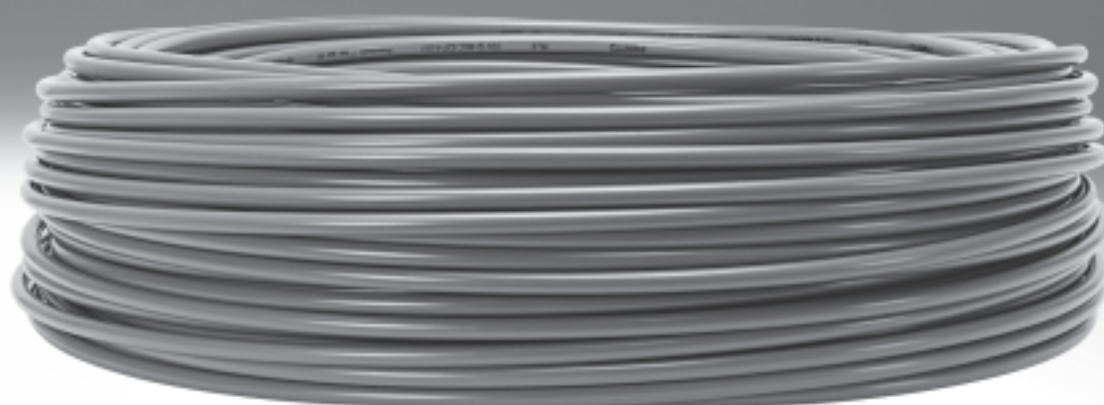


Plastic tubing, standard I.D.

FESTO



- 2 - Type discontinued PP
Available up until 12/2011

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	■	–	–	–	■	–	–	++	+	+	+
	PP Polyamide	3, 4, 6	–	–	■	–	■	■	+	++	+	+	+
	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

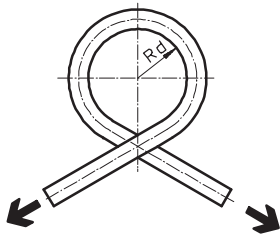
FESTO

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	Germanischer Lloyd	Shore hardness	→ Page/ Internet
PL	■ ¹⁾	■ ¹⁾	■	■	-	■	-	D 42	6
PL-9/13	-	-	-	■	-	-	-	A 85	7
PP	-	-	■	■	■	■	■	D 55	8
PU	-	-	■	■	■	■	-	D 52	9
PU-9	-	-	■	■	■	-	-	A 86	9
PU-13								A 91	
PU-DUO	-	-	■	■	■	■	-	D 52	10

1) Applies for natural colour

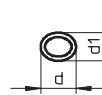
Measuring methods

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.

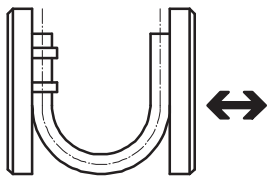


Cross section flattened as a result of bended tubing

d = non deformed tubing OD

$d1$ = 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

FESTO

		PU	—	8	—		—	BL
Material								
PL	Polyethylene, I.D. 3, 4, 6							
PL	Polyvinyl chloride, O.D. 9, 13							
PP	Polyamide							
PU	Polyurethane							
Internal Ø [mm]								
Twin tubing								
DUO	Twin tubing							
Colour								
SW	Black							
BL	Blue							
NT	Natural							
BS	Blue/black							

Plastic tubing PL, standard I.D.

Technical data

FESTO

Plastic tubing PL

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

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

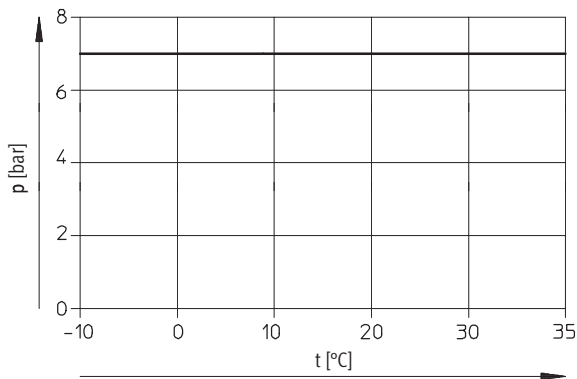
-  - Temperature dependent
operating pressure
-0.95 ... +9 bar

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. [mm]	I.D. [mm]	Flow-relevant bending radius [mm]	Weight [kg/m]	Colour	Part No.	Type	PU ¹⁾ [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

Plastic tubing PL, standard I.D.

