 | 293 | 200 |
| | | 4 | 900 | 985 | | 65 | 56 | 595 | 195 | 200 |
| | 8 | 2 | 1200 | 1210 | 5 | 40 | 42 | 670 | 270 | 200 |
| | | 3 | 1400 | 1413 | | | 50 | 805 | 405 | 200 |
| | | 4 | 1200 | 1210 | | 90 | 66 | 670 | 270 | 200 |
| | 10 | 2 | 1400 | 1417 | 6.5 | 55 | 52 | 739 | 339 | 200 |
| | | 3 | 1600 | 1673 | | | 63 | 909 | 509 | 200 |
| | | 4 | 1400 | 1417 | | 160 | 83 | 739 | 339 | 200 |
| | 12 | 2 | 1700 | 1715 | 8 | 65 | 67 | 805 | 405 | 200 |
| | | 3 | 1900 | 1920 | | | 84 | 1008 | 608 | 200 |
| | | 4 | 1600 | 1615 | | 230 | 108 | 805 | 405 | 200 |

### Slit Spiral Tubes – With Fluororesin Insulated Wire

**PUTHSP**

RoHS10




**Material:** Polyurethane

| Part Number Type | Part Number O.D. (mm) | Nom. Length | Wire (mm²) | L | Operating Limit Length ⓘ (mm) | Inner Dia. (mm) | Min. Bending Radius ⓘ (mm) | A | $B_1$ | $B_2$ | G | H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PUTHSP | 4 | 500 | 0.15 | 445 | 535 | 2.5 | 40 | 45 | 150 | 250 | 35 | 300 |
| | | 800 | | 535 | 805 | | | 135 | | | | |
| | | 900 | | 580 | 940 | | | 180 | | | | |
| | 6 | 500 | 0.3 | 465 | 560 | 4 | 65 | 65 | 150 | 250 | 49 | 300 |
| | | 700 | | 530 | 725 | | | 130 | | | | |
| | | 800 | | 595 | 890 | | | 195 | | | | |
| | 8 | 600 | 0.3 | 490 | 670 | 5 | 90 | 90 | 150 | 250 | 66 | 300 |
| | | 900 | | 580 | 940 | | | 180 | | | | |
| | | 1200 | | 670 | 1210 | | | 270 | | | | |

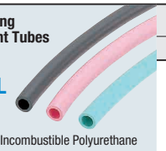
(1) Black (2) Transparent Blue (3) Blue
(4) Wire Colors: White/Black/Red/Green (4 conductors)

**Features:** The tube can flex and follow the movements of liner slides, etc. Electrical wire can easily be inserted and removed from the slit on the side.

ⓘ Operating Limit Length is the overall length (L) of the tube when extended to a serviceable maximum. ⓘ Minimum bending radius is based on operation of bending the straight parts at both ends.

### Sputtering Resistant Tubes

**PUTS**
**PUTSL**

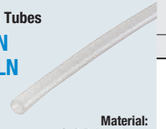


**Material:** Incombustible Polyurethane

| Part Number Type | Part Number Outer Dia. (mm) | Standard Length (m) PUTS | Configurable Length (0.5 m Increment) PUTSL | Tube Color | Inner Diameter (mm) | Min. Bending Radius (mm) | Outer Dia. Accuracy (mm) | Mass (kg/m) |
|---|---|---|---|---|---|---|---|---|
| PUTS Standard Length<br>PUTSL Configurable Length | 6 | 10<br>20 | 0.5~ 9.5<br>10.5~19.5 | B Black<br>R Red<br>G Green | 4 | 15 | ±0.1 | 0.019 |
| | 8 | 10<br>20 | | | 5 | 20 | | 0.037 |
| | 10 | 10<br>20 | | | 6.5 | 25 | +0.1<br>-0.15 | 0.055 |
| | 12 | 10<br>20 | | | 8 | 30 | | 0.076 |

### Vacuum Tubes

**PUVFN**
**PUVFLN**



**Material:** Soft Polyurethane

| Part Number Type | Part Number Outer Dia. (mm) | Standard Length (m) PUVFN | Configurable Length (0.5 m Increment) PUVFLN | Inner Diameter (mm) | Min. Bending Radius (mm) | Outer Dia. Accuracy (mm) | Mass (kg/m) |
|---|---|---|---|---|---|---|---|
| PUVFN Standard Length<br>PUVFLN Configurable Length | 4 | 10<br>20 | 0.5~ 9.5<br>10.5~19.5 | 2.5 | 12 | ±0.1 | 0.009 |
| | 6 | 10<br>20 | | 4 | 18 | | 0.018 |

ⓘ Use Inserts for Soft Tubes on **(P.3477)** when connecting these tubes to One Touch Couplings.

**Part Number Example**

| Part Number | - | No. of Bores | - | Length |
|---|---|---|---|---|
| PUTMF4 | - | 3 | - | 20 |
| PUTMSP6 | - | 4 | - | 900 |

| Part Number | - | Length | - | Color |
|---|---|---|---|---|
| PUTSL8 | - | 1.5 | - | R |