





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 | PWS-free to FN 942 010 | Suitable for chain link trunking | Approved by German Technical Control Board | Resistance | | | | | | | → Page/Internet |
|-------------------------------------|------------------------|---|------------|--------------|------------------------|----------------------------------|--|------------|----------|------------------|------------|---------------|----------------------------|----------------|-----------------|
| | | | | | | | | Chemicals | Microbes | UV radiation | Hydrolysis | Stress cracks | Corrosion resistance class | Shore hardness | |
| Spiral tubing | | | | | | | | | | | | | | | |
| PUN-S | - | - | - | ■ | ■ | ■ | ■ | - | - | ++ ¹⁾ | + | ++ | - | D 52 | 6 |
| PUN-S-DUO | - | - | - | ■ | ■ | ■ | ■ | - | - | + | + | + | - | D 52 | 8 |
| Spiral tubing, pre-assembled | | | | | | | | | | | | | | | |
| PUN-SG | - | - | - | ■ | ■ | - | - | + | ++ | + | ++ | + | 1 ²⁾ | A 87 | 9 |
| PPS | - | - | - | ■ | ■ | ■ | - | + | ++ | + | + | + | 1 ²⁾ | D 60 | 10 |

++ 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.

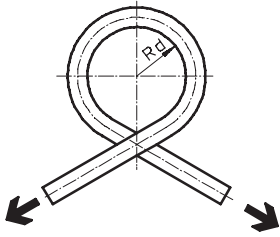
Spiral plastic tubing

Technical data

FESTO

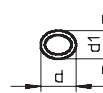
Measuring methods

Flow-relevant bending radius R_d



The tubing is bent in the direction of its inherent flexion until a 5% flattening of the tubing O.D. occurs. The R_d is then calculated.

There is no reduction in the flow rate up until the R_d is reached.

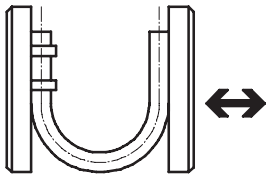


Cross section flattened as a result of bended tubing

d = non deformed tubing OD

d_1 = deformed tubing OD

Minimum bending radius R_{min}

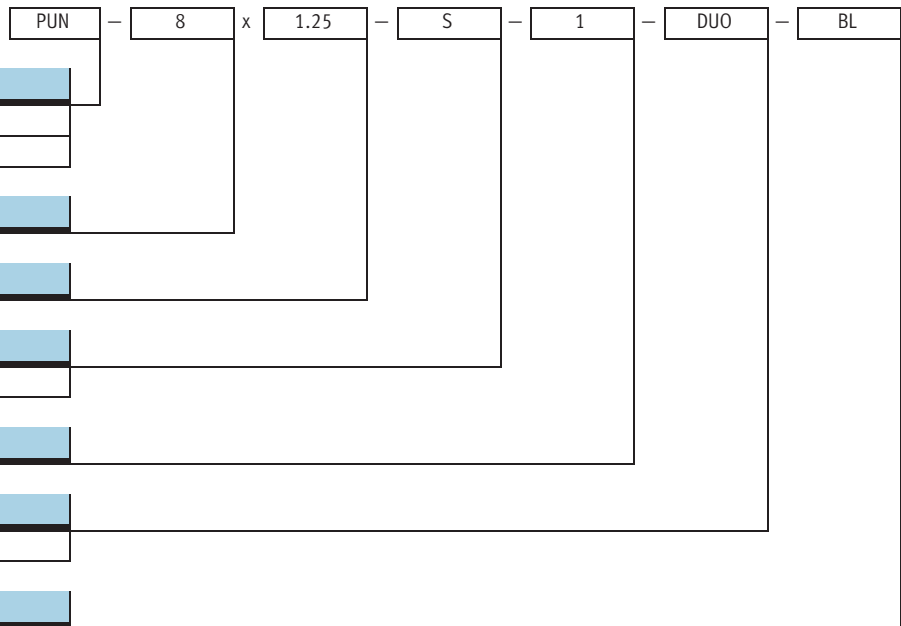


The tubing attached to a movable plate is bent until the deformation results in a kink.

The measured value is the minimum bending radius R_{min} . This R_{min} leads to considerable reductions in flow.

Spiral plastic tubing

Type codes



Material

| | |
|-----|--------------|
| PUN | Polyurethane |
| PPS | Polyamide |

Outside Ø [mm]

Wall thickness [mm]

Design

| | |
|---|--------|
| S | Spiral |
|---|--------|

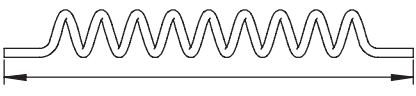

Working length [m]


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

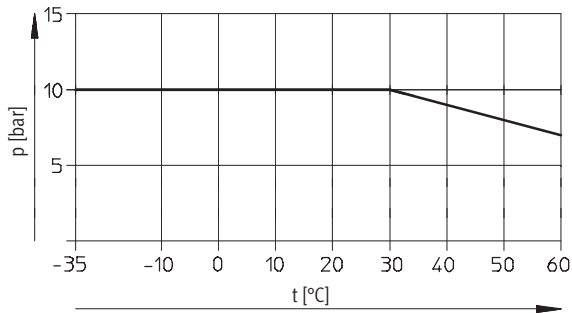
-  - Temperature dependent
operating pressure
-0.95 ... +10 bar

