

Vacuum Valves

Ball Valves



Angle Valves



In-line Valves



Special Valves



Gate Valves



Valve Accessories



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Introduction

Vacuum valves are essential shut-off elements for any vacuum system. They are used in the vacuum lines or directly at the vacuum chamber. VACOM offers a large selection of vacuum valves for many applications in rough, medium, high and ultra high vacuum. In the following we give an overview of the available vacuum valves and their applications.

Ball valves are particularly suitable for rough vacuum. Under certain conditions they can also be used in medium vacuum. VACOM offers two- and three-way ball valves of brass or stainless steel. Two-way ball valves possess an in the flow direction axially bored ball, which by turning 90 ° opens or closes the flow passage. Actuation is realised by a handle that also serves as position indicator. Pneumatic or electric actuators are available as an option. Three-way ball valves have three ports and the ball has either an L-bore or a T-bore. Depending on the position, several connections can be combined.

VACOM's angle and in-line valves are available in a number of versions in nominal sizes DN16 to DN630. They are proven and cost-effective shut-off elements and most valves are suitable for use in high vacuum for industrial and research and development applications. The leak rates of these valves are very low and special attention has been directed to materials and design, with respect to the demands of vacuum technology. The range covers valves of aluminium and stainless steel construction with manual, pneumatic and electromagnetic variants. Depending on the design KF, ISO-K or CF ports are available and usually the valves are FKM sealed. Angle valves for UHV applications are also equipped with metal seals. The valve drive is bellows-sealed using edge welded bellows and hydroformed bellows. The description of all variants and models is beyond the scope of this introduction but we will be pleased to help you choose the optimum product for your application.

VACOM's gate valves are suitable for both high and ultra high vacuum applications. They have a very small installation length with maximum conductance and are primarily used as stop valves for pumping or sluice systems. Our standard gate valves of the American manufacturer HVA have a circular flow passage and a drive with linear feedthrough.

High vacuum and ultra high vacuum valves are available, depending on application. Housings and valve seats of high-vacuum valves are FKM-sealed whereas metal seals are used in valves intended for UHV applications. The drives are manually or electropneumatically actuated and the linear feedthroughs are bellows-sealed.

In addition to standard valves VACOM also offers rectangle gate valves of the Japanese manufacturer SMC. These were specifically designed for demanding applications of the semiconductor industry and in development and research. These valves are offered in different styles: with cassette housing or a rectangular door.

New to this catalogue are pendulum gate valves by HVA. Due to the special housing design they offer advantages in the installation, where standard gate valves can not be used. These valves are suitable for high vacuum applications, but they can also be supplied with CF flanges for UHV systems. Pendulum gate valves are available with aluminium or combined aluminium/stainless steel housings. The drive is pneumatically operated and the rotary feedthrough of the drive is bellows-sealed.

In addition to the above mentioned valves VACOM also offers a wide range of special valves. There are vent valves with manual or electromagnetic drive and mechanical overpressure valves for rough and medium vacuum help to protect your vacuum system.

VACOM can supply gas dosing valves and shut-off valves with manual or electric drive. Depending on the model, they are applicable for HV to UHV and our UHV all-metal gas dosing valves comply with the highest standards of reproducibility and precision.

Soft start and soft vent valves are especially designed for use in automated systems. Using a special two-stage switch they prevent turbulence and provide the controlled evacuation or venting of the vacuum systems.

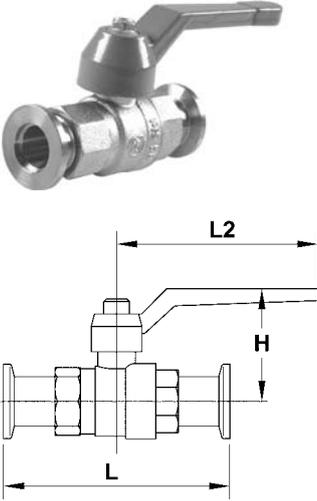
Special gate valves, such as 3-position gate valves or control gate valves are available on request.

At the end of the chapter you will find accessories for the installation of our valves, especially position indicator switches and screw connections for compressed-air connections.

We would also like to draw your attention to our service department. VACOM is the official service partner for the valves of the manufacturers SMC and HVA. We can maintain and repair your vacuum valves and also offer you a spare part service for bellows and other worn parts.

2-way ball valves, manual

Brass (nickel plated) housing

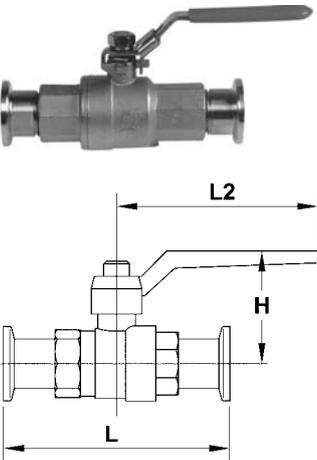


Technical data

| | |
|-----------------------------|---|
| ■ Series | ZKH-M |
| ■ Specifications | 2-way ball valve for use in rough vacuum - applicable for noncorrosive media |
| ■ Actuation | manual with handle |
| ■ Connection | KF flanges |
| ■ Pressure range | 1 mbar to atmospheric pressure |
| ■ Pressure resistance | PN20 (without flange tube) |
| ■ Pass | optically free |
| ■ Leak rate | < 1.0E-7 mbar l/s |
| ■ Housing construction | one-part |
| ■ Housing material | brass nickel-plated |
| ■ Flange material | stainless steel |
| ■ Ball seal material | PTFE |
| ■ Drive seal material | FKM |
| ■ Thread seal material | PTFE (fixed with glue) |
| ■ Operating temperature | -20 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | position handle |
| ■ Options | - other connections on request - pneumatic and electric drives on request |

| Order code | Connection | H | L | L2 |
|------------|------------|----|-----|-----|
| ZKH-16M | DN16KF | 50 | 100 | 100 |
| ZKH-25M | DN25KF | 72 | 103 | 120 |
| ZKH-40M | DN40KF | 90 | 137 | 180 |
| ZKH-50M | DN50KF | 98 | 168 | 185 |

