

Plastic tubing, standard O.D.



|              |                                                                  |                                                                                                                                                          |  |
|--------------|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| ★            | Festo Core Range<br>Solves the majority of your automation tasks | With the Festo Core Range, we have selected the most important products and functions from our broad product catalogue, and added the quickest delivery. |  |
| Worldwide:   | Quickest delivery – wherever, whenever                           | The Core Range offers you the best value for your automation tasks.                                                                                      |  |
| Simply good: | Expected high Festo quality                                      |                                                                                                                                                          |  |
| Fast:        | Easy and fast to select                                          |                                                                                                                                                          |  |

## Key features

### Application



The requirements for pressure, temperature, flexibility and environmental influences differ from one industry sector to the next. 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 therefore really important to find a reliable and cost-effective product that prevents damaging the tubing during operation.

### Summary of tubing/fitting combinations

| Applications                                               | Tubing     | Fitting | Description                                                                                                                                                                                                                                                    |
|------------------------------------------------------------|------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard                                                   | PUN-H      | 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.                                                                                                                                                         |
|                                                            | PEN        | QS      | 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.                                       |
| 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 cleanrooms, FDA-compliant and corrosion-resistant because it's 100% polymer. Very easy to install with the "one click principle".                                    |
|                                                            | PUN-H-F    | NPQR    | Food-safe to Regulation (EC) 1935/2004 and FDA 21 CFR 177.2600. Can be used in the food and packaging industry in combination with fittings NPQR or NPQH. Hydrolysis-resistant and suitable for water applications. Extremely flexible, making it easy to fit. |
|                                                            | PFAN/PTFEN | NPQH    | For high temperatures up to 150°C. Food-safe, FDA-compliant and resistant to cleaning agents.                                                                                                                                                                  |
|                                                            | PFAN/PTFEN | NPCK    | Easy to clean thanks to the union nut's edge-free design. Maximum corrosion resistance (CRC 4) and FDA-compliant. Suitable for a wide range of media.                                                                                                          |
|                                                            | PFAN/PTFEN | CRQS    | Maximum corrosion resistance (CRC 4) and maximum resistance to aggressive acids and alkalis.                                                                                                                                                                   |
| Resistant to chemicals and hydrolysis                      | PFAN/PTFEN | NPQR    | Optimised design, fewer edges where dirt can collect – all at an attractive price. For high temperatures up to 150°C. Pressure range up to 16 bar. Highest level of corrosion resistance (CRC 4).                                                              |
| Anti-static                                                | PUN-CM     | NPQM    | Anti-static tubing plus solid metal fitting: maximum protection for electric and electronic components.                                                                                                                                                        |
| Flame-retardant                                            | PUN-VO     | NPQM    | Very safe in areas where there is a risk of fire thanks to flame-retardant properties.                                                                                                                                                                         |
| Resistant to welding spatter                               | PUN-VO-C   | NPQH    | Ideal for applications involving welding spatter. Reliable thanks to a tubing wall thickness of 2 mm for all diameters.                                                                                                                                        |
|                                                            | PAN-VO     | QS-VO   | Safe even in the immediate vicinity of welding spatter thanks to double-walled tubing with special fitting.                                                                                                                                                    |

### Note

Ambient conditions and the medium to be transported can have a considerable effect on the service life of plastic tubing. Based on experience, Festo recommends the following time specifications for using plastic tubing in general and in safety-related applications:

- For general applications, a minimum service life of 10 years can be expected.
- For safety-related applications, we recommend the tubing is inspected regularly, 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.

## 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 the tubing is loosely installed and is not stretched.

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

- Tubing strap PB
- Spiral wrap 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

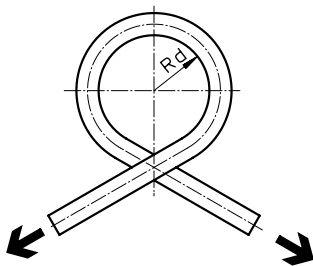
### Suitability for food contact



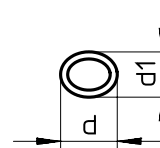
Tubing PFAN and PUN-H-F are suitable for contact with food. They have the necessary declaration of conformity in accordance with EU Regulation (EC) No. 1935/2004.

### Measurement method

#### 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.

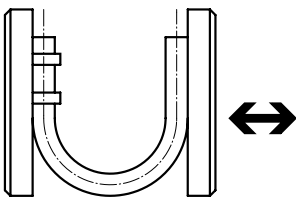


Cross-section flattened by bending the tube.

$d$  = non-deformed tubing O.D.

$d1$  = deformed tubing O.D.

#### Minimum bending radius $R_{min}$

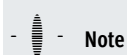


The tubing fixed to the base plate is bent until the deformation results in a kink. The measured value is the minimum bending radius  $R_{min}$ . This  $R_{min}$  results in significant reductions in flow rate.

## Product range overview

| Type      | Material                | O.D.<br><br>[mm]                         | Colour            |                   |                  |                   |                   |                   |                    |                   |                   |                   |                 |                   |                   |                   |            |
|-----------|-------------------------|------------------------------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|-----------------|-------------------|-------------------|-------------------|------------|
|           |                         |                                          | Silver            | Blue              | Translucent blue | Black             | Translucent black | Yellow            | Translucent yellow | Green             | Translucent green | Red               | Translucent red | Brown             | White             | Natural           | Blue/black |
| PUN       | Polyurethane            | 3, 4, 6, 8, 10, 12, 14, 16               | ■                 | ■                 | –                | ■                 | –                 | ■                 | –                  | ■                 | –                 | ■                 | –               | (■) <sup>1)</sup> | (■) <sup>1)</sup> | –                 | –          |
| PUN-DUO   | Polyurethane            | 4, 6, 8, 10                              | ■                 | –                 | –                | –                 | –                 | –                 | –                  | –                 | –                 | –                 | –               | –                 | –                 | –                 | ■          |
| PUN-CM    | Polyurethane            | 4, 6, 8, 10, 12, (14) <sup>1)</sup>      | –                 | –                 | –                | ■                 | –                 | –                 | –                  | –                 | –                 | –                 | –               | –                 | –                 | –                 | –          |
| PUN-H     | Polyurethane            | 2                                        | –                 | –                 | –                | ■                 | –                 | –                 | –                  | –                 | –                 | ■                 | –               | –                 | –                 | ■                 | –          |
|           |                         | 3, 4, 6, 8, 10, 12, 14, 16               | ■                 | ■                 | ■                | ■                 | ■                 | ■                 | ■                  | ■                 | ■                 | ■                 | ■               | (■) <sup>1)</sup> | (■) <sup>1)</sup> | ■                 | –          |
| PUN-H-DUO | Polyurethane            | 4, 6, 8, 10                              | –                 | –                 | –                | –                 | –                 | –                 | –                  | –                 | –                 | –                 | –               | –                 | –                 | –                 | ■          |
| PUN-H-F   | Polyurethane            | 4, 6, 8, 10, 12, 16                      | –                 | ■                 | ■                | ■                 | –                 | ■                 | –                  | ■                 | –                 | ■                 | –               | –                 | –                 | ■                 | –          |
|           |                         | 14                                       | –                 | ■                 | –                | ■                 | –                 | –                 | –                  | –                 | –                 | ■                 | –               | –                 | –                 | ■                 | –          |
| PUN-VO    | Polyurethane            | 6, 8, 10, 16                             | –                 | ■                 | –                | ■                 | –                 | ■                 | –                  | ■                 | –                 | ■                 | –               | ■                 | ■                 | –                 | –          |
| PUN-VO-C  | Polyurethane            | 4, 6, 8, 10, 12, 14, 16                  | –                 | ■                 | –                | ■                 | –                 | ■                 | –                  | ■                 | –                 | ■                 | –               | ■                 | ■                 | –                 | –          |
| PAN       | Polyamide               | 4, 6, 8, 10, 12, 14, 16                  | ■                 | ■                 | –                | ■                 | –                 | ■                 | –                  | ■                 | –                 | ■                 | –               | (■) <sup>1)</sup> | (■) <sup>1)</sup> | ■                 | –          |
| PAN-R     | Polyamide               | 4, 6, 8, 10, 12, (14) <sup>1)</sup> , 16 | ■                 | (■) <sup>1)</sup> | –                | (■) <sup>1)</sup> | –                 | (■) <sup>1)</sup> | –                  | (■) <sup>1)</sup> | –                 | (■) <sup>1)</sup> | –               | (■) <sup>1)</sup> | (■) <sup>1)</sup> | (■) <sup>1)</sup> | –          |
|           |                         | 22, 28                                   | –                 | –                 | –                | ■                 | –                 | –                 | –                  | –                 | –                 | –                 | –               | –                 | –                 | –                 | –          |
| PAN-MF    | Polyamide               | 4, 6, 8, 10, 12, 14, 16                  | (■) <sup>1)</sup> | (■) <sup>1)</sup> | –                | ■                 | –                 | (■) <sup>1)</sup> | –                  | (■) <sup>1)</sup> | –                 | (■) <sup>1)</sup> | –               | (■) <sup>1)</sup> | (■) <sup>1)</sup> | (■) <sup>1)</sup> | –          |
| PAN-VO    | Polyamide               | 4, 6, 8, 10, 12                          | –                 | ■                 | –                | ■                 | –                 | ■                 | –                  | ■                 | –                 | ■                 | –               | –                 | ■                 | –                 | –          |
| PFAN      | Perfluoroalkoxy alkane  | 3, 4, 6, 8, 10, 12                       | –                 | –                 | –                | –                 | –                 | –                 | –                  | –                 | –                 | –                 | –               | –                 | –                 | ■                 | –          |
| PTFEN     | Polytetrafluoroethylene | 4, 6, 8, 10, 12, 14, 16                  | –                 | –                 | –                | –                 | –                 | –                 | –                  | –                 | –                 | –                 | –               | –                 | –                 | ■                 | –          |
| PEN       | Polyethylene            | 4, 6, 8, 10, 12, 14, 16                  | ■                 | ■                 | –                | ■                 | –                 | ■                 | –                  | ■                 | –                 | ■                 | –               | (■) <sup>1)</sup> | (■) <sup>1)</sup> | ■                 | –          |
| PLN       | Polyethylene            | 4, 6, 8, 10, 12, 14, 16                  | ■                 | ■                 | –                | ■                 | –                 | (■) <sup>1)</sup> | –                  | (■) <sup>1)</sup> | –                 | ■                 | –               | (■) <sup>1)</sup> | (■) <sup>1)</sup> | ■                 | –          |

1) Please observe the note below.

**Note**

Product options in brackets can only be ordered using the modular product system.

Please note the minimum ordering quantity for tubing with O.D. 8 mm is 3000 m and for tubing with O.D. > 8 mm it is 1500 m.

There is a modular product system for plastic tubing:

- PUN → page 32
- PAN → page 46
- PEN → page 57
- PLN → page 61

## Product range overview

| Type      | Operating medium       |       |                 |        |   |   |              |   |   |                 |   |   |                 | Resistance |          |                  |            |     |                                                |     |    |
|-----------|------------------------|-------|-----------------|--------|---|---|--------------|---|---|-----------------|---|---|-----------------|------------|----------|------------------|------------|-----|------------------------------------------------|-----|----|
|           | Compressed air, vacuum | Water | Mineral oil     | Oxygen |   |   |              |   |   |                 |   |   |                 | Chemicals  | Microbes | UV radiation     | Hydrolysis |     |                                                |     |    |
| PUN       | ■                      | -     | -               | -      | - |   | UL94 HB      | - | ■ | ■ <sup>7)</sup> | ■ | ■ | -               | -          | -        | ++ <sup>4)</sup> | +          | +++ | D 52 ±3                                        | ±1% | 8  |
| PUN-DUO   | ■                      | -     | -               | -      | - |   | UL94 HB      | - | ■ | ■ <sup>7)</sup> | ■ | ■ | -               | -          | -        | +                | +          | ++  | D 52 ±3                                        |     | 11 |
| PUN-CM    | ■                      | -     | -               | -      | - |   | -            | ■ | ■ | ■               | ■ | - | -               | +          | ++       | ++               | ++         | ++  | D 52 ±3                                        |     | 14 |
| PUN-H     | ■                      | -     | -               | -      | - |   | -            | - | ■ | ■               | ■ | - | -               | +          | ++       | ++ <sup>4)</sup> | ++         | +++ | D 52 ±3                                        |     | 16 |
|           | ■                      | ■     | -               | -      | ■ |   | UL94 HB      | - | ■ | ■               | ■ | ■ | -               | +          | ++       | ++ <sup>4)</sup> | ++         | +++ | D 52 ±3                                        |     | 17 |
| PUN-H-DUO | ■                      | ■     | -               | -      | ■ |   | UL94 HB      | - | ■ | ■               | ■ | ■ | -               | +          | ++       | +                | ++         | ++  | D 52 ±3                                        |     | 22 |
| PUN-H-F   | ■                      | ■     | -               | ■      | - | ■ | UL94 HB      | - | ■ | ■               | ■ | ■ | -               | +          | ++       | ++ <sup>4)</sup> | ++         | ++  | D 52 ±3                                        |     | 25 |
|           | ■                      | ■     | -               | ■      | - | ■ | UL94 HB      | - | ■ | ■               | ■ | ■ | -               | +          | ++       | ++ <sup>4)</sup> | ++         | ++  | D 52 ±3                                        |     | 25 |
| PUN-V0    | ■                      | ■     | -               | -      | - |   | UL94 V0...V2 | - | ■ | ■               | ■ | ■ | -               | +          | ++       | ++ <sup>4)</sup> | ++         | ++  | D 54 ±3                                        |     | 28 |
| PUN-V0-C  | ■                      | ■     | -               | -      | - |   | UL94 V0...V2 | - | ■ | ■               | ■ | ■ | -               | +          | ++       | ++ <sup>4)</sup> | ++         | ++  | D 54 ±3                                        |     | 30 |
| PAN       | ■                      | -     | -               | -      | - |   | -            | - | ■ | ■               | ■ | ■ | ■ <sup>3)</sup> | +          | ++       | +                | ++         | ++  | D 55 ±3                                        |     | 34 |
| PAN-R     | ■                      | -     | -               | -      | - |   | -            | - | ■ | ■               | ■ | ■ | -               | +          | ++       | +                | ++         | +   | D 62 ±3                                        |     | 38 |
|           | ■                      | -     | -               | -      | - |   | -            | - | ■ | ■               | ■ | - | -               | +          | ++       | +                | ++         | +   | D 62 ±3                                        |     | 39 |
| PAN-MF    | ■                      | -     | ■ <sup>2)</sup> | -      | - |   | -            | - | ■ | ■               | ■ | - | -               | +          | ++       | +                | ++         | +   | D 65 ±3                                        |     | 41 |
| PAN-V0    | ■                      | ■     | ■               | -      | - |   | UL94 V0      | - | - | ■               | - | - | -               | +          | ++       | ++               | ++         | ++  | A 72 ±4 <sup>5)</sup><br>D 57 ±3 <sup>6)</sup> |     | 44 |
| PFAN      | ■                      | ■     | -               | -      | ■ | ■ | UL94 V0      | - | - | ■               | - | ■ | -               | +++        | ++       | ++               | +++        | +   | D 60 +5                                        |     | 48 |
| PTFEN     | ■                      | -     | -               | -      | ■ |   | UL94 V0      | - | - | ■               | - | - | -               | +++        | ++       | ++               | +++        | +   | D 55 ±5                                        |     | 51 |
| PEN       | ■                      | ■     | -               | -      | - |   | -            | - | ■ | ■               | ■ | ■ | -               | ++         | ++       | ++ <sup>4)</sup> | +++        | ++  | D 52 ±3                                        |     | 54 |
| PLN       | ■                      | ■     | -               | -      | ■ |   | -            | - | ■ | ■               | - | ■ | -               | ++         | ++       | ++ <sup>4)</sup> | +++        | +   | D 59 ±3                                        |     | 59 |

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

3) Applies to the colours silver and natural

4) Applies to the colour black

5) Outside tubing

6) Inside tubing

7) Cables containing organophosphates may damage PUN tubing under unfavourable conditions.

8) Values are determined using test panels. Values determined using tubing may vary.

9) See supplementary material information

10) See declaration of conformity

■ Criterion met

- Not suitable

+++ Highly suitable

++ Suitable

+ Limited suitability (on request)

## Recommended tubing/fitting combinations

| Fitting                      | Tubing type |         |        |       |           |         |        |          |     |       |        |        |     |     |      |       |
|------------------------------|-------------|---------|--------|-------|-----------|---------|--------|----------|-----|-------|--------|--------|-----|-----|------|-------|
|                              | PUN         | PUN-DUO | PUN-CM | PUN-H | PUN-H-DUO | PUN-H-F | PUN-VO | PUN-VO-C | PAN | PAN-R | PAN-MF | PAN-VO | PEN | PLN | PFAN | PTFEN |
| Fitting CK <sup>1)</sup>     | ++          | ++      | +      | ++    | ++        | ++      | ++     | –        | ++  | –     | –      | –      | ++  | ++  | ++   | ++    |
| Fitting CN <sup>2)</sup>     | ++          | ++      | +      | –     | –         | –       | +      | –        | ++  | –     | –      | –      | ++  | +   | ++   | ++    |
| Fitting QS <sup>3)</sup>     | +++         | +++     | +      | +++   | +++       | ++      | +      | +        | +++ | ++    | ++     | +      | +++ | ++  | ++   | ++    |
| Fitting NPQH <sup>4)</sup>   | ++          | ++      | ++     | +++   | +++       | +++     | ++     | +++      | ++  | +++   | ++     | +      | ++  | ++  | +++  | +++   |
| Fitting CRQS <sup>5)</sup>   | ++          | ++      | +      | ++    | ++        | +++     | ++     | ++       | ++  | ++    | ++     | +      | ++  | ++  | +++  | +++   |
| Fitting NPQP <sup>6)</sup>   | ++          | ++      | +      | ++    | ++        | +++     | +      | +        | ++  | ++    | ++     | +      | ++  | +++ | +++  | +++   |
| Fitting NPKA <sup>7)</sup>   | ++          | ++      | +      | +++   | ++        | +++     | +      | –        | ++  | ++    | –      | –      | ++  | ++  | ++   | ++    |
| Fitting NPCK <sup>8)</sup>   | ++          | ++      | ++     | ++    | ++        | +++     | ++     | –        | ++  | –     | –      | –      | ++  | ++  | +++  | +++   |
| Fitting CQ <sup>9)</sup>     | –           | –       | –      | –     | –         | –       | –      | –        | –   | ++    | –      | –      | –   | –   | –    | –     |
| Fitting QS-VO <sup>10)</sup> | +           | +       | +      | +     | +         | +       | +      | +        | +   | +     | +      | +++    | +   | +   | +    | +     |
| Fitting NPQM <sup>11)</sup>  | ++          | ++      | +++    | ++    | ++        | ++      | +++    | ++       | ++  | ++    | ++     | +      | +++ | ++  | ++   | ++    |
| Fitting NPQR <sup>12)</sup>  | ++          | ++      | ++     | +++   | +++       | +++     | ++     | ++       | ++  | ++    | ++     | +      | ++  | +++ | +++  | +++   |

+++ Recommended tubing/fitting combination

++ Well suited

+ Limited suitability due to:

– Tubing PLN with fitting CN provides little flexibility

– No conductive contact with PUN-CM

– Incompatible characteristic "resistance to welding spatter" with PUN-VO / PUN-VO-C

– Sub-optimal combination with regard to welding spatter resistance when insulation is removed from double-sheathed tubing PAN-VO

Note: Fitting QS-VO is specially designed for tubing PAN-VO with insulation removed using tubing cutter PAN-VOS.

With other fittings, there is a gap near the releasing sleeve and the protective function against welding spatter is lost.

There is also an increased risk of the tubing kinking in this area.

However, this risk of kinking can be prevented by ensuring large bending radii when installing the tubing.

– Not suitable

1) For tubing size 4 to 8

2) For tubing size 3 to 8

3) For tubing size 2 to 12, 16 and 22

4) For tubing size 4 to 14

5) For tubing size 4 to 12; 16

6) For tubing size 4 to 12

7) For tubing size 6

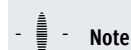
8) For tubing size 4 to 10

9) For tubing size 22 and 28 (22 also possible with QS)

10) For tubing size 4 to 12

11) For tubing size 3 to 14

12) For tubing size 4 to 16

**Note**

Greater force is required when assembling the fittings CK/CN. Expanding the tubing ends using a tapered mandrel makes it easier to push it on.

