

HOFER Catalogue Block System

As at July 2013

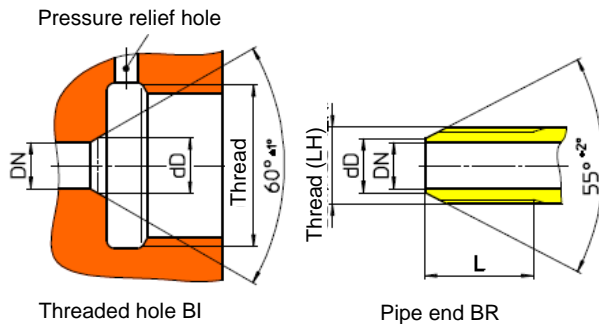
General information on the block fittings range

"**Block fittings**" is a generic term for high pressure systems with **solder and weld-free** pipe connections.

The block fittings range is a modular system which, in addition to the standard pipe connections, comprises connecting elements, reducers, adapters and connection sockets. Angle pattern valves, straight-way valves as well as non-return valves, filters, safety valves etc. are of course also available.

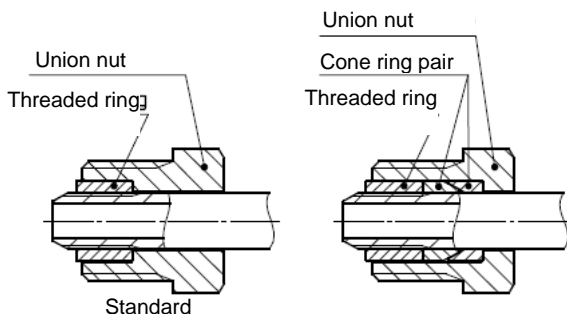
Pipe connections

Typical pipe connections are based on the interaction of a sealing line (d_D) at the conical pipe end and a conical hole ($d_D > DN$).



Sealing principle

The conical end of the pipe is pressed by means of a union nut and threaded ring into the cone of the hole to create a line seal. The sealing line should be approximately at the centre of the cone height of the hole. When pressure is applied, the plastic deformation of the pipe end results in contact with the hole cone to additionally enhance the sealing effect. To ensure the pipe end is not overstressed, the **tightening torque** requirements specified in the union nut tables must be adhered to. High tightening torque will damage the conical sealing nipple at the pipe end as well as the cone of the hole.



The standard connection is used wherever pipes are subject to no or only minimal vibration and stress.

The **version with the cone ring pair** is used wherever piping systems are subject to pulsating pressures and/or vibration or when bending loads occur at the pipe connection.

The **cone ring pair** clamps the pipe and prevents increased stress in the vulnerable thread runout.

The **threaded ring** has a left-hand thread (LH) so that it cannot turn out of the end of the thread as the union nut is tightened.

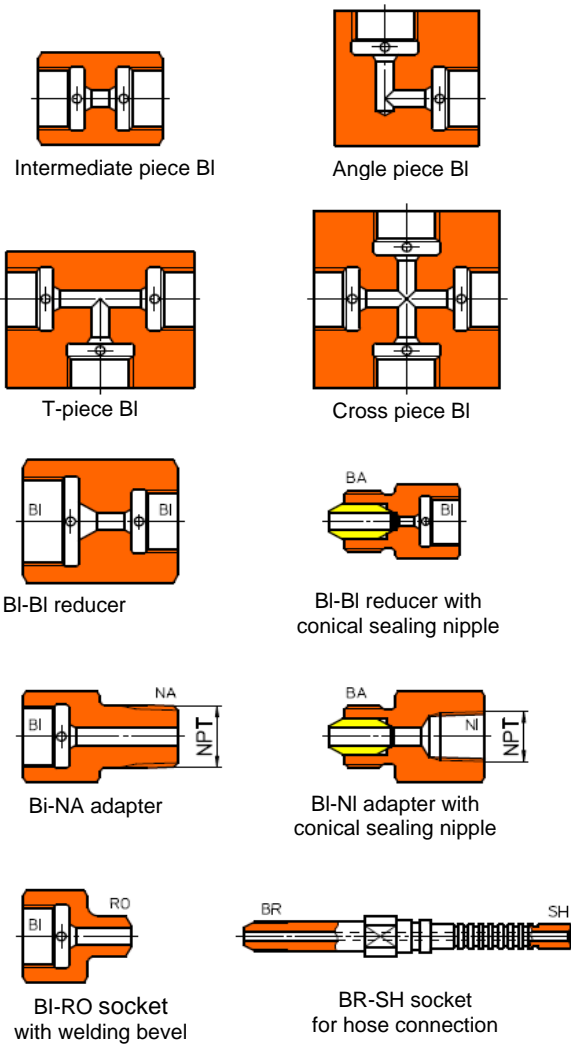


The **torque requirement** specified for tightening the union nuts exert a sufficient sealing force without damaging the conical pipe end.

The **pipe ends** must always be finished such they are at right angles to the pipe axis and the sealing edge (sealing line) must show no signs of damage whatsoever.

The **pressure relief holes** prevent impermissible pressure load on the thread of the union nuts in leaking pipe connections and are an essential feature of all block threaded holes. This hole can also be used to check the leak tightness of the connection.

General information on the block fittings range



Connecting elements

The connecting elements used in the block system are divided into various main groups.

Intermediate pieces

Intermediate pieces connect pipes in a piping system to pipes of the same diameter. This group also includes the typical angle, cross and T-pieces.

Reducers

Reducers connect different pipe diameters in the same system, i.e. they serve as transitions from one pipe diameter to another.

Adapters

Adapters are transition elements from one Hofer system to another Hofer system or to an other-make system.

Sockets

Sockets are special connecting elements with at least one side suitable for welding or soldering or crimping for a hose connection.

Tools for cutting pipe ends

Special tools are available for cutting pipe ends.

Conical cutting tools

Conical pipe ends can be easily cut with a cutting tool specifically adapted to the pipe diameter. The pipe is firmly clamped in a collet or three-jaw chuck. By turning the crank handle with forward feed, the cutter (with taper) cuts a cone into the pipe end.

Thread cutting tools

Cutting tools with commercially available cutters are available for cutting the left-hand thread onto the pipe end. To facilitate cutting the left-hand thread, the tool has a plastic guide matching the outside diameter of the pipe.

A **special steel cutting paste** is to be used both for cutting the cone as well as the thread.



General information on the block fittings range

Design

The parts of the block fittings that come in contact with medium and are subject to pressure are designed in accordance with the generally accepted rules of engineering practice for high pressure components, such as - AD 2000 Code

- Pressure Vessel Guideline
- Machinery Directive
- Good codes of engineering practice

Manufacture

Manufacturing takes place under the supervision of HOFER Quality Assurance Management (QM) certified in accordance with DIN ISO 9001.

Valve testing


Conforming to HOFER QM specifications and the AD 2000 Code, all valves undergo individual testing, consisting of

- Visual inspection
- Function test (not non-return valves and filters)
- Pressure test
- Leak test

Component and order-related manufacturer test certificates for the individual tests are available on request at additional cost (specify separately when making enquiries or placing orders).



Herstellerprüfzertifikat M / Manufacturer's certificate M (DIN 55350-18)


Hofer
HOCHDRUCKTECHNIK GMBH

Druck- und Dichtheitsprüfung / Pressure- and tightness test

Zertifiziert nach DIN EN ISO 9001
 certified according to DIN EN ISO 9001

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 Ruhrorter Straße 45
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Kunde / Customer :
 Bestell-Nr. / Customer's order no. :
 HOFER-Auftrags-Nr. / HOFER serial no. :
 Lieferumfang / Scope of supply :

| Pos. Item | Stück Qty. | Benennung Description | Artikel-Nr. Article no. | Druckprüfung Pressure test Proßdruck (MPa g) Test pressure (MPa g) Medium Wasser / Water | Dichtheitsprüfung Tightness test Proßdruck (MPa g) Test pressure (MPa g) Medium N ₂ |
|--------------|---------------|--------------------------|----------------------------|--|--|
| HV1 | 1 | ball valve | 005-01390 | 1,8 | 1,2 |
| HV5 | 1 | angle valve | 005-00262 | 1,8 | 1,2 |
| HV6 | 1 | angle valve | 005-00266 | 1,8 | 1,2 |
| SV1 | 1 | safety valve | 086-00392 | 1,8 | 1,2 |
| HV7 | 1 | angle valve | 005-00262 | 10,8 | 7,2 |
| SV2 | 1 | safety valve | 086-00162 | 10,8 | 7,2 |
| HV2 | 1 | angle pattern valve | 005-00266 | 34,7 | 23,1 |
| HV3 | 1 | angle pattern valve | 005-00266 | 34,7 | 23,1 |
| HV8 | 1 | angle valve | 005-00262 | 34,7 | 23,1 |
| HV4 | 1 | angle valve | 005-00198 | 34,7 | 23,1 |
| SV3 | 1 | safety valve | 086-00116 | 34,7 | 23,1 |
| RV1 | 1 | non return valve | 086-00134 | 34,7 | 23,1 |
| RV2 | 1 | non return valve | 086-00014 | 34,7 | 23,1 |

Prüfsergebnisse / Test results

[x] Sichtprüfung / Visual test : Ohne Beanstandung / Without objections
 [x] Druckprüfung / Pressure test : Ohne Beanstandung / Without objections
 [x] Dichtheitsprüfung / Tightness test : Ohne Beanstandung / Without objections
 [x] Funktionsprüfung / Functional test : Ohne Beanstandung / Without objections

Mülheim an der Ruhr, 28.07.2008

ANDREAS HOFER
 HOCHDRUCKTECHNIK GMBH
 PRÜFBEAUFTRAGTHER AUTHORIZED CONTROLLER

Stand 01.04
 HP2008

Material test certificates

Components which are subjected to pressure and transfer forces are made from materials with a DIN EN 10204 - 3.1 material acceptance certificate.

Component-related manufacturer test certificates including copies of material test certificates are available on request at additional cost (specify separately when making enquiries or placing orders).

For pipe test certificates see BA 02-1.

Material test certificates in accordance with DIN EN 10204 - 3.2 are also possible for special versions.

Information on the tables

Pressure values

The values specified in the tables "PN in bar" are nominal pressures of the respective module units. If not otherwise specified, they refer to the operating conditions PS (max. permissible operating pressure in bar) at TS (maximum permissible operating temperature in °C); referred to 20 °C (room temperature) in the tables.

Marking

- Small parts with
 - Material No. (abbreviate form also possible)
 - Batch No.
- Connecting elements with
 - DN.... PN...
 - Material No.
 - Batch No.
 - Other component data (e.g. article No.)
- Valves with
 - DN.... PN...
 - Material No.
 - Batch No.
 - Other component data (e.g. article No.)
 - Arrow for direction of flow
- Valves with piston drive additionally with data for setting etc.

General information on the block fittings range

Material characteristics

Due to material properties, strength values decrease at high temperatures. This means the operating pressure (PS) is also reduced at higher temperatures (TS). This characteristic must be taken into account in the use of valves and fittings.

Several of the materials specified in the block fittings range provide an overview of the strength-temperature correlations.

The factor defines the necessary pressure reduction at higher temperatures. This factor is to be multiplied by the PN or PS values specified in the tables.

e.g. PN = 1000 bar, TS = 250 °C
Factor according to table: 0.779

Therefore: max. permissible operating pressure at 250 °C
 $PS_{T250} = 1000 \times 0.779 = 779 \text{ bar}$

The diagrams are easy to use for pipes and for connection and connecting elements (individual parts) as only one material is used.

The permissible operating temperature specified in the table must be additionally taken into account for valves and fittings.

Since the valves are designed based on the weakest component it is possible to use the diagrams for parts that come in contact with medium to establish an initial approximation.

Moreover, the materials of the stem seals also influence the maximum permissible operating temperature, e.g.

| | |
|-------|-------------------------------------|
| PTFE | - 30 ... + 200 °C |
| TF/GR | - 30 ... + 200 °C (PTFE graphite) |
| RG | - 30 ... + 400 °C (pure graphite) |
| NBR | - 25 ... + 120 °C (e.g. "Perbunan") |
| FPM | - 10 ... + 200 °C (e.g. "Viton") |

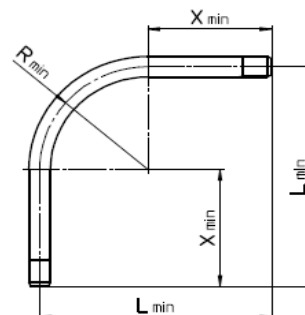
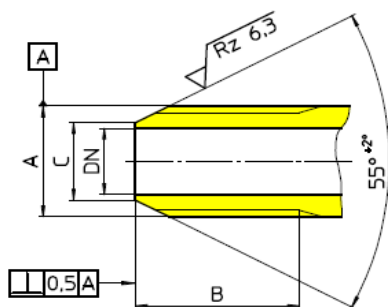
HOFER components are normally designed for a minimum temperature of -30 °C. Some valve materials and seal materials, however, permit use only down to -10 °C (specifically identified in the catalogue).

Special rules for low temperature applications and special design precautions apply to the temperature range below -30 °C. Valves for this temperature range are not included in the standard range.

Data relating to the pressure-temperature design layout of a specific valve are to be obtained from the manufacturer in individual cases.

| Material No. | Standard | Permissible temperature range °C | Rp % | Strength at 20 °C N/mm ² | Factor defining strength reduction at higher temperatures referred to 20 °C | | | | | | | |
|--|----------------|---|---------|---|--|--------|--------|--------|--------|--------|--------|--------|
| | | | | | 50 °C | 100 °C | 150 °C | 200 °C | 250 °C | 300 °C | 350 °C | 400 °C |
| Materials for pipes | | | | | | | | | | | | |
| 1.4571 | DIN EN 10216-5 | - 60 ... + 400 | 1.0 | 245 | 0.955 | 0.849 | 0.796 | 0.755 | 0.714 | 0.682 | 0.657 | 0.637 |
| 1.4401K500 | DIN 17458 | - 60 ... + 400 | 1.0 | 500 | 0.960 | 0.880 | 0.820 | 0.770 | 0.730 | - | - | - |
| 1.4401K600 | DIN 17458 | - 60 ... + 400 | 1.0 | 600 | 0.958 | 0.875 | 0.808 | 0.767 | 0.725 | - | - | - |
| 1.4401K650 | DIN 17458 | - 60 ... +400 | 1.0 | 650 | 0.954 | 0.892 | 0.823 | 0.769 | 0.731 | - | - | - |
| 1.4401K700 | DIN 17458 | - 60 ... + 400 | 1.0 | 700 | 0.950 | 0.886 | 0.821 | 0.771 | 0.721 | - | - | - |
| Materials for valves and connection elements | | | | | | | | | | | | |
| 1.4305 | DIN EN 10088-3 | | | 225 | No further values | | | | | | | |
| 1.4401 | DIN EN 10272 | - 60 ... + 400 | 1.0 | 235 | 0.957 | 0.894 | 0.809 | 0.745 | 0.702 | 0.660 | 0.638 | 0.617 |
| 1.4541 | DIN EN 10272 | - 60 ... + 400 | 1.0 | 225 | 0.964 | 0.911 | 0.867 | 0.822 | 0.778 | 0.742 | 0.716 | 0.693 |
| 1.4571 | DIN EN 10272 | - 60 ... + 400 | 1.0 | 235 | 0.966 | 0.915 | 0.872 | 0.817 | 0.779 | 0.745 | 0.719 | 0.698 |
| 1.4021QT700 | DIN EN 10250-4 | - 10 ... + 400 | | 500 | 0.970 | 0.920 | 0.890 | 0.860 | 0.830 | 0.790 | 0.730 | 0.660 |
| 1.4021QT800 | DIN EN 10250-4 | - 10 ... + 400 | | 600 | 0.947 | 0.858 | 0.825 | 0.792 | 0.767 | 0.733 | 0.675 | 0.592 |
| 1.4057QT800 | DIN EN 10272 | - 10 ... + 400 | | 600 | 0.947 | 0.858 | 0.825 | 0.792 | 0.767 | 0.733 | 0.675 | 0.592 |
| 1.4057QT900 | DIN EN 10272 | - 10 ... + 400 | | 700 | 0.927 | 0.807 | 0.750 | 0.721 | 0.700 | 0.671 | 0.614 | 0.536 |
| 1.4313 | VdTÜV 395/3 | - 60 ... + 350 | 0.2 | 685 | | 0.949 | 0.927 | 0.905 | 0.883 | 0.861 | - | - |
| 1.4313QT780 | DIN EN 10272 | - 60 ... + 350 | 0.2 | 620 | 0.981 | 0.952 | 0.927 | 0.903 | 0.879 | 0.855 | - | - |
| 1.4313QT900 | DIN EN 10272 | - 60 ... + 300 | 0.2 | 800 | 0.963 | 0.900 | 0.863 | 0.831 | 0.800 | 0.775 | - | - |
| 1.4418QT760 | DIN EN 10272 | - 10 ... + 300 | 0.2 | 550 | 0.978 | 0.945 | 0.927 | 0.909 | 0.891 | 0.873 | - | - |
| 1.4418QT900 | DIN EN 10272 | - 10 ... + 300 | 0.2 | 700 | 0.979 | 0.943 | 0.914 | 0.886 | 0.857 | 0.829 | - | - |
| 1.4980 | VdTÜV 435/3 | -270 ... + 650 | 0.2 | 600 | 0.993 | 0.983 | 0.967 | 0.950 | 0.938 | 0.925 | 0.908 | 0.892 |
| 1.1181QT | DIN EN 10269 | - 10 ... + 400 | 0.2 | 300 | 0.963 | 0.900 | 0.837 | 0.763 | 0.710 | 0.640 | 0.607 | 0.577 |
| 1.7218 | DIN EN 10269 | - 60 ... + 400 | 0.2 | 440 | 0.989 | 0.973 | 0.955 | 0.936 | 0.891 | 0.825 | 0.757 | 0.691 |
| 1.7709 | DIN EN 10269 | - 10 ... + 400 | 0.2 | 550 | 0.985 | 0.964 | 0.936 | 0.909 | 0.873 | 0.836 | 0.791 | 0.745 |
| Factor = Strength at temperature / strength at 20 °C | | | | | | | | | | | | |

Pipes and pipe end cutting tools



| Pipe up to 3200 bar | | | | | | | | Type 7.400 | | | | |
|---------------------|----|------|-------------------------|--------------------------|--------------|------------|----------------------------|------------------|------|----------|-----|------|
| Order No. | DN | PN | PS ₂₀ bar | PS ₂₅₀ bar | Pipe | Material | Test certificate (1) | A | B | C | X | R |
| | | | | | | | | (2) | | min. (3) | | |
| 7.400.148.01.2 | 25 | 400 | 544 | 388 | 35 x 5 | 1.4571 | 3.1 | M 35 x 1.5 - LH | 29 | 27 | 100 | 120 |
| 7.400.157.01.2 | 16 | 400 | 515 | 368 | 22 x 3 | 1.4571 | 3.1 | M 22 x 1.5 - LH | 26 | 18 | 100 | 75 |
| 7.400.239.01.2 | 10 | 630 | 753 | 538 | 16 x 3 | 1.4571 | 3.1 | M 16 x 1.5 - LH | 21 | 11 | 80 | 52.5 |
| 7.400.247.01.2 | 20 | 630 | 653 | 466 | 30 x 5 | 1.4571 | 3.1 | M 30 x 1.5 - LH | 29 | 22 | 100 | 100 |
| 7.400.255.01.2 | 14 | 500 | 576 | 411 | 20 x 3 | 1.4571 | 3.1 | M 20 x 1.5 - LH | 24 | 16 | 100 | 70 |
| 7.400.331.02.2 | 3 | 1000 | 1876 | 1369 | 6 x 1.5 | 1.4401K500 | 3.2 | M 6 x 0.75 - LH | 9 | 4 | 60 | 30 |
| 7.400.334.02.2 | 6 | 1000 | 1666 | 1216 | 10 x 2 | 1.4401K500 | 3.2 | M 10 x 1 - LH | 14 | 7 | 80 | 50 |
| 7.400.339.02.2 | 10 | 1000 | 1449 | 1057 | 14 x 2.5 | 1.4401K500 | 3.2 | M 14 x 1 - LH | 18.5 | 11 | 80 | 70 |
| 7.400.344.02.2 | 12 | 1000 | 1666 | 1216 | 20 x 4 | 1.4401K500 | 3.2 | M 20 x 1.5 - LH | 26 | 14 | 100 | 100 |
| 7.400.442.02.2 | 8 | 1600 | 1979 | 1435 | 9/16"x 5/16" | 1.4401K600 | 3.2 | 9/16-18 UNF - LH | 21.5 | 10 | 80 | 145 |
| 7.400.540.02.2 | 6 | 2000 | 2520 | 1827 | 9/16"x 1/4" | 1.4401K600 | 3.2 | 9/16-18 UNF - LH | 23 | 8 | 80 | 145 |
| 7.400.545.02.2 | 10 | 2000 | 2251 | 1632 | 20 x 5 | 1.4401K600 | 3.2 | M 20 x 1.5 - LH | 28 | 12 | 100 | 200 |
| 7.400.556.02.2 | 15 | 2000 | 2166 | 1583 | 25 x 5 | 1.4401K650 | 3.2 | M 25 x 1.5 - LH | 29 | 17 | 100 | 250 |
| 7.400.632.03.2 | 2 | 3200 | 3257 | 2350 | 6 x 2 | 1.4401K700 | 3.2 | M 6 x 0.75 - LH | 13.5 | 3 | 60 | 60 |
| 7.400.641.02.2 | 5 | 3200 | 3257 | 2350 | 9/16"x 3/16" | 1.4401K700 | 3.2 | 9/16-18 UNF - LH | 24 | 7 | 80 | 145 |

Metric thread = Outside \varnothing x wall thickness

Imperial thread = Outside \varnothing x inside \varnothing

LH = Left-hand thread

(1) = Material acceptance test certificate DIN EN 10204

3.1 = Manufacturer's certificate

3.2 = Certificate of a named testing authority (e.g. TÜV)

(2) Thread runout dimensions for lathe production on request

(3) Required for use of pipe end cutting tools

Exact maximum and fixed lengths on request

Standard commercially length: approx. 5.5 to 6.5 m

All pipe sizes have a special tolerance class for the outside diameter, matching the connection elements of the block system.

Seamless pipes made from stainless steel material No. 1.4571 (X6 CrNiMo Ti 17 17 12) conforming to DIN EN 10216-5 and AD-2000 Code W2 are to be used for applications up to 630 bar. These pipes can be welded.

Seamless pipes are strain-hardened for pressures greater than 630 bar. These pipes can only be used up to max. temperature of 250 °C with impairments in strength. In addition to the PN data, the table also specifies the PS₂₀ and PS₂₅₀ values. PS₂₀ defines the maximum permissible operating pressure (bar) at room temperature (20 °C) and PS₂₅₀ the maximum permissible operating pressure at the operating temperature (TS) of 250 °C.

All pipes specified here are approved down to a temperature of -60 °C.

Information on strain-hardened pipes

These pipes must not be welded nor soldered as the applied heat would cancel out the strain hardening and could cause cracking.

In view of the high strength properties, the use of olive and clamping ring pipe connections is not permitted. The pipes conform to neither the specified permissible material strengths nor the pipe dimensions (mainly the wall thicknesses).

Transitions to olive or clamping ring systems are possible only with special adapters matching the block system.

