

Spiral plastic tubing

FESTO



Spiral plastic tubing

Product range overview

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

Spiral plastic tubing

Product range overview



Type	Halogen-free	PWS-free to FN 942 010	Suitable for use with energy chains	Approved by the German Technical Control Board (TÜV)	Resistance					Shore hardness ²⁾	➔ Page/ Internet
					Chemicals	Microbes	UV radiation	Hydrolysis	Stress cracks		
Spiral tubing											
PUN-S	■	■	■	■	-	-	++ ¹⁾	+	++	D 52 ±3	6
PUN-S-DUO	■	■	■	■	-	-	+	+	+	D 52 ±3	8
Spiral tubing, pre-assembled											
PUN-SG	■	■	-	-	+	++	+	++	+	A 87 ±3	10
PPS	■	■	■	-	+	++	+	+	+	-	11

++ Highly suitable

+ Limited suitability (on request)

- Not suitable

1) Applies to black colour

2) Values are determined using test boards. Values determined using tubing may vary.

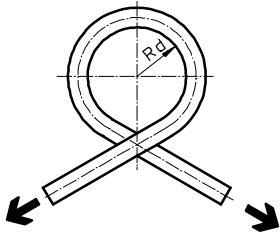
Spiral plastic tubing

Technical data

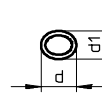
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Method of measurement

Flow-relevant bending radius R_d



The tube is bent in the direction of its own curve until the tubing outer diameter is flattened by 5%. R_d is then calculated mathematically. The flow rate is not reduced until R_d is reached.

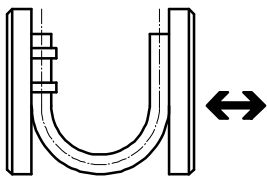


Cross section flattened by bending the tube.

d = non-deformed tubing O.D.

$d1$ = deformed tubing O.D.

Minimum bending radius R_{min}



The tube fixed to the base plate is bent until the deformation results in a kink. The measured value is the minimum bending radius R_{min} . This R_{min} results in significant reductions in flow rate.

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 limit value before permanent deformation takes place.

Spiral plastic tubing

Type codes

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Type codes spiral plastic tubing PUN

PUN		-	6x1	-	S	-	1	-	DUO	-	BS	-	
Material													
PUN	Polyurethane												
O.D. x wall thickness [mm]													
Design													
S	Spiral												
SG	Spiral with fabric												
Working length [m]													
Number of tubes													
	Single tube												
DUO	Paired tubing (only for S)												
Colour													
SW	Black (only for S)												
BL	Blue												
BS	Blue/black (only for DUO)												
Pneumatic connection (only for SG)													
1/4	Male thread G1/4												
3/8	Male thread G3/8												

Type codes spiral plastic tubing PPS

PPS		-	4	-	15	-	1/4	-	BL	
Material										
PPS	Polyamide									
I.D. [mm]										
4	I.D. 4.7 mm									
6	I.D. 6.2 mm									
Working length [m]										
7.5	Working length 7.5 m									
15	Working length 15 m									
Pneumatic connection										
1/4	Male thread G1/4									
Colour										
BL	Blue									

Spiral plastic tubing PUN-S

Technical data

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Spiral plastic tubing PUN-S

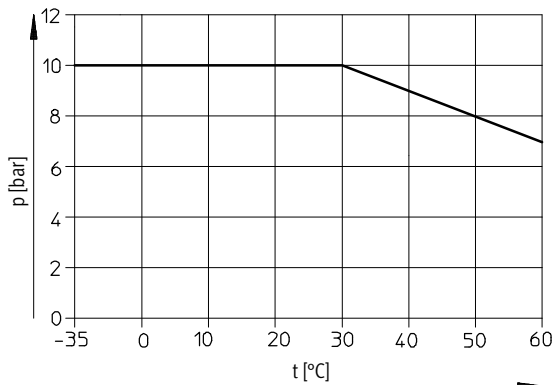
Highly flexible plastic tubing.



