

Plastic tubing, standard O.D.

FESTO



Plastic tubing, standard O.D.

Features

Application



The requirements with respect to pressure, temperature, flexibility and environmental influences differ from industry to industry. Users frequently underestimate the risks: around 90%

of all cases of damage can be traced back to the wrong choice of tubing or tubing materials. This can not only result in energy losses, but also

machine downtimes. It is especially important to find a reliable and cost-effective product that prevents tubing degradation during operation.

Summary of tubing/fitting combinations			
Applications	Tubing	Fitting	Description
Standard	PEN	QS-B	Suitable for a wide range of tasks and attractively priced. Flexible thanks to highly resistant materials, easy to install thanks to optimised bending radii. High level of abrasion resistance in dynamic applications.
	PUN	QS	Maximum flexibility in standard applications thanks to an extremely wide range of options for combining the different types.
	PAN	QS	Meets all requirements, even for standard applications with increased pressure and temperature ranges.
High pressures	PAN-MF	NPQM	Meets DIN standard 73378: ideal for use in mobile pneumatics. Suitable for increased temperature ranges combined with high pressure ranges.
	PAN-R	NPQH	Powerful in pressure ranges up to 20 bar, for example in applications with the pressure booster DPA.
Resistant to chemicals, food safe and hydrolysis resistant	PLN	NPQP	Resistant to cleaning agents, FDA compliant and economical. Can be used instead of the combination with stainless steel fittings.
	PUN-H	NPKA	Hydrolysis resistant and suitable for water applications. Combination suitable for use in clean rooms, FDA compliant and corrosion resistant thanks to 100% polymer construction. Very easy to install thanks to the "one click principle".
	PFAN	NPQH	For high temperatures up to 150 °C. Suitable for use in the food industry, FDA compliant and resistant to cleaning agents.
	PFAN	NPCK	Easy to clean thanks to the union nut's edge-free design. Maximum resistance to corrosion (CRC 4) and FDA compliant. Suitable for a wide range of media.
	PFAN	CRQS	Maximum resistance to corrosion (CRC 4) and to aggressive acids and lyes.
Anti-static	PUN-CM	NPQM	Anti-static tubing plus solid metal fitting: maximum protection for electrical and electronic components.
Flame retardant	PUN-V0	NPQM	Very safe in areas where there is a risk of fire thanks to flame-retardant properties. The tubing has been tested to DIN 5510-2.
Resistant to welding spatter	PUN-V0-C	NPQH	Ideal for applications involving welding spatter. Reliable thanks to a tubing wall thickness of 2 mm for all diameters.
	PAN-V0	QS-V0	Safe even in the immediate vicinity of welding spatter thanks to the double-walled tubing with special fitting.

Note

The ambient conditions and the operating medium transported can have a considerable effect on the service life of plastic tubing. Based on empirical values, Festo recommends the following time specifications for the usage of plastic tubing in general and safety-related applications:

- For general applications, a minimum service life of 10 years can be expected.
- For safety-related applications, we recommend regular inspection at least every 12 months.
- For applications that have an effect

on the material, inspections must be carried out at suitable intervals. We recommend that the interval between inspections should be no more than 6 months, at most half of the period in which failures can occur.

Plastic tubing, standard O.D.

Technical data

Note

Tubing diameters that are too big or too small as well as bending radii that are too small result in flow rate losses.

One of the most important rules when selecting tubing is therefore that it should be as long as necessary and as short as possible.

Make sure therefore that in practice tubing is laid loosely and is not stretched.

Tools for bundling tubing or for avoiding bending/pinching tubing are available as accessories:

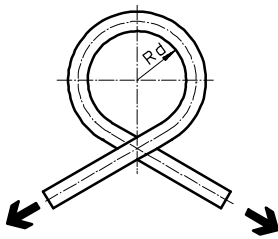
- Tubing strap PB
- Spiral wraps for tubing PKB
- Tubing support NPAW
- Tubing support PKS
- Multi-tube holder KK

Other accessories include connecting tools for tubing:

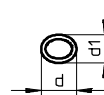
- Pipe and tubing cutter ZRS
- Tubing cutter PAN-VOS for flame-retardant plastic tubing PAN-VO
- Connecting pliers ZMS/disconnecting pliers ZDS for connecting/disconnecting the plastic tubing and barbed fitting

Measuring methods

Flow-relevant bending radius Rd



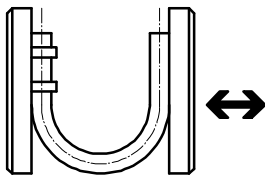
The tubing is bent in the direction of its inherent flexion until a 5% flattening of the tubing O.D. occurs. The Rd is then calculated. There is no reduction in the flow rate up until the Rd is reached.



Cross section flattened as a result of bended tubing

d = non deformed tubing OD
d1 = deformed tubing OD

Minimum bending radius Rmin




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

Plastic tubing, standard O.D.


Product range overview



Version	Type	Outside Ø [mm]	Colour											Operating medium			
			Silver	Blue	Black	Yellow	Green	Red	Brown	White	Natural	Blue/black	Compressed air	Vacuum	Water	Mineral oil	
	PAN Polyamide	4, 6, 8, 10, 12, 14, 16	■	■	■	■	■	■	(■) ¹	(■) ¹	■	-	■	■	-	-	
	PAN-R Polyamide	4, 6, 8, 10, 12, (14) ¹ , 16	■	(■) ¹	(■) ¹	(■) ¹	(■) ¹	(■) ¹	(■) ¹	(■) ¹	(■) ¹	(■) ¹	-	■	■	-	-
		22, 28	-	-	■	-	-	-	-	-	-	-	-	■	■	-	-
	PAN-MF Polyamide	4, 6, 8, 10, 12, 14, 16	(■) ¹	(■) ¹	■	(■) ¹	(■) ¹	(■) ¹	(■) ¹	(■) ¹	(■) ¹	(■) ¹	-	■	■	-	■ ²
	PAN-VO Polyamide	4, 6, 8, 10, 12	-	■	■	■	■	■	■	■	■	-	-	■	■	■	■
	PFAN Perfluor-alkoxyalkan	4, 6, 8, 10, 12	-	-	-	-	-	-	-	-	-	■	-	■	■	■	-
	PEN Polyethylene	4, 6, 8, 10, 12, 14, 16	■	■	■	■	■	■	■	(■) ¹	(■) ¹	■	-	■	■	■	-
	PLN Polyethylene	4, 6, 8, 10, 12, 14, 16	■	■	■	(■) ¹	(■) ¹	■	(■) ¹	(■) ¹	■	-	-	■	■	■	-
	PUN Polyurethane	3, 4, 6, 8, 10, 12, 14, 16	■	■	■	■	■	■	■	(■) ¹	(■) ¹	-	-	■	■	-	-
	PUN-DUO Polyurethane	4, 6, 8, 10	■	-	-	-	-	-	-	-	-	-	■	■	■	-	-
	PUN-CM Polyurethane	4, 6, 8, 10, 12, (14) ¹	-	-	■	-	-	-	-	-	-	-	-	■	■	-	-
	PUN-H Polyurethane	2	-	-	■	-	-	■	-	-	■	-	-	■	■	-	-
		3, 4, 6, 8, 10, 12, 14, 16	■	■	■	■	■	■	■	(■) ¹	(■) ¹	■	-	■	■	■	-
	PUN-H-DUO Polyurethane	4, 6, 8, 10	-	-	-	-	-	-	-	-	-	-	■	■	■	■	-
PUN-VO Polyurethane	6, 8, 10, 16	-	■	■	■	■	■	■	■	■	-	-	■	■	■	-	
PUN-VO-C Polyurethane	4, 6, 8, 10, 12, 14, 16	-	■	■	■	■	■	■	■	■	-	-	■	■	■	-	

1) Please note the information below.

2) As a precaution, please agree the operating medium with Festo.

 Note

Product options in brackets can only be ordered using the modular product system. Please note the minimum ordering quantity of 3,000 m for tubing with O.D. ≤ 8 mm and 1,500 m with O.D. > 8 mm.

There is a modular product system for plastic tubing.

- PAN → 16
- PEN → 22
- PLN → 25
- PUN → 41

Plastic tubing, standard O.D.

Product range overview

Type	Suitability for use in the food industry	Fire test material	Antistatic	Halogen-free	Contact with electrical cables	Suitable for chain link trunking	Approved by German Technical Control Board	Germanischer Lloyd	Resistance				Flexibility	Shore hardness ⁸⁾	→ Page/Internet
									Chemicals	Microbes	UV radiation	Hydrolysis			
PAN	-	-	-	■	■	++	■	■ ³⁾	+	++	+	++	++	D 55 ±3	7
PAN-R	-	-	-	■	■	++	■	-	+	++	+	++	+	D 62 ±3	10
	-	-	-	■	■	++	-	-	+	++	+	++	+	D 62 ±3	11
PAN-MF	-	-	-	■	■	+++	-	-	+	++	+	++	+	D 65 ±3	12
PAN-VO	-	-	-	-	■	++	-	-	+	++	++	++	++	A 72 ±4 ⁵⁾ D 57 ±3 ⁶⁾	14
PFAN	■	UL94 V0	-	-	■	-	■	-	+++	++	++	+++	+	D 60 +5	17
PEN	-	-	-	■	■	+++	■	-	++	++	++ ⁴⁾	+++	++	D 52 ±3	19
PLN	■	-	-	■	■	-	■	-	++	++	++ ⁴⁾	+++	+	-	23
PUN	-	UL94 HB	-	■	■ ⁷⁾	++	■	-	-	-	++ ⁴⁾	+	+++	D 52 ±3	26
PUN-DUO	-	UL94 HB	-	■	■ ⁷⁾	++	■	-	-	-	+	+	++	D 52 ±3	29
PUN-CM	-	-	■	■	■	+++	-	-	+	++	++	++	++	D 52 ±3	31
PUN-H	-	-	-	■	■	++	-	-	+	++	++ ⁴⁾	++	+++	D 52 ±3	32
	■	-	-	■	■	++	■	-	+	++	++ ⁴⁾	++	+++	D 52 ±3	33
PUN-H-DUO	■	-	-	■	■	++	■	-	+	++	+	++	++	D 52 ±3	36
PUN-VO	-	UL94 V2	-	■	■	++	■	-	+	++	++ ⁴⁾	++	++	D 54 ±3	37
PUN-VO-C	-	UL94 V2	-	■	■	++	■	-	+	++	++ ⁴⁾	++	++	D 54 ±3	39

+++ Very well suited
++ Well suited

+ Limited suitability (upon request)
- Unsuitable

3) Applies for silver colour
4) Applies for black colour
5) External conduit
6) Internal conduit

7) Under unfavourable conditions, cables which contain phosphoric acid ester may damage PUN tubing.
8) Values are determined using test boards. Values determined using tubing may vary.

