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## FIPA Tubing



- > Piping of vacuum or compressed air systems
- > Control cables for ejectors and vacuum switches



### Flexible vacuum pressure tubing made from polyurethane (PUR)

- > Very small bending radius
- > Standard blue transparent or intransparent

#### 61.090 - 61.096

- > High chemical stability and mechanical resistance
- > Outer diameter toleranced tubing, making them suitable for quick fittings

#### 61.056 - 61.062

- > Available in a wide range of colours
- > Outer diameter toleranced tubing, making them suitable for quick fittings

#### 61.020 - 61.030

- > Suitable for use in trailing chains, corrugated external surface

#### 61.005S - 61.011S

- > Self-extinguishing, flame-resistant according to DIN 4102 B1, corrugated external surface

> See page 396



### Vacuum-pressure tubing made from transparent fluoroelastomer (PFA)

- > Excellent resistance to chemicals, temperature and weather conditions
- > Used predominantly in chemical, foodstuff and medical industries

> See page 398



### Vacuum-pressure tubing made from highly flexible PVC, reinforced

- > Very abrasion-resistant
- > Suitable for use as transport tubing thanks to smooth interior walls

#### 61.160 - 61.169

- > Smooth external surface

> See page 399



## FIPA Tubing



### Highly flexible, soft PVC tubing for pressure applications

- > Suitable for frequently occurring pivoting motions and oscillations
- > Not suitable for vacuum

> See page 402



### Spiral tubing made from black polyurethane (PUR) for vacuum and pressure applications

- > Space-saving tubing for mobile vacuum or pressure systems without straining the connections
- > Suitable for pneumatic tools

> See page 403



### Accessories:

Tubing nipples with male M and G threads

> See page 405



Reinforcing sleeves, especially for soft tubings

> See page 407



Tubing cutter with measuring tape

> See page 407



## Tubing technology | Tubing

Flexible vacuum and pressure tubing made from PUR blue transparent

Flexible vacuum and pressure tubing made from PUR blue transparent



SUITABLE FOR INSTALLATION IN DRAG CHAINS

### Product description

- > High flexibility enables small bending curve to build compact tubing systems
- > Suitable for air and tap water
- > Cut marks at 500 mm intervals facilitate installation
- > High chemical and mechanical resistance
- > Very high oil resistance

### Notes

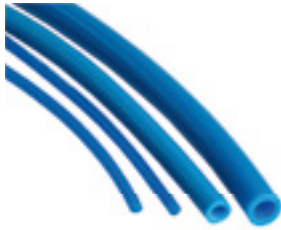
- > Rule of thumb for installation in drag chain: Bending radius = 10 x outer diameter of tubing

### Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Operating pressure at 20 °C [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|-----------------------------------|------------------------|--------------|------------------|
| 61.090   | 3                   | 2                   | 8                           | -1 - 8               | 29                                | -15 - 60               | 7            | 20               |
| 61.091   | 4                   | 2.5                 | 10                          | -1 - 8               | 29                                | -15 - 60               | 9            | 20               |
| 61.092   | 6                   | 4                   | 15                          | -1 - 8               | 29                                | -15 - 60               | 19           | 20               |
| 61.093   | 8                   | 5                   | 15                          | -1 - 8               | 29                                | -15 - 60               | 36           | 20               |
| 61.094   | 10                  | 6.5                 | 20                          | -1 - 8               | 29                                | -15 - 60               | 54           | 20               |
| 61.095   | 12                  | 8                   | 30                          | -1 - 8               | 29                                | -15 - 60               | 74           | 20               |
| 61.096   | 12                  | 9                   | 30                          | -1 - 8               | 29                                | -15 - 60               | 68           | 20               |



## Flexible vacuum and pressure tubing made of blue PUR



**SUITABLE FOR INSTALLATION IN DRAG CHAINS**

### Product description

- > High flexibility enables small bending curve to build compact tubing systems
- > Suitable for air and tap water
- > Cut marks at 500 mm intervals facilitate installation

### Notes

- > Rule of thumb for installation in drag chain: Bending radius = 10 x outer diameter of tubing

### Ordering notes

- > Standard length 20 meters, colour blue
- > Available in various tubing lengths and a wide selection of colours (black, red, orange, ocher, yellow, green, blue, light blue, transparent, pure white)
- > 61.062 The standard colour is black
- > Length of 50 meters generally only available in black

### Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Operating pressure at 20 °C [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|-----------------------------------|------------------------|--------------|------------------|
| 61.056   | 3                   | 2                   | 8                           | -1 - 8               | 29                                | -15 - 60               | 7            | 20 / 50 / 100    |
| 61.057   | 4                   | 2.5                 | 10                          | -1 - 8               | 29                                | -15 - 60               | 9            | 20 / 50 / 100    |
| 61.058   | 6                   | 4                   | 15                          | -1 - 8               | 29                                | -15 - 60               | 19           | 20 / 50 / 100    |
| 61.059   | 8                   | 5                   | 15                          | -1 - 8               | 29                                | -15 - 60               | 36           | 20 / 50 / 100    |
| 61.060   | 10                  | 6.5                 | 20                          | -1 - 8               | 29                                | -15 - 60               | 54           | 20 / 50 / 100    |
| 61.061   | 12                  | 8                   | 30                          | -1 - 8               | 29                                | -15 - 60               | 74           | 20 / 50 / 100    |
| 61.062   | 16                  | 11                  | 60                          | -1 - 8               | 29                                | -15 - 60               | 128          | 20 / 50 / 100    |



## Tubing technology | Tubing

Vacuum and pressure tubing made of transparent fluoroelastomer (PFA)

### Vacuum and pressure tubing made of transparent fluoroelastomer (PFA)



FOR CHEMICAL, FOODSTUFF AND MEDICAL INDUSTRIES

#### Product description

- > Excellent resistance to chemicals, temperature and weather conditions
- > Very smooth, transparent inner surface
- > Suitable for air, water and corrosive fluids

#### Notes

- > 61.069 to 61.073: Suitable for cleanroom applications

#### Ordering notes

- > Standard packaging unit: 5 meters

#### Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range for air / gas [bar] | Pressure range for liquids [bar] | Operating pressure at 20 °C [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|------------------------------------|----------------------------------|-----------------------------------|------------------------|--------------|------------------|
| 61.063   | 4                   | 2.5                 | 20                          | -0.99 - 9                          | 3                                | 49                                | -65 - 260              | 18           | 5 / 20           |
| 61.064   | 6                   | 4                   | 30                          | -0.99 - 9                          | 3                                | 49                                | -65 - 260              | 36           | 5 / 20           |
| 61.065   | 8                   | 6                   | 48                          | -0.99 - 9                          | 3                                | 39                                | -65 - 260              | 50           | 5 / 20           |
| 61.066   | 10                  | 7.5                 | 60                          | -0.99 - 9                          | 3                                | 39                                | -65 - 260              | 78           | 5 / 20           |
| 61.067   | 12                  | 9                   | 72                          | -0.99 - 9                          | 3                                | 59                                | -65 - 260              | 112          | 5 / 20           |
| 61.068   | 16                  | 13                  | 78                          | -0.99 - 9                          | 3                                | 34                                | -65 - 260              | 154          | 5 / 20           |
| 61.069   | 4                   | 2.5                 | 20                          | -0.99 - 9                          | 3                                | 49                                | -65 - 260              | 55           | 5                |
| 61.070   | 6                   | 4                   | 30                          | -0.99 - 9                          | 3                                | 49                                | -65 - 260              | 95           | 5                |
| 61.071   | 8                   | 6                   | 30                          | -0.99 - 9                          | 3                                | 39                                | -65 - 260              | 125          | 5                |
| 61.072   | 10                  | 7.5                 | 60                          | -0.99 - 9                          | 3                                | 39                                | -65 - 260              | 190          | 5                |
| 61.073   | 12                  | 9                   | 72                          | -0.99 - 9                          | 3                                | 39                                | -65 - 260              | 270          | 5                |



Vacuum and pressure tubing made of highly flexible transparent PVC, reinforced with wire spiral



## Product description

- > Vacuum applications up to 95 %
- > Very smooth inner surface for residue-free transport of materials such as granulate
- > Suitable for continuous movement
- > High abrasion-proof

## Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|------------------------|--------------|------------------|
| 61.160   | 13                  | 8                   | 32                          | -0.9 - 16            | -5 - 65                | 140          | 1                |
| 61.161   | 16                  | 10                  | 20                          | -0.95 - 8            | -5 - 65                | 155          | 1                |
| 61.162   | 18                  | 12                  | 25                          | -0.95 - 8            | -5 - 65                | 180          | 1                |
| 61.163   | 20                  | 14                  | 30                          | -0.95 - 8            | -5 - 65                | 200          | 1                |
| 61.164   | 22                  | 16                  | 35                          | -0.95 - 8            | -5 - 65                | 225          | 1                |
| 61.165   | 24                  | 18                  | 40                          | -0.95 - 7            | -5 - 65                | 280          | 1                |
| 61.166   | 27                  | 20                  | 50                          | -0.95 - 7            | -5 - 65                | 340          | 1                |
| 61.167   | 33                  | 25                  | 60                          | -0.95 - 7            | -5 - 65                | 510          | 1                |
| 61.168   | 42                  | 32                  | 75                          | -0.95 - 7            | -5 - 65                | 730          | 1                |
| 61.169   | 53                  | 40                  | 100                         | -0.95 - 7            | -5 - 65                | 1,220        | 1                |



# Tubing technology | Tubing

Highly flexible vacuum and pressure tubing made of PUR, reinforced with PVC spiral

Highly flexible vacuum and pressure tubing made of PUR, reinforced with PVC spiral



SUITABLE FOR INSTALLATION IN DRAG CHAINS

## Product description

- > Vacuum applications up to 40 % vacuum
- > Very smooth inner surface for residue-free transport of materials such as granulate
- > Resistant to weather conditions and many chemicals
- > Outer surface slightly corrugated
- > Colour transparent

## Notes

- > Rule of thumb for installation in drag chain: Bending radius = 10 x outer diameter of tubing

## Ordering notes

- > Other sizes on request

## Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|------------------------|--------------|------------------|
| 61.020   | 25                  | 20                  | 20                          | -0.4 - 1             | -10 - 70               | 100          | 20               |
| 61.021   | 30                  | 25                  | 25                          | -0.4 - 1             | -10 - 70               | 150          | 20               |
| 61.022   | 36                  | 30                  | 30                          | -0.4 - 1             | -10 - 70               | 190          | 20               |
| 61.023   | 38                  | 32                  | 32                          | -0.3 - 0.5           | -10 - 70               | 200          | 20               |
| 61.024   | 41                  | 35                  | 35                          | -0.3 - 0.5           | -10 - 70               | 230          | 20               |
| 61.025   | 44                  | 38                  | 38                          | -0.3 - 0.5           | -10 - 70               | 230          | 20               |
| 61.026   | 46                  | 40                  | 40                          | -0.3 - 0             | -10 - 70               | 250          | 20               |
| 61.027   | 51                  | 45                  | 45                          | -0.3 - 0             | -10 - 70               | 280          | 20               |
| 61.028   | 57                  | 50                  | 50                          | -0.3 - 0             | -10 - 70               | 310          | 20               |
| 61.029   | 62                  | 55                  | 55                          | -0.3 - 0             | -10 - 70               | 350          | 20               |
| 61.030   | 67                  | 60                  | 60                          | -0.3 - 0             | -10 - 70               | 390          | 20               |
| 61.031   | 70                  | 63                  | 63                          | -0.3 - 0             | -10 - 70               | 410          | 20               |
| 61.033   | 78                  | 70                  | 70                          | -0.3 - 0             | -10 - 70               | 500          | 20               |
| 61.034   | 84                  | 76                  | 76                          | -0.3 - 0             | -10 - 70               | 555          | 20               |
| 61.035   | 89                  | 80                  | 80                          | -0.3 - 0             | -10 - 70               | 610          | 20               |
| 61.036   | 99                  | 90                  | 90                          | -0.3 - 0             | -10 - 70               | 715          | 20               |
| 61.037   | 112                 | 102                 | 102                         | -0.3 - 0             | -10 - 70               | 835          | 20               |
| 61.038   | 120                 | 110                 | 110                         | -0.3 - 0             | -10 - 70               | 890          | 20               |
| 61.039   | 131                 | 120                 | 120                         | -0.3 - 0             | -10 - 70               | 950          | 20               |
| 61.040   | 138                 | 127                 | 127                         | -0.2 - 0             | -10 - 70               | 1,015        | 20               |
| 61.043   | 164                 | 152                 | 152                         | -0.2 - 0             | -10 - 70               | 1,380        | 20               |





