



- **4 materials:**
Polyamide, polyethylene,
polyurethane,
perfluoralkoxyalkan
- **Wide range of colours:**
9 colours
- **7 diameters, standard O.D or
I.D., also in the form of DUO
tubing**
- **Suitable for every application:**
Food industry approval, flame
retardant to UL 94 V0,
antistatic, halogen-free,
hydrolysis resistant, suitable
for chain link trunking, free of
paint-wetting impairment
substances to FN 942 010

Specified types in accordance with
ATEX directive for potentially
explosive atmospheres
➔ www.festo.com/en/ex

Plastic tubing

Product range overview

Version	Type	Ø [mm]	Colour										Operating medium				
			Silver	Blue	Black	Yellow	Green	Red	Brown	White	Natural	Blue/black	Compressed air	Vacuum	Water (not drinking water)	Mineral oil	
Standard O.D. tubing		Outside Ø															
	PAN Polyamide	4, 6, 8, 10, 12, 16	■	-	-	-	-	-	-	-	-	■	-	■	■	-	-
	PAN-R Polyamide	4, 6, 8, 10, 12, 16	■	-	-	-	-	-	-	-	-	-	-	■	■	-	-
	PAN-VO Polyamide	6, 8, 10, 12	-	■	■	■	■	■	■	■	■	-	-	■	■	■	■
	PEN Polyethylene	4, 6, 8, 10, 12, 16	■	■	■	■	■	■	■	-	-	■	-	■	■	-	-
	PFAN Perfluor-alkoxyalkan	4, 6, 8, 10, 12	-	-	-	-	-	-	-	-	-	■	-	■	■	-	-
	PLN Polyethylene	4, 6, 8, 10, 12, 16	-	-	■	-	-	-	-	-	-	■	-	■	■	■	-
	PUN Polyurethane	3, 4, 6, 8, 10, 12, 16	■	■	■	■	■	■	■	-	-	-	-	■	■	-	-
	PUN-DUO Polyurethane	4, 6, 8, 10	■	-	-	-	-	-	-	-	-	-	■	■	■	-	-
	PUN-E Polyurethane	4, 6, 8, 10, 12	■	■	■	-	-	-	-	-	-	-	-	■	■	-	-
	PUN-CM Polyurethane	4, 6, 8, 10, 12	-	-	■	-	-	-	-	-	-	-	-	■	■	-	-
	PUN-H Polyurethane	3, 4, 6, 8, 10, 12, 16	-	■	■	-	-	-	-	-	-	■	-	■	■	■	-
	PUN-H-DUO Polyurethane	4, 6, 8, 10	-	-	-	-	-	-	-	-	-	-	■	■	■	■	-
	PUN-VO/-B Polyurethane	6, 8, 10, 12	-	■	■	■	■	■	■	■	■	■	-	-	■	■	-
Standard I.D. tubing		Inside Ø															
	PL Polyethylene	3, 4, 6	-	■	■	-	-	-	-	-	-	■	-	■	■	-	-
	PL-9/13 Polyvinyl chloride ¹⁾	9, 13	-	■	-	-	-	-	-	-	-	-	-	■	-	-	-
	PP Polyamide	3, 4, 6	-	-	-	-	-	-	-	-	-	■	-	■	■	-	-
	PU Polyurethane	2, 3, 4, 6	-	■	■	-	-	-	-	-	-	-	-	■	■	-	-
	PU-9/13 Polyurethane ¹⁾	9	-	-	■	-	-	-	-	-	-	-	-	■	-	-	-
		13	-	-	-	-	-	-	-	-	-	-	-	-	■	-	-
	PU-DUO Polyurethane	2, 3, 4, 6	-	-	-	-	-	-	-	-	-	-	■	■	■	-	-
	PCN Polyvinyl chloride	4	-	-	-	-	-	-	-	-	-	■	-	■	-	■	-
	P Nitrile rubber	6, 9	-	■	■	-	-	-	-	-	-	-	-	■	■	■	-
		13, 19	-	■	■	-	-	-	-	-	-	-	-	■	■	■	-
	PX Nitrile rubber	4, 6, 9	■	-	-	-	-	-	-	-	-	-	-	■	■	■	-
PM Polyethylene	4, 6	-	-	■	-	-	-	-	-	-	-	-	■	■	-	-	

1) fibre-reinforced

Plastic tubing

Product range overview

Type	Food approval as per directive 2002/72/EC	Food approval as per directive FDA	Fire protection classification to UL 94	Antistatic	Halogen-free	PWS-free to FN 942 010	Suitable for chain link trunking	Approved by German Technical Control Board	Germanischer Lloyd	Resistance					Shore hardness	→ Page
										Chemicals	Microbes	UV radiation	Hydrolysis	Stress cracks		
Standard O.D. tubing																
PAN	-	-	-	-	■	■	■	■	■ ¹⁾	+	++	+	+	+	D 55	3 / 5.2-8
PAN-R	-	-	-	-	■	■	■	■	-	+	++	+	+	+	D 62	3 / 5.2-9
PAN-VO	-	-	VO	-	-	■	■	-	-	+	++	++	+	+	A 68 D 53	3 / 5.2-10
PEN	-	-	-	-	-	■	-	■	-	++	-	-	+++	+	D 52	3 / 5.2-13
PFAN	■	■	VO	-	■	■	-	■	-	++	++	++	++	++	D 60	3 / 5.2-12
PLN	■	-	-	-	■	■	-	■	-	++	++	+++ ³⁾	++	+	-	3 / 5.2-15
PUN	-	-	-	-	■	■	■	■	-	-	-	+++ ³⁾	+	++	D 52	3 / 5.2-16
PUN-DUO	-	-	-	-	■	■	■	■	-	-	-	+	+	+	D 52	3 / 5.2-18
PUN-E	■ ²⁾	■ ²⁾	-	-	■	■	■	-	-	+	+	++	+	+	D 52	3 / 5.2-19
PUN-CM	-	-	-	■	■	■	■	-	-	-	-	++	+	+	A 95	3 / 5.2-21
PUN-H	■	■	-	-	■	■	■	■	-	+	++	+++ ³⁾	++	+	D 52	3 / 5.2-22
PUN-H-DUO	■	■	-	-	■	■	■	■	-	+	++	++	++	+	D 52	3 / 5.2-23
PUN-VO/-B	-	-	VO...V2	-	■	■	■	■	-	+	++	+++ ³⁾	++	+	D 54	3 / 5.2-24
Standard I.D. tubing																
PL	■ ⁴⁾	■ ⁴⁾	-	-	■	■	-	■	-	++	++	+++ ³⁾	++	+	D 42	3 / 5.2-29
PL-9/13	-	-	-	-	-	■	-	-	-	-	++	+	+	+	A 85	3 / 5.2-30
PP	-	-	-	-	■	■	■	■	■	+	++	+	+	+	D 55	3 / 5.2-31
PU	-	-	-	-	■	■	■	■	-	-	-	+++ ³⁾	+	+	D 52	3 / 5.2-32
PU-9	-	-	-	-	■	■	■	-	-	-	-	+++ ³⁾	+	+	A 86	3 / 5.2-32
PU-13	-	-	-	-	■	■	■	-	-	-	-	+++ ³⁾	+	+	A 91	
PU-DUO	-	-	-	-	■	■	■	■	-	-	-	+	+	+	D 52	3 / 5.2-33
PCN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76	3 / 5.2-34
P-6/9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	3 / 5.2-35
P-13/19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71	
PX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	3 / 5.2-35
PM	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	3 / 5.2-36

 +++ Very well suited
 ++ Well suited

 + Limited suitability (upon request)
 - Unsuitable





 1) Applies for silver colour
 2) Applies for blue or black colour

 3) Applies for black colour
 4) Applies for natural colour

Spiral plastic tubing

Product range overview



Version	Type	Ø [mm]	Colour			Operating medium		
			Blue	Black	Blue/black	Compressed air	Vacuum	Water (not drinking water)
Spiral tubing		Outside Ø						
	PUN-S Polyurethane	4, 6, 8, 10, 12	■	■	-	■	■	-
	PUN-S-DUO Polyurethane	4, 6, 8, 10, 12	-	-	■	■	■	-
Spiral tubing, pre-assembled		Inside Ø						
	PUN-SG Polyurethane	6.4; 7.9	■	-	-	■	■	■
	PPS Polyamide	4.75; 6.35	■	-	-	■	■	■

Spiral plastic tubing

Product range overview

Type	Food industry approval	Fire protection classification to UL 94	Antistatic	Halogen-free	PW/S-free to FN 942 010	Suitable for chain link trunking	Approved by German Technical Control Board	Resistance						Shore hardness	→ Page
								Chemicals	Microbes	UV radiation	Hydrolysis	Stress cracks	Corrosion resistance class		
Spiral tubing															
PUN-S	-	-	-	■	■	■	■	-	-	++ ¹⁾	+	++	-	D 52	3 / 5.2-38
PUN-S-DUO	-	-	-	■	■	■	■	-	-	+	+	+	-	D 52	3 / 5.2-40
Spiral tubing, pre-assembled															
PUN-SG	-	-	-	■	■	-	-	+	++	+	++	+	1 ²⁾	A 87	3 / 5.2-41
PPS	-	-	-	■	■	■	-	+	++	+	+	+	1 ²⁾	D 60	3 / 5.2-42

++ Well suited

+ Limited suitability (upon request)

- Unsuitable

1) Applies for black colour

2) Corrosion resistance class 1 to Festo standard 940 070

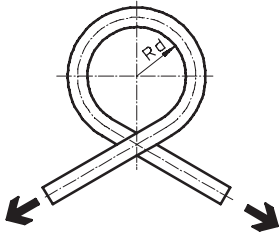
Components with light corrosion exposure. Protection for transport and storage. Components without significant decorative function or surface, e.g. installed out of sight internally or behind covers.