Plastic tubing, standard O.D.

Type codes



PUN - 12x2 - BL - 200

Material

PAN	Polyamide
PFAN	Perfluor-alkoxyalkan
PEN	Polyethylene
PLN	
PUN	Polyurethane

Certification

CM	Antistatic
H	Hydrolysis resistant
VO	Flame retardant to UL 94 V0
R	Heavy-duty
MF	Automotive certification (DIN 73378)

Outside \varnothing x wall thickness [mm]

Twin tubing

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

Colour

SW	Black
BL	Blue
GN	Green
RT	Red
WS	White
GE	Yellow
BR	Brown
SI	Silver
NT	Natural
BS	Blue/black

Packaging unit [m]

Plastic tubing PAN

Technical data

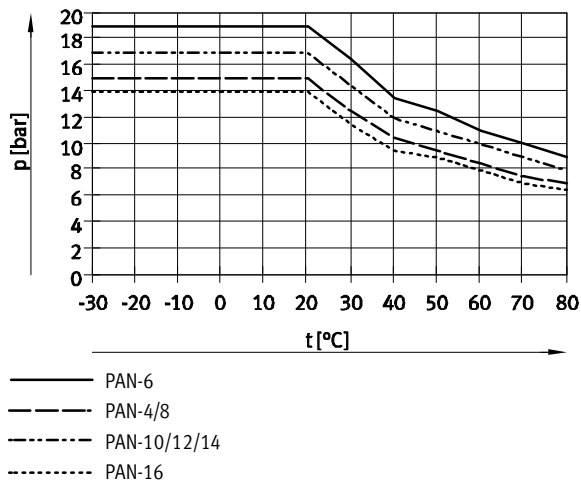
Plastic tubing PAN

High thermal and mechanical load capacities.



Operating and environmental conditions				
Type	PAN-4/8	PAN-6	PAN-10/12/14	PAN-16
Temperature dependent operating pressure [bar]	-0.95 ... +15 → diagram	-0.95 ... +19 → diagram	-0.95 ... +17 → diagram	-0.95 ... +14 → diagram
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:--:--]			
Ambient temperature [°C]	-30 ... +80			
Approval	German Technical Control Board (TÜV)			

Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS, Quick Star¹⁾
→ Internet: qs



Push-in fittings NPQH¹⁾
→ Internet: npqh



Push-in fittings NPQM
→ Internet: npqm



Quick connectors CK
→ Internet: ck



Barbed fittings CN
→ Internet: cn

1) Recommended fitting

Materials	
Shore hardness	D 55 ±3
Tubing	TPE-A
Note on materials	Conforms to RoHS Free of copper and PTFE

Plastic tubing PAN

Technical data



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	0.006	Silver	152697	PAN-4x0,75-SI	50
					Silver	553888	PAN-4x0,75-SI-500	500
					Blue	553906	PAN-4x0,75-BL	50
					Blue	553894	PAN-4x0,75-BL-500	500
					Black	553912	PAN-4x0,75-SW	50
					Black	553900	PAN-4x0,75-SW-500	500
					Natural	546284	PAN-4x0,75-NT	50
					Green	553918	PAN-4x0,75-GN	50
					Red	553924	PAN-4x0,75-RT	50
					Yellow	553930	PAN-4x0,75-GE	50
6	4	14	32	0.016	Silver	152699	PAN-6x1-SI	50
					Silver	553889	PAN-6x1-SI-500	500
					Blue	553907	PAN-6x1-BL	50
					Blue	553895	PAN-6x1-BL-500	500
					Black	553913	PAN-6x1-SW	50
					Black	553901	PAN-6x1-SW-500	500
					Natural	546285	PAN-6x1-NT	50
					Green	553919	PAN-6x1-GN	50
					Red	553925	PAN-6x1-RT	50
					Yellow	553931	PAN-6x1-GE	50
8	5.9	22	43	0.024	Silver	152700	PAN-8x1,25-SI	50
					Silver	553890	PAN-8x1,25-SI-400	400
					Blue	553908	PAN-8x1,25-BL	50
					Blue	553896	PAN-8x1,25-BL-400	400
					Black	553914	PAN-8x1,25-SW	50
					Black	553902	PAN-8x1,25-SW-400	400
					Natural	546286	PAN-8x1,25-NT	50
					Green	553920	PAN-8x1,25-GN	50
					Red	553926	PAN-8x1,25-RT	50
					Yellow	553932	PAN-8x1,25-GE	50
10	7	27	58	0.042	Silver	152701	PAN-10x1,5-SI	50
					Silver	553891	PAN-10x1,5-SI-300	300
					Blue	553909	PAN-10x1,5-BL	50
					Blue	553897	PAN-10x1,5-BL-300	300
					Black	553915	PAN-10x1,5-SW	50
					Black	553903	PAN-10x1,5-SW-300	300
					Natural	546287	PAN-10x1,5-NT	50
					Green	553921	PAN-10x1,5-GN	50
					Red	553927	PAN-10x1,5-RT	50
					Yellow	553933	PAN-10x1,5-GE	50

1) Packaging unit

Plastic tubing PAN

Technical data



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]
12	8.4	29	64	0.060	Silver	152702	PAN-12x1,75-SI	50
					Silver	553892	PAN-12x1,75-SI-200	200
					Blue	553910	PAN-12x1,75-BL	50
					Blue	553898	PAN-12x1,75-BL-200	200
					Black	553916	PAN-12x1,75-SW	50
					Black	553904	PAN-12x1,75-SW-200	200
					Natural	546288	PAN-12x1,75-NT	50
					Green	553922	PAN-12x1,75-GN	50
					Red	553928	PAN-12x1,75-RT	50
					Yellow	553934	PAN-12x1,75-GE	50
14	10	50	80	0.077	Silver	570392	PAN-14x2-SI	50
16	12	67	94	0.092	Silver	152703	PAN-16x2-SI	50
					Silver	553893	PAN-16x2-SI-100	100
					Blue	553911	PAN-16x2-BL	50
					Blue	553899	PAN-16x2-BL-100	100
					Black	553917	PAN-16x2-SW	50
					Black	553905	PAN-16x2-SW-100	100
					Natural	546289	PAN-16x2-NT	50
					Green	553923	PAN-16x2-GN	50
					Red	553929	PAN-16x2-RT	50
Yellow	553935	PAN-16x2-GE	50					

1) Packaging unit

Plastic tubing PAN-R

Technical data



Plastic tubing PAN-R

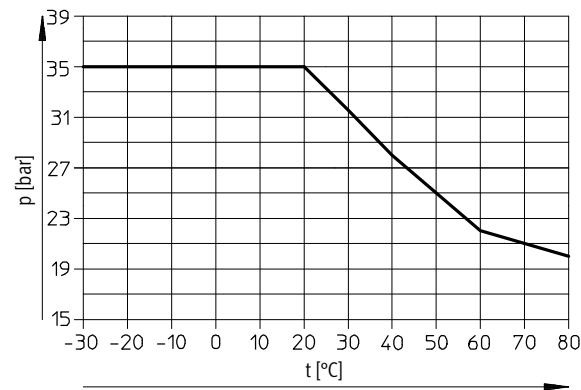
With tubing outside diameters of
4 ... 16 mm

For high-pressure applications.



Operating and environmental conditions	
Temperature dependent operating pressure [bar]	-0.95 ... +35 → diagram
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
Ambient temperature [°C]	-30 ... +80
Approval	German Technical Control Board (TÜV)

Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings NPQH¹⁾
→ Internet: npqh

1) Recommended fitting

Materials	
Shore hardness	D 62 ±3
Tubing	TPE-A
Note on materials	Conforms to RoHS Free of copper and PTFE

Dimensions and ordering data								
O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part No.	Type	PU ¹⁾
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
4	2.5	7	16	0.0079	Silver	541674	PAN-R-4x0,75-SI	50
6	3.8	12	21	0.0174		541675	PAN-R-6x1,1-SI	50
8	5	16	29	0.0316		541676	PAN-R-8x1,5-SI	50
10	6.2	18	44	0.0498		541677	PAN-R-10x1,9-SI	50
12	7.6	24	46	0.0698		541678	PAN-R-12x2,2-SI	50
16	10	33	73	0.1262		541679	PAN-R-16x3-SI	50

1) Packaging unit

Plastic tubing PAN-R

Technical data

Plastic tubing PAN-R

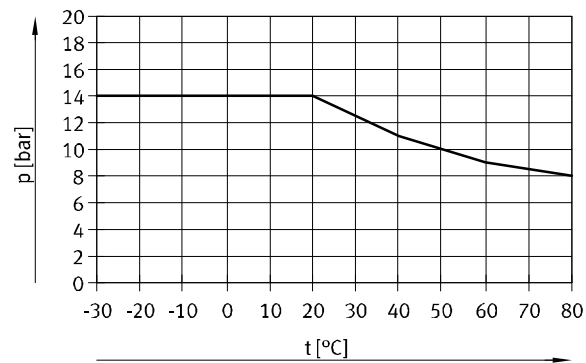
With tubing outside diameters of 22 and 28 mm

High thermal and mechanical load capacities.