## Type codes

| 001 | Series                       |
|-----|------------------------------|
| PUN | Plastic tubing, polyurethane |

| 002    | Pipe/tubing O.D. x wall thickness |
|--------|-----------------------------------|
| 3x0,5  | 3x0.5 mm                          |
| 4x0,75 | 4x0.75 mm                         |
| 6x1    | 6x1 mm                            |
| 8x1,25 | 8x1.25 mm                         |
| 10x1,5 | 10x1.5 mm                         |
| 12x2   | 12x2 mm                           |
| 14x2   | 14x2 mm                           |
| 16x2,5 | 16x2.5 mm                         |

| 003 | Tubing type          |
|-----|----------------------|
|     | Standard             |
| DUO | DUO pneumatic tubing |

| 004 | Colour     |
|-----|------------|
| SW  | Black      |
| BL  | Blue       |
| SI  | Silver     |
| RT  | Red        |
| GN  | Green      |
| GE  | Yellow     |
| BS  | Blue/black |

| 005 | Packaging unit [m] |
|-----|--------------------|
|     | Standard           |
| 100 | 100 m              |
| 200 | 200 m              |
| 300 | 300 m              |
| 400 | 400 m              |
| 500 | 500 m              |

Datasheet

Plastic tubing PUN

Highly flexible plastic tubing

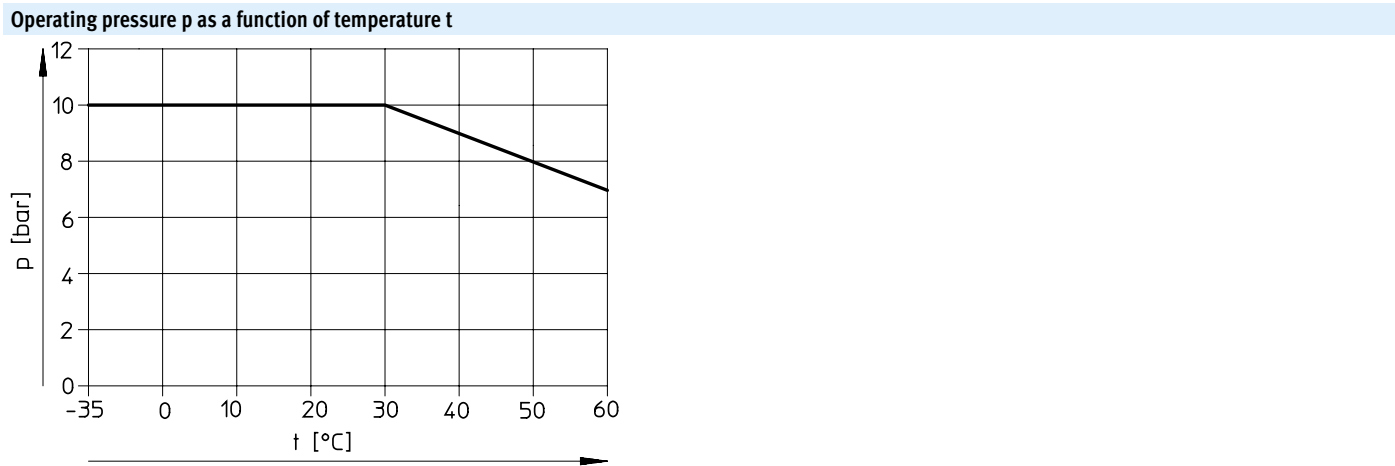
Material: Polyurethane

-  -

**Note**  
The plastic tubing may only be installed in contact with cables if their sheathing is free from phosphoric acid esters. Failure to observe this can result in damage to the plastic tubing.



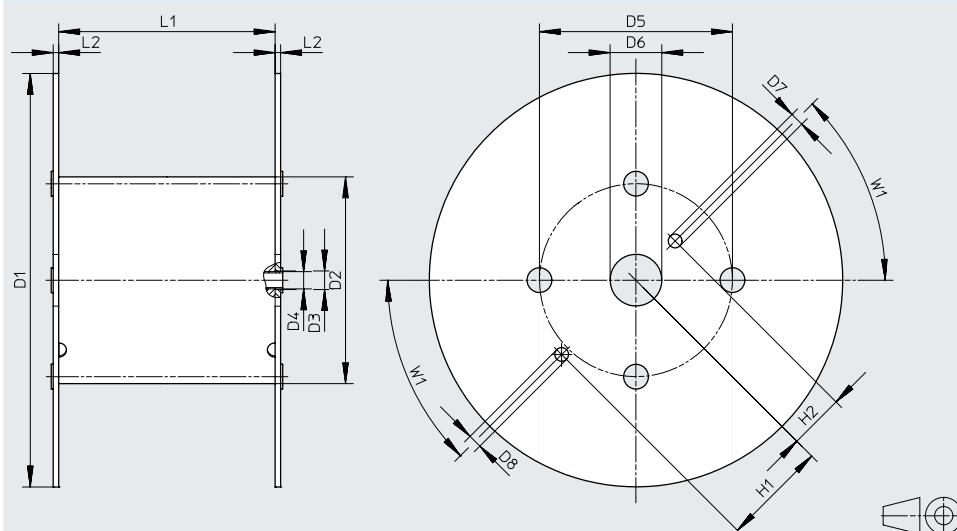
| Operating and environmental conditions   |       |                                           |       |       |       |        |        |        |        |
|------------------------------------------|-------|-------------------------------------------|-------|-------|-------|--------|--------|--------|--------|
| Type                                     |       | PUN-3                                     | PUN-4 | PUN-6 | PUN-8 | PUN-10 | PUN-12 | PUN-14 | PUN-16 |
| O.D.                                     | [mm]  | 3                                         | 4     | 6     | 8     | 10     | 12     | 14     | 16     |
| Pneumatic connection                     |       |                                           |       |       |       |        |        |        |        |
| For push-in connector                    | [mm]  | 3                                         | 4     | 6     | 8     | 10     | 12     | 14     | 16     |
| For barbed connector                     | [mm]  | 2                                         | 3     | 4     | 6     | –      | –      | –      | –      |
| For barbed connector with union nut      | [mm]  | –                                         | 3     | 4     | 6     | –      | –      | –      | –      |
| Temperature-dependent operating pressure | [MPa] | –0.095 ... +1                             |       |       |       |        |        |        |        |
|                                          | [bar] | –0.95 ... +10 → graph                     |       |       |       |        |        |        |        |
|                                          | [psi] | –13,775 ... +145                          |       |       |       |        |        |        |        |
| Operating medium                         |       | Compressed air to ISO 8573-1:2010 [7:-:-] |       |       |       |        |        |        |        |
| LABS (PWIS) conformity                   |       | VDMA24364-B2-L                            |       |       |       |        |        |        |        |
| Ambient temperature                      | [°C]  | –35 ... +60                               |       |       |       |        |        |        |        |
| Material fire test                       |       | UL94 HB                                   |       |       |       |        |        |        |        |
| Certification                            |       | German Technical Control Board (TÜV)      |       |       |       |        |        |        |        |
| Certificate-issuing authority            |       | B 013277 0506 00                          |       |       |       |        |        |        |        |
| Tubing characteristics                   |       | Suitable for energy chains                |       |       |       |        |        |        |        |



| Materials          |                |
|--------------------|----------------|
| Shore hardness     | D 52 ±3        |
| Material of tubing | TPE-U(PU)      |
| Note on materials  | RoHS-compliant |

## Datasheet

## Dimensions – Reel



| Type                   | D1<br>ø | D2<br>ø | D3<br>ø | D4<br>ø | D5<br>ø | D6<br>ø | D7<br>ø | D8<br>ø | H1    | H2   | L1  | L2 | W1  |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|-----|----|-----|
| For PUN-3x0.5-...-500  | 545     | 246     | 21      | 20      | 216     | 75      | 20      | 20      | 152.5 | 80.5 | 128 | 8  | 45° |
| For PUN-4x0.75-...-500 | 545     | 246     | 21      | 20      | 216     | 75      | 20      | 20      | 152.5 | 80.5 | 128 | 8  | 45° |
| For PUN-6x1-...-500    | 600     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 114 | 8  | 45° |
| For PUN-8x1.5-...-400  | 545     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PUN-10x1.5-...-300 | 600     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PUN-12x2-...-200   | 600     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PUN-16x2.5-...-100 | 545     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |

## Dimensions and ordering data

| O.D.<br>[mm] | I.D.<br>[mm] | Min. bending radius<br>[mm] | Flow-relevant bending radius<br>[mm] | Weight<br>[kg/m] | Colour | Part no. | Type              | PJ <sup>1)</sup><br>[m] |
|--------------|--------------|-----------------------------|--------------------------------------|------------------|--------|----------|-------------------|-------------------------|
| 3            | 2.1          | 9                           | 12                                   | 0.0044           | Silver | 152583   | PUN-3x0.5-SI      | 50                      |
|              |              |                             |                                      |                  | Silver | 525738   | PUN-3x0.5-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                      |
| 4            | 2.6          | 8                           | 17                                   | 0.0089           | Red    | 178409   | PUN-3x0.5-RT      | 50                      |
|              |              |                             |                                      |                  | 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                      |

1) Packaging unit

## Datasheet

| Dimensions and ordering data |      |                     |                              |        |        |          |                   |                  |
|------------------------------|------|---------------------|------------------------------|--------|--------|----------|-------------------|------------------|
| O.D.                         | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour | Part no. | Type              | PJ <sup>1)</sup> |
| [mm]                         | [mm] | [mm]                | [mm]                         | [kg/m] |        |          |                   | [m]              |
| 6                            | 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                            | 5.7  | 24                  | 37                           | 0.0302 | Silver | 152587   | PUN-8x1.25-SI     | 1 ... 50         |
|                              |      |                     |                              |        | Silver | 525741   | PUN-8x1.25-SI-400 | 400              |
|                              |      |                     |                              |        | Blue   | 159666   | PUN-8x1.25-BL     | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 525748   | PUN-8x1.25-BL-400 | 400              |
|                              |      |                     |                              |        | Black  | 159667   | PUN-8x1.25-SW     | 1 ... 50         |
|                              |      |                     |                              |        | Black  | 553939   | PUN-8x1.25-SW-400 | 400              |
|                              |      |                     |                              |        | Yellow | 178419   | PUN-8x1.25-GE     | 1 ... 50         |
|                              |      |                     |                              |        | Green  | 178426   | PUN-8x1.25-GN     | 1 ... 50         |
|                              |      |                     |                              |        | Red    | 178412   | PUN-8x1.25-RT     | 1 ... 50         |
| 10                           | 7.0  | 28                  | 54                           | 0.0489 | Silver | 152588   | PUN-10x1.5-SI     | 1 ... 50         |
|                              |      |                     |                              |        | Silver | 525742   | PUN-10x1.5-SI-300 | 300              |
|                              |      |                     |                              |        | Blue   | 159668   | PUN-10x1.5-BL     | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 525749   | PUN-10x1.5-BL-300 | 300              |
|                              |      |                     |                              |        | Black  | 159669   | PUN-10x1.5-SW     | 1 ... 50         |
|                              |      |                     |                              |        | Black  | 553940   | PUN-10x1.5-SW-300 | 300              |
|                              |      |                     |                              |        | Yellow | 178420   | PUN-10x1.5-GE     | 1 ... 50         |
|                              |      |                     |                              |        | Green  | 178427   | PUN-10x1.5-GN     | 1 ... 50         |
|                              |      |                     |                              |        | Red    | 178413   | PUN-10x1.5-RT     | 1 ... 50         |
| 12                           | 8.0  | 33                  | 62                           | 0.0767 | Silver | 152589   | PUN-12x2-SI       | 1 ... 50         |
|                              |      |                     |                              |        | Silver | 525743   | PUN-12x2-SI-200   | 200              |
|                              |      |                     |                              |        | Blue   | 159670   | PUN-12x2-BL       | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 525750   | PUN-12x2-BL-200   | 200              |
|                              |      |                     |                              |        | Black  | 159671   | PUN-12x2-SW       | 1 ... 50         |
|                              |      |                     |                              |        | Black  | 553941   | PUN-12x2-SW-200   | 200              |
|                              |      |                     |                              |        | Yellow | 178421   | PUN-12x2-GE       | 1 ... 50         |
|                              |      |                     |                              |        | Green  | 178428   | PUN-12x2-GN       | 1 ... 50         |
|                              |      |                     |                              |        | Red    | 178414   | PUN-12x2-RT       | 1 ... 50         |
| 14                           | 9.8  | 45                  | 84                           | 0.0949 | Silver | 570389   | PUN-14x2-SI       | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 570390   | PUN-14x2-BL       | 1 ... 50         |
|                              |      |                     |                              |        | Black  | 570391   | PUN-14x2-SW       | 1 ... 50         |
| 16                           | 11.0 | 45                  | 88                           | 0.1294 | Silver | 152590   | PUN-16x2.5-SI     | 1 ... 50         |
|                              |      |                     |                              |        | Silver | 525744   | PUN-16x2.5-SI-100 | 100              |
|                              |      |                     |                              |        | Blue   | 159672   | PUN-16x2.5-BL     | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 525751   | PUN-16x2.5-BL-100 | 100              |
|                              |      |                     |                              |        | Black  | 159673   | PUN-16x2.5-SW     | 1 ... 50         |
|                              |      |                     |                              |        | Black  | 553942   | PUN-16x2.5-SW-100 | 100              |
|                              |      |                     |                              |        | Yellow | 178422   | PUN-16x2.5-GE     | 1 ... 50         |
|                              |      |                     |                              |        | Green  | 178429   | PUN-16x2.5-GN     | 1 ... 50         |
|                              |      |                     |                              |        | Red    | 178415   | PUN-16x2.5-RT     | 1 ... 50         |

1) Packaging unit

Can only be ordered by the metre.

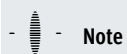
Variable lengths not available in all countries.

## Datasheet

### DUO tubing PUN-DUO

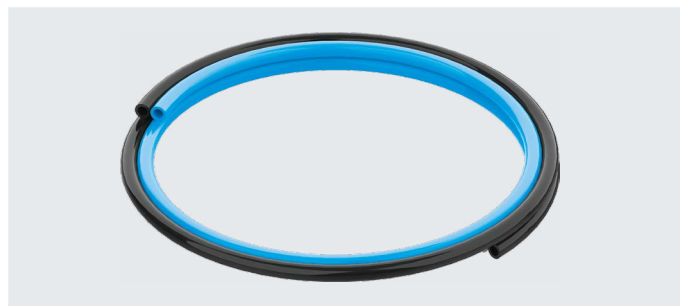
Highly flexible paired plastic tubing characterised by great resistance to abrasion and kinks.

Two lengths of tubing are fused together into a tubing pair. To install it, the tubing pair is separated as required at both ends.



#### Note

The plastic tubing may only be installed in contact with cables if their sheathing is free from phosphoric acid esters. Failure to observe this can result in damage to the plastic tubing.

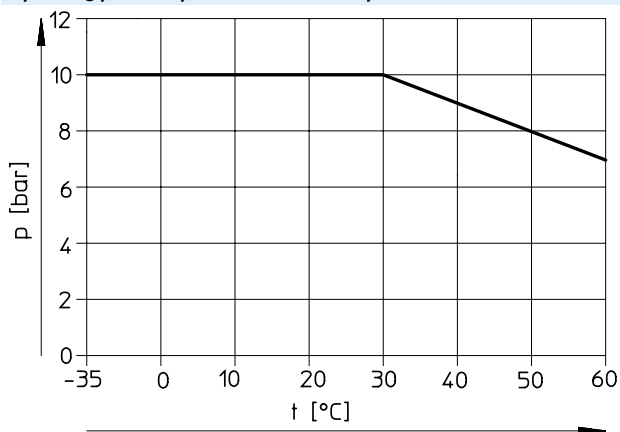


Material: Polyurethane

### Operating and environmental conditions

| Type                                     |       | PUN-4-...-DUO                             | PUN-6-...-DUO | PUN-8-...-DUO | PUN-10-...-DUO |
|------------------------------------------|-------|-------------------------------------------|---------------|---------------|----------------|
| O.D.                                     | [mm]  | 4                                         | 6             | 8             | 10             |
| Pneumatic connection                     |       |                                           |               |               |                |
| For push-in connector                    | [mm]  | 4                                         | 6             | 8             | 10             |
| For barbed connector                     | [mm]  | 3                                         | 4             | 6             | –              |
| For barbed connector with union nut      | [mm]  | 3                                         | 4             | 6             | –              |
| Temperature-dependent operating pressure | [MPa] | –0.095 ... +1                             |               |               |                |
|                                          | [bar] | –0.95 ... +10 → graph                     |               |               |                |
|                                          | [psi] | –13,775 ... +145                          |               |               |                |
| Operating medium                         |       | Compressed air to ISO 8573-1:2010 [7:–:–] |               |               |                |
| LABS (PWIS) conformity                   |       | VDMA24364-B2-L                            |               |               |                |
| Ambient temperature                      | [°C]  | –35 ... +60                               |               |               |                |
| Material fire test                       |       | UL94 HB                                   |               |               |                |
| Certification                            |       | German Technical Control Board (TÜV)      |               |               |                |
| Certificate-issuing authority            |       | B 013277 0506 00                          |               |               |                |
| Tubing characteristics                   |       | Suitable for energy chains                |               |               |                |

### Operating pressure p as a function of temperature t



### Materials

|                    |                |
|--------------------|----------------|
| Shore hardness     | D 52 ±3        |
| Material of tubing | TPE-U(PU)      |
| Note on materials  | RoHS-compliant |

## Datasheet

| Dimensions and ordering data |      |                     |                              |        |            |          |                   |                  |
|------------------------------|------|---------------------|------------------------------|--------|------------|----------|-------------------|------------------|
| O.D.                         | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour     | Part no. | Type              | PU <sup>1)</sup> |
| [mm]                         | [mm] | [mm]                | [mm]                         | [kg/m] |            |          |                   | [m]              |
| 4                            | 2.6  | 8                   | 17                           | 0.0178 | Silver     | 152822   | PUN-4x0.75-DUO-SI | 50               |
|                              |      |                     |                              |        | Blue/black | 159674   | PUN-4x0.75-DUO-BS | 50               |
| 6                            | 4    | 16                  | 26.5                         | 0.0384 | Silver     | 152823   | PUN-6x1-DUO-SI    | 50               |
|                              |      |                     |                              |        | Blue/black | 159675   | PUN-6x1-DUO-BS    | 50               |
| 8                            | 5.7  | 24                  | 37                           | 0.0604 | Silver     | 152824   | PUN-8x1.25-DUO-SI | 1 ... 50         |
|                              |      |                     |                              |        | Blue/black | 159676   | PUN-8x1.25-DUO-BS | 1 ... 50         |
| 10                           | 7    | 28                  | 54                           | 0.0978 | Silver     | 152825   | PUN-10x1.5-DUO-SI | 1 ... 50         |
|                              |      |                     |                              |        | Blue/black | 159677   | PUN-10x1.5-DUO-BS | 1 ... 50         |

1) Packaging unit

Can only be ordered by the metre.

Variable lengths not available in all countries.

## Type codes

| 001 | Series                              |
|-----|-------------------------------------|
| PUN | Plastic tubing, polyurethane        |
| 002 | Alternative material characteristic |
| CM  | Antistatic                          |

| 003 | Tubing outside diameter |
|-----|-------------------------|
| 12  | 12 mm                   |
| 4   | 4 mm                    |
| 6   | 6 mm                    |
| 8   | 8 mm                    |
| 10  | 10 mm                   |
| 004 | Colour                  |
| SW  | Black                   |

## Datasheet

### Plastic tubing PUN-CM

Highly flexible plastic tubing, electrically conductive.

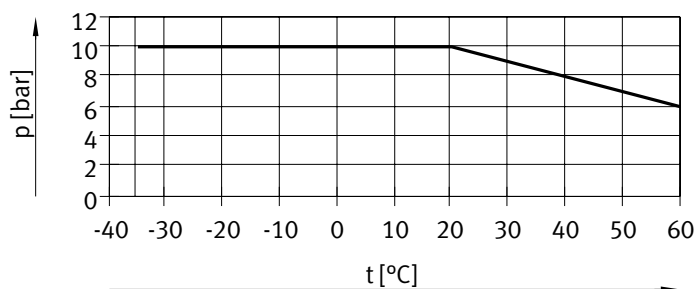
Material: Polyurethane



#### Operating and environmental conditions

| Type                                           | PUN-CM-4                                  | PUN-CM-6 | PUN-CM-8 | PUN-CM-10 | PUN-CM-12 |
|------------------------------------------------|-------------------------------------------|----------|----------|-----------|-----------|
| O.D. [mm]                                      | 4                                         | 6        | 8        | 10        | 12        |
| Pneumatic connection                           |                                           |          |          |           |           |
| For push-in connector [mm]                     | 4                                         | 6        | 8        | 10        | 12        |
| Temperature-dependent operating pressure [MPa] | -0.095 ... +1                             |          |          |           |           |
| [bar]                                          | -0.95 ... +10 → graph                     |          |          |           |           |
| [psi]                                          | -13.775 ... +145                          |          |          |           |           |
| Operating medium                               | Compressed air to ISO 8573-1:2010 [7:-:-] |          |          |           |           |
| LABS (PWIS) conformity                         | VDMA24364-B2-L                            |          |          |           |           |
| Ambient temperature [°C]                       | -35 ... +60                               |          |          |           |           |
| Surface resistance [Ω]                         | 10 <sup>4</sup> ... 10 <sup>7</sup>       |          |          |           |           |
| Tubing characteristics                         | Suitable for energy chains                |          |          |           |           |

#### Operating pressure p as a function of temperature t



#### Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 52 ±3        |
| Tubing            | TPE-U(PU)      |
| Note on materials | RoHS-compliant |

#### Dimensions and ordering data

| O.D. | I.D. | Min. bending radius | Flow-relevant bending radius | Weight  | Colour | Part no.                    | Type         | PU <sup>1)</sup> |
|------|------|---------------------|------------------------------|---------|--------|-----------------------------|--------------|------------------|
| [mm] | [mm] | [mm]                | [mm]                         | [kg/m]  |        |                             |              | [m]              |
| 4    | 2.5  | 8                   | 17                           | 0.00993 | Black  | 188882                      | PUN-CM-4-SW  | 50               |
| 6    | 4    | 14                  | 28                           | 0.02125 |        | 188883                      | PUN-CM-6-SW  | 50               |
| 8    | 5.5  | 20                  | 37                           | 0.03527 |        | 130816                      | PUN-CM-8-SW  | 1 ... 50         |
| 10   | 7    | 30                  | 60                           | 0.05158 |        | 130817                      | PUN-CM-10-SW | 1 ... 50         |
| 12   | 8    | 30                  | 70                           | 0.08107 |        | 130818                      | PUN-CM-12-SW | 1 ... 50         |
| 14   | 9.8  | 41                  | 80                           | 0.095   |        | Modular product system → 32 |              |                  |

1) Packaging unit  
Can only be ordered by the metre.  
Variable lengths not available in all countries.