### PUR highly flexible vacuum pressure tubing, reinforced, self-extinguishing



**SUITABLE FOR INSTALLATION IN DRAG CHAINS**

#### Product description

- > Highly flexible polyurethane for pressure and vacuum applications tubing
- > Self-extinguishing, flame resistant according to DIN 4102 B 1
- > Alternative product in case of flying sparks, weld spatter or special fire safety obstructions
- > Reinforced with PVC-coated spring coil
- > Highly abrasion-proof
- > Smooth inner walls, corrugated external surface
- > Colour transparent

#### Notes

- > Tubing built acc. to TRBS 2153 (zone 1 and 21) suitable for non-combustible dusts / bulk goods and gases / liquids of low conductivity spiral ends shall be earthed at both sides to ensure good dissipation
- > Rule of thumb for installation in drag chain: Bending radius = 10 x outer diameter of tubing

#### Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|------------------------|--------------|------------------|
| 61.005S  | 18                  | 13                  | 13                          | -0.5 - 2             | -40 - 90               | 82           | 10               |
| 61.006S  | 25                  | 20                  | 20                          | -0.45 - 1.8          | -40 - 90               | 147          | 10               |
| 61.007S  | 30                  | 25                  | 25                          | -0.4 - 1.6           | -40 - 90               | 183          | 10               |
| 61.008S  | 35                  | 30                  | 30                          | -0.35 - 1.5          | -40 - 90               | 220          | 10               |
| 61.009S  | 45                  | 40                  | 40                          | -0.3 - 1.4           | -40 - 90               | 380          | 10               |
| 61.010S  | 50                  | 45                  | 45                          | -0.28 - 1.5          | -40 - 90               | 410          | 10               |
| 61.011S  | 56                  | 50                  | 50                          | -0.28 - 1.5          | -40 - 90               | 460          | 10               |



## Tubing technology | Tubing

Highly flexible tubing made of soft PVC for light pressure applications

Highly flexible tubing made of soft PVC for light pressure applications



SUITABLE FOR FOODSTUFFS

### Product description

- > Unpressurised and low-pressure applications with concurrent pivoting motions and oscillations
- > High flexibility enables small bending curves for compact tubing systems
- > FDA approval for aqueous foods
- > Extremely resistant to acids and bases
- > Colour transparent

### Notes

- > Not suitable for vacuum

### Technical data

| Item no. | Outer diameter [mm] | Inner diameter [mm] | Minimum bending radius [mm] | Pressure range [bar] | Usage temperature [°C] | Weight [g/m] | Packing unit [m] |
|----------|---------------------|---------------------|-----------------------------|----------------------|------------------------|--------------|------------------|
| 61.211   | 4                   | 2                   | 5                           | 0 - 1                | -5 - 60                | 9            | 20               |
| 61.212   | 6                   | 4                   | 14                          | 0 - 1                | -5 - 60                | 17           | 20               |
| 61.213   | 8                   | 6                   | 25                          | 0 - 0.5              | -5 - 60                | 23           | 20               |
| 61.214   | 10                  | 7                   | 25                          | 0 - 0.5              | -5 - 60                | 36           | 20               |
| 61.215   | 12                  | 9                   | 35                          | 0 - 0.5              | -5 - 60                | 52           | 10               |



### Spiral tubing made of black PUR for vacuum and pressure applications



#### Product description

- > Space-saving tubing for mobile vacuum or pressure systems without straining the connections
- > Suitable for pneumatic tools

#### Technical data

| Item no. | Pressure range<br>[bar] | Operating<br>pressure at 20 °C<br>[bar] | Usage<br>temperature [°C] |
|----------|-------------------------|-----------------------------------------|---------------------------|
| 61.100   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.101   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.102   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.103   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.104   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.105   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.106   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.107   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.108   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.109   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.110   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.135   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.111   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.112   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.113   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.114   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.115   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.116   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.117   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.118   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.119   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.120   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.121   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.122   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.123   | -1 - 7                  | 29                                      | -15 - 60                  |

#### Dimensions

| A [mm] | ø d [mm] | ø D [mm] | l [mm] |
|--------|----------|----------|--------|
| 70     | 3        | 16       | 210    |
| 150    | 3        | 16       | 450    |
| 230    | 3        | 16       | 700    |
| 390    | 3        | 16       | 1,200  |
| 120    | 4        | 24       | 360    |
| 180    | 4        | 24       | 540    |
| 350    | 4        | 24       | 1,100  |
| 480    | 4        | 24       | 1,500  |
| 700    | 4        | 24       | 2,100  |
| 1,040  | 4        | 24       | 3,200  |
| 1,450  | 4        | 24       | 4,400  |
| 90     | 6        | 30       | 270    |
| 160    | 6        | 30       | 500    |
| 230    | 6        | 30       | 700    |
| 430    | 6        | 30       | 1,300  |
| 620    | 6        | 30       | 1,900  |
| 910    | 6        | 30       | 2,800  |
| 1,300  | 6        | 30       | 3,900  |
| 1,850  | 6        | 30       | 5,600  |
| 250    | 8        | 42       | 750    |
| 390    | 8        | 42       | 1,200  |
| 540    | 8        | 42       | 1,700  |
| 770    | 8        | 42       | 2,400  |
| 1,045  | 8        | 42       | 3,200  |
| 1,550  | 8        | 42       | 4,700  |

Continued on the next page →



## Tubing technology | Tubing

Spiral tubing made of black PUR for vacuum and pressure applications

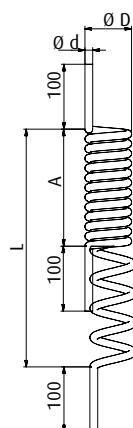
### Technical data

| Item no. | Pressure range<br>[bar] | Operating<br>pressure at 20 °C<br>[bar] | Usage<br>temperature [°C] |
|----------|-------------------------|-----------------------------------------|---------------------------|
| 61.124   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.125   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.126   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.127   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.128   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.129   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.130   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.131   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.132   | -1 - 7                  | 29                                      | -15 - 60                  |
| 61.133   | -1 - 7                  | 29                                      | -15 - 60                  |

### Dimensions

| A [mm] | Ø d [mm] | Ø D [mm] | L [mm] |
|--------|----------|----------|--------|
| 330    | 10       | 58       | 1,000  |
| 470    | 10       | 58       | 1,400  |
| 680    | 10       | 58       | 2,100  |
| 970    | 10       | 58       | 3,000  |
| 1,380  | 10       | 58       | 4,200  |
| 310    | 12       | 72       | 1,000  |
| 450    | 12       | 72       | 1,400  |
| 660    | 12       | 72       | 2,000  |
| 920    | 12       | 72       | 2,800  |
| 1,320  | 12       | 72       | 4,000  |

### Dimensions





### Tubing nipples with external thread



#### Ordering notes

> Select the tubing inner diameter about 1 - 2 mm smaller than the tubing nipple

#### Technical data

| Item no. | For hose inner Ø [mm] | Material            |
|----------|-----------------------|---------------------|
| 62.019   | 9                     | Nickel-plated brass |
| 62.020   | 6                     | Nickel-plated brass |
| 62.021   | 8                     | Nickel-plated brass |
| 62.022   | 10                    | Nickel-plated brass |
| 62.023   | 6                     | Nickel-plated brass |
| 62.024   | 8                     | Nickel-plated brass |
| 62.025   | 10                    | Nickel-plated brass |
| 62.026   | 12                    | Nickel-plated brass |
| 62.027   | 16                    | Nickel-plated brass |
| 62.028   | 19                    | Nickel-plated brass |
| 62.029   | 25                    | Nickel-plated brass |
| 62.030   | 10                    | Nickel-plated brass |
| 62.031   | 12                    | Nickel-plated brass |
| 62.033   | 16                    | Nickel-plated brass |
| 62.034   | 18                    | Nickel-plated brass |
| 62.035   | 25                    | Stainless steel     |
| 62.036   | 32                    | Nickel-plated brass |
| 62.037   | 38                    | Nickel-plated brass |
| 62.038   | 32                    | Brass               |
| 62.040   | 50                    | Brass               |
| 62.041   | 50                    | Brass               |
| 62.042   | 63                    | Brass               |
| 62.045   | 6                     | Brass               |
| 62.046   | 9                     | Brass               |
| 62.047   | 12                    | Brass               |
| 62.048   | 16                    | Nickel-plated brass |
| 62.060   | 14                    | Nickel-plated brass |
| 62.061   | 32                    | Brass               |
| 62.062   | 4                     | Brass               |
| 62.063   | 6                     | Brass               |

#### Dimensions

| G1          | Ø D [mm] | SW |
|-------------|----------|----|
| G1/8        | 9        | 12 |
| G1/8        | 6        | 12 |
| G1/8        | 8        | 12 |
| G1/8        | 10       | 12 |
| G1/4        | 6        | 14 |
| G1/4        | 8        | 14 |
| G1/4        | 10       | 14 |
| G1/4        | 12       | 14 |
| G3/4        | 16       | 17 |
| G3/4        | 19       | 32 |
| G3/4        | 25       | 32 |
| G1/2        | 10       | 22 |
| G1/2        | 12       | 22 |
| G1/2        | 16       | 22 |
| G1/2        | 18       | 22 |
| G1          | 25       | 37 |
| G1 1/4      | 32       | 50 |
| G1 1/2      | 38       | 55 |
| G1 1/2-male | 32       | 48 |
| G1 1/2-male | 50       | 52 |
| G2-male     | 50       | 70 |
| G2 1/2-male | 63       | 80 |
| G3/8-male   | 6        | 19 |
| G3/8-male   | 9        | 19 |
| G3/8-male   | 12       | 19 |
| R3/8-male   | 16       | 17 |
| G1/2-male   | 14       | 24 |
| G1-male     | 32       | 36 |
| M5          | 4        | 7  |
| M5          | 6        | 7  |



### Tubing clamps

Material: Steel, galvanised



### Product description

> Corrosion-proof thanks to the use of galvanised steel

### Technical data

| Item no. | Adjustment range of diameter [mm] | Weight [g] |
|----------|-----------------------------------|------------|
| 66.010   | 8 - 12                            | 6          |
| 66.011   | 12 - 22                           | 6          |
| 66.015   | 16 - 27                           | 10         |
| 66.017   | 25 - 40                           | 15         |
| 66.019   | 30 - 43                           | 18         |
| 66.020   | 40 - 60                           | 22         |



### Reinforcing sleeves

Material: Stainless steel



#### Product description

- > We recommend the use of reinforcing for all soft tubing
- > Reinforced sleeves also recommended for water transportation

#### Technical data

| Item no. | Hose outer Ø [mm] | Hose inner Ø [mm] |
|----------|-------------------|-------------------|
| WR 0425  | 4                 | 2.5               |
| WR 0640  | 6                 | 4                 |
| WR 0850  | 8                 | 5                 |
| WR 0860  | 8                 | 6                 |
| WR 1065  | 10                | 6.5               |
| WR 1075  | 10                | 7.5               |
| WR 1280  | 12                | 8                 |
| WR 1290  | 12                | 9                 |
| WR 1613  | 16                | 13                |

### Tubing cutter with measuring tape



#### Technical data

| Item no. | Compatible hose Ø [mm] |
|----------|------------------------|
| 61.083   | 3 - 16                 |



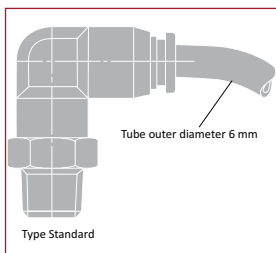
## FIPA Push-in fittings



### Vacuum manifolds

- > Construction of vacuum systems by means of simple installation of push-in fittings or quick fittings
- > Inlets on one or both sides
- > Up to six inlets or outlets, male and female threads from M5 to G1 1/4
- > Design: Aluminium or brass

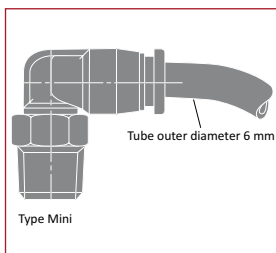
> See page 410



### Push-in fittings and plug-in connectors - Standard

- > Suitable for vacuum and pressure applications (-1 to 10 bar)
- > M, G and R male and female threads, straight or 90° version
- > T and Y manifolds, 2-way and 3-way angle swivel screw connections
- > Stackable plug-in connector (QC-3-3M - QC 8-8)
- > Lock connection push-in connectors 30.761 - 20.765 (straight); 30.774 - 30.778 (90°): locking of compressed air or vacuum during hose disassembly, release after reconnection
- > Rotation screw connections for mounting in with fast-running machines