Operating and environmental conditions		
Temperature dependent operating pressure	[bar]	-0.95 ... +14 → diagram
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
Ambient temperature	[°C]	-30 ... +80

Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS-G $\frac{3}{4}$ -22
→ Internet: qs




Push-in fittings CQ-...-22/28
→ Internet: cq

Accessories



Pipe cutter ZR
→ Internet: tool

 Note
When using the pipe cutter ZR to cut to length, we recommend rotating the tube through approx. 90° at the start of the cutting process. Rotating the tube gives a drawing cut so that the tube can be cut with a significantly lower force. This also minimises deformation of the tube.

Materials

Shore hardness	D 62 ±3
Tubing	TPE-A
Note on materials	Conforms to RoHS Free of copper and PTFE

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]
22	18	350	1.31	Black	8036207	PAN-R-22x2-SW	50
28	23	350	2.07		8036208	PAN-R-28x2,5-SW	50

1) Packaging unit

Plastic tubing PAN-MF

Technical data

FESTO

Plastic tubing PAN-MF

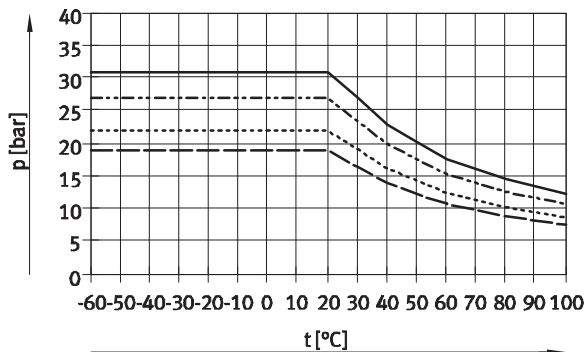
High thermal and mechanical load capacities.

Meets the requirements according to DIN 73378 "Polyamide tubing for use in motor vehicles".



Operating and environmental conditions						
Type	PAN-MF-4	PAN-MF-6	PAN-MF-8/10/12	PAN-MF-14	PAN-MF-16	
Temperature dependent operating pressure [bar]	-0.95 ... +31 → diagram	-0.95 ... +27 → diagram	-0.95 ... +19 → diagram	-0.95 ... +22 → diagram	-0.95 ... +19 → diagram	
Conforms to standard	DIN 73378-PA12-PHL					
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:--:-]					
	Mineral oil					
Ambient temperature [°C]	-60 ... +100					

Operating pressure p as a function of temperature t



- PAN-MF-4
- - - PAN-MF-6
- · - PAN-MF-8/10/12/16
- · · PAN-MF-14
- - - - PAN-MF-16

Possible fittings



Push-in fittings QS, Quick Star¹⁾
→ Internet: qs



Push-in fittings NPQH¹⁾
→ Internet: npqh



Push-in fittings NPQM¹⁾
→ Internet: npqm

1) Recommended fitting

Materials	
Shore hardness	D 65 ±3
Tubing	PA12-P
Note on materials	Conforms to RoHS
	Free of copper and PTFE

Plastic tubing PAN-MF

Technical data

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	2.5	10	15	0.008	Black	570357	PAN-MF-4x0,75-SW	50
						572091	PAN-MF-4x0,75-SW-500	500
6	4	15	35	0.016		570358	PAN-MF-6x1-SW	50
						572093	PAN-MF-6x1-SW-500	500
8	6	35	50	0.022		570359	PAN-MF-8x1-SW	50
10	7.5	45	65	0.035		570360	PAN-MF-10x1,25-SW	50
12	9	50	70	0.051		570361	PAN-MF-12x1,5-SW	50
14	10	50	75	0.077		570362	PAN-MF-14x2-SW	50
16	12	75	130	0.09		570363	PAN-MF-16x2-SW	50

1) Packaging unit

Plastic tubing PAN-V0, flame retardant

Technical data



Plastic tubing PAN-V0

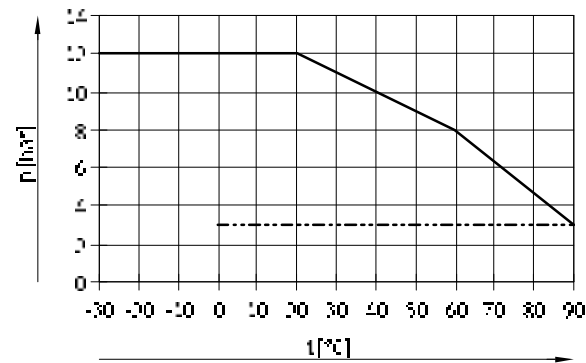
PVC casing, flame-retardant to UL 94 V0. The tube casing must be cut to length X (table → 15) before being inserted in the push-in fitting QS-V0.

The tubing cutter PAN-V0S is the perfect tool for this task. The tubing cutter PAN-V0S will always cut the casing to the right length.



Operating and environmental conditions		
Temperature dependent operating pressure	[bar]	-0.95 ... +12 → diagram
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
		Mineral oil
		Water as per manufacturer's declaration → www.festo.com
Ambient temperature	[°C]	-30 ... +90

Operating pressure p as a function of temperature t



— Air
 - - - - - Water and mineral oil

Possible fittings



Push-in fittings QS, Quick Star
 → Internet: qs



Push-in fittings NPQH
 → Internet: npqh



Push-in fittings QS-V0, Quick Star, flame-retardant¹⁾
 → Internet: qs-v0



Push-in fittings CRQS, Quick Star, stainless steel
 → Internet: crqs

1) Recommended fitting

Accessories



Tubing cutter PAN-V0S
 → Internet: tool

Materials		
Shore hardness	Outer tubing	A 72 ±4
	Inner tubing	D 57 ±3
Tubing	Outer tubing	PVC-P
	Inner tubing	PA12-P
Note on materials	Conforms to RoHS	

Plastic tubing PAN-V0, flame retardant

Technical data

Dimensions and ordering data										
For push-in fitting	O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Max. cut length X	Weight	Colour	Part No.	Type	PU ¹⁾
O.D. [mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
4	6	2.5	10	20	15	0.0335	Blue	132899	PAN-V0-4x0,75-BL-50	50
6	8	4	13	30	17	0.049	Black	160550	PAN-V0-6x1-SW	50
							Blue	525466	PAN-V0-6x1-BL	20
							Green	525470	PAN-V0-6x1-GN	20
							Red	525474	PAN-V0-6x1-RT	20
							White	525478	PAN-V0-6x1-WS	20
							Yellow	525482	PAN-V0-6x1-GE	20
							Brown	525486	PAN-V0-6x1-BR	20
8	10	6	24	45	18	0.065	Black	160551	PAN-V0-8x1-SW	50
							Blue	525467	PAN-V0-8x1-BL	20
							Green	525471	PAN-V0-8x1-GN	20
							Red	525475	PAN-V0-8x1-RT	20
							White	525479	PAN-V0-8x1-WS	20
							Yellow	525483	PAN-V0-8x1-GE	20
							Brown	525487	PAN-V0-8x1-BR	20
10	12	7.5	34	56	20	0.088	Black	160552	PAN-V0-10x1,25-SW	50
							Blue	525468	PAN-V0-10x1,25-BL	20
							Green	525472	PAN-V0-10x1,25-GN	20
							Red	525476	PAN-V0-10x1,25-RT	20
							White	525480	PAN-V0-10x1,25-WS	20
							Yellow	525484	PAN-V0-10x1,25-GE	20
							Brown	525488	PAN-V0-10x1,25-BR	20
12	14	9	43	65	23	0.133	Black	160553	PAN-V0-12x1,5-SW	50
							Blue	525469	PAN-V0-12x1,5-BL	20
							Green	525473	PAN-V0-12x1,5-GN	20
							Red	525477	PAN-V0-12x1,5-RT	20
							White	525481	PAN-V0-12x1,5-WS	20
							Yellow	525485	PAN-V0-12x1,5-GE	20
							Brown	525489	PAN-V0-12x1,5-BR	20

1) Packaging unit

Plastic tubing PAN

Ordering data – Modular products



Ordering table (minimum order quantity 3,000 m, rounding-off value 25 m)											
Size	4	6	8	10	12	14	16	Condi- tions	Code	Enter code	
M Module No.	553610										
Function	Polyamide tubing, standard O.D.								PAN	PAN	
O Alternative material characteristic	Standard										
	Automotive certification (DIN 73378)								-MF		
	Heavy-duty								-R		
M Tubing O.D. [mm]	4	–	–	–	–	–	–		-4		
	–	6	–	–	–	–	–		-6		
	–	–	8	–	–	–	–		-8		
	–	–	–	10	–	–	–		-10		
	–	–	–	–	12	–	–		-12		
	–	–	–	–	–	14	–		-14		
	–	–	–	–	–	–	16		-16		
	Colour	Silver								-SI	
		Blue								-BL	
		Black								-SW	
Yellow								-GE			
Green								-GN			
Red								-RT			
Brown								-BR			
White								-WS			
Natural								-NT			
O Inscription text (on request)	Standard										
	Customer-specific tubing inscription							1	-TXT		
M Packaging unit [m]	25								-25		
	50								-50		
	100								-100		
	200							–	-200		
	300							–	-300		
	400							–	-400		
	500							–	-500		
	Packaging	Cardboard box							2 4	-CB	
Polyurethane bag							2 5	-BA			
Reel							3	-HA			

- | | | | |
|------------------------|---------------------------------|--------------------|--|
| 1 TXT | Only on request | 4 CB | Not with alternative material characteristic MF |
| 2 CB, BA | Only with packaging unit 25, 50 | 5 BA | Only with alternative material characteristic MF |
| 3 HA | Not with packaging unit 25, 50 | | |

Transfer order code

553610 PAN - [] - [] - [] - [] - [] - []

Plastic tubing PFAN

Technical data

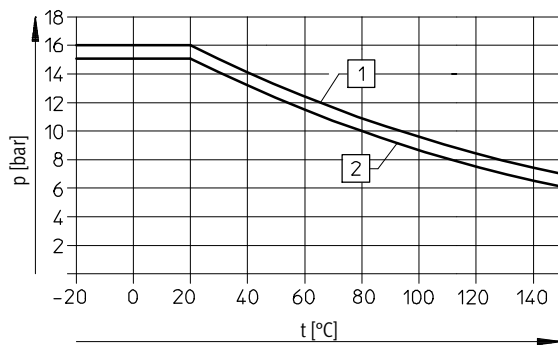
Plastic tubing PFAN

Pneumatic tubing with resistance to high temperatures and chemicals.