Spiral plastic tubing

Technical data

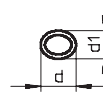
Measuring methods

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.

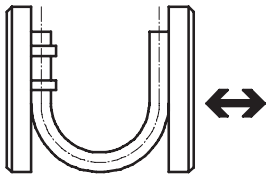


Cross section flattened as a result of bended tubing

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 O.D.

Type codes

	PUN		12x2		BL	200
Material						
PAN	Polyamide					
PFAN	Perfluor-alkoxyalkan					
PLN	Polyethylene					
PUN	Polyurethane					
Certification						
E	Economy					
CM	Antistatic					
H	Hydrolysis resistant					
V0	Flame retardant to UL 94 V0					
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, standard O.D.


Technical data

FESTO

Plastic tubing PAN

High thermal and mechanical load capacities.

-  - Ambient temperature
-30 ... +80 °C

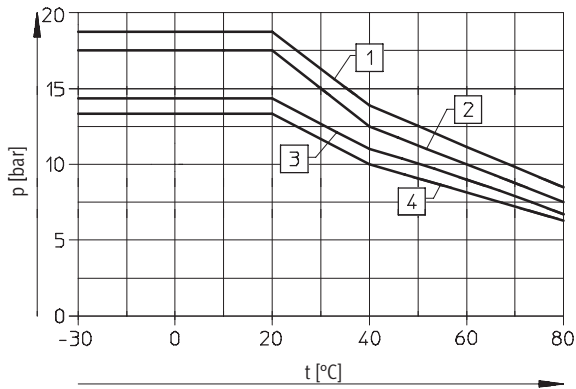
-  - Temperature dependent operating pressure
-0.95 ... +19 bar

Material: Polyamide

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



1 PAN-6
2 PAN-10/12

3 PAN-4/8
4 PAN-16

Possible fittings



Push-in fittings QS,
Quick Star¹⁾
→ 3 / 5.4-39



Barbed fittings CN
→ 3 / 5.4-115









Push-in fittings QS-F,
Quick Star, metal
→ 3 / 5.4-87



Quick connectors CK
→ 3 / 5.5-5

1) Recommended fitting

Dimensions and ordering data

O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part No.	Type	PU*
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
4	2.9	12	18	0.006	Silver	152 697	PAN-4x0,75-SI	50
					Natural	546 284	PAN-4x0,75-NT	 New
6	4	14	32	0.016	Silver	152 699	PAN-6x1-SI	50
					Natural	546 285	PAN-6x1-NT	 New
8	5.9	22	43	0.024	Silver	152 700	PAN-8x1,25-SI	50
					Natural	546 286	PAN-8x1,25-NT	 New
10	7	27	58	0.042	Silver	152 701	PAN-10x1,5-SI	50
					Natural	546 287	PAN-10x1,5-NT	 New
12	8.4	29	64	0.060	Silver	152 702	PAN-12x1,75-SI	50
					Natural	546 288	PAN-12x1,75-NT	 New
16	12	67	94	0.092	Silver	152 703	PAN-16x2-SI	50
					Natural	546 289	PAN-16x2-NT	 New


* Packaging unit


Plastic tubing PAN-R, standard O.D.

Technical data

Plastic tubing PAN-R

For high-pressure applications.

 Ambient temperature
-30 ... +80 °C

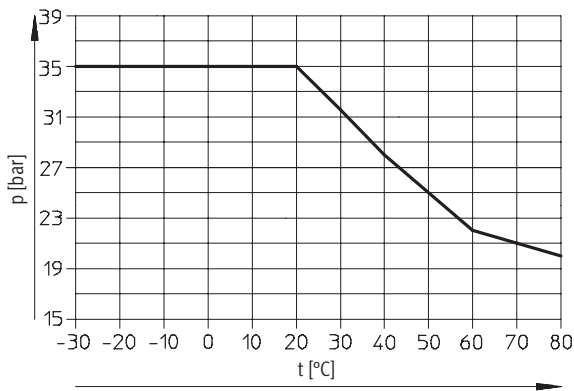
 Temperature dependent
operating pressure
-0,95 ... +35 bar

Material: Polyamide

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS,
Quick Star¹⁾
→ 3 / 5.4-39



Push-in fittings QS-F,
Quick Star, metal
→ 3 / 5.4-87

1) Note application range of push-in fittings

Accessories



Pipe and tubing cutter ZRS
→ 3 / 5.10-28

Dimensions and ordering data								
O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part No.	Type	PU*
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
4	2.5	7	16	0.0079	silver	541 674	PAN-R-4x0,75-SI	50
6	3.8	12	21	0.0174		541 675	PAN-R-6x1,1-SI	50
8	5	16	29	0.0316		541 676	PAN-R-8x1,5-SI	50
10	6.2	18	44	0.0498		541 677	PAN-R-10x1,9-SI	50
12	7.6	24	46	0.0698		541 678	PAN-R-12x2,2-SI	50
16	10	33	73	0.1262		541 679	PAN-R-16x3-SI	50

* Packaging unit

Plastic tubing PAN-V0, standard O.D., flame retardant

Technical data



Plastic tubing PAN-V0

PVC casing, flame retardant to UL 94 V0. Casing must be cut to length X (see table) before assembly.

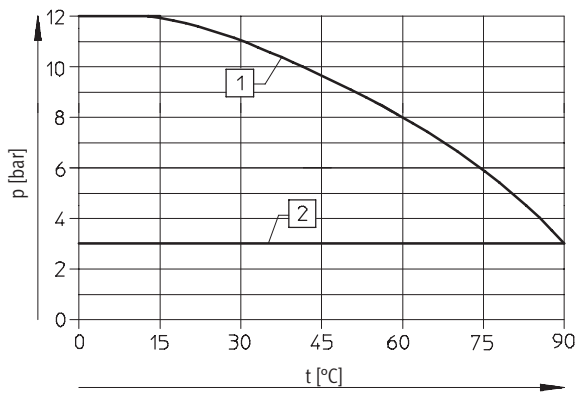
- - Ambient temperature
-30 ... +90 °C

- - Temperature dependent operating pressure
-0.95 ... +12 bar

Material:
Outer tubing: Polyvinyl chloride
Inner tubing: Polyamide



Operating pressure p as a function of temperature t



- 1 Operating medium air
- 2 Operating medium oil/water

Possible fittings



Push-in fittings QS-V0, Quick Star, flame-retardant
→ 3 / 5.4-104

Accessories



Tubing cutter PAN-VOS-...
→ 3 / 5.10-27

Dimensions and ordering data

For push-in fitting	O.D.	Min. bending radius	Flow-relevant bending radius	Max. cut length X	Weight	Colour	Part No.	Type	PU*
[mm]	[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
6	8	13	30	17	0.049	Black	160 550	PAN-V0-6x1-SW	50
						Blue	525 466	PAN-V0-6x1-BL	20
						Green	525 470	PAN-V0-6x1-GN	20
						Red	525 474	PAN-V0-6x1-RT	20
						White	525 478	PAN-V0-6x1-WS	20
						Yellow	525 482	PAN-V0-6x1-GE	20
						Brown	525 486	PAN-V0-6x1-BR	20
8	10	24	45	18	0.065	Black	160 551	PAN-V0-8x1-SW	50
						Blue	525 467	PAN-V0-8x1-BL	20
						Green	525 471	PAN-V0-8x1-GN	20
						Red	525 475	PAN-V0-8x1-RT	20
						White	525 479	PAN-V0-8x1-WS	20
						Yellow	525 483	PAN-V0-8x1-GE	20
						Brown	525 487	PAN-V0-8x1-BR	20

* Packaging unit

Plastic tubing PAN-V0, standard O.D., flame retardant



Technical data

Dimensions and ordering data									
For push-in fitting O.D. [mm]	O.D. [mm]	Min. bending radius [mm]	Flow-relevant bending radius [mm]	Max. cut length X [mm]	Weight [kg/m]	Colour	Part No.	Type	PU*
10	12	34	56	20	0.088	Black	160 552	PAN-V0-10x1,25-SW	50
						Blue	525 468	PAN-V0-10x1,25-BL	20
						Green	525 472	PAN-V0-10x1,25-GN	20
						Red	525 476	PAN-V0-10x1,25-RT	20
						White	525 480	PAN-V0-10x1,25-WS	20
						Yellow	525 484	PAN-V0-10x1,25-GE	20
						Brown	525 488	PAN-V0-10x1,25-BR	20
12	14	43	65	23	0.133	Black	160 553	PAN-V0-12x1,5-SW	50
						Blue	525 469	PAN-V0-12x1,5-BL	20
						Green	525 473	PAN-V0-12x1,5-GN	20
						Red	525 477	PAN-V0-12x1,5-RT	20
						White	525 481	PAN-V0-12x1,5-WS	20
						Yellow	525 485	PAN-V0-12x1,5-GE	20
						Brown	525 489	PAN-V0-12x1,5-BR	20

* Packaging unit

Plastic tubing PFAN, standard O.D.

Technical data



Plastic tubing PFAN

Pneumatic tubing with resistance to high temperatures and chemicals.