> See page 414



### Push-in fittings and plug-in connectors - Mini

- > Suitable for vacuum and pressure applications (-1 to 10 bar)
- > 40 % smaller than standard version
- > M, R and G male and female threads, straight, 45° or 90° version
- > T-manifold
- > Easy assembly and disassembly thanks to elliptical mini-release-ring

> See page 434





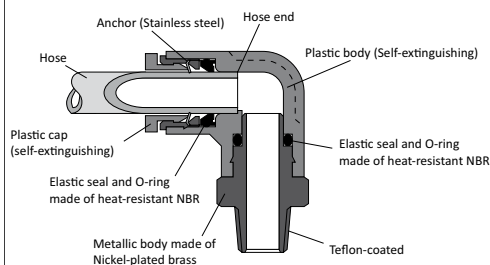
## FIPA Push-in fittings



### Push-in fittings and plug-in connectors - self-extinguishing

- > These quick-action push-in fittings with spark protection are specifically designed for use with flying sparks and weld spatter
- > No chance of release ring malfunctions, for example due to the penetration of dirt or scale
- > The push-in fittings are made from self-extinguishing plastic (UL94 V-0) and brass

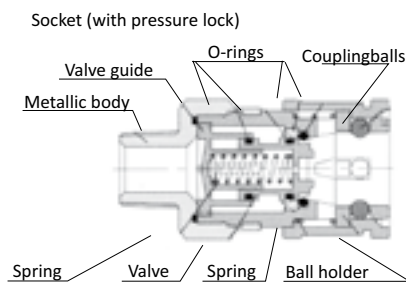
> See page 431



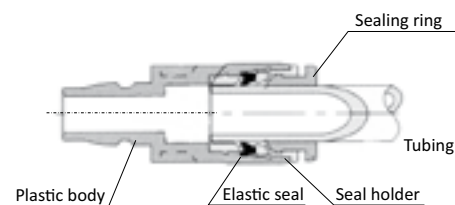
### Quick-action couplings with pressure / vacuum lock

- > Locking of compressed air or vacuum during disassembly, release after reconnection
- > Coupling can be operated with one hand

> See page 438



Plug (with free passage)



### Accessories

- > Double nipples
- > Thread adapters
- > Threaded sockets
- > Screw plugs
- > Sealing rings

> See page 440



### Manifolds for simple assembly of vacuum loads

Outputs on one side, at the front



### Product description

- > Construction of vacuum systems by means of simple installation of push-in fittings or quick fittings
- > Material: Aluminium

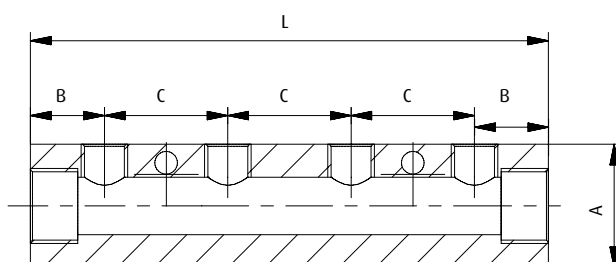
### Technical data

| Item no. | Input connection | Output connection | Suitable sealing plugs         |
|----------|------------------|-------------------|--------------------------------|
| 79.000   | 2x 1/8           | 2x M5             | 77.000 (p.443), 77.009 (p.443) |
| 79.001   | 2x 1/8           | 4x M5             | 77.000 (p.443), 77.009 (p.443) |
| 79.002   | 2x 1/8           | 6x M5             | 77.000 (p.443), 77.009 (p.443) |
| 79.003   | 2x 1/4           | 2x 1/8            | 77.008 (p.443), 77.009 (p.443) |
| 79.004   | 2x 1/4           | 4x 1/8            | 77.008 (p.443), 77.009 (p.443) |
| 79.005   | 2x 1/4           | 6x 1/8            | 77.008 (p.443), 77.009 (p.443) |
| 79.006   | 2x 3/8           | 2x 1/4            | 77.008 (p.443), 77.010 (p.443) |
| 79.007   | 2x 3/8           | 4x 1/4            | 77.008 (p.443), 77.010 (p.443) |
| 79.008   | 2x 3/8           | 6x 1/4            | 77.008 (p.443), 77.010 (p.443) |
| 79.009   | 2x 3/8           | 2x 1/8            | 77.009 (p.443), 77.010 (p.443) |
| 79.010   | 2x 3/8           | 4x 1/8            | 77.009 (p.443), 77.010 (p.443) |
| 79.011   | 2x 3/8           | 6x 1/8            | 77.009 (p.443), 77.010 (p.443) |
| 79.012   | 2x 1/2           | 2x 1/4            | 77.007 (p.443), 77.008 (p.443) |
| 79.013   | 2x 1/2           | 4x 1/4            | 77.007 (p.443), 77.008 (p.443) |
| 79.014   | 2x 1/2           | 6x 1/4            | 77.008 (p.443), 77.007 (p.443) |

### Dimensions

| A [mm] | B [mm] | C [mm] | L [mm] |
|--------|--------|--------|--------|
| 20     | 15     | 15     | 45     |
| 20     | 15     | 15     | 75     |
| 20     | 15     | 15     | 105    |
| 30     | 15     | 30     | 60     |
| 30     | 15     | 30     | 120    |
| 30     | 15     | 30     | 180    |
| 40     | 18     | 36     | 72     |
| 30     | 18     | 36     | 144    |
| 30     | 18     | 36     | 216    |
| 40     | 18     | 30     | 66     |
| 30     | 18     | 30     | 126    |
| 30     | 18     | 30     | 186    |
| 40     | 22     | 36     | 80     |
| 40     | 22     | 36     | 152    |
| 40     | 22     | 36     | 224    |

### Dimensions





### Manifolds for simple assembly of vacuum loads

Outputs on both sides, at the front and rear



#### Product description

- > Construction of vacuum systems by means of simple installation of push-in fittings or quick fittings
- > Material: Aluminium

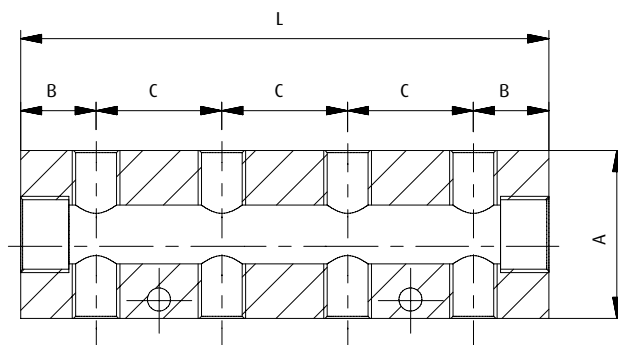
#### Technical data

| Item no. | Input connection | Output connection | Suitable sealing plugs           |
|----------|------------------|-------------------|----------------------------------|
| 79.015   | 2x 1/8           | 2+2 x M5          | 77.000 (p.443)<br>77.009 (p.443) |
| 79.016   | 2x 1/8           | 4+4 x M5          | 77.000 (p.443)<br>77.009 (p.443) |
| 79.017   | 2x 1/4           | 2+2 x 1/8         | 77.008 (p.443)<br>77.009 (p.443) |
| 79.018   | 2x 1/4           | 4+4 x 1/8         | 77.008 (p.443)<br>77.009 (p.443) |
| 79.019   | 2x 3/8           | 2+2 x 1/4         | 77.008 (p.443)<br>77.010 (p.443) |
| 79.020   | 2x 3/8           | 4+4 x 1/4         | 77.008 (p.443)<br>77.010 (p.443) |
| 79.023   | 2x 1/2           | 2+2 x 1/4         | 77.007 (p.443)<br>77.008 (p.443) |
| 79.024   | 2x 1/2           | 4+4 x 1/4         | 77.007 (p.443)<br>77.008 (p.443) |

#### Dimensions

| A [mm] | B [mm] | C [mm] | L [mm] |
|--------|--------|--------|--------|
| 20     | 15     | 15     | 45     |
| 20     | 15     | 15     | 75     |
| 30     | 15     | 30     | 60     |
| 30     | 15     | 30     | 120    |
| 40     | 18     | 36     | 72     |
| 40     | 18     | 36     | 144    |
| 40     | 22     | 36     | 80     |
| 40     | 22     | 36     | 152    |

#### Dimensions





### Distributors

With two or three outputs



### Product description

- > Construction of vacuum systems by means of simple installation of push-in fittings or quick fittings
- > Suitable for vacuum and compressed air

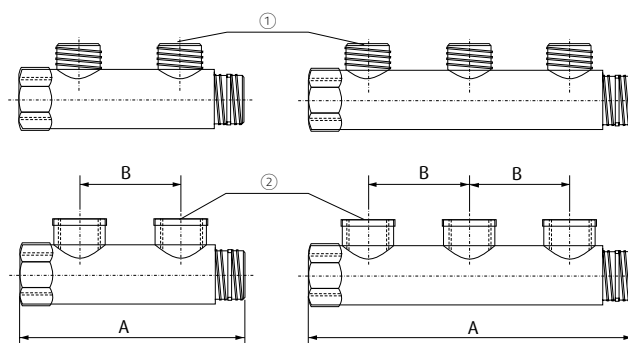
### Technical data

| Item no. | Input connection | Output connection | Material    | Suitable sealing caps |
|----------|------------------|-------------------|-------------|-----------------------|
| 79.025   | 2x 3/4           | 2x 1/2 male       | Brass blank | 79.040, 79.041        |
| 79.026   | 2x 3/4           | 2x 1/2 female     | Brass blank | 79.040, 79.041        |
| 79.027   | 2x 1             | 2x 1/2 male       | Brass blank | 79.040, 79.042        |
| 79.028   | 2x 1             | 2x 1/2 female     | Brass blank | 79.040, 79.042        |
| 79.029   | 2x 1 1/4         | 2x 1/2 male       | Brass blank | 79.040, 79.043        |
| 79.030   | 2x 1 1/4         | 2x 1/2 female     | Brass blank | 79.040, 79.043        |
| 79.031   | 2x 3/4           | 3x 1/2 male       | Brass blank | 79.040, 79.041        |
| 79.032   | 2x 3/4           | 3x 1/2 female     | Brass blank | 79.040, 79.041        |
| 79.033   | 2x 1             | 3x 1/2 male       | Brass blank | 79.040, 79.042        |
| 79.034   | 2x 1             | 3x 1/2 female     | Brass blank | 79.040, 79.042        |
| 79.035   | 2x 1 1/4         | 3x 1/2 male       | Brass blank | 79.040, 79.043        |
| 79.036   | 2x 1 1/4         | 3x 1/2 female     | Brass blank | 79.040, 79.043        |

### Dimensions

| A [mm] | B [mm] |
|--------|--------|
| 114    | 50     |
| 114    | 50     |
| 114    | 50     |
| 114    | 50     |
| 137    | 60     |
| 137    | 60     |
| 164    | 50     |
| 164    | 50     |
| 164    | 50     |
| 164    | 50     |
| 197    | 60     |
| 197    | 60     |

### Dimensions



① = Connection output (male thread) ② = Connection output (female thread)



### Rotary feedthroughs for vacuum

Rotary feedthroughs for revolving machine parts



#### Product description

- > Vacuum inlet for revolving machine parts
- > Suitable for fast moving machinery or gripping systems

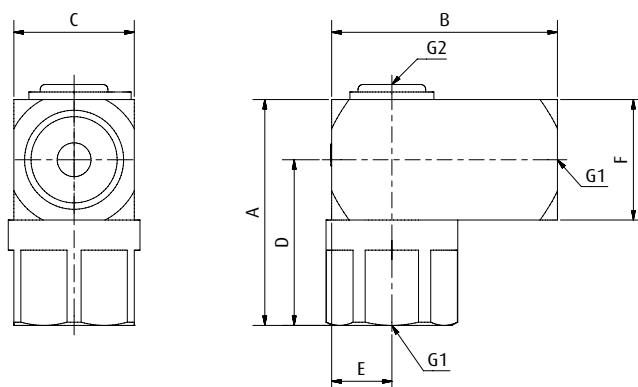
#### Notes

- > Only suitable for vacuum, not for compressed air
- > Construction: Housing of brass, nickel-plated, NBR seals, guide pins, flange screws and retaining ring: Steel galvanised