Operating and environmental conditions		
Type	PFAN-4/8	PFAN-6/10/12
Temperature dependent operating pressure [bar]	-0.95 ... +15 → diagram	-0.95 ... +16 → diagram
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-] Water as per manufacturer's declaration → www.festo.com	
Ambient temperature [°C]	-20 ... +150	
Fire test material	UL94 V0	
Approval	German Technical Control Board (TÜV)	

Operating pressure p as a function of temperature t



- 1 PFAN-6/10/12
- 2 PFAN-4/8

Possible fittings



Push-in fittings QS, Quick Star
→ Internet: qs



Push-in fittings NPQH¹⁾
→ Internet: npqh



Push-in fittings CRQS, Quick Star, stainless steel¹⁾
→ Internet: crqs



Quick connectors CK
→ Internet: ck



Barbed fittings CN
→ Internet: cn

1) Recommended fitting



Note

Greater force is required when assembling the fittings CK/CN. Flaring the tube ends using a tapered mandrel makes pushing them on easier.

Materials	
Shore hardness	D 60 +5
Tubing	PFA
Note on materials	Conforms to RoHS

Plastic tubing PFAN

Technical data

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	11	37	0.012	Natural	197061	PFAN-4x0,75-NT	50
6	4	12	50	0.034		197062	PFAN-6x1-NT	50
8	5.9	25	110	0.049		197063	PFAN-8x1,25-NT	50
10	7	22	140	0.087		197064	PFAN-10x1,5-NT	50
12	8.4	29	165	0.125		197065	PFAN-12x1,75-NT	50

1) Packaging unit

Plastic tubing PEN

Technical data

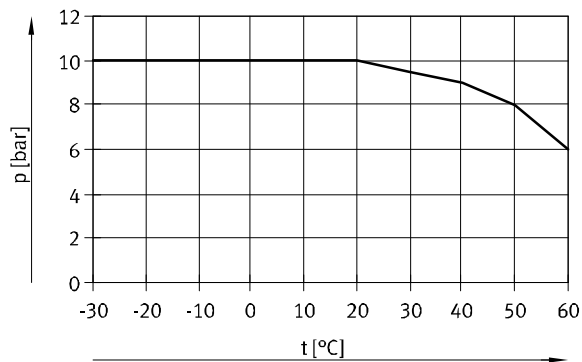
Plastic tubing PEN

Polyethylene tubing is distinguished by its high resistance to chemicals and hydrolysis. It is also resistant to most cleaning agents and lubricants.



Operating and environmental conditions		
Temperature dependent operating pressure	[bar]	-0.95 ... +10 → diagram
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
		Water as per manufacturer's declaration → www.festo.com
Ambient temperature	[°C]	-30 ... +60
Approval		German Technical Control Board (TÜV)

Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS, Quick Star¹⁾
→ Internet: qs



Push-in fitting QS-B, Quick Star¹⁾
→ Internet: qs-b



Push-in fittings CRQS, Quick Star, stainless steel
→ Internet: crqs



Push-in fittings NPQH
→ Internet: npqh



Push-in fittings NPQM¹⁾
→ Internet: npqm



Quick connectors CK
→ Internet: ck



Barbed fittings CN
→ Internet: cn



Note

Greater force is required when assembling the fittings CK/CN.

1) Recommended fitting

Materials	
Shore hardness	D 52 ±3
Tubing	PE
Note on materials	Conforms to RoHS
	Free of copper and PTFE

Plastic tubing PEN

Technical data



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	2.7	10	20	0.0064	Black	543240	PEN-4x0,75-SW	50
					Black	551438	PEN-4x0,75-SW-500	500
					Blue	551456	PEN-4x0,75-BL	50
					Blue	551444	PEN-4x0,75-BL-500	500
					Silver	551462	PEN-4x0,75-SI	50
					Silver	551450	PEN-4x0,75-SI-500	500
					Natural	543246	PEN-4x0,75-NT	50
					Green	551468	PEN-4x0,75-GN	50
					Red	551474	PEN-4x0,75-RT	50
					Yellow	551480	PEN-4x0,75-GE	50
6	4	13.5	26	0.0148	Black	543241	PEN-6x1-SW	50
					Black	551439	PEN-6x1-SW-500	500
					Blue	551457	PEN-6x1-BL	50
					Blue	551445	PEN-6x1-BL-500	500
					Silver	551463	PEN-6x1-SI	50
					Silver	551451	PEN-6x1-SI-500	500
					Natural	543247	PEN-6x1-NT	50
					Green	551469	PEN-6x1-GN	50
					Red	551475	PEN-6x1-RT	50
					Yellow	551481	PEN-6x1-GE	50
8	5.7	22.5	35	0.0233	Black	543242	PEN-8x1,25-SW	50
					Black	551440	PEN-8x1,25-SW-400	400
					Blue	551458	PEN-8x1,25-BL	50
					Blue	551446	PEN-8x1,25-BL-400	400
					Silver	551464	PEN-8x1,25-SI	50
					Silver	551452	PEN-8x1,25-SI-400	400
					Natural	543248	PEN-8x1,25-NT	50
					Green	551470	PEN-8x1,25-GN	50
					Red	551476	PEN-8x1,25-RT	50
					Yellow	551482	PEN-8x1,25-GE	50
10	7	23.5	40	0.0377	Black	543243	PEN-10x1,5-SW	50
					Black	551441	PEN-10x1,5-SW-300	300
					Blue	551459	PEN-10x1,5-BL	50
					Blue	551447	PEN-10x1,5-BL-300	300
					Silver	551465	PEN-10x1,5-SI	50
					Silver	551453	PEN-10x1,5-SI-300	300
					Natural	543249	PEN-10x1,5-NT	50
					Green	551471	PEN-10x1,5-GN	50
					Red	551477	PEN-10x1,5-RT	50
					Yellow	551483	PEN-10x1,5-GE	50
12	8.4	33	58	0.0542	Black	543244	PEN-12x1,75-SW	50
					Black	551442	PEN-12x1,75-SW-200	200
					Blue	551460	PEN-12x1,75-BL	50
					Blue	551448	PEN-12x1,75-BL-200	200
					Silver	551466	PEN-12x1,75-SI	50
					Silver	551454	PEN-12x1,75-SI-200	200
					Natural	543250	PEN-12x1,75-NT	50
					Green	551472	PEN-12x1,75-GN	50
					Red	551478	PEN-12x1,75-RT	50
					Yellow	551484	PEN-12x1,75-GE	50

1) Packaging unit

Plastic tubing PEN

Technical data



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]
14	9.5	45	80	0.0773	Black	570516	PEN-14x2-SW	50
					Natural	570517	PEN-14x2-NT	50
16	10.8	57.5	122	0.1029	Black	543245	PEN-16x2,5-SW	50
					Black	551443	PEN-16x2,5-SW-100	100
					Blue	551461	PEN-16x2,5-BL	50
					Blue	551449	PEN-16x2,5-BL-100	100
					Silver	551467	PEN-16x2,5-SI	50
					Silver	551455	PEN-16x2,5-SI-100	100
					Natural	543251	PEN-16x2,5-NT	50
					Green	551473	PEN-16x2,5-GN	50
					Red	551479	PEN-16x2,5-RT	50
					Yellow	551485	PEN-16x2,5-GE	50

1) Packaging unit

Plastic tubing PEN

Ordering data – Modular products



Ordering table (minimum order quantity 3,000 m, rounding-off value 25 m)											
Size	4	6	8	10	12	14	16	Condi- tions	Code	Enter code	
M Module No.	553769										
Function	Polyethylene tubing, standard O.D., economical								PEN	PEN	
Tubing O.D. [mm]	4	–	–	–	–	–	–		-4		
	–	6	–	–	–	–	–		-6		
	–	–	8	–	–	–	–		-8		
	–	–	–	10	–	–	–		-10		
	–	–	–	–	12	–	–		-12		
	–	–	–	–	–	14	–		-14		
	–	–	–	–	–	–	16		-16		
Colour	Silver								-SI		
	Blue								-BL		
	Black								-SW		
	Yellow								-GE		
	Green								-GN		
	Red								-RT		
	Brown								-BR		
	White								-WS		
	Natural								-NT		
O Inscription text (on request)	Standard										
	Customer-specific tubing inscription							1	-TXT		
M Packaging unit [m]	25								-25		
	50								-50		
	100								-100		
	200							–	-200		
	300							–	-300		
	400							–	-400		
	500							–	-500		
Packaging	Cardboard box							2	-CB		
	Reel							3	-HA		

- 1** **TXT** Only on request
- 2** **CB** Only with packaging unit 25, 50

- 3** **HA** Not with packaging unit 25, 50

Transfer order code

Plastic tubing PLN

Technical data

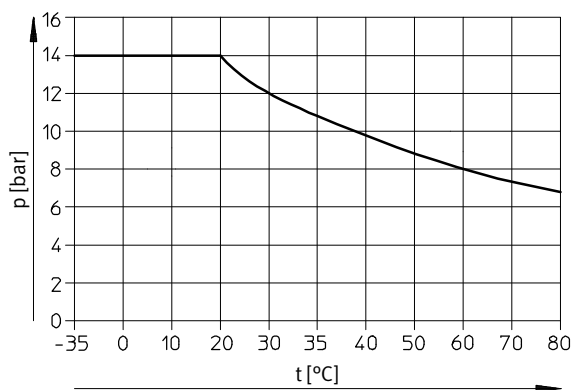
Plastic tubing PLN

Polyethylene tubing is distinguished by great resistance to chemicals and hydrolysis. It is resistant to most cleaning agents and lubricants.