- - Ambient temperature
-20 ... +150 °C

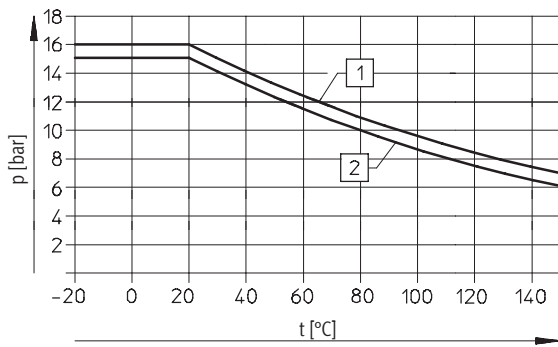
- - Temperature dependent operating pressure
-0.95 ... +16 bar

Material:
Perfluor-alkoxyalkan

Note on material:
RoHS-conform



Operating pressure p as a function of temperature t



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

Possible fittings



Push-in fittings QS-F,
Quick Star, metal
→ 3 / 5.4-87



Quick connectors CK
→ 3 / 5.5-5



Push-in fittings CRQS, Quick Star,
stainless steel¹⁾
→ 3 / 5.4-97

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*
4	2.9	11	37	0.012	Natural	197 061	PFAN-4x0,75-NT	50
6	4	12	50	0.034		197 062	PFAN-6x1-NT	50
8	5.9	25	110	0.049		197 063	PFAN-8x1,25-NT	50
10	7	22	140	0.087		197 064	PFAN-10x1,5-NT	50
12	8.4	29	165	0.125		197 065	PFAN-12x1,75-NT	50



* Packaging unit

Plastic tubing PEN, standard O.D.

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.

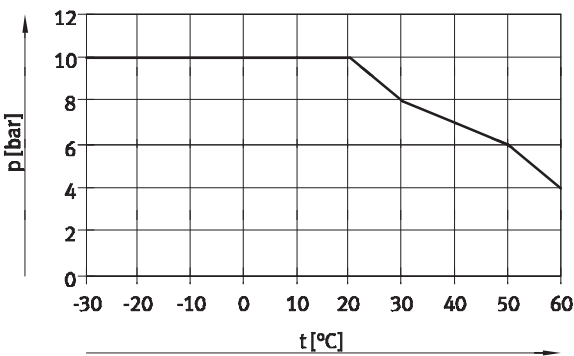
-  - Ambient temperature
-30 ... +60 °C
-  - Temperature dependent operating pressure
-0.95 ... +10 bar

Material:
Polyethylene

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



Operating pressure p as a function of temperature t



Possible fittings



Push-in fitting QS-B,
Quick Star¹⁾
→ 3 / 5.4-73



Barbed fitting CN
→ 3 / 5.4-115











Push-in fitting QS-F,
Quick Star, metal
→ 3 / 5.4-87



Quick connector CK
→ 3 / 5.5-5

1) Recommended fitting

Dimensions and ordering data









































O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part No.	Type	PU*	
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]	
4	2.7	10	20	0.0064	Black	543 240	PEN-4x0,75-SW	50	
					Black	551 438	PEN-4x0,75-SW-500	 New	500
					Blue	551 456	PEN-4x0,75-BL	 New	50
					Blue	551 444	PEN-4x0,75-BL-500	 New	500
					Silver	551 462	PEN-4x0,75-SI	 New	50
					Silver	551 450	PEN-4x0,75-SI-500	 New	500
					Natural	543 246	PEN-4x0,75-NT		50
					Green	551 468	PEN-4x0,75-GN	 New	50
					Red	551 474	PEN-4x0,75-RT	 New	50
					Yellow	551 480	PEN-4x0,75-GE	 New	50

* Packaging unit

Plastic tubing PEN, standard O.D.

Technical data



Dimensions and ordering data									
O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part No.	Type	PU*	
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]	
6	4	13.5	26	0.0148	Black	543 241	PEN-6x1-SW	50	
					Black	551 439	PEN-6x1-SW-500	 New	500
					Blue	551 457	PEN-6x1-BL	 New	50
					Blue	551 445	PEN-6x1-BL-500	 New	500
					Silver	551 463	PEN-6x1-SI	 New	50
					Silver	551 451	PEN-6x1-SI-500	 New	500
					Natural	543 247	PEN-6x1-NT		50
					Green	551 469	PEN-6x1-GN	 New	50
					Red	551 475	PEN-6x1-RT	 New	50
					Yellow	551 481	PEN-6x1-GE	 New	50
8	5.7	22.5	35	0.0233	Black	543 242	PEN-8x1,25-SW	50	
					Black	551 440	PEN-8x1,25-SW-400	 New	400
					Blue	551 458	PEN-8x1,25-BL	 New	50
					Blue	551 446	PEN-8x1,25-BL-400	 New	400
					Silver	551 464	PEN-8x1,25-SI	 New	50
					Silver	551 452	PEN-8x1,25-SI-400	 New	400
					Natural	543 248	PEN-8x1,25-NT		50
					Green	551 470	PEN-8x1,25-GN	 New	50
					Red	551 476	PEN-8x1,25-RT	 New	50
					Yellow	551 482	PEN-8x1,25-GE	 New	50
10	7	23.5	40	0.0377	Black	543 243	PEN-10x1,5-SW	50	
					Black	551 441	PEN-10x1,5-SW-300	 New	300
					Blue	551 459	PEN-10x1,5-BL	 New	50
					Blue	551 447	PEN-10x1,5-BL-300	 New	300
					Silver	551 465	PEN-10x1,5-SI	 New	50
					Silver	551 453	PEN-10x1,5-SI-300	 New	300
					Natural	543 249	PEN-10x1,5-NT		50
					Green	551 471	PEN-10x1,5-GN	 New	50
					Red	551 477	PEN-10x1,5-RT	 New	50
					Yellow	551 483	PEN-10x1,5-GE	 New	50
12	8.4	33	58	0.0542	Black	543 244	PEN-12x1,75-SW	50	
					Black	551 442	PEN-12x1,75-SW-200	 New	200
					Blue	551 460	PEN-12x1,75-BL	 New	50
					Blue	551 448	PEN-12x1,75-BL-200	 New	200
					Silver	551 466	PEN-12x1,75-SI	 New	50
					Silver	551 454	PEN-12x1,75-SI-200	 New	200
					Natural	543 250	PEN-12x1,75-NT		50
					Green	551 472	PEN-12x1,75-GN	 New	50
					Red	551 478	PEN-12x1,75-RT	 New	50
					Yellow	551 484	PEN-12x1,75-GE	 New	50
16	10.8	57.5	122	0.1029	Black	543 245	PEN-16x2,5-SW	50	
					Black	551 443	PEN-16x2,5-SW-100	 New	100
					Blue	551 461	PEN-16x2,5-BL	 New	50
					Blue	551 449	PEN-16x2,5-BL-100	 New	100
					Silver	551 467	PEN-16x2,5-SI	 New	50
					Silver	551 455	PEN-16x2,5-SI-100	 New	100
					Natural	543 251	PEN-16x2,5-NT		50
					Green	551 473	PEN-16x2,5-GN	 New	50
					Red	551 479	PEN-16x2,5-RT	 New	50
					Yellow	551 485	PEN-16x2,5-GE	 New	50

* Packaging unit

Plastic tubing PLN, standard O.D.

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.

- - Ambient temperature
-30 ... +80 °C

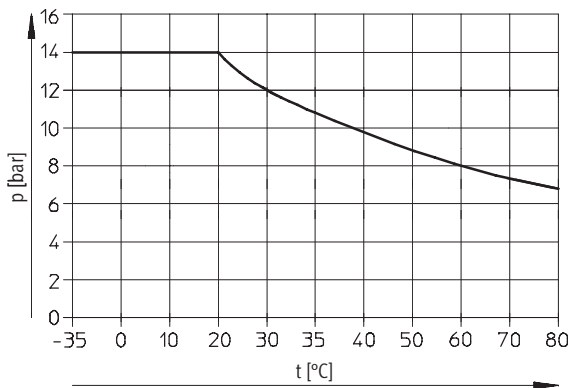
- - Temperature dependent operating pressure
-0.95 ... +14 bar

Material:
Polyethylene

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



Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS,
Quick Star
→ 3 / 5.4-39



Barbed fittings CN
→ 3 / 5.4-115



Push-in fittings QS-F,
Quick Star, metal¹⁾
→ 3 / 5.4-87



Quick connectors CK
→ 3 / 5.5-5

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*
4	2.9	12	25	0.0056	Natur	193 403	PLN-4x0,75-NT	50
					Black	195 280	PLN-4x0,75-SW	50
6	4	11	32	0.0147	Natur	193 404	PLN-6x1-NT	50
					Black	195 281	PLN-6x1-SW	50
8	5.9	23	50	0.0214	Natur	193 405	PLN-8x1,25-NT	50
					Black	195 282	PLN-8x1,25-SW	50
10	7	22	57	0.0375	Natur	193 406	PLN-10x1,5-NT	50
					Black	195 283	PLN-10x1,5-SW	50
12	8.4	23	65	0.0540	Natur	193 407	PLN-12x1,75-NT	50
					Black	195 284	PLN-12x1,75-SW	50
16	12	55	95	0.0820	Natur	539 064	PLN-16x2-NT	50
					Black	539 065	PLN-16x2-SW	50

* Packaging unit

Plastic tubing PUN, standard O.D.

Technical data



Plastic tubing PUN

Highly flexible plastic tubing.