#### Technical data

| Item no. | Nominal width [mm] | Flow rate solenoid valve [Nl/min] | U max. [l/min] | Operating temperature [°C] | Weight [g] |
|----------|--------------------|-----------------------------------|----------------|----------------------------|------------|
| 30.816   | 5                  | 425                               | 500            | -10 - 85                   | 69         |
| 30.817   | 5                  | 465                               | 550            | -10 - 85                   | 58         |
| 30.818   | 8                  | 1,350                             | 300            | -10 - 85                   | 150        |
| 30.819   | 11                 | 3,200                             | 200            | -10 - 85                   | 549        |

#### Dimensions



| Item no. | G1   | G2   | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | F [mm] |
|----------|------|------|--------|--------|--------|--------|--------|--------|
| 30.816   | G1/8 | --   | 32     | 30     | 16     | 22     | 8      | 16     |
| 30.817   | G1/4 | --   | 32     | 30     | 16     | 22     | 8      | 16     |
| 30.818   | G3/8 | G1/8 | 39     | 40     | 25     | 26     | 12.5   | 20     |
| 30.819   | G1/2 | G3/8 | 55     | 65     | 40     | 35     | 20     | 30     |

## Straight male stud connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.000         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.001         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.002         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.003         | -0.95 - 15           | 0 - 60                     | 4          | R1/4 |
| 30.004         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.005         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 30.006         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 30.007         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 30.008         | -0.95 - 15           | 0 - 60                     | 6          | R3/8 |
| 30.009         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 30.010         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 30.011         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 30.012         | -0.95 - 15           | 0 - 60                     | 10         | R1/8 |
| 30.013         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 30.014         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 30.015         | -0.95 - 15           | 0 - 60                     | 10         | R1/2 |
| 30.016         | -0.95 - 15           | 0 - 60                     | 12         | R1/4 |
| 30.017         | -0.95 - 15           | 0 - 60                     | 12         | R3/8 |
| 30.018         | -0.95 - 15           | 0 - 60                     | 12         | R1/2 |
| 30.019         | -0.95 - 15           | 0 - 60                     | 16         | R3/8 |
| 30.020         | -0.95 - 15           | 0 - 60                     | 16         | R1/2 |
| 30.002-G       | -0.95 - 15           | -20 - 80                   | 4          | G1/8 |
| 30.003-G       | -0.95 - 15           | -20 - 80                   | 4          | G1/4 |
| 30.006-G       | -0.95 - 15           | -20 - 80                   | 6          | G1/8 |
| 30.007-G       | -0.95 - 15           | -20 - 80                   | 6          | G1/4 |
| 30.008-G       | -0.95 - 15           | -20 - 80                   | 6          | G3/8 |
| 30.011-G       | -0.95 - 15           | -20 - 80                   | 8          | G3/8 |
| 30.012-G       | -0.95 - 15           | -20 - 80                   | 10         | G1/8 |
| 30.013-G       | -0.95 - 15           | -20 - 80                   | 10         | G1/4 |
| 30.014-G       | -0.95 - 15           | -20 - 80                   | 10         | G3/8 |
| 30.015-G       | -0.95 - 15           | -20 - 80                   | 10         | G1/2 |
| 30.016-G       | -0.95 - 15           | -20 - 80                   | 12         | G1/4 |
| 30.017-G       | -0.95 - 15           | -20 - 80                   | 12         | G3/8 |
| 30.018-G       | -0.95 - 15           | -20 - 80                   | 12         | G1/2 |
| 30.019-G       | -0.95 - 15           | -20 - 80                   | 16         | G3/8 |
| 30.020-G       | -0.95 - 15           | -20 - 80                   | 16         | G1/2 |
| 30.021-G       | -0.95 - 15           | -20 - 80                   | 28         | G1   |



## Cartridge male stud connectors, round, hex key



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.200         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.201         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.202         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.203         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.204         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 30.205         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 30.206         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 30.207         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 30.208         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 30.209         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 30.210         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 30.211         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 30.212         | -0.95 - 15           | 0 - 60                     | 10         | R1/2 |
| 30.213         | -0.95 - 15           | 0 - 60                     | 12         | R3/8 |
| 30.214         | -0.95 - 15           | 0 - 60                     | 12         | R1/2 |

## Straight male stud connectors with cut-off valve

Locking of compressed air or vacuum during disassembly, release after reconnection



| Technical data |                                           |                      |                            | Dimensions |      |
|----------------|-------------------------------------------|----------------------|----------------------------|------------|------|
| Item no.       | Effective passage area [mm <sup>2</sup> ] | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.761         | 1.6                                       | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.762         | 2                                         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.763         | 2.3                                       | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.764         | 7.3                                       | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 30.765         | 7.3                                       | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |

## Female stud connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.050         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.051         | -0.95 - 15           | 0 - 60                     | 4          | R1/4 |
| 30.052         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 30.053         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 30.054         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 30.055         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 30.056         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 30.057         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 30.058         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 30.059         | -0.95 - 15           | 0 - 60                     | 12         | R1/4 |
| 30.060         | -0.95 - 15           | 0 - 60                     | 12         | R3/8 |
| 30.062         | -0.95 - 15           | 0 - 60                     | 10         | G1/2 |
| 30.063         | -0.95 - 15           | 0 - 60                     | 12         | G1/2 |
| 30.056-G       | -0.95 - 15           | -20 - 80                   | 8          | G3/8 |
| 30.057-G       | -0.95 - 15           | -20 - 80                   | 10         | G1/4 |
| 30.058-G       | -0.95 - 15           | -20 - 80                   | 10         | G3/8 |
| 30.059-G       | -0.95 - 15           | -20 - 80                   | 12         | G1/4 |
| 30.060-G       | -0.95 - 15           | -20 - 80                   | 12         | G3/8 |

## Straight tube connectors - equal



| Technical data |                      |                            | Dimensions |          |
|----------------|----------------------|----------------------------|------------|----------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | Ø d [mm] |
| 30.223         | -0.95 - 15           | 0 - 60                     | 4          | 4        |
| 30.224         | -0.95 - 15           | 0 - 60                     | 6          | 6        |
| 30.225         | -0.95 - 15           | 0 - 60                     | 8          | 8        |
| 30.226         | -0.95 - 15           | 0 - 60                     | 10         | 10       |
| 30.227         | -0.95 - 15           | 0 - 60                     | 12         | 12       |
| 30.228         | -0.95 - 15           | 0 - 60                     | 16         | 16       |





## Straight tube reducers



### Technical data

| Item no. | Pressure range<br>[bar] | Operating<br>temperature [°C] |
|----------|-------------------------|-------------------------------|
| 30.075   | -0.95 - 15              | 0 - 60                        |
| 30.076   | -0.95 - 15              | 0 - 60                        |
| 30.077   | -0.95 - 15              | 0 - 60                        |
| 30.078   | -0.95 - 15              | 0 - 60                        |
| 30.080   | -0.95 - 15              | 0 - 60                        |

### Dimensions

| Ø D1 [mm] | Ø D2 [mm] |
|-----------|-----------|
| 6         | 4         |
| 8         | 6         |
| 10        | 8         |
| 12        | 10        |
| 16        | 12        |

## Male stud connectors with ball bearing

Ball bearing enables applications with fast rotation or pivoting



### Technical data

| Item no. | Max. revolutions<br>[1/min.] | Pressure range<br>[bar] | Operating<br>temperature [°C] |
|----------|------------------------------|-------------------------|-------------------------------|
| 30.800   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.801   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.802   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.803   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.804   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.805   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.806   | 400                          | -0.95 - 15              | 0 - 60                        |
| 30.807   | 400                          | -0.95 - 15              | 0 - 60                        |
| 30.808   | 400                          | -0.95 - 15              | 0 - 60                        |
| 30.809   | 300                          | -0.95 - 15              | 0 - 60                        |
| 30.810   | 300                          | -0.95 - 15              | 0 - 60                        |
| 30.811   | 300                          | -0.95 - 15              | 0 - 60                        |
| 30.812   | 300                          | -0.95 - 15              | 0 - 60                        |
| 30.813   | 250                          | -0.95 - 15              | 0 - 60                        |
| 30.814   | 250                          | -0.95 - 15              | 0 - 60                        |
| 30.815   | 250                          | -0.95 - 15              | 0 - 60                        |

### Dimensions

| Ø D [mm] | G    |
|----------|------|
| 4        | M5   |
| 4        | M6   |
| 4        | R1/8 |
| 6        | M6   |
| 6        | R1/8 |
| 6        | R1/4 |
| 8        | R1/8 |
| 8        | R1/4 |
| 8        | R3/8 |
| 10       | R1/8 |
| 10       | R1/4 |
| 10       | R3/8 |
| 10       | R1/2 |
| 12       | R1/4 |
| 12       | R3/8 |
| 12       | R1/2 |

### Push-in stud connectors for high speed rotation

Locking of compressed air or vacuum during disassembly, release after reconnection



#### Technical data

| Item no. | Max. revolutions<br>[1/min.] | Pressure range<br>[bar] | Operating<br>temperature [°C] |
|----------|------------------------------|-------------------------|-------------------------------|
| 30.846   | 1,500                        | -0.95 - 15              | 0 - 60                        |
| 30.847   | 1,500                        | -0.95 - 15              | 0 - 60                        |
| 30.848   | 1,500                        | -0.95 - 15              | 0 - 60                        |
| 30.849   | 1,200                        | -0.95 - 15              | 0 - 60                        |
| 30.850   | 1,200                        | -0.95 - 15              | 0 - 60                        |
| 30.851   | 1,200                        | -0.95 - 15              | 0 - 60                        |
| 30.852   | 1,200                        | -0.95 - 15              | 0 - 60                        |
| 30.853   | 900                          | -0.95 - 15              | 0 - 60                        |
| 30.854   | 900                          | -0.95 - 15              | 0 - 60                        |
| 30.855   | 900                          | -0.95 - 15              | 0 - 60                        |
| 30.856   | 900                          | -0.95 - 15              | 0 - 60                        |

#### Dimensions

| Ø D [mm] | G    |
|----------|------|
| 4        | M5   |
| 4        | M6   |
| 4        | R1/8 |
| 6        | R1/8 |
| 6        | R1/4 |
| 8        | R1/8 |
| 8        | R1/4 |
| 10       | R3/8 |
| 10       | R1/2 |
| 12       | R3/8 |
| 12       | R1/2 |



## 90° elbow male connectors



### Technical data

| Item no. | Pressure range<br>[bar] | Operating<br>temperature [°C] |
|----------|-------------------------|-------------------------------|
| 30.100   | -0.95 - 15              | 0 - 60                        |
| 30.101   | -0.95 - 15              | 0 - 60                        |
| 30.102   | -0.95 - 15              | 0 - 60                        |
| 30.103   | -0.95 - 15              | 0 - 60                        |
| 30.104   | -0.95 - 15              | 0 - 60                        |
| 30.105   | -0.95 - 15              | 0 - 60                        |
| 30.106   | -0.95 - 15              | 0 - 60                        |
| 30.107   | -0.95 - 15              | 0 - 60                        |
| 30.108   | -0.95 - 15              | 0 - 60                        |
| 30.109   | -0.95 - 15              | 0 - 60                        |
| 30.110   | -0.95 - 15              | 0 - 60                        |
| 30.111   | -0.95 - 15              | 0 - 60                        |
| 30.112   | -0.95 - 15              | 0 - 60                        |
| 30.113   | -0.95 - 15              | 0 - 60                        |
| 30.114   | -0.95 - 15              | 0 - 60                        |
| 30.115   | -0.95 - 15              | 0 - 60                        |
| 30.116   | -0.95 - 15              | 0 - 60                        |
| 30.117   | -0.95 - 15              | 0 - 60                        |
| 30.118   | -0.95 - 15              | 0 - 60                        |
| 30.119   | -0.95 - 15              | 0 - 60                        |
| 30.120   | -0.95 - 15              | 0 - 60                        |
| 30.102-G | -0.95 - 15              | -20 - 80                      |
| 30.103-G | -0.95 - 15              | -20 - 80                      |
| 30.106-G | -0.95 - 15              | -20 - 80                      |
| 30.107-G | -0.95 - 15              | -20 - 80                      |
| 30.108-G | -0.95 - 15              | -20 - 80                      |
| 30.109-G | -0.95 - 15              | -20 - 80                      |
| 30.110-G | -0.95 - 15              | -20 - 80                      |
| 30.111-G | -0.95 - 15              | -20 - 80                      |
| 30.112-G | -0.95 - 15              | -20 - 80                      |
| 30.113-G | -0.95 - 15              | -20 - 80                      |
| 30.114-G | -0.95 - 15              | -20 - 80                      |
| 30.115-G | -0.95 - 15              | -20 - 80                      |
| 30.116-G | -0.95 - 15              | -20 - 80                      |
| 30.117-G | -0.95 - 15              | -20 - 80                      |
| 30.118-G | -0.95 - 15              | -20 - 80                      |
| 30.119-G | -0.95 - 15              | -20 - 80                      |
| 30.120-G | -0.95 - 15              | -20 - 80                      |