Pipe end cutting tools

Cone cutting tool Type 7.450

| Order No. | For pipe | DN | PN | Spare cutter Article No. |
|----------------|---|----|------|-----------------------------|
| 7.450.331.02.0 | 6x1.5 | 3 | 1000 | 100-00007 |
| 7.450.334.02.0 | 10x2 | 6 | 1000 | 100-00008 |
| 7.450.339.02.0 | 14x2.5 | 10 | 1000 | 100-00008 |
| 7.450.641.02.0 | 9/16"x5/16" | 8 | 1600 | 100-00008 |
| 7.450.641.02.0 | 9/16"x1/4" | 6 | 2000 | 100-00008 |
| 7.450.331.02.0 | 6x2 | 2 | 3200 | 100-00007 |
| 7.450.641.02.0 | 9/16"x3/16" | 5 | 3200 | 100-00008 |
| 7.450.000.02.0 | For outside \varnothing from 10 to 20 mm; version with one three-jaw chuck and two cutters | | | |
| | For 10 - 12 mm outside \varnothing | | | 100-00006 |
| | For 14 - 20 mm outside \varnothing | | | 100-00005 |

For outside $\varnothing \geq 20$ mm it is necessary to manufacture the cone on a lathe



Conical cutting tools

Conical pipe ends can be easily cut with a cutting tool specifically adapted to the pipe diameter.

The pipe is firmly clamped in a collet or three-jaw chuck. By turning the crank handle with forward feed, the cutter (with taper) cuts a cone into the pipe end.

The cone cutting tools are limited to a pipe outside diameter of max. 20 mm. The cone for larger pipe diameters is to be cut on a lathe.

Thread cutting tool

Cutting tools with special cutters are available for cutting the left-hand thread onto the pipe end. To facilitate cutting the left-hand thread, the tool has a plastic guide bush matching the outside diameter of the pipe.

Thread cutting tool Type 7.451

| Order No. | For pipe | DN | PN | Thread | Spare cutter Article No. |
|--------------------------|---------------|----|------|-----------------|-----------------------------|
| LH = Left-hand thread | | | | | |
| 7.451.157.01.0 | 22 x 3 | 16 | 400 | M 22 x 1.5 - LH | 100-00107 |
| 7.451.239.01.0 | 16 x 3 | 10 | 630 | M 16 x 1.5 - LH | 100-00033 |
| 7.451.247.01.0 | 30 x 5 | 20 | 630 | M 30 x 1.5 - LH | 100-00036 |
| 7.451.545.01.0 | 20 x 3 | 14 | 500 | M 20 x 1.5 - LH | 100-00034 |
| 7.451.331.01.0 | 6 x 1.5 | 3 | 1000 | M 6 x 0.75 - LH | 100-00027 |
| 7.451.334.01.0 | 10 x 2 | 6 | 1000 | M 10 x 1 - LH | 100-00030 |
| 7.451.339.01.0 | 14 x 2.5 | 10 | 1000 | M 14 x 1 - LH | 100-00031 |
| 7.451.545.01.0 | 20 x 4 | 12 | 1000 | M 20 x 1.5 - LH | 100-00034 |
| 7.451.641.01.0 | 9/16" x 5/16" | 8 | 1600 | 9/16-18 UNF- LH | 100-00032 |
| 7.451.641.01.0 | 9/16" x 1/4" | 6 | 2000 | 9/16-18 UNF- LH | 100-00032 |
| 7.451.545.01.0 | 20 x 5 | 10 | 2000 | M 20 x 1.5 - LH | 100-00034 |
| 7.451.556.01.0 | 25 x 5 | 15 | 2000 | M 25 x 1.5 - LH | 100-00035 |
| 7.451.331.01.0 | 6 x 2 | 2 | 3200 | M 6 x 0.75 - LH | 100-00027 |
| 7.451.641.01.0 | 9/16" x 3/16" | 5 | 3200 | 9/16-18 UNF- LH | 100-00032 |

Stainless steel cutting paste Type 7.452

| Order No. | |
|----------------|-----------|
| 7.452.000.00.0 | 60 g tube |

The special steel cutting paste is to be used both for cutting the cone as well as the thread.

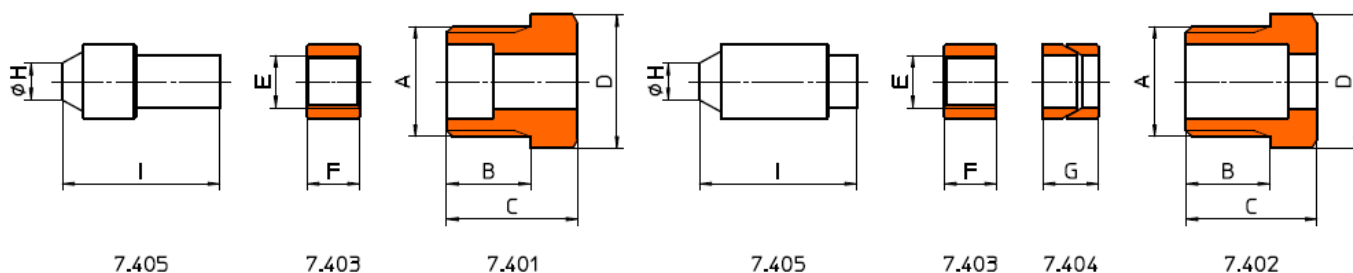


BLOCK FITTINGS

Connection and connecting elements

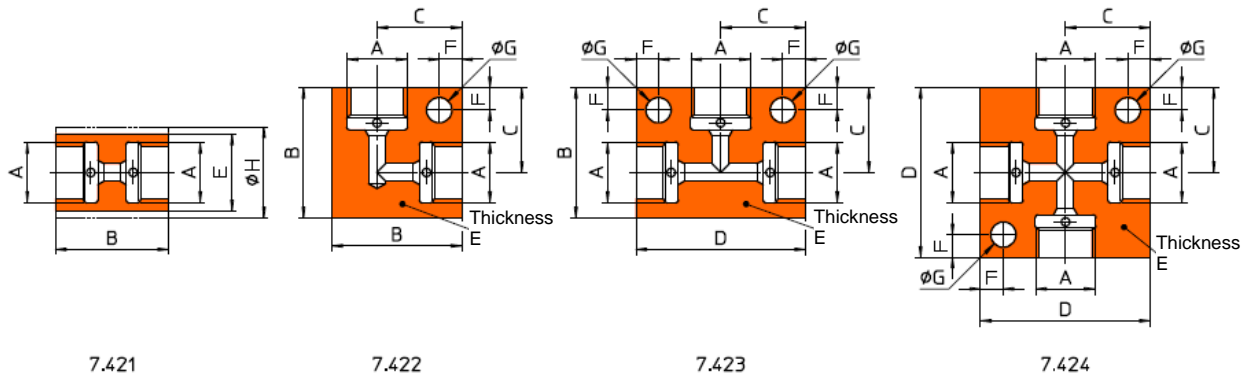


Connection elements for PN ≤ 630



| Order No. | Description | Material | A | B | C | D | Md [Nm] | E | F | G | H | I |
|--|----------------|----------|---------------------|----|----|----|---------|-----------------------------------|----|----|----|----|
| <i>Md = Tightening torque for union nuts</i> | | | | | | | | | | | | |
| For pipe 22 x 3 | | | DN 16 PN 400 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401.157.01.1 | Union nut | 1.7218 | G 1 1/8 A | 31 | 50 | 41 | 65 | | | | | |
| 7.402.157.01.1 | Union nut CRP | 1.7218 | G 1 1/8 A | 31 | 50 | 41 | 65 | | | | | |
| 7.403.157.01.1 | Threaded ring | 1.7218 | | | | | | M 22 x 1.5 - LH | 20 | | | |
| 7.404.157.01.1 | Cone ring pair | 1.7218 | | | | | | | | 18 | | |
| 7.405.157.01.2 | Plug | 1.4571 | | | | | | | | | 18 | 60 |
| For pipe 35 x 5 | | | DN 25 PN 400 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401.148.01.1 | Union nut | 1.0501 | G 1 3/4 A | 28 | 50 | 55 | 210 | | | | | |
| 7.401.148.01.2 | Union nut | 1.4571 | G 1 3/4 A | 28 | 50 | 55 | 210 | | | | | |
| 7.402.148.01.1 | Union nut CRP | 1.7218 | G 1 3/4 A | 28 | 50 | 55 | 210 | | | | | |
| 7.403.148.01.1 | Threaded ring | 1.7218 | | | | | | M 35 x 1.5 - LH | 20 | | | |
| 7.404.148.01.1 | Cone ring pair | 1.1151 | | | | | | | | 22 | | |
| 7.405.148.01.2 | Plug | 1.4571 | | | | | | | | | 27 | 60 |
| For pipe 20 x 3 | | | DN 14 PN 500 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401.255.01.1 | Union nut | 1.7258 | G 1 1/8 A | 31 | 50 | 41 | 52 | | | | | |
| 7.401.255.01.2 | Union nut | 1.4571 | G 1 1/8 A | 31 | 50 | 41 | 52 | | | | | |
| 7.402.255.01.1 | Union nut CRP | 1.7218 | G 1 1/8 A | 31 | 50 | 41 | 52 | | | | | |
| 7.402.255.01.2 | Union nut CRP | 1.4571 | G 1 1/8 A | 31 | 50 | 41 | 52 | | | | | |
| 7.403.255.01.1 | Threaded ring | 1.7258 | | | | | | M 20 x 1.5 - LH | 20 | | | |
| 7.404.255.01.1 | Cone ring pair | 1.7709 | | | | | | | | 18 | | |
| 7.404.255.01.6 | Cone ring pair | 1.4057 | | | | | | | | 18 | | |
| 7.405.255.01.2 | Plug CRP | 1.4571 | | | | | | | | | 16 | 60 |
| For pipe 16 x 3 | | | DN 10 PN 630 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401.239.01.1 | Union nut | 1.1181 | G 7/8 A | 19 | 32 | 32 | 35 | | | | | |
| 7.401.239.01.2 | Union nut | 1.4571 | G 7/8 A | 19 | 32 | 32 | 35 | | | | | |
| 7.403.239.01.1 | Threaded ring | 1.7218 | | | | | | M 16 x 1.5 - LH | 16 | | | |
| 7.403.239.01.2 | Threaded ring | 1.4571 | | | | | | M 16 x 1.5 - LH | 16 | | | |
| 7.405. | | | | | | | | See pipe 14 x 2.5 - DN 10 PN 1000 | | | | |
| For pipe 30 x 5 | | | DN 20 PN 630 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401.247.01.1 | Union nut | 1.1181 | G 1 1/2 A | 29 | 50 | 50 | 195 | | | | | |
| 7.402.247.01.1 | Union nut CRP | 1.7218 | G 1 1/2 A | 29 | 50 | 50 | 195 | | | | | |
| 7.402.247.01.2 | Union nut CRP | 1.4571 | G 1 1/2 A | 29 | 50 | 50 | 195 | | | | | |
| 7.403.247.01.1 | Threaded ring | 1.7258 | | | | | | M 30 x 1.5 - LH | 20 | | | |
| 7.404.247.01.1 | Cone ring pair | 1.0120 | | | | | | | | 22 | | |
| 7.405.247.01.2 | Plug | 1.4571 | | | | | | | | | 22 | 60 |

Connecting elements for PN ≤ 630



| Order No. | Description | DN | Material | A | B | C | D | E | F | G | H | X | Y |
|--------------------|--------------------|---------------------|----------|-----------------------------------|-----|----|-----|----|----|----|----|----------------------------|----|
| Pipe 22 x 3 | | DN 16 PN 400 | | | | | | | | | | Type 7.421 to 7.424 | |
| 7.421.157.01.2 | Intermediate piece | 16 | 1.4571 | G 1 1/8 | 80 | | | 50 | | | 58 | 32 | 78 |
| 7.422.157.01.2+B | Angle piece + B | 16 | 1.4571 | G 1 1/8 | 80 | 55 | | 50 | 15 | 12 | | 32 | 78 |
| 7.423.157.01.2+B | T-piece + B | 16 | 1.4571 | G 1 1/8 | 80 | 55 | 110 | 50 | 15 | 12 | | 32 | 78 |
| 7.424.157.01.2+B | Cross piece + B | 16 | 1.4571 | G 1 1/8 | 110 | 55 | 110 | 50 | 15 | 12 | | 32 | 78 |
| Pipe 35 x 5 | | DN 25 PN 400 | | | | | | | | | | Type 7.421 to 7.424 | |
| 7.421.148.01.2 | Intermediate piece | 25 | 1.4571 | G 1 3/4 | 90 | | | 65 | | | 75 | 32 | 80 |
| 7.422.148.01.2+B | Angle piece + B | 25 | 1.4571 | G 1 3/4 | 95 | 60 | | 65 | 15 | 14 | | 32 | 80 |
| 7.423.148.01.2+B | T-piece + B | 25 | 1.4571 | G 1 3/4 | 95 | 60 | 120 | 65 | 15 | 14 | | 32 | 80 |
| 7.424.148.01.2+B | Cross piece + B | 25 | 1.4571 | G 1 3/4 | 120 | 60 | 120 | 65 | 15 | 14 | | 32 | 80 |
| Pipe 20 x 3 | | DN 14 PN 500 | | | | | | | | | | Type 7.421 to 7.424 | |
| 7.421.255.01.2 | Intermediate piece | 14 | 1.4571 | G 1 1/8 | 80 | | | 50 | | | | 32 | 76 |
| 7.422. | Angle piece | | | on request | | | | | | | | | |
| 7.423. | T-piece | | | on request | | | | | | | | | |
| 7.424. | Cross piece | | | on request | | | | | | | | | |
| Pipe 16 x 3 | | DN 10 PN 630 | | See pipe 14 x 2.5 - DN 10 PN 1000 | | | | | | | | | |
| Pipe 30 x 5 | | DN 20 PN 630 | | | | | | | | | | Type 7.421 to 7.424 | |
| 7.421.247.01.2 | Intermediate piece | 20 | 1.4571 | G 1 1/2 | 90 | | | 60 | | | 70 | 32 | 80 |
| 7.422.247.01.2+B | Angle piece + B | 20 | 1.4571 | G 1 1/2 | 85 | 55 | | 60 | 15 | 12 | | 32 | 80 |
| 7.423.247.01.2+B | T-piece + B | 20 | 1.4571 | G 1 1/2 | 85 | 55 | 110 | 60 | 15 | 12 | | 32 | 80 |
| 7.424.247.01.2+B | Cross piece + B | 20 | 1.4571 | G 1 1/2 | 110 | 55 | 110 | 60 | 15 | 12 | | 32 | 80 |

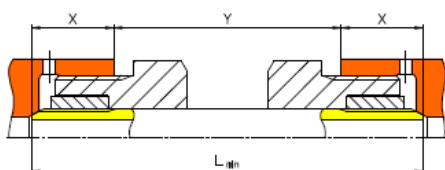
Together with the HOFER block system, the connecting elements make it possible to lay piping in a relatively confined space.

Information on the table:

The dimension "X" specifies the approximate installation depth of a pipe end in the threaded hole and dimension "Y" the minimum spacing between two elements on a straight pipe section.

The minimum pipe length is therefore

$$L_{\min} = Y + 2 * X$$



Please refer to the data on Sheet BA 02-1 (pipes) dimension "X_{min}" and "R_{min}" for bent pipe sections.

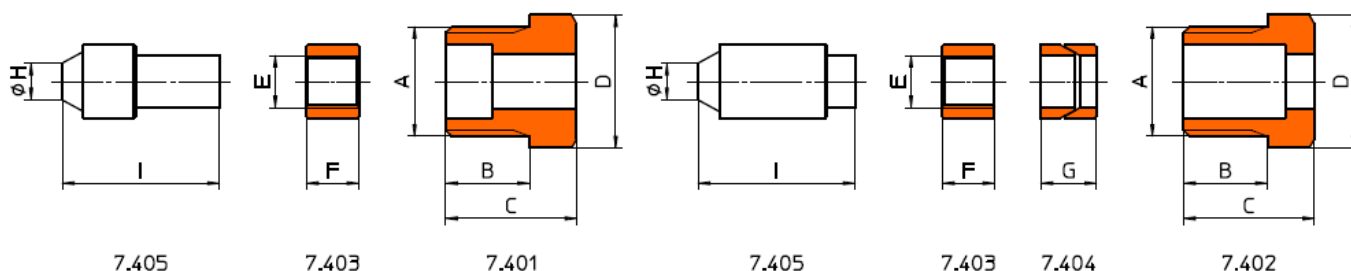
In the case of angle, cross and T-pieces without mounting holes, if required the holes can be subsequently drilled during installation or produced to order by HOFER.

BLOCK FITTINGS

Connection and connecting elements

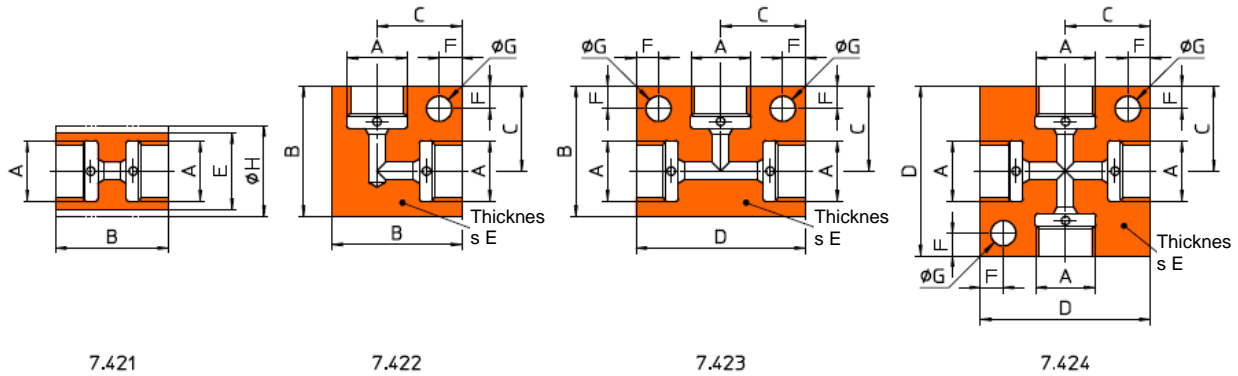


Connection elements for PN 1000



| Order No. | Description | Material | A | B | C | D | Md [Nm] | E | F | G | H | I |
|--|----------------|----------|----------------------|----|----|----|---------|----------------------------|----|-----|----|----|
| <i>Md = Tightening torque for union nuts</i> | | | | | | | | | | | | |
| For pipe 6 x 1.5 | | | DN 3 PN 1000 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401.331.01.1 | Union nut | 1.1181 | G 3/8 A | 14 | 22 | 17 | 10 | | | | | |
| 7.401.331.01.2 | Union nut | 1.4571 | G 3/8 A | 14 | 22 | 17 | 10 | | | | | |
| 7.402.331.01.2 | Union nut CRP | 1.4404 | G 3/8 A | 14 | 22 | 17 | 10 | | | | | |
| 7.403.331.01.1 | Threaded ring | 1.1181 | | | | | | M 6 x 0.75 - LH | 6 | | | |
| 7.403.331.01.2 | Threaded ring | 1.4571 | | | | | | M 6 x 0.75 - LH | 6 | | | |
| 7.404.331.01.2 | Cone ring pair | 1.4305 | | | | | | | | 8.5 | | |
| 7.405.331.01.2 | Plug | 1.4571 | | | | | | | | | 4 | 26 |
| For pipe 10 x 2 | | | DN 6 PN 1000 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401.334.01.1 | Union nut | 1.7218 | G 1/2 A | 16 | 25 | 22 | 15 | | | | | |
| 7.401.334.01.2 | Union nut | 1.4571 | G 1/2 A | 16 | 25 | 22 | 15 | | | | | |
| 7.402.334.01.1 | Union nut CRP | 1.7218 | G 1/2 A | 16 | 25 | 22 | 15 | | | | | |
| 7.402.334.01.2 | Union nut CRP | 1.4571 | G 1/2 A | 16 | 25 | 22 | 15 | | | | | |
| 7.403.334.01.1 | Threaded ring | 1.7709 | | | | | | M 10 x 1 - LH | 10 | | | |
| 7.403.334.01.2 | Threaded ring | 1.4571 | | | | | | M 10 x 1 - LH | 10 | | | |
| 7.404.334.01.2 | Cone ring pair | 1.4305 | | | | | | | | 11 | | |
| 7.405.334.01.2 | Plug | 1.4571 | | | | | | | | | 7 | 30 |
| For pipe 14 x 2.5 | | | DN 10 PN 1000 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401.339.01.1 | Union nut | 1.7218 | G 7/8 A | 19 | 32 | 32 | 45 | | | | | |
| 7.401.339.01.2 | Union nut | 1.4571 | G 7/8 A | 19 | 32 | 32 | 45 | | | | | |
| 7.402.339.01.1 | Union nut CRP | 1.1181 | G 7/8 A | 19 | 32 | 32 | 45 | | | | | |
| 7.402.339.01.2 | Union nut CRP | 1.4571 | G 7/8 A | 19 | 32 | 32 | 45 | | | | | |
| 7.403.339.01.1 | Threaded ring | 1.1181 | | | | | | M 14 x 1 - LH | 14 | | | |
| 7.403.339.01.2 | Threaded ring | 1.4571 | | | | | | M 14 x 1 - LH | 14 | | | |
| 7.404.339.01.2 | Cone ring pair | 1.4305 | | | | | | | | 12 | | |
| 7.405.339.01.2 | Plug | 1.4571 | | | | | | | | | 11 | 37 |
| For pipe 20 x 4 | | | DN 12 PN 1000 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401.344.01.1 | Union nut | 1.7218 | G 1 1/8 A | 31 | 50 | 41 | 100 | | | | | |
| 7.401.344.01.2 | Union nut | 1.4571 | G 1 1/8 A | 31 | 50 | 41 | 100 | | | | | |
| 7.402.545.01.1 | Union nut CRP | 1.7218 | G 1 1/8 A | 31 | 50 | 41 | 100 | | | | | |
| 7.402.344.01.2 | Union nut CRP | 1.4571 | G 1 1/8 A | 31 | 50 | 41 | 100 | | | | | |
| 7.403.545.01.1 | Threaded ring | 1.7218 | | | | | | M 20 x 1.5 - LH | 20 | | | |
| 7.403.545.01.6 | Threaded ring | 1.4980 | | | | | | M 20 x 1.5 - LH | 20 | | | |
| 7.404.344.01.1 | Cone ring pair | 1.7709 | | | | | | | | 18 | | |
| 7.404.344.01.6 | Cone ring pair | 1.4057 | | | | | | | | 18 | | |
| 7.405.344.02.2 | Plug | 1.4571 | | | | | | | | | 14 | 60 |
| 7.405.344.01.6 | Plug | 1.4418 | | | | | | | | | 14 | 60 |

Connecting elements for PN 1000



| Order No. | Description | DN | Material | A | B | C | D | E | F | G | H | X | Y |
|------------------------------------|--------------------|----|----------|----------------------------|-----|----|-----|----|----|-----|---|----|----|
| Pipe 6 x 1.5 DN 3 PN 1000 | | | | Type 7.421 to 7.424 | | | | | | | | | |
| 7.421.331.01.2 | Intermediate piece | 3 | 1.4571 | G 3/8 | 35 | | | 22 | | | | 14 | 36 |
| 7.422.331.01.2 | Angle piece | 3 | 1.4571 | G 3/8 | 40 | 25 | | 22 | | | | 14 | 36 |
| 7.422.331.01.2+B | Angle piece + B | 3 | 1.4571 | G 3/8 | 40 | 25 | | 22 | 8 | 5.8 | | 14 | 36 |
| 7.423.331.01.2 | T-piece | 3 | 1.4571 | G 3/8 | 40 | 25 | 50 | 22 | | | | 14 | 36 |
| 7.424.331.01.2 | Cross piece | 3 | 1.4571 | G 3/8 | 50 | 25 | 50 | 22 | | | | 14 | 36 |
| 7.424.331.01.2+B | Cross piece + B | 3 | 1.4571 | G 3/8 | 50 | 25 | 50 | 22 | 8 | 5.8 | | 14 | 36 |
| Pipe 10 x 2 DN 6 PN 1000 | | | | Type 7.421 to 7.424 | | | | | | | | | |
| 7.421.334.01.2 | Intermediate piece | 6 | 1.4571 | G 1/2 | 40 | | | 27 | | | | 16 | 41 |
| 7.422.334.01.2 | Angle piece | 6 | 1.4571 | G 1/2 | 46 | 30 | | 32 | | | | 16 | 41 |
| 7.423.334.01.2 | T-piece | 6 | 1.4571 | G 1/2 | 46 | 30 | 60 | 32 | | | | 16 | 41 |
| 7.424.334.01.2 | Cross piece | 6 | 1.4571 | G 1/2 | 60 | 30 | 60 | 32 | | | | 16 | 41 |
| Pipe 14 x 2.5 DN 10 PN 1000 | | | | Type 7.421 to 7.424 | | | | | | | | | |
| 7.421.339.01.2 | Intermediate piece | 10 | 1.4571 | G 7/8 | 50 | | | 36 | | | | 20 | 52 |
| 7.422.339.01.2 | Angle piece | 10 | 1.4571 | G 7/8 | 54 | 35 | | 38 | | | | 20 | 52 |
| 7.423.339.01.2 | T-piece | 10 | 1.4571 | G 7/8 | 54 | 35 | 70 | 38 | | | | 20 | 52 |
| 7.424.339.01.2 | Cross piece | 10 | 1.4571 | G 7/8 | 70 | 35 | 70 | 38 | | | | 20 | 52 |
| Pipe 20 x 4 DN 12 PN 1000 | | | | Type 7.421 to 7.424 | | | | | | | | | |
| 7.421.344.01.2 | Intermediate piece | 12 | 1.4571 | G 1 1/8 | 80 | | | 50 | | | | 34 | 77 |
| 7.422.344.01.2+B | Angle piece + B | 12 | 1.4571 | G 1 1/8 | 80 | 55 | | 50 | 15 | 12 | | 34 | 77 |
| 7.423.344.01.2+B | T-piece + B | 12 | 1.4571 | G 1 1/8 | 80 | 55 | 110 | 50 | 15 | 12 | | 34 | 77 |
| 7.424.344.01.2+B | Cross piece + B | 12 | 1.4313 | G 1 1/8 | 110 | 55 | 110 | 50 | 15 | 12 | | 34 | 77 |

Together with the HOFER block system, the connecting elements make it possible to lay piping in a relatively confined space.