General technical data					
Type	PUN-4x0,75-S	PUN-6x1-S	PUN-8x1,25-S	PUN-10x1,5-S	PUN-12x2-S
Pneumatic connection	For push-in connector O.D. 4 mm	For push-in connector O.D. 6 mm	For push-in connector O.D. 8 mm	For push-in connector O.D. 10 mm	For push-in connector O.D. 12 mm
	For barbed connector I.D. 3 mm with union nut	For barbed connector I.D. 4 mm with union nut	For barbed connector I.D. 6 mm with union nut	–	–
	For barbed connector I.D. 3 mm	For barbed connector I.D. 4 mm	For barbed connector I.D. 6 mm	–	–

Operating and environmental conditions	
Temperature-dependent operating pressure [bar]	–0.95 ... +10 → graph
Operating medium	Compressed air to ISO 8573-1:2010 [7:–:–]
Ambient temperature [°C]	–35 ... +60
Approval	German Technical Control Board (TÜV)

Operating pressure p as a function of temperature t



Possible fittings



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



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



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



Push-in fitting NPQM
→ Internet: npqm



Quick connector CK
→ Internet: ck



Barbed fitting CN
→ Internet: cn

1) Recommended fitting



Note

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

Spiral plastic tubing PUN-S

Technical data

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

Dimensions and ordering data									
O.D.	I.D.	Winding Ø	Number of windings	Working length	Block length	Weight	Colour	Part No.	Type
[mm]	[mm]	[mm]		[m]	[m]	[g]			
4	2.6	25	20	0.5	0.184	13	Blue	197587	PUN-4x0,75-S-0,5-BL
							Black	197602	PUN-4x0,75-S-0,5-SW
			45	1	0.284	27	Blue	197588	PUN-4x0,75-S-1-BL
							Black	197603	PUN-4x0,75-S-1-SW
			70	1.5	0.384	42	Blue	197589	PUN-4x0,75-S-1,5-BL
							Black	197604	PUN-4x0,75-S-1,5-SW
6	4	46	23	1	0.344	51	Blue	197590	PUN-6x1-S-1-BL
							Black	197605	PUN-6x1-S-1-SW
			52	2	0.518	110	Blue	197591	PUN-6x1-S-2-BL
							Black	197606	PUN-6x1-S-2-SW
			168	6	1.214	350	Blue	197592	PUN-6x1-S-6-BL
							Black	197607	PUN-6x1-S-6-SW
8	5.7	60	12	1	0.304	65	Blue	197593	PUN-8x1,25-S-1-BL
							Black	197608	PUN-8x1,25-S-1-SW
			27	2	0.424	140	Blue	197594	PUN-8x1,25-S-2-BL
							Black	197609	PUN-8x1,25-S-2-SW
			87	6	0.904	440	Blue	197595	PUN-8x1,25-S-6-BL
							Black	197610	PUN-8x1,25-S-6-SW
10	7	80	9.5	1	0.305	110	Blue	197596	PUN-10x1,5-S-1-BL
							Black	197611	PUN-10x1,5-S-1-SW
			22	2	0.43	250	Blue	197597	PUN-10x1,5-S-2-BL
							Black	197612	PUN-10x1,5-S-2-SW
			70	6	0.91	760	Blue	197598	PUN-10x1,5-S-6-BL
							Black	197613	PUN-10x1,5-S-6-SW
12	8	95	9	1	0.32	200	Blue	197599	PUN-12x2-S-1-BL
							Black	197614	PUN-12x2-S-1-SW
			20	2	0.452	420	Blue	197600	PUN-12x2-S-2-BL
							Black	197615	PUN-12x2-S-2-SW
			64	6	0.98	1300	Blue	197601	PUN-12x2-S-6-BL
							Black	197616	PUN-12x2-S-6-SW

Spiral plastic tubing PUN-S-DUO

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DUO spiral plastic tubing PUN-S-DUO

Highly flexible paired plastic tubing. Two lengths of tubing are fused together into a tubing pair. For fitting,

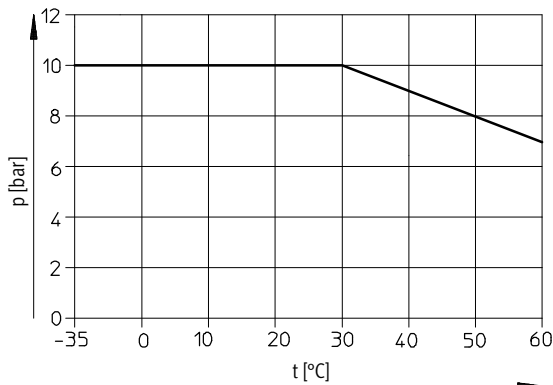
the paired tubing is separated to the required length at both ends.