Operating and environmental conditions		
Temperature dependent operating pressure	[bar]	-0.95 ... +14 → diagram
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
		Water as per manufacturer's declaration → www.festo.com
Ambient temperature	[°C]	-30 ... +80
Approval		German Technical Control Board (TÜV)

Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS, Quick Star
→ Internet: qs



Push-in fittings NPQH¹⁾
→ Internet: npqh



Push-in fittings CRQS, Quick Star, stainless steel
→ Internet: crqs



Push-in fittings NPQM
→ Internet: npqm



Push-in fittings NPQP¹⁾
→ Internet: npqp



Quick connectors CK
→ Internet: ck



Barbed fittings CN
→ Internet: cn



Note
Greater force is required when assembling the fittings CK/CN. Flaring the tube ends using a tapered mandrel makes pushing them on easier.

1) Recommended fitting

Plastic tubing PLN

Technical data

FESTO

Materials	
Tubing	PE
Note on materials	Conforms to RoHS
	Free of copper and PTFE

Dimensions and ordering data								
O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part No.	Type	PU ¹⁾
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
4	2.9	12	25	0.0056	Natural	193403	PLN-4x0,75-NT	50
					Black	195280	PLN-4x0,75-SW	50
					Blue	558205	PLN-4x0,75-BL	50
					Silver	558211	PLN-4x0,75-SI	50
					Red	558217	PLN-4x0,75-RT	50
6	4	11	32	0.0147	Natural	193404	PLN-6x1-NT	50
					Black	195281	PLN-6x1-SW	50
					Blue	558206	PLN-6x1-BL	50
					Silver	558212	PLN-6x1-SI	50
					Red	558218	PLN-6x1-RT	50
8	5.9	23	50	0.0214	Natural	193405	PLN-8x1,25-NT	50
					Black	195282	PLN-8x1,25-SW	50
					Blue	558207	PLN-8x1,25-BL	50
					Silver	558213	PLN-8x1,25-SI	50
					Red	558219	PLN-8x1,25-RT	50
10	7	22	57	0.0375	Natural	193406	PLN-10x1,5-NT	50
					Black	195283	PLN-10x1,5-SW	50
					Blue	558208	PLN-10x1,5-BL	50
					Silver	558214	PLN-10x1,5-SI	50
					Red	558220	PLN-10x1,5-RT	50
12	8.4	23	65	0.0540	Natural	193407	PLN-12x1,75-NT	50
					Black	195284	PLN-12x1,75-SW	50
					Blue	558209	PLN-12x1,75-BL	50
					Silver	558215	PLN-12x1,75-SI	50
					Red	558221	PLN-12x1,75-RT	50
14	10	40	80	0.07	Natural	570424	PLN-14x2-NT	50
					Black	570423	PLN-14x2-SW	50
16	12	55	95	0.0820	Natural	539064	PLN-16x2-NT	50
					Black	539065	PLN-16x2-SW	50
					Blue	558210	PLN-16x2-BL	50
					Silver	558216	PLN-16x2-SI	50
					Red	558222	PLN-16x2-RT	50

1) Packaging unit

Plastic tubing PLN

Ordering data – Modular products



Ordering table (minimum order quantity 3,000 m, rounding-off value 25 m)											
Size	4	6	8	10	12	14	16	Condi- tions	Code	Enter code	
[M] Module No.	553850										
Function	Polyethylene tubing, standard O.D., resistant to cleaning agents								PLN		PLN
Tubing O.D. [mm]	4	–	–	–	–	–	–		-4		
	–	6	–	–	–	–	–		-6		
	–	–	8	–	–	–	–		-8		
	–	–	–	10	–	–	–		-10		
	–	–	–	–	12	–	–		-12		
	–	–	–	–	–	14	–		-14		
	–	–	–	–	–	–	16		-16		
Colour	Silver								-SI		
	Blue								-BL		
	Black								-SW		
	Yellow								-GE		
	Green								-GN		
	Red								-RT		
	Brown								-BR		
	White								-WS		
	Natural								-NT		
[O] Inscription text (on request)	Standard										
	Customer-specific tubing inscription							1	-TXT		
[M] Packaging unit [m]	25								-25		
	50								-50		
	100								-100		
	200							–	-200		
	300					–	–	–	-300		
	400				–	–	–	–	-400		
	500			–	–	–	–	–	-500		
Packaging	Cardboard box							2	-CB		
	Reel							3	-HA		

- 1** TXT Only on request
- 2** CB Only with packaging unit 25, 50

- 3** HA Not with packaging unit 25, 50

Transfer order code

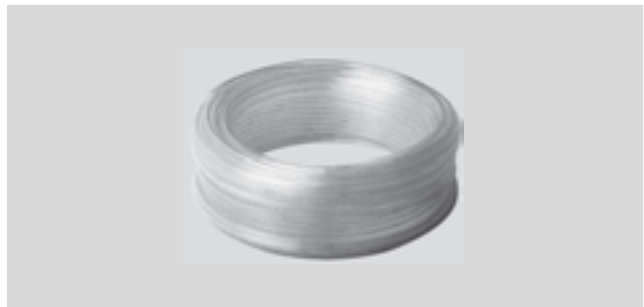
Plastic tubing PUN

Technical data



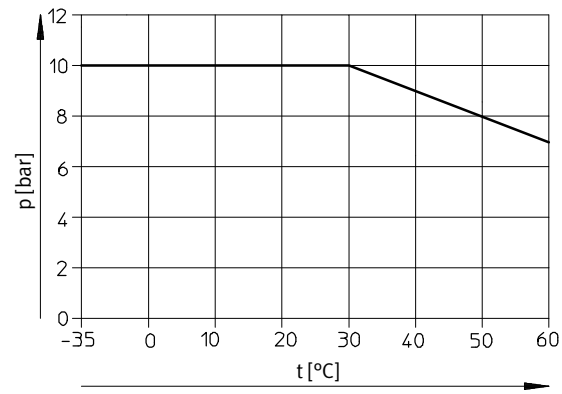
Plastic tubing PUN

Highly flexible plastic tubing




Operating and environmental conditions	
Temperature dependent operating pressure [bar]	-0.95 ... +10 → diagram
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
Ambient temperature [°C]	-35 ... +60
Fire test material	UL94 HB
Approval	German Technical Control Board (TÜV)

Operating pressure p as a function of temperature t



Possible fittings

- 

Push-in fittings QS, Quick Star¹⁾
→ Internet: qs
- 

Push-in fittings QS-B, Quick Star¹⁾
→ Internet: qs-b
- 


Push-in fittings CRQS, Quick Star, stainless steel
→ Internet: crqs
- 

Push-in fittings NPQM
→ Internet: npqm
- 

Quick connectors CK
→ Internet: ck
- 

Barbed fittings CN
→ Internet: cn

1) Recommended fitting

 - Note
Greater force is required when assembling the fittings CK/CN. Flaring the tube ends using a tapered mandrel makes pushing them on easier.

Materials	
Shore hardness	D 52 ±3
Tubing	TPE-U(PU)
Note on materials	Conforms to RoHS Free of copper and PTFE

Plastic tubing PUN

Technical data

FESTO

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]
3.0	2.1	9	12	0.0044	Silver	152583	PUN-3x0,5-SI	50
					Silver	525738	PUN-3 x 0,5-SI-500	500
					Blue	159660	PUN-3x0,5-BL	50
					Blue	525745	PUN-3x0,5-BL-500	500
					Black	159661	PUN-3x0,5-SW	50
					Black	553936	PUN-3x0,5-SW-500	500
					Yellow	178416	PUN-3x0,5-GE	50
					Green	178423	PUN-3x0,5-GN	50
					Red	178409	PUN-3x0,5-RT	50
4.0	2.6	8	17	0.0089	Silver	152584	PUN-4x0,75-SI	50
					Silver	525739	PUN-4x0,75-SI-500	500
					Blue	159662	PUN-4x0,75-BL	50
					Blue	525746	PUN-4x0,75-BL-500	500
					Black	159663	PUN-4x0,75-SW	50
					Black	553937	PUN-4x0,75-SW-500	500
					Yellow	178417	PUN-4x0,75-GE	50
					Green	178424	PUN-4x0,75-GN	50
					Red	178410	PUN-4x0,75-RT	50
6.0	4.0	16	26.5	0.0192	Silver	152586	PUN-6x1-SI	50
					Silver	525740	PUN-6x1-SI-500	500
					Blue	159664	PUN-6x1-BL	50
					Blue	525747	PUN-6x1-BL-500	500
					Black	159665	PUN-6x1-SW	50
					Black	553938	PUN-6x1-SW-500	500
					Yellow	178418	PUN-6x1-GE	50
					Green	178425	PUN-6x1-GN	50
					Red	178411	PUN-6x1-RT	50
8.0	5.7	24	37	0.0302	Silver	152587	PUN-8x1,25-SI	50
					Silver	525741	PUN-8x1,25-SI-400	400
					Blue	159666	PUN-8x1,25-BL	50
					Blue	525748	PUN-8x1,25-BL-400	400
					Black	159667	PUN-8x1,25-SW	50
					Black	553939	PUN-8x1,25-SW-400	400
					Yellow	178419	PUN-8x1,25-GE	50
					Green	178426	PUN-8x1,25-GN	50
					Red	178412	PUN-8x1,25-RT	50
10.0	7.0	28	54	0.0489	Silver	152588	PUN-10x1,5-SI	50
					Silver	525742	PUN-10x1,5-SI-300	300
					Blue	159668	PUN-10x1,5-BL	50
					Blue	525749	PUN-10x1,5-BL-300	300
					Black	159669	PUN-10x1,5-SW	50
					Black	553940	PUN-10x1,5-SW-300	300
					Yellow	178420	PUN-10x1,5-GE	50
					Green	178427	PUN-10x1,5-GN	50
					Red	178413	PUN-10x1,5-RT	50