## Type codes

| 001 | Series                       |
|-----|------------------------------|
| PUN | Plastic tubing, polyurethane |

| 002 | Alternative material characteristic |
|-----|-------------------------------------|
| H   | Hydrolysis-resistant                |

| 003    | Pipe/tubing O.D. x wall thickness |
|--------|-----------------------------------|
| 2x0,4  | 2x0.4 mm                          |
| 3x0,5  | 3x0.5 mm                          |
| 4x0,75 | 4x0.75 mm                         |
| 6x1    | 6x1 mm                            |
| 8x1,25 | 8x1.25 mm                         |
| 10x1,5 | 10x1.5 mm                         |
| 12x2   | 12x2 mm                           |
| 14x2   | 14x2 mm                           |
| 16x2,5 | 16x2.5 mm                         |

| 004 | Tubing type          |
|-----|----------------------|
|     | Standard             |
| DUO | DUO pneumatic tubing |

| 005 | Colour             |
|-----|--------------------|
| NT  | Natural            |
| TBL | Translucent blue   |
| SW  | Black              |
| BL  | Blue               |
| TSW | Translucent black  |
| SI  | Silver             |
| RT  | Red                |
| TRT | Translucent red    |
| GN  | Green              |
| TGN | Translucent green  |
| GE  | Yellow             |
| TGE | Translucent yellow |
| BS  | Blue/black         |

| 006 | Packaging unit [m] |
|-----|--------------------|
|     | Standard           |
| 100 | 100 m              |
| 200 | 200 m              |
| 300 | 300 m              |
| 400 | 400 m              |
| 500 | 500 m              |

## Datasheet

### Plastic tubing PUN-H

With O.D. 2 mm

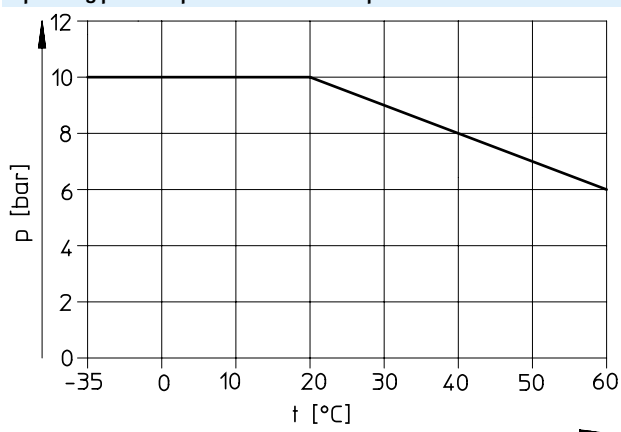
Material: Polyurethane



#### Operating and environmental conditions

|                                          |                                           |                      |
|------------------------------------------|-------------------------------------------|----------------------|
| Type                                     |                                           | PUN-H-2              |
| O.D.                                     | [mm]                                      | 2                    |
| Pneumatic connection                     |                                           |                      |
| For push-in connector                    | [mm]                                      | 2                    |
| Temperature-dependent operating pressure | [MPa]                                     | -0.095 ... +0.6      |
|                                          | [bar]                                     | -0.95 ... +6 → graph |
|                                          | [psi]                                     | -13.775 ... +87      |
| Operating medium                         | Compressed air to ISO 8573-1:2010 [7:-:-] |                      |
| LABS (PWIS) conformity                   | VDMA24364-B2-L                            |                      |
| Ambient temperature                      | [°C]                                      | -35 ... +60          |
| Tubing characteristics                   | Suitable for energy chains                |                      |

#### Operating pressure p as a function of temperature t



#### Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 52 ±3        |
| Tubing            | TPE-U(PU)      |
| Note on materials | RoHS-compliant |

#### Dimensions and ordering data

| O.D. | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour  | Part no. | Type           | PU <sup>1)</sup> |
|------|------|---------------------|------------------------------|--------|---------|----------|----------------|------------------|
| [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

## Datasheet

### Plastic tubing PUN-H

With O.D. 3 ... 16 mm

Material: Polyurethane



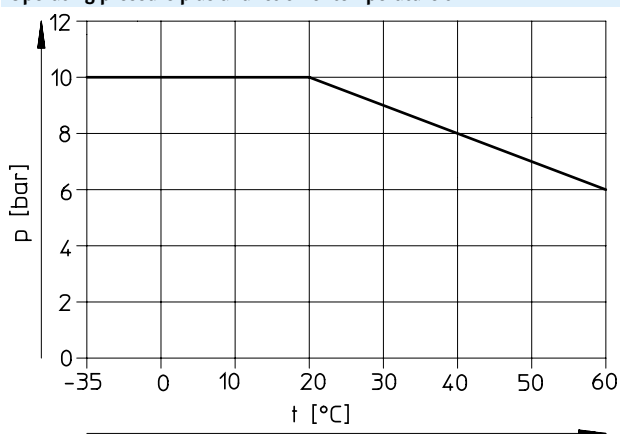
#### Operating and environmental conditions

| Type                                                 | PUN-H-3                                                                                                                                                                                                                    | PUN-H-4 | PUN-H-6 | PUN-H-8 | PUN-H-10 | PUN-H-12 | PUN-H-14 | PUN-H-16 |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|---------|----------|----------|----------|----------|
| O.D. [mm]                                            | 3                                                                                                                                                                                                                          | 4       | 6       | 8       | 10       | 12       | 14       | 16       |
| Pneumatic connection                                 |                                                                                                                                                                                                                            |         |         |         |          |          |          |          |
| For push-in connector [mm]                           | 3                                                                                                                                                                                                                          | 4       | 6       | 8       | 10       | 12       | 14       | 16       |
| For barbed connector with union nut [mm]             | –                                                                                                                                                                                                                          | 3       | 4       | 6       | –        | –        | –        | –        |
| Temperature-dependent operating pressure             | [MPa] –0.095 ... +1                                                                                                                                                                                                        |         |         |         |          |          |          |          |
|                                                      | [bar] –0.95 ... +10 → graph                                                                                                                                                                                                |         |         |         |          |          |          |          |
|                                                      | [psi] –13,775 ... +145                                                                                                                                                                                                     |         |         |         |          |          |          |          |
| Operating medium                                     | Compressed air to ISO 8573-1:2010 [7:-:-]                                                                                                                                                                                  |         |         |         |          |          |          |          |
|                                                      | Water as per manufacturer's declaration <sup>1)2)</sup>                                                                                                                                                                    |         |         |         |          |          |          |          |
| LABS (PWIS) conformity                               | VDMA24364-B2-L                                                                                                                                                                                                             |         |         |         |          |          |          |          |
| Suitable for the production of lithium-ion batteries | Metals with more than 1% by mass of copper, zinc or nickel are excluded from use. Exceptions are nickel in steel, chemically nickel-plated surfaces, printed circuit boards, cables, electrical plug connectors and coils. |         |         |         |          |          |          |          |
| Cleanroom class                                      | Element installed statically, no meaningful evaluation possible according to ISO 14644-1                                                                                                                                   |         |         |         |          |          |          |          |
| Ambient temperature [°C]                             | –35 ... +60                                                                                                                                                                                                                |         |         |         |          |          |          |          |
| Food-safe <sup>2)</sup>                              | See supplementary material information                                                                                                                                                                                     |         |         |         |          |          |          |          |
| Material fire test                                   | UL94 HB                                                                                                                                                                                                                    |         |         |         |          |          |          |          |
| Certification <sup>1)</sup>                          | German Technical Control Board (TÜV)                                                                                                                                                                                       |         |         |         |          |          |          |          |
| Certificate-issuing authority                        | B 013277 0506 00                                                                                                                                                                                                           |         |         |         |          |          |          |          |
| Tubing characteristics                               | Suitable for energy chains                                                                                                                                                                                                 |         |         |         |          |          |          |          |

1) Only for the colours natural, blue, black, silver, red, green, yellow

2) Additional information: [www.festo.com/catalogue/pun-h](http://www.festo.com/catalogue/pun-h) → Support/Downloads.

#### Operating pressure p as a function of temperature t

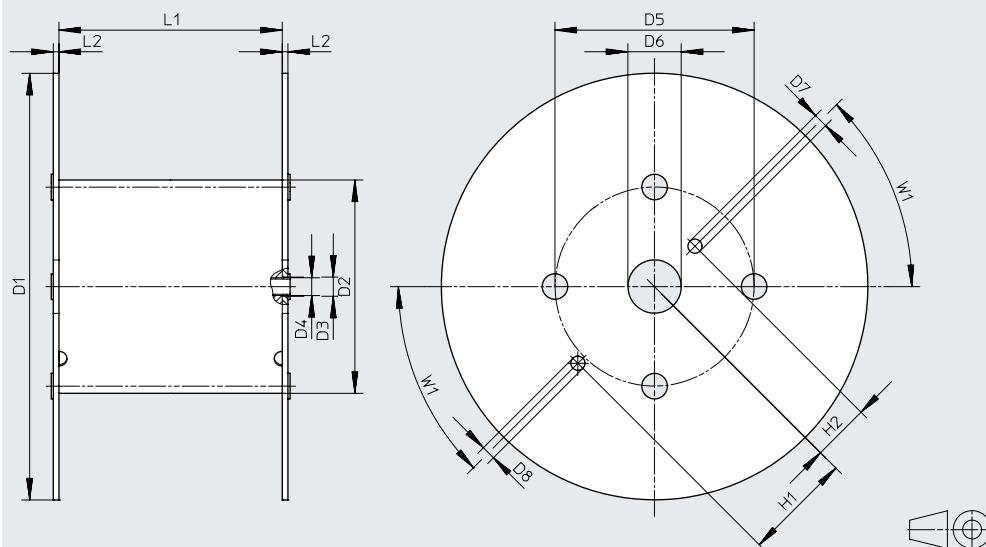


#### Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 52 ±3        |
| Tubing            | TPE-U(PU)      |
| Note on materials | RoHS-compliant |

## Datasheet

## Dimensions – Reel



| Type                     | D1<br>ø | D2<br>ø | D3<br>ø | D4<br>ø | D5<br>ø | D6<br>ø | D7<br>ø | D8<br>ø | H1    | H2   | L1  | L2 | W1  |
|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|-----|----|-----|
| For PUN-H-3x0.5-...-500  | 545     | 246     | 21      | 20      | 216     | 75      | 20      | 20      | 152.5 | 80.5 | 128 | 8  | 45° |
| For PUN-H-4x0.75-...-500 | 545     | 246     | 21      | 20      | 216     | 75      | 20      | 20      | 152.5 | 80.5 | 128 | 8  | 45° |
| For PUN-H-6x1-...-500    | 545     | 246     | 21      | 20      | 216     | 75      | 20      | 20      | 152.5 | 80.5 | 128 | 8  | 45° |
| For PUN-H-8x1.25-...-400 | 545     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PUN-H-10x1.5-...-300 | 600     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PUN-H-12x2-...-200   | 600     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PUN-H-16x2.5-...-100 | 545     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |

## Dimensions and ordering data

| O.D.<br>[mm] | I.D.<br>[mm] | Min. bending radius<br>[mm] | Flow-relevant bending radius<br>[mm] | Weight<br>[kg/m] | Colour  | Part no. | Type               | PJ <sup>1)</sup><br>[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                      |

1) Packaging unit

## Datasheet

## ★ Core Range

| Dimensions and ordering data |      |                     |                              |        |                    |           |                      |                  |
|------------------------------|------|---------------------|------------------------------|--------|--------------------|-----------|----------------------|------------------|
| O.D.                         | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour             | Part no.  | Type                 | PU <sup>1)</sup> |
| [mm]                         | [mm] | [mm]                | [mm]                         | [kg/m] |                    |           |                      | [m]              |
| 4                            | 2.6  | 8                   | 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  | 500              |
|                              |      |                     |                              |        | Translucent blue   | ★ 8048671 | PUN-H-4x0.75-TBL     | 50               |
|                              |      |                     |                              |        | Translucent blue   | ★ 8048672 | PUN-H-4x0.75-TBL-500 | 500              |
|                              |      |                     |                              |        | Black              | ★ 197390  | PUN-H-4x0.75-SW      | 50               |
|                              |      |                     |                              |        | Black              | ★ 558250  | PUN-H-4x0.75-SW-500  | 500              |
|                              |      |                     |                              |        | Translucent black  | ★ 8048673 | PUN-H-4x0.75-TSW     | 50               |
|                              |      |                     |                              |        | Translucent black  | ★ 8048674 | PUN-H-4x0.75-TSW-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               |
|                              |      |                     |                              |        | Translucent red    | 8048675   | PUN-H-4x0.75-TRT     | 50               |
|                              |      |                     |                              |        | Translucent red    | 8048676   | PUN-H-4x0.75-TRT-500 | 500              |
|                              |      |                     |                              |        | Green              | 558292    | PUN-H-4x0.75-GN      | 50               |
|                              |      |                     |                              |        | Translucent green  | 8048677   | PUN-H-4x0.75-TGN     | 50               |
|                              |      |                     |                              |        | Translucent green  | 8048678   | PUN-H-4x0.75-TGN-500 | 500              |
|                              |      |                     |                              |        | Yellow             | 558299    | PUN-H-4x0.75-GE      | 50               |
|                              |      |                     |                              |        | Translucent yellow | 8048679   | PUN-H-4x0.75-TGE     | 50               |
|                              |      |                     |                              |        | Translucent yellow | 8048680   | PUN-H-4x0.75-TGE-500 | 500              |
| 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              |
|                              |      |                     |                              |        | Translucent blue   | ★ 8048681 | PUN-H-6x1-TBL        | 50               |
|                              |      |                     |                              |        | Translucent blue   | ★ 8048682 | PUN-H-6x1-TBL-500    | 500              |
|                              |      |                     |                              |        | Black              | ★ 197391  | PUN-H-6x1-SW         | 50               |
|                              |      |                     |                              |        | Black              | ★ 558251  | PUN-H-6x1-SW-500     | 500              |
|                              |      |                     |                              |        | Translucent black  | ★ 8048683 | PUN-H-6x1-TSW        | 50               |
|                              |      |                     |                              |        | Translucent black  | ★ 8048684 | PUN-H-6x1-TSW-500    | 500              |
|                              |      |                     |                              |        | Silver             | ★ 558279  | PUN-H-6x1-SI         | 50               |
|                              |      |                     |                              |        | Silver             | ★ 558272  | PUN-H-6x1-SI-500     | 500              |
|                              |      |                     |                              |        | Red                | 558286    | PUN-H-6x1-RT         | 50               |
|                              |      |                     |                              |        | Translucent red    | 8048685   | PUN-H-6x1-TRT        | 50               |
|                              |      |                     |                              |        | Translucent red    | 8048686   | PUN-H-6x1-TRT-500    | 500              |
|                              |      |                     |                              |        | Green              | 558293    | PUN-H-6x1-GN         | 50               |
|                              |      |                     |                              |        | Translucent green  | 8048687   | PUN-H-6x1-TGN        | 50               |
|                              |      |                     |                              |        | Translucent green  | 8048688   | PUN-H-6x1-TGN-500    | 500              |
|                              |      |                     |                              |        | Yellow             | 558300    | PUN-H-6x1-GE         | 50               |
|                              |      |                     |                              |        | Translucent yellow | 8048689   | PUN-H-6x1-TGE        | 50               |
|                              |      |                     |                              |        | Translucent yellow | 8048690   | PUN-H-6x1-TGE-500    | 500              |

1) Packaging unit

## Datasheet

## ★ Core Range

| Dimensions and ordering data |      |                     |                              |        |                    |           |                      |                  |
|------------------------------|------|---------------------|------------------------------|--------|--------------------|-----------|----------------------|------------------|
| O.D.                         | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour             | Part no.  | Type                 | PU <sup>1)</sup> |
| [mm]                         | [mm] | [mm]                | [mm]                         | [kg/m] |                    |           |                      | [m]              |
| 8                            | 5.7  | 21                  | 37                           | 0.0287 | Natural            | ★ 197378  | PUN-H-8x1.25-NT      | 1 ... 50         |
|                              |      |                     |                              |        | Natural            | ★ 558266  | PUN-H-8x1.25-NT-400  | 400              |
|                              |      |                     |                              |        | Blue               | ★ 197385  | PUN-H-8x1.25-BL      | 1 ... 50         |
|                              |      |                     |                              |        | Blue               | ★ 558259  | PUN-H-8x1.25-BL-400  | 400              |
|                              |      |                     |                              |        | Translucent blue   | ★ 8048691 | PUN-H-8x1.25-TBL     | 50               |
|                              |      |                     |                              |        | Translucent blue   | ★ 8048692 | PUN-H-8x1.25-TBL-400 | 400              |
|                              |      |                     |                              |        | Black              | ★ 197392  | PUN-H-8x1.25-SW      | 1 ... 50         |
|                              |      |                     |                              |        | Black              | ★ 558252  | PUN-H-8x1.25-SW-400  | 400              |
|                              |      |                     |                              |        | Translucent black  | ★ 8048693 | PUN-H-8x1.25-TSW     | 50               |
|                              |      |                     |                              |        | Translucent black  | ★ 8048694 | PUN-H-8x1.25-TSW-400 | 400              |
|                              |      |                     |                              |        | Silver             | ★ 558280  | PUN-H-8x1.25-SI      | 1 ... 50         |
|                              |      |                     |                              |        | Silver             | ★ 558273  | PUN-H-8x1.25-SI-400  | 400              |
|                              |      |                     |                              |        | Red                | 558287    | PUN-H-8x1.25-RT      | 1 ... 50         |
|                              |      |                     |                              |        | Translucent red    | 8048695   | PUN-H-8x1.25-TRT     | 50               |
|                              |      |                     |                              |        | Translucent red    | 8048696   | PUN-H-8x1.25-TRT-400 | 400              |
|                              |      |                     |                              |        | Green              | 558294    | PUN-H-8x1.25-GN      | 1 ... 50         |
|                              |      |                     |                              |        | Translucent green  | 8048697   | PUN-H-8x1.25-TGN     | 50               |
|                              |      |                     |                              |        | Translucent green  | 8048698   | PUN-H-8x1.25-TGN-400 | 400              |
|                              |      |                     |                              |        | Yellow             | 558301    | PUN-H-8x1.25-GE      | 1 ... 50         |
|                              |      |                     |                              |        | Translucent yellow | 8048699   | PUN-H-8x1.25-TGE     | 50               |
|                              |      |                     |                              |        | Translucent yellow | 8048700   | PUN-H-8x1.25-TGE-400 | 400              |
| 10                           | 7    | 28                  | 52                           | 0.0465 | Natural            | ★ 197379  | PUN-H-10x1.5-NT      | 1 ... 50         |
|                              |      |                     |                              |        | Natural            | ★ 558267  | PUN-H-10x1.5-NT-300  | 300              |
|                              |      |                     |                              |        | Blue               | ★ 197386  | PUN-H-10x1.5-BL      | 1 ... 50         |
|                              |      |                     |                              |        | Blue               | ★ 558260  | PUN-H-10x1.5-BL-300  | 300              |
|                              |      |                     |                              |        | Translucent blue   | ★ 8048701 | PUN-H-10x1.5-TBL     | 50               |
|                              |      |                     |                              |        | Translucent blue   | ★ 8048702 | PUN-H-10x1.5-TBL-300 | 300              |
|                              |      |                     |                              |        | Black              | ★ 197393  | PUN-H-10x1.5-SW      | 1 ... 50         |
|                              |      |                     |                              |        | Black              | ★ 558253  | PUN-H-10x1.5-SW-300  | 300              |
|                              |      |                     |                              |        | Translucent black  | ★ 8048703 | PUN-H-10x1.5-TSW     | 50               |
|                              |      |                     |                              |        | Translucent black  | ★ 8048704 | PUN-H-10x1.5-TSW-300 | 300              |
|                              |      |                     |                              |        | Silver             | ★ 558281  | PUN-H-10x1.5-SI      | 1 ... 50         |
|                              |      |                     |                              |        | Silver             | ★ 558274  | PUN-H-10x1.5-SI-300  | 300              |
|                              |      |                     |                              |        | Red                | 558288    | PUN-H-10x1.5-RT      | 1 ... 50         |
|                              |      |                     |                              |        | Translucent red    | 8048705   | PUN-H-10x1.5-TRT     | 50               |
|                              |      |                     |                              |        | Translucent red    | 8048706   | PUN-H-10x1.5-TRT-300 | 300              |
|                              |      |                     |                              |        | Green              | 558295    | PUN-H-10x1.5-GN      | 1 ... 50         |
|                              |      |                     |                              |        | Translucent green  | 8048707   | PUN-H-10x1.5-TGN     | 50               |
|                              |      |                     |                              |        | Translucent green  | 8048708   | PUN-H-10x1.5-TGN-300 | 300              |
|                              |      |                     |                              |        | Yellow             | 558302    | PUN-H-10x1.5-GE      | 1 ... 50         |
|                              |      |                     |                              |        | Translucent yellow | 8048709   | PUN-H-10x1.5-TGE     | 50               |
|                              |      |                     |                              |        | Translucent yellow | 8048710   | PUN-H-10x1.5-TGE-300 | 300              |

1) Packaging unit

Can only be ordered by the metre.

Variable lengths not available in all countries.