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

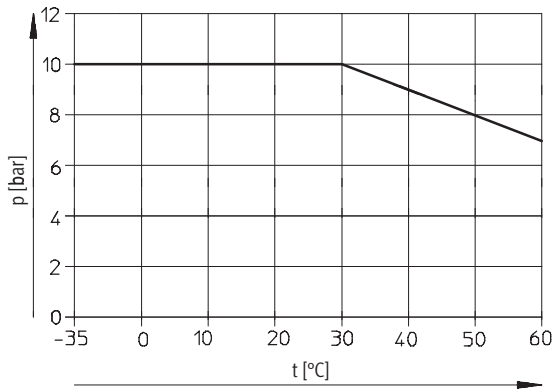
- - Temperature dependent
operating pressure
-0.95 ... +10 bar

Material:
Polyurethane

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS,
Quick Star¹⁾
→ 3 / 5.4-39



Quick connectors CK
→ 3 / 5.5-5



Push-in fittings QS-F,
Quick Star, metal
→ 3 / 5.4-87

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* [m]
3.0	2.1	9	12	0.004	Silver	152 583	PUN-3x0,5-SI	50
					Silver	525 738	PUN-3 x 0,5-SI-500	500
					Blue	159 660	PUN-3x0,5-BL	50
					Blue	525 745	PUN-3x0,5-BL-500	500
					Black	159 661	PUN-3x0,5-SW	50
					Yellow	178 416	PUN-3x0,5-GE	50
					Green	178 423	PUN-3x0,5-GN	50
					Red	178 409	PUN-3x0,5-RT	50
4.0	2.6	8	17	0.009	Silver	152 584	PUN-4x0,75-SI	50
					Silver	525 739	PUN-4x0,75-SI-500	500
					Blue	159 662	PUN-4x0,75-BL	50
					Blue	525 746	PUN-4x0,75-BL-500	500
					Black	159 663	PUN-4x0,75-SW	50
					Yellow	178 417	PUN-4x0,75-GE	50
					Green	178 424	PUN-4x0,75-GN	50
					Red	178 410	PUN-4x0,75-RT	50

* Packaging unit

Plastic tubing PUN, standard O.D.

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* [m]
6.0	4.0	14	26.5	0.019	Silver	152 586	PUN-6x1-SI	50
					Silver	525 740	PUN-6x1-SI-500	500
					Blue	159 664	PUN-6x1-BL	50
					Blue	525 747	PUN-6x1-BL-500	500
					Black	159 665	PUN-6x1-SW	50
					Yellow	178 418	PUN-6x1-GE	50
					Green	178 425	PUN-6x1-GN	50
					Red	178 411	PUN-6x1-RT	50
8.0	5.7	20	37	0.030	Silver	152 587	PUN-8x1,25-SI	50
					Silver	525 741	PUN-8x1,25-SI-400	400
					Blue	159 666	PUN-8x1,25-BL	50
					Blue	525 748	PUN-8x1,25-BL-400	400
					Black	159 667	PUN-8x1,25-SW	50
					Yellow	178 419	PUN-8x1,25-GE	50
					Green	178 426	PUN-8x1,25-GN	50
					Red	178 412	PUN-8x1,25-RT	50
10.0	7.0	25	54	0.049	Silver	152 588	PUN-10x1,5-SI	50
					Silver	525 742	PUN-10x1,5-SI-300	300
					Blue	159 668	PUN-10x1,5-BL	50
					Blue	525 749	PUN-10x1,5-BL-300	300
					Black	159 669	PUN-10x1,5-SW	50
					Yellow	178 420	PUN-10x1,5-GE	50
					Green	178 427	PUN-10x1,5-GN	50
					Red	178 413	PUN-10x1,5-RT	50
12.0	8.0	23	62	0.077	Silver	152 589	PUN-12x2-SI	50
					Silver	525 743	PUN-12x2-SI-200	200
					Blue	159 670	PUN-12x2-BL	50
					Blue	252 750	PUN-12x2-BL-200	200
					Black	159 671	PUN-12x2-SW	50
					Yellow	178 421	PUN-12x2-GE	50
					Green	178 428	PUN-12x2-GN	50
					Red	178 414	PUN-12x2-RT	50
16.0	11.0	43	88	0.129	Silver	152 590	PUN-16x2,5-SI	50
					Silver	525 744	PUN-16x2,5-SI-100	100
					Blue	159 672	PUN-16x2,5-BL	50
					Blue	525 751	PUN-16x2,5-BL-100	100
					Black	159 673	PUN-16x2,5-SW	50
					Yellow	178 422	PUN-16x2,5-GE	50
					Green	178 429	PUN-16x2,5-GN	50
					Red	178 415	PUN-16x2,5-RT	50


* Packaging unit


Plastic tubing PUN-DUO, standard O.D.

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.

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

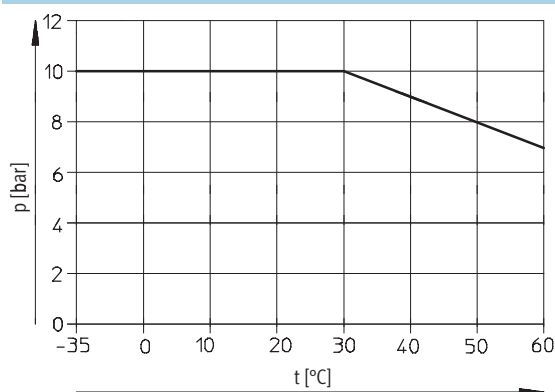
-  - Temperature dependent operating pressure
-0.95 ... +10 bar

Material:
Polyurethane

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS,
Quick Star¹⁾
→ 3 / 5.4-39



Quick connectors CK
→ 3 / 5.5-5



Push-in fittings QS-F,
Quick Star, metal
→ 3 / 5.4-87

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* [m]
4	2.6	8	17	0.018	Silver	152 822	PUN-4x0,75-DUO-SI	50
					Blue/black	159 674	PUN-4x0,75-DUO-BS	50
6	4	14	26.5	0.038	Silver	152 823	PUN-6x1-DUO-SI	50
					Blue/black	159 675	PUN-6x1-DUO-BS	50
8	5.7	20	37	0.060	Silver	152 824	PUN-8x1,25-DUO-SI	50
					Blue/black	159 676	PUN-8x1,25-DUO-BS	50
10	7	25	54	0.098	Silver	152 825	PUN-10x1,5-DUO-SI	50
					Blue/black	159 677	PUN-10x1,5-DUO-BS	50

* Packaging unit

Plastic tubing PUN-E, standard O.D.



Technical data

Plastic tubing PUN-E

Highly flexible, hydrolysis and microbe resistant tubing

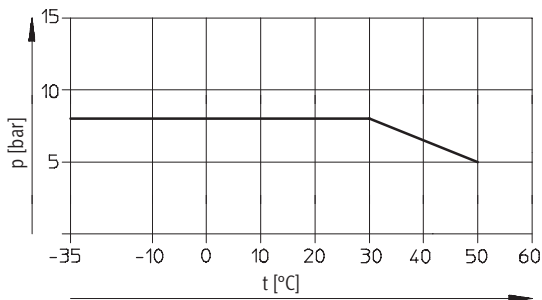
- - Ambient temperature
-35 ... +50 °C
- - Temperature dependent operating pressure
-0.95 ... +8 bar

Material:
Polyurethane

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



Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS-B,
Quick Star¹⁾
→ 3 / 5.4-39



Push-in fittings QS-F,
Quick Star, metal
→ 3 / 5.4-87

1) Recommended fittings

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* [m]
4	2.8	8	30	0.008	Silver	535 320	PUN-E-4x0,6-SI	50
						534 170	PUN-E-4x0,6-SI-500	500
					Blue	535 325	PUN-E-4x0,6-BL	50
						534 171	PUN-E-4x0,6-BL-500	500
					Black	538 465	PUN-E-4x0,6-SW	50
						538 460	PUN-E-4x0,6-SW-500	500
6	4.4	15	45	0.018	Silver	535 321	PUN-E-6x0,8-SI	50
						534 172	PUN-E-6x0,8-SI-500	500
					Blue	535 326	PUN-E-6x0,8-BL	50
						534 173	PUN-E-6x0,8-BL-500	500
					Black	538 466	PUN-E-6x0,8-SW	50
						538 461	PUN-E-6x0,8-SW-500	500
8	6	23	50	0.026	Silver	535 322	PUN-E-8x1-SI	50
						534 174	PUN-E-8x1-SI-400	400
					Blue	535 327	PUN-E-8x1-BL	50
						534 175	PUN-E-8x1-BL-400	400
					Black	538 467	PUN-E-8x1-SW	50
						538 462	PUN-E-8x1-SW-400	400
10	7.5	26	60	0.044	Silver	535 323	PUN-E-10x1,25-SI	50
						534 176	PUN-E-10x1,25-SI-300	300
					Blue	535 328	PUN-E-10x1,25-BL	50
						534 177	PUN-E-10x1,25-BL-300	300
					Black	538 468	PUN-E-10x1,25-SW	50
						538 463	PUN-E-10x1,25-SW-300	300

* Packaging unit

Plastic tubing PUN-E, standard O.D.



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* [m]
12	8.8	36	80	0.069	Silver	535 324	PUN-E-12x1,6-SI	50
						534 178	PUN-E-12x1,6-SI-200	200
					Blue	535 329	PUN-E-12x1,6-BL	50
						534 179	PUN-E-12x1,6-BL-200	200
					Black	538 469	PUN-E-12x1,6-SW	50
						538 464	PUN-E-12x1,6-SW-200	200

* Packaging unit


Plastic tubing PUN-CM, standard O.D., antistatic


Technical data



Plastic tubing PUN-CM

Highly flexible plastic tubing,
electrically conductive.
Surface resistance $10^4 \dots 10^7 \text{ Ohm}$

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

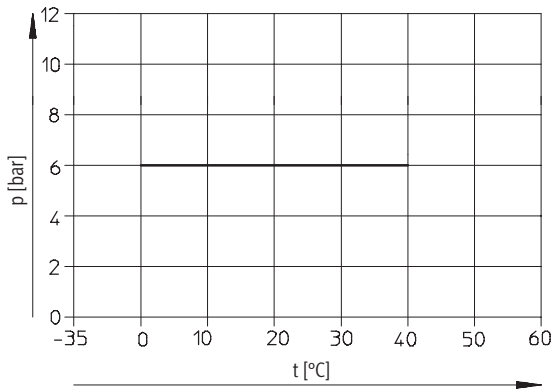
-  - Temperature dependent
operating pressure
-0,95 ... +10 bar

Material:
Polyurethane

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS-F,
Quick Star, metal
→ 3 / 5.4-87

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* [m]
4	2.5	5	17	0.0089	Black	188 882	PUN-CM-4-SW	50
6	4	13	26.5	0.0192		188 883	PUN-CM-6-SW	50
8	5.5	14	37	0.0368		130 816	PUN-CM-8-SW	50
10	7	19	54	0.0544		130 817	PUN-CM-10-SW	50
12	8	22	70	0.0754		130 818	PUN-CM-12-SW	50

* Packaging unit

Plastic tubing PUN-H, standard O.D., hydrolysis resistant

Technical data



Plastic tubing PUN-H

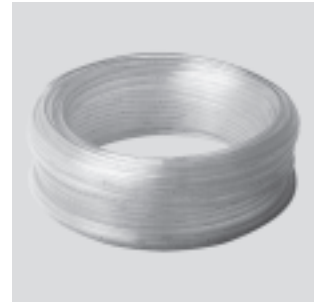
Approved for use in the food industry.