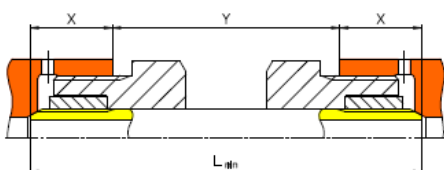
(see example on Sheet BA 06-1)

Information on the table:

The dimension "X" specifies the approximate installation depth of a pipe end in the threaded hole and dimension "Y" the minimum spacing between two elements on a straight pipe section.

The minimum pipe length is therefore

$$L_{\min} = Y + 2 * X$$



Please refer to the data on Sheet BA 02-1 (pipes) dimension "X_{min}" and "R_{min}" for bent pipe sections.

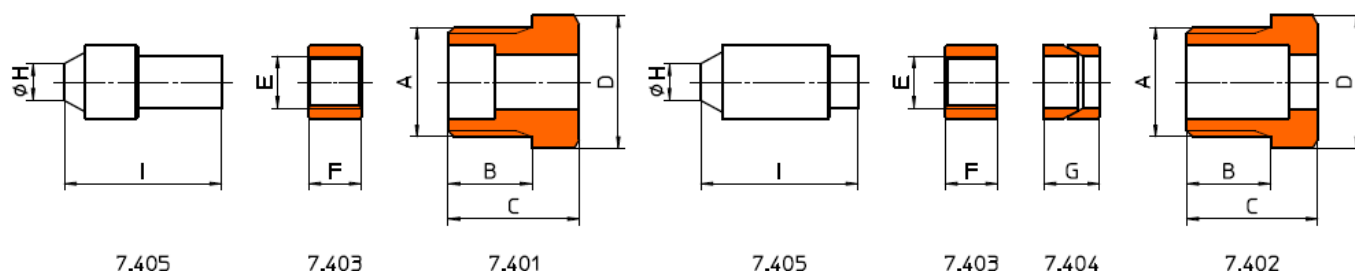
In the case of angle, cross and T-pieces without mounting holes, if required the holes can be subsequently drilled during installation or produced to order by HOFER.

BLOCK FITTINGS

Connection and connecting elements



Connection elements for PN 1600 and 2000



| Order No. | Description | Material | A | B | C | D | Md [Nm] | E | F | G | H | I |
|--|-------------|----------|---|---|---|---|---------|---|---|---|---|---|
| <i>Md = Tightening torque for union nuts</i> | | | | | | | | | | | | |

For pipe 9/16" x 5/16" DN 8 PN 1600 Type 7.401 to 7.405

| | | | | | | | | | | | | |
|----------------|----------------|--------|--------------|----|----|----|---------------|----------------|----|--|----|-------|
| 7.401. | Union nut | | | | | | not available | | | | | |
| 7.402.442.01.1 | Union nut CRP | 1.7218 | 1 1/8-12 UNF | 20 | 35 | 32 | 60 | | | | | |
| 7.402.442.01.6 | Union nut CRP | 1.4418 | 1 1/8-12 UNF | 20 | 35 | 32 | 60 | | | | | |
| 7.403.442.01.1 | Threaded ring | 1.7709 | | | | | | 9/16-18 UNF-LH | 17 | | | |
| 7.403.442.01.2 | Threaded ring | 1.4401 | | | | | | 9/16-18 UNF-LH | 17 | | | |
| 7.404.442.01.1 | Cone ring pair | 1.7709 | | | | | | | | | 12 | |
| 7.404.442.01.2 | Cone ring pair | 1.4571 | | | | | | | | | 12 | |
| 7.405.442.01.6 | Plug | 1.4418 | | | | | | | | | | 10 58 |

For pipe 9/16" x 1/4" DN 6 PN 2000 Type 7.401 to 7.405

| | | | | | | | | | | | | |
|----------------|----------------|--------|--------------|----|----|----|---------------|----------------|----|--|----|------|
| 7.401. | Union nut | | | | | | not available | | | | | |
| 7.402.540.01.1 | Union nut CRP | 1.7218 | 1 1/8-12 UNF | 20 | 35 | 32 | 60 | | | | | |
| 7.402.540.01.2 | Union nut CRP | 1.4418 | 1 1/8-12 UNF | 20 | 35 | 32 | 60 | | | | | |
| 7.403.540.01.1 | Threaded ring | 1.7709 | | | | | | 9/16-18 UNF-LH | 17 | | | |
| 7.403.540.01.2 | Threaded ring | 1.4571 | | | | | | 9/16-18 UNF-LH | 17 | | | |
| 7.404.540.01.1 | Cone ring pair | 1.7709 | | | | | | | | | 12 | |
| 7.404.540.01.2 | Cone ring pair | 1.4571 | | | | | | | | | 12 | |
| 7.405.540.01.6 | Plug | 1.4418 | | | | | | | | | | 8 50 |

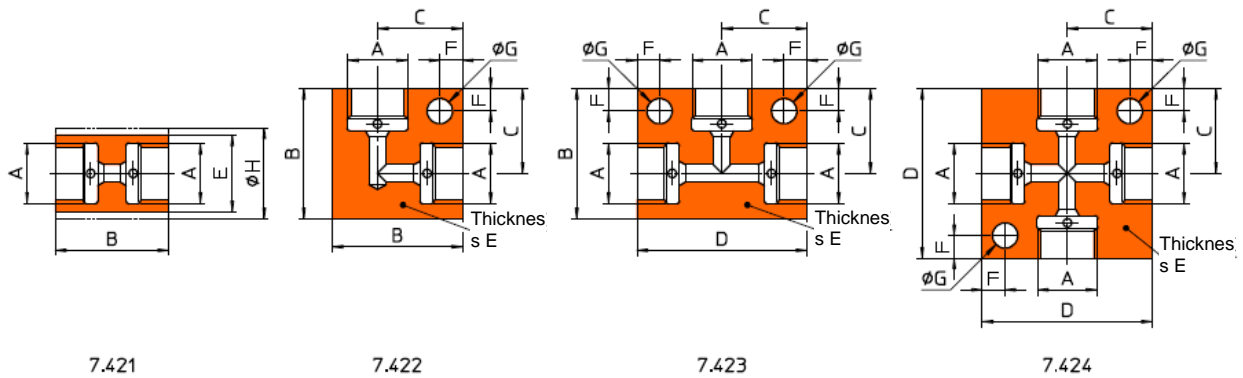
For pipe 20 x 5 DN 10 PN 2000 Type 7.401 to 7.405

| | | | | | | | | | | | | |
|----------------|----------------|--------|-----------|----|----|----|-----|-----------------|----|--|----|-------|
| 7.401.545.01.1 | Union nut | 1.7258 | G 1 1/8 A | 31 | 50 | 41 | 145 | | | | | |
| 7.401.545.01.2 | Union nut | 1.4571 | G 1 1/8 A | 31 | 50 | 41 | 145 | | | | | |
| 7.402.545.01.1 | Union nut CRP | 1.7218 | G 1 1/8 A | 31 | 50 | 41 | 145 | | | | | |
| 7.402.545.01.6 | Union nut CRP | 1.4462 | G 1 1/8 A | 31 | 50 | 41 | 145 | | | | | |
| 7.403.545.01.1 | Threaded ring | 1.7218 | | | | | | M 20 x 1.5 - LH | 20 | | | |
| 7.403.545.01.6 | Threaded ring | 1.4980 | | | | | | M 20 x 1.5 - LH | 20 | | | |
| 7.404.545.01.1 | Cone ring pair | 1.7709 | | | | | | | | | 18 | |
| 7.404.545.01.6 | Cone ring pair | 1.4057 | | | | | | | | | 18 | |
| 7.405.545.01.6 | Plug CRP | 1.4418 | | | | | | | | | | 12 60 |

For pipe 25 x 5 DN 15 PN 2000 Type 7.401 to 7.405

| | | | | | | | | | | | | |
|----------------|----------------|--------|-----------|----|----|----|---------------|-----------------|----|--|----|-------|
| 7.401. | Union nut | | | | | | not available | | | | | |
| 7.402.556.01.1 | Union nut CRP | 1.7218 | G 1 1/2 A | 29 | 50 | 50 | 340 | | | | | |
| 7.402.556.01.2 | Union nut CRP | 1.4571 | G 1 1/2 A | 29 | 50 | 50 | 340 | | | | | |
| 7.403.556.01.1 | Threaded ring | 1.7709 | | | | | | M 25 x 1.5 - LH | 20 | | | |
| 7.403.556.01.2 | Threaded ring | 1.4571 | | | | | | M 25 x 1.5 - LH | 20 | | | |
| 7.404.556.01.1 | Cone ring pair | 1.7218 | | | | | | | | | 19 | |
| 7.404.556.01.2 | Cone ring pair | 1.4571 | | | | | | | | | 19 | |
| 7.405.556.01.6 | Plug CRP | 1.4313 | | | | | | | | | | 17 60 |

Connecting elements for PN 1600 and 2000



| Order No. | Description | DN | Material | A | B | C | D | E | F | G | H | X | Y |
|---------------------------|--------------------|----------------------|----------|--------------|-----|----|-----|----|----|----------------------------|----|----|----|
| Pipe 9/16" x 5/16" | | DN 8 PN 1600 | | | | | | | | Type 7.421 to 7.424 | | | |
| 7.421.442.01.6 | Intermediate piece | 8 | 1.4418 | 1 1/8-12 UNF | 57 | | | 41 | | | 48 | 21 | 57 |
| 7.422.442.01.6 | Angle piece | 8 | 1.4418 | 1 1/8-12 UNF | 54 | 35 | | 38 | | | | 21 | 57 |
| 7.423.442.01.6 | T-piece | 8 | 1.4418 | 1 1/8-12 UNF | 54 | 35 | 70 | 38 | | | | 21 | 57 |
| 7.424.442.01.6 | Cross piece | 8 | 1.4418 | 1 1/8-12 UNF | 70 | 35 | 70 | 38 | | | | 21 | 57 |
| Pipe 9/16" x 1/4" | | DN 6 PN 2000 | | | | | | | | Type 7.421 to 7.424 | | | |
| 7.421.540.01.6 | Intermediate piece | 6 | 1.4418 | 1 1/8-12 UNF | 57 | | | 41 | | | 48 | 23 | 57 |
| 7.422.540.01.6 | Angle piece | 6 | 1.4418 | 1 1/8-12 UNF | 54 | 35 | | 38 | | | | 23 | 57 |
| 7.422.540.01.6+B | Angle piece + B | 6 | 1.4418 | 1 1/8-12 UNF | 54 | 35 | | 38 | 10 | 11 | | 23 | 57 |
| 7.423.540.01.6 | T-piece | 6 | 1.4418 | 1 1/8-12 UNF | 54 | 35 | 70 | 38 | | | | 23 | 57 |
| 7.424.540.01.6 | Cross piece | 6 | 1.4418 | 1 1/8-12 UNF | 70 | 35 | 70 | 38 | | | | 23 | 57 |
| Pipe 20 x 5 | | DN 10 PN 2000 | | | | | | | | Type 7.421 to 7.424 | | | |
| 7.421.545.01.6 | Intermediate piece | 10 | 1.4313 | G 1 1/8 | 80 | | | 50 | | | 58 | 35 | 77 |
| 7.422.545.01.6+B | Angle piece + B | 10 | 1.4313 | G 1 1/8 | 80 | 55 | | 50 | 15 | 12 | | 35 | 77 |
| 7.423.545.01.6+B | T-piece + B | 10 | 1.4313 | G 1 1/8 | 80 | 55 | 110 | 50 | 15 | 12 | | 35 | 77 |
| 7.424.545.01.6+B | Cross piece + B | 10 | 1.4313 | G 1 1/8 | 110 | 55 | 110 | 50 | 15 | 12 | | 35 | 77 |
| Pipe 25 x 5 | | DN 15 PN 2000 | | | | | | | | Type 7.421 to 7.424 | | | |
| 7.421.556.01.6 | Intermediate piece | 15 | 1.4313 | G 1 1/2 | 90 | | | 60 | | | 70 | 32 | 79 |
| 7.422.556.01.6+B | Angle piece + B | 15 | 1.4313 | G 1 1/2 | 90 | 60 | | 60 | 15 | 14 | | 32 | 79 |
| 7.423.556.01.6+B | T-piece + B | 15 | 1.4313 | G 1 1/2 | 90 | 60 | 120 | 60 | 15 | 14 | | 32 | 79 |
| 7.424.556.01.6+B | Cross piece + B | 15 | 1.4313 | G 1 1/2 | 120 | 60 | 120 | 60 | 15 | 14 | | 32 | 79 |

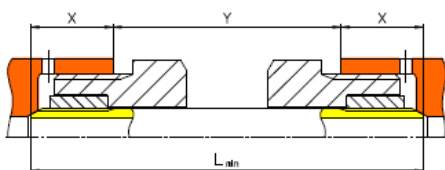
Together with the HOFER block system, the connecting elements make it possible to lay piping in a relatively confined space.

Information on the table:

The dimension "X" specifies the approximate installation depth of a pipe end in the threaded hole and dimension "Y" the minimum spacing between two elements on a straight pipe section.

The minimum pipe length is therefore

$$L_{\min} = Y + 2 * X$$



Please refer to the data on Sheet BA 02-1 (pipes) dimension "X_{min}" and "R_{min}" for bent pipe sections.

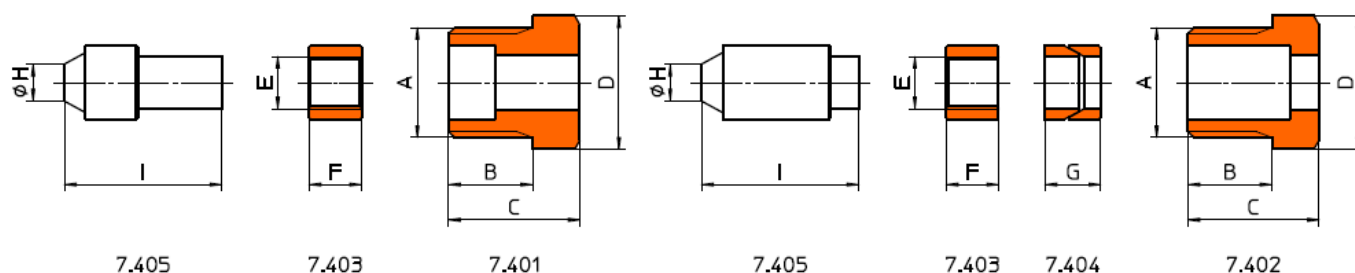
In the case of angle, cross and T-pieces without mounting holes, if required the holes can be subsequently drilled during installation or produced to order by HOFER.

BLOCK FITTINGS

Connection and connecting elements

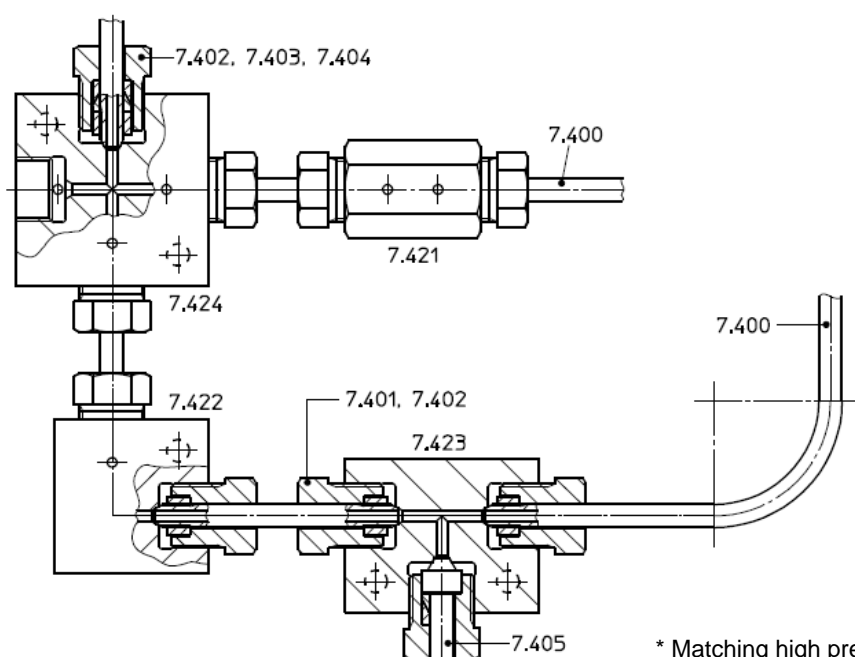


Connection elements for PN 4000*



| Order No. | Description | Material | A | B | C | D | Md [Nm] | E | F | G | H | I |
|--|----------------|----------|---------------------|---------------|----|----|---------|----------------------------|----|-----|---|----|
| <i>Md = Tightening torque for union nuts</i> | | | | | | | | | | | | |
| For pipe 6 x 2 | | | DN 2 PN 4000 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401.732.01.2 | Union nut | 1.4404 | G 3/8 A | 14 | 22 | 17 | 10 | | | | | |
| 7.402.732.01.1 | Union nut CRP | 1.1181 | G 3/8 A | 14 | 22 | 17 | 10 | | | | | |
| 7.403.732.01.1 | Threaded ring | 1.7709 | | | | | | M 6 x 0.75 - LH | 10 | | | |
| 7.404.732.01.2 | Cone ring pair | 1.4305 | | | | | | | | 8.5 | | |
| 7.405.732.01.2 | Plug | 1.4571 | | | | | | | | | 3 | 27 |
| For pipe 9/16" x 3/16" | | | DN 5 PN 4000 | | | | | Type 7.401 to 7.405 | | | | |
| 7.401. | Union nut | | | not available | | | | | | | | |
| 7.402.741.01.1 | Union nut CRP | 1.7218 | 1 1/8-12 UNF | 20 | 35 | 32 | 70 | | | | | |
| 7.402.741.01.6 | Union nut CRP | 1.4418 | 1 1/8-12 UNF | 20 | 35 | 32 | 70 | | | | | |
| 7.403.741.01.1 | Threaded ring | 1.7709 | | | | | | 9/16-18 UNF-LH | 17 | | | |
| 7.403.741.01.2 | Threaded ring | 1.4571 | | | | | | 9/16-18 UNF-LH | 17 | | | |
| 7.404.741.01.1 | Cone ring pair | 1.7709 | | | | | | | | 12 | | |
| 7.404.741.01.2 | Cone ring pair | 1.4571 | | | | | | | | 12 | | |
| 7.405.741.01.6 | Plug | 1.4418 | | | | | | | | | 7 | 60 |

Examples of piping in a confined space.
Here: Pipe 6 x 1.5 mm, DN 3 PN 1000



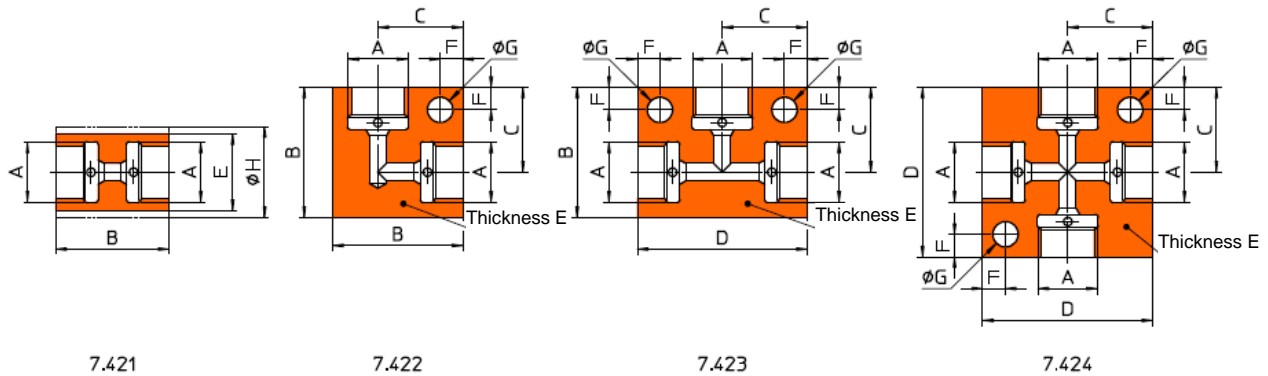
The connection elements matching the pipe dimensions as specified in the tables are to be used for solder and weld-free pipe connections.

Either union nut (7.401) and threaded ring (7.402) for the standard connection or union nut (7.403) and cone ring pair (7.404) for the cone ring pair (CRP) version are used.

The plugs or plugs CRP (7.405) matching the respective union nuts (7.401 or 7.402) are to be used to close off unused threaded holes in the block.