## Datasheet

## ★ Core Range

| Dimensions and ordering data |      |                     |                              |        |                    |           |                     |                  |
|------------------------------|------|---------------------|------------------------------|--------|--------------------|-----------|---------------------|------------------|
| O.D.                         | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour             | Part no.  | Type                | PJ <sup>1)</sup> |
| [mm]                         | [mm] | [mm]                | [mm]                         | [kg/m] |                    |           |                     | [m]              |
| 12                           | 8    | 33                  | 62                           | 0.0729 | Natural            | ★ 197380  | PUN-H-12x2-NT       | 1 ... 50         |
|                              |      |                     |                              |        | Natural            | ★ 558268  | PUN-H-12x2-NT-200   | 200              |
|                              |      |                     |                              |        | Blue               | ★ 197387  | PUN-H-12x2-BL       | 1 ... 50         |
|                              |      |                     |                              |        | Blue               | ★ 558261  | PUN-H-12x2-BL-200   | 200              |
|                              |      |                     |                              |        | Translucent blue   | ★ 8048711 | PUN-H-12x2-TBL      | 50               |
|                              |      |                     |                              |        | Translucent blue   | ★ 8048712 | PUN-H-12x2-TBL-200  | 200              |
|                              |      |                     |                              |        | Black              | ★ 197394  | PUN-H-12x2-SW       | 1 ... 50         |
|                              |      |                     |                              |        | Black              | ★ 558254  | PUN-H-12x2-SW-200   | 200              |
|                              |      |                     |                              |        | Translucent black  | ★ 8048713 | PUN-H-12x2-TSW      | 50               |
|                              |      |                     |                              |        | Translucent black  | ★ 8048714 | PUN-H-12x2-TSW-200  | 200              |
|                              |      |                     |                              |        | Silver             | ★ 558282  | PUN-H-12x2-SI       | 1 ... 50         |
|                              |      |                     |                              |        | Silver             | ★ 558275  | PUN-H-12x2-SI-200   | 200              |
|                              |      |                     |                              |        | Red                | 558289    | PUN-H-12x2-RT       | 1 ... 50         |
|                              |      |                     |                              |        | Translucent red    | 8048715   | PUN-H-12x2-TRT      | 50               |
|                              |      |                     |                              |        | Translucent red    | 8048716   | PUN-H-12x2-TRT-200  | 200              |
|                              |      |                     |                              |        | Green              | 558296    | PUN-H-12x2-GN       | 1 ... 50         |
|                              |      |                     |                              |        | Translucent green  | 8048717   | PUN-H-12x2-TGN      | 50               |
|                              |      |                     |                              |        | Translucent green  | 8048718   | PUN-H-12x2-TGN-200  | 200              |
|                              |      |                     |                              |        | Yellow             | 558303    | PUN-H-12x2-GE       | 1 ... 50         |
|                              |      |                     |                              |        | Translucent yellow | 8048719   | PUN-H-12x2-TGE      | 50               |
|                              |      |                     |                              |        | Translucent yellow | 8048720   | PUN-H-12x2-TGE-200  | 200              |
| 14                           | 9.8  | 38                  | 78                           | 0.091  | Natural            | 570388    | PUN-H-14x2-NT       | 1 ... 50         |
|                              |      |                     |                              |        | Blue               | 570386    | PUN-H-14x2-BL       | 1 ... 50         |
|                              |      |                     |                              |        | Black              | 570387    | PUN-H-14x2-SW       | 1 ... 50         |
| 16                           | 11   | 38                  | 88                           | 0.123  | Natural            | 197381    | PUN-H-16x2.5-NT     | 1 ... 50         |
|                              |      |                     |                              |        | Natural            | 558269    | PUN-H-16x2.5-NT-100 | 100              |
|                              |      |                     |                              |        | Blue               | 197388    | PUN-H-16x2.5-BL     | 1 ... 50         |
|                              |      |                     |                              |        | Blue               | 558262    | PUN-H-16x2.5-BL-100 | 100              |
|                              |      |                     |                              |        | Black              | 197395    | PUN-H-16x2.5-SW     | 1 ... 50         |
|                              |      |                     |                              |        | Black              | 558255    | PUN-H-16x2.5-SW-100 | 100              |
|                              |      |                     |                              |        | Silver             | 558283    | PUN-H-16x2.5-SI     | 1 ... 50         |
|                              |      |                     |                              |        | Silver             | 558276    | PUN-H-16x2.5-SI-100 | 100              |
|                              |      |                     |                              |        | Red                | 558290    | PUN-H-16x2.5-RT     | 1 ... 50         |
|                              |      |                     |                              |        | Green              | 558297    | PUN-H-16x2.5-GN     | 1 ... 50         |
|                              |      |                     |                              |        | Yellow             | 558304    | PUN-H-16x2.5-GE     | 1 ... 50         |

1) Packaging unit

Can only be ordered by the metre.

Variable lengths not available in all countries.

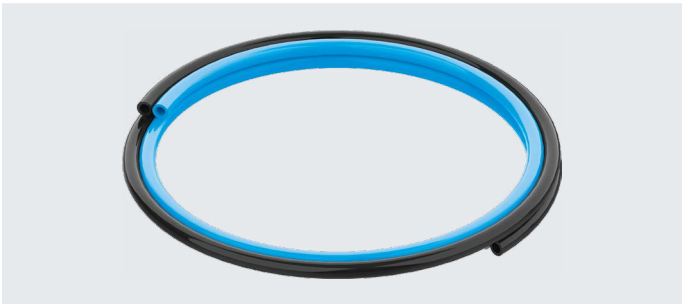
Datasheet

DUO tubing PUN-H-DUO

Highly flexible paired plastic tubing characterised by great resistance to abrasion and kinks.

Material: Polyurethane

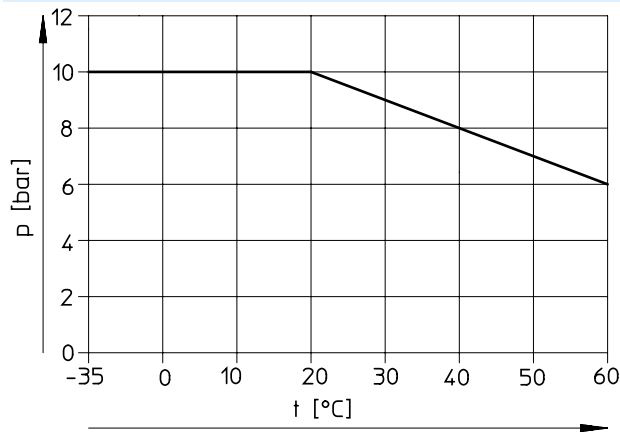
Two lengths of tubing are fused together into a tubing pair. To install it, the tubing pair is separated as required at both ends.



| Operating and environmental conditions               |       |                                                                                                                                                                                                                            |                 |                 |
|------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|
| Type                                                 |       | PUN-H-4-...-DUO                                                                                                                                                                                                            | PUN-H-6-...-DUO | PUN-H-8-...-DUO |
| O.D.                                                 | [mm]  | 4                                                                                                                                                                                                                          | 6               | 8               |
| Pneumatic connection                                 |       |                                                                                                                                                                                                                            |                 |                 |
| For push-in connector                                | [mm]  | 4                                                                                                                                                                                                                          | 6               | 8               |
| For barbed connector with union nut                  | [mm]  | 3                                                                                                                                                                                                                          | 4               | 6               |
| Temperature-dependent operating pressure             | [MPa] | -0.095 ... +1                                                                                                                                                                                                              |                 |                 |
|                                                      | [bar] | -0.95 ... +10 → graph                                                                                                                                                                                                      |                 |                 |
|                                                      | [psi] | -13,775 ... +145                                                                                                                                                                                                           |                 |                 |
| Operating medium                                     |       | Compressed air to ISO 8573-1:2010 [7:-:-]                                                                                                                                                                                  |                 |                 |
|                                                      |       | Water as per manufacturer's declaration <sup>1)</sup>                                                                                                                                                                      |                 |                 |
| LABS (PWIS) conformity                               |       | VDMA24364-B2-L                                                                                                                                                                                                             |                 |                 |
| Suitable for the production of lithium-ion batteries |       | Metals with more than 1% by mass of copper, zinc or nickel are excluded from use. Exceptions are nickel in steel, chemically nickel-plated surfaces, printed circuit boards, cables, electrical plug connectors and coils. |                 |                 |
| Cleanroom class                                      |       | Element installed statically, no meaningful evaluation possible according to ISO 14644-1                                                                                                                                   |                 |                 |
| Ambient temperature                                  | [°C]  | -35 ... +60                                                                                                                                                                                                                |                 |                 |
| Food-safe <sup>1)</sup>                              |       | See supplementary material information                                                                                                                                                                                     |                 |                 |
| Material fire test                                   |       | UL94 HB                                                                                                                                                                                                                    |                 |                 |
| Certification <sup>1)</sup>                          |       | German Technical Control Board (TÜV)                                                                                                                                                                                       |                 |                 |
| Certificate-issuing authority                        |       | B 013277 0506 00                                                                                                                                                                                                           |                 |                 |
| Tubing characteristics                               |       | Suitable for energy chains                                                                                                                                                                                                 |                 |                 |

1) Additional information: [www.festo.com/catalogue/pun-h](http://www.festo.com/catalogue/pun-h) → Support/Downloads.

Operating pressure p as a function of temperature t



| Materials         |                |
|-------------------|----------------|
| Shore hardness    | D 52 ±3        |
| Tubing            | TPE-U(PU)      |
| Note on materials | RoHS-compliant |

## Datasheet

## Dimensions and ordering data

| O.D. | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour     | Part no.      | Type                    | PJ <sup>1)</sup> |
|------|------|---------------------|------------------------------|--------|------------|---------------|-------------------------|------------------|
| [mm] | [mm] | [mm]                | [mm]                         | [kg/m] |            |               |                         | [m]              |
| 4    | 2.6  | 8                   | 16                           | 0.017  | Blue/black | <b>197396</b> | <b>PUN-H-4x0.75-DUO</b> | <b>50</b>        |
| 6    | 4    | 10                  | 26                           | 0.0366 |            | <b>197397</b> | <b>PUN-H-6x1-DUO</b>    | <b>50</b>        |
| 8    | 5.7  | 21                  | 37                           | 0.0574 |            | <b>197398</b> | <b>PUN-H-8x1.25-DUO</b> | <b>1 ... 50</b>  |
| 10   | 7    | 28                  | 52                           | 0.093  |            | <b>197399</b> | <b>PUN-H-10x1.5-DUO</b> | <b>1 ... 50</b>  |

1) Packaging unit

Can only be ordered by the metre.

Variable lengths not available in all countries.

## Type codes

| 001 | Series                              |
|-----|-------------------------------------|
| PUN | Plastic tubing, polyurethane        |
| 002 | Alternative material characteristic |
| H   | Hydrolysis-resistant                |
| 003 | Additional features                 |
| F   | Food-safe                           |

| 004    | Pipe/tubing O.D. x wall thickness |
|--------|-----------------------------------|
| 4x0,75 | 4x0.75 mm                         |
| 6x1    | 6x1 mm                            |
| 8x1,25 | 8x1.25 mm                         |
| 10x1,5 | 10x1.5 mm                         |
| 12x2   | 12x2 mm                           |
| 14x2   | 14x2 mm                           |
| 16x2,5 | 16x2.5 mm                         |

| 005 | Colour           |
|-----|------------------|
| NT  | Natural          |
| TBL | Translucent blue |
| SW  | Black            |
| BL  | Blue             |
| RT  | Red              |
| GN  | Green            |
| GE  | Yellow           |

## Datasheet

### Plastic tubing PUN-H-F

With O.D. 4 ... 16 mm

Suitable for contact with food.

Material: Polyurethane



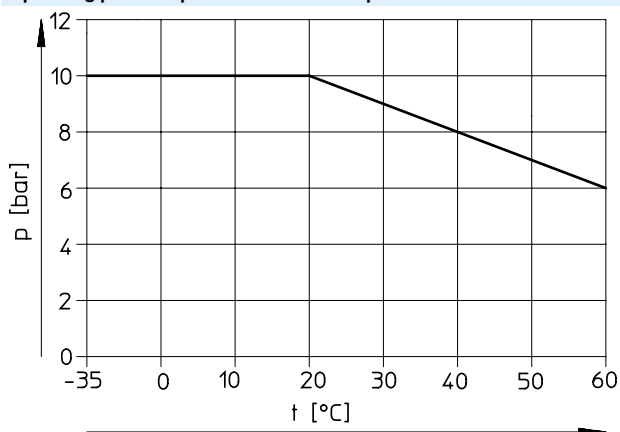
### Operating and environmental conditions

| Type                                          |       | PUN-H-F-4                                                                 | PUN-H-F-6 | PUN-H-F-8 | PUN-H-F-10 | PUN-H-F-12 | PUN-H-F-14 | PUN-H-F-16 |
|-----------------------------------------------|-------|---------------------------------------------------------------------------|-----------|-----------|------------|------------|------------|------------|
| O.D.                                          | [mm]  | 4                                                                         | 6         | 8         | 10         | 12         | 14         | 16         |
| Pneumatic connection                          |       |                                                                           |           |           |            |            |            |            |
| For push-in connector                         | [mm]  | 4                                                                         | 6         | 8         | 10         | 12         | 14         | 16         |
| For barbed connector with union nut           | [mm]  | 3                                                                         | 4         | 6         | 10         | –          | –          | –          |
| Temperature-dependent operating pressure      | [MPa] | –0.095 ... 1 MPa                                                          |           |           |            |            |            |            |
|                                               | [bar] | –0.95 ... 10 bar → graph                                                  |           |           |            |            |            |            |
|                                               | [psi] | –13.775 ... 145 psi                                                       |           |           |            |            |            |            |
| Operating pressure for full temperature range | [MPa] | –0.095 ... 0.6 MPa                                                        |           |           |            |            |            |            |
|                                               | [bar] | –0.95 ... 6 bar                                                           |           |           |            |            |            |            |
|                                               | [psi] | –13.775 ... 87 psi                                                        |           |           |            |            |            |            |
| Note on operating pressure                    |       | Water: max. 0.65 MPa at 20°C, max. 0.45 MPa at 40°C, max. 0.3 MPa at 60°C |           |           |            |            |            |            |
| Operating medium                              |       | Compressed air to ISO 8573-1:2010 [7:–:–]                                 |           |           |            |            |            |            |
|                                               |       | Water (liquid, ice-free) <sup>1)</sup>                                    |           |           |            |            |            |            |
|                                               |       | Oxygen <sup>2)</sup>                                                      |           |           |            |            |            |            |
| LABS (PWIS) conformity                        |       | VDMA24364-B2-L                                                            |           |           |            |            |            |            |
| Food-safe                                     |       | See declaration of conformity <sup>1)</sup>                               |           |           |            |            |            |            |
| Ambient temperature                           | [°C]  | –35 ... 60                                                                |           |           |            |            |            |            |
| Material fire test                            |       | UL94 HB                                                                   |           |           |            |            |            |            |
| Tubing characteristics                        |       | Suitable for energy chains                                                |           |           |            |            |            |            |

1) Additional information: [www.festo.com/catalogue/pun-h-f](http://www.festo.com/catalogue/pun-h-f) → Support/Downloads.

2) Applies to NT variants only (colour: natural).

### Operating pressure p as a function of temperature t



### Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 52 ±3        |
| Tubing            | TPE-U(PU)      |
| Note on materials | RoHS-compliant |

1) TPE-U ether-based, tubing without printing

## Datasheet

| Dimensions and ordering data |      |                     |                              |        |                  |          |                    |                  |
|------------------------------|------|---------------------|------------------------------|--------|------------------|----------|--------------------|------------------|
| O.D.                         | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour           | Part no. | Type               | PU <sup>1)</sup> |
| [mm]                         | [mm] | [mm]                | [mm]                         | [kg/m] |                  |          |                    | [m]              |
| 4                            | 2.6  | 8                   | 16                           | 0.0084 | Natural          | 8153378  | PUN-H-F-4X0.75-NT  | 50               |
|                              |      |                     |                              |        | Red              | 8153379  | PUN-H-F-4X0.75-RT  | 50               |
|                              |      |                     |                              |        | Blue             | 8153381  | PUN-H-F-4X0.75-BL  | 50               |
|                              |      |                     |                              |        | Translucent blue | 8153382  | PUN-H-F-4X0.75-TBL | 50               |
|                              |      |                     |                              |        | Green            | 8153383  | PUN-H-F-4X0.75-GN  | 50               |
|                              |      |                     |                              |        | Yellow           | 8153384  | PUN-H-F-4X0.75-GE  | 50               |
|                              |      |                     |                              |        | Black            | 8153385  | PUN-H-F-4X0.75-SW  | 50               |
| 6                            | 4    | 10                  | 26                           | 0.0181 | Natural          | 8153428  | PUN-H-F-6X1-NT     | 50               |
|                              |      |                     |                              |        | Red              | 8153386  | PUN-H-F-6X1-RT     | 50               |
|                              |      |                     |                              |        | Blue             | 8153388  | PUN-H-F-6X1-BL     | 50               |
|                              |      |                     |                              |        | Translucent blue | 8153389  | PUN-H-F-6X1-TBL    | 50               |
|                              |      |                     |                              |        | Green            | 8153390  | PUN-H-F-6X1-GN     | 50               |
|                              |      |                     |                              |        | Yellow           | 8153391  | PUN-H-F-6X1-GE     | 50               |
|                              |      |                     |                              |        | Black            | 8153392  | PUN-H-F-6X1-SW     | 50               |
| 8                            | 5.7  | 21                  | 37                           | 0.0285 | Natural          | 8153429  | PUN-H-F-8X1.25-NT  | 50               |
|                              |      |                     |                              |        | Red              | 8153393  | PUN-H-F-8X1.25-RT  | 50               |
|                              |      |                     |                              |        | Blue             | 8153395  | PUN-H-F-8X1.25-BL  | 50               |
|                              |      |                     |                              |        | Translucent blue | 8153396  | PUN-H-F-8X1.25-TBL | 50               |
|                              |      |                     |                              |        | Green            | 8153397  | PUN-H-F-8X1.25-GN  | 50               |
|                              |      |                     |                              |        | Yellow           | 8153398  | PUN-H-F-8X1.25-GE  | 50               |
|                              |      |                     |                              |        | Black            | 8153399  | PUN-H-F-8X1.25-SW  | 50               |
| 10                           | 7    | 28                  | 52                           | 0.0461 | Natural          | 8153430  | PUN-H-F-10X1.5-NT  | 50               |
|                              |      |                     |                              |        | Red              | 8153400  | PUN-H-F-10X1.5-RT  | 50               |
|                              |      |                     |                              |        | Blue             | 8153402  | PUN-H-F-10X1.5-BL  | 50               |
|                              |      |                     |                              |        | Translucent blue | 8153403  | PUN-H-F-10X1.5-TBL | 50               |
|                              |      |                     |                              |        | Green            | 8153404  | PUN-H-F-10X1.5-GN  | 50               |
|                              |      |                     |                              |        | Yellow           | 8153405  | PUN-H-F-10X1.5-GE  | 50               |
|                              |      |                     |                              |        | Black            | 8153406  | PUN-H-F-10X1.5-SW  | 50               |
| 12                           | 8    | 33                  | 62                           | 0.0723 | Natural          | 8153407  | PUN-H-F-12X2-NT    | 50               |
|                              |      |                     |                              |        | Red              | 8153408  | PUN-H-F-12X2-RT    | 50               |
|                              |      |                     |                              |        | Blue             | 8153410  | PUN-H-F-12X2-BL    | 50               |
|                              |      |                     |                              |        | Translucent blue | 8153411  | PUN-H-F-12X2-TBL   | 50               |
|                              |      |                     |                              |        | Green            | 8153412  | PUN-H-F-12X2-GN    | 50               |
|                              |      |                     |                              |        | Yellow           | 8153413  | PUN-H-F-12X2-GE    | 50               |
|                              |      |                     |                              |        | Black            | 8153414  | PUN-H-F-12X2-SW    | 50               |
| 14                           | 9.8  | 38                  | 78                           | 0.0911 | Natural          | 8153415  | PUN-H-F-14X2-NT    | 50               |
|                              |      |                     |                              |        | Red              | 8153416  | PUN-H-F-14X2-RT    | 50               |
|                              |      |                     |                              |        | Blue             | 8153417  | PUN-H-F-14X2-BL    | 50               |
|                              |      |                     |                              |        | Black            | 8153418  | PUN-H-F-14X2-SW    | 50               |
| 16                           | 11   | 38                  | 88                           | 0.122  | Natural          | 8153419  | PUN-H-F-16X2.5-NT  | 50               |
|                              |      |                     |                              |        | Red              | 8153420  | PUN-H-F-16X2.5-RT  | 50               |
|                              |      |                     |                              |        | Blue             | 8153422  | PUN-H-F-16X2.5-BL  | 50               |
|                              |      |                     |                              |        | Translucent blue | 8153423  | PUN-H-F-16X2.5-TBL | 50               |
|                              |      |                     |                              |        | Green            | 8153424  | PUN-H-F-16X2.5-GN  | 50               |
|                              |      |                     |                              |        | Yellow           | 8153425  | PUN-H-F-16X2.5-GE  | 50               |
|                              |      |                     |                              |        | Black            | 8153426  | PUN-H-F-16X2.5-SW  | 50               |

1) Packaging unit

## Type codes

|     |                              |  |
|-----|------------------------------|--|
| 001 | Series                       |  |
| PUN | Plastic tubing, polyurethane |  |

|     |                                     |  |
|-----|-------------------------------------|--|
| 002 | Alternative material characteristic |  |
| V0  | Flame-retardant                     |  |

|        |                                   |  |
|--------|-----------------------------------|--|
| 003    | Pipe/tubing O.D. x wall thickness |  |
| 4x1    | 4x1 mm                            |  |
| 6x1    | 6x1 mm                            |  |
| 6x2    | 6x2 mm                            |  |
| 8x1,25 | 8x1.25 mm                         |  |
| 8x2    | 8x2 mm                            |  |
| 10x1,5 | 10x1.5 mm                         |  |
| 10x2   | 10x2 mm                           |  |
| 12x2   | 12x2 mm                           |  |
| 14x2   | 14x2 mm                           |  |
| 16x2   | 16x2 mm                           |  |
| 16x2,5 | 16x2.5 mm                         |  |

|     |        |  |
|-----|--------|--|
| 004 | Colour |  |
| SW  | Black  |  |
| BL  | Blue   |  |
| RT  | Red    |  |
| GN  | Green  |  |
| GE  | Yellow |  |
| BR  | Brown  |  |
| WS  | White  |  |

|     |                        |  |
|-----|------------------------|--|
| 005 | Version                |  |
| C   | Broader wall thickness |  |

Datasheet

Plastic tubing PUN-V0

Highly flexible single-sheath plastic tubing, flame-retardant

For use in the immediate vicinity of welding applications

Material: Polyurethane


**Note**

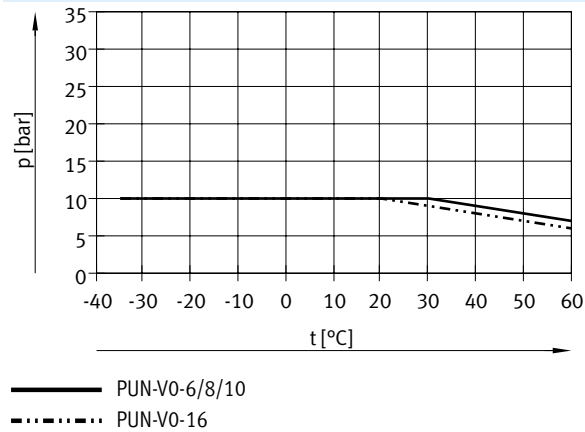
As this tubing is flame retardant, the colours differ from the standard colours.



| Operating and environmental conditions   |       |                                                       |          |           |                   |
|------------------------------------------|-------|-------------------------------------------------------|----------|-----------|-------------------|
| Type                                     |       | PUN-V0-6                                              | PUN-V0-8 | PUN-V0-10 | PUN-V0-16         |
| O.D.                                     | [mm]  | 6                                                     | 8        | 10        | 16                |
| Pneumatic connection                     |       |                                                       |          |           |                   |
| For push-in connector                    | [mm]  | 6                                                     | 8        | 10        | 16                |
| For barbed connector                     | [mm]  | 4                                                     | 6        | –         | –                 |
| For barbed connector with union nut      | [mm]  | 4                                                     | 6        | –         | –                 |
| Temperature-dependent operating pressure | [MPa] | –0.095 ... +1                                         |          |           | –0.095 ... +0.9   |
|                                          | [bar] | –0.95 ... +10 → graph                                 |          |           | –0.95 ... +9      |
|                                          | [psi] | –13.775 ... 145                                       |          |           | –13.775 ... 130.5 |
| Operating medium                         |       | Compressed air to ISO 8573-1:2010 [7:-:-]             |          |           |                   |
|                                          |       | Water as per manufacturer's declaration <sup>1)</sup> |          |           |                   |
| LABS (PWIS) conformity                   |       | VDMA24364-B2-L                                        |          |           |                   |
| Ambient temperature                      | [°C]  | –35 ... +60                                           |          |           |                   |
| Material fire test                       |       | UL94 V-0 (for test specimen 3 mm thick)               |          |           |                   |
|                                          |       | UL94 V-2 (for test specimen 0.75 mm thick)            |          |           |                   |
| Certification                            |       | German Technical Control Board (TÜV)                  |          |           |                   |
| Certificate-issuing authority            |       | B 013277 0506 00                                      |          |           |                   |
| Tubing characteristics                   |       | Suitable for energy chains                            |          |           |                   |

1) Additional information: [www.festo.com/catalogue/pun-v0](http://www.festo.com/catalogue/pun-v0) → Support/Downloads.