### Dimensions

| Ø D [mm] | G    |
|----------|------|
| 4        | M5   |
| 4        | M6   |
| 4        | R1/8 |
| 4        | R1/4 |
| 6        | M5   |
| 6        | M6   |
| 6        | R1/8 |
| 6        | R1/4 |
| 6        | R3/8 |
| 8        | R1/8 |
| 8        | R1/4 |
| 8        | R3/8 |
| 10       | R1/8 |
| 10       | R1/4 |
| 10       | R3/8 |
| 10       | R1/2 |
| 12       | R1/4 |
| 12       | R3/8 |
| 12       | R1/2 |
| 16       | R3/8 |
| 16       | R1/2 |
| 4        | G1/8 |
| 4        | G1/4 |
| 6        | G1/8 |
| 6        | G1/4 |
| 6        | G3/8 |
| 8        | G1/8 |
| 8        | G1/4 |
| 8        | G3/8 |
| 10       | G1/8 |
| 10       | G1/4 |
| 10       | G3/8 |
| 10       | G1/2 |
| 12       | G1/4 |
| 12       | G3/8 |
| 12       | G1/2 |
| 16       | G3/8 |
| 16       | G1/2 |

## 90° extended elbow male connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.279         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.280         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.281         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 30.282         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 30.283         | -0.95 - 15           | 0 - 60                     | 6          | R3/8 |
| 30.284         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 30.285         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 30.286         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 30.287         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 30.288         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 30.289         | -0.95 - 15           | 0 - 60                     | 10         | R1/2 |
| 30.290         | -0.95 - 15           | 0 - 60                     | 12         | R1/4 |
| 30.291         | -0.95 - 15           | 0 - 60                     | 12         | R3/8 |
| 30.292         | -0.95 - 15           | 0 - 60                     | 12         | R1/2 |



## 90° elbow female connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.170         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.171         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.172         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.173         | -0.95 - 15           | 0 - 60                     | 4          | R1/4 |
| 30.174         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.175         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 30.176         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 30.177         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 30.178         | -0.95 - 15           | 0 - 60                     | 6          | R3/8 |
| 30.179         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 30.180         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 30.181         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 30.182         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 30.183         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 30.184         | -0.95 - 15           | 0 - 60                     | 10         | R1/2 |
| 30.172-G       | -0.95 - 15           | -20 - 80                   | 4          | G1/8 |
| 30.173-G       | -0.95 - 15           | -20 - 80                   | 4          | G1/4 |
| 30.176-G       | -0.95 - 15           | -20 - 80                   | 6          | G1/8 |
| 30.178-G       | -0.95 - 15           | -20 - 80                   | 6          | G3/8 |
| 30.179-G       | -0.95 - 15           | -20 - 80                   | 8          | G1/8 |
| 30.180-G       | -0.95 - 15           | -20 - 80                   | 8          | G1/4 |
| 30.181-G       | -0.95 - 15           | -20 - 80                   | 8          | G3/8 |
| 30.182-G       | -0.95 - 15           | -20 - 80                   | 10         | G1/4 |
| 30.183-G       | -0.95 - 15           | -20 - 80                   | 10         | G3/8 |

### 90° male elbows with cut-off valve

Locking of compressed air or vacuum during disassembly, release after reconnection



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.774         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.775         | -0.95 - 15           | 0 - 60                     | 4          | G1/8 |
| 30.776         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.777         | -0.95 - 15           | 0 - 60                     | 6          | G1/8 |
| 30.778         | -0.95 - 15           | 0 - 60                     | 6          | G1/4 |

### 90° elbow connectors - equal



| Technical data |                      |                            | Dimensions |
|----------------|----------------------|----------------------------|------------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   |
| 30.270         | -0.95 - 15           | 0 - 60                     | 4          |
| 30.271         | -0.95 - 15           | 0 - 60                     | 6          |
| 30.272         | -0.95 - 15           | 0 - 60                     | 8          |
| 30.273         | -0.95 - 15           | 0 - 60                     | 10         |
| 30.274         | -0.95 - 15           | 0 - 60                     | 12         |
| 30.275         | -0.95 - 15           | 0 - 60                     | 16         |



## 90° male elbows with ball bearing

Ball bearing enables applications with fast rotation or pivoting



### Technical data

| Item no. | Max. revolutions<br>[1/min.] | Pressure range<br>[bar] | Operating<br>temperature [°C] |
|----------|------------------------------|-------------------------|-------------------------------|
| 30.823   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.824   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.825   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.826   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.827   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.828   | 500                          | -0.95 - 15              | 0 - 60                        |
| 30.829   | 400                          | -0.95 - 15              | 0 - 60                        |
| 30.830   | 400                          | -0.95 - 15              | 0 - 60                        |
| 30.831   | 400                          | -0.95 - 15              | 0 - 60                        |
| 30.832   | 300                          | -0.95 - 15              | 0 - 60                        |
| 30.833   | 300                          | -0.95 - 15              | 0 - 60                        |
| 30.834   | 300                          | -0.95 - 15              | 0 - 60                        |
| 30.835   | 300                          | -0.95 - 15              | 0 - 60                        |
| 30.836   | 250                          | -0.95 - 15              | 0 - 60                        |
| 30.837   | 250                          | -0.95 - 15              | 0 - 60                        |
| 30.838   | 250                          | -0.95 - 15              | 0 - 60                        |

### Dimensions

| Ø D [mm] | G    |
|----------|------|
| 4        | M5   |
| 4        | M6   |
| 4        | R1/8 |
| 6        | M6   |
| 6        | R1/8 |
| 6        | R1/4 |
| 8        | R1/8 |
| 8        | R1/4 |
| 8        | R3/8 |
| 10       | R1/8 |
| 10       | R1/4 |
| 10       | R3/8 |
| 10       | R1/2 |
| 12       | R1/4 |
| 12       | R3/8 |
| 12       | R1/2 |

## 90° male elbows for high speed rotation



### Technical data

| Item no. | Max. revolutions<br>[1/min.] | Pressure range<br>[bar] | Operating<br>temperature [°C] |
|----------|------------------------------|-------------------------|-------------------------------|
| 30.863   | 1,500                        | -0.95 - 15              | 0 - 60                        |
| 30.864   | 1,500                        | -0.95 - 15              | 0 - 60                        |
| 30.865   | 1,500                        | -0.95 - 15              | 0 - 60                        |
| 30.866   | 1,200                        | -0.95 - 15              | 0 - 60                        |
| 30.867   | 1,200                        | -0.95 - 15              | 0 - 60                        |
| 30.868   | 1,200                        | -0.95 - 15              | 0 - 60                        |
| 30.869   | 1,200                        | -0.95 - 15              | 0 - 60                        |
| 30.870   | 900                          | -0.95 - 15              | 0 - 60                        |
| 30.871   | 900                          | -0.95 - 15              | 0 - 60                        |
| 30.872   | 900                          | -0.95 - 15              | 0 - 60                        |
| 30.873   | 900                          | -0.95 - 15              | 0 - 60                        |

### Dimensions

| Ø D [mm] | G    |
|----------|------|
| 4        | M5   |
| 4        | M6   |
| 4        | R1/8 |
| 6        | R1/8 |
| 6        | R1/4 |
| 8        | R1/8 |
| 8        | R1/4 |
| 10       | R3/8 |
| 10       | R1/2 |
| 12       | R3/8 |
| 12       | R1/2 |

## Male banjo connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.300         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.301         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.302         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.303         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 30.304         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 30.305         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 30.306         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 30.307         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 30.308         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 30.309         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 30.310         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 30.311         | -0.95 - 15           | 0 - 60                     | 12         | R3/8 |
| 30.312         | -0.95 - 15           | 0 - 60                     | 12         | R1/2 |
| 30.313         | -0.95 - 15           | 0 - 60                     | 16         | R3/8 |





## Male branch tee connectors



### Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|----------|----------------------|----------------------------|
| 30.332   | -0.95 - 15           | 0 - 60                     |
| 30.333   | -0.95 - 15           | 0 - 60                     |
| 30.334   | -0.95 - 15           | 0 - 60                     |
| 30.335   | -0.95 - 15           | 0 - 60                     |
| 30.336   | -0.95 - 15           | 0 - 60                     |
| 30.337   | -0.95 - 15           | 0 - 60                     |
| 30.338   | -0.95 - 15           | 0 - 60                     |
| 30.339   | -0.95 - 15           | 0 - 60                     |
| 30.340   | -0.95 - 15           | 0 - 60                     |
| 30.341   | -0.95 - 15           | 0 - 60                     |
| 30.342   | -0.95 - 15           | 0 - 60                     |
| 30.343   | -0.95 - 15           | 0 - 60                     |
| 30.344   | -0.95 - 15           | 0 - 60                     |
| 30.345   | -0.95 - 15           | 0 - 60                     |
| 30.346   | -0.95 - 15           | 0 - 60                     |
| 30.347   | -0.95 - 15           | 0 - 60                     |
| 30.348   | -0.95 - 15           | 0 - 60                     |
| 30.349   | -0.95 - 15           | 0 - 60                     |
| 30.350   | -0.95 - 15           | 0 - 60                     |
| 30.351   | -0.95 - 15           | 0 - 60                     |

### Dimensions

| Ø D [mm] | G    |
|----------|------|
| 4        | M5   |
| 4        | M6   |
| 4        | R1/8 |
| 4        | R1/4 |
| 6        | M5   |
| 6        | M6   |
| 6        | R1/8 |
| 6        | R1/4 |
| 6        | R3/8 |
| 8        | R1/8 |
| 8        | R1/4 |
| 8        | R3/8 |
| 10       | R1/4 |
| 10       | R3/8 |
| 10       | R1/2 |
| 12       | R1/4 |
| 12       | R3/8 |
| 12       | R1/2 |
| 16       | R3/8 |
| 16       | R1/2 |

## Equal tube tee connectors



### Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|----------|----------------------|----------------------------|
| 30.390   | -0.95 - 15           | 0 - 60                     |
| 30.391   | -0.95 - 15           | 0 - 60                     |
| 30.392   | -0.95 - 15           | 0 - 60                     |
| 30.393   | -0.95 - 15           | 0 - 60                     |
| 30.394   | -0.95 - 15           | 0 - 60                     |
| 30.395   | -0.95 - 15           | 0 - 60                     |

### Dimensions

| Ø D [mm] |
|----------|
| 4        |
| 6        |
| 8        |
| 10       |
| 12       |
| 16       |

## Unequal tube tee connectors



| Technical data |                      |                            | Dimensions |           |
|----------------|----------------------|----------------------------|------------|-----------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D1 [mm]  | Ø D2 [mm] |
| 30.399         | -0.95 - 15           | 0 - 60                     | 6          | 4         |
| 30.400         | -0.95 - 15           | 0 - 60                     | 8          | 6         |
| 30.401         | -0.95 - 15           | 0 - 60                     | 10         | 8         |
| 30.402         | -0.95 - 15           | 0 - 60                     | 12         | 10        |

## Equal Y connectors



| Technical data |                      |                            | Dimensions |
|----------------|----------------------|----------------------------|------------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   |
| 30.431         | -0.95 - 15           | 0 - 60                     | 4          |
| 30.432         | -0.95 - 15           | 0 - 60                     | 6          |
| 30.433         | -0.95 - 15           | 0 - 60                     | 8          |
| 30.434         | -0.95 - 15           | 0 - 60                     | 10         |
| 30.435         | -0.95 - 15           | 0 - 60                     | 12         |
| 30.436         | -0.95 - 15           | 0 - 60                     | 16         |

## Unequal Y connectors



| Technical data |                      |                            | Dimensions |           |
|----------------|----------------------|----------------------------|------------|-----------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D1 [mm]  | Ø D2 [mm] |
| 30.440         | -0.95 - 15           | 0 - 60                     | 6          | 4         |
| 30.441         | -0.95 - 15           | 0 - 60                     | 8          | 6         |
| 30.442         | -0.95 - 15           | 0 - 60                     | 10         | 8         |
| 30.443         | -0.95 - 15           | 0 - 60                     | 12         | 10        |