* Matching high pressure pipes can only be supplied for PN 3200

Connecting elements for PN 4000*



| Order No. | Description | DN | Material | A | B | C | D | E | F | G | H | X | Y |
|---------------------------|--------------------|----|---------------------|--------------|----|----|----|----|----|----------------------------|----|----|----|
| Pipe 6 x 2 | | | DN 2 PN 4000 | | | | | | | Type 7.421 to 7.424 | | | |
| 7.421.732.01.6 | Intermediate piece | 2 | 1.4418 | G 3/8 | 54 | | | 27 | | | 32 | 15 | 36 |
| 7.421.732.01.6 | Angle piece | 2 | 1.4418 | G 3/8 | 41 | 27 | | 27 | | | | 15 | 36 |
| 7.423.732.01.6 | T-piece | 2 | 1.4418 | G 3/8 | 41 | 27 | 54 | 27 | | | | 15 | 36 |
| 7.424.732.01.6 | Cross piece | 2 | 1.4418 | G 3/8 | 54 | 27 | 54 | 27 | | | | 15 | 36 |
| Pipe 9/16" x 3/16" | | | DN 5 PN 4000 | | | | | | | Type 7.421 to 7.424 | | | |
| 7.421.741.01.6 | Intermediate piece | 5 | 1.4418 | 1 1/8-12 UNF | 57 | | | 41 | | | 48 | 23 | 57 |
| 7.422.741.01.6 | Angle piece | 6 | 1.4418 | 1 1/8-12 UNF | 54 | 35 | | 38 | | | | 23 | 57 |
| 7.422.741.01.6+B | Angle piece + B | 6 | 1.4418 | 1 1/8-12 UNF | 54 | 35 | | 38 | 10 | 9 | | 23 | 57 |
| 7.423.741.01.6 | T-piece | 6 | 1.4418 | 1 1/8-12 UNF | 54 | 35 | 70 | 38 | | | | 23 | 57 |
| 7.423.741.01.6+B | T-piece + B | 6 | 1.4418 | 1 1/8-12 UNF | 54 | 35 | 70 | 38 | 10 | 9 | | 23 | 57 |
| 7.424.741.01.6 | Cross piece | 6 | 1.4418 | 1 1/8-12 UNF | 70 | 35 | 70 | 38 | | | | 23 | 57 |

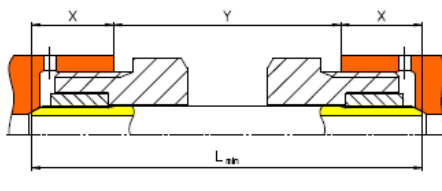
Together with the HOFER block system, the connecting elements make it possible to lay piping in a relatively confined space.

Information on the table:

The dimension "X" specifies the approximate installation depth of a pipe end in the threaded hole and dimension "Y" the minimum spacing between two elements on a straight pipe section.

The minimum pipe length is therefore

$$L_{\min} = Y + 2 * X$$



Please refer to the data on Sheet BA 02-1 (pipes) dimension "X_{min}" and "R_{min}" for bent pipe sections.

In the case of angle, cross and T-pieces without mounting holes, if required the holes can be subsequently drilled during installation or produced to order by HOFER.

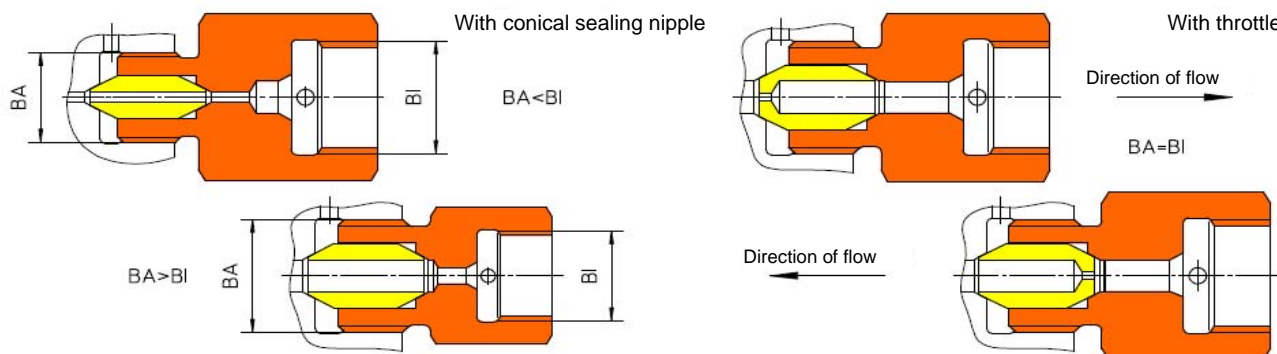
* Matching high pressure pipes can only be supplied for PN 3200

BLOCK FITTINGS

Reducers, Conical Sealing Nipples, Throttles



Reducers BA-BI



In the block system **reducers BA-BI** act as transition elements from one pipe size to another.

BA = Block external thread = **threaded stem BA** for screwing into a block hole. A separate conical sealing nipple - order group 7.413 - or a corresponding throttle - order group 7.414 - is always required for the seal.

BI = Block internal thread = **threaded hole BI** for a pipe connection.

Both "reductions" **BA > BI** as well as "increases" **BA < BI** are possible

BA = BI is a special version that is preferably used for installing a throttle.

Reducers BA-BI with conical sealing nipple

Type 7.425

| Order No. | BI | --- | xxx | | | 148 | 157 | 239 | 247 | 255 | 331 | 334 | 339 | 344 | 442 | 540 | 545 | 556 | 632 | 641 |
|-------------|-----|-----|---------------|--------------|----|--------|--------|--|--------|--------|---------|--------|----------|--------|---------------|--------------|--------|--------|-------|---------------|
| | | | | | | 35 x 5 | 22 x 3 | 16 x 3 | 30 x 5 | 20 x 3 | 6 x 1.5 | 10 x 2 | 14 x 2.5 | 20 x 4 | 9/16" x 5/16" | 9/16" x 1/4" | 20 x 5 | 25 x 5 | 6 x 2 | 9/16" x 3/16" |
| | BA | | Pipe | Thread | | | | | | | | | | | | | | | | |
| 7.425. 148. | xxx | .x | 35 x 5 | G 1 3/4 | .2 | .2 | | | .2 | | .2 | .2 | .2 | | | | .2 | .2 | | |
| 7.425. 157. | xxx | .x | 22 x 3 | G 1 1/8 | .2 | | | | | .2 | | .2 | .2 | .2 | .2 | .2 | .2 | | .2 | .2 |
| 239. | | | 16 x 3 | G 7/8 | | | | All these reducers correspond to group 7.425.339.xxx.x | | | | | | | | | | | | |
| 7.425. 247. | xxx | .x | 30 x 5 | G 1 1/2 | .2 | .2 | | | .2 | | .2 | .2 | .2 | | .2 | | | | | .2 |
| 7.425. 255. | xxx | .x | 20 x 3 | G 1 1/8 | | | | | | .2 | | .2 | .2 | | | | | | | .2 |
| 7.425. 331. | xxx | .x | 6 x 1.5 | G 3/8 | | | | | | .2 | .2 | .2 | | | | | | | | |
| 7.425. 334. | xxx | .x | 10 x 2 | G 1/2 | | .2 | | | | .2 | .2 | .2 | | .6 | | | | | .2 | |
| 7.425. 339. | xxx | .x | 14 x 2.5 | G 7/8 | | .2 | | | | .2 | .2 | .2 | | .2 | .2 | .2 | .2 | | | .2 |
| 7.425. 344. | xxx | .x | 20 x 4 | G 1 1/8 | .2 | | | | | .2 | | .2 | | | | | | | | |
| 7.425. 442. | xxx | .x | 9/16" x 5/16" | 1 1/8-12 UNF | | | | | | .2 | .2 | | | .6 | | | | | .2 | |
| 7.425. 540. | xxx | .x | 9/16" x 1/4" | 1 1/8-12 UNF | | | | | | .6 | .2 | .2 | | | .6 | .6 | | | .6 | |
| 7.425. 545. | xxx | .x | 20 x 5 | G 1 1/8 | .2 | | | | | .2 | .2 | .2 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 |
| 7.425. 556. | xxx | .x | 25 x 5 | G 1 1/2 | .2 | | | | | .2 | .2 | .2 | | .6 | .6 | .6 | .6 | .6 | .6 | .6 |
| 7.425. 632. | xxx | .x | 6 x 2 | G 3/8 | | | | | | .2 | .2 | | | .6 | .6 | | | .6 | .6 | |
| 7.425. 641. | xxx | .x | 9/16" x 3/16" | 1 1/8-12 UNF | | | | | | .6 | | .2 | | | | .6 | .6 | .6 | .6 | .6 |

Type
Material identifier as per table
Identifier for BI = Block hole
Identifier for BA = Block threaded stem

.n Already available
(in the boxes = material identifier)
.n Reducer BA-BI with no conical sealing nipple for throttle etc.

Regarding table:

The large number of pipe dimensions for the pressure range from 400 to 3200 bar, gives rise to a large number of variants in the matrix.

The values in the boxes specify the material identifier of the respective order number.

The empty boxes are available for further versions.

The maximum nominal pressure of a reducer BA-BI depends on the lowest pressure for the corresponding pipe dimensions (see Sheet BA 02-1).

When specified in the order number, all reducers **BA > BI** and **BA < BI** are supplied with a separate conical sealing nipple. The throttle or conical sealing nipple is to be ordered separately for the version **BA = BI**.

Conical sealing nipple BA

Type 7.413

| Order No. | For pipe | DN | PN | Material | Dimensions | | |
|----------------|---------------|----|------|----------|--------------------|----|----|
| | | | | | A | B | C |
| 7.413.148.01.2 | 35 x 5 | 25 | 400 | 1.4571 | 25 | 27 | 30 |
| 7.413.157.01.2 | 22 x 3 | 16 | 400 | 1.4571 | 16 | 18 | 30 |
| | 16 x 3 | 10 | 630 | | see 7.413.339.01.2 | | |
| 7.413.247.01.2 | 30 x 5 | 20 | 630 | 1.4571 | 20 | 22 | 30 |
| 7.413.255.01.2 | 20 x 3 | 14 | 500 | 1.4571 | 14 | 16 | 24 |
| 7.413.331.01.6 | 6 x 1.5 | 3 | 1000 | 1.4980 | 3 | 4 | 17 |
| 7.413.334.01.2 | 10 x 2 | 6 | 1000 | 1.4571 | 6 | 7 | 20 |
| 7.413.339.01.2 | 14 x 2.5 | 10 | 1000 | 1.4571 | 10 | 11 | 20 |
| 7.413.344.01.2 | 20 x 4 | 12 | 1000 | 1.4571K | 12 | 14 | 27 |
| 7.413.442.01.2 | 9/16" x 5/16" | 8 | 1600 | 1.4401K | 7.9 | 10 | 20 |
| 7.413.540.01.2 | 9/16" x 1/4" | 6 | 2000 | 1.4401K | 6.3 | 8 | 24 |
| 7.413.545.01.2 | 20 x 5 | 10 | 2000 | 1.4401K | 10 | 12 | 30 |
| 7.413.556.01.2 | 25 x 5 | 15 | 2000 | 1.4401K | 15 | 17 | 30 |
| 7.413.632.01.6 | 6 x 2 | 2 | 3200 | 1.4418 | 2 | 3 | 20 |
| 7.413.641.01.2 | 9/16" x 3/16" | 5 | 3200 | 1.4401K | 4.8 | 7 | 25 |

Conical sealing nipples BA are replaceable sealing elements between a component with block hole BI and a block threaded stem BA.

Throttle BA

Type 7.414

Pipe dimensions matching throttles are available for all reducers **BA-xx** and **adapter BA-xx**.

- Here "xx" denotes variable connection systems.

The outer dimensions correspond to those of the conical sealing nipples.

The throttles are predominantly made from heat treated steel hardened after producing the throttle hole. (e.g. Material No. 1.4057)

The required throttle diameter is to be specified on enquiry/placing order.

If the size of the throttle hole is still to be determined, corresponding non-hardened semi-finished products (without the throttle hole) are available.

The direction of flow must be taken into account during installation.

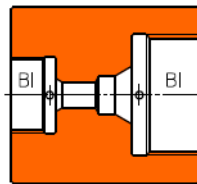
A 4-digit number, that specifies the diameter of the throttle hole, suffixes the order number identifier.

- e.g. 7.414.334.01.6.0030 with "334." for pipe 10 x 2 mm and ".0030" for the 0.3 mm Ø throttle hole.

There is no throttle hole identifier for the non-hardened semi-finished products.

Special versions

As an interface between the HOFER block system and an other-make system (e.g. American supplier) special versions of the **reducers BA-BI** with conical sealing nipple are available on request for both BA as well as for BI connections.



Reducers BI-BI are a further reducing variant between two pipe sizes. In addition to adapters in the HOFER block system, also in this case versions for the transition from the HOFER system to an other-make system are available on request.

xx =

DI = Hole as per DIN 3852

DA = Stem as per DIN ISO 8434-1

NI = NPT hole (female)

NA = NPT stem (male)

PI = Hole for pressure measuring instrument connection conforming to DIN

PA = Stem for pressure measuring instrument connection (special version)

SF = Stem for screw flange (e.g. as per IG Standard)

TA = Stem for HOFER connection "Technical gases"

ZI = Hole for HOFER stem system

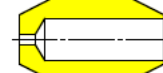
ZA = Stem for HOFER stem system

- Other connection systems are available on request

Conical sealing nipple BA



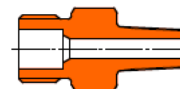
Throttle BA



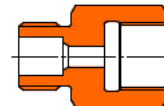
Direction of flow

Examples of

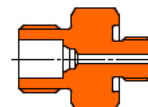
Adapter BA-xx - Transition elements from HOFER block system with stem BA for conical sealing nipple or throttle to another system for screwing into the block hole BI.



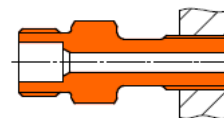
BA-NA



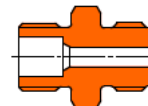
BA-PI



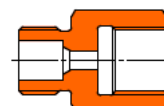
BA-PA



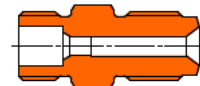
BA-SF



BA-TA

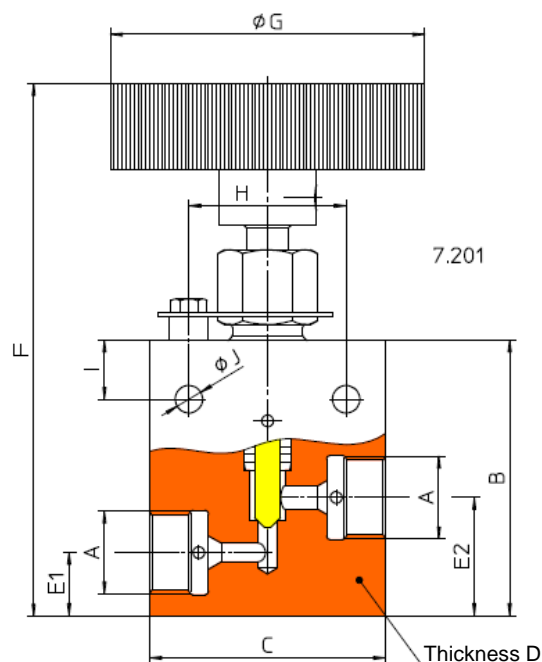
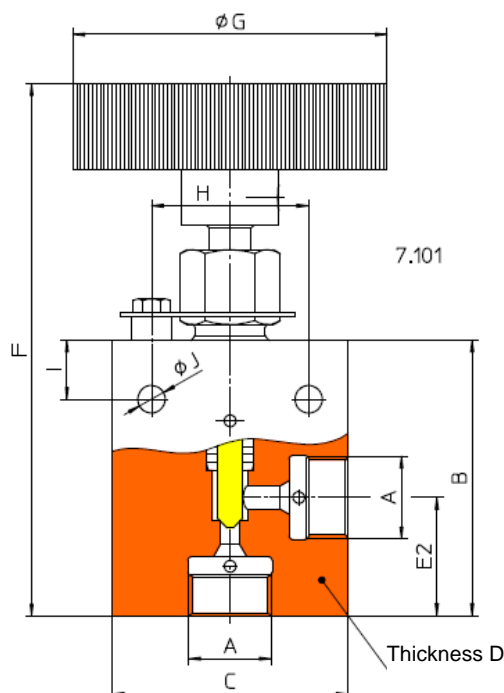


BA-ZI



BA-ZA

Manually operated valve without replaceable seat



The valve types without a replaceable seat specified here are primarily used as test line valves and rarely operated shut-off valves in laboratory and production installations.

All valves have a split manual drive with a plastic hand wheel. The split stem converts the rotary motion of the hand wheel into oscillation motion such that the stem does not rotate in the area of the seat and stem seal.

Angle pattern valve BI MANUAL

without replaceable seat

Type 7.101

| Order No. | For pipe | DN | PN | Material | A | B | C | D | E | F | G | H | I | J |
|----------------|----------|----|------|---------------|-------|----|----|----|----|-----|--------|----|----|-----|
| 7.101.331.02.2 | 6 x 1.5 | 3 | 1000 | 1.4571 - PTFE | G 3/8 | 58 | 50 | 22 | 25 | 105 | 50 (*) | 34 | 15 | 5.8 |
| 7.101.334.02.2 | 10 x 2 | 6 | 1000 | 1.4571 - PTFE | G 1/2 | 70 | 60 | 32 | 30 | 135 | 80 (*) | 40 | 15 | 7 |
| 7.101.632.02.6 | 6 x 2 | 2 | 3200 | 1.4418 - NBR | G 3/8 | 65 | 54 | 27 | 27 | 130 | 80 (*) | 40 | 15 | 7 |

Straight-way valve BI MANUAL

without replaceable seat

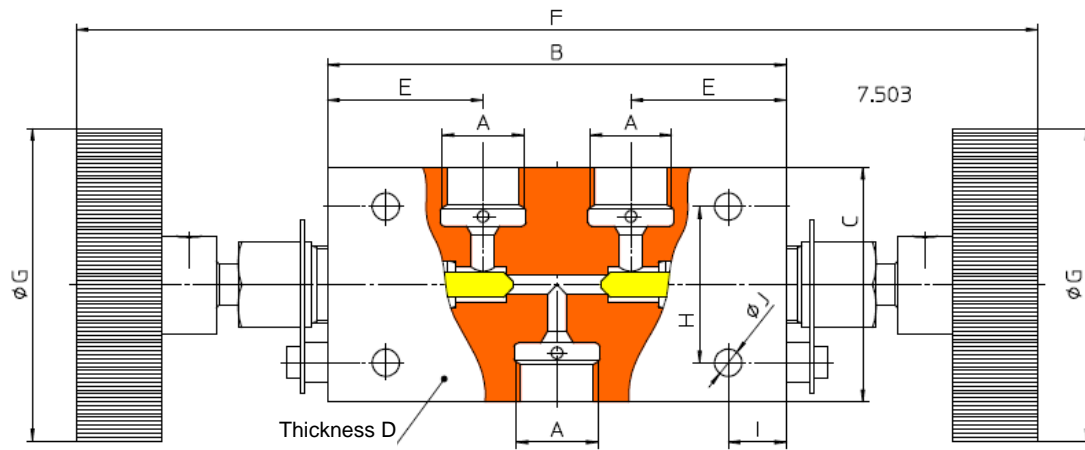
Type 7.201

| Order No. | For pipe | DN | PN | Material | A | B | C | D | E1 | E2 | F | G | H | I | J |
|----------------|----------|----|------|---------------|-------|----|----|----|----|----|-----|---------|----|----|-----|
| 7.201.331.02.2 | 6 x 1.5 | 3 | 1000 | 1.4571 - PTFE | G 3/8 | 52 | 50 | 22 | 11 | 19 | 100 | 50 (*) | 34 | 15 | 5.8 |
| 7.201.334.02.2 | 10 x 2 | 6 | 1000 | 1.4571 - PTFE | G 1/2 | 70 | 60 | 32 | 16 | 30 | 135 | 80 (*) | 40 | 15 | 7 |
| 7.201.339.02.2 | 14 x 2.5 | 10 | 1000 | 1.4571 - PTFE | G 7/8 | 92 | 70 | 38 | 19 | 37 | 165 | 160 (*) | 45 | 20 | 10 |
| 7.101.632.02.6 | 6 x 2 | 2 | 3200 | 1.4418 - NBR | G 3/8 | 62 | 54 | 27 | 14 | 24 | 130 | 80 (*) | 40 | 15 | 7 |

Leakage rates: in seat $\leq 10^{-2}$ mbar l/s
to outside: $\leq 10^{-4}$ mbar l/s

(*) For ATEX applications the plastic hand wheel can be replaced by a solid metal hand wheel (also Type 7.503).

Manually operated valve without replaceable seat

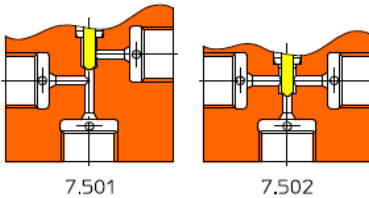


3-way valve BI MANUAL

with 2 stems

Type 7.503

| Order No. | For pipe | DN | PN | Material | A | B | C | D | E | F | G | | H | I | J |
|----------------|----------|----|------|---------------|-------|-----|----|----|----|-----|-----|-----|----|----|-----|
| 7.503.331.02.2 | 6 x 1.5 | 3 | 1000 | 1.4571 - PTFE | G 3/8 | 96 | 50 | 22 | 33 | 190 | 50 | (*) | 34 | 15 | 5.8 |
| 7.503.334.02.2 | 10 x 2 | 6 | 1000 | 1.4571 - PTFE | G 1/2 | 118 | 60 | 32 | 40 | 250 | 80 | (*) | 40 | 15 | 7 |
| 7.503.339.02.2 | 14 x 2.5 | 10 | 1000 | 1.4571 - PTFE | G 7/8 | 164 | 70 | 38 | 55 | 310 | 160 | | 45 | 20 | 10 |



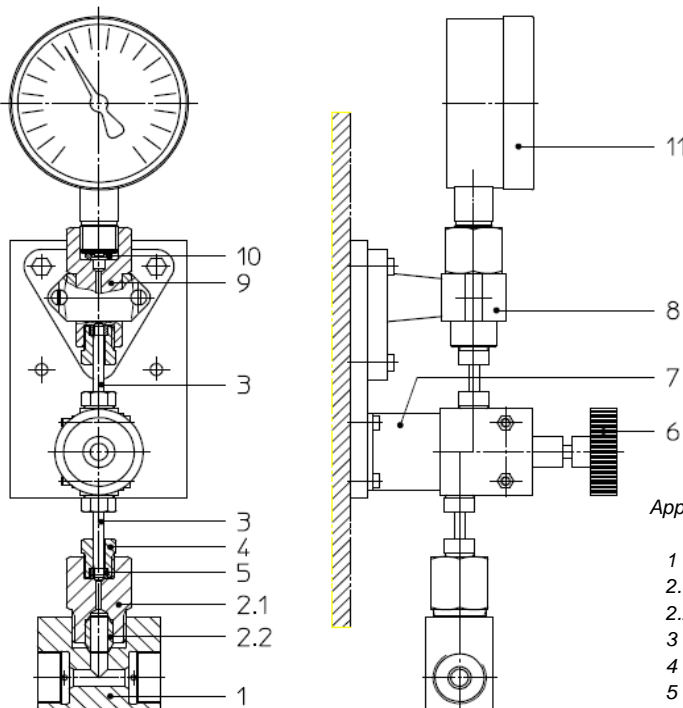
The special versions
Type 7.501 (2x inlet connection) and
Type 7.502 (2x outlet connection)
are available on request.

