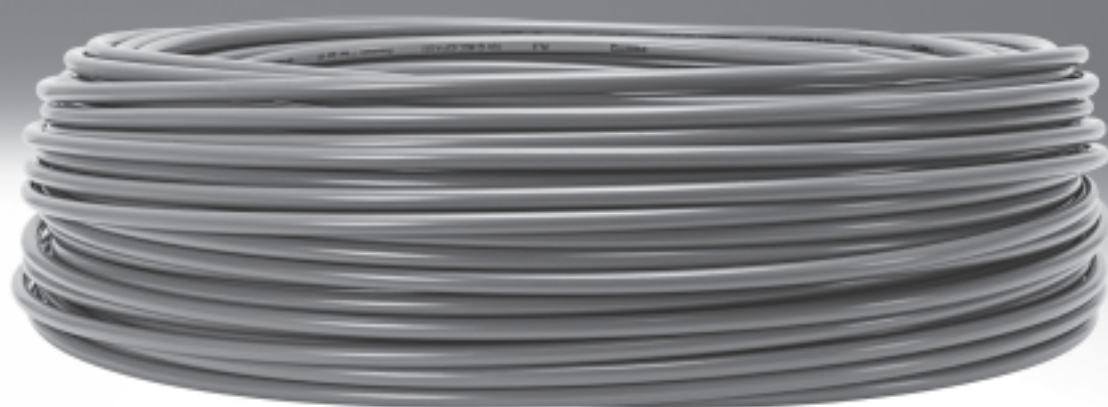


Plastic tubing, standard I.D.


FESTO



Plastic tubing, standard I.D.

Product range overview

FESTO

| Version | Type | Inside Ø [mm] | Colour | | | | Operating medium | | Resistance | | | | |
|---|--|------------------|--------|-------|---------|------------|------------------|--------|------------|----------|------------------|------------|---------------|
| | | | Blue | Black | Natural | Blue/black | Compressed air | Vacuum | Chemicals | Microbes | UV radiation | Hydrolysis | Stress cracks |
|  | PL Polyethylene | 3, 4, 6 | ■ | ■ | ■ | – | ■ | ■ | ++ | ++ | ++ ²⁾ | ++ | + |
| | PL-9/13 Polyvinyl chloride ¹⁾ | 9, 13 | ■ | – | – | – | ■ | – | – | ++ | + | + | + |
| | PU Polyurethane | 2, 3, 4, 6 | ■ | ■ | – | – | ■ | ■ | – | – | ++ ²⁾ | + | + |
| | PU-9/13 Polyurethane ¹⁾ | 9 13 | – | ■ | – | – | ■ | – ■ | – | – | ++ ²⁾ | + | + |
| | PU-DUO Polyurethane | 2, 3, 4, 6 | – | – | – | ■ | ■ | ■ | – | – | + | + | + |

1) fibre-reinforced

2) Applies for black colour

++ Well suited

+ Limited suitability (upon request)

– Unsuitable

Plastic tubing, standard I.D.

Product range overview



| Type | Food approval as per directive 2002/72/EC | Food approval as per directive FDA | Halogen-free | PWIS-free to FN 942 010 | Suitable for chain link trunking | Approved by German Technical Control Board | Shore hardness | → Page/ Internet |
|---------|---|------------------------------------|--------------|-------------------------|----------------------------------|--|----------------|------------------|
| PL | ■ ¹⁾ | ■ ¹⁾ | ■ | ■ | - | ■ | D 42 | 6 |
| PL-9/13 | - | - | - | ■ | - | - | A 85 | 7 |
| PU | - | - | ■ | ■ | ■ | ■ | D 52 | 8 |
| PU-9 | - | - | ■ | ■ | ■ | - | A 86 | 8 |
| PU-13 | | | | | | | A 91 | |
| PU-DUO | - | - | ■ | ■ | ■ | ■ | D 52 | 9 |

1) Applies for natural colour

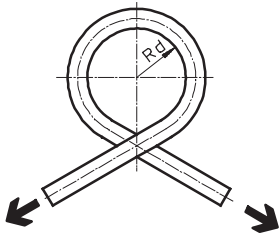
Plastic tubing, standard I.D.

Technical data

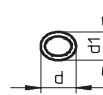
FESTO

Measuring methods

Flow-relevant bending radius R_d



The tubing is bent in the direction of its inherent flexion until a 5% flattening of the tubing O.D. occurs. The R_d is then calculated. There is no reduction in the flow rate up until the R_d is reached.

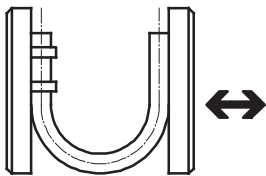


Cross section flattened as a result of bended tubing

d = non deformed tubing OD

d_1 = deformed tubing OD

Minimum bending radius R_{min}



The tubing attached to a movable plate is bent until the deformation results in a kink. The measured value is the minimum bending radius R_{min} . This R_{min} leads to considerable reductions in flow.

Plastic tubing, standard I.D.