Technical data

FESTO

Plastic tubing PL

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

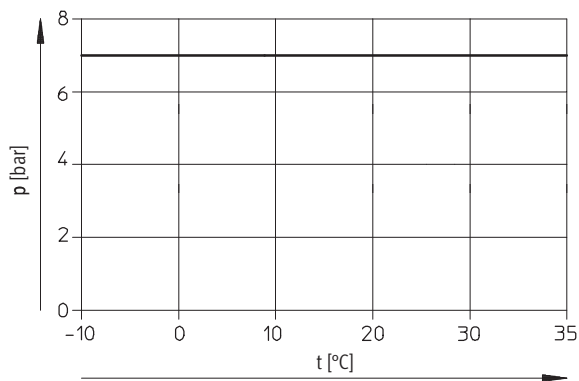
-  - Temperature dependent
operating pressure
0 ... 7 bar

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

1) Packaging unit

- 1 - Type discontinued PP
Available up until 12/2011

Plastic tubing PP, standard I.D.

Technical data

FESTO

Plastic tubing PP

-  - Ambient temperature
-30 ... +80 °C
-  - Temperature dependent
operating pressure
PP-3/PP-6:
-0.95 ... +15 bar
PP-4:
-0.95 ... +19 bar

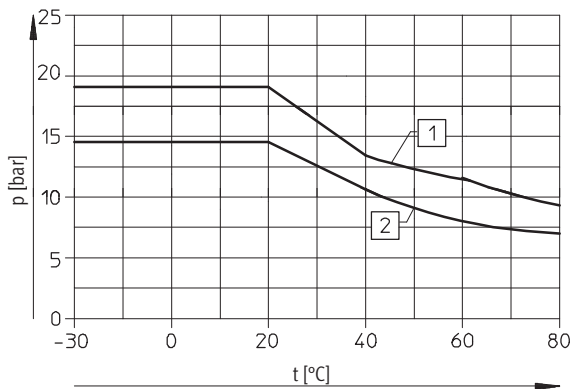


-  - Note
Replaced with standard O.D. plastic
tubing PAN-...-NT.
→ Internet: pan-*-nt

Material:
Polyamide

Note on material:
Free of copper and PTFE

Operating pressure p as a function of temperature t



- 1 PP-4
- 2 PP-3/6

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]	Min. bending radius [mm]	Flow-relevant bending radius [mm]	Weight [kg/m]	Colour	Part No.	Type	PU ¹⁾ [m]
4	2.9	12	18	0.0062	Natural	4572	PP-3-NT	50
6	4	14	32	0.0163	Natural	4231	PP-4-NT	50
8	5.9	22	43	0.0238	Natural	4191	PP-6-NT	50

1) Packaging unit

Plastic tubing PU, standard I.D.

Technical data

FESTO

Plastic tubing PU

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

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

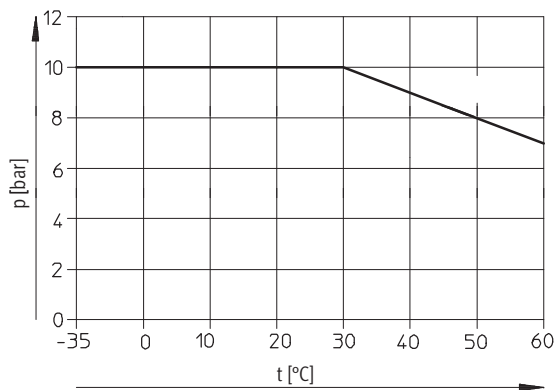
-  - Temperature dependent operating pressure
-0.95 ... +10 bar
PU-9:
0 ... 10 bar

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

FESTO

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.

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

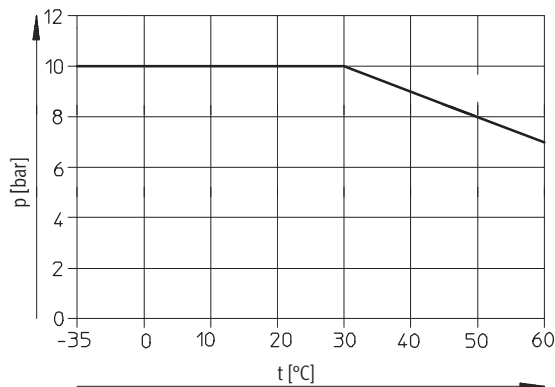
-  - Temperature dependent
operating pressure
-0.95 ... +10 bar

Material:
Polyurethane

Note on material:
Free of copper, PTFE and silicone



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