Max. permissible temperature
(medium) for PTFE: -30 to +200 °C
TF/GR: -30 to +200 °C
NBR: -25 to +100 °C

Alternatively, a PTFE graphite version
(TF/GR) is available on request for the
PTFE stem seal.

Factors defining strength reduction at
high temperatures are to be taken into
account.

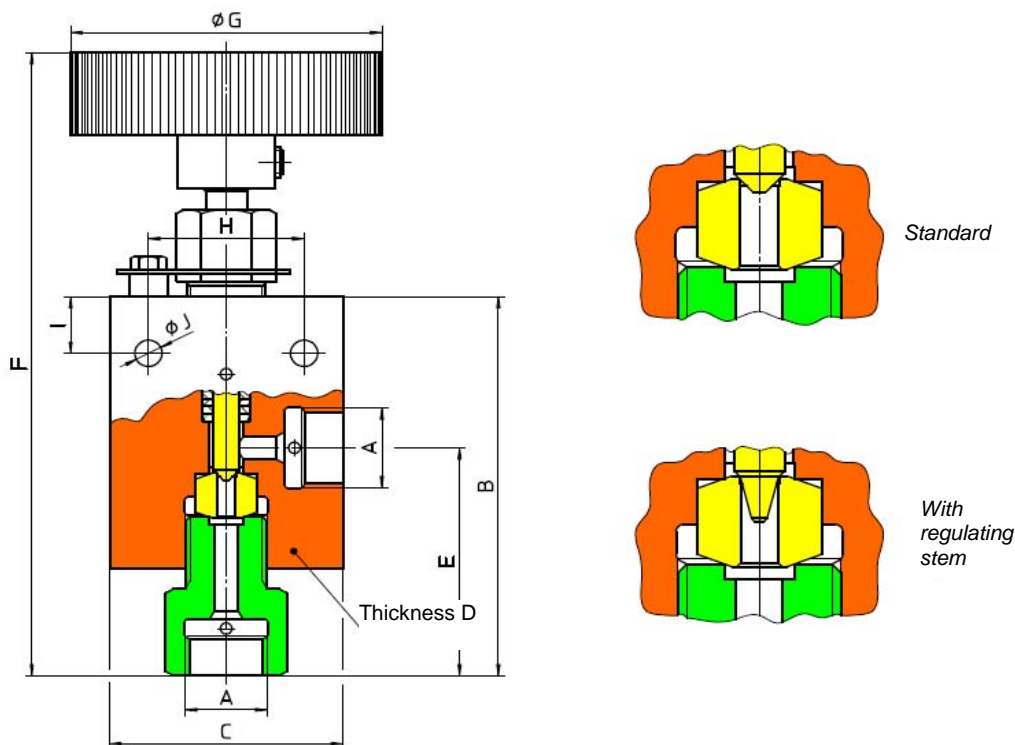
The material data in the tables refer to
the material for the valve housing and
stem seal,
e.g.
1.4571-PTFE: Housing made from
material No. 1.4571 and stem seal
with PTFE sealing rings
or
1.4418-NBR: Housing made from
material No. 1.4418 and spindle seal
with NBR O-ring system.



Application example for a Type 7.201 valve

| | | | |
|-----|------------------------------|-----------------------------------|--------------------|
| 1 | T-piece BI | DN 10 PN 1000 | 7.423.334.01.2 |
| 2.1 | Reducer BA-BI | DN 10/3 PN 1000 | 7.425.334.331.01.2 |
| 2.2 | Conical sealing nipple | DN 10 PN 1000 | 7.413.334.01-2 |
| 3 | Pipe section BR-BR | DN 3 PN 1000 | Pipe 6 x 1.5 |
| 4 | Union nut | DN 3 PN 1000 | 7.401.331.01.2 |
| 5 | Threaded ring | DN 3 PN 1000 | 7.403.331.01.2 |
| 6 | Straight-way valve BI MANUAL | DN 3 PN 1000 | 7.201.331.02.2 |
| 7 | Retaining fixture | For wall mounting | |
| 8 | Measuring instrument holder | DIN 16281 Form H | |
| 9 | Adapter BI-PI | DN 3 PN 1000 | |
| 10 | Seal | To measuring instrument | |
| 11 | Pressure gauge | With centring pin as per EN 837-1 | |

Manually operated valve with replaceable seat



Angle pattern valve BI AS MANUAL

with replaceable seat

Type 7.102

| Order No. | For pipe | DN | PN | Material | A | B | C | D | E | F | G | H | I | J | |
|----------------|---------------|----|------|----------------|--------------|-----|----|----|----|-----|-----|-----|----|----|-----|
| 7.102.331.03.2 | 6 x 1.5 | 3 | 1000 | 1.4571 - TF/GR | G 3/8 | 83 | 50 | 22 | 50 | 130 | 50 | (*) | 34 | 15 | 5.8 |
| 7.102.334.02.2 | 10 x 2 | 6 | 1000 | 1.4571 - PTFE | G 1/2 | 100 | 60 | 32 | 60 | 165 | 80 | (*) | 40 | 15 | 7 |
| 7.102.339.02.2 | 14 x 2.5 | 10 | 1000 | 1.4571 - PTFE | G 7/8 | 125 | 70 | 38 | 70 | 195 | 160 | | 45 | 20 | 10 |
| 7.102.442.02.6 | 9/16" x 5/16" | 8 | 1600 | 1.4418 - NBR | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 200 | 160 | | 45 | 20 | 10 |
| 7.102.540.02.6 | 9/16" x 1/4" | 6 | 2000 | 1.4418 - NBR | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 200 | 160 | | 45 | 20 | 10 |
| 7.102.632.02.6 | 6 x 2 | 2 | 3200 | 1.4418 - NBR | G 3/8 | 92 | 54 | 27 | 54 | 160 | 80 | (*) | 40 | 15 | 7 |
| 7.102.641.02.6 | 9/16" x 3/16" | 5 | 3200 | 1.4418 - NBR | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 200 | 160 | | 45 | 20 | 10 |

The valves with a replaceable seat have a split manual drive. Hand wheels up to 80 mm in diameter are made of plastic. Larger diameter hand wheels are made of aluminium.

(*) For ATEX applications the plastic hand wheel can be replaced by a solid metal hand wheel (also Type 7.301).

Leakage rates: in seat $\leq 10^{-2}$ mbar l/s
to outside $\leq 10^{-4}$ mbar l/s

Alternatively, a PTFE graphite version (TF/GR) is available on request for the PTFE stem seal.

Factors defining strength reduction at high temperatures are to be taken into account.

Max. permissible temperature (medium) for

PTFE: -30 to +200 °C
TF/GR: -30 to +200 °C
NBR: -25 to +100 °C

Manually operated valve with replaceable seat

Angle pattern valve BI AS MANUAL REG

with replaceable seat

Type 7.301

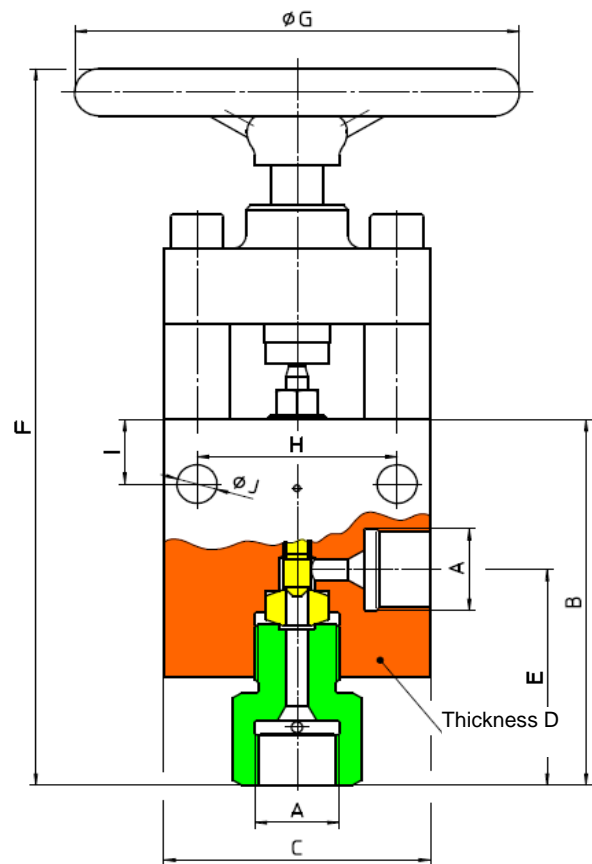
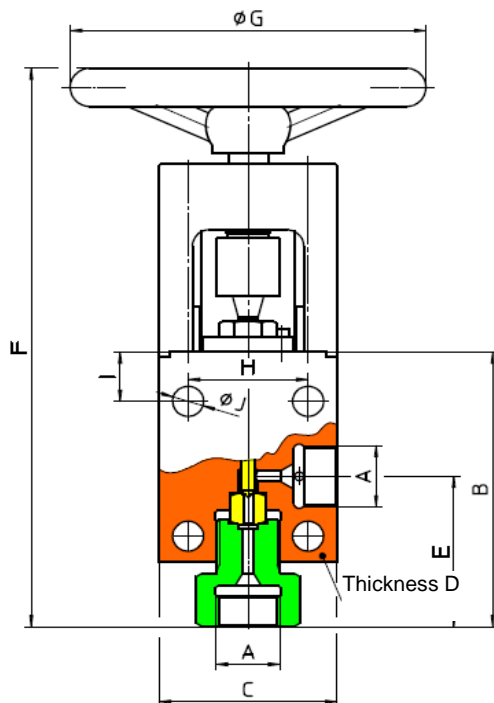
and stem with regulating cone

| Order No. | For pipe | DN | PN | Material | A | B | C | D | E | F | G | | H | I | J |
|----------------|---------------|----|------|-------------|--------------|-----|----|----|----|-----|-----|-----|----|----|-----|
| 7.301.331.02.2 | 6 x 1.5 | 3 | 1000 | 1.4571-PTFE | G 3/8 | 83 | 50 | 22 | 50 | 130 | 50 | (*) | 34 | 15 | 5.8 |
| 7.301.334.02.2 | 10 x 2 | 6 | 1000 | 1.4571-PTFE | G 1/2 | 100 | 60 | 32 | 60 | 165 | 80 | (*) | 40 | 15 | 7 |
| 7.301.339.02.2 | 14 x 2.5 | 10 | 1000 | 1.4571-PTFE | G 7/8 | 125 | 70 | 38 | 70 | 195 | 160 | | 45 | 20 | 10 |
| 7.301.442.02.6 | 9/16" x 5/16" | 8 | 1600 | 1.4418-NBR | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 200 | 160 | | 45 | 20 | 10 |
| 7.301.632.02.6 | 6 x 2 | 2 | 3200 | 1.4418-NBR | G 3/8 | 92 | 54 | 27 | 54 | 160 | 80 | (*) | 40 | 15 | 7 |

The material data in the tables refer to the material for the valve housing and stem seal, e.g.

1.4571-PTFE Housing made from material No. 1.4571, stem seal with PTFE sealing rings

1.4418-NBR Housing made from material No. 1.4418, stem seal as NBR O-ring system



Angle pattern valve BI MANUAL

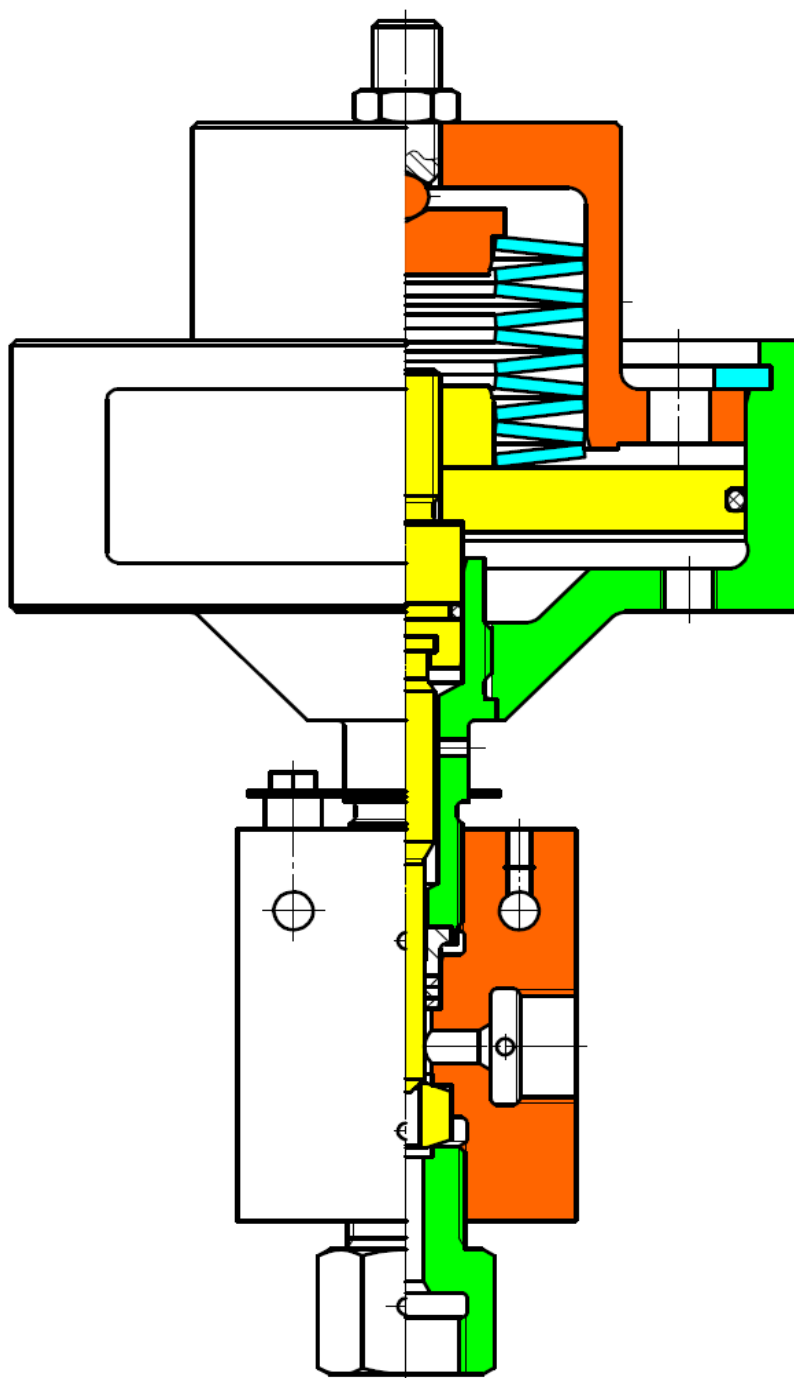
with replaceable seat (with yoke)

Type 7.105

| Order No. | For pipe | DN | PN | Material | A | B | C | D | E | F | G | H | I | J |
|----------------|---------------|----|------|-------------------|--------------|-----|-----|----|-----|-----|-----|----|----|----|
| 7.105.147.02.2 | 30 x 5 | 20 | 400 | (1) 1.4571 - PTFE | G 1 1/2 | 195 | 130 | 60 | 115 | 360 | 200 | 90 | 30 | 18 |
| 7.105.148.01.2 | 35 x 5 | 25 | 400 | 1.4571 - PTFE | G 1 3/4 | 200 | 140 | 65 | 120 | 360 | 200 | 90 | 30 | 18 |
| 7.105.157.01.2 | 22 x 3 | 16 | 400 | 1.4571 - PTFE | G 1 1/8 | 175 | 120 | 55 | 100 | 340 | 200 | 90 | 30 | 18 |
| 7.105.356.01.6 | 25 x 5 | 15 | 1000 | (1) 1.4313 - PTFE | G 1 1/2 | 200 | 140 | 65 | 120 | 365 | 200 | 90 | 30 | 18 |
| 7.105.545.01.6 | 20 x 5 | 10 | 2000 | 1.4313 - NBR | G 1 1/8 | 170 | 120 | 60 | 100 | 335 | 200 | 90 | 30 | 18 |
| 7.105.641.01.6 | 9/16" x 3/16" | 5 | 3200 | 1.4418 - FPM | 1 1/8-12 UNF | 128 | 80 | 38 | 70 | 270 | 160 | 54 | 23 | 14 |

(1) PN limited by size of manual drive

Valves with piston drive, pneumatically opened (KAPO)



HOFER high pressure valves with piston drive, pneumatically opened and closed with spring force, also known as **NC valves** (NC = normally closed), are of a sturdy, solid design and have a proven record of success under harsh operating condition on HOFER compressors.

They consist of three main groups:
Valve section
Piston drive
and
Coupling with valve stem

Valves with piston drive, pneumatically opened (KAPO)

Angle pattern valve with piston drive (KAPO)

< 1000 bar

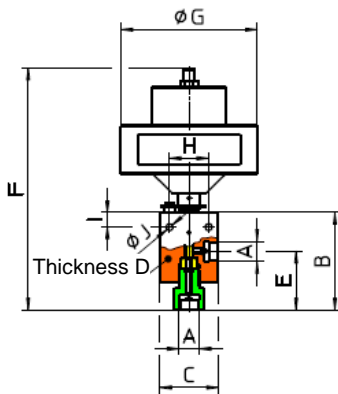
Type 7.161

with holes for "OPEN" position indicator

| Order No. | For pipe | DN | PN | TB °C | Seat ø mm | Material | Required pilot pressure at max. operating pressure | | | | KAPO size | |
|----------------|----------|----|-----|---|--------------|-------------|---|-----|----|-----|--------------|----|
| 7.161.231.00.2 | 6 x 1.5 | 3 | 500 | 200 | 2.5 | 1.4571-PTFE | 7.5 | bar | at | 500 | bar | 00 |
| 7.161.039.02.2 | 14 x 2.5 | 10 | 400 | 200 | 10 | 1.4571-PTFE | 7 | bar | at | 200 | bar | 02 |
| 7.161.139.02.2 | 14 x 2.5 | 10 | 400 | 200 | 8 | 1.4571-PTFE | 8 | bar | at | 400 | bar | 02 |
| 7.161.239.03.2 | 14 x 2.5 | 10 | 630 | 200 | 10 | 1.4571-PTFE | 6.5 | bar | at | 630 | bar | 03 |
| xxx | 16 x 3 | 10 | 630 | see valves DN 10 PN 1000 for pipe 14 x 2.5 mm | | | | | | | | |
| 7.161.255.04.2 | 20 x 3 | 14 | 500 | 100 | 15 | 1.4571-PTFE | 6 | bar | at | 500 | bar | 04 |
| 7.161.157.04.2 | 22 x 3 | 16 | 400 | 100 | 15 | 1.4571-PTFE | 5.5 | bar | at | 400 | bar | 04 |
| 7.161.147.04.2 | 30 x 5 | 20 | 630 | 100 | 20 | 1.4571-PTFE | 8 | bar | at | 400 | bar | 04 |
| 7.161.048.04.2 | 35 x 5 | 25 | 250 | 100 | 24 | 1.4571-PTFE | 8 | bar | at | 250 | bar | 04 |
| 7.161.148.04.2 | 35 x 5 | 25 | 330 | 100 | 22 | 1.4571-PTFE | 7 | bar | at | 330 | bar | 04 |

Max. permissible pilot pressure: 8 bar

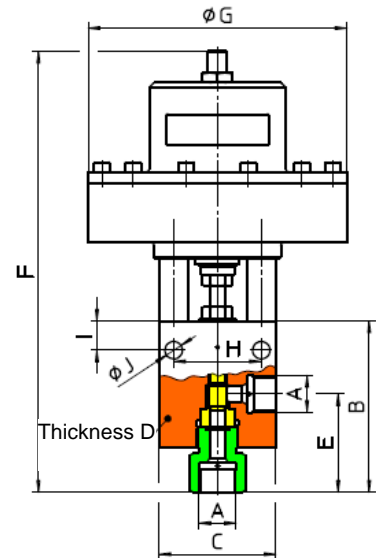
| Order No. | For pipe | Dimensions | | | | | | | | | | |
|----------------|----------|---|-----|-----|----|-----|-----|-----|----|----|-----|-------|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 7.161.231.00.2 | 6 x 1.5 | G 3/8 | 83 | 50 | 22 | 50 | 185 | 70 | 34 | 15 | 5.8 | G 1/8 |
| 7.161.039.02.2 | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | 275 | 140 | 45 | 20 | 10 | G 1/8 |
| 7.161.139.02.2 | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | 275 | 140 | 45 | 20 | 10 | G 1/8 |
| 7.161.239.03.2 | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | 310 | 190 | 45 | 20 | 10 | G 1/8 |
| xxx | 16 x 3 | see valves DN 10 PN 1000 for pipe 14 x 2.5 mm | | | | | | | | | | |
| 7.161.255.04.2 | 20 x 3 | G 1 1/8 | 175 | 120 | 55 | 100 | 455 | 266 | 90 | 30 | 18 | G 1/8 |
| 7.161.157.04.2 | 22 x 3 | G 1 1/8 | 175 | 120 | 55 | 100 | 455 | 266 | 90 | 30 | 18 | G 1/8 |
| 7.161.147.04.2 | 30 x 5 | G 1 1/2 | 195 | 130 | 60 | 115 | 470 | 266 | 90 | 30 | 18 | G 1/8 |
| 7.161.048.04.2 | 35 x 5 | G 1 3/4 | 200 | 140 | 65 | 120 | 480 | 266 | 90 | 30 | 18 | G 1/8 |
| 7.161.148.04.2 | 35 x 5 | G 1 3/4 | 200 | 140 | 65 | 120 | 480 | 266 | 90 | 30 | 18 | G 1/8 |



The tables are each divided into two sections. The upper section contains the technical data while the lower sections specifies the corresponding dimensions.