1) Packaging unit

Plastic tubing PUN

Technical data



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]
12.0	8.0	33	62	0.0767	Silver	152589	PUN-12x2-SI	50
					Silver	525743	PUN-12x2-SI-200	200
					Blue	159670	PUN-12x2-BL	50
					Blue	525750	PUN-12x2-BL-200	200
					Black	159671	PUN-12x2-SW	50
					Black	553941	PUN-12x2-SW-200	200
					Yellow	178421	PUN-12x2-GE	50
					Green	178428	PUN-12x2-GN	50
					Red	178414	PUN-12x2-RT	50
14.0	9.8	45	84	0.0949	Silver	570389	PUN-14x2-SI	50
					Blue	570390	PUN-14x2-BL	50
					Black	570391	PUN-14x2-SW	50
16.0	11.0	45	88	0.1294	Silver	152590	PUN-16x2,5-SI	50
					Silver	525744	PUN-16x2,5-SI-100	100
					Blue	159672	PUN-16x2,5-BL	50
					Blue	525751	PUN-16x2,5-BL-100	100
					Black	159673	PUN-16x2,5-SW	50
					Black	553942	PUN-16x2,5-SW-100	100
					Yellow	178422	PUN-16x2,5-GE	50
					Green	178429	PUN-16x2,5-GN	50
					Red	178415	PUN-16x2,5-RT	50

1) Packaging unit

Plastic tubing PUN-DUO

Technical data

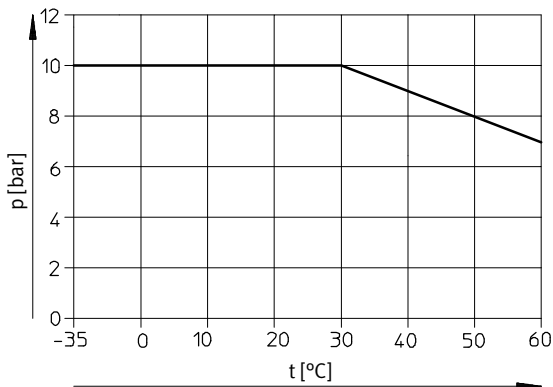
DUO tubing PUN-DUO

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.



Operating and environmental conditions		
Temperature dependent operating pressure	[bar]	-0.95 ... +10 → diagram
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
Ambient temperature	[°C]	-35 ... +60
Fire test material		UL94 HB
Approval		German Technical Control Board (TÜV)

Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS, Quick Star¹⁾
→ Internet: qs



Push-in fittings QS-B, Quick Star¹⁾
→ Internet: qs-b



Push-in fittings CRQS, Quick Star, stainless steel
→ Internet: crqs



Push-in fittings NPQM
→ Internet: npqm




Quick connectors CK
→ Internet: ck



Barbed fittings CN
→ Internet: cn

1) Recommended fitting

 Note
Greater force is required when assembling the fittings CK/CN. Flaring the tube ends using a tapered mandrel makes pushing them on easier.

Materials	
Shore hardness	D 52 ±3
Tubing	TPE-U(PU)
Note on materials	Conforms to RoHS Free of copper and PTFE

Plastic tubing PUN-DUO



Technical data

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	2.6	8	17	0.018	Silver	152822	PUN-4x0,75-DUO-SI	50
					Blue/black	159674	PUN-4x0,75-DUO-BS	50
6	4	14	26.5	0.038	Silver	152823	PUN-6x1-DUO-SI	50
					Blue/black	159675	PUN-6x1-DUO-BS	50
8	5.7	20	37	0.060	Silver	152824	PUN-8x1,25-DUO-SI	50
					Blue/black	159676	PUN-8x1,25-DUO-BS	50
10	7	25	54	0.098	Silver	152825	PUN-10x1,5-DUO-SI	50
					Blue/black	159677	PUN-10x1,5-DUO-BS	50

1) Packaging unit

Plastic tubing PUN-CM, antistatic

Technical data

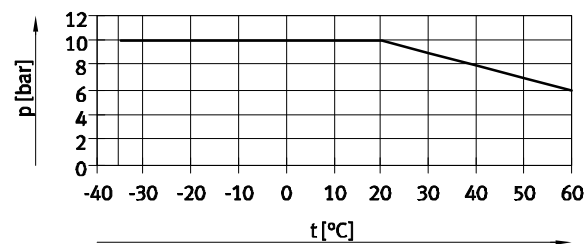
Plastic tubing PUN-CM

Highly flexible plastic tubing,
electrically conductive.



Operating and environmental conditions		
Temperature dependent operating pressure	[bar]	-0.95 ... +10 → diagram
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
Ambient temperature	[°C]	-35 ... +60
Surface resistance	[Ω]	10 ⁴ ... 10 ⁷

Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings NPQM
→ Internet: npqm

Materials	
Shore hardness	D 52 ±3
Tubing	TPE-U(PU)
Note on materials	Conforms to RoHS Free of copper and PTFE

Dimensions and ordering data								
O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part No.	Type	PU ¹⁾
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
4	2.5	5	17	0.0089	Black	188882	PUN-CM-4-SW	50
6	4	13	26.5	0.0192		188883	PUN-CM-6-SW	50
8	5.5	14	37	0.0368		130816	PUN-CM-8-SW	50
10	7	19	54	0.0544		130817	PUN-CM-10-SW	50
12	8	22	70	0.0754		130818	PUN-CM-12-SW	50

1) Packaging unit

Plastic tubing PUN-H, hydrolysis resistant

Technical data

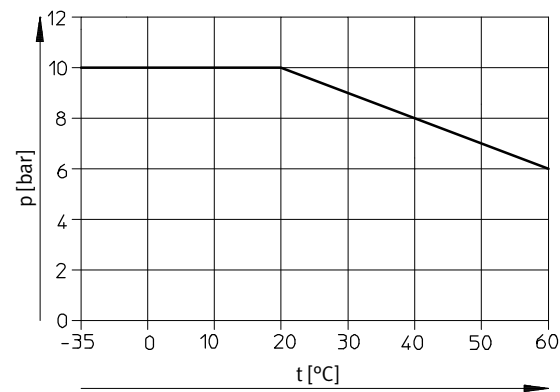
Plastic tubing PUN-H

With tubing outside diameter of 2 mm



Operating and environmental conditions	
Temperature dependent operating pressure [bar]	-0.95 ... +10 → diagram
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
Ambient temperature [°C]	-35 ... +60

Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QSM, Quick Star, mini
 → Internet: qsm

Materials

Shore hardness	D 52 ±3
Tubing	TPE-U(PU)
Note on materials	Conforms to RoHS
	Free of copper and PTFE

Dimensions and ordering data

O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part No.	Type	PU ¹⁾
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
2	1.2	5	8	0.0024	Natural	133038	PUN-H-2x0,4-NT	50
					Black	133039	PUN-H-2x0,4-SW	50
					Red	133040	PUN-H-2x0,4-RT	50

1) Packaging unit

Plastic tubing PUN-H, hydrolysis resistant

Technical data

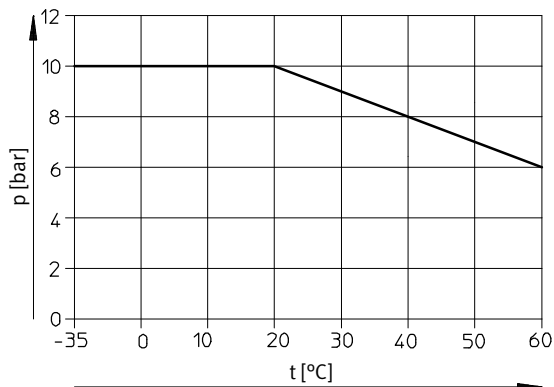
Plastic tubing PUN-H

With tubing outside diameters of
3 ... 16 mm



Operating and environmental conditions		
Temperature dependent operating pressure	[bar]	-0.95 ... +10 → diagram
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
		Water as per manufacturer's declaration → www.festo.com
Ambient temperature	[°C]	-35 ... +60
Approval		German Technical Control Board (TÜV)

Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS, Quick Star
→ Internet: qs



Push-in fittings NPQH
→ Internet: npqh



Push-in fittings CRQS, Quick Star, stainless steel
→ Internet: crqs



Push-in fittings NPQP¹⁾
→ Internet: npqp



Quick connectors CK
→ Internet: ck

1) Recommended fitting

Materials	
Shore hardness	D 52 ±3
Tubing	TPE-U(PU)
Note on materials	Conforms to RoHS
	Free of copper and PTFE

Plastic tubing PUN-H, hydrolysis resistant



Technical data

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]
3	2.1	6	12	0.0042	Natural	197375	PUN-H-3x0,5-NT	50
					Natural	558263	PUN-H-3x0,5-NT-500	500
					Blue	197382	PUN-H-3x0,5-BL	50
					Blue	558256	PUN-H-3x0,5 BL-500	500
					Black	197389	PUN-H-3x0,5-SW	50
					Black	558249	PUN-H-3x0,5-SW-500	500
					Silver	558277	PUN-H-3x0,5-SI	50
					Silver	558270	PUN-H-3x0,5-SI-500	500
					Red	558284	PUN-H-3x0,5-RT	50
					Green	558291	PUN-H-3x0,5-GN	50
					Yellow	558298	PUN-H-3x0,5-GE	50
4	2.6	6	16	0.0085	Natural	197376	PUN-H-4x0,75-NT	50
					Natural	558264	PUN-H-4x0,75-NT-500	500
					Blue	197383	PUN-H-4x0,75-BL	50
					Blue	558257	PUN-H-4x0,75-BL-500	50
					Black	197390	PUN-H-4x0,75-SW	500
					Black	558250	PUN-H-4x0,75-SW-500	500
					Silver	558278	PUN-H-4x0,75-SI	50
					Silver	558271	PUN-H-4x0,75-SI-500	500
					Red	558285	PUN-H-4x0,75-RT	50
					Green	558292	PUN-H-4x0,75-GN	50
					Yellow	558299	PUN-H-4x0,75-GE	50
6	4	10	26	0.0183	Natural	197377	PUN-H-6x1-NT	50
					Natural	558265	PUN-H-6x1-NT-500	500
					Blue	197384	PUN-H-6x1-BL	50
					Blue	558258	PUN-H-6x1-BL-500	500
					Black	197391	PUN-H-6x1-SW	50
					Black	558251	PUN-H-6x1-SW-500	500
					Silver	558279	PUN-H-6x1-SI	50
					Silver	558272	PUN-H-6x1-SI-500	500
					Red	558286	PUN-H-6x1-RT	50
					Green	558293	PUN-H-6x1-GN	50
					Yellow	558300	PUN-H-6x1-GE	50
8	5.7	20	37	0.0287	Natural	197378	PUN-H-8x1,25-NT	50
					Natural	558266	PUN-H-8x1,25-NT-400	400
					Blue	197385	PUN-H-8x1,25-BL	50
					Blue	558259	PUN-H-8x1,25-BL-400	400
					Black	197392	PUN-H-8x1,25-SW	50
					Black	558252	PUN-H-8x1,25-SW-400	400
					Silver	558280	PUN-H-8x1,25-SI	50
					Silver	558273	PUN-H-8x1,25-SI-400	400
					Red	558287	PUN-H-8x1,25-RT	50
					Green	558294	PUN-H-8x1,25-GN	50
					Yellow	558301	PUN-H-8x1,25-GE	50