Operating pressure p as a function of temperature t



| Materials         |                |
|-------------------|----------------|
| Shore hardness    | D 54 ±3        |
| Tubing            | TPE-U(PU)      |
| Note on materials | RoHS-compliant |

## Datasheet

## Dimensions and ordering data

| O.D.<br>[mm] | I.D.<br>[mm] | Min. bending radius<br>[mm] | Flow-relevant bending radius<br>[mm] | Weight<br>[kg/m] | Colour | Part no. | Type             | PJ <sup>1)</sup><br>[m] |
|--------------|--------------|-----------------------------|--------------------------------------|------------------|--------|----------|------------------|-------------------------|
| 6            | 4            | 12                          | 26.5                                 | 0.02             | Black  | 525438   | PUN-V0-6x1-SW    | 1 ... 50                |
|              |              |                             |                                      |                  | Blue   | 525442   | PUN-V0-6x1-BL    | 1 ... 50                |
|              |              |                             |                                      |                  | Green  | 525446   | PUN-V0-6x1-GN    | 1 ... 50                |
|              |              |                             |                                      |                  | Red    | 525450   | PUN-V0-6x1-RT    | 1 ... 50                |
|              |              |                             |                                      |                  | White  | 525454   | PUN-V0-6x1-WS    | 1 ... 50                |
|              |              |                             |                                      |                  | Yellow | 525458   | PUN-V0-6x1-GE    | 1 ... 50                |
|              |              |                             |                                      |                  | Brown  | 525462   | PUN-V0-6x1-BR    | 1 ... 50                |
| 8            | 5.7          | 18                          | 37                                   | 0.031            | Black  | 525439   | PUN-V0-8x1.25-SW | 1 ... 50                |
|              |              |                             |                                      |                  | Blue   | 525443   | PUN-V0-8x1.25-BL | 1 ... 50                |
|              |              |                             |                                      |                  | Green  | 525447   | PUN-V0-8x1.25-GN | 1 ... 50                |
|              |              |                             |                                      |                  | Red    | 525451   | PUN-V0-8x1.25-RT | 1 ... 50                |
|              |              |                             |                                      |                  | White  | 525455   | PUN-V0-8x1.25-WS | 1 ... 50                |
|              |              |                             |                                      |                  | Yellow | 525459   | PUN-V0-8x1.25-GE | 1 ... 50                |
|              |              |                             |                                      |                  | Brown  | 525463   | PUN-V0-8x1.25-BR | 1 ... 50                |
| 10           | 7            | 20                          | 54                                   | 0.051            | Black  | 525440   | PUN-V0-10x1.5-SW | 1 ... 50                |
|              |              |                             |                                      |                  | Blue   | 525444   | PUN-V0-10x1.5-BL | 1 ... 50                |
|              |              |                             |                                      |                  | Green  | 525448   | PUN-V0-10x1.5-GN | 1 ... 50                |
|              |              |                             |                                      |                  | Red    | 525452   | PUN-V0-10x1.5-RT | 1 ... 50                |
|              |              |                             |                                      |                  | White  | 525456   | PUN-V0-10x1.5-WS | 1 ... 50                |
|              |              |                             |                                      |                  | Yellow | 525460   | PUN-V0-10x1.5-GE | 1 ... 50                |
|              |              |                             |                                      |                  | Brown  | 525464   | PUN-V0-10x1.5-BR | 1 ... 50                |
| 16           | 11.8         | 50                          | 90                                   | 0.122            | Black  | 570767   | PUN-V0-16x2-SW   | 1 ... 50                |
|              |              |                             |                                      |                  | Blue   | 570768   | PUN-V0-16x2-BL   | 1 ... 50                |

- 1) Packaging unit  
Can only be ordered by the metre.  
Variable lengths not available in all countries.

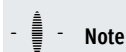
## Datasheet

## Plastic tubing PUN-V0-C

Highly flexible single-sheath plastic tubing, flame-retardant

For use in the immediate vicinity of welding applications.

Material: Polyurethane



## Note

As this tubing is flame retardant, the colours differ from the standard colours.



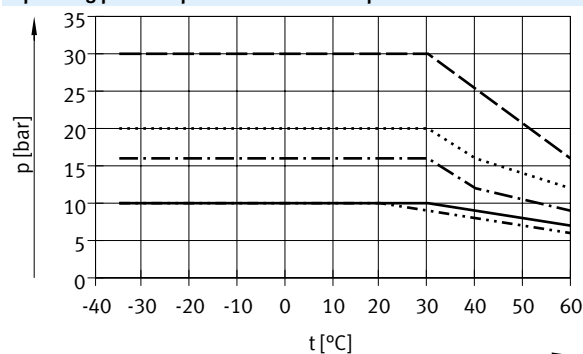
## Operating and environmental conditions

| Type                                     |       | PUN-V0-4...-C                                                                         | PUN-V0-6...-C                          | PUN-V0-8...-C                          | PUN-V0-10...-C                         | PUN-V0-12...-C           | PUN-V0-14...-C          | PUN-V0-16...-C           |
|------------------------------------------|-------|---------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|--------------------------|-------------------------|--------------------------|
| O.D.                                     | [mm]  | 4                                                                                     | 6                                      | 8                                      | 10                                     | 12                       | 14                      | 16                       |
| Pneumatic connection                     |       |                                                                                       |                                        |                                        |                                        |                          |                         |                          |
| For push-in connector                    | [mm]  | 4                                                                                     | 6                                      | 8                                      | 10                                     | 12                       | 14                      | 16                       |
| For barbed connector                     | [mm]  | –                                                                                     | 2                                      | 4                                      | 6                                      | –                        | –                       | –                        |
| Temperature-dependent operating pressure | [MPa] | –0.095 ... +1                                                                         | –0.095 ... +3 <sup>1)</sup>            | –0.095 ... +2 <sup>1)</sup>            | –0.095 ... +1.6 <sup>1)</sup>          | –0.095 ... +1            | –0.095 ... +0.9         | –0.095 ... +1            |
|                                          | [bar] | –0.95 ... +10<br>→ graph                                                              | –0.95 ... +30 <sup>1)</sup><br>→ graph | –0.95 ... +20 <sup>1)</sup><br>→ graph | –0.95 ... +16 <sup>1)</sup><br>→ graph | –0.95 ... +10<br>→ graph | –0.95 ... +9<br>→ graph | –0.95 ... +10<br>→ graph |
|                                          | [psi] | –13,775 ... +145                                                                      | –13,775 ... +435 <sup>1)</sup>         | –13,775 ... +290 <sup>1)</sup>         | –13,775 ... +232 <sup>1)</sup>         | –13,775 ... +145         | –13,775 ... +130.5      | –13,775 ... +145         |
| Operating medium                         |       | Compressed air to ISO 8573-1:2010 [7:–:–]                                             |                                        |                                        |                                        |                          |                         |                          |
|                                          |       | Water as per manufacturer's declaration <sup>2)</sup>                                 |                                        |                                        |                                        |                          |                         |                          |
| LABS (PWIS) conformity                   |       | VDMA24364-B2-L                                                                        |                                        |                                        |                                        |                          |                         |                          |
| Ambient temperature                      |       | –35 ... +60                                                                           |                                        |                                        |                                        |                          |                         |                          |
| Material fire test                       |       | UL94 V-0 (for test specimen 3 mm thick)<br>UL94 V-2 (for test specimen 0.75 mm thick) |                                        |                                        |                                        |                          |                         |                          |
| Certification <sup>2)</sup>              |       | German Technical Control Board (TÜV)                                                  |                                        |                                        |                                        |                          |                         |                          |
| Certificate-issuing authority            |       | B 013277 0506 00                                                                      |                                        |                                        |                                        |                          |                         |                          |
| Tubing characteristics                   |       | Suitable for energy chains                                                            |                                        |                                        |                                        |                          |                         |                          |

1) Limited to 1 MPa/10 bar/145 psi for applications involving welding spatter.

2) Additional information: [www.festo.com/catalogue/pun-v0-c](http://www.festo.com/catalogue/pun-v0-c) → Support/Downloads.

## Operating pressure p as a function of temperature t



— PUN-V0-4...-C  
 - - - PUN-V0-14x2...-C

For applications without welding spatter

— PUN-V0-6x2...-C  
 ..... PUN-V0-8x2...-C  
 - · - · - PUN-V0-10x2...-C

## Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 54 ±3        |
| Tubing            | TPE-U(PU)      |
| Note on materials | RoHS-compliant |

## Datasheet

| Dimensions and ordering data |      |                     |                              |        |        |          |                    |                  |
|------------------------------|------|---------------------|------------------------------|--------|--------|----------|--------------------|------------------|
| O.D.                         | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour | Part no. | Type               | PJ <sup>1)</sup> |
| [mm]                         | [mm] | [mm]                | [mm]                         | [kg/m] |        |          |                    | [m]              |
| 4                            | 2    | 10                  | 20                           | 0.012  | Black  | 570349   | PUN-V0-4x1-SW-C    | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 570350   | PUN-V0-4x1-BL-C    | 1 ... 50         |
| 6                            | 2    | 7                   | 24                           | 0.032  | Black  | 561698   | PUN-V0-6x2-SW-C    | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 561702   | PUN-V0-6x2-BL-C    | 1 ... 50         |
|                              |      |                     |                              |        | Green  | 561706   | PUN-V0-6x2-GN-C    | 1 ... 50         |
|                              |      |                     |                              |        | Red    | 561710   | PUN-V0-6x2-RT-C    | 1 ... 50         |
|                              |      |                     |                              |        | White  | 561714   | PUN-V0-6x2-WS-C    | 1 ... 50         |
|                              |      |                     |                              |        | Yellow | 561718   | PUN-V0-6x2-GE-C    | 1 ... 50         |
|                              |      |                     |                              |        | Brown  | 561722   | PUN-V0-6x2-BR-C    | 1 ... 50         |
| 8                            | 4    | 9                   | 35                           | 0.049  | Black  | 561699   | PUN-V0-8x2-SW-C    | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 561703   | PUN-V0-8x2-BL-C    | 1 ... 50         |
|                              |      |                     |                              |        | Green  | 561707   | PUN-V0-8x2-GN-C    | 1 ... 50         |
|                              |      |                     |                              |        | Red    | 561711   | PUN-V0-8x2-RT-C    | 1 ... 50         |
|                              |      |                     |                              |        | White  | 561715   | PUN-V0-8x2-WS-C    | 1 ... 50         |
|                              |      |                     |                              |        | Yellow | 561719   | PUN-V0-8x2-GE-C    | 1 ... 50         |
|                              |      |                     |                              |        | Brown  | 561723   | PUN-V0-8x2-BR-C    | 1 ... 50         |
| 10                           | 6    | 12                  | 42                           | 0.064  | Black  | 561700   | PUN-V0-10x2-SW-C   | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 561704   | PUN-V0-10x2-BL-C   | 1 ... 50         |
|                              |      |                     |                              |        | Green  | 561708   | PUN-V0-10x2-GN-C   | 1 ... 50         |
|                              |      |                     |                              |        | Red    | 561712   | PUN-V0-10x2-RT-C   | 1 ... 50         |
|                              |      |                     |                              |        | White  | 561716   | PUN-V0-10x2-WS-C   | 1 ... 50         |
|                              |      |                     |                              |        | Yellow | 561720   | PUN-V0-10x2-GE-C   | 1 ... 50         |
|                              |      |                     |                              |        | Brown  | 561724   | PUN-V0-10x2-BR-C   | 1 ... 50         |
| 12                           | 8    | 19                  | 55                           | 0.08   | Black  | 561701   | PUN-V0-12x2-SW-C   | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 561705   | PUN-V0-12x2-BL-C   | 1 ... 50         |
|                              |      |                     |                              |        | Green  | 561709   | PUN-V0-12x2-GN-C   | 1 ... 50         |
|                              |      |                     |                              |        | Red    | 561713   | PUN-V0-12x2-RT-C   | 1 ... 50         |
|                              |      |                     |                              |        | White  | 561717   | PUN-V0-12x2-WS-C   | 1 ... 50         |
|                              |      |                     |                              |        | Yellow | 561721   | PUN-V0-12x2-GE-C   | 1 ... 50         |
|                              |      |                     |                              |        | Brown  | 561725   | PUN-V0-12x2-BR-C   | 1 ... 50         |
| 14                           | 9.8  | 45                  | 70                           | 0.096  | Black  | 570351   | PUN-V0-14x2-SW-C   | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 570352   | PUN-V0-14x2-BL-C   | 1 ... 50         |
| 16                           | 11   | 50                  | 90                           | 0.147  | Black  | 570353   | PUN-V0-16x2.5-SW-C | 1 ... 50         |
|                              |      |                     |                              |        | Blue   | 570354   | PUN-V0-16x2.5-BL-C | 1 ... 50         |

- 1) Packaging unit  
 Can only be ordered by the metre.  
 Variable lengths not available in all countries.

## Ordering data – Modular product system

| Ordering table (minimum order quantity 3000 m with tubing O.D. ≤ 8 mm, 1500 mm with tubing O.D. > 8 mm, rounded value 25 m) |                                      |                              |                 |   |    |    |    |             |            |      |  |            |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------|-----------------|---|----|----|----|-------------|------------|------|--|------------|
| Size                                                                                                                        | 3                                    | 4                            | 6               | 8 | 10 | 12 | 14 | 16          | Conditions | Code |  | Enter code |
| Module no.                                                                                                                  | 553573                               |                              |                 |   |    |    |    |             |            |      |  |            |
| Function                                                                                                                    | Polyurethane tubing, standard O.D.   |                              |                 |   |    |    |    |             |            | PUN  |  | PUN        |
| Alternative material characteristic                                                                                         | Standard                             |                              |                 |   |    |    |    |             |            |      |  |            |
|                                                                                                                             | Hydrolysis-resistant                 |                              |                 |   |    |    |    |             |            | -H   |  |            |
|                                                                                                                             | –                                    | Anti-static                  |                 |   |    |    |    | –           |            | -CM  |  |            |
|                                                                                                                             | –                                    | –                            | Flame-retardant |   |    | –  | –  |             |            | -VO  |  |            |
|                                                                                                                             | –                                    | Resistant to welding spatter |                 |   |    |    |    |             |            | -VOC |  |            |
| Tubing O.D. [mm]                                                                                                            | 3                                    | –                            | –               | – | –  | –  | –  | –           |            | -3   |  |            |
|                                                                                                                             | –                                    | 4                            | –               | – | –  | –  | –  | –           |            | -4   |  |            |
|                                                                                                                             | –                                    | –                            | 6               | – | –  | –  | –  | –           |            | -6   |  |            |
|                                                                                                                             | –                                    | –                            | –               | 8 | –  | –  | –  | –           |            | -8   |  |            |
|                                                                                                                             | –                                    | –                            | –               | – | 10 | –  | –  | –           |            | -10  |  |            |
|                                                                                                                             | –                                    | –                            | –               | – | –  | 12 | –  | –           |            | -12  |  |            |
|                                                                                                                             | –                                    | –                            | –               | – | –  | –  | 14 | –           |            | -14  |  |            |
| Colour                                                                                                                      | –                                    | –                            | –               | – | –  | –  | –  | 16          |            | -16  |  |            |
|                                                                                                                             | Silver                               |                              |                 |   |    |    |    |             | [1] [2]    | -SI  |  |            |
|                                                                                                                             | Blue                                 |                              |                 |   |    |    |    |             | [1] [3]    | -BL  |  |            |
|                                                                                                                             | Translucent blue                     |                              |                 |   |    |    |    |             | [4]        | -TBL |  |            |
|                                                                                                                             | Black                                |                              |                 |   |    |    |    |             | [3]        | -SW  |  |            |
|                                                                                                                             | Translucent black                    |                              |                 |   |    |    |    |             | [4]        | -TSW |  |            |
|                                                                                                                             | Yellow                               |                              |                 |   |    |    |    |             | [1]        | -GE  |  |            |
|                                                                                                                             | Translucent yellow                   |                              |                 |   |    |    |    |             | [4]        | -TGE |  |            |
|                                                                                                                             | Green                                |                              |                 |   |    |    |    |             | [1]        | -GN  |  |            |
|                                                                                                                             | Translucent green                    |                              |                 |   |    |    |    |             | [4]        | -TGN |  |            |
|                                                                                                                             | Red                                  |                              |                 |   |    |    |    |             | [1]        | -RT  |  |            |
|                                                                                                                             | Translucent red                      |                              |                 |   |    |    |    |             | [4]        | -TRT |  |            |
|                                                                                                                             | Brown                                |                              |                 |   |    |    |    |             | [1]        | -BR  |  |            |
|                                                                                                                             | White                                |                              |                 |   |    |    |    |             | [1]        | -WS  |  |            |
| Natural                                                                                                                     |                                      |                              |                 |   |    |    |    | [1] [3] [4] | -NT        |      |  |            |
| Labelling text (on request)                                                                                                 | Standard                             |                              |                 |   |    |    |    |             |            |      |  |            |
|                                                                                                                             | Customer-specific tubing inscription |                              |                 |   |    |    |    |             | [5]        | -TXT |  |            |
| 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, Not with alternative material characteristic CM  
BR, WS, NT

[2] SI Not with alternative material characteristic V0, VOC0

[3] BL, SW, NT In combination with alternative material characteristic H: food-safe

[4] TBL, TSW, TGE, Only with alternative material characteristic H  
TGN, TRT, NT

[5] TXT Not in the Online Shop.

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

[6] CB Only with packaging unit 25, 50

[7] HA Not with packaging unit 25, 50

Not with alternative material characteristic V0, VOC, CM

## Type codes

| 001     | Series                            |
|---------|-----------------------------------|
| PAN     | Standard O.D. tubing              |
| 002     | Function                          |
| PAN     | Polyamide tubing, standard O.D.   |
| 003     | Pipe/tubing O.D. x wall thickness |
| 4x0,75  | 4x0.75 mm                         |
| 6x1     | 6x1 mm                            |
| 8x1,25  | 8x1.25 mm                         |
| 10x1,5  | 10x1.5 mm                         |
| 12x1,75 | 12x1.75 mm                        |
| 14x2    | 14x2 mm                           |
| 16x2    | 16x2 mm                           |

| 004 | Colour             |
|-----|--------------------|
| NT  | Natural            |
| SW  | Black              |
| BL  | Blue               |
| SI  | Silver             |
| RT  | Red                |
| GN  | Green              |
| GE  | Yellow             |
| 005 | Packaging unit [m] |
|     | Standard           |
| 100 | 100 m              |
| 200 | 200 m              |
| 300 | 300 m              |
| 400 | 400 m              |
| 500 | 500 m              |

## Datasheet

### Plastic tubing PAN

High thermal and mechanical load capacities.