Dimensions:

- A to E Valve body
- F+G Main dimensions
(dimension F with spring
assembly not tensioned)
- H to J Dimensions for valve
installation
- K "Pilot air" connection



Angle pattern valve with piston drive (KAPO)

< 1000 bar

Type 7.161 - AZ

with holes and fittings for "OPEN" and "CLOSED" position indicator

| Order No. | For pipe | DN | PN | TB °C | Seat ø mm | Material | Required pilot pressure at max. operating pressure | | | | KAPO size | |
|------------------|----------|----|-----|----------|--------------|---------------|---|-----|----|-----|--------------|----|
| 7.161.148.04.2AZ | 35 x 5 | 25 | 250 | 100 | 24 | 1.4571 - PTFE | 8 | bar | at | 250 | bar | 04 |

Max. permissible pilot pressure: 8 bar

| Order No. | For pipe | Dimensions | | | | | | | | | | |
|------------------|----------|------------|-----|-----|----|-----|-----|-----|----|----|----|-------|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 7.161.148.04.2AZ | 35 x 5 | G 1 3/4 | 200 | 140 | 65 | 120 | 515 | 266 | 90 | 30 | 18 | G 1/8 |

Valves with piston drive, pneumatically opened (KAPO)

| Angle pattern valve with piston drive (KAPO) | | | | | >= 1000 to < 1600 bar | | | | | Type 7.161 | |
|--|---------------|----|------|----------|-----------------------|----------------|---|-----|----|--------------|--------|
| with holes for "OPEN" position indicator | | | | | | | | | | | |
| Order No. | For pipe | DN | PN | TB °C | Seat ø mm | Material | Required pilot pressure at max. operating pressure | | | KAPO size | |
| 7.161.331.01.2(*) | 6 x 1.5 | 3 | 1000 | 200 | 2.5 | 1.4571 - PTFE | 6 | bar | at | 1000 | bar 01 |
| 7.161.331.01.2 | 6 x 1.5 | 3 | 1000 | 200 | 2.5 | 1.4571 - TF/GR | 6 | bar | at | 1000 | bar 01 |
| 7.161.331.02.2 | 6 x 1.5 | 3 | 1000 | 200 | 2.5 | 1.4571 - PTFE | 3.5 | bar | at | 1000 | bar 02 |
| 7.161.334.02.2(*) | 10 x 2 | 6 | 1000 | 200 | 5 | 1.4571 - PTFE | 7 | bar | at | 1000 | bar 02 |
| 7.161.334.02.2 | 10 x 2 | 6 | 1000 | 200 | 5 | 1.4571 - TF/GR | 7 | bar | at | 1000 | bar 02 |
| 7.161.334.03.2 | 10 x 2 | 6 | 1000 | 200 | 5 | 1.4571 - TF/GR | 4 | bar | at | 1000 | bar 03 |
| 7.161.339.03.2(*) | 14 x 2.5 | 10 | 1000 | 200 | 8 | 1.4571 - PTFE | 7 | bar | at | 1000 | bar 03 |
| 7.161.339.03.2 | 14 x 2.5 | 10 | 1000 | 200 | 8 | 1.4571 - TF/GR | 7 | bar | at | 1000 | bar 03 |
| 7.161.342.03.6 | 9/16" x 5/16" | 8 | 1000 | 100 | 6 | 1.4418 - PTFE | 5 | bar | at | 1000 | bar 03 |
| 7.161.344.04.2 | 20 x 4 | 12 | 1000 | 200 | 12 | 1.4571 - PTFE | 7 | bar | at | 1000 | bar 04 |
| 7.161.356.04.6 | 25 x 5 | 15 | 1300 | 200 | 14 | 1.4313 - NBR | 8 | bar | at | 1000 | bar 04 |
| Max. permissible pilot pressure: 8 bar | | | | | | | | | | | |

Max. permissible pilot pressure: 8 bar

| Order No. | For pipe | Dimensions | | | | | | | | | | |
|-------------------|---------------|--------------|-----|-----|----|-----|-----|-----|----|----|-----|-------|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 7.161.331.01.2(*) | 6 x 1.5 | G 3/8 | 83 | 50 | 22 | 50 | 210 | 96 | 34 | 15 | 5.8 | G 1/8 |
| 7.161.331.01.2 | 6 x 1.5 | G 3/8 | 83 | 50 | 22 | 50 | 210 | 96 | 34 | 15 | 5.8 | G 1/8 |
| 7.161.331.02.2 | 6 x 1.5 | G 3/8 | 83 | 50 | 22 | 50 | 230 | 140 | 34 | 15 | 5.8 | G 1/8 |
| 7.161.334.02.2(*) | 10 x 2 | G 1/2 | 100 | 60 | 32 | 60 | 250 | 140 | 40 | 15 | 7 | G 1/8 |
| 7.161.334.02.2 | 10 x 2 | G 1/2 | 100 | 60 | 32 | 60 | 250 | 140 | 40 | 15 | 7 | G 1/8 |
| 7.161.334.03.2 | 10 x 2 | G 1/2 | 100 | 60 | 32 | 60 | 295 | 190 | 40 | 15 | 7 | G 1/8 |
| 7.161.339.03.2(*) | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | 315 | 190 | 45 | 20 | 10 | G 1/8 |
| 7.161.339.03.2 | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | 315 | 190 | 45 | 20 | 10 | G 1/8 |
| 7.161.342.03.6 | 9/16" x 5/16" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 315 | 190 | 45 | 20 | 10 | G 1/8 |
| 7.161.344.04.2 | 20 x 4 | G 1 1/8 | 175 | 120 | 55 | 100 | 450 | 266 | 90 | 30 | 18 | G 1/8 |

Information on the tables

The **PN values** refer to operating temperatures of less than 50 °C. Factors defining strength reduction at high temperatures are to be taken into account.

The **TB values** specify the maximum permissible operating temperature (medium) referred to the materials of the stem seal, e.g.

| | |
|-------|----------------|
| PTFE | -30 to +200 °C |
| TF/GR | -30 to +200 °C |
| NBR | -25 to +100 °C |

The **seat diameters** are smaller than/equal to the valve nominal diameter (DN) referred to the maximum possible spring preload matching the maximum permissible pilot pressure of 8 bar.

The Kvs values specified here are rough reference values serving as flow factors for liquids. Depending on the type of valve, the actual values for liquids or gases are to be determined according to the operating data (e.g. volumetric flow, density, pressure and temperature at the inlet and outlet, etc.).

| Angle pattern valve with piston drive (KAPO) | | | | | >= 1000 to < 1600 bar | | | | | Type 7.161 - AZ | |
|--|----------|----|------|----------|-----------------------|--------------|---|-----|----|-----------------|--------------|
| with holes and fittings for "OPEN" and "CLOSED" position indicator | | | | | | | | | | | |
| Order No. | For pipe | DN | PN | TB °C | Seat ø mm | Material | Required pilot pressure at max. operating pressure | | | | KAPO size |
| 7.161.331.01.2AZ | 6 x 1.5 | 3 | 1000 | 200 | 2.5 | 1.4571-TF/GR | 6 | bar | at | 1000 | bar 01 |
| 7.161.334.02.2AZ | 10 x 2 | 6 | 1000 | 200 | 5 | 1.4571-TF/GR | 7 | bar | at | 1000 | bar 02 |
| 7.161.339.03.2AZ | 14 x 2.5 | 10 | 1000 | 200 | 8 | 1.4571-TF/GR | 7 | bar | at | 1000 | bar 03 |
| 7.161.344.04.2AZ | 20 x 4 | 12 | 1000 | 200 | 12 | 1.4571-TF/GR | 7 | bar | at | 1000 | bar 04 |
| Max. permissible pilot pressure: 8 bar | | | | | | | | | | | |

Max. permissible pilot pressure: 8 bar

| Order No. | For pipe | Dimensions | | | | | | | | | | |
|------------------|----------|------------|-----|-----|----|-----|-----|-----|----|----|-----|-------|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 7.161.331.01.2AZ | 6 x 1.5 | G 3/8 | 83 | 50 | 22 | 50 | 267 | 96 | 34 | 15 | 5.8 | G 1/8 |
| 7.161.334.02.2AZ | 10 x 2 | G 1/2 | 100 | 60 | 32 | 60 | 307 | 140 | 40 | 15 | 7 | G 1/8 |
| 7.161.339.03.2AZ | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | 360 | 190 | 45 | 20 | 10 | G 1/8 |
| 7.161.344.04.2AZ | 20 x 4 | G 1 1/8 | 175 | 120 | 55 | 100 | 491 | 266 | 90 | 30 | 18 | G 1/8 |

Valves with piston drive, pneumatically opened (KAPO)

Angle pattern valve with piston drive (KAPO)

>= 1600 to < 4000 bar

Type 7.161

with holes for "OPEN" position indicator

| Order No. | For pipe | DN | PN | TB °C | Seat ø mm | Material | Required pilot pressure at max. operating pressure | | | | KAPO size | |
|----------------|---------------|----|-------|----------|--------------|--------------|---|-----|----|------|--------------|----|
| 7.161.442.03.6 | 9/16" x 5/16" | 8 | 1600 | 100 | 6 | 1.4418 - NBR | 7 | bar | at | 1600 | bar | 03 |
| 7.161.540.03.6 | 9/16" x 1/4" | 6 | 2000 | 100 | 5 | 1.4418 - NBR | 6.5 | bar | at | 2000 | bar | 03 |
| 7.161.540.04.6 | 9/16" x 1/4" | 6 | 2000 | 100 | 6 | 1.4418 - NBR | 5.5 | bar | at | 2000 | bar | 04 |
| 7.161.545.04.6 | 20 x 5 | 10 | 2000 | 100 | 10 | 1.4418 - NBR | 8 | bar | at | 2000 | bar | 04 |
| 7.161.541.02.6 | 9/16" x 3/16" | 5 | 2000 | 100 | 3.5 | 1.4418 - NBR | 8 | bar | at | 2000 | bar | 02 |
| 7.161.732.02.6 | 6 x 2 | 2 | 4000* | 100 | 2 | 1.4418 - NBR | 7 | bar | at | 4000 | bar | 02 |
| 7.161.732.03.6 | 6 x 2 | 2 | 4000* | 100 | 2 | 1.4418 - NBR | 4 | bar | at | 4000 | bar | 03 |
| 7.161.741.03.6 | 9/16" x 3/16" | 5 | 4000* | 100 | 3.5 | 1.4418 - NBR | 6.5 | bar | at | 4000 | bar | 03 |

Max. permissible pilot pressure: 8 bar

| Order No. | For pipe | Dimensions | | | | | | | | | | |
|----------------|---------------|--------------|-----|-----|----|-----|-----|-----|----|----|----|-------|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 7.161.442.03.6 | 9/16" x 5/16" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 315 | 190 | 45 | 20 | 10 | G 1/8 |
| 7.161.540.03.6 | 9/16" x 1/4" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 315 | 190 | 45 | 20 | 10 | G 1/8 |
| 7.161.540.04.6 | 9/16" x 1/4" | 1 1/8-12 UNF | 126 | 80 | 38 | 70 | 435 | 266 | 54 | 21 | 14 | G 1/8 |
| 7.161.545.04.6 | 20 x 5 | G 1 1/8 | 170 | 120 | 60 | 100 | 450 | 266 | 90 | 30 | 18 | G 1/8 |
| 7.161.541.02.6 | 9/16" x 3/16" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 275 | 140 | 45 | 20 | 10 | G 1/8 |
| 7.161.732.02.6 | 6 x 2 | G 3/8 | 92 | 54 | 27 | 54 | 240 | 140 | 40 | 15 | 7 | G 1/8 |
| 7.161.732.03.6 | 6 x 2 | G 3/8 | 92 | 54 | 27 | 54 | 285 | 190 | 40 | 15 | 7 | G 1/8 |
| 7.161.741.03.6 | 9/16" x 3/16" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 315 | 190 | 45 | 20 | 10 | G 1/8 |

Information on the tables

The **material data** refer to the material for the valve housing and stem seal, e.g.

1.4571-PTFE Housing made from material No. 1.4571, stem seal with PTFE sealing rings

1.4418-NBR Housing made from material No. 1.4418, stem seal as NBR O-ring system

The **required pilot pressure** depends on the type of valve.

The data in the tables specify the required pilot pressure at maximum permissible operating pressure. Consult the manufacturer with regard to the pilot pressure required for a lower operating pressure.

For the **KAPO size** refer to the brochure EZ 02 (piston drives, pneumatically opened) with detailed information.

Valves **Type 7.161- AZ** are versions for an additional "OPEN" position indicator. Conversion to this version is only possible with additional expenditure at the manufacturer.

Information on the valves

In terms of the main dimensions and connection dimensions, the valve section largely corresponds to those of the manually operated valves with replaceable seat (see BV 03-1 ... 2), consisting of

- the valve housing with lateral outlet connection (block hole "BI"),
- the adapter with inlet connection (block hole "BI"),
- the replaceable seat and
- the stem seal.

The stem itself is part of the coupling.

The **piston drive** is adapted to the respective valve data, depending on the maximum permissible operating pressure and the corresponding pilot pressure.

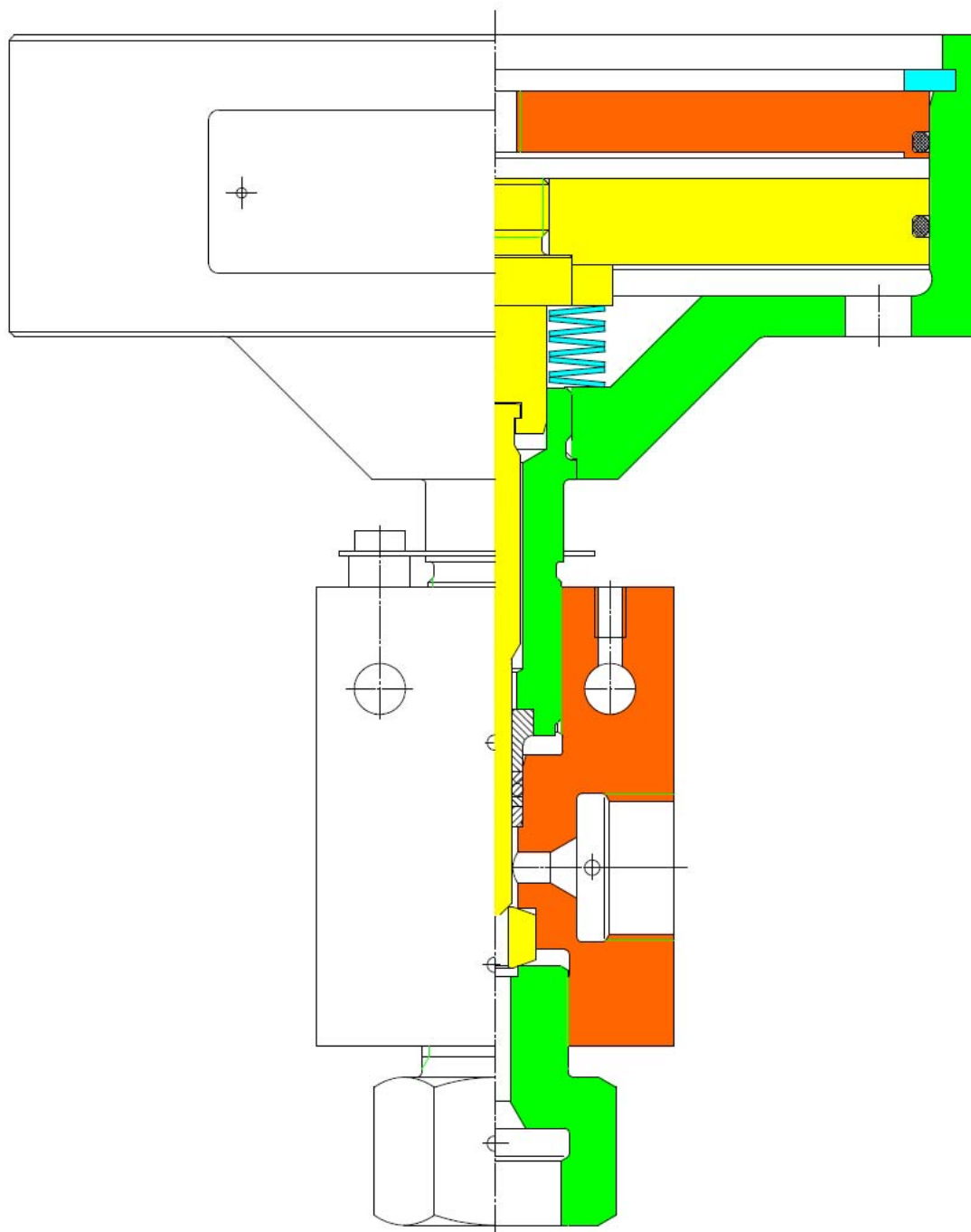
- Connection holes for an "OPEN" position indicator are already provided as standard.
- The design pressure is 8 bar.

The **coupling** is the connecting element between the valve section and the valve drive connection with adapted valve stem.

Leakage rates in seat $\leq 10^{-2}$ mbar l/s
to outside $\leq 10^{-4}$ mbar l/s

* Matching high pressure pipes can only be supplied for PN 3200

Valves with piston drive, pneumatically closed (KAPS)



HOFER high pressure valves with piston drive, pneumatically closed and opened with spring force, also known as **NO valves** (NO = normally open), are of a sturdy, solid design and have a proven record of success under harsh operating condition on HOFER compressors.

They consist of three main groups:
Valve section
Piston drive
and
Coupling with valve stem

Valves with piston drive, pneumatically closed (KAPS)

Angle pattern valve with piston drive (KAPS)

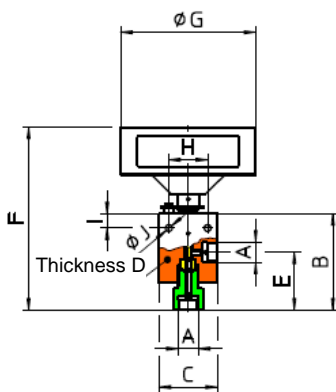
<= 1000 bar

Type 7.162

with holes for "CLOSED" position indicator

| Order No. | For pipe | DN | PN | TB °C | Seat ø mm | Material | Required pilot pressure at max. operating pressure | | | | KAPS size | |
|----------------|----------|----|------|----------|---|----------------|---|-----|----|------|--------------|----|
| xxx | 16 x 3 | 10 | 630 | | see valves DN 10 PN 1000 for pipe 14 x 2.5 mm | | | | | | | |
| xxx | 20 x 3 | | | | | | | | | | | |
| 7.162.157.54.2 | 22 x 3 | 16 | 400 | 100 | 15 | 1.4571 - PTFE | 5.5 | bar | at | 400 | bar | 54 |
| xxx | 30 x 5 | | | | | | | | | | | |
| xxx | 35 x 5 | | | | | | | | | | | |
| 7.162.331.51.2 | 6 x 1.5 | 3 | 1000 | 200 | 2.5 | 1.4571 - TF/GR | 6.5 | bar | at | 1000 | bar | 51 |
| 7.162.331.52.2 | 6 x 1.5 | 3 | 1000 | 200 | 2.5 | 1.4571 - TF/GR | 3 | bar | at | 1000 | bar | 52 |
| 7.162.134.51.2 | 10 x 2 | 6 | 300 | 200 | 5 | 1.4571 - PTFE | 7.5 | bar | at | 300 | bar | 51 |
| 7.162.334.52.2 | 10 x 2 | 6 | 1000 | 200 | 5 | 1.4571 - PTFE | 6.5 | bar | at | 1000 | bar | 52 |
| 7.162.139.52.2 | 14 x 2.5 | 10 | 400 | 200 | 10 | 1.4571 - PTFE | 8 | bar | at | 400 | bar | 52 |
| 7.162.239.52.2 | 14 x 2.5 | 10 | 600 | 200 | 8 | 1.4571 - PTFE | 7.5 | bar | at | 600 | bar | 52 |
| 7.162.239.53.2 | 14 x 2.5 | 10 | 630 | 200 | 10 | 1.4571 - PTFE | 5.5 | bar | at | 630 | bar | 53 |
| 7.162.339.53.2 | 14 x 2.5 | 10 | 1000 | 200 | 8 | 1.4571 - PTFE | 5.5 | bar | at | 1000 | bar | 53 |
| xxx | 20 x 4 | | | | | | | | | | | |

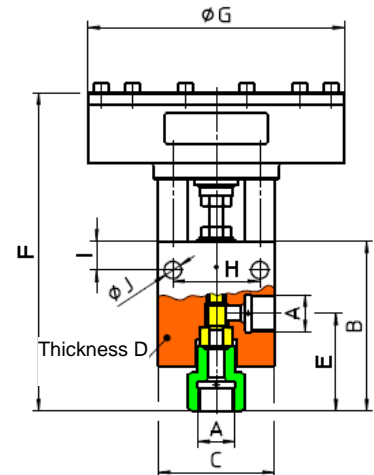
| Order No. | For pipe | Dimensions | | | | | | | | | | |
|----------------|----------|---|-----|-----|----|-----|-----|-----|----|----|-----|-------|
| | | A | B | C | D | E | F | G | H | I | J | K |
| xxx | 16 x 3 | see valves DN 10 PN 1000 for pipe 14 x 2.5 mm | | | | | | | | | | |
| xxx | 20 x 3 | | | | | | | | | | | |
| 7.162.157.54.2 | 22 x 3 | G 1 1/8 | 175 | 120 | 55 | 100 | 370 | 266 | 90 | 30 | 18 | G 1/8 |
| xxx | 30 x 5 | | | | | | | | | | | |
| xxx | 35 x 5 | | | | | | | | | | | |
| 7.162.331.51.2 | 6 x 1.5 | G 3/8 | 83 | 50 | 22 | 50 | 165 | 96 | 34 | 15 | 5.8 | G 1/8 |
| 7.162.331.52.2 | 6 x 1.5 | G 3/8 | 83 | 50 | 22 | 50 | 175 | 140 | 34 | 15 | 5.8 | G 1/8 |
| 7.162.134.51.2 | 10 x 2 | G 1/2 | 100 | 60 | 32 | 60 | 185 | 96 | 40 | 15 | 7 | G 1/8 |
| 7.162.334.52.2 | 10 x 2 | G 1/2 | 100 | 60 | 32 | 60 | 195 | 140 | 40 | 15 | 7 | G 1/8 |
| 7.162.139.52.2 | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | | 140 | 45 | 20 | 10 | G 1/8 |
| 7.162.239.52.2 | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | | 140 | 45 | 20 | 10 | G 1/8 |
| 7.162.239.53.2 | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | 235 | 190 | 45 | 20 | 10 | G 1/8 |
| 7.162.339.53.2 | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | 235 | 190 | 45 | 20 | 10 | G 1/8 |
| xxx | 20 x 4 | | | | | | | | | | | |



The tables are each divided into two sections. The upper section contains the technical data while the lower sections specifies the corresponding dimensions.

Dimensions:

- A to E Valve body
- F+G Main dimensions
(dimension F with spring
assembly not tensioned)
- H to J Dimensions for valve
installation
- K "Pilot air" connection



Information on the tables

The **PN values** refer to operating temperatures of less than 50 °C.

Factors defining strength reduction at high temperatures are to be taken into account.

The **TB values** specify the maximum permissible operating temperature (medium) referred to the materials of the stem seal, e.g.

| | |
|-------|----------------|
| PTFE | -30 to +200 °C |
| TF/GR | -30 to +200 °C |
| NBR | -25 to +100 °C |

Valves with piston drive, pneumatically closed (KAPS)

Angle pattern valve with piston drive (KAPO)

>= 1000 to 4000 bar

Type 7.162

with holes for "OPEN" position indicator

| Order No. | For pipe | DN | PN | TB °C | Seat ø mm | Material | Required pilot pressure at max. operating pressure | | | | KAPS size | |
|----------------|---------------|----|-------|----------|--------------|--------------|---|-----|----|------|--------------|----|
| 7.162.442.53.6 | 9/16" x 5/16" | 8 | 1600 | 100 | 6 | 1.4418 - NBR | 6 | bar | at | 1600 | bar | 53 |
| 7.162.540.53.6 | 9/16" x 1/4" | 6 | 2000 | 100 | 5 | 1.4418 - NBR | 5.5 | bar | at | 2000 | bar | 53 |
| 7.162.545.54.6 | 20 x 5 | 10 | 2000 | 100 | 10 | 1.4313 - NBR | 8 | bar | at | 2000 | bar | 54 |
| xxx | 20 x 5 | | | | | | | | | | | |
| 7.162.732.52.6 | 6 x 2 | 2 | 4000* | 100 | 2 | 1.4418 - NBR | 6 | bar | at | 4000 | bar | 52 |
| 7.162.541.52.6 | 9/16" x 3/16" | 5 | 2500 | 100 | 3.5 | 1.4418 - NBR | 7.5 | bar | at | 2500 | bar | 53 |
| 7.162.741.53.6 | 9/16" x 5/16" | 5 | 4000* | 100 | 3.5 | 1.4418 - NBR | 5.5 | bar | at | 4000 | bar | 53 |

| Order No. | For pipe | Dimensions | | | | | | | | | | |
|----------------|---------------|--------------|-----|-----|----|-----|-----|-----|----|----|----|-------|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 7.162.442.53.6 | 9/16" x 5/16" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 235 | 190 | 45 | 20 | 10 | G 1/8 |
| 7.162.540.53.6 | 9/16" x 1/4" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 233 | 190 | 45 | 20 | 10 | G 1/8 |
| 7.162.545.54.6 | 20 x 5 | G 1 1/8 | 170 | 120 | 60 | 100 | 360 | 266 | 90 | 30 | 18 | G 1/8 |
| xxx | 20 x 5 | | | | | | | | | | | |
| 7.162.732.52.6 | 6 x 2 | G 3/8 | 92 | 54 | 27 | 54 | 185 | 140 | 40 | 15 | 7 | G 1/8 |
| 7.162.541.52.6 | 9/16" x 3/16" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 220 | 140 | 45 | 20 | 10 | G 1/8 |
| 7.162.741.53.6 | 9/16" x 3/16" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 235 | 190 | 45 | 20 | 10 | G 1/8 |

Information on the tables

The **seat diameters** are smaller than/equal to the valve nominal diameter (DN) referred to the permissible pilot pressure.