## Male Y connectors



### Technical data

| Item no. | Pressure range<br>[bar] | Operating<br>temperature [°C] |
|----------|-------------------------|-------------------------------|
| 30.403   | -0.95 - 15              | 0 - 60                        |
| 30.404   | -0.95 - 15              | 0 - 60                        |
| 30.405   | -0.95 - 15              | 0 - 60                        |
| 30.406   | -0.95 - 15              | 0 - 60                        |
| 30.407   | -0.95 - 15              | 0 - 60                        |
| 30.408   | -0.95 - 15              | 0 - 60                        |
| 30.409   | -0.95 - 15              | 0 - 60                        |
| 30.410   | -0.95 - 15              | 0 - 60                        |
| 30.411   | -0.95 - 15              | 0 - 60                        |
| 30.412   | -0.95 - 15              | 0 - 60                        |
| 30.413   | -0.95 - 15              | 0 - 60                        |
| 30.414   | -0.95 - 15              | 0 - 60                        |
| 30.415   | -0.95 - 15              | 0 - 60                        |
| 30.416   | -0.95 - 15              | 0 - 60                        |
| 30.417   | -0.95 - 15              | 0 - 60                        |
| 30.418   | -0.95 - 15              | 0 - 60                        |
| 30.419   | -0.95 - 15              | 0 - 60                        |
| 30.420   | -0.95 - 15              | 0 - 60                        |
| 30.421   | -0.95 - 15              | 0 - 60                        |

### Dimensions

| Ø D [mm] | G    |
|----------|------|
| 4        | M5   |
| 4        | R1/8 |
| 4        | R1/4 |
| 6        | M5   |
| 6        | M6   |
| 6        | R1/8 |
| 6        | R1/4 |
| 6        | R3/8 |
| 8        | R1/8 |
| 8        | R1/4 |
| 8        | R3/8 |
| 10       | R1/4 |
| 10       | R3/8 |
| 10       | R1/2 |
| 12       | R1/4 |
| 12       | R3/8 |
| 12       | R1/2 |
| 16       | R3/8 |
| 16       | R1/2 |

## Elbow Y male connectors



| Technical data |                         |                               | Dimensions |      |
|----------------|-------------------------|-------------------------------|------------|------|
| Item no.       | Pressure range<br>[bar] | Operating temperature<br>[°C] | Ø D [mm]   | G    |
| 30.518         | -0.95 - 15              | 0 - 60                        | 4          | M5   |
| 30.519         | -0.95 - 15              | 0 - 60                        | 4          | M6   |
| 30.520         | -0.95 - 15              | 0 - 60                        | 4          | R1/8 |
| 30.521         | -0.95 - 15              | 0 - 60                        | 4          | R1/4 |
| 30.522         | -0.95 - 15              | 0 - 60                        | 6          | M5   |
| 30.523         | -0.95 - 15              | 0 - 60                        | 6          | M6   |
| 30.524         | -0.95 - 15              | 0 - 60                        | 6          | R1/8 |
| 30.525         | -0.95 - 15              | 0 - 60                        | 6          | R1/4 |
| 30.526         | -0.95 - 15              | 0 - 60                        | 6          | R3/8 |
| 30.527         | -0.95 - 15              | 0 - 60                        | 8          | R1/8 |
| 30.528         | -0.95 - 15              | 0 - 60                        | 8          | R1/4 |
| 30.529         | -0.95 - 15              | 0 - 60                        | 8          | R3/8 |
| 30.530         | -0.95 - 15              | 0 - 60                        | 10         | R1/4 |
| 30.531         | -0.95 - 15              | 0 - 60                        | 10         | R3/8 |
| 30.532         | -0.95 - 15              | 0 - 60                        | 10         | R1/2 |
| 30.533         | -0.95 - 15              | 0 - 60                        | 12         | R1/4 |
| 30.534         | -0.95 - 15              | 0 - 60                        | 12         | R3/8 |
| 30.535         | -0.95 - 15              | 0 - 60                        | 12         | R1/2 |

## Push-in connectors QC

Available as an option: Connecting strap for parallel circuit = QB-H, for series circuit = QB-T



| Technical data |                         |                               | Dimensions |           |
|----------------|-------------------------|-------------------------------|------------|-----------|
| Item no.       | Pressure range<br>[bar] | Operating temperature<br>[°C] | Ø D1 [mm]  | Ø D2 [mm] |
| QC3-3M         | -0.95 - 15              | 0 - 60                        | 3          | 3         |
| QC3-4M         | -0.95 - 15              | 0 - 60                        | 3          | 4         |
| QC3-6M         | -0.95 - 15              | 0 - 60                        | 3          | 6         |
| QC4-3M         | -0.95 - 15              | 0 - 60                        | 4          | 3         |
| QC4-4M         | -0.95 - 15              | 0 - 60                        | 4          | 4         |
| QC4-6M         | -0.95 - 15              | 0 - 60                        | 4          | 6         |
| QC6-3M         | -0.95 - 15              | 0 - 60                        | 6          | 3         |
| QC6-4M         | -0.95 - 15              | 0 - 60                        | 6          | 4         |
| QC6-6M         | -0.95 - 15              | 0 - 60                        | 6          | 6         |
| QC6-6          | -0.95 - 15              | 0 - 60                        | 6          | 6         |
| QC6-8          | -0.95 - 15              | 0 - 60                        | 6          | 8         |
| QC8-6          | -0.95 - 15              | 0 - 60                        | 8          | 6         |
| QC8-8          | -0.95 - 15              | 0 - 60                        | 8          | 8         |



## Two stack banjos



### Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|----------|----------------------|----------------------------|
| 30.599   | -0.95 - 15           | 0 - 60                     |
| 30.600   | -0.95 - 15           | 0 - 60                     |
| 30.601   | -0.95 - 15           | 0 - 60                     |
| 30.602   | -0.95 - 15           | 0 - 60                     |
| 30.603   | -0.95 - 15           | 0 - 60                     |
| 30.604   | -0.95 - 15           | 0 - 60                     |
| 30.605   | -0.95 - 15           | 0 - 60                     |
| 30.606   | -0.95 - 15           | 0 - 60                     |
| 30.607   | -0.95 - 15           | 0 - 60                     |
| 30.608   | -0.95 - 15           | 0 - 60                     |
| 30.609   | -0.95 - 15           | 0 - 60                     |
| 30.610   | -0.95 - 15           | 0 - 60                     |
| 30.611   | -0.95 - 15           | 0 - 60                     |
| 30.612   | -0.95 - 15           | 0 - 60                     |
| 30.613   | -0.95 - 15           | 0 - 60                     |
| 30.614   | -0.95 - 15           | 0 - 60                     |

### Dimensions

| Ø D [mm] | G    |
|----------|------|
| 4        | R1/8 |
| 4        | R1/4 |
| 4        | R3/8 |
| 6        | R1/8 |
| 6        | R1/4 |
| 6        | R3/8 |
| 8        | R1/8 |
| 8        | R1/4 |
| 8        | R3/8 |
| 8        | R1/2 |
| 10       | R1/4 |
| 10       | R3/8 |
| 10       | R1/2 |
| 12       | R1/4 |
| 12       | R3/8 |
| 12       | R1/2 |

## Two stack, twin banjos



### Technical data

| Item no. | Pressure range [bar] | Operating temperature [°C] |
|----------|----------------------|----------------------------|
| 30.649   | -0.95 - 15           | 0 - 60                     |
| 30.650   | -0.95 - 15           | 0 - 60                     |
| 30.651   | -0.95 - 15           | 0 - 60                     |
| 30.652   | -0.95 - 15           | 0 - 60                     |
| 30.653   | -0.95 - 15           | 0 - 60                     |
| 30.654   | -0.95 - 15           | 0 - 60                     |
| 30.655   | -0.95 - 15           | 0 - 60                     |
| 30.656   | -0.95 - 15           | 0 - 60                     |
| 30.657   | -0.95 - 15           | 0 - 60                     |
| 30.658   | -0.95 - 15           | 0 - 60                     |
| 30.659   | -0.95 - 15           | 0 - 60                     |
| 30.660   | -0.95 - 15           | 0 - 60                     |
| 30.661   | -0.95 - 15           | 0 - 60                     |
| 30.662   | -0.95 - 15           | 0 - 60                     |
| 30.663   | -0.95 - 15           | 0 - 60                     |
| 30.664   | -0.95 - 15           | 0 - 60                     |

### Dimensions

| Ø D [mm] | G    |
|----------|------|
| 4        | R1/8 |
| 4        | R1/4 |
| 4        | R3/8 |
| 6        | R1/8 |
| 6        | R1/4 |
| 6        | R3/8 |
| 8        | R1/8 |
| 8        | R1/4 |
| 8        | R3/8 |
| 8        | R1/2 |
| 10       | R1/4 |
| 10       | R3/8 |
| 10       | R1/2 |
| 12       | R1/4 |
| 12       | R3/8 |
| 12       | R1/2 |

## 3-way male elbow connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.490         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.491         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.492         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.493         | -0.95 - 15           | 0 - 60                     | 4          | R1/4 |
| 30.494         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.495         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 30.496         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 30.497         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 30.498         | -0.95 - 15           | 0 - 60                     | 6          | R3/8 |
| 30.499         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 30.500         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 30.501         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 30.502         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 30.503         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 30.504         | -0.95 - 15           | 0 - 60                     | 10         | R1/2 |
| 30.505         | -0.95 - 15           | 0 - 60                     | 12         | R1/4 |
| 30.506         | -0.95 - 15           | 0 - 60                     | 12         | R3/8 |
| 30.507         | -0.95 - 15           | 0 - 60                     | 12         | R1/2 |

## Three stack, twin banjos



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.674         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.675         | -0.95 - 15           | 0 - 60                     | 4          | R1/4 |
| 30.676         | -0.95 - 15           | 0 - 60                     | 4          | R3/8 |
| 30.677         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 30.678         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 30.679         | -0.95 - 15           | 0 - 60                     | 6          | R3/8 |
| 30.680         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 30.681         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 30.682         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 30.683         | -0.95 - 15           | 0 - 60                     | 8          | R1/2 |
| 30.684         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 30.685         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 30.686         | -0.95 - 15           | 0 - 60                     | 10         | R1/2 |
| 30.687         | -0.95 - 15           | 0 - 60                     | 12         | R1/4 |
| 30.688         | -0.95 - 15           | 0 - 60                     | 12         | R3/8 |
| 30.689         | -0.95 - 15           | 0 - 60                     | 12         | R1/2 |



## Self-extinguishing male stud connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 32.000         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 32.001         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 32.002         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 32.003         | -0.95 - 15           | 0 - 60                     | 4          | R1/4 |
| 32.004         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 32.005         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 32.006         | -0.95 - 15           | 0 - 60                     | 6          | R3/8 |
| 32.007         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 32.008         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 32.009         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 32.010         | -0.95 - 15           | 0 - 60                     | 10         | R1/8 |
| 32.011         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 32.012         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 32.013         | -0.95 - 15           | 0 - 60                     | 10         | R1/2 |
| 32.014         | -0.95 - 15           | 0 - 60                     | 12         | R1/4 |
| 32.015         | -0.95 - 15           | 0 - 60                     | 12         | R3/8 |
| 32.016         | -0.95 - 15           | 0 - 60                     | 12         | R1/2 |

## Self-extinguishing equal tube connectors



| Technical data |                      |                            | Dimensions |
|----------------|----------------------|----------------------------|------------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   |
| 32.055         | -0.95 - 15           | 0 - 60                     | 4          |
| 32.056         | -0.95 - 15           | 0 - 60                     | 6          |
| 32.057         | -0.95 - 15           | 0 - 60                     | 8          |
| 32.058         | -0.95 - 15           | 0 - 60                     | 10         |
| 32.059         | -0.95 - 15           | 0 - 60                     | 12         |



## 90° male elbow connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 32.033         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 32.034         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 32.035         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 32.036         | -0.95 - 15           | 0 - 60                     | 4          | R1/4 |
| 32.037         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 32.038         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 32.039         | -0.95 - 15           | 0 - 60                     | 6          | R3/8 |
| 32.040         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 32.041         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 32.042         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 32.043         | -0.95 - 15           | 0 - 60                     | 10         | R1/8 |
| 32.044         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 32.045         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 32.046         | -0.95 - 15           | 0 - 60                     | 10         | R1/2 |
| 32.047         | -0.95 - 15           | 0 - 60                     | 12         | R1/4 |
| 32.048         | -0.95 - 15           | 0 - 60                     | 12         | R3/8 |
| 32.049         | -0.95 - 15           | 0 - 60                     | 12         | R1/2 |