Material: Polyamide

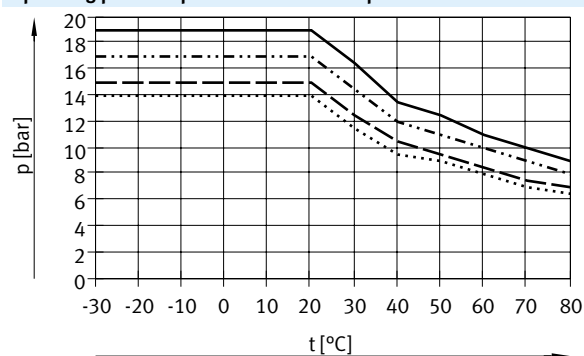


#### Operating and environmental conditions

| Type                                     |       | PAN-4                                                       | PAN-6                    | PAN-8                    | PAN-10                   | PAN-12 | PAN-14 | PAN-16                   |
|------------------------------------------|-------|-------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------|--------|--------------------------|
| O.D.                                     | [mm]  | 4                                                           | 6                        | 8                        | 10                       | 12     | 14     | 16                       |
| Pneumatic connection                     |       |                                                             |                          |                          |                          |        |        |                          |
| For push-in connector                    | [mm]  | 4                                                           | 6                        | 8                        | 10                       | 12     | 14     | 16                       |
| For barbed connector                     | [mm]  | 3                                                           | 4                        | 6                        | –                        | –      | –      | –                        |
| For barbed connector with union nut      | [mm]  | 3                                                           | 4                        | 6                        | –                        | –      | –      | –                        |
| Temperature-dependent operating pressure | [MPa] | –0.095 ... +1.5                                             | –0.095 ... +1.9          | –0.095 ... +1.5          | –0.095 ... +1.7          |        |        | –0.095 ... +1.4          |
|                                          | [bar] | –0.95 ... +15<br>→ graph                                    | –0.95 ... +19<br>→ graph | –0.95 ... +15<br>→ graph | –0.95 ... +17<br>→ graph |        |        | –0.95 ... +14<br>→ graph |
|                                          | [psi] | –13,775 ... +217.5                                          | –13,775 ... +275.5       | –13,775 ... +217.5       | –13,775 ... +246.5       |        |        | –13,775 ... +203         |
| Operating medium                         |       | Compressed air to ISO 8573-1:2010 [7:–:–]                   |                          |                          |                          |        |        |                          |
| LABS (PWIS) conformity                   |       | VDMA24364-B2-L                                              |                          |                          |                          |        |        |                          |
| Ambient temperature                      | [°C]  | –30 ... +80                                                 |                          |                          |                          |        |        |                          |
| Certification                            |       | German Technical Control Board (TÜV)                        |                          |                          |                          |        |        |                          |
| Certificate-issuing authority            |       | B 013277 0506 00                                            |                          |                          |                          |        |        |                          |
| Maritime classification                  |       | See certificate (colours: silver and natural) <sup>1)</sup> |                          |                          |                          |        |        |                          |
| Tubing characteristics                   |       | Suitable for energy chains                                  |                          |                          |                          |        |        |                          |

1) Additional information: [www.festo.com/catalogue/pan](http://www.festo.com/catalogue/pan) → Support/Downloads.

#### Operating pressure p as a function of temperature t



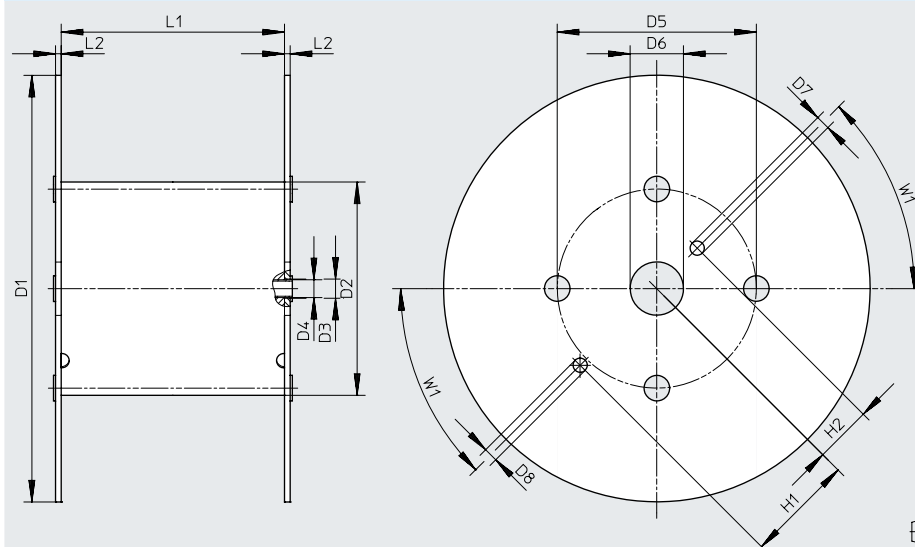
— PAN-6  
 - - - PAN-4/8  
 - · - · - PAN-10/12/14  
 ····· PAN-16

#### Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 55 ±3        |
| Tubing            | TPE-A          |
| Note on materials | RoHS-compliant |

## Datasheet

## Dimensions – Reel



| Type                    | D1<br>ø | D2<br>ø | D3<br>ø | D4<br>ø | D5<br>ø | D6<br>ø | D7<br>ø | D8<br>ø | H1    | H2   | L1  | L2 | W1  |
|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|-----|----|-----|
| For PAN-4x0.75-...-500  | 545     | 246     | 21      | 20      | 216     | 75      | 20      | 20      | 152.5 | 80.5 | 128 | 8  | 45° |
| For PAN-6x1-...-500     | 545     | 246     | 21      | 20      | 216     | 75      | 20      | 20      | 152.5 | 80.5 | 128 | 8  | 45° |
| For PAN-8x1.25-...-400  | 545     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PAN-10x1.5-...-300  | 600     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PAN-12x1.75-...-200 | 600     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PAN-16x2-...-100    | 545     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |

## Dimensions and ordering data

| O.D.<br>[mm] | I.D.<br>[mm] | Min. bending radius<br>[mm] | Flow-relevant bending radius<br>[mm] | Weight<br>[kg/m] | Colour  | Part no. | Type              | PJ <sup>1)</sup><br>[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                      |

1) Packaging unit

## Datasheet

## Dimensions and ordering data

| O.D.<br>[mm] | I.D.<br>[mm] | Min. bending radius<br>[mm] | Flow-relevant bending radius<br>[mm] | Weight<br>[kg/m] | Colour  | Part no. | Type               | PU <sup>1)</sup><br>[m] |
|--------------|--------------|-----------------------------|--------------------------------------|------------------|---------|----------|--------------------|-------------------------|
| 8            | 5.9          | 22                          | 43                                   | 0.024            | Silver  | 152700   | PAN-8x1.25-SI      | 1 ... 50                |
|              |              |                             |                                      |                  | Silver  | 553890   | PAN-8x1.25-SI-400  | 400                     |
|              |              |                             |                                      |                  | Blue    | 553908   | PAN-8x1.25-BL      | 1 ... 50                |
|              |              |                             |                                      |                  | Blue    | 553896   | PAN-8x1.25-BL-400  | 400                     |
|              |              |                             |                                      |                  | Black   | 553914   | PAN-8x1.25-SW      | 1 ... 50                |
|              |              |                             |                                      |                  | Black   | 553902   | PAN-8x1.25-SW-400  | 400                     |
|              |              |                             |                                      |                  | Natural | 546286   | PAN-8x1.25-NT      | 1 ... 50                |
|              |              |                             |                                      |                  | Green   | 553920   | PAN-8x1.25-GN      | 1 ... 50                |
|              |              |                             |                                      |                  | Red     | 553926   | PAN-8x1.25-RT      | 1 ... 50                |
|              |              |                             |                                      |                  | Yellow  | 553932   | PAN-8x1.25-GE      | 1 ... 50                |
| 10           | 7            | 27                          | 58                                   | 0.042            | Silver  | 152701   | PAN-10x1.5-SI      | 1 ... 50                |
|              |              |                             |                                      |                  | Silver  | 553891   | PAN-10x1.5-SI-300  | 300                     |
|              |              |                             |                                      |                  | Blue    | 553909   | PAN-10x1.5-BL      | 1 ... 50                |
|              |              |                             |                                      |                  | Blue    | 553897   | PAN-10x1.5-BL-300  | 300                     |
|              |              |                             |                                      |                  | Black   | 553915   | PAN-10x1.5-SW      | 1 ... 50                |
|              |              |                             |                                      |                  | Black   | 553903   | PAN-10x1.5-SW-300  | 300                     |
|              |              |                             |                                      |                  | Natural | 546287   | PAN-10x1.5-NT      | 1 ... 50                |
|              |              |                             |                                      |                  | Green   | 553921   | PAN-10x1.5-GN      | 1 ... 50                |
|              |              |                             |                                      |                  | Red     | 553927   | PAN-10x1.5-RT      | 1 ... 50                |
|              |              |                             |                                      |                  | Yellow  | 553933   | PAN-10x1.5-GE      | 1 ... 50                |
| 12           | 8.4          | 29                          | 64                                   | 0.060            | Silver  | 152702   | PAN-12x1.75-SI     | 1 ... 50                |
|              |              |                             |                                      |                  | Silver  | 553892   | PAN-12x1.75-SI-200 | 200                     |
|              |              |                             |                                      |                  | Blue    | 553910   | PAN-12x1.75-BL     | 1 ... 50                |
|              |              |                             |                                      |                  | Blue    | 553898   | PAN-12x1.75-BL-200 | 200                     |
|              |              |                             |                                      |                  | Black   | 553916   | PAN-12x1.75-SW     | 1 ... 50                |
|              |              |                             |                                      |                  | Black   | 553904   | PAN-12x1.75-SW-200 | 200                     |
|              |              |                             |                                      |                  | Natural | 546288   | PAN-12x1.75-NT     | 1 ... 50                |
|              |              |                             |                                      |                  | Green   | 553922   | PAN-12x1.75-GN     | 1 ... 50                |
|              |              |                             |                                      |                  | Red     | 553928   | PAN-12x1.75-RT     | 1 ... 50                |
|              |              |                             |                                      |                  | Yellow  | 553934   | PAN-12x1.75-GE     | 1 ... 50                |
| 14           | 10           | 50                          | 80                                   | 0.077            | Silver  | 570392   | PAN-14x2-SI        | 1 ... 50                |
| 16           | 12           | 67                          | 94                                   | 0.092            | Silver  | 152703   | PAN-16x2-SI        | 1 ... 50                |
|              |              |                             |                                      |                  | Silver  | 553893   | PAN-16x2-SI-100    | 100                     |
|              |              |                             |                                      |                  | Blue    | 553911   | PAN-16x2-BL        | 1 ... 50                |
|              |              |                             |                                      |                  | Blue    | 553899   | PAN-16x2-BL-100    | 100                     |
|              |              |                             |                                      |                  | Black   | 553917   | PAN-16x2-SW        | 1 ... 50                |
|              |              |                             |                                      |                  | Black   | 553905   | PAN-16x2-SW-100    | 100                     |
|              |              |                             |                                      |                  | Natural | 546289   | PAN-16x2-NT        | 1 ... 50                |
|              |              |                             |                                      |                  | Green   | 553923   | PAN-16x2-GN        | 1 ... 50                |
|              |              |                             |                                      |                  | Red     | 553929   | PAN-16x2-RT        | 1 ... 50                |
|              |              |                             |                                      |                  | Yellow  | 553935   | PAN-16x2-GE        | 1 ... 50                |

1) Packaging unit

Can only be ordered by the metre.

Variable lengths not available in all countries.

## Type codes

| 001 | Series               |
|-----|----------------------|
| PAN | Standard O.D. tubing |

| 002 | Alternative material characteristic |
|-----|-------------------------------------|
| R   | Sturdy                              |

| 003    | Pipe/tubing O.D. x wall thickness |
|--------|-----------------------------------|
| 4x0,75 | 4x0.75 mm                         |
| 6x1,1  | 6x1.1 mm                          |
| 8x1,5  | 8x1.5 mm                          |
| 10x1,9 | 10x1.9 mm                         |
| 12x2,2 | 12x2.2 mm                         |
| 16x3   | 16x3 mm                           |
| 22x2   | 22x2 mm                           |
| 28x2,5 | 28x2.5 mm                         |

| 004 | Colour |
|-----|--------|
| SW  | Black  |
| SI  | Silver |

## Datasheet

## Plastic tubing PAN-R

With O.D. 4 ... 16 mm

For applications with a high pressure range.

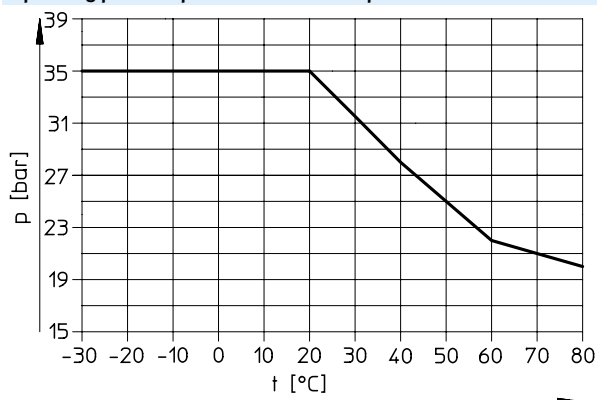
Material: Polyamide



## Operating and environmental conditions

| Type                                           | PAN-R-4                                   | PAN-R-6 | PAN-R-8 | PAN-R-10 | PAN-R-12 | PAN-R-16 |
|------------------------------------------------|-------------------------------------------|---------|---------|----------|----------|----------|
| O.D. [mm]                                      | 4                                         | 6       | 8       | 10       | 12       | 16       |
| Pneumatic connection                           |                                           |         |         |          |          |          |
| For push-in connector [mm]                     | 4                                         | 6       | 8       | 10       | 12       | 16       |
| Temperature-dependent operating pressure [MPa] | -0.095 ... +3.5                           |         |         |          |          |          |
| [bar]                                          | -0.95 ... +35 → graph                     |         |         |          |          |          |
| [psi]                                          | -13,775 ... +507.5                        |         |         |          |          |          |
| Operating medium                               | Compressed air to ISO 8573-1:2010 [7:-:-] |         |         |          |          |          |
| Ambient temperature [°C]                       | -30 ... +80                               |         |         |          |          |          |
| LABS (PWIS) conformity                         | VDMA24364-B2-L                            |         |         |          |          |          |
| Certification                                  | German Technical Control Board (TÜV)      |         |         |          |          |          |
| Certificate-issuing authority                  | B 013277 0506 00                          |         |         |          |          |          |
| Tubing characteristics                         | Suitable for energy chains                |         |         |          |          |          |

## Operating pressure p as a function of temperature t



## Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 62 ±3        |
| Tubing            | TPE-A          |
| Note on materials | RoHS-compliant |

## Dimensions and ordering data

| O.D. | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour | Part no. | Type            | PU <sup>1)</sup> |
|------|------|---------------------|------------------------------|--------|--------|----------|-----------------|------------------|
| [mm] | [mm] | [mm]                | [mm]                         | [kg/m] |        |          |                 | [m]              |
| 4    | 2.5  | 10                  | 16                           | 0.0079 | Silver | 541674   | PAN-R-4x0.75-SI | 50               |
| 6    | 3.8  | 16                  | 21                           | 0.0174 |        | 541675   | PAN-R-6x1.1-SI  | 50               |
| 8    | 5    | 20                  | 29                           | 0.0316 |        | 541676   | PAN-R-8x1.5-SI  | 1 ... 50         |
| 10   | 6.2  | 25                  | 44                           | 0.0498 |        | 541677   | PAN-R-10x1.9-SI | 1 ... 50         |
| 12   | 7.6  | 30                  | 46                           | 0.0698 |        | 541678   | PAN-R-12x2.2-SI | 1 ... 50         |
| 16   | 10   | 42                  | 73                           | 0.1262 |        | 541679   | PAN-R-16x3-SI   | 1 ... 50         |

1) Packaging unit

Can only be ordered by the metre.

Variable lengths not available in all countries.

## Datasheet

### Plastic tubing PAN-R

With O.D. 22 and 28 mm

High thermal and mechanical load capacities.

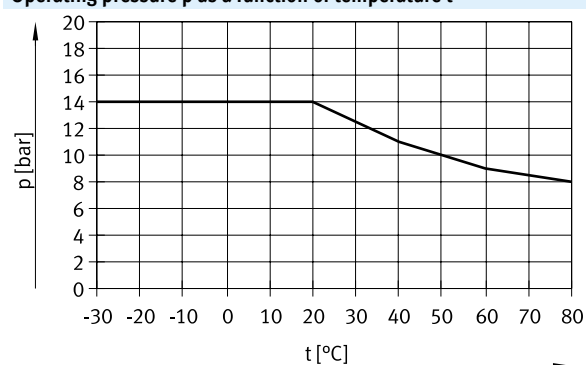
Material: Polyamide



#### Operating and environmental conditions

|                                                |                                           |          |
|------------------------------------------------|-------------------------------------------|----------|
| Type                                           | PAN-R-22                                  | PAN-R-28 |
| O.D. [mm]                                      | 22                                        | 28       |
| Pneumatic connection                           |                                           |          |
| For push-in connector [mm]                     | 22                                        | 28       |
| Temperature-dependent operating pressure [bar] | -0.95 ... +14 → graph                     |          |
| Operating medium                               | Compressed air to ISO 8573-1:2010 [7:-:-] |          |
| Ambient temperature [°C]                       | -30 ... +80                               |          |
| LABS (PWIS) conformity                         | VDMA24364-B2-L                            |          |

#### Operating pressure p as a function of temperature t



#### Note

When using the pipe cutter ZR to cut to length, we recommend rotating the tube 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 | RoHS-compliant |

#### Dimensions and ordering data

| O.D. [mm] | I.D. [mm] | Flow-relevant bending radius [mm] | Weight [kg/m] | Colour | Part no. | Type            | PU <sup>1)</sup> [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

## Type codes

| 001 | Series               |
|-----|----------------------|
| PAN | Standard O.D. tubing |

| 002 | Alternative material characteristic         |
|-----|---------------------------------------------|
| MF  | Automotive approval certificate (DIN 73378) |

| 003     | Pipe/tubing O.D. x wall thickness |
|---------|-----------------------------------|
| 4x0,75  | 4x0.75 mm                         |
| 6x1     | 6x1 mm                            |
| 8x1     | 8x1 mm                            |
| 10x1,25 | 10x1.25 mm                        |
| 12x1,5  | 12x1.5 mm                         |
| 14x2    | 14x2 mm                           |
| 16x2    | 16x2 mm                           |

| 004 | Colour |
|-----|--------|
| SW  | Black  |

| 005 | Packaging unit [m] |
|-----|--------------------|
|     | Standard           |
| 500 | 500 m              |

## Datasheet

### Plastic tubing PAN-MF

High thermal and mechanical load capacities.

Meets the requirements to DIN 73378

"Polyamide tubing for use in motor vehicles".

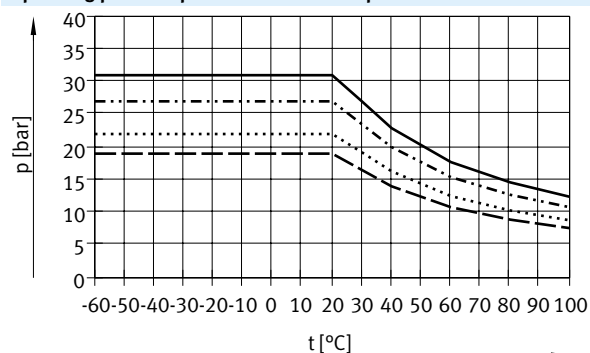
Material: Polyamide



### Operating and environmental conditions

| Type                                     | PAN-MF-4                                  | PAN-MF-6                 | PAN-MF-8                 | PAN-MF-10                | PAN-MF-12 | PAN-MF-14                | PAN-MF-16                |
|------------------------------------------|-------------------------------------------|--------------------------|--------------------------|--------------------------|-----------|--------------------------|--------------------------|
| O.D. [mm]                                | 4                                         | 6                        | 8                        | 10                       | 12        | 14                       | 16                       |
| Pneumatic connection                     |                                           |                          |                          |                          |           |                          |                          |
| For push-in connector [mm]               | 4                                         | 6                        | 8                        | 10                       | 12        | 14                       | 16                       |
| Temperature-dependent operating pressure | [MPa]                                     | -0.095 ... +3.1          | -0.095 ... +2.7          | -0.095 ... +1.9          |           | -0.095 ... +2.2          | -0.095 ... +1.9          |
|                                          | [bar]                                     | -0.95 ... +31<br>→ graph | -0.95 ... +27<br>→ graph | -0.95 ... +19<br>→ graph |           | -0.95 ... +22<br>→ graph | -0.95 ... +19<br>→ graph |
|                                          | [psi]                                     | -13,775 ... +449.5       | -13,775 ... +391.5       | -13,775 ... +275.5       |           | -13,775 ... +3192        | -13,775 ... +275.5       |
| Conforms to standard                     | DIN 73378-PA12-PHL                        |                          |                          |                          |           |                          |                          |
| Operating medium                         | Compressed air to ISO 8573-1:2010 [7:-:-] |                          |                          |                          |           |                          |                          |
|                                          | Mineral oil                               |                          |                          |                          |           |                          |                          |
| Ambient temperature [°C]                 | -60 ... +100                              |                          |                          |                          |           |                          |                          |
| LABS (PWIS) conformity                   | VDMA24364-B2-L                            |                          |                          |                          |           |                          |                          |
| Tubing characteristics                   | Suitable for energy chains                |                          |                          |                          |           |                          |                          |