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

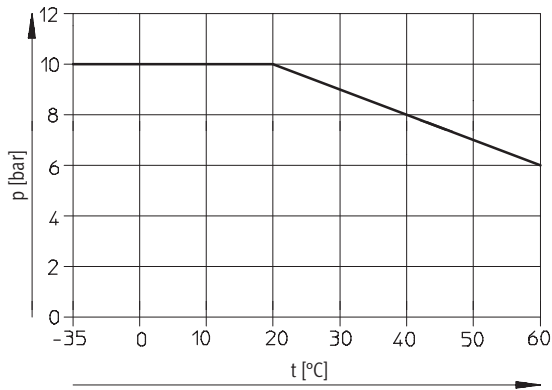
- - Temperature dependent operating pressure
-0,95 ... +10 bar

Material:
Polyurethane

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS,
Quick Star
→ 3 / 5.4-39



Push-in fittings QS-F,
Quick Star, metal¹⁾
→ 3 / 5.4-87

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* [m]
3	2.1	6	12	0.0042	Natur	197 375	PUN-H-3x0,5 NT	50
					Blue	197 382	PUN-H-3x0,5 BL	50
					Black	197 389	PUN-H-3x0,5 SW	50
4	2.6	6	16	0.0085	Natur	197 376	PUN-H-4x0,75 NT	50
					Blue	197 383	PUN-H-4x0,75 BL	50
					Black	197 390	PUN-H-4x0,75 SW	50
6	4	10	26	0.0183	Natur	197 377	PUN-H-6x1 NT	50
					Blue	197 384	PUN-H-6x1 BL	50
					Black	197 391	PUN-H-6x1 SW	50
8	5.7	20	37	0.0287	Natur	197 378	PUN-H-8x1,25 NT	50
					Blue	197 385	PUN-H-8x1,25 BL	50
					Black	197 392	PUN-H-8x1,25 SW	50
10	7	25	52	0.0465	Natur	197 379	PUN-H-10x1,5 NT	50
					Blue	197 386	PUN-H-10x1,5 BL	50
					Black	197 393	PUN-H-10x1,5 SW	50
12	8	23	62	0.0729	Natur	197 380	PUN-H-12x2 NT	50
					Blue	197 387	PUN-H-12x2 BL	50
					Black	197 394	PUN-H-12x2 SW	50
16	11	38	88	0.1230	Natur	197 381	PUN-H-16x2,5 NT	50
					Blue	197 388	PUN-H-16x2,5 BL	50
					Black	197 395	PUN-H-16x2,5 SW	50

* Packaging unit

Plastic tubing PUN-H-DUO, standard O.D., 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.

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

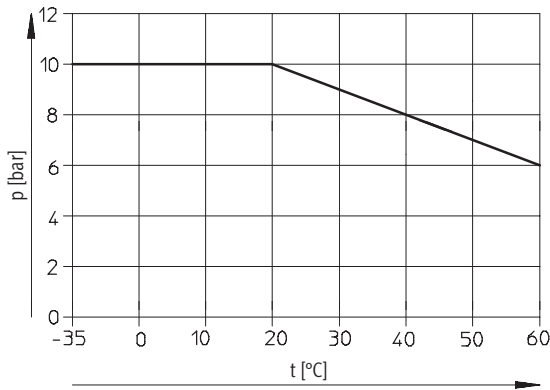
- - Temperature dependent operating pressure
-0,95 ... +10 bar

Material:
Polyurethane

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS, Quick Star
→ 3 / 5.4-39



Push-in fittings QS-F, Quick Star, metal¹⁾
→ 3 / 5.4-87

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* [m]
4	2.6	6	16	0.0170	Blue/black	197 396	PUN-H-4x0,75-DUO	50
6	4	10	26	0.0366	Blue/black	197 397	PUN-H-6x1-DUO	50
8	5.7	20	37	0.0574	Blue/black	197 398	PUN-H-8x1,25-DUO	50
10	7	25	52	0.0930	Blue/black	197 399	PUN-H-10x1,5-DUO	50

* Packaging unit

Plastic tubing PUN-V0, standard O.D., flame retardant

Technical data



Plastic tubing PUN-V0

Highly flexible plastic tubing, flame retardant to UL 94 V0 ... V2.

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

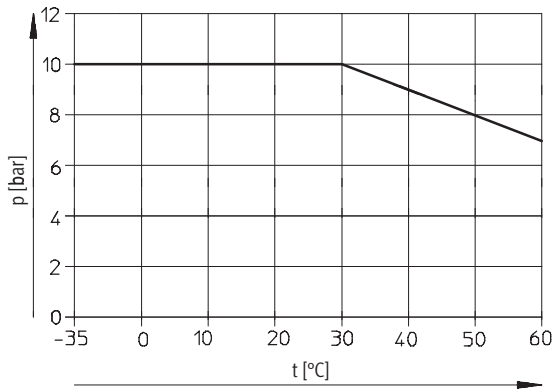
- - Temperature dependent operating pressure
-0,95 ... +10 bar

Material:
Polyurethane

Note on material:
Free of copper, PTFE and silicone



Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS,
Quick Star
→ 3 / 5.4-39



Quick connectors CK
→ 3 / 5.5-5



Push-in fittings QS-F,
Quick Star, metal¹⁾
→ 3 / 5.4-87

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* [m]
6	4	12	26.5	0.020	Black	525 438	PUN-V0-6x1-SW	50
					Blue	525 442	PUN-V0-6x1-BL	50
					Green	525 446	PUN-V0-6x1-GN	50
					Red	525 450	PUN-V0-6x1-RT	50
					White	525 454	PUN-V0-6x1-WS	50
					Yellow	525 458	PUN-V0-6x1-GE	50
					Brown	525 462	PUN-V0-6x1-BR	50
8	5.7	18	37	0.031	Black	525 439	PUN-V0-8x1,25-SW	50
					Blue	525 443	PUN-V0-8x1,25-BL	50
					Green	525 447	PUN-V0-8x1,25-GN	50
					Red	525 451	PUN-V0-8x1,25-RT	50
					White	525 455	PUN-V0-8x1,25-WS	50
					Yellow	525 459	PUN-V0-8x1,25-GE	50
					Brown	525 463	PUN-V0-8x1,25-BR	50

* Packaging unit

Plastic tubing PUN-V0, standard O.D., 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*
10	7	20	54	0.051	Black	525 440	PUN-V0-10x1,5-SW	50
					Blue	525 444	PUN-V0-10x1,5-BL	50
					Green	525 448	PUN-V0-10x1,5-GN	50
					Red	525 452	PUN-V0-10x1,5-RT	50
					White	525 456	PUN-V0-10x1,5-WS	50
					Yellow	525 460	PUN-V0-10x1,5-GE	50
					Brown	525 464	PUN-V0-10x1,5-BR	50
12	8	21	62	0.080	Black	525 441	PUN-V0-12x2-SW	50
					Blue	525 445	PUN-V0-12x2-BL	50
					Green	525 449	PUN-V0-12x2-GN	50
					Red	525 453	PUN-V0-12x2-RT	50
					White	525 457	PUN-V0-12x2-WS	50
					Yellow	525 461	PUN-V0-12x2-GE	50
					Brown	525 465	PUN-V0-12x2-BR	50

* Packaging unit



Plastic tubing PUN-V0-B, standard O.D., flame retardant

Technical data



Plastic tubing PUN-V0-B

Highly flexible single-sheath plastic tubing, flame retardant to UL 94 V0 ... V2
For use in the immediate vicinity of welding applications.