## 90° male elbow connectors - equal



| Technical data |                      |                            | Dimensions |
|----------------|----------------------|----------------------------|------------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   |
| 32.050         | -0.95 - 15           | 0 - 60                     | 4          |
| 32.051         | -0.95 - 15           | 0 - 60                     | 6          |
| 32.052         | -0.95 - 15           | 0 - 60                     | 8          |
| 32.053         | -0.95 - 15           | 0 - 60                     | 10         |
| 32.054         | -0.95 - 15           | 0 - 60                     | 12         |





### Male branch tee connectors, self-extinguishing



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 32.017         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 32.018         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 32.019         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 32.020         | -0.95 - 15           | 0 - 60                     | 4          | R1/4 |
| 32.021         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |
| 32.022         | -0.95 - 15           | 0 - 60                     | 6          | R1/4 |
| 32.023         | -0.95 - 15           | 0 - 60                     | 6          | R3/8 |
| 32.024         | -0.95 - 15           | 0 - 60                     | 8          | R1/8 |
| 32.025         | -0.95 - 15           | 0 - 60                     | 8          | R1/4 |
| 32.026         | -0.95 - 15           | 0 - 60                     | 8          | R3/8 |
| 32.027         | -0.95 - 15           | 0 - 60                     | 10         | R1/4 |
| 32.028         | -0.95 - 15           | 0 - 60                     | 10         | R3/8 |
| 32.029         | -0.95 - 15           | 0 - 60                     | 10         | R1/2 |
| 32.030         | -0.95 - 15           | 0 - 60                     | 12         | R1/4 |
| 32.031         | -0.95 - 15           | 0 - 60                     | 12         | R3/8 |
| 32.032         | -0.95 - 15           | 0 - 60                     | 12         | R1/2 |

### Equal tube tee connectors, self-extinguishing



| Technical data |                      |                            | Dimensions |
|----------------|----------------------|----------------------------|------------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   |
| 32.060         | -0.95 - 15           | 0 - 60                     | 4          |
| 32.061         | -0.95 - 15           | 0 - 60                     | 6          |
| 32.062         | -0.95 - 15           | 0 - 60                     | 8          |
| 32.063         | -0.95 - 15           | 0 - 60                     | 10         |
| 32.064         | -0.95 - 15           | 0 - 60                     | 12         |

### Mini male stud connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.900         | -0.95 - 15           | 0 - 60                     | 3          | M3   |
| 30.901         | -0.95 - 15           | 0 - 60                     | 3          | M5   |
| 30.902         | -0.95 - 15           | 0 - 60                     | 3          | M6   |
| 30.903         | -0.95 - 15           | 0 - 60                     | 4          | M3   |
| 30.904         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.905         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.906         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.907         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.908         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 30.906-G       | -0.95 - 15           | -20 - 80                   | 4          | G1/8 |
| 30.910-G       | -0.95 - 15           | -20 - 80                   | 6          | G1/8 |

### Mini male stud connectors, round, hex key



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.920         | -0.95 - 15           | 0 - 60                     | 3          | M3   |
| 30.921         | -0.95 - 15           | 0 - 60                     | 3          | M5   |
| 30.922         | -0.95 - 15           | 0 - 60                     | 4          | M3   |
| 30.923         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.924         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.925         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.926         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.927         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 30.928         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |



## Mini tube fittings, cartridge



| Technical data |                      |                            | Dimensions |    |
|----------------|----------------------|----------------------------|------------|----|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G  |
| 30.932         | -0.95 - 15           | 0 - 60                     | 3          | M6 |
| 30.933         | -0.95 - 15           | 0 - 60                     | 4          | M6 |
| 30.934         | -0.95 - 15           | 0 - 60                     | 4          | M8 |
| 30.935         | -0.95 - 15           | 0 - 60                     | 6          | M8 |

## Mini female stud connectors



| Technical data |                      |                            | Dimensions |    |
|----------------|----------------------|----------------------------|------------|----|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G  |
| 30.914         | -0.95 - 15           | 0 - 60                     | 3          | M3 |
| 30.915         | -0.95 - 15           | 0 - 60                     | 3          | M5 |
| 30.916         | -0.95 - 15           | 0 - 60                     | 4          | M3 |
| 30.917         | -0.95 - 15           | 0 - 60                     | 4          | M5 |

## Mini 45° male elbow connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.977         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.978         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.979         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.980         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.981         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 30.982         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |

### Mini unequal tube tee connectors



| Technical data |                      |                            | Dimensions |           |
|----------------|----------------------|----------------------------|------------|-----------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D1 [mm]  | Ø D2 [mm] |
| 31.025         | -0.95 - 15           | 0 - 60                     | 4          | 3         |
| 31.026         | -0.95 - 15           | 0 - 60                     | 6          | 4         |

### Mini extended male elbow connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.963         | -0.95 - 15           | 0 - 60                     | 3          | M3   |
| 30.964         | -0.95 - 15           | 0 - 60                     | 4          | M3   |
| 30.965         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.966         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.967         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.968         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.969         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 30.970         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |



## Mini male elbow connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.949         | -0.95 - 15           | 0 - 60                     | 3          | M3   |
| 30.950         | -0.95 - 15           | 0 - 60                     | 3          | M5   |
| 30.951         | -0.95 - 15           | 0 - 60                     | 3          | M6   |
| 30.952         | -0.95 - 15           | 0 - 60                     | 4          | M3   |
| 30.953         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.954         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.955         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 30.956         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 30.957         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 30.958         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |

## Mini male branch equal tee connectors



| Technical data |                      |                            | Dimensions |      |
|----------------|----------------------|----------------------------|------------|------|
| Item no.       | Pressure range [bar] | Operating temperature [°C] | Ø D [mm]   | G    |
| 30.993         | -0.95 - 15           | 0 - 60                     | 3          | M3   |
| 30.994         | -0.95 - 15           | 0 - 60                     | 3          | M5   |
| 30.995         | -0.95 - 15           | 0 - 60                     | 3          | M6   |
| 30.996         | -0.95 - 15           | 0 - 60                     | 4          | M3   |
| 30.997         | -0.95 - 15           | 0 - 60                     | 4          | M5   |
| 30.998         | -0.95 - 15           | 0 - 60                     | 4          | M6   |
| 30.999         | -0.95 - 15           | 0 - 60                     | 4          | R1/8 |
| 31.000         | -0.95 - 15           | 0 - 60                     | 6          | M5   |
| 31.001         | -0.95 - 15           | 0 - 60                     | 6          | M6   |
| 31.002         | -0.95 - 15           | 0 - 60                     | 6          | R1/8 |

### Sockets with threaded connection

Locking of compressed air or vacuum during disassembly, release after reconnection  
Coupling: Socket (lock) and plug (open)



#### Technical data

| Item no.         | Pressure range [bar] | Operating temperature [°C] |
|------------------|----------------------|----------------------------|
| <b>CPS20-02W</b> | -0.95 - 13           | 0 - 60                     |
| <b>CPS20-03W</b> | -0.95 - 13           | 0 - 60                     |
| <b>CPS20-04W</b> | -0.95 - 13           | 0 - 60                     |

#### Dimensions

| G    | Ø P [mm] |
|------|----------|
| R1/4 | 12       |
| R3/8 | 12       |
| R1/2 | 12       |

### Sockets with plug-in connection

Locking of compressed air or vacuum during disassembly, release after reconnection



#### Technical data

| Item no.         | Pressure range [bar] | Operating temperature [°C] |
|------------------|----------------------|----------------------------|
| <b>CPS20-6W</b>  | -0.95 - 13           | 0 - 60                     |
| <b>CPS20-8W</b>  | -0.95 - 13           | 0 - 60                     |
| <b>CPS20-10W</b> | -0.95 - 13           | 0 - 60                     |
| <b>CPS20-12W</b> | -0.95 - 13           | 0 - 60                     |

#### Dimensions

| Ø D [mm] | Ø P [mm] |
|----------|----------|
| 6        | 12       |
| 8        | 12       |
| 10       | 12       |
| 12       | 12       |

### Connectors

Locking of compressed air or vacuum during disassembly, release after reconnection



#### Technical data

| Item no.         | Pressure range [bar] | Operating temperature [°C] |
|------------------|----------------------|----------------------------|
| <b>CPP20-6W</b>  | -0.95 - 13           | 0 - 60                     |
| <b>CPP20-8W</b>  | -0.95 - 13           | 0 - 60                     |
| <b>CPP20-10W</b> | -0.95 - 13           | 0 - 60                     |
| <b>CPP20-12W</b> | -0.95 - 13           | 0 - 60                     |

#### Dimensions

| Ø D [mm] | Ø P [mm] |
|----------|----------|
| 6        | 16       |
| 8        | 16       |
| 10       | 20       |
| 12       | 20       |



## Angle plugs

Locking of compressed air or vacuum during disassembly, release after reconnection



### Technical data

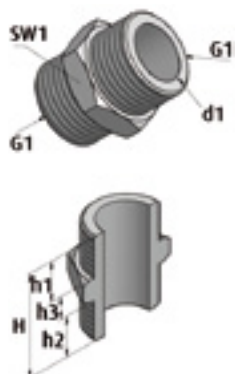
| Item no.          | Pressure range<br>[bar] | Operating<br>temperature [°C] |
|-------------------|-------------------------|-------------------------------|
| <b>CPP20L-6W</b>  | -0.95 - 13              | 0 - 60                        |
| <b>CPP20L-8W</b>  | -0.95 - 13              | 0 - 60                        |
| <b>CPP20L-10W</b> | -0.95 - 13              | 0 - 60                        |
| <b>CPP20L-12W</b> | -0.95 - 13              | 0 - 60                        |

### Dimensions

| Ø D [mm] | Ø P [mm] |
|----------|----------|
| 6        | 14.5     |
| 8        | 14.5     |
| 10       | 21       |
| 12       | 21       |



## Double nipples, equal thread - SZ-GA-MM



| Technical data |                     | Dimensions |        |         |         |         |           |     |
|----------------|---------------------|------------|--------|---------|---------|---------|-----------|-----|
| Item no.       | Material            | G1 (male)  | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] | Ø d1 [mm] | SW1 |
| 270.420        | Brass               | M5         | 13     | 5       | 5       | 3       | 2.5       | 7   |
| 270.059        | Brass               | G1/8       | 18     | 7       | 7       | 4       | 5         | 14  |
| 270.120        | Brass               | G1/4       | 25.5   | 10.5    | 10.5    | --      | --        | 60  |
| 270.121        | Nickel-plated brass | G3/8       | 23     | 9       | 9       | 5       | 11        | 19  |
| 270.122        | Brass               | G1/2       | 35     | 14      | 14      | --      | --        | 60  |
| 270.123        | Brass               | G3/4       | 33.5   | 13.5    | 13.5    | --      | --        | 60  |
| 270.124        | Brass               | G1         | 36     | 14.5    | 14.5    | --      | --        | 60  |
| 270.125        | Brass               | G1 1/4     | 37     | 15      | 15      | --      | --        | 60  |
| 270.126        | Brass               | G1 1/2     | 40     | 16.5    | 16.5    | --      | --        | 60  |
| 270.127        | Brass               | G2         | 40     | 16.5    | 16.5    | --      | --        | 60  |

## Reducing bushes with hex socket - SZ GA- MMI



| Technical data |           | Dimensions |           |        |         |         |           |    |
|----------------|-----------|------------|-----------|--------|---------|---------|-----------|----|
| Item no.       | Material  | G1 (male)  | G2 (male) | H [mm] | h1 [mm] | h2 [mm] | Ø d1 [mm] | SW |
| 270.561        | Aluminium | G3/8       | G1/4      | 25     | 15      | 10      | 6         | 6  |
| 270.562        | Aluminium | G3/8       | M10       | 27     | 15      | 12      | 4         | 5  |
| 270.563        | Aluminium | G3/8       | M14x1.5   | 27     | 15      | 12      | 6         | 6  |
| 270.564        | Aluminium | G1/4       | G1/4      | 22     | --      | --      | 4         | 5  |
| 270.565        | Aluminium | G1/4       | M10       | 24     | 12      | 12      | 4         | 5  |
| 270.566        | Aluminium | G1/4       | M14x1.5   | 24     | 13      | 11      | 4         | 5  |