### Operating pressure p as a function of temperature t

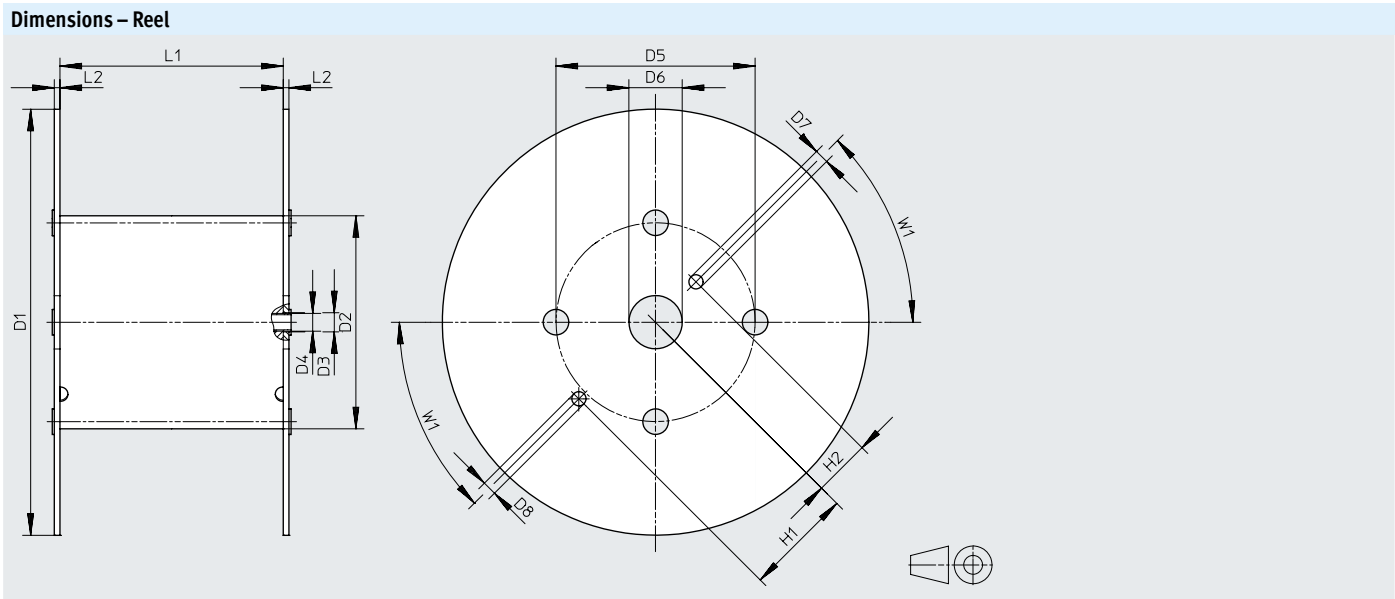


- PAN-MF-4
- ..... PAN-MF-6
- PAN-MF-8/10/12/16
- · - · - PAN-MF-14

### Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 65 ±3        |
| Tubing            | PA12-P         |
| Note on materials | RoHS-compliant |

Datasheet



| Type                      | D1<br>ø | D2<br>ø | D3<br>ø | D4<br>ø | D5<br>ø | D6<br>ø | D7<br>ø | D8<br>ø | H1    | H2   | L1  | L2 | W1  |
|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|-----|----|-----|
| For PAN-MF-4x0.75-...-500 | 545     | 246     | 21      | 20      | 216     | 75      | 20      | 20      | 152.5 | 80.5 | 128 | 8  | 45° |
| For PAN-MF-6x1-...-500    | 600     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 114 | 8  | 45° |

| Dimensions and ordering data |              |                             |                                      |                  |        |          |                      |                         |
|------------------------------|--------------|-----------------------------|--------------------------------------|------------------|--------|----------|----------------------|-------------------------|
| O.D.<br>[mm]                 | I.D.<br>[mm] | Min. bending radius<br>[mm] | Flow-relevant bending radius<br>[mm] | Weight<br>[kg/m] | Colour | Part no. | Type                 | PU <sup>1)</sup><br>[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

## Type codes

| 001 | Series               |
|-----|----------------------|
| PAN | Standard O.D. tubing |

| 002 | Alternative material characteristic |
|-----|-------------------------------------|
| V0  | Flame-retardant                     |

| 003 | Colour |
|-----|--------|
| SW  | Black  |
| BL  | Blue   |
| RT  | Red    |
| GN  | Green  |
| GE  | Yellow |
| WS  | White  |

Datasheet

Plastic tubing PAN-V0

PVC casing, flame-retardant. The tubing casing must be cut to length X (table → 45) 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.

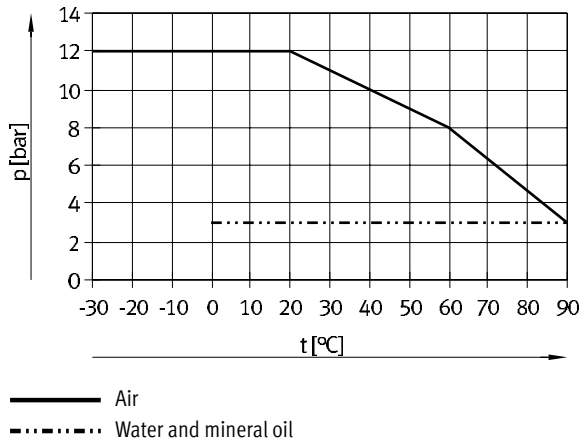
Material:  
 Polyvinyl chloride (outer tubing)  
 Polyamide (inner tubing)



| Operating and environmental conditions   |                                                       |                       |          |          |           |           |
|------------------------------------------|-------------------------------------------------------|-----------------------|----------|----------|-----------|-----------|
| Type                                     |                                                       | PAN-V0-4              | PAN-V0-6 | PAN-V0-8 | PAN-V0-10 | PAN-V0-12 |
| O.D.                                     | [mm]                                                  | 6                     | 8        | 10       | 12        | 14        |
| Pneumatic connection                     |                                                       |                       |          |          |           |           |
| For push-in connector                    | [mm]                                                  | 4                     | 6        | 8        | 10        | 12        |
| Temperature-dependent operating pressure | [MPa]                                                 | −0.095 ... +1.2       |          |          |           |           |
|                                          | [bar]                                                 | −0.95 ... +12 → graph |          |          |           |           |
|                                          | [psi]                                                 | −13.775 ... +174      |          |          |           |           |
| Operating medium                         | Compressed air to ISO 8573-1:2010 [7:--:-]            |                       |          |          |           |           |
|                                          | Mineral oil                                           |                       |          |          |           |           |
|                                          | Water as per manufacturer's declaration <sup>1)</sup> |                       |          |          |           |           |
| Ambient temperature                      | [°C]                                                  | −30 ... +90           |          |          |           |           |
| LABS (PWIS) conformity                   |                                                       | VDMA24364-B2-L        |          |          |           |           |
| Material fire test                       |                                                       | UL94 V-0 (casing)     |          |          |           |           |

1) Additional information: [www.festo.com/catalogue/pan-v0](http://www.festo.com/catalogue/pan-v0) → Support/Downloads.

Operating pressure p as a function of temperature t



| Materials         |                |                |
|-------------------|----------------|----------------|
| Shore hardness    | Outside tubing | A 72 ±4        |
|                   | Inside tubing  | D 57 ±3        |
| Tubing            | Outside tubing | PVC-P          |
|                   | Inside tubing  | PA12-P         |
| Note on materials |                | RoHS-compliant |

## Datasheet

## Dimensions and ordering data

| O.D. | O.D. for push-in fittings | I.D. | Min. bending radius | Flow-relevant bending radius | Max. cut length X | Weight | Colour | Part no. | Type              | PJ <sup>1)</sup> |
|------|---------------------------|------|---------------------|------------------------------|-------------------|--------|--------|----------|-------------------|------------------|
| [mm] | [mm]                      | [mm] | [mm]                | [mm]                         | [mm]              | [kg/m] |        |          |                   | [m]              |
| 6    | 4                         | 2.5  | 10                  | 20                           | 15                | 0.0335 | Blue   | 132899   | PAN-V0-4x0.75-BL  | 1 ... 50         |
| 8    | 6                         | 4    | 13                  | 30                           | 17                | 0.049  | Black  | 160550   | PAN-V0-6x1-SW     | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Blue   | 132905   | PAN-V0-6x1-BL     | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Green  | 525470   | PAN-V0-6x1-GN     | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Red    | 525474   | PAN-V0-6x1-RT     | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | White  | 525478   | PAN-V0-6x1-WS     | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Yellow | 525482   | PAN-V0-6x1-GE     | 1 ... 50         |
| 10   | 8                         | 6    | 24                  | 45                           | 18                | 0.065  | Black  | 160551   | PAN-V0-8x1-SW     | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Blue   | 132906   | PAN-V0-8x1-BL     | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Green  | 525471   | PAN-V0-8x1-GN     | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Red    | 525475   | PAN-V0-8x1-RT     | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | White  | 525479   | PAN-V0-8x1-WS     | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Yellow | 525483   | PAN-V0-8x1-GE     | 1 ... 50         |
| 12   | 10                        | 7.5  | 34                  | 56                           | 20                | 0.088  | Black  | 160552   | PAN-V0-10x1.25-SW | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Blue   | 132907   | PAN-V0-10x1.25-BL | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Green  | 525472   | PAN-V0-10x1.25-GN | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Red    | 525476   | PAN-V0-10x1.25-RT | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | White  | 525480   | PAN-V0-10x1.25-WS | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Yellow | 525484   | PAN-V0-10x1.25-GE | 1 ... 50         |
| 14   | 12                        | 9    | 43                  | 65                           | 23                | 0.133  | Black  | 160553   | PAN-V0-12x1.5-SW  | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Blue   | 525469   | PAN-V0-12x1.5-BL  | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Green  | 525473   | PAN-V0-12x1.5-GN  | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Red    | 525477   | PAN-V0-12x1.5-RT  | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | White  | 525481   | PAN-V0-12x1.5-WS  | 1 ... 50         |
|      |                           |      |                     |                              |                   |        | Yellow | 525485   | PAN-V0-12x1.5-GE  | 1 ... 50         |

1) Packaging unit

Can only be ordered by the metre.

Variable lengths not available in all countries.

## Ordering data – Modular product system

| Ordering table (minimum order quantity 3000 m, rounded value 25 m) |                                      |   |   |    |    |    |    |            |             |            |
|--------------------------------------------------------------------|--------------------------------------|---|---|----|----|----|----|------------|-------------|------------|
| Size                                                               | 4                                    | 6 | 8 | 10 | 12 | 14 | 16 | Conditions | Code        | Enter code |
| Module no.                                                         | <b>553610</b>                        |   |   |    |    |    |    |            |             |            |
| Function                                                           | Polyamide tubing, standard O.D.      |   |   |    |    |    |    |            | <b>PAN</b>  | PAN        |
| Alternative material characteristic                                | Standard                             |   |   |    |    |    |    |            |             |            |
|                                                                    | Automotive certification (DIN 73378) |   |   |    |    |    |    |            | <b>-MF</b>  |            |
|                                                                    | Sturdy                               |   |   |    |    |    |    |            | <b>-R</b>   |            |
| Tubing O.D. [mm]                                                   | 4                                    | – | – | –  | –  | –  | –  |            | <b>-4</b>   |            |
|                                                                    | –                                    | 6 | – | –  | –  | –  | –  |            | <b>-6</b>   |            |
|                                                                    | –                                    | – | 8 | –  | –  | –  | –  |            | <b>-8</b>   |            |
|                                                                    | –                                    | – | – | 10 | –  | –  | –  |            | <b>-10</b>  |            |
|                                                                    | –                                    | – | – | –  | 12 | –  | –  |            | <b>-12</b>  |            |
|                                                                    | –                                    | – | – | –  | –  | 14 | –  |            | <b>-14</b>  |            |
|                                                                    | –                                    | – | – | –  | –  | –  | 16 |            | <b>-16</b>  |            |
| Colour                                                             | Silver                               |   |   |    |    |    |    |            | <b>-SI</b>  |            |
|                                                                    | Blue                                 |   |   |    |    |    |    |            | <b>-BL</b>  |            |
|                                                                    | Black                                |   |   |    |    |    |    |            | <b>-SW</b>  |            |
|                                                                    | Yellow                               |   |   |    |    |    |    |            | <b>-GE</b>  |            |
|                                                                    | Green                                |   |   |    |    |    |    |            | <b>-GN</b>  |            |
|                                                                    | Red                                  |   |   |    |    |    |    |            | <b>-RT</b>  |            |
|                                                                    | Brown                                |   |   |    |    |    |    |            | <b>-BR</b>  |            |
|                                                                    | White                                |   |   |    |    |    |    |            | <b>-WS</b>  |            |
| Labelling text (on request)                                        | Standard                             |   |   |    |    |    |    |            |             |            |
|                                                                    | Customer-specific tubing inscription |   |   |    |    |    |    | [1]        | <b>-TXT</b> |            |
| Packaging unit [m]                                                 | 25                                   |   |   |    |    |    |    |            | <b>-25</b>  |            |
|                                                                    | 50                                   |   |   |    |    |    |    |            | <b>-50</b>  |            |
|                                                                    | 100                                  |   |   |    |    | –  |    |            | <b>-100</b> |            |
|                                                                    | 200                                  |   |   |    |    | –  | –  |            | <b>-200</b> |            |
|                                                                    | 300                                  |   |   |    | –  | –  | –  |            | <b>-300</b> |            |
|                                                                    | 400                                  |   |   | –  | –  | –  | –  |            | <b>-400</b> |            |
|                                                                    | 500                                  |   | – | –  | –  | –  | –  |            | <b>-500</b> |            |
| Packaging                                                          | Cardboard box                        |   |   |    |    |    |    | [2]        | <b>-CB</b>  |            |
|                                                                    | Reel                                 |   |   |    |    |    |    | [3]        | <b>-HA</b>  |            |

- [1] TXT Only on request  
 [2] CB Only with packaging unit 25, 50  
 [3] HA Not with packaging unit 25, 50

## Type codes

| 001  | Series         |  |
|------|----------------|--|
| PFAN | Plastic tubing |  |

| 002     | Pipe/tubing O.D. x wall thickness |  |
|---------|-----------------------------------|--|
| 3x0,5   | 3x0.5 mm                          |  |
| 4x0,75  | 4x0.75 mm                         |  |
| 6x1     | 6x1 mm                            |  |
| 8x1,25  | 8x1.25 mm                         |  |
| 10x1,5  | 10x1.5 mm                         |  |
| 12x1,75 | 12x1.75 mm                        |  |

| 003 | Colour  |  |
|-----|---------|--|
| NT  | Natural |  |

Datasheet

Plastic tubing PFAN

Pneumatic tubing with resistance to high temperatures and chemicals.

Suitable for contact with food.

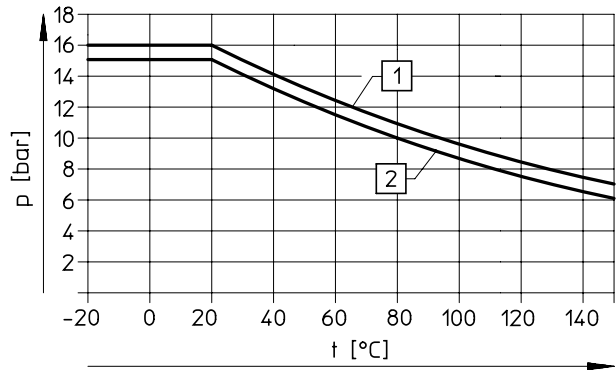
Material: Perfluoroalkoxy alkane



| Operating and environmental conditions   |                                     |                                                                                                       |        |        |                       |                       |                       |    |
|------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------|--------|--------|-----------------------|-----------------------|-----------------------|----|
| Type                                     |                                     | PFAN-3                                                                                                | PFAN-4 | PFAN-6 | PFAN-8                | PFAN-10               | PFAN-12               |    |
| O.D.                                     | [mm]                                | 3                                                                                                     | 4      | 6      | 8                     | 10                    | 12                    |    |
| Pneumatic connection                     |                                     |                                                                                                       |        |        |                       |                       |                       |    |
|                                          | For push-in connector               | [mm]                                                                                                  | 3      | 4      | 6                     | 8                     | 10                    | 12 |
|                                          | For barbed connector                | [mm]                                                                                                  | 2      | 3      | 4                     | 6                     | –                     | –  |
|                                          | For barbed connector with union nut | [mm]                                                                                                  | –      | 3      | 4                     | 6                     | –                     | –  |
| Temperature-dependent operating pressure | [bar]                               | –0.95 ... +15 → graph                                                                                 |        |        | –0.95 ... +16 → graph | –0.95 ... +15 → graph | –0.95 ... +16 → graph |    |
| Note on operating pressure               |                                     | Water: 0 ... 0.6 MPa, 0 ... 6 bar, 0 ... 87 psi<br>Steam: 0 ... 0.15 MPa, 0 ... 1.5 bar, 0 ... 22 psi |        |        |                       |                       |                       |    |
| Operating medium                         |                                     | Compressed air to ISO 8573-1:2010 [7:-;-]                                                             |        |        |                       |                       |                       |    |
|                                          |                                     | Water (liquid, ice-free) <sup>1)</sup>                                                                |        |        |                       |                       |                       |    |
|                                          |                                     | Steam <sup>1)</sup>                                                                                   |        |        |                       |                       |                       |    |
| Note on temperature of medium            |                                     | Water: 0 - 85°C                                                                                       |        |        |                       |                       |                       |    |
|                                          |                                     | Steam: max. 120°C                                                                                     |        |        |                       |                       |                       |    |
| Ambient temperature                      | [°C]                                | –20 ... +150                                                                                          |        |        |                       |                       |                       |    |
| Food-safe                                |                                     | See supplementary material information <sup>1)</sup>                                                  |        |        |                       |                       |                       |    |
|                                          |                                     | See declaration of conformity <sup>1)</sup>                                                           |        |        |                       |                       |                       |    |
| Material fire test                       |                                     | UL94 V-0                                                                                              |        |        |                       |                       |                       |    |
| Certification                            |                                     | German Technical Control Board (TÜV)                                                                  |        |        |                       |                       |                       |    |

1) Additional information: [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...) → Support/Downloads.

Operating pressure p as a function of temperature t



- [1] PFAN-6/10/12
- [2] PFAN-3/4/8

## Datasheet

## Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 60 +5        |
| Tubing            | PFA            |
| Note on materials | RoHS-compliant |
|                   | Not printed    |

## Dimensions and ordering data

| O.D. | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour  | Part no. | Type            | PJ <sup>1)</sup> |
|------|------|---------------------|------------------------------|--------|---------|----------|-----------------|------------------|
| [mm] | [mm] | [mm]                | [mm]                         | [kg/m] |         |          |                 | [m]              |
| 3    | 2.3  | 10                  | 30                           | 0.0075 | Natural | 8061167  | PFAN-3x0.5-NT   | 1 ... 50         |
| 4    | 2.9  | 11                  | 37                           | 0.012  |         | 197061   | PFAN-4x0.75-NT  | 1 ... 50         |
| 6    | 4    | 12                  | 50                           | 0.034  |         | 197062   | PFAN-6x1-NT     | 1 ... 50         |
| 8    | 5.9  | 25                  | 110                          | 0.049  |         | 197063   | PFAN-8x1.25-NT  | 1 ... 50         |
| 10   | 7    | 22                  | 140                          | 0.087  |         | 197064   | PFAN-10x1.5-NT  | 1 ... 50         |
| 12   | 8.4  | 29                  | 165                          | 0.125  |         | 197065   | PFAN-12x1.75-NT | 1 ... 50         |

1) Packaging unit

Can only be ordered by the metre.

Variable lengths not available in all countries.

## Type codes

| 001   | Series                                                |
|-------|-------------------------------------------------------|
| PTFEN | Plastic tubing, polytetrafluorethylene, standard O.D. |

| 002    | Pipe/tubing O.D. x wall thickness |
|--------|-----------------------------------|
| 4x0,5  | 4x0.5 mm                          |
| 6x1    | 6x1 mm                            |
| 8x1    | 8x1 mm                            |
| 10x1,5 | 10x1.5 mm                         |
| 12x2   | 12x2 mm                           |
| 14x2   | 14x2 mm                           |
| 16x2,5 | 16x2.5 mm                         |

| 003 | Colour  |
|-----|---------|
| NT  | Natural |

| 004 | Packaging unit [m] |
|-----|--------------------|
|     | Standard           |
| 25  | 1 m ... 25 m       |
| 100 | 100 m              |
| 300 | 300 m              |
| 400 | 400 m              |
| 500 | 500 m              |

## Datasheet

### Plastic tubing PTFEN

Pneumatic tubing with resistance to high temperatures and chemicals.

Material: Polytetrafluoroethylene

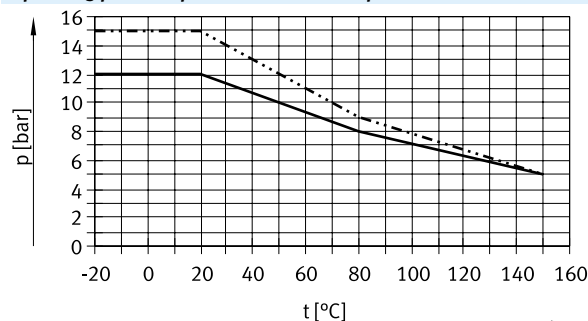


#### Operating and environmental conditions

| Type                                     |                                          | PTFEN-4                                   | PTFEN-6                  | PTFEN-8               | PTFEN-10 | PTFEN-12 | PTFEN-14 | PTFEN-16 |
|------------------------------------------|------------------------------------------|-------------------------------------------|--------------------------|-----------------------|----------|----------|----------|----------|
| O.D.                                     | [mm]                                     | 4                                         | 6                        | 8                     | 10       | 12       | 14       | 16       |
| Pneumatic connection                     |                                          |                                           |                          |                       |          |          |          |          |
|                                          | For push-in connector [mm]               | 4                                         | 6                        | 8                     | 10       | 12       | 14       | 16       |
|                                          | For barbed connector [mm]                | 3                                         | 4                        | 6                     | –        | –        | –        | –        |
|                                          | For barbed connector with union nut [mm] | 3                                         | 4                        | 6                     | –        | –        | –        | –        |
| Temperature-dependent operating pressure | [bar]                                    | –0.95 ... +12<br>→ graph                  | –0.95 ... +15<br>→ graph | –0.95 ... +12 → graph |          |          |          |          |
| Operating medium                         |                                          | Compressed air to ISO 8573-1:2010 [7:–:–] |                          |                       |          |          |          |          |
| Ambient temperature                      | [°C]                                     | –20 ... +150                              |                          |                       |          |          |          |          |
| Food-safe <sup>1)</sup>                  |                                          | See supplementary material information    |                          |                       |          |          |          |          |
| Material fire test                       |                                          | UL94 V-0                                  |                          |                       |          |          |          |          |

1) Additional information: [www.festo.com/catalogue/ptfen](http://www.festo.com/catalogue/ptfen) → Support/Downloads.