General technical data					
Type	PUN-4x0,75-S	PUN-6x1-S	PUN-8x1,25-S	PUN-10x1,5-S	PUN-12x2-S
Pneumatic connection	For push-in connector O.D. 4 mm	For push-in connector O.D. 6 mm	For push-in connector O.D. 8 mm	For push-in connector O.D. 10 mm	For push-in connector O.D. 12 mm
	For barbed connector I.D. 3 mm with union nut	For barbed connector I.D. 4 mm with union nut	For barbed connector I.D. 6 mm with union nut	–	–
	For barbed connector I.D. 3 mm	For barbed connector I.D. 4 mm	For barbed connector I.D. 6 mm	–	–

Operating and environmental conditions	
Temperature-dependent operating pressure [bar]	–0.95 ... +10 → graph
Operating medium	Compressed air to ISO 8573-1:2010 [7:–:–]
Ambient temperature [°C]	–35 ... +60
Approval	German Technical Control Board (TÜV)

Operating pressure p as a function of temperature t



Possible fittings



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



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



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



Push-in fitting NPQM
→ Internet: npqm



Quick connector CK
→ Internet: ck



Barbed fitting CN
→ Internet: cn

1) Recommended fitting



Note

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

Spiral plastic tubing PUN-S-DUO

Technical data

FESTO

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

Dimensions and ordering data									
O.D.	I.D.	Winding Ø	Number of windings	Working length	Block length	Weight	Colour	Part No.	Type
[mm]	[mm]	[mm]		[m]	[m]	[g]			
4	2.6	25	20	0.5	0.268	25	Blue/black	197617	PUN-4x0,75-S-0,5-DUO-BS
			45	1	0.468	55		197618	PUN-4x0,75-S-1-DUO-BS
			70	1.5	0.668	84		197619	PUN-4x0,75-S-1,5-DUO-BS
6	4	46	23	1	0.488	102	Blue/black	197620	PUN-6x1-S-1-DUO-BS
			52	2	0.836	230		197621	PUN-6x1-S-2-DUO-BS
			168	6	2.228	700		197622	PUN-6x1-S-6-DUO-BS
8	5.7	60	12	1	0.408	130	Blue/black	197623	PUN-8x1,25-S-1-DUO-BS
			27	2	0.648	280		197624	PUN-8x1,25-S-2-DUO-BS
			87	6	1.608	870		197625	PUN-8x1,25-S-6-DUO-BS
10	7	80	9.5	1	0.41	220	Blue/black	197626	PUN-10x1,5-S-1-DUO-BS
			22	2	0.66	490		197627	PUN-10x1,5-S-2-DUO-BS
			70	6	1.62	1520		197628	PUN-10x1,5-S-6-DUO-BS
12	8	95	9	1	0.44	390	Blue/black	197629	PUN-12x2-S-1-DUO-BS
			20	2	0.704	830		197630	PUN-12x2-S-2-DUO-BS
			64	6	1.76	2600		197631	PUN-12x2-S-6-DUO-BS

Spiral plastic tubing PUN-SG, pre-assembled

Technical data

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Spiral plastic tubing PUN-SG

Highly flexible and hydrolysis-resistant pneumatic tubing with fibre reinforcement and captive rotatable fittings.



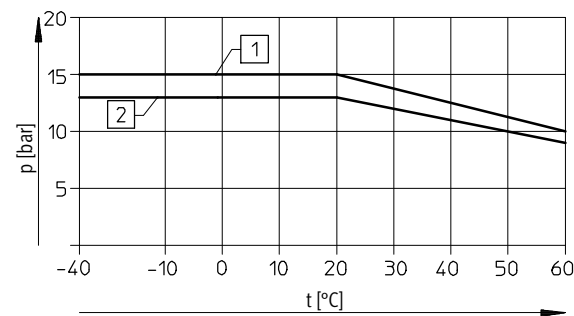
General technical data		
Type	PUN-10x1,5-SG	PUN-12x2-SG
Pneumatic connection 1, 2	Male thread G1/4	Male thread G3/8
Nominal tightening torque [Nm]	11 ±20%	12.5 ±20%

Operating and environmental conditions		
Type	PUN-10x1,5-SG	PUN-12x2-SG
Temperature-dependent operating pressure [bar]	-0.95 ... +15 → graph	-0.95 ... +13 → graph
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]	
Ambient temperature [°C]	-40 ... +60	
Corrosion resistance class CRC ¹⁾	1	