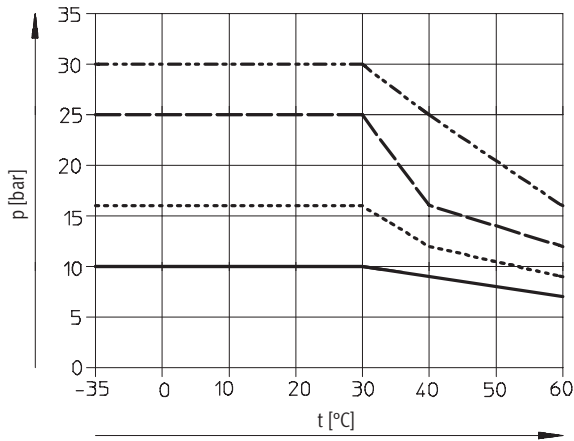
-  - Ambient temperature
-35 ... +60 °C
-  - Temperature dependent operating pressure
-0.95 ... +10 bar

Material:
Polyurethane

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



— PUN-V0-.../PUN-V0-...-B

For applications without welding spatter

- - - - - PUN-V0-6x2-...-B
- · - · - PUN-V0-8x2-...-B
- · · · · PUN-V0-10x2-...-B

Possible fittings



Push-in fitting QS, Quick Star
→ 3 / 5.4-39



Push-in fitting QS-F, Quick Star, metal¹⁾
→ 3 / 5.4-87

1) Recommended fitting

Dimensions and ordering data

Outer Ø	Inner Ø	Min. bending radius	Bending radius relevant for flow rate	Weight	Colour	Part No.	Type	PU*
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
6	2	7	24	0.032	Black	542 934	PUN-V0-6x2-SW-B	50
					Blue	542 938	PUN-V0-6x2-BL-B	50
					Green	542 942	PUN-V0-6x2-GN-B	50
					Red	542 946	PUN-V0-6x2-RT-B	50
					White	542 950	PUN-V0-6x2-WS-B	50
					Yellow	542 954	PUN-V0-6x2-GE-B	50
					Brown	542 958	PUN-V0-6x2-BR-B	50

* Packaging unit

Plastic tubing PUN-V0-B, standard O.D., flame retardant

FESTO

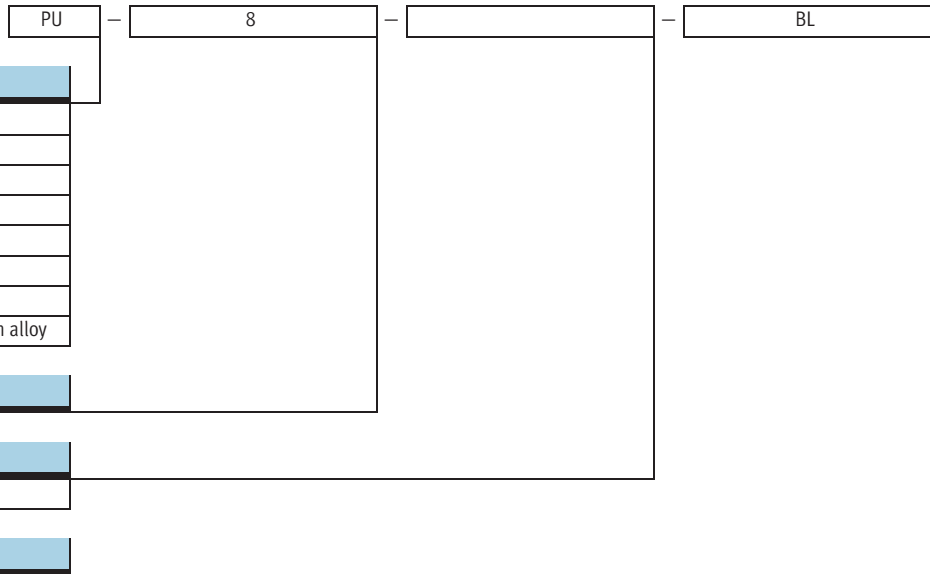
Technical data

Dimensions and ordering data								
Outer Ø	Inner Ø	Min. bending radius	Bending radius relevant for flow rate	Weight	Colour	Part No.	Type	PU*
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
8	4	9	35	0.049	Black	542 935	PUN-V0-8x2-SW-B	50
					Blue	542 939	PUN-V0-8x2-BL-B	50
					Green	542 943	PUN-V0-8x2-GN-B	50
					Red	542 947	PUN-V0-8x2-RT-B	50
					White	542 951	PUN-V0-8x2-WS-B	50
					Yellow	542 955	PUN-V0-8x2-GE-B	50
					Brown	542 959	PUN-V0-8x2-BR-B	50
10	6	12	42	0.064	Black	542 936	PUN-V0-10x2-SW-B	50
					Blue	542 940	PUN-V0-10x2-BL-B	50
					Green	542 944	PUN-V0-10x2-GN-B	50
					Red	542 948	PUN-V0-10x2-RT-B	50
					White	542 952	PUN-V0-10x2-WS-B	50
					Yellow	542 956	PUN-V0-10x2-GE-B	50
					Brown	542 960	PUN-V0-10x2-BR-B	50
12	8	19	55	0.080	Black	542 937	PUN-V0-12x2-SW-B	50
					Blue	542 941	PUN-V0-12x2-BL-B	50
					Green	542 945	PUN-V0-12x2-GN-B	50
					Red	542 949	PUN-V0-12x2-RT-B	50
					White	542 953	PUN-V0-12x2-WS-B	50
					Yellow	542 957	PUN-V0-12x2-GE-B	50
					Brown	542 961	PUN-V0-12x2-BR-B	50

* Packaging unit

Plastic tubing, standard I.D.

Type codes



Material

PL	Polyethylene, I.D. 3, 4, 6
PL	Polyvinyl chloride, O.D. 9, 13
PP	Polyamide
PU	Polyurethane
PCN	Polyvinyl chloride
P	Nitrile rubber
PX	Nitrile rubber
PM	Polyethylene/Wrought aluminium alloy

Internal Ø [mm]

Twin tubing

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

Colour

SW	Black
BL	Blue
SI	Silver
NT	Natural
BS	Blue/black

Plastic tubing PL, standard I.D.



Technical data

Plastic tubing PL

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

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

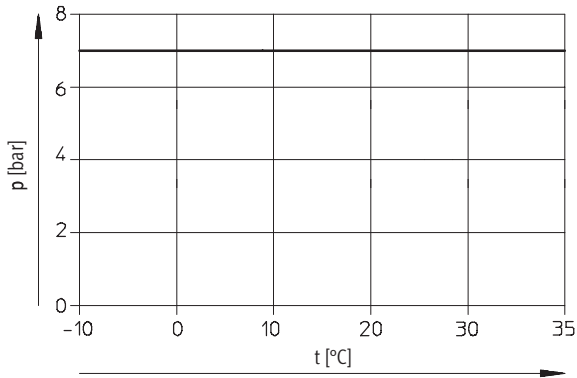
- - Temperature dependent operating pressure
-0.95 ... +9 bar

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
→ 3 / 5.4-115



Quick connectors CK¹⁾
→ 3 / 5.5-5

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*
4.3	3	18	0.0068	Natural	3 856	PL-3-NT	50
				Blue	3 453	PL-3-BL	50
				Black	4 640	PL-3-SW	50
6.2	4	22.5	0.016	Natural	2 236	PL-4-NT	50
				Blue	3 861	PL-4-BL	50
				Black	4 641	PL-4-SW	50
8.4	6	39	0.025	Natural	2 237	PL-6-NT	50
				Blue	3 862	PL-6-BL	50
				Black	4 642	PL-6-SW	50


* Packaging unit

Plastic tubing PL, standard I.D.

Technical data



Plastic tubing PL

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

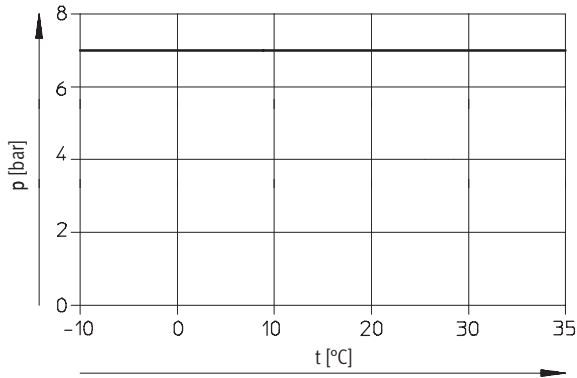
-  - Temperature dependent
operating pressure
0 ... 7 bar

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
→ 3 / 5.5-5

Dimensions and ordering data

O.D. [mm]	I.D. [mm]	Flow-relevant bending radius [mm]	Weight [kg/m]	Colour	Part No.	Type	PU*
11.6	9	85	0.049	Blue	2 238	PL-9-BL	50
17.6	13	100	0.135	Blue	4 103	PL-13-BL	50

* Packaging unit

Plastic tubing PP, standard I.D.

Technical data



Plastic tubing PP

- - Ambient temperature
-30 ... +80 °C

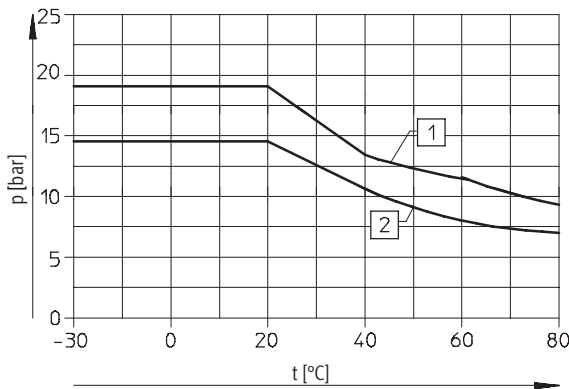
- - Temperature dependent operating pressure
PP-3/PP-6:
-0.95 ... +15 bar
PP-4:
-0.95 ... +19 bar



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
→ 3 / 5.4-115



Quick connectors CK¹⁾
→ 3 / 5.5-5

1) Recommended fitting

Dimensions and ordering data

O.D.	I.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part No.	Type	PU*
[mm]	[mm]	[mm]	[mm]	[kg/m]				[m]
4	2.9	12	18	0.0062	Natural	4 572	PP-3-NT	50
6	4	14	32	0.0163	Natural	4 231	PP-4-NT	50
8	5.9	22	43	0.0238	Natural	4 191	PP-6-NT	50


* Packaging unit


Plastic tubing PU, standard I.D.