1) Packaging unit

Plastic tubing PUN-H, hydrolysis resistant

Technical data

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]
10	7	25	52	0.0465	Natural	197379	PUN-H-10x1,5-NT	50
					Natural	558267	PUN-H-10x1,5-NT-300	300
					Blue	197386	PUN-H-10x1,5-BL	50
					Blue	558260	PUN-H-10x1,5-BL-300	300
					Black	197393	PUN-H-10x1,5-SW	50
					Black	558253	PUN-H-10x1,5-SW-300	300
					Silver	558281	PUN-H-10x1,5-SI	50
					Silver	558274	PUN-H-10x1,5-SI-300	300
					Red	558288	PUN-H-10x1,5-RT	50
					Green	558295	PUN-H-10x1,5-GN	50
					Yellow	558302	PUN-H-10x1,5-GE	50
					12	8	23	62
Natural	558268	PUN-H-12x2-NT-200	200					
Blue	197387	PUN-H-12x2-BL	50					
Blue	558261	PUN-H-12x2-BL-200	200					
Black	197394	PUN-H-12x2-SW	50					
Black	558254	PUN-H-12x2-SW-200	200					
Silver	558282	PUN-H-12x2-SI	50					
Silver	558275	PUN-H-12x2-SI-200	200					
Red	558289	PUN-H-12x2-RT	50					
Green	558296	PUN-H-12x2-GN	50					
Yellow	558303	PUN-H-12x2-GE	50					
14	9.8	38	78	0.091				
					Blue	570386	PUN-H-14x2-BL	50
					Black	570387	PUN-H-14x2-SW	50
16	11	38	88	0.1230	Natural	197381	PUN-H-16x2,5-NT	50
					Natural	558269	PUN-H-16x2,5-NT-100	100
					Blue	197388	PUN-H-16x2,5-BL	50
					Blue	558262	PUN-H-16x2,5-BL-100	100
					Black	197395	PUN-H-16x2,5-SW	50
					Black	558255	PUN-H-16x2,5-SW-100	100
					Silver	558283	PUN-H-16x2,5-SI	50
					Silver	558276	PUN-H-16x2,5-SI-100	100
					Red	558290	PUN-H-16x2,5-RT	50
					Green	558297	PUN-H-16x2,5-GN	50
					Yellow	558304	PUN-H-16x2,5-GE	50

1) Packaging unit

Plastic tubing PUN-H-DUO, hydrolysis resistant

Technical data



DUO tubing PUN-H-DUO

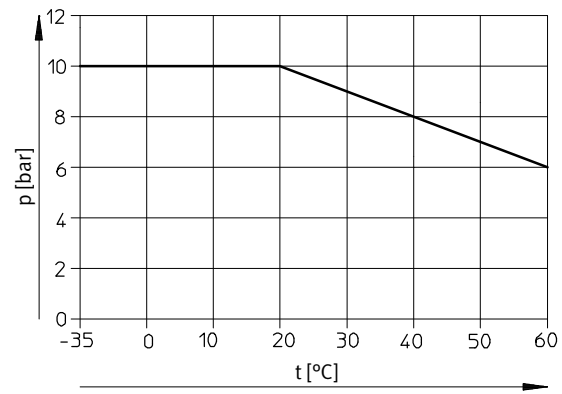
Highly flexible paired plastic tubing distinguished by great resistance to abrasion and kinks. Two lengths of

tubing are fused together into a tubing pair. For fitting, the paired tubing is separated as required at both ends.



Operating and environmental conditions		
Temperature dependent operating pressure [bar]		-0.95 ... +10 → diagram
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
		Water as per manufacturer's declaration → www.festo.com
Ambient temperature [°C]		-35 ... +60
Approval		German Technical Control Board (TÜV)

Operating pressure p as a function of temperature t



Possible fittings

- Push-in fittings QS, Quick Star
→ Internet: qs
 - Push-in fittings NPQH
→ Internet: npqh
 - Push-in fittings CRQS, Quick Star, stainless steel
→ Internet: crqs
 - Push-in fittings NPQP¹⁾
→ Internet: npqp
 - Quick connectors CK
→ Internet: ck
- 1) Recommended fitting

Materials

Shore hardness	D 52 ±3
Tubing	TPE-U(PU)
Note on materials	Conforms to RoHS
	Free of copper and PTFE

Dimensions and ordering data

O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part No.	Type	PU ¹⁾
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
4	2.6	6	16	0.0170	Blue/black	197396	PUN-H-4x0,75-DUO	50
6	4	10	26	0.0366		197397	PUN-H-6x1-DUO	50
8	5.7	20	37	0.0574		197398	PUN-H-8x1,25-DUO	50
10	7	25	52	0.0930		197399	PUN-H-10x1,5-DUO	50

1) Packaging unit

Plastic tubing PUN-V0, flame retardant

Technical data

Plastic tubing PUN-V0

Highly flexible single-sheath plastic tubing, flame retardant

For use in indirect proximity to welding applications.



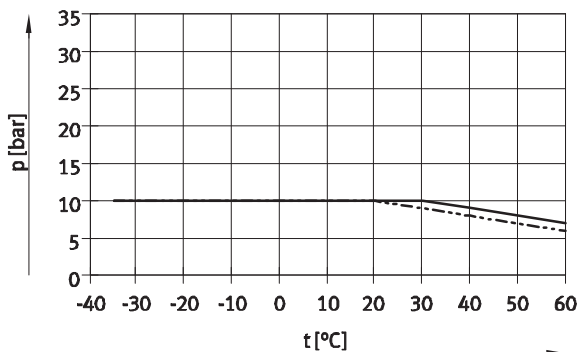
Note

Due to the included flame retardant, the colour of the tubing deviates from the standard colour.



Operating and environmental conditions		
Temperature dependent operating pressure	[bar]	-0.95 ... +10 → diagram
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:--:-]
		Water as per manufacturer's declaration → www.festo.com
Ambient temperature	[°C]	-35 ... +60
Fire test		DIN 5510-2 S4/SR2/ST2
Fire test material		UL94 V2
Approval		German Technical Control Board (TÜV)

Operating pressure p as a function of temperature t



— PUN-V0-...
 - - - PUN-V0-16

Possible fittings



Push-in fittings QS, Quick Star
 → Internet: qs



Push-in fittings NPQH¹
 → Internet: npqh



Push-in fittings QS-V0, Quick Star, flame-retardant
 → Internet: qs-v0



Push-in fittings CRQS, Quick Star, stainless steel
 → Internet: crqs



Push-in fittings NPQM¹
 → Internet: npqm



Quick connectors CK
 → Internet: ck



Barbed fittings CN
 → Internet: cn



Note

Greater force is required when assembling the fittings CK/CN.

1) Recommended fitting

Materials	
Shore hardness	D 54 ±3
Tubing	TPE-U(PU)
Note on materials	Conforms to RoHS
	Free of copper and PTFE

Plastic tubing PUN-V0, flame retardant



Technical data

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]
6	4	12	26.5	0.020	Black	525438	PUN-V0-6x1-SW	50
					Blue	525442	PUN-V0-6x1-BL	50
					Green	525446	PUN-V0-6x1-GN	50
					Red	525450	PUN-V0-6x1-RT	50
					White	525454	PUN-V0-6x1-WS	50
					Yellow	525458	PUN-V0-6x1-GE	50
					Brown	525462	PUN-V0-6x1-BR	50
8	5.7	18	37	0.031	Black	525439	PUN-V0-8x1,25-SW	50
					Blue	525443	PUN-V0-8x1,25-BL	50
					Green	525447	PUN-V0-8x1,25-GN	50
					Red	525451	PUN-V0-8x1,25-RT	50
					White	525455	PUN-V0-8x1,25-WS	50
					Yellow	525459	PUN-V0-8x1,25-GE	50
					Brown	525463	PUN-V0-8x1,25-BR	50
10	7	20	54	0.051	Black	525440	PUN-V0-10x1,5-SW	50
					Blue	525444	PUN-V0-10x1,5-BL	50
					Green	525448	PUN-V0-10x1,5-GN	50
					Red	525452	PUN-V0-10x1,5-RT	50
					White	525456	PUN-V0-10x1,5-WS	50
					Yellow	525460	PUN-V0-10x1,5-GE	50
					Brown	525464	PUN-V0-10x1,5-BR	50
16	11.8	50	90	0.122	Black	570767	PUN-V0-16x2-SW	50
					Blue	570768	PUN-V0-16x2-BL	50

1) Packaging unit

Plastic tubing PUN-V0-C, flame retardant

Technical data

Plastic tubing PUN-V0-C

Highly flexible single-sheath plastic tubing, flame retardant

For use in the immediate vicinity of welding applications.



Note

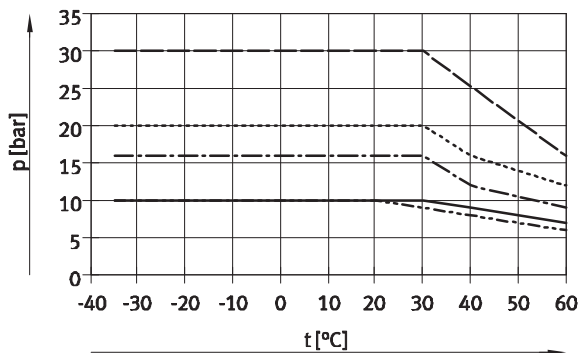
Due to the included flame retardant, the colour of the tubing deviates from the standard colour.