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Operating pressure p as a function of temperature t



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

Materials	
Shore hardness	A 87 ±3
Tube	TPE-U(PU)
Connecting thread	Nickel-plated brass
Protection against kinking	POM
Note on materials	RoHS-compliant
	Free of copper and PTFE

Dimensions and ordering data										
O.D.	I.D.	Flow-relevant bending radius	Winding Ø	Number of windings	Working length	Block length	Weight	Colour	Part No.	Type
[mm]	[mm]	[mm]	[mm]		[m]	[m]	[g]			
9.5	6.4	50	42	21	2.4	0.889	180	Blue	533463	PUN-10x1,5-SG-2,4-BL-1/4
				50	4.8	1.165	340		533464	PUN-10x1,5-SG-4,8-BL-1/4
				66	6	1.317	430		533465	PUN-10x1,5-SG-6-BL-1/4
11.7	7.9	65	51	41	4.8	1.172	480	Blue	533466	PUN-12x2-SG-4,8-BL-3/8
				53	6	1.312	560		533467	PUN-12x2-SG-6-BL-3/8

Spiral plastic tubing PPS, pre-assembled

Technical data

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Spiral plastic tubing PPS

This hydrolysis-resistant plastic tubing demonstrates high thermal and mechanical load capacities. Each tubing length is delivered ready for

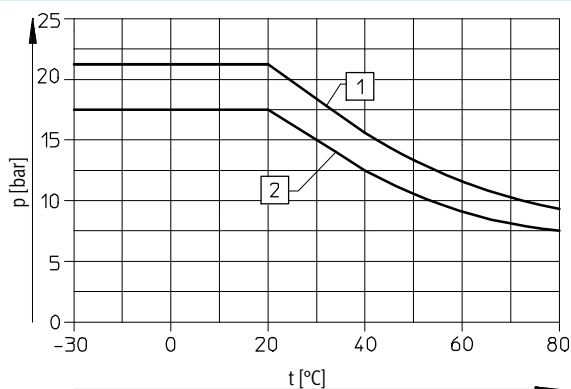
installation with 2 rotatable connectors and captive OL sealing rings. Kinks at the tubing ends are prevented by the anti-kinking springs.



General technical data				
Pneumatic connection 1, 2		Male thread G1/4		
Nominal tightening torque	[Nm]	11 ±20%		
Operating and environmental conditions				
Type	PPS-4	PPS-6		
Temperature-dependent operating pressure	[bar]	−0.95 ... +21.2 ➔ graph	−0.95 ... +17.2 ➔ graph	
Operating medium		Compressed air to ISO 8573-1:2010 [7:--:-]		
Ambient temperature		[°C]		−30 ... +80
Corrosion resistance class CRC ¹⁾		1		

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Operating pressure p as a function of temperature t



- 1 PPS-4
- 2 PPS-6

Materials	
Tube	PA12-P
Connecting thread	Brass
Protection against kinking	Galvanised steel
Note on materials	RoHS-compliant

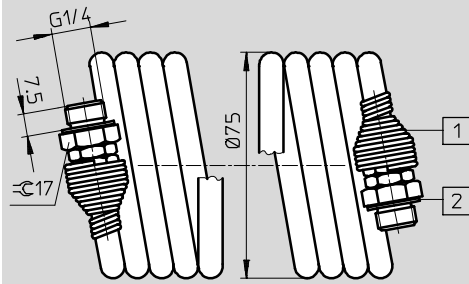
Spiral plastic tubing PPS, pre-assembled

Technical data

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Dimensions

Download CAD data → www.festo.com



- 1 Kink protection spring
- 2 Captive seal

Ordering data

O.D. [mm]	I.D. [mm]	Winding Ø [mm]	Number of windings	Working length [m]	Block length [m]	Weight [g]	Colour	Part No.	Type
6.3	4.7	75	44	7.5	0.34	249	Blue	19798	PPS-4-7,5-1/4-BL
			90	15	0.67	367		19799	PPS-4-15-1/4-BL
7.8	6.2	75	43	7.5	0.43	298	Blue	19796	PPS-6-7,5-1/4-BL
			86	15	0.80	500		19797	PPS-6-15-1/4-BL

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