Type codes



| | | | | | | | |
|--|----|---|---|---|--|---|----|
| | PU | — | 6 | — | | — | BL |
|--|----|---|---|---|--|---|----|

| | |
|----------|--------------------------------|
| Material | |
| PL | Polyethylene, I.D. 3, 4, 6 |
| PL | Polyvinyl chloride, I.D. 9, 13 |
| PU | Polyurethane |

| | |
|-----------------|--|
| Internal Ø [mm] | |
|-----------------|--|

| | |
|-------------|-------------|
| Twin tubing | |
| DUO | Twin tubing |

| | |
|--------|------------|
| Colour | |
| SW | Black |
| BL | Blue |
| NT | Natural |
| BS | Blue/black |

- 1 - Type PL discontinued

Available up until 2012

Plastic tubing PL, standard I.D.

Technical data

Plastic tubing PL

-Q- Ambient temperature
-30 ... +60 °C

Approved for use with food products
in accordance with directive
2002/72/EC and the FDA.

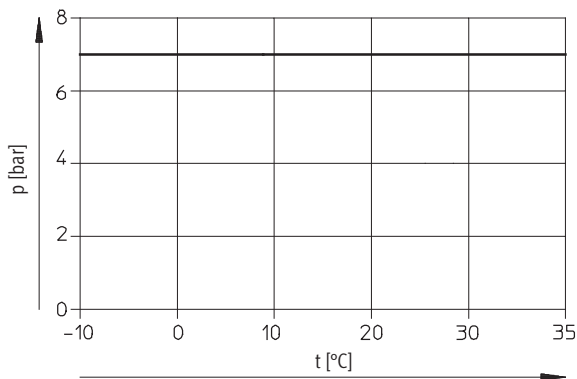
Pressure
operating pressure
-0.95 ... +9 bar

Material:
Polyethylene

Note on material:
Free of copper and PTFE
RoHS-conform



Operating pressure p as a function of temperature t



Possible fittings



Barbed fittings CN
→ Internet: cn



Quick connectors CK¹⁾
→ Internet: ck

1) Recommended fitting

| Dimensions and ordering data | | | | | | | |
|------------------------------|------|------------------------------|--------|---------|----------|---------|------------------|
| O.D. | I.D. | Flow-relevant bending radius | Weight | Colour | Part No. | Type | PU ¹⁾ |
| [mm] | [mm] | [mm] | [kg/m] | | | | [m] |
| 4.3 | 3 | 18 | 0.0068 | Natural | 3856 | PL-3-NT | 50 |
| | | | | Blue | 3453 | PL-3-BL | 50 |
| | | | | Black | 4640 | PL-3-SW | 50 |
| 6.2 | 4 | 22.5 | 0.016 | Natural | 2236 | PL-4-NT | 50 |
| | | | | Blue | 3861 | PL-4-BL | 50 |
| | | | | Black | 4641 | PL-4-SW | 50 |
| 8.4 | 6 | 39 | 0.025 | Natural | 2237 | PL-6-NT | 50 |
| | | | | Blue | 3862 | PL-6-BL | 50 |
| | | | | Black | 4642 | PL-6-SW | 50 |

1) Packaging unit

- 2 - Type PL discontinued
Available up until 2012

FESTO

Plastic tubing PL, standard I.D.

Technical data

Plastic tubing PL

-Q- Ambient temperature
-10 ... +35 °C

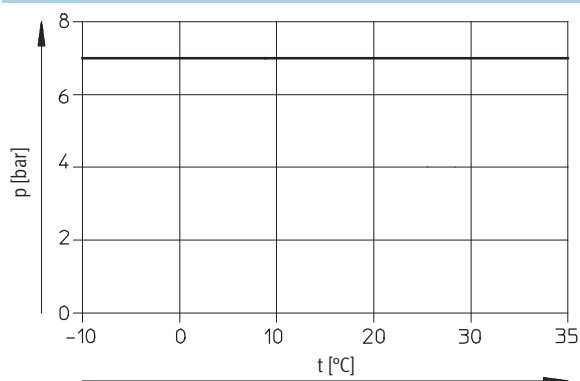
Pressure
operating pressure
0 ... 7 bar

Material:
Plasticiser-containing polyvinyl
chloride with reinforcing fabric

Note on material:
Free of copper and PTFE
RoHS-conform



Operating pressure p as a function of temperature t



Possible fittings



Quick connectors CK

→ Internet: ck

Dimensions and ordering data

| O.D. | I.D. | Flow-relevant bending radius | Weight | Colour | Part No. | Type | PU ¹⁾ |
|------|------|---------------------------------|--------|--------|----------|----------------|------------------|
| [mm] | [mm] | [mm] | [kg/m] | | | | [m] |
| 11.6 | 9 | 85 | 0.049 | Blue | 2238 | PL-9-BL - 2 - | 50 |
| 17.6 | 13 | 100 | 0.135 | Blue | 4103 | PL-13-BL - 2 - | 50 |

1) Packaging unit

- 1 - Type PU-2 ... 6 discontinued Available up until 2012

Plastic tubing PU, standard I.D.

Technical data

Plastic tubing PU

Highly flexible plastic tubing distinguished by its great resistance to abrasion and kinks.