## Reducing nipples - SZ-GA-RMM



### Technical data

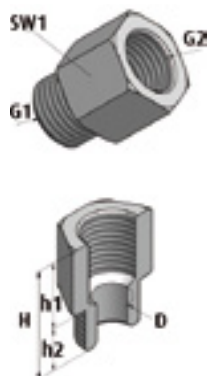
| Item no.       | Material            |
|----------------|---------------------|
| <b>270.280</b> | Nickel-plated brass |
| <b>270.279</b> | Aluminium           |
| <b>270.131</b> | Brass               |
| <b>270.107</b> | Aluminium           |
| <b>270.227</b> | Brass               |
| <b>270.320</b> | Aluminium           |
| <b>270.108</b> | Aluminium           |
| <b>270.181</b> | Nickel-plated brass |
| <b>270.297</b> | Nickel-plated brass |
| <b>270.323</b> | Nickel-plated brass |
| <b>270.148</b> | Nickel-plated brass |
| <b>270.138</b> | Nickel-plated brass |

### Dimensions

| G1 (male) | G2 (male) | H [mm] | h1 [mm] | h2 [mm] | h3 [mm] | Ø d1 [mm] | SW1 |
|-----------|-----------|--------|---------|---------|---------|-----------|-----|
| G1/8      | M5        | 15.5   | 4.8     | 6.5     | 4.2     | 2.4       | 14  |
| G1/8      | M6        | 21     | 7       | 9       | 5       | 3         | 14  |
| G1/8      | M8        | 18     | 6       | 7       | 5       | 4         | 14  |
| G1/8      | M12       | 21     | 7.5     | 8.5     | 5       | 5.5       | 17  |
| G1/4      | M5        | 19     | 5       | 9       | 5       | 2.5       | 17  |
| G1/4      | M10x1.25  | 25     | 10      | 10      | 5       | 5.5       | 17  |
| G1/4      | M12       | 21     | 8       | 8       | 5       | 5.5       | 17  |
| G1/4      | G1/8      | 22     | 8       | 9       | 5       | 4         | 17  |
| G1/2      | G1/4      | 25     | 9       | 10.5    | 5.5     | 8         | 24  |
| G1/2      | G3/8      | 25.5   | 9       | 10.5    | 6       | 11        | 24  |
| G3/4      | M14x1.5   | 30     | 12      | 12      | 6       | 20        | 36  |
| G3/4      | G1/2      | 30     | 12      | 12      | 6       | 15        | 32  |



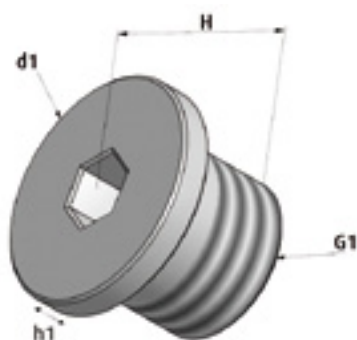
## Reducing bushings male/female - SZ-GA-MF



| Technical data |                     | Dimensions |             |        |         |         |          |     |
|----------------|---------------------|------------|-------------|--------|---------|---------|----------|-----|
| Item no.       | Material            | G1 (male)  | G2 (female) | H [mm] | h1 [mm] | h2 [mm] | Ø D [mm] | SW1 |
| 270.423        | Nickel-plated brass | M5         | M5          | 11     | 7       | 4       | 2        | 8   |
| 270.079        | Brass               | M5         | G1/8        | 17     | 12      | 5       | 2.4      | 14  |
| 270.576        | Steel galvanised    | M12        | G1/4        | 22     | 12      | 10      | 6.5      | 17  |
| 270.577        | Steel galvanised    | M16        | G3/8        | 25     | 15      | 10      | 10       | 24  |
| 270.302        | Nickel-plated brass | G1/8       | M5          | 10     | 4       | 6       | --       | 14  |
| 270.303        | Nickel-plated brass | G1/8       | M6          | 13     | 5       | 8       | --       | 13  |
| 270.334        | Nickel-plated brass | G1/8       | G1/4        | 20     | 13.6    | 6.5     | 5.4      | 17  |
| 270.304        | Aluminium           | G1/4       | M6          | 15     | 5       | 10      | --       | 17  |
| 270.090        | Brass               | G1/4       | M10x1.25    | 11.5   | 5.8     | 5.7     | 17       | 19  |
| 270.088        | Aluminium           | G1/4       | M10         | 28     | 16      | 12      | 4        | 17  |
| 270.245        | Brass               | G1/4       | G1/8        | 13     | 4.5     | 8.5     | --       | 17  |
| 270.078        | Brass               | G1/4       | G1/4        | 28     | 19      | 9       | 7.5      | 17  |
| 270.567        | Aluminium           | G1/4       | G3/8        | 27     | 11      | 10      | 4        | 20  |
| 270.560        | Aluminium           | G3/8       | G1/4        | 16     | 11      | 16      | --       | 22  |
| 270.229        | Brass               | G1/2       | G1/4        | 18     | 6       | 12      | --       | 24  |
| 270.230        | Brass               | G1/2       | G3/8        | 18     | 6       | 12      | --       | 24  |
| 270.102        | Brass               | G3/4       | G3/8        | 18     | 6       | 12      | --       | 32  |
| 270.600        | Brass               | G1         | G1/2        | 21     | 6       | 15      | --       | 36  |
| 270.601        | Brass               | G1         | G3/4        | 21     | 6       | 15      | --       | 36  |
| 270.604        | Brass               | G1 1/2     | G1          | 24     | 8       | 16      | --       | 50  |
| 270.605        | Brass               | G1 1/4     | G1          | 23     | 7       | 16      | --       | 42  |



### Blanking plugs with O-ring seal - SZ-SCV



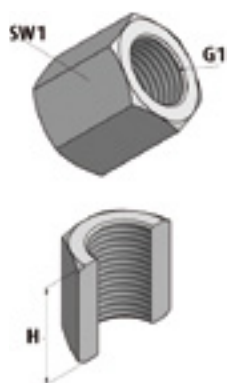
#### Technical data

| Item no. | Material            |
|----------|---------------------|
| 77.000   | Nickel-plated brass |
| 77.009   | Nickel-plated brass |
| 77.008   | Nickel-plated brass |
| 77.010   | Nickel-plated brass |
| 77.007   | Nickel-plated brass |

#### Dimensions

| G1 (male) | H [mm] | h1 [mm] | Ø d1 [mm] |
|-----------|--------|---------|-----------|
| M5        | 6      | 2       | 8         |
| G1/8      | 10     | 3       | 14        |
| G1/4      | 11     | 3       | 17        |
| G3/8      | 12.5   | 3.5     | 20        |
| G1/2      | 14.5   | 4.5     | 26        |

### Threaded bushes - SZ-GA-FF



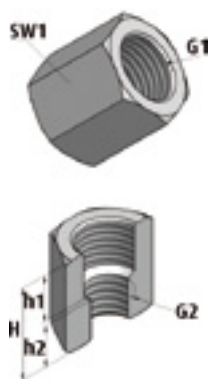
#### Technical data

| Item no.  | Material            |
|-----------|---------------------|
| 270.343   | Nickel-plated brass |
| 270.182.O | Aluminium           |
| 270.130.O | Aluminium           |
| 270.579   | Aluminium           |

#### Dimensions

| G1 (female) | H [mm] | SW1 |
|-------------|--------|-----|
| G1/8        | 17     | 14  |
| G1/4        | 20     | 19  |
| G1/2        | 32     | 30  |
| G3/8        | 23     | 22  |

### Reducing bushes - SZ-GA-RFF



#### Technical data

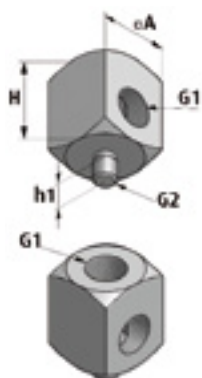
| Item no. | Material            |
|----------|---------------------|
| 270.306  | Aluminium           |
| 270.307  | Aluminium           |
| 270.308  | Aluminium           |
| 270.089  | Aluminium           |
| 270.228  | Nickel-plated brass |

#### Dimensions

| G1 (female) | G2 (female) | H [mm] | h1 [mm] | h2 [mm] | SW1 |
|-------------|-------------|--------|---------|---------|-----|
| G1/8        | M5          | 14     | 9.5     | 4.5     | 13  |
| G1/8        | M6          | 14     | 9.5     | 4.5     | 13  |
| G1/4        | M6          | 17.5   | 11      | 6.5     | 17  |
| G1/4        | M10         | 18     | 9       | 9       | 17  |
| G3/8        | G1/4        | 21.5   | 11.5    | 10      | 22  |



## Elbow connectors AG - SZ-WAA



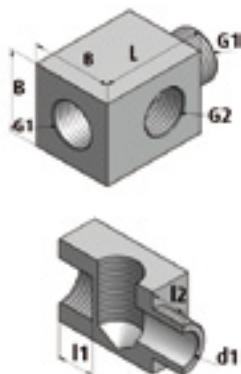
### Technical data

| Item no.        | Material            |
|-----------------|---------------------|
| <b>GR07.010</b> | Steel nickel-plated |
| <b>GR07.011</b> | Steel nickel-plated |
| <b>GR07.012</b> | Steel nickel-plated |

### Dimensions

| G1 (female) | G2 (male) | H [mm] | h1 [mm] | A [mm] |
|-------------|-----------|--------|---------|--------|
| G1/8        | M5        | 20     | 6       | 16     |
| G1/4        | M6        | 33     | 10      | 25     |
| G1/4        | M8        | 33     | 10      | 25     |

## Elbow connectors IG - SZ-WAI



### Technical data

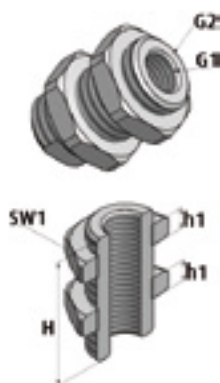
| Item no.       | Material         |
|----------------|------------------|
| <b>270.395</b> | Aluminium        |
| <b>270.396</b> | Aluminium        |
| <b>270.397</b> | Steel galvanised |

### Dimensions

| G1 (female+male) | G2 (female) | Ø d1 [mm] | L [mm] | B [mm] | I1 [mm] | I2 [mm] |
|------------------|-------------|-----------|--------|--------|---------|---------|
| G1/8             | G1/8        | 6.6       | 21     | 16     | 6       | 7       |
| G1/4             | G1/8        | 8         | 26     | 18     | 10      | 10      |
| G1/2             | G3/8        | 10        | 35     | 24     | 12      | 10      |

## Bulkhead connectors - SZ-SVS

Allow for height adjustment during vacuum cup installation



### Technical data

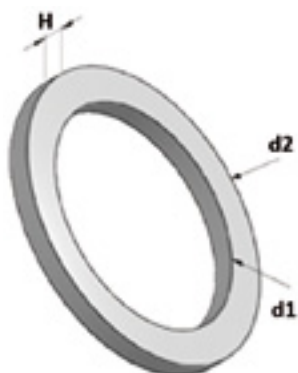
| Item no.       | Material bushing | Material screw nut |
|----------------|------------------|--------------------|
| <b>270.518</b> | Stainless steel  | Steel galvanised   |
| <b>270.519</b> | Stainless steel  | Steel galvanised   |

### Dimensions

| G1 (female) | G2 (male) | H [mm] | h1 [mm] | SW1 |
|-------------|-----------|--------|---------|-----|
| G1/8        | M16x1     | 30     | 5       | 22  |
| G1/4        | M20x1.5   | 30     | 5       | 24  |



## Sealing rings - SZ-DR



### Technical data

| Item no. | For outside thread | Material        |
|----------|--------------------|-----------------|
| 78.052   | M5                 | Rigid PVC white |
| 78.053   | G1/8               | Rigid PVC white |
| 78.054   | G1/4               | Rigid PVC white |
| 78.051   | G3/8               | Rigid PVC white |
| 78.055   | G1/2               | Rigid PVC white |
| 78.056   | G3/4               | Rigid PVC white |

### Dimensions

| H [mm] | Ø d1 [mm] | Ø d2 [mm] |
|--------|-----------|-----------|
| 1      | 5.4       | 7.9       |
| 2      | 10.3      | 13.5      |
| 2      | 13.3      | 17.9      |
| 2      | 17.2      | 21.2      |
| 2      | 21.2      | 27.9      |
| 2      | 26.7      | 32.5      |

### Ordering notes:

1 packing unit = 100 pieces