Technical data

Plastic tubing PU

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

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

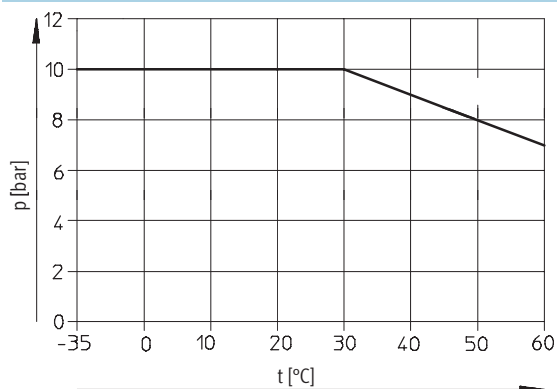
-  - Temperature dependent operating pressure
-0.95 ... +10 bar
PU-9:
0 ... 10 bar

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
→ 3 / 5.4-115



Quick connectors CK¹⁾
→ 3 / 5.5-5

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* [m]
3.2	2.3	13	0.005	Blue	13 365	PU-2-BL	50
				Black	13 366	PU-2-SW	50
4.4	2.9	14	0.0096	Blue	5 732	PU-3-BL	50
				Black	5 731	PU-3-SW	50
6.1	4	20	0.021	Blue	6 204	PU-4-BL	50
				Black	5 733	PU-4-SW	50
8.3	6	36	0.033	Blue	9 159	PU-6-BL	50
				Black	6 731	PU-6-SW	50
Fibre-reinforced							
11.6	9	76	0.051	Black	12 134	PU-9-SW	50
17.6	13	83	0.140	Black	12 133	PU-13-SW	50

* 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.

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

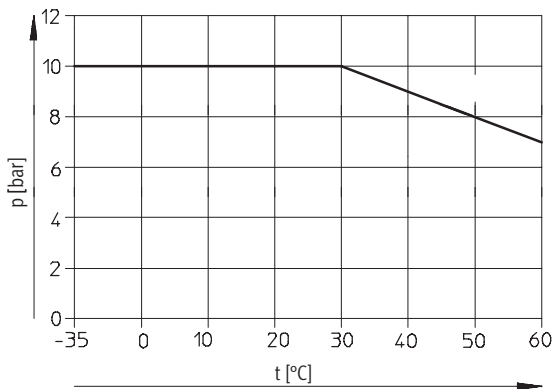
- - Temperature dependent operating pressure
-0.95 ... +10 bar

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
→ 3 / 5.4-115



Quick connectors CK¹⁾
→ 3 / 5.5-5

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* [m]
3.2	2.3	13	0.010	Blue/black	19 581	PU-2-DUO-BS	50
4.4	2.9	14	0.0192	Blue/black	11 958	PU-3-DUO-BS	50
6.1	4	20	0.042	Blue/black	11 959	PU-4-DUO-BS	50
8.3	6	36	0.066	Blue/black	11 960	PU-6-DUO-BS	50

* Packaging unit


Plastic tubing PCN


Technical data

FESTO

Plastic tubing PCN

for use with condensate drains on D series service units

-  - Ambient temperature
-10 ... +60 °C

-  - Temperature dependent
operating pressure
-0.5 ... +0.25 bar

Material:
Polyvinyl chloride with reinforcing
fabric



Dimensions and ordering data						
O.D. [mm]	I.D. [mm]	Weight [kg/m]	Colour	Part No.	Type	PU* [m]
6.5	4	0.025	Natural	7 134	PCN-4-NT	50


* Packaging unit


Metal braided shielded hoses P/PX

Technical data

Plastic tubing P

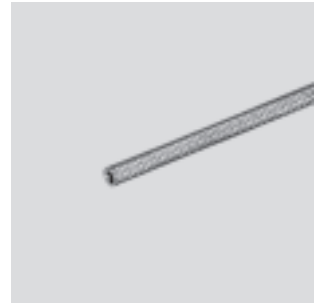
Tubing for barbed hose fitting N

-  - Ambient temperature
-20 ... +80 °C

-  - Temperature dependent
operating pressure
-0.95 ... 16 bar

Material:
P-6/P-9: Nitrile rubber
P-13/P-19: Ethylene propylene
rubber, styrene-butadiene rubber


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




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* [m]
13	6	20	45	0.144	Blue	2 231	P-6-BL	40
16	9	30	60	0.186	Blue	2 232	P-9-BL	40
23	13	50	100	0.400	Black	2 234	P-13-SW	40
31	19	60	200	0.649	Black	2 235	P-19-SW	40

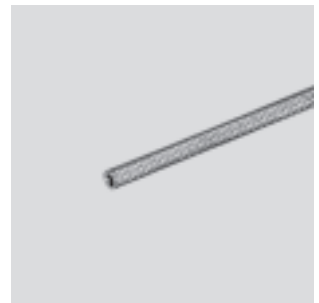
Metal braided shielded hose PX

for fitting CX
Heavy duty tubing

-  - Ambient temperature
-20 ... +80 °C

-  - Temperature dependent
operating pressure
0 ... 12 bar

Material:
Nitrile rubber with metal braiding



Dimensions and ordering data								
O.D. [mm]	I.D. [mm]	Flow-relevant bending radius [mm]	Weight [kg/m]	Colour	Part No.	Type	PU* [m]	
7	4	20	0.101	Silver	4 093	PX-4	40	
9	6	30	0.140	Silver	4 094	PX-6	40	
12	9	45	0.171	Silver	4 095	PX-9	40	


* Packaging unit


Plastic-coated metal tube PM, standard I.D.

Technical data

Plastic-coated metal tube PM

The PM tube features the corrosion resistance of plastic and the deformation resistance of metal. It can be bent straight and reshaped several times without a pipe-bending device and without being damaged.

-  - Ambient temperature
-29 ... +65 °C

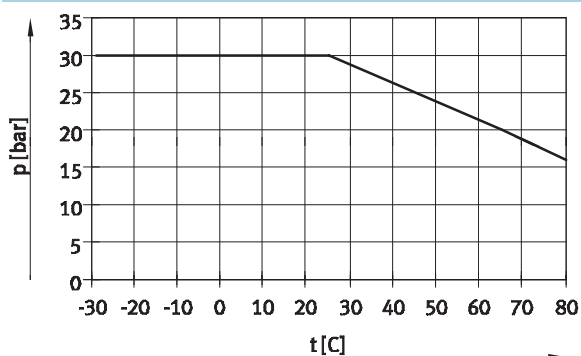
-  - Temperature dependent operating pressure
-0,95 ... +30 bar

Material:
Polyethylene
Wrought aluminium alloy

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



Operating pressure p as a function of temperature t



Possible fittings



Push-in fittings QS,
Quick Star
→ 3 / 5.4-39

Dimensions and ordering data

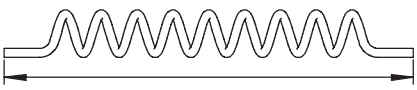
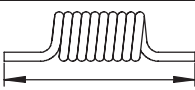
O.D. [mm]	I.D. [mm]	Flow-relevant bending radius [mm]	Weight [kg/m]	Colour	Part No.	Type	PU*
6	3.92	19	0.024	Black	9 084	PM-4	50
8	5.2	25	0.032	Black	9 087	PM-6	50


* Packaging unit

Spiral plastic tubing

Type codes

		PUN	-	8	x	1.25	-	S	-	1	-	DUO	-	BL
Material														
PUN	Polyurethane													
PPS	Polyamide													
Outside Ø [mm]														
Wall thickness [mm]														
Design														
S	Spiral													
Working length [m]														
Twin tubing														
DUO	Twin tubing													
Colour														
SW	Black													
BL	Blue													
BS	Blue/black													

Length specifications		
	Working length	With tensile load, 80% of the maximum section length
	Block length	Without tensile load

 - Note
The working length represents 80% of the maximum permissible expansion. This maximum expansion is the limiting value before permanent deformation takes place.

Spiral plastic tubing PUN-S

Technical data



Spiral plastic tubing PUN-S

Highly flexible plastic tubing.

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

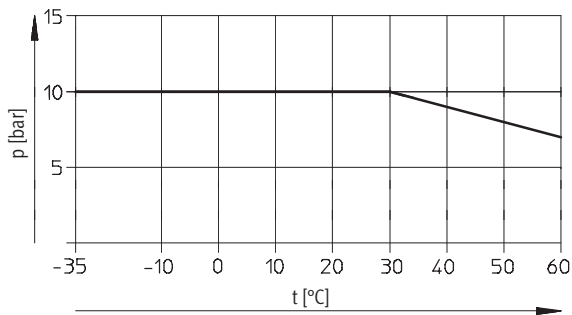
- - Temperature dependent operating pressure
-0.95 ... +10 bar

Material:
Polyurethane

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



Possible fittings



Push-in fitting QS,
Quick Star¹⁾
→ 3 / 5.4-39



Quick connector CK
→ 3 / 5.5-5



Push-in fitting QS-F,
Quick Star, metal
→ 3 / 5.4-87

1) Recommended fitting

Dimensions and ordering data

O.D. [mm]	I.D. [mm]	Winding \varnothing [mm]	Number of windings	Working length [m]	Block length [m]	Weight [g/m]	Colour	Part No.	Type
4	2.6	25	20	0.5	0.184	13	Blue	197 587	PUN-4x0,75-S-0,5-BL
							Black	197 602	PUN-4x0,75-S-0,5-SW
			45	1	0.284	27	Blue	197 588	PUN-4x0,75-S-1-BL
							Black	197 603	PUN-4x0,75-S-1-SW
			70	1.5	0.384	42	Blue	197 589	PUN-4x0,75-S-1,5-BL
							Black	197 604	PUN-4x0,75-S-1,5-SW
6	4	46	23	1	0.344	51	Blue	197 590	PUN-6x1-S-1-BL
							Black	197 605	PUN-6x1-S-1-SW
			52	2	0.518	110	Blue	197 591	PUN-6x1-S-2-BL
							Black	197 606	PUN-6x1-S-2-SW
			168	6	1.214	350	Blue	197 592	PUN-6x1-S-6-BL
							Black	197 607	PUN-6x1-S-6-SW
8	5.7	60	12	1	0.304	650	Blue	197 593	PUN-8x1,25-S-1-BL
							Black	197 608	PUN-8x1,25-S-1-SW
			27	2	0.424	140	Blue	197 594	PUN-8x1,25-S-2-BL
							Black	197 609	PUN-8x1,25-S-2-SW
			87	6	0.904	440	Blue	197 595	PUN-8x1,25-S-6-BL
							Black	197 610	PUN-8x1,25-S-6-SW