The Kvs values specified here are rough reference values serving as flow factors for liquids. Depending on the type of valve, the actual values for liquids and gases are to be determined according to the operating data (e.g. volumetric flow, density, pressure and temperature at the inlet and outlet, etc.).

The **material data** refer to the material for the valve housing and stem seal, e.g.

1.4571-PTFE Housing made from material No. 1.4571 and stem seal with PTFE sealing rings
1.4418-NBR Housing made from material No. 1.4418 and stem seal as NBR O-ring system

The **maximum permissible pilot pressure** depends on the type of valve.

The data specify the pilot pressure at maximum permissible operating pressure. Consult the manufacturer with regard to the pilot pressure required for a lower operating pressure.

IMPORTANT

The pilot pressure actually applied must never exceed a maximum of 10 % of the specified pilot pressure as it acts via the piston surface directly on the seat-stem seal and can damage the seat and stem under overload conditions. It is necessary to check in individual cases whether corresponding pressure reducer units are required for the pilot pressure.

Angle pattern valve with piston drive (KAPS)

Type 7.162- AZ

with holes for "CLOSED" position indicator
and cover for "OPEN" position indicator

| Order No. | For pipe | DN | PN | TB °C | Seat ø mm | Material | Required pilot pressure at max. operating pressure | | | | KAPS size | |
|------------------|---------------|----|-------|----------|--------------|---------------|---|-----|----|------|--------------|----|
| 7.162.139.52.2AZ | 14 x 2.5 | 10 | 400 | 200 | 10 | 1.4571 - PTFE | 8 | bar | at | 400 | bar | 52 |
| 7.162.239.52.2AZ | 14 x 2.5 | 10 | 600 | | 8 | 1.4571 - PTFE | 7.5 | bar | at | 600 | bar | 52 |
| 7.162.442.53.6AZ | 9/16" x 5/16" | 8 | 1600 | | 6 | 1.4418 - NBR | 6 | bar | at | 1600 | bar | 53 |
| 7.162.540.53.6AZ | 9/16" x 1/4" | 6 | 2000* | | 5 | 1.4418 - NBR | 5.5 | bar | at | 2000 | bar | 53 |
| 7.162.732.52.6AZ | 6 x 2 | 2 | 4000* | | | - | | bar | at | 4000 | bar | 52 |
| 7.162.741.53.6AZ | 9/16" x 3/16" | 5 | 4000* | 100 | 3.5 | 1.4418 - NBR | 5.5 | bar | at | 4000 | bar | 53 |

| Order No. | For pipe | Dimensions | | | | | | | | | | |
|------------------|---------------|--------------|-----|----|----|----|-----|-----|----|----|----|-------|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 7.162.139.52.2AZ | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | | 140 | 45 | 20 | 10 | G 1/8 |
| 7.162.239.52.2AZ | 14 x 2.5 | G 7/8 | 125 | 70 | 38 | 70 | | 140 | 45 | 20 | 10 | G 1/8 |
| 7.162.442.53.6AZ | 9/16" x 5/16" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | | 190 | 45 | 20 | 10 | G 1/8 |
| 7.162.540.53.6AZ | 9/16" x 1/4" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | | 190 | 45 | 20 | 10 | G 1/8 |
| 7.162.732.52.6AZ | 6 x 2 | G 3/8 | 95 | 54 | 27 | 57 | | 140 | 40 | 15 | 7 | G 1/8 |
| 7.162.741.53.6AZ | 9/16" x 3/16" | 1 1/8-12 UNF | 125 | 70 | 38 | 70 | 235 | 190 | 45 | 20 | 10 | G 1/8 |

* Matching high pressure pipes can only be supplied for PN 3200

Valves with piston drive, pneumatically closed (KAPS)

For the **KAPS size** refer to the brochure EZ 03 (piston drives, pneumatically closed) with detailed information.

With their smaller seat dimensions, **Type 7.163** valves are designed for finer pressure relief. They are otherwise identical to the corresponding valves Type 7.162.

Valves **Type 7.162- AZ** and **7.163-AZ** are versions for an additional "OPEN" position indicator. Conversion is only possible by fitting a new cover at the manufacturer.

Angle pattern valve with piston drive (KAPS) - pressure relief

Type 7.163

with holes for "CLOSED" position indicator

| Order No. | For pipe | DN | PN | TB °C | Seat ø mm | Material | Required pilot pressure at max. operating pressure | | | | KAPS size | |
|----------------|----------|----|-------|----------|--------------|---------------|---|-----|----|------|--------------|----|
| 7.163.331.51.2 | 6 x 1.5 | 3 | 1000 | 200 | 2 | 1.4571 - PTFE | 5 | bar | at | 1000 | bar | 51 |
| 7.163.331.52.2 | 6 x 1.5 | 3 | 1000 | 200 | 2 | 1.4571 - PTFE | 2.5 | bar | at | 1000 | bar | 52 |
| 7.163.732.51.6 | 6 x 2 | 2 | 4000* | 100 | 2 | 1.4418 - PTFE | 7 | bar | at | 4000 | bar | 51 |
| 7.163.732.52.6 | 6 x 2 | 2 | 4000* | 100 | 2 | 1.4418 - PTFE | 3.5 | bar | at | 4000 | bar | 52 |

| Order No. | For pipe | Dimensions | | | | | | | | | | |
|----------------|----------|------------|----|----|----|----|-----|-----|----|----|-----|-------|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 7.163.331.51.2 | 6 x 1.5 | G 3/8 | 83 | 50 | 22 | 50 | 165 | 96 | 34 | 15 | 5.8 | G 1/8 |
| 7.163.331.52.2 | 6 x 1.5 | G 3/8 | 83 | 50 | 22 | 50 | 175 | 140 | 34 | 15 | 5.8 | G 1/8 |
| 7.163.732.51.6 | 6 x 2 | G 3/8 | 92 | 54 | 27 | 54 | 175 | 96 | 40 | 15 | 7 | G 1/8 |
| 7.163.732.52.6 | 6 x 2 | G 3/8 | 92 | 54 | 27 | 54 | 185 | 140 | 40 | 15 | 7 | G 1/8 |

Angle pattern valve with piston drive (KAPS) - pressure relief

Type 7.163- AZ

with holes for "CLOSED" position indicator
and cover for "OPEN" position indicator

| Order No. | For pipe | DN | PN | TB °C | Seat ø mm | Material | Required pilot pressure at max. operating pressure | | | | KAPS size | |
|------------------|----------|----|-------|----------|--------------|---------------|---|-----|----|------|--------------|----|
| 7.163.732.51.6AZ | 6 x 2 | 2 | 4000* | 100 | 2 | 1.4418 - PTFE | 7 | bar | at | 4000 | bar | 51 |

| Order No. | For pipe | Dimensions | | | | | | | | | | |
|------------------|----------|------------|----|----|----|----|-----|----|----|----|---|-------|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 7.163.732.51.6AZ | 6 x 2 | G 3/8 | 92 | 54 | 27 | 54 | 175 | 96 | 40 | 15 | 7 | G 1/8 |

Information on the valves

In terms of the main dimensions and connection dimensions, the valve section largely corresponds to those of the manually operated valves with replaceable seat, consisting of

- the valve housing with lateral outlet connection (block hole "BI"),
- the adapter with inlet connection (block hole "BI"),
- the replaceable seat and
- the stem seal.

The stem itself is part of the coupling.

The **piston drive** is adapted to the respective valve data, depending on the maximum permissible operating pressure and the corresponding pilot pressure.

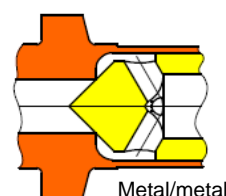
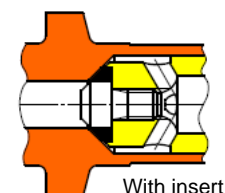
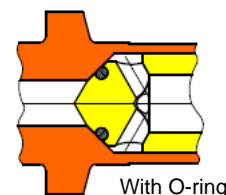
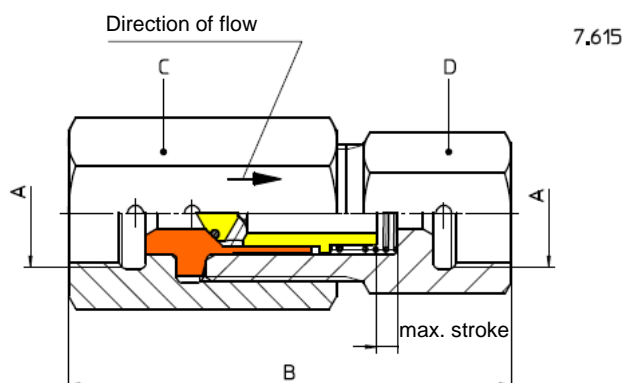
- Connection holes for a "CLOSED" position indicator are already provided as standard.
- The design pressure is 8 bar.
- The spring assembly arranged beneath the piston and its pretension set with special tool during installation is designed such that the valve automatically opens if the pilot pressure drops.

The coupling is the connecting element between the valve section and the valve drive connection with adapted valve stem.

Leakage rates: in seat $\leq 10^{-2}$ mbar l/s
 to outside $\leq 10^{-4}$ mbar l/s

* Matching high pressure pipes can only be supplied for PN 3200

Non-return valves



Non-return valve BI

Type 7.615

| Order No. | For pipe | DN | PN | Material | A | B | C | D |
|------------------|----------|----|------|----------------|-------|-----|----|----|
| Cone with O-ring | | | | | | | | |
| 7.615.331.01.2 | 6 x 1.5 | 3 | 1000 | 1.4571 - PTFE | G 3/8 | 75 | 27 | 22 |
| 7.615.334.01.2 | 10 x 2 | 6 | 1000 | 1.4571 - PTFE | G 1/2 | 85 | 32 | 27 |
| 7.615.339.01.2 | 14 x 2.5 | 10 | 1000 | 1.4571 - PTFE | G 7/8 | 115 | 46 | 41 |
| 7.615.632.01.6 | 6 x 2 | 2 | 3200 | 1.4571 - PTFE | G 3/8 | 80 | 32 | 27 |
| Cone with insert | | | | | | | | |
| 7.615.334.02.2 | 10 x 2 | 6 | 1000 | 1.4571 - PEEK | G 1/2 | 85 | 32 | 27 |
| 7.615.334.03.2 | 10 x 2 | 6 | 1000 | 1.4571 - PCTFE | G 1/2 | 85 | 32 | 27 |

Non-return valves prevent the backflow of gases or liquids and close automatically in the event of an interruption in flow.

The sealing principle is based on the differential pressure between the two connection sides with the aid of a compression spring (Type 7.615 and 7.616) or the weight of the cone (Type 7.617).

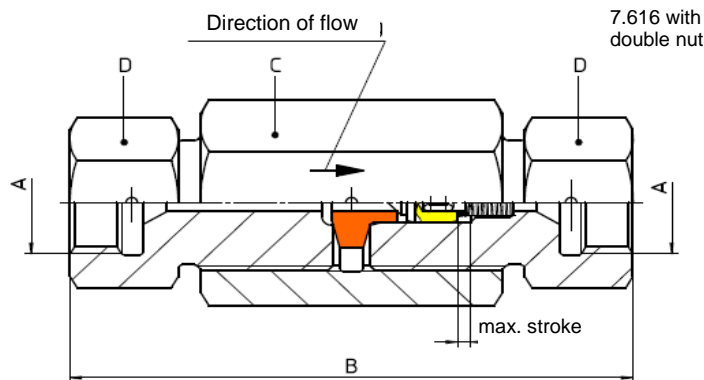
The compression springs are normally designed for a low opening pressure of approx. 0.3 to 0.5 bar.

Leakage rates

In seat: Due to the lack of seal forming forces, these valves cannot close completely tight, e.g. in dry gases. The general rule is the greater the differential pressure the tighter the seal.

To outside: 10^{-4} mbar l/s

Non-return valves are therefore not pressure holding valves and must not be used for safety functions. If it is necessary for the valve to function as a pressure holding valve, a manually operated valve or preferably a pneumatically operated shut-off valve, activated by the differential pressure between the connection sides, is to be installed in addition to the non-return valve.

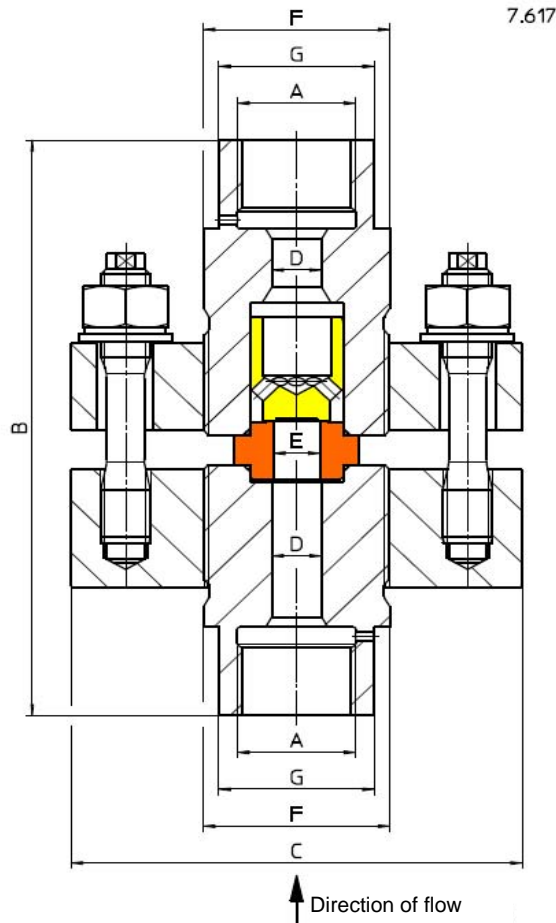


Non-return valve BI

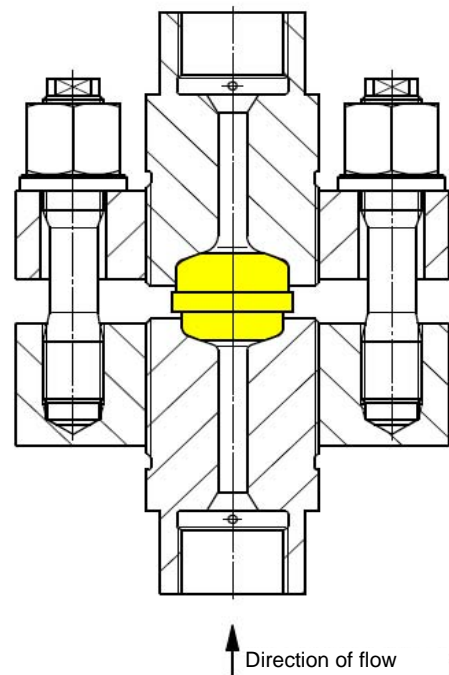
Type 7.616

| Order No. | For pipe | DN | PN | Material | A | B | C | D |
|---|---------------|----|------|-----------------|---------------|-----|----|----|
| With metal-to-metal seal | | | | | | | | |
| 7.616.331.01.2 | 6 x 1.5 | 3 | 1000 | 1.4571 - 1.4057 | G 3/8 | 75 | 27 | 22 |
| 7.616.334.01.2 | 10 x 2 | 6 | 1000 | 1.4571 - 1.4057 | G 1/2 | 85 | 32 | 27 |
| 7.616.339.01.2 | 14 x 2.5 | 10 | 1000 | 1.4571 - 1.4057 | G 7/8 | 115 | 46 | 41 |
| With metal-to-metal seal and double nut | | | | | | | | |
| 7.616.540.01.6 | 9/16" x 1/4" | 6 | 2000 | 1.4418 - 1.4034 | 1 1/8"-12 UNF | 145 | 50 | 41 |
| 7.616.641.01.6 | 9/16" x 3/16" | 5 | 3200 | 1.4418 - 1.4034 | 1 1/8"-12 UNF | 145 | 50 | 41 |

The outer dimensions of Type 7.616 up to 1000 bar correspond to those of Type 7.615 (illustrated above), making them interchangeable.



7.617



7.617

Special version with a compressor valve as the non-return valve

Non-return valve BI

Type 7.617

| Order No. | For pipe | DN | PN | Housing | Material Seat | Cone | A | B | C | D | E | F | G | Screws |
|----------------|----------|----|------|---------|------------------|--------|-------------|-----|-----|----|----|----|----|----------|
| 7.617.148.01.2 | 30 x 5 | 20 | 400 | 1.4571 | 1.4021 | 1.4021 | G 1 3/4 | 200 | 150 | 25 | 25 | 75 | 65 | 4 x M 16 |
| 7.617.157.01.2 | 22 x 3 | 16 | 400 | 1.4571 | 1.4021 | 1.4057 | G 1 1/8 | 195 | 145 | 16 | 15 | | 50 | 6 x M 16 |
| 7.617.247.01.6 | 30 x 5 | 20 | 630 | 1.4313 | 1.4313 | 1.4571 | (*) G 1 1/2 | | | | 20 | | | 4 x M 16 |
| 7.617.344.01.2 | 20 x 4 | 12 | 1000 | 1.4571 | 1.4021 | 1.4057 | G 1 1/8 | 200 | 125 | 12 | 12 | X | 50 | 4 x M 16 |
| 7.617.545.01.6 | 20 x 5 | 10 | 2000 | 1.4313 | 1.4021 | 1.4057 | G 1 1/8 | 215 | 145 | | | | | 6 x M 16 |
| 7.617.556.01.6 | 25 x 5 | 15 | 2000 | 1.4313 | 1.4021 | 1.4057 | G 1 1/2 | 200 | 150 | | | | | 8 x M 16 |

(*) Version with compression spring

Seal variants

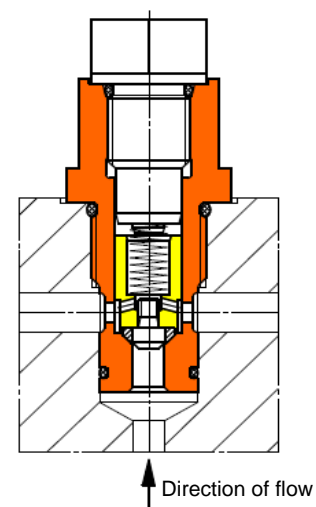
The version with **PTFE O-ring** should only be used in applications with low flow rates.

Types 7.616 and 7.617 all have a **metal-to-metal** seal.

Installation position

Types 7.615 and 7.616 can be installed in any position but preferably vertically with incoming flow from below.

Types 7.617 have no compression spring and are therefore installed only vertically with incoming flow from below.



Installation of non-return valve DN 8 PN 500

Pneumatically operated piston drives

The following versions of pneumatically operated piston drives are available to facilitate remote control of HOFER valves:

- **Pneumatically opened (KAPO),**
closed with spring force
or **NC** (normally closed)
and
- **Pneumatically closed (KAPS),**
opened with spring force
or **NO** (normally open)

With the corresponding connections between the valve and drive matching the different valve systems, these piston drives are used for example on:

HOFER block valves
HOFER technical gases valves
HOFER bellows seal valves
HOFER condensation drain valves

HOFER piston drives with disc springs are of a sturdy, solid design and have a proven record of success under harsh operating conditions on HOFER compressors.

"Pneumatically opened"

means the valve is opened by applying "pilot air" and closed by means of pretensioned disc springs and

"Pneumatically closed"

means the valve is closed by applying "pilot air" and opened by means of pretensioned disc springs

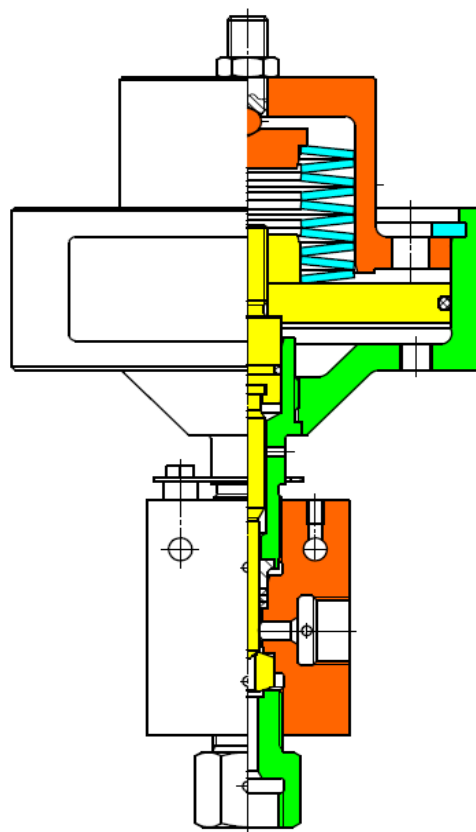
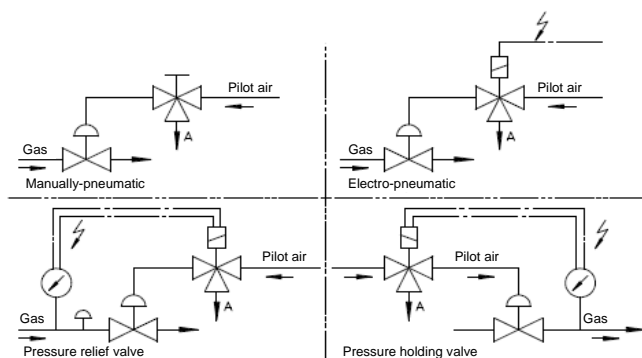
The valves are activated by targeted pressure relief or failure of the "pilot air".

Both types of drive are available in a modular system with different sizes.

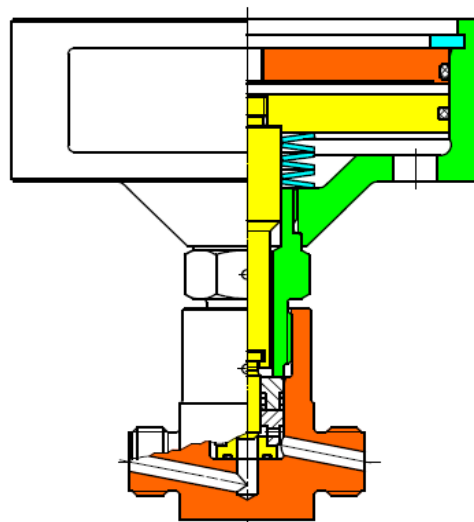
"Pilot air"

Instead of compressed air as the standard medium, inert gases such as nitrogen or argon can also be used as the "pilot air".