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⁾
→ Internet: qs



Quick connector CK
→ Internet: ck



Push-in fitting QS-F,
Quick Star, metal
→ Internet: qs-f

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

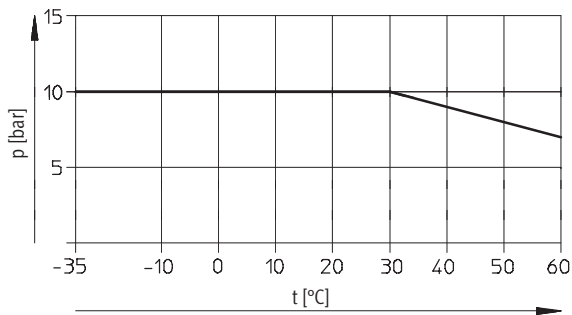
- - Temperature dependent
operating pressure
-0.95 ... +10 bar

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⁾
→ Internet: qs



Quick connector CK
→ Internet: ck



Push-in fitting QS-F,
Quick Star, metal
→ Internet: qs-f

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

FESTO

Spiral plastic tubing PUN-SG

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

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

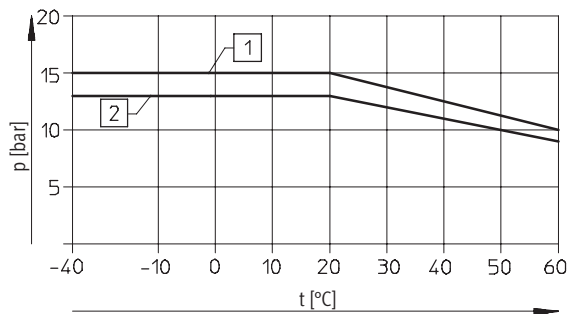
-  - Temperature dependent operating pressure
-0.95 ... +15 bar

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- $\frac{3}{8}$ |

-  - Type discontinued PPS-...-CT
Available up until 12/2011



Spiral plastic tubing PPS, pre-assembled

Technical data

FESTO

Spiral plastic tubing PPS

This hydrolysis resistant plastic tubing demonstrates high thermal and mechanical load capacities. The tubing is supplied ready for use with 2 rotatable screw connectors and captive OL sealing rings. Kinks at the tubing ends are prevented with the anti-kinking springs.

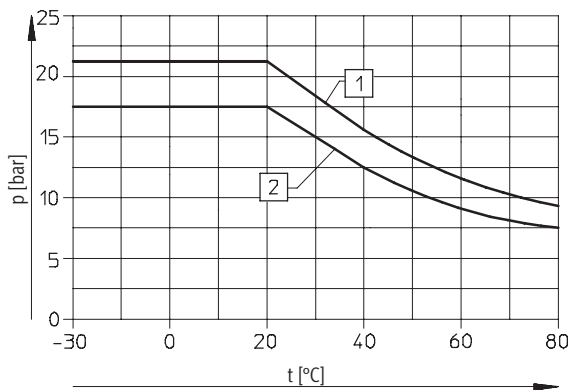
-  - Ambient temperature
-30 ... +80 °C
-  - Temperature dependent operating pressure
-0.95 ... +21.2 bar

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

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



Operating pressure p as a function of temperature t

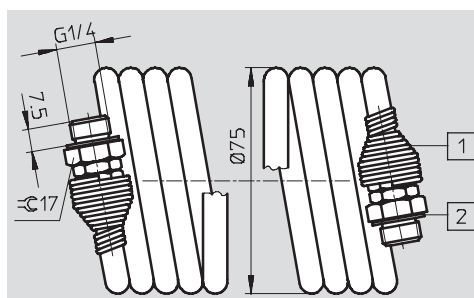


- 1 PPS-4
- 2 PPS-6

Dimensions and ordering data

| O.D. [mm] | I.D. [mm] | Pneumatic connection | Winding \varnothing [mm] | Number of windings | Working length [m] | Block length [m] | Weight [g/m] | Colour | Part No. | Type |
|--------------|--------------|----------------------|-------------------------------|--------------------|-----------------------|---------------------|-----------------|--------|----------|-----------------------------------|
| 6.3 | 4.7 | G1/4 | 75 | 44 | 7.5 | 0.34 | 249 | Blue | 19 798 | PPS-4-7,5-1/4-BL |
| | | | | 90 | 15 | 0.67 | 367 | | 19 799 | PPS-4-15-1/4-BL |
| 7.8 | 6.2 | G1/4 | 75 | 43 | 7.5 | 0.43 | 298 | Blue | 19 796 | PPS-6-7,5-1/4-BL |
| | | | | 86 | 15 | 0.80 | 500 | | 19 797 | PPS-6-15-1/4-BL |
| 6.3 | 4.7 | G1/4 | 75 | 44 | 7.5 | 0.34 | 191 | Blue | 165 871 | PPS-4-7,5-1/4-CT-BL ¹⁾ |
| | | | | 90 | 15 | 0.67 | 350 | | 165 870 | PPS-4-15-1/4-CT-BL ¹⁾ |
| 7.8 | 6.2 | G1/4 | 75 | 43 | 7.5 | 0.43 | 260 | Blue | 165 873 | PPS-6-7,5-1/4-CT-BL ¹⁾ |
| | | | | 86 | 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