Spiral plastic tubing PUN-S

Technical data



Dimensions and ordering data									
O.D.	I.D.	Winding \varnothing	Number of windings	Working length	Block length	Weight	Colour	Part No.	Type
[mm]	[mm]	[mm]		[m]	[m]	[g/m]			
10	7	80	9.5	1	0.305	110	Blue	197 596	PUN-10x1,5-S-1-BL
							Black	197 611	PUN-10x1,5-S-1-SW
			22	2	0.43	250	Blue	197 597	PUN-10x1,5-S-2-BL
							Black	197 612	PUN-10x1,5-S-2-SW
			70	6	0.91	760	Blue	197 598	PUN-10x1,5-S-6-BL
							Black	197 613	PUN-10x1,5-S-6-SW
12	8	95	9	1	0.32	200	Blue	197 599	PUN-12x2-S-1-BL
							Black	197 614	PUN-12x2-S-1-SW
			20	2	0.452	420	Blue	197 600	PUN-12x2-S-2-BL
							Black	197 615	PUN-12x2-S-2-SW
			64	6	0.98	1300	Blue	197 601	PUN-12x2-S-6-BL
							Black	197 616	PUN-12x2-S-6-SW

Spiral plastic tubing PUN-S-DUO

Technical data



**DUO spiral plastic tubing
PUN-S-DUO**

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

Highly flexible plastic tubing

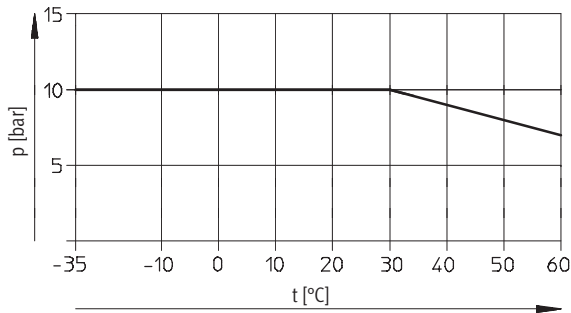
- - Temperature dependent
operating pressure
-0.95 ... +10 bar

Material:
Polyurethane

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



Possible fittings



Push-in fitting QS,
Quick Star¹⁾
→ 3 / 5.4-39



Quick connector CK
→ 3 / 5.5-5



Push-in fitting QS-F,
Quick Star, metal
→ 3 / 5.4-87

1) Recommended fitting

Dimensions and ordering data

O.D. [mm]	I.D. [mm]	Winding Ø [mm]	Number of windings	Working length [m]	Block length [m]	Weight [g/m]	Colour	Part No.	Type
4	2.6	25	20	0.5	0.268	25	Blue/black	197 617	PUN-4x0,75-S-0,5-DUO-BS
			45	1	0.468	55		197 618	PUN-4x0,75-S-1-DUO-BS
			70	1.5	0.668	84		197 619	PUN-4x0,75-S-1,5-DUO-BS
6	4	46	23	1	0.488	102	Blue/black	197 620	PUN-6x1-S-1-DUO-BS
			52	2	0.836	230		197 621	PUN-6x1-S-2-DUO-BS
			168	6	2.228	700		197 622	PUN-6x1-S-6-DUO-BS
8	5.7	60	12	1	0.408	130	Blue/black	197 623	PUN-8x1,25-S-1-DUO-BS
			27	2	0.648	280		197 624	PUN-8x1,25-S-2-DUO-BS
			87	6	1.608	870		197 625	PUN-8x1,25-S-6-DUO-BS
10	7	80	9.5	1	0.41	220	Blue/black	197 626	PUN-10x1,5-S-1-DUO-BS
			22	2	0.66	490		197 627	PUN-10x1,5-S-2-DUO-BS
			70	6	1.62	1520		197 628	PUN-10x1,5-S-6-DUO-BS
12	8	95	9	1	0.44	390	Blue/black	197 629	PUN-12x2-S-1-DUO-BS
			20	2	0.704	830		197 630	PUN-12x2-S-2-DUO-BS
			64	6	1.76	2600		197 631	PUN-12x2-S-6-DUO-BS

Spiral plastic tubing PUN-SG, pre-assembled

Technical data



Spiral plastic tubing PUN-SG

Highly flexible and hydrolysis resistant pneumatic tubing with fabric reinforcing and captive rotatable fittings.

- - Ambient temperature
-40 ... +60 °C

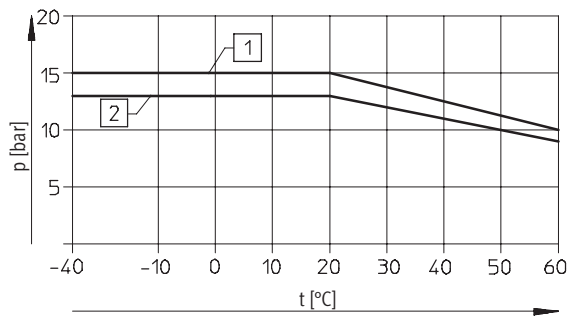
- - Temperature dependent operating pressure
-0.95 ... +15 bar

Material:
Polyurethane, nickel plated brass, polyacetate

Note on material:
Free of copper and PTFE



Operating pressure p as a function of temperature t



- 1 PUN-10x1,5-SG
- 2 PUN-12x2-SG

Dimensions and ordering data											
O.D.	I.D.	Pneumatic connection	Flow-relevant bending radius	Winding \varnothing	Number of windings	Working length	Block length	Weight	Colour	Part No.	Type
[mm]	[mm]		[mm]	[mm]		[m]	[m]	[g/m]			
9.5	6.4	G $\frac{1}{4}$	50	42	21	2.4	0.889	180	Blue	533 463	PUN-10x1,5-SG-2,4-BL- $\frac{1}{4}$
					50	4.8	1.165	340		533 464	PUN-10x1,5-SG-4,8-BL- $\frac{1}{4}$
					66	6	1.317	430		533 465	PUN-10x1,5-SG-6-BL- $\frac{1}{4}$
11.7	7.9	G $\frac{3}{8}$	65	51	41	4.8	1.172	480		533 466	PUN-12x2-SG-4,8-BL- $\frac{3}{8}$
					53	6	1.312	560		533 467	PUN-12x2-SG-6-BL- $\frac{3}{8}$

Spiral plastic tubing PPS, pre-assembled

Technical data



Spiral plastic tubing PPS

This hydrolysis resistant plastic tubing demonstrates high thermal and mechanical load capacities. Each length of tubing is delivered ready for installation with 2 rotatable fittings and suitable sealing rings. Kinks at the tubing ends are prevented with the anti-kinking springs.

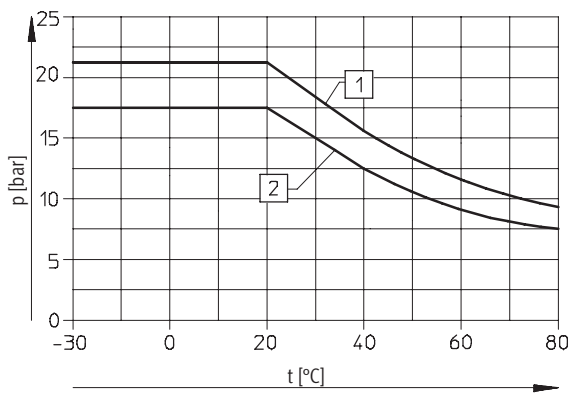
- - Ambient temperature
-30 ... +80 °C
- - Temperature dependent operating pressure
-0.95 ... +21.2 bar

Material:
PPS: Polyamide, brass, galvanised steel
PPS-...-CT: Polyamide, wrought aluminium alloy, anodised, galvanised steel

Note on material:
Free of copper and PTFE
→ Ordering data



Operating pressure p as a function of temperature t



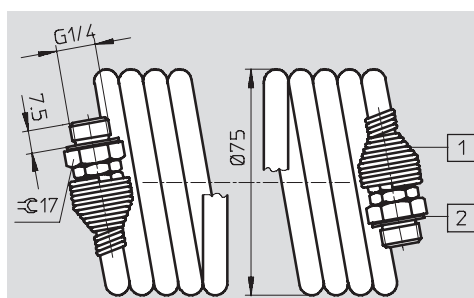
- 1 PPS-4
- 2 PPS-6

Dimensions and ordering data

O.D. [mm]	I.D. [mm]	Pneumatic connection	Winding Ø [mm]	Number of windings	Working length [m]	Block length [m]	Weight [g/m]	Colour	Part No.	Type
6.36	4.76	G1/4	75	46	7.5	0.34	249	Blue	19 798	PPS-4-7,5-1/4-BL
				94	15	0.67	367		19 799	PPS-4-15-1/4-BL
7.95	6.35			45	7.5	0.43	298		19 796	PPS-6-7,5-1/4-BL
				90	15	0.80	500		19 797	PPS-6-15-1/4-BL

O.D. [mm]	I.D. [mm]	Pneumatic connection	Winding Ø [mm]	Number of windings	Working length [m]	Block length [m]	Weight [g/m]	Colour	Part No.	Type
6.36	4.76	G1/4	75	46	7.5	0.34	191	Blue	165 871	PPS-4-7,5-1/4-CT-BL ¹⁾
				94	15	0.67	350		165 870	PPS-4-15-1/4-CT-BL ¹⁾
7.95	6.35			45	7.5	0.43	260		165 873	PPS-6-7,5-1/4-CT-BL ¹⁾
				90	15	0.80	472		165 872	PPS-6-15-1/4-CT-BL ¹⁾

1) Free of copper and PTFE



- 1 Kink protection spring
- 2 Captive seal