#### Operating pressure p as a function of temperature t



— PTFEN-4/8/10/12/14/16

- - - PTFEN-6

#### Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 55 ±5        |
| Tubing            | PTFE           |
| Note on materials | RoHS-compliant |

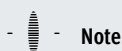
## Datasheet

| Ordering data |      |                     |                              |        |         |          |                     |                  |
|---------------|------|---------------------|------------------------------|--------|---------|----------|---------------------|------------------|
| O.D.          | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour  | Part no. | Type                | PU <sup>1)</sup> |
| [mm]          | [mm] | [mm]                | [mm]                         | [kg/m] |         |          |                     | [m]              |
| 4             | 2.9  | 32                  | 32                           | 0.013  | Natural | 8061171  | PTFEN-4X0.5-NT-100  | 100              |
| 6             | 4    | 38                  | 40                           | 0.034  |         | 8061172  | PTFEN-6X1-NT-100    | 100              |
|               |      |                     |                              |        |         | 8061178  | PTFEN-6X1-NT-500    | 500              |
| 8             | 5.9  | 64                  | 90                           | 0.047  |         | 8061173  | PTFEN-8X1-NT        | 1 ... 50         |
|               |      |                     |                              |        |         | 8061179  | PTFEN-8X1-NT-400    | 400              |
| 10            | 7    | 70                  | 100                          | 0.086  |         | 8061174  | PTFEN-10X1.5-NT     | 1 ... 50         |
|               |      |                     |                              |        |         | 8061180  | PTFEN-10X1.5-NT-300 | 300              |
| 12            | 8.4  | 84                  | 120                          | 0.124  |         | 8061175  | PTFEN-12X2-NT       | 1 ... 50         |
| 14            | 10   | 106                 | 120                          | 0.162  |         | 8061176  | PTFEN-14X2-NT       | 1 ... 50         |
| 16            | 11   | 109                 | 160                          | 0.228  |         | 8061177  | PTFEN-16X2.5-NT-25  | 1 ... 25         |

1) Packaging unit

Can only be ordered by the metre.

Variable lengths not available in all countries.



## Note

**Do not bend tubing!**

It is crucial that during assembly and operation the tubing is not bent or excessively constricted when using cable binders.

This could damage the tubing and cause it to split at the bend after a short while under normal operating conditions.

## Type codes

| 001     | Series                            |  |
|---------|-----------------------------------|--|
| PEN     | Plastic tubing                    |  |
| 002     | Pipe/tubing O.D. x wall thickness |  |
| 4x0,75  | 4x0.75 mm                         |  |
| 6x1     | 6x1 mm                            |  |
| 8x1,25  | 8x1.25 mm                         |  |
| 10x1,5  | 10x1.5 mm                         |  |
| 12x1,75 | 12x1.75 mm                        |  |
| 14x2    | 14x2 mm                           |  |
| 16x2,5  | 16x2.5 mm                         |  |

| 003 | Colour  |  |
|-----|---------|--|
| NT  | Natural |  |
| SW  | Black   |  |
| BL  | Blue    |  |
| SI  | Silver  |  |
| RT  | Red     |  |
| GN  | Green   |  |
| GE  | Yellow  |  |

| 004 | Packaging unit [m] |  |
|-----|--------------------|--|
|     | Standard           |  |
| 100 | 100 m              |  |
| 200 | 200 m              |  |
| 300 | 300 m              |  |
| 400 | 400 m              |  |
| 500 | 500 m              |  |

Datasheet

Plastic tubing PEN

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

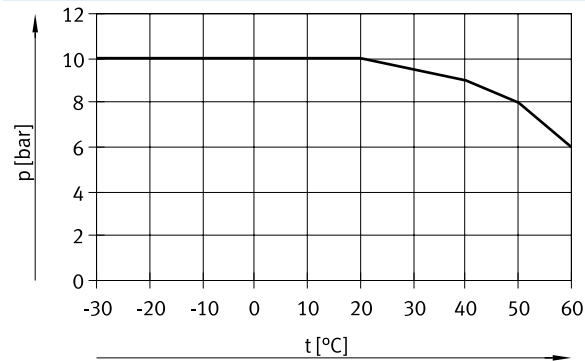
Material: Polyethylene



| Operating and environmental conditions   |       |                                                       |       |       |        |        |        |        |
|------------------------------------------|-------|-------------------------------------------------------|-------|-------|--------|--------|--------|--------|
| Type                                     |       | PEN-4                                                 | PEN-6 | PEN-8 | PEN-10 | PEN-12 | PEN-14 | PEN-16 |
| O.D.                                     | [mm]  | 4                                                     | 6     | 8     | 10     | 12     | 14     | 16     |
| Pneumatic connection                     |       |                                                       |       |       |        |        |        |        |
| For push-in connector                    | [mm]  | 4                                                     | 6     | 8     | 10     | 12     | 14     | 16     |
| For barbed connector                     | [mm]  | 3                                                     | 4     | 6     | –      | –      | –      | –      |
| For barbed connector with union nut      | [mm]  | 3                                                     | 4     | 6     | –      | –      | –      | –      |
| Temperature-dependent operating pressure | [MPa] | –0.095 ... +1                                         |       |       |        |        |        |        |
|                                          | [bar] | –0.95 ... +10 → graph                                 |       |       |        |        |        |        |
|                                          | [psi] | –13,775 ... +145                                      |       |       |        |        |        |        |
| Operating medium                         |       | Compressed air to ISO 8573-1:2010 [7:–:–]             |       |       |        |        |        |        |
|                                          |       | Water as per manufacturer's declaration <sup>1)</sup> |       |       |        |        |        |        |
| LABS (PWIS) conformity                   |       | VDMA24364-B2-L                                        |       |       |        |        |        |        |
| Ambient temperature                      | [°C]  | –30 ... +60                                           |       |       |        |        |        |        |
| Certification                            |       | German Technical Control Board (TÜV)                  |       |       |        |        |        |        |
| Certificate-issuing authority            |       | B 013277 0506 00                                      |       |       |        |        |        |        |
| Tubing characteristics                   |       | Suitable for energy chains                            |       |       |        |        |        |        |

1) Additional information: [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...) → Support/Downloads.

Operating pressure p as a function of temperature t

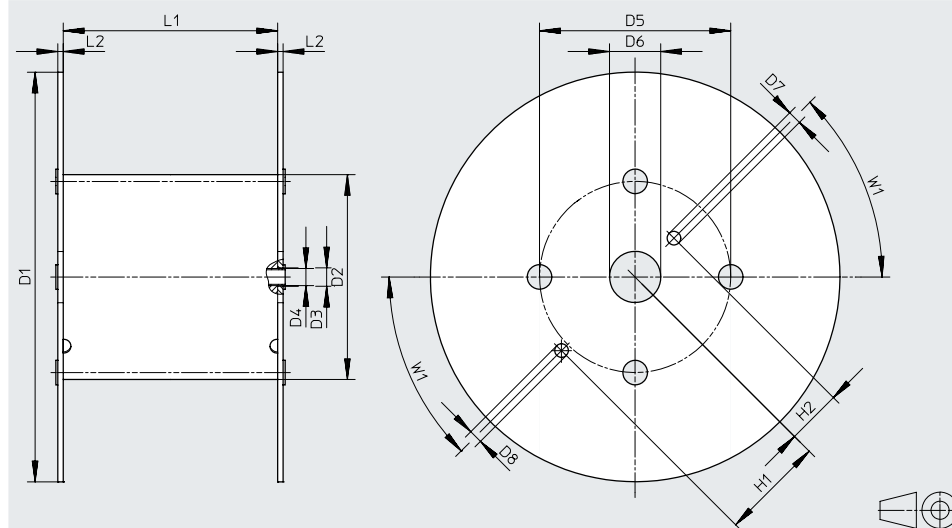


## Datasheet

## Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 52 ±3        |
| Tubing            | PU             |
| Note on materials | RoHS-compliant |

## Dimensions – Reel



| Type                    | D1<br>Ø | D2<br>Ø | D3<br>Ø | D4<br>Ø | D5<br>Ø | D6<br>Ø | D7<br>Ø | D8<br>Ø | H1    | H2   | L1  | L2 | W1  |
|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|-----|----|-----|
| For PEN-4x0.75-...-500  | 545     | 246     | 21      | 20      | 216     | 75      | 20      | 20      | 152.5 | 80.5 | 128 | 8  | 45° |
| For PEN-6x1-...-500     | 545     | 246     | 21      | 20      | 216     | 75      | 20      | 20      | 152.5 | 80.5 | 128 | 8  | 45° |
| For PEN-8x1.25-...-400  | 545     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PEN-10x1.5-...-300  | 600     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PEN-12x1.75-...-200 | 600     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |
| For PEN-16x2.5-...-100  | 545     | 310     | 21      | 20      | 280     | 75      | 20      | 20      | 152.5 | 80.5 | 254 | 8  | 45° |

## Dimensions and ordering data

| O.D.<br>[mm] | I.D.<br>[mm] | Min. bending radius<br>[mm] | Flow-relevant bending radius<br>[mm] | Weight<br>[kg/m] | Colour  | Part no. | Type              | PU <sup>1)</sup><br>[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                      |

1) Packaging unit

## Datasheet

| Dimensions and ordering data |      |                     |                              |        |         |          |                    |                  |
|------------------------------|------|---------------------|------------------------------|--------|---------|----------|--------------------|------------------|
| O.D.                         | I.D. | Min. bending radius | Flow-relevant bending radius | Weight | Colour  | Part no. | Type               | PU <sup>1)</sup> |
| [mm]                         | [mm] | [mm]                | [mm]                         | [kg/m] |         |          |                    | [m]              |
| 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               |
| 10                           | 7    | 23.5                | 40                           | 0.0377 | Yellow  | 551482   | PEN-8x1.25-GE      | 50               |
|                              |      |                     |                              |        | 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               |
| 12                           | 8.4  | 33                  | 58                           | 0.0542 | Red     | 551477   | PEN-10x1.5-RT      | 50               |
|                              |      |                     |                              |        | Yellow  | 551483   | PEN-10x1.5-GE      | 50               |
|                              |      |                     |                              |        | 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               |
| 14                           | 9.5  | 45                  | 80                           | 0.0773 | Green   | 551472   | PEN-12x1.75-GN     | 50               |
|                              |      |                     |                              |        | Red     | 551478   | PEN-12x1.75-RT     | 50               |
|                              |      |                     |                              |        | Yellow  | 551484   | PEN-12x1.75-GE     | 50               |
|                              |      |                     |                              |        | 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

## Ordering data – Modular product system

| Ordering table (minimum order quantity 3000 m, rounded value 25 m) |                                                |   |   |    |    |    |    |            |             |            |
|--------------------------------------------------------------------|------------------------------------------------|---|---|----|----|----|----|------------|-------------|------------|
| Size                                                               | 4                                              | 6 | 8 | 10 | 12 | 14 | 16 | Conditions | Code        | Enter code |
| Module no.                                                         | <b>553769</b>                                  |   |   |    |    |    |    |            |             |            |
| Function                                                           | Polyethylene tubing, standard O.D., economical |   |   |    |    |    |    |            | <b>PEN</b>  | PEN        |
| Tubing O.D. [mm]                                                   | 4                                              | – | – | –  | –  | –  | –  |            | <b>-4</b>   |            |
|                                                                    | –                                              | 6 | – | –  | –  | –  | –  |            | <b>-6</b>   |            |
|                                                                    | –                                              | – | 8 | –  | –  | –  | –  |            | <b>-8</b>   |            |
|                                                                    | –                                              | – | – | 10 | –  | –  | –  |            | <b>-10</b>  |            |
|                                                                    | –                                              | – | – | –  | 12 | –  | –  |            | <b>-12</b>  |            |
|                                                                    | –                                              | – | – | –  | –  | 14 | –  |            | <b>-14</b>  |            |
|                                                                    | –                                              | – | – | –  | –  | –  | 16 |            | <b>-16</b>  |            |
| Colour                                                             | Silver                                         |   |   |    |    |    |    |            | <b>-SI</b>  |            |
|                                                                    | Blue                                           |   |   |    |    |    |    |            | <b>-BL</b>  |            |
|                                                                    | Black                                          |   |   |    |    |    |    |            | <b>-SW</b>  |            |
|                                                                    | Yellow                                         |   |   |    |    |    |    |            | <b>-GE</b>  |            |
|                                                                    | Green                                          |   |   |    |    |    |    |            | <b>-GN</b>  |            |
|                                                                    | Red                                            |   |   |    |    |    |    |            | <b>-RT</b>  |            |
|                                                                    | Brown                                          |   |   |    |    |    |    |            | <b>-BR</b>  |            |
|                                                                    | White                                          |   |   |    |    |    |    |            | <b>-WS</b>  |            |
|                                                                    | Natural                                        |   |   |    |    |    |    |            | <b>-NT</b>  |            |
| Labelling text (on request)                                        | Standard                                       |   |   |    |    |    |    |            |             |            |
|                                                                    | Customer-specific tubing inscription           |   |   |    |    |    |    | [1]        | <b>-TXT</b> |            |
| Packaging unit [m]                                                 | 25                                             |   |   |    |    |    |    |            | <b>-25</b>  |            |
|                                                                    | 50                                             |   |   |    |    |    |    |            | <b>-50</b>  |            |
|                                                                    | 100                                            |   |   |    |    |    |    |            | <b>-100</b> |            |
|                                                                    | 200                                            |   |   |    |    | –  | –  |            | <b>-200</b> |            |
|                                                                    | 300                                            |   |   |    | –  | –  | –  |            | <b>-300</b> |            |
|                                                                    | 400                                            |   |   | –  | –  | –  | –  |            | <b>-400</b> |            |
|                                                                    | 500                                            |   | – | –  | –  | –  | –  |            | <b>-500</b> |            |
| Packaging                                                          | Cardboard box                                  |   |   |    |    |    |    | [2]        | <b>-CB</b>  |            |
|                                                                    | Reel                                           |   |   |    |    |    |    | [3]        | <b>-HA</b>  |            |

- [1] TXT Only on request  
 [2] CB Only with packaging unit 25, 50  
 [3] HA Not with packaging unit 25, 50

## Type codes

| 001     | Series                                      |  |
|---------|---------------------------------------------|--|
| PLN     | Plastic tubing, polyethylene, standard O.D. |  |
| 002     | Pipe/tubing O.D. x wall thickness           |  |
| 4x0,75  | 4x0.75 mm                                   |  |
| 6x1     | 6x1 mm                                      |  |
| 8x1,25  | 8x1.25 mm                                   |  |
| 10x1,5  | 10x1.5 mm                                   |  |
| 12x1,75 | 12x1.75 mm                                  |  |
| 14x2    | 14x2 mm                                     |  |
| 16x2    | 16x2 mm                                     |  |

| 003 | Colour  |  |
|-----|---------|--|
| NT  | Natural |  |
| SW  | Black   |  |
| BL  | Blue    |  |
| SI  | Silver  |  |
| RT  | Red     |  |

## Datasheet

### Plastic tubing PLN

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

Material: Polyethylene

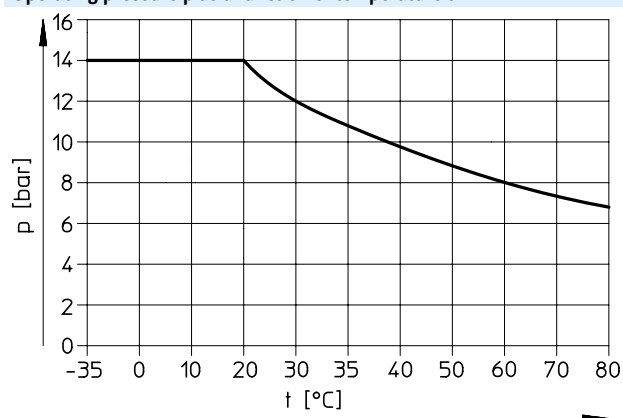


#### Operating and environmental conditions

| Type                                     |       | PLN-4                                                 | PLN-6 | PLN-8 | PLN-10 | PLN-12 | PLN-14 | PLN-16 |
|------------------------------------------|-------|-------------------------------------------------------|-------|-------|--------|--------|--------|--------|
| O.D.                                     | [mm]  | 4                                                     | 6     | 8     | 10     | 12     | 14     | 16     |
| Pneumatic connection                     |       |                                                       |       |       |        |        |        |        |
| For push-in connector                    | [mm]  | 4                                                     | 6     | 8     | 10     | 12     | 14     | 16     |
| For barbed connector                     | [mm]  | 3                                                     | 4     | 6     | –      | –      | –      | –      |
| For barbed connector with union nut      | [mm]  | 3                                                     | 4     | 6     | –      | –      | –      | –      |
| Temperature-dependent operating pressure | [MPa] | –0.095 ... +1.4                                       |       |       |        |        |        |        |
|                                          | [bar] | –0.95 ... +14 → graph                                 |       |       |        |        |        |        |
|                                          | [psi] | –13,775 ... +203                                      |       |       |        |        |        |        |
| Operating medium                         |       | Compressed air to ISO 8573-1:2010 [7:–:–]             |       |       |        |        |        |        |
|                                          |       | Water as per manufacturer's declaration <sup>1)</sup> |       |       |        |        |        |        |
| LABS (PWIS) conformity                   |       | VDMA24364-B2-L                                        |       |       |        |        |        |        |
| Ambient temperature                      | [°C]  | –30 ... +80                                           |       |       |        |        |        |        |
| Food-safe <sup>1)</sup>                  |       | See supplementary material information                |       |       |        |        |        |        |
| Certification                            |       | German Technical Control Board (TÜV)                  |       |       |        |        |        |        |
| Certificate-issuing authority            |       | B 013277 0506 00                                      |       |       |        |        |        |        |

1) Additional information: [www.festo.com/catalogue/pln](http://www.festo.com/catalogue/pln) → Support/Downloads.

#### Operating pressure p as a function of temperature t



#### Materials

|                   |                |
|-------------------|----------------|
| Shore hardness    | D 59 ±3        |
| Tubing            | PU             |
| Note on materials | RoHS-compliant |

## Datasheet

| Dimensions and ordering data |              |                             |                                      |                  |         |          |                |                         |
|------------------------------|--------------|-----------------------------|--------------------------------------|------------------|---------|----------|----------------|-------------------------|
| O.D.<br>[mm]                 | I.D.<br>[mm] | Min. bending radius<br>[mm] | Flow-relevant bending radius<br>[mm] | Weight<br>[kg/m] | Colour  | Part no. | Type           | PU <sup>1)</sup><br>[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  | 1 ... 50                |
|                              |              |                             |                                      |                  | Black   | 195282   | PLN-8x1.25-SW  | 1 ... 50                |
|                              |              |                             |                                      |                  | Blue    | 558207   | PLN-8x1.25-BL  | 1 ... 50                |
|                              |              |                             |                                      |                  | Silver  | 558213   | PLN-8x1.25-SI  | 1 ... 50                |
|                              |              |                             |                                      |                  | Red     | 558219   | PLN-8x1.25-RT  | 1 ... 50                |
| 10                           | 7            | 22                          | 57                                   | 0.0375           | Natural | 193406   | PLN-10x1.5-NT  | 1 ... 50                |
|                              |              |                             |                                      |                  | Black   | 195283   | PLN-10x1.5-SW  | 1 ... 50                |
|                              |              |                             |                                      |                  | Blue    | 558208   | PLN-10x1.5-BL  | 1 ... 50                |
|                              |              |                             |                                      |                  | Silver  | 558214   | PLN-10x1.5-SI  | 1 ... 50                |
|                              |              |                             |                                      |                  | Red     | 558220   | PLN-10x1.5-RT  | 1 ... 50                |
| 12                           | 8.4          | 23                          | 65                                   | 0.054            | Natural | 193407   | PLN-12x1.75-NT | 1 ... 50                |
|                              |              |                             |                                      |                  | Black   | 195284   | PLN-12x1.75-SW | 1 ... 50                |
|                              |              |                             |                                      |                  | Blue    | 558209   | PLN-12x1.75-BL | 1 ... 50                |
|                              |              |                             |                                      |                  | Silver  | 558215   | PLN-12x1.75-SI | 1 ... 50                |
|                              |              |                             |                                      |                  | Red     | 558221   | PLN-12x1.75-RT | 1 ... 50                |
| 14                           | 10           | 40                          | 80                                   | 0.07             | Natural | 570424   | PLN-14x2-NT    | 1 ... 50                |
|                              |              |                             |                                      |                  | Black   | 570423   | PLN-14x2-SW    | 1 ... 50                |
| 16                           | 12           | 55                          | 95                                   | 0.082            | Natural | 539064   | PLN-16x2-NT    | 1 ... 50                |
|                              |              |                             |                                      |                  | Black   | 539065   | PLN-16x2-SW    | 1 ... 50                |
|                              |              |                             |                                      |                  | Blue    | 558210   | PLN-16x2-BL    | 1 ... 50                |
|                              |              |                             |                                      |                  | Silver  | 558216   | PLN-16x2-SI    | 1 ... 50                |
|                              |              |                             |                                      |                  | Red     | 558222   | PLN-16x2-RT    | 1 ... 50                |

1) Packaging unit

Can only be ordered by the metre.

Variable lengths not available in all countries.

## Ordering data – Modular product system

| Ordering table (minimum order quantity 3000 m, rounded value 25 m) |                                                                  |   |   |    |    |    |    |            |      |            |
|--------------------------------------------------------------------|------------------------------------------------------------------|---|---|----|----|----|----|------------|------|------------|
| Size                                                               | 4                                                                | 6 | 8 | 10 | 12 | 14 | 16 | Conditions | Code | Enter code |
| 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  |            |
| Labelling text (on request)                                        | Standard                                                         |   |   |    |    |    |    |            |      |            |
|                                                                    | Customer-specific tubing inscription                             |   |   |    |    |    |    | [1]        | -TXT |            |
| 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