Actuation of the piston drives with "pilot air" can take place both manually as well as automatically.



Angle pattern valve DN 10 PN 1000 (HOFER block system) with replaceable seat and piston drive, pneumatically opened (KAPO)



Straight-way valve DN 6 PN 400 ("Technical gases" system) with replaceable seat and piston drive, pneumatically closed (KAPS)

Pneumatically operated piston drives

Design pressure

HOFFER piston drives are designed for a maximum pilot pressure of 8 bar.

Pressure reducer units should be used if the pressure of the "pilot air" available at the customer is higher than 8 bar or if the maximum permissible pressure at one of the KAPS valves is lower than 8 bar.

Pilot pressure

The design of each valve results in a corresponding interdependence between the required pilot pressure and the operating pressure.

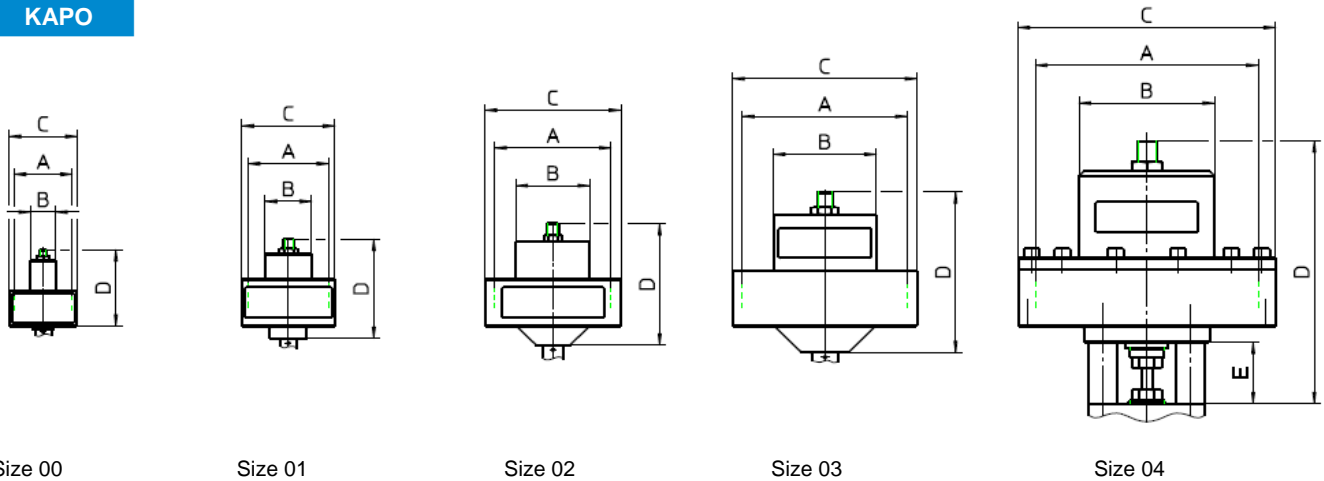
- For detailed information refer to brochures EZ-02 and EZ-03

Information on "pilot air"

The piston drives are normally equipped with long-term lubrication at the factory and do not require oil-lubricated "pilot air",

i.e. oil mist lubricators are not necessary. If, however, oil-lubricated "pilot air" is used the piston drive should be inspected at specified intervals as no oil drain hole is provided in the piston drive as standard.

KAPO



Piston drive, pneumatically opened

KAPO

| Size | Dimensions | | | | Piston surface (1) mm ² | Piston force (2) N |
|------|-------------|-------------|---------------|------------------------|--|--------------------------|
| | Piston ø | Bonnet ø | Cylinder ø | Height approx. D | | |
| | A | B | C | D | | |
| 00 | 60 | 26 | 70 | 80 | 2,650 | 2,120 |
| 01 | 83 | 48 | 96 | 105 | 5,100 | 4,080 |
| 02 | 120 | 76 | 140 | 130 | 11,000 | 8,800 |
| 03 | 170 | 106 | 190 | 170 | 22,380 | 17,910 |
| 04 | 230 | 140 | 266 | 280 | 39,960 | 31,970 |

(1) Rounded off, pin diameter included

(2) Rounded off, at max. pilot pressure = 8 bar

Dimension "E" same as KAPS - Size 54

Piston drive, pneumatically closed

KAPS

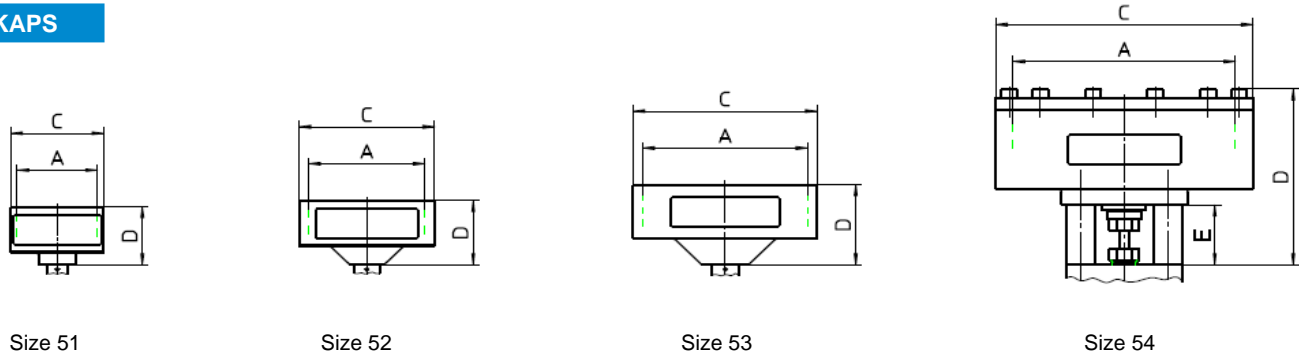
| Size | Dimensions | | | | Piston surface (1) mm ² | Piston force (2) N |
|------|-------------|---------------|-------------|----|--|--------------------------|
| | Piston ø | Cylinder ø | Height D | E | | |
| | A | C | D | E | | |
| 51 | 83 | 96 | 63 | - | 5,410 | 4,330 |
| 52 | 120 | 140 | 70 | - | 11,310 | 9,050 |
| 53 | 170 | 190 | 87 | - | 22,700 | 11,160 |
| 54 | 230 | 266 | 191 | 65 | 41,550 | 33,240 |

(1) Rounded off

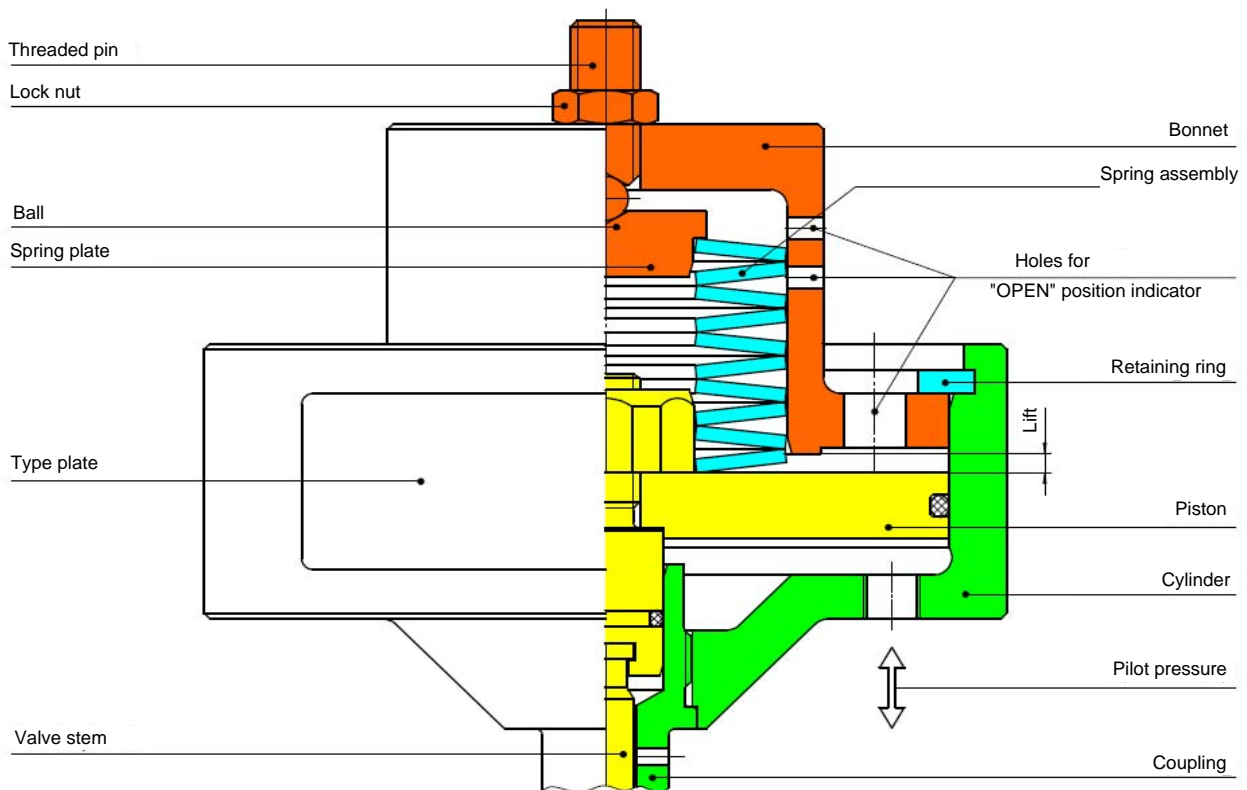
(2) Rounded off, at max. pilot pressure = 8 bar

Caution: This force acts on the seat-stem seal! The actual pilot pressure should therefore not be set higher than the permissible pilot pressure applied at the piston drive of any of the valves.

KAPS



Piston drives, pneumatically opened (Type KAPO)

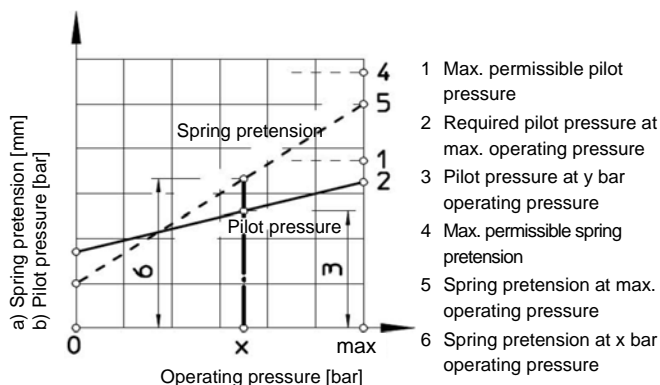


Pneumatically opened piston drives (KAPO) and **closed with spring force** are also known as NC actuators (NC = normally closed).

A valve with this type of piston drive opens when pressure is applied in the form of "pilot air" and closes automatically under targeted pressure relief or if the "pilot air" fails.

Design pressure: max. 8 bar pilot pressure

The sealing force on the seat-stem seal is exerted by the pretension of the disc spring assembly in accordance with manufacturer's specifications.



A diagram similar to that illustrated, containing the respective data for the spring pretension and the pilot pressure referred to operating pressure comes with the valve drawing for each type of valve.

Note (KAPO):

Exceeding the required pilot pressure (depending on the operating pressure) by up to max. 8 bar has no effect on the seat-stem seal.

Hofer

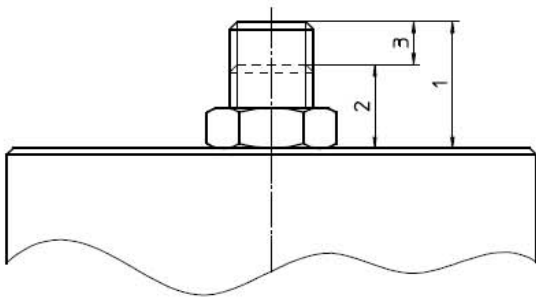
Andreas Hofer
Hochdrucktechnik GmbH
45478 MÜLHEIM
-GERMANY-

Auftrags Nr.
Serial No.
Betriebsdruck
Operating pressure
Steuerdruck
Pilot pressure
Federvorspannung
Spring pretension

Type plate

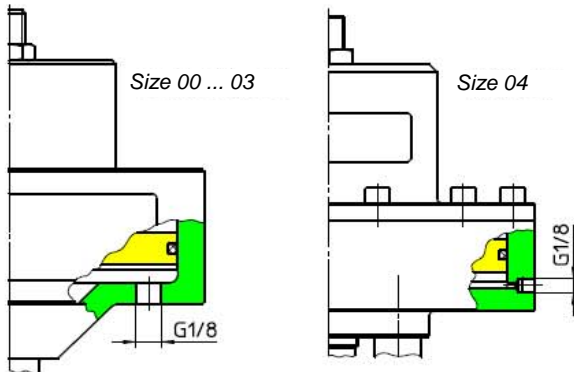
Prior to delivery, each valve with a pneumatically opened piston drive is equipped with a type plate, showing the parameters set by the manufacturer and order No. (with additional data if necessary) as the valve number to identify each valve.

Piston drives, pneumatically opened (Type KAPO)



Pretension of disc springs (spring assembly)

1. Dimension with spring assembly not tensioned
2. Dimension with spring assembly pretensioned
3. Dimension of spring pretension



Position of pilot air connection

Setting:

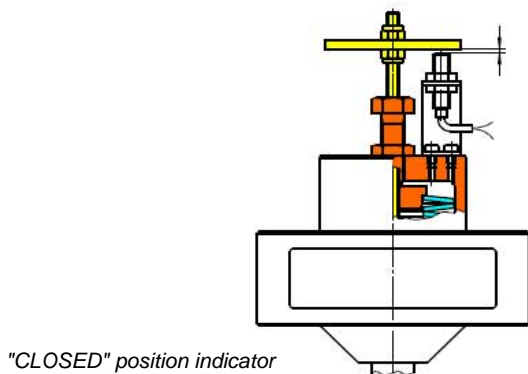
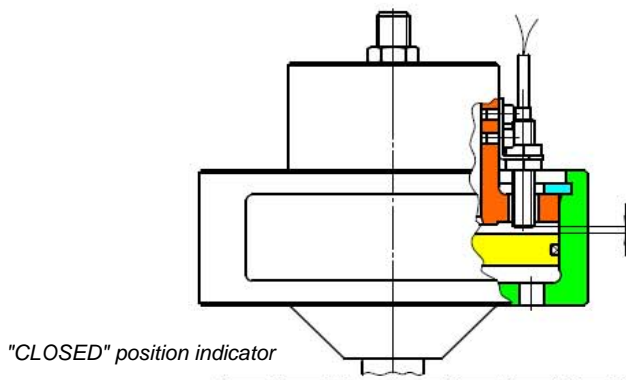
- Size 00: This setting can be achieved by turning the cylinder towards the valve with the spring assembly not tensioned
- Size 01 to 03: This setting is achieved by screwing the coupling into the valve
- Size 04: This setting is determined by the design (90 or 270 degrees to position of columns)

Setting indicators

All sizes of these piston drives have as standard holes for fitting an "OPEN" position indicator.

Additional design features (special version) are required if an additional "CLOSED" position indicator is required.

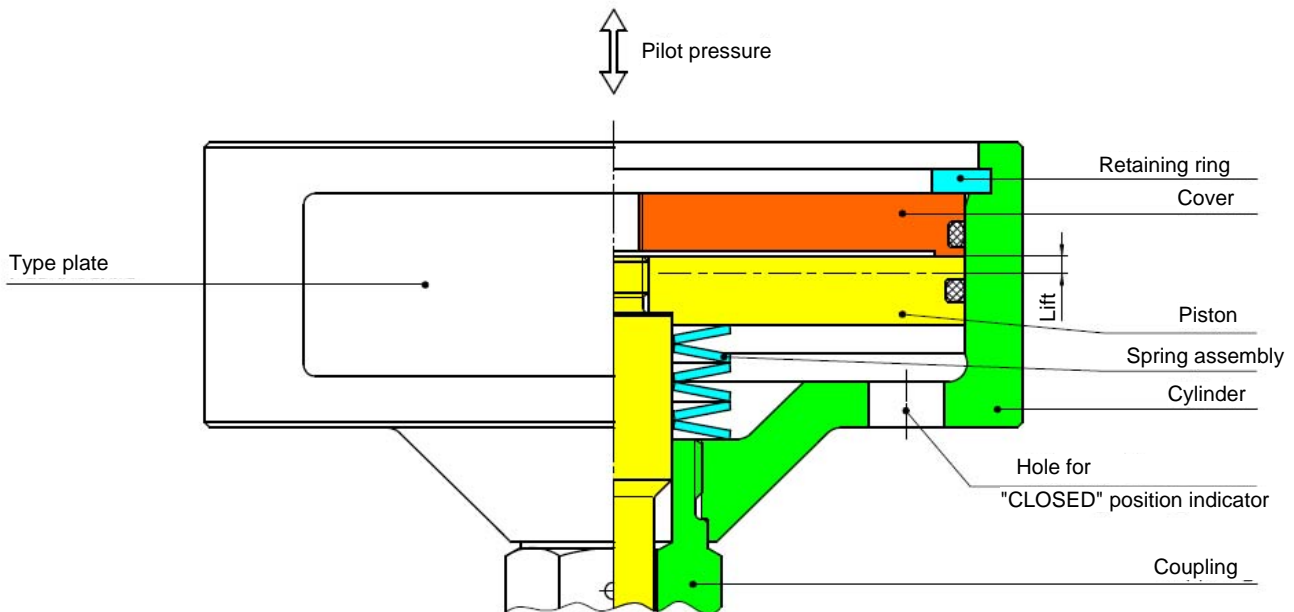
Please refer to brochure EZ 04 "Position indicators" for standard and ex versions of position indicators with indicator pin (mechanical, microswitch (electrical) or with non-contact proximity switches (electronic).



3/2-way solenoid valves with fittings

Please refer to brochure EX 05 (Fittings) "Solenoid valves for pilot air" for standard and ex versions of solenoid valves for "pilot air" with connection elements for the piston drive and solenoid valve, including connecting hose.

Piston drives, pneumatically closed (Type KAPS)



Pneumatically closed piston drives (KAPS) and **opened with spring force** are also known as **NO actuators** (**NO** = normally open).

A valve with this type of piston drive closes when pressure is applied in the form of "pilot air" and opens automatically under targeted pressure relief or if the "pilot air" fails.

Design pressure: max. 8 bar pilot pressure

The sealing force on the seat-stem seal is exerted by applying pilot pressure against the piston.

A diagram similar to that illustrated, containing the respective data for the pilot pressure referred to operating pressure comes with the valve drawing for each type of valve.

Note (KAPS) - Important!

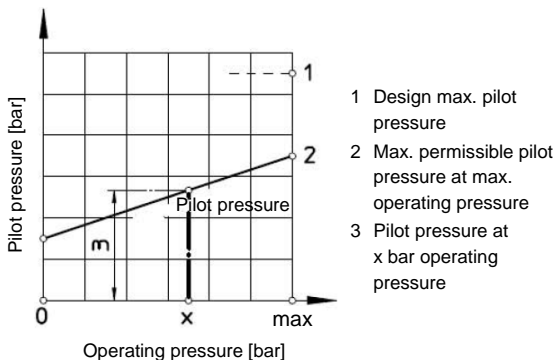
The pilot pressure actually applied should never exceed the specified pilot pressure by more than 10 % otherwise the overload may damage the seat and stem.

It is necessary to check in individual cases whether corresponding pressure reducer units are required for the pilot pressure.

The spring assembly arranged beneath the piston is pretensioned with a special tool during installation and opens the valve if the pilot pressure fails.

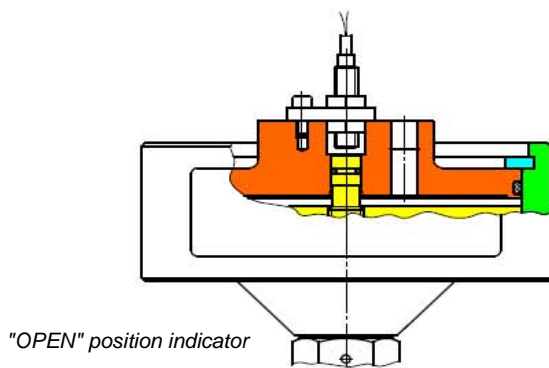
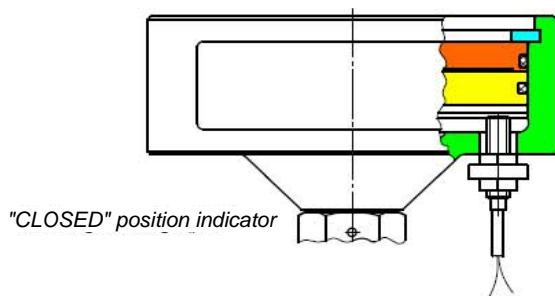
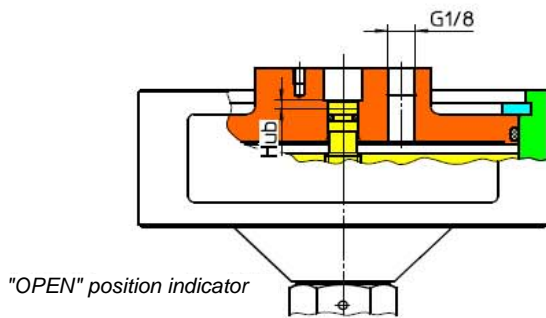
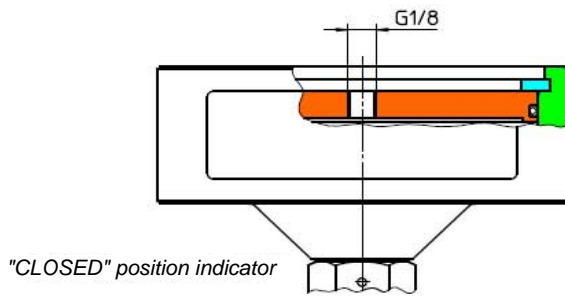
Type plate

Prior to delivery, each valve with a pneumatically closed piston drive is equipped with a type plate, showing the parameters specified by the manufacturer and order No. (with additional data if necessary) as the valve number to identify each valve.



| | | |
|--|--------------------|--|
| Hofer Andreas Hofer Hochdrucktechnik GmbH 45478 MÜLHEIM -GERMANY- | Auftrags Nr. | |
| | Serial No. | |
| | Betriebsdruck | |
| | Operating pressure | |
| | Steuerdruck | |
| | Pilot pressure | |
| | Federvorspannung | |
| | Spring pretension | |

Piston drives, pneumatically closed (Type KAPS)



Position of pilot air connection

Setting "Standard":

Size 51 to 54: Centre axis of piston drive

Setting for cover for additional "OPEN" position indicator Size 51 to 54: Off-centre, vertical to centre axis

Size 51 to 53: This setting is achieved by screwing the coupling into the valve

Size 54: This setting is determined by the design with respect to the position of the columns

Setting indicators

All sizes of these piston drives have as standard holes for fitting an "CLOSED" position indicator.

Additional design features (special version) are required if an additional "OPEN" position indicator is required.

Please refer to brochure EZ 04 "Position indicators" for standard and ex versions of position indicators with indicator pin (mechanical, microswitch (electrical) or with non-contact proximity switches (electronic).

3/2-way solenoid valves with fittings

Please refer to brochure EX 05 (Fittings) "Solenoid valves for pilot air" for standard and ex versions of solenoid valves for "pilot air" with connection elements for the piston drive and solenoid valve, including connecting hose.