Operating and environmental conditions							
Type	PUN-V0-4	PUN-V0-6	PUN-V0-8	PUN-V0-10	PUN-V0-12	PUN-V0-14	PUN-V0-16
Temperature dependent operating pressure [bar]	-0.95 ... +10 → diagram	-0.95 ... +30 ¹⁾ → diagram	-0.95 ... +20 ¹⁾ → diagram	-0.95 ... +16 ¹⁾ → diagram	-0.95 ... +10 → diagram	-0.95 ... +9 → diagram	-0.95 ... +10 → diagram
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-] Water as per manufacturer's declaration → www.festo.com						
Ambient temperature [°C]	-35 ... +60						
Fire test	DIN 5510-2 S3/SR2/ST1						
Fire test material	UL94 V2						
Approval	German Technical Control Board (TÜV)						

1) Limited to 10 bar in applications with welding spatter.

Operating pressure p as a function of temperature t



— PUN-V0-6x2-C
- - - PUN-V0-8x2-C

For applications without welding spatter
— PUN-V0-6x2-C
- - - PUN-V0-8x2-C
- · - PUN-V0-10x2-C

Possible fittings



Push-in fittings QS, Quick Star
→ Internet: qs



Push-in fittings NPQH¹⁾
→ Internet: npqh



Push-in fittings QS-V0, Quick Star, flame-retardant
→ Internet: qs-v0



Push-in fittings CRQS, Quick Star, stainless steel
→ Internet: crqs



Push-in fittings NPQM¹⁾
→ Internet: npqm



Quick connectors CK
→ Internet: ck



Barbed fittings CN
→ Internet: cn



Note

Greater force is required when assembling the fittings CK/CN.

1) Recommended fitting

Plastic tubing PUN-V0-C, flame retardant

Technical data

Materials	
Shore hardness	D 54 ±3
Tubing	TPE-U(PU)
Note on materials	Conforms to RoHS
	Free of copper and PTFE

Dimensions and ordering data								
Outer Ø	Inner Ø	Min. bending radius	Bending radius relevant for flow rate	Weight	Colour	Part No.	Type	PU ¹⁾
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
4	2	10	20	0.012	Black	570349	PUN-V0-4x1-SW-C	50
					Blue	570350	PUN-V0-4x1-BL-C	50
6	2	7	24	0.032	Black	561698	PUN-V0-6x2-SW-C	50
					Blue	561702	PUN-V0-6x2-BL-C	50
					Green	561706	PUN-V0-6x2-GN-C	50
					Red	561710	PUN-V0-6x2-RT-C	50
					White	561714	PUN-V0-6x2-WS-C	50
					Yellow	561718	PUN-V0-6x2-GE-C	50
					Brown	561722	PUN-V0-6x2-BR-C	50
8	4	9	35	0.049	Black	561699	PUN-V0-8x2-SW-C	50
					Blue	561703	PUN-V0-8x2-BL-C	50
					Green	561707	PUN-V0-8x2-GN-C	50
					Red	561711	PUN-V0-8x2-RT-C	50
					White	561715	PUN-V0-8x2-WS-C	50
					Yellow	561719	PUN-V0-8x2-GE-C	50
					Brown	561723	PUN-V0-8x2-BR-C	50
10	6	12	42	0.064	Black	561700	PUN-V0-10x2-SW-C	50
					Blue	561704	PUN-V0-10x2-BL-C	50
					Green	561708	PUN-V0-10x2-GN-C	50
					Red	561712	PUN-V0-10x2-RT-C	50
					White	561716	PUN-V0-10x2-WS-C	50
					Yellow	561720	PUN-V0-10x2-GE-C	50
					Brown	561724	PUN-V0-10x2-BR-C	50
12	8	19	55	0.080	Black	561701	PUN-V0-12x2-SW-C	50
					Blue	561705	PUN-V0-12x2-BL-C	50
					Green	561709	PUN-V0-12x2-GN-C	50
					Red	561713	PUN-V0-12x2-RT-C	50
					White	561717	PUN-V0-12x2-WS-C	50
					Yellow	561721	PUN-V0-12x2-GE-C	50
					Brown	561725	PUN-V0-12x2-BR-C	50
14	9.8	45	70	0.096	Black	570351	PUN-V0-14x2-SW-C	50
					Blue	570352	PUN-V0-14x2-BL-C	50
16	11	50	90	0.147	Black	570353	PUN-V0-16x2,5-SW-C	50
					Blue	570354	PUN-V0-16x2,5-BL-C	50

1) Packaging unit

Plastic tubing PUN

Ordering data – Modular products



Ordering table (minimum order quantity 3,000 m, rounding-off value 25 m)											
Size	3	4	6	8	10	12	14	16	Condi- tions	Code	Enter code
M Module No.	553573										
Function	Polyurethane tubing, standard O.D.									PUN	PUN
O Alternative material characteristic	Standard										
	Hydrolysis-resistant									-H	
	Antistatic									-CM	
	Flame-retardant									-VO	
	Resistant to welding spatter									-VOC	
M Tubing O.D. [mm]	3	4	6	8	10	12	14	16		-3	
										-4	
										-6	
										-8	
										-10	
										-12	
										-14	
										-16	
Colour	Silver									1 2	-SI
	Blue									1 3	-BL
	Black									3	-SW
	Yellow									1	-GE
	Green									1	-GN
	Red									1	-RT
	Brown									1	-BR
	White									1	-WS
	Natural									1 3 4	-NT
O Inscription text (on request)	Standard										
	Customer-specific tubing inscription									5	-TXT
M Packaging unit [m]	25										-25
	50										-50
	100										-100
	200										-200
	300										-300
	400										-400
	500										-500
Packaging	Cardboard box									6	-CB
	Reel									7	-HA

1 SI, BL, GE, GN, RT, BR, WS, NT

Not with alternative material characteristic CM

2 SI

Not with alternative material characteristic VO, VOC

3 BL, SW, NT

In combination with alternative material characteristic H: approved for use in the food industry

4 NT

Only with alternative material characteristic H

5 TXT

Not in the online shop.

6 CB

Festo logo, order code, TÜV, operating pressure, dimensions omitted

Only with packaging unit 25, 50

7 HA

Not with packaging unit 25, 50

Not with alternative material characteristic VO, VOC, CM

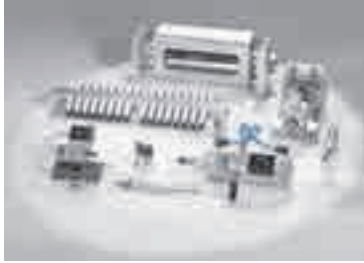
Transfer order code

553573 PUN - - - - -

Product Range and Company Overview

A Complete Suite and Company Overview

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



Custom Automation Components
Complete custom engineered solutions



Custom Control Cabinets
Comprehensive engineering support and on-site services



Complete Systems
Shipment, stocking and storage services

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.



Electromechanical
Electromechanical actuators, motors, controllers & drivers



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 16,000 employees in 60 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.

Quality Assurance, ISO 9001 and ISO 14001 Certifications

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.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

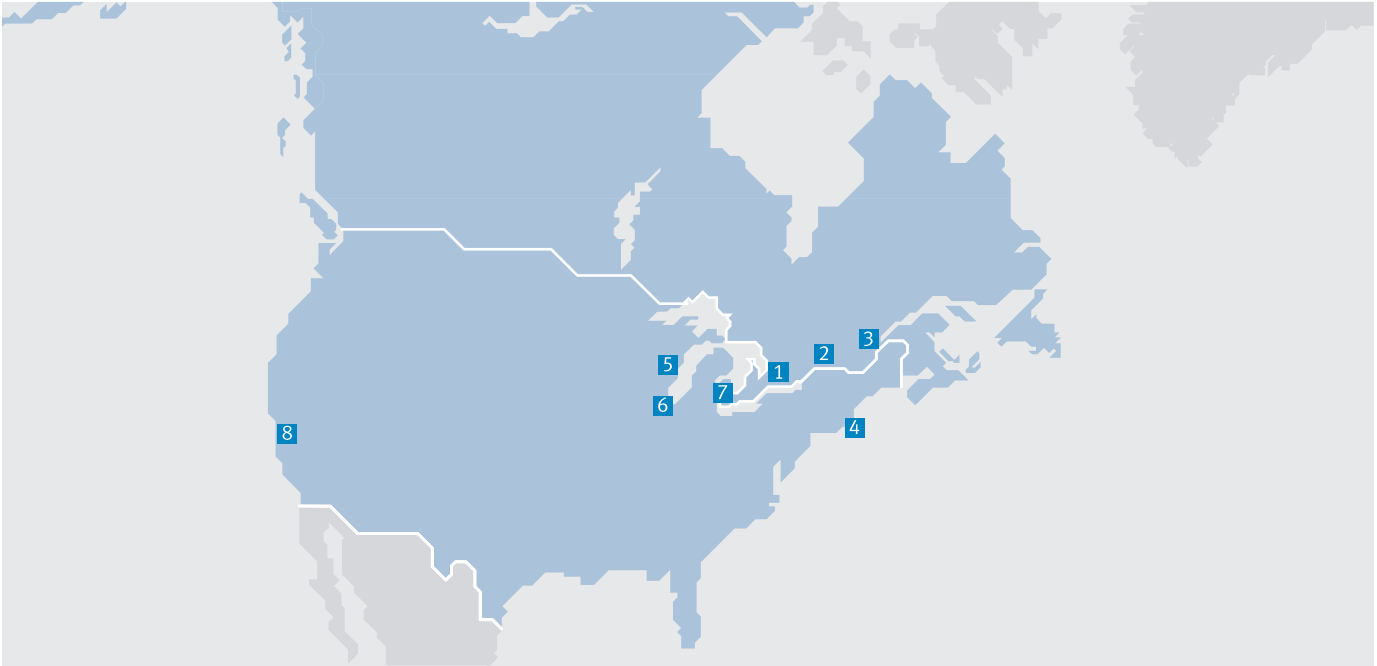


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