-Q- Ambient temperature
-35 ... +60 °C

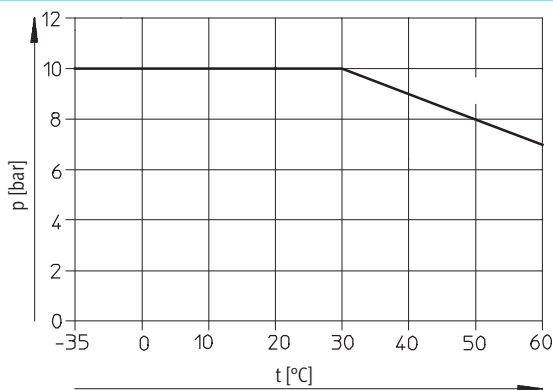
Pressure
operating pressure
-0.95 ... +10 bar
PU-9;
0 ... 10 bar

Material:
Polyurethane
PU-9 and PU-13 Polyurethane with reinforcing fabric

Note on material:
Free of copper and PTFE
RoHS-conform



Operating pressure p as a function of temperature t



Possible fittings



Barbed fittings CN
→ Internet: cn



Quick connectors CK¹⁾
→ Internet: ck

1) Recommended fitting

| Dimensions and ordering data | | | | | | | |
|------------------------------|------|------------------------------|--------|--------|----------|----------|------------------|
| O.D. | I.D. | Flow-relevant bending radius | Weight | Colour | Part No. | Type | PU ¹⁾ |
| [mm] | [mm] | [mm] | [kg/m] | | | | [m] |
| 3.2 | 2.3 | 13 | 0.005 | Blue | 13365 | PU-2-BL | 50 |
| | | | | Black | 13366 | PU-2-SW | 50 |
| 4.4 | 2.9 | 14 | 0.0096 | Blue | 5732 | PU-3-BL | 50 |
| | | | | Black | 5731 | PU-3-SW | 50 |
| 6.1 | 4 | 20 | 0.021 | Blue | 6204 | PU-4-BL | 50 |
| | | | | Black | 5733 | PU-4-SW | 50 |
| 8.3 | 6 | 36 | 0.033 | Blue | 9159 | PU-6-BL | 50 |
| | | | | Black | 6731 | PU-6-SW | 50 |
| | | | | | | | |
| Fibre-reinforced | | | | | | | |
| 11.6 | 9 | 76 | 0.051 | Black | 12134 | PU-9-SW | 50 |
| 17.6 | 13 | 83 | 0.140 | Black | 12133 | PU-13-SW | 50 |

1) Packaging unit

Plastic tubing PU-DUO, standard I.D.

Technical data

DUO tubing PU-DUO

Highly flexible paired plastic tubing distinguished by great resistance to abrasion and kinks. Two lengths of tubing are fused together into a tubing pair. For fitting, the paired tubing is separated as required at both ends.

-Q- Ambient temperature
 -35 ... +60 °C

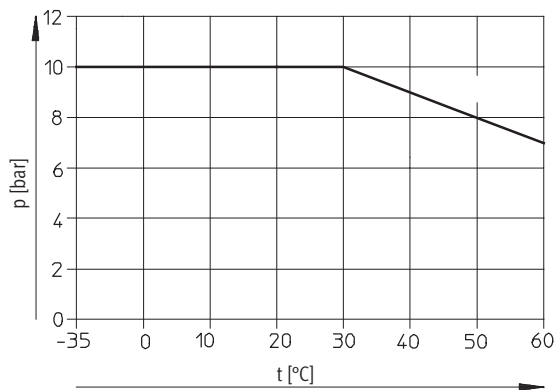
Pressure
 operating pressure
 -0.95 ... +10 bar

Material:
 Polyurethane

Note on material:
 Free of copper and PTFE



Operating pressure p as a function of temperature t



Possible fittings



Barbed fittings CN
 → Internet: cn



Quick connectors CK¹⁾
 → Internet: ck

1) Recommended fitting

Dimensions and ordering data

| O.D. [mm] | I.D. [mm] | Flow-relevant bending radius [mm] | Weight [kg/m] | Colour | Part No. | Type | PU ¹⁾ [m] |
|--------------|--------------|---|------------------|------------|----------|-------------|-------------------------|
| 3.2 | 2.3 | 13 | 0.010 | Blue/black | 19581 | PU-2-DUO-BS | 50 |
| 4.4 | 2.9 | 14 | 0.0192 | Blue/black | 11958 | PU-3-DUO-BS | 50 |
| 6.1 | 4 | 20 | 0.042 | Blue/black | 11959 | PU-4-DUO-BS | 50 |
| 8.3 | 6 | 36 | 0.066 | Blue/black | 11960 | PU-6-DUO-BS | 50 |

1) Packaging unit

Product Range and Company Overview

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Custom Automation Components
Complete custom engineered solutions



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The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



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Electromechanical actuators, motors, controllers & drives



Pneumatics
Pneumatic linear and rotary actuators, valves, and air supply



PLCs and I/O Devices
PLC's, operator interfaces, sensors and I/O devices

Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

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Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

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