Stainless steel housing



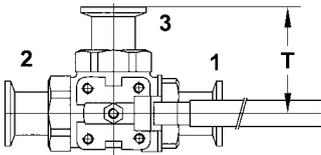
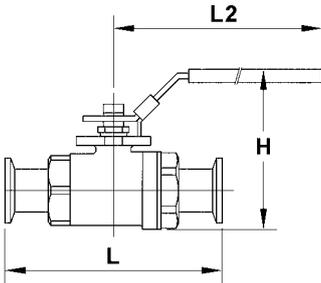
Technical data

| | |
|-----------------------------|---|
| ■ Series | ZKH-S |
| ■ Specifications | 2-way ball valve for use in rough vacuum - applicable for noncorrosive or slightly corrosive media |
| ■ Actuation | manual with handle |
| ■ Connection | KF flanges |
| ■ Pressure range | 1 mbar to atmospheric pressure |
| ■ Pass | optically free |
| ■ Pressure resistance | PN30 (without flange tube) |
| ■ Leak rate | < 1.0E-7 mbar l/s |
| ■ Housing construction | one-part |
| ■ Housing material | stainless steel |
| ■ Flange material | stainless steel |
| ■ Ball seal material | PTFE |
| ■ Drive seal material | PTFE |
| ■ Thread seal material | PTFE (fixed with glue) |
| ■ Operating temperature | -20 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | position handle |
| ■ Options | - other connections on request - pneumatic and electric drives on request |

| Order code | Connection | H | L | L2 |
|------------|------------|----|-----|-----|
| ZKH-16S | DN16KF | 45 | 90 | 80 |
| ZKH-25S | DN25KF | 55 | 102 | 115 |
| ZKH-40S | DN40KF | 75 | 122 | 150 |
| ZKH-50S | DN50KF | 86 | 146 | 170 |

3-way ball valves, manual

Stainless steel housing

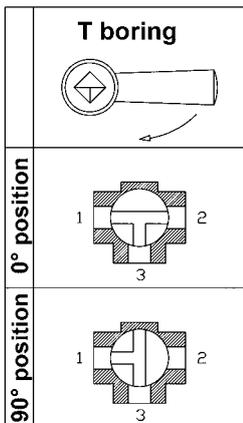
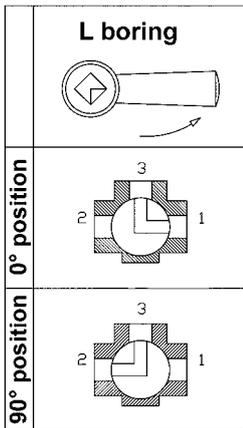


Technical data

| | |
|-----------------------------|---|
| ■ Series | DKH-S |
| ■ Specifications | 3-way ball valve with L or T boring for use in rough vacuum - applicable for non or slightly corrosive media |
| ■ Actuation | manual with handle, switchover possibly overlapping |
| ■ Connection | KF flanges |
| ■ Pressure range | 1 mbar to atmospheric pressure |
| ■ Pressure resistance | PN30 (without flange tube) |
| ■ Leak rate | < 1.0E-7 mbar l/s |
| ■ Housing construction | one-part |
| ■ Housing material | stainless steel |
| ■ Flange material | stainless steel |
| ■ Ball seal material | PTFE |
| ■ Drive seal material | FKM / PTFE |
| ■ Thread seal material | PTFE (fixed with glue) |
| ■ Operating temperature | -20 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | position handle |
| ■ Options | - other connections on request - pneumatic and electric drives on request |

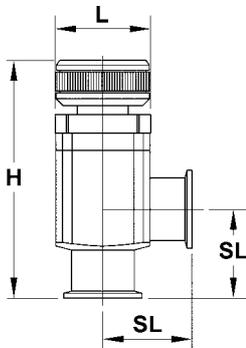
| Order code | Connection | Boring | H | L | L2 | T |
|------------|------------|--------|-----|-----|-----|-----|
| DKH-16S | DN16KF | L | 65 | 120 | 160 | 60 |
| DKH-25S | DN25KF | L | 81 | 144 | 190 | 72 |
| DKH-40S | DN40KF | L | 93 | 171 | 250 | 86 |
| DKH-50S | DN50KF | L | 105 | 200 | 250 | 100 |
| DKH-16S-T | DN16KF | T | 65 | 120 | 160 | 60 |
| DKH-25S-T | DN25KF | T | 81 | 144 | 190 | 72 |
| DKH-40S-T | DN40KF | T | 93 | 171 | 250 | 86 |
| DKH-50S-T | DN50KF | T | 105 | 200 | 250 | 100 |

Drive fitting



Compact, manual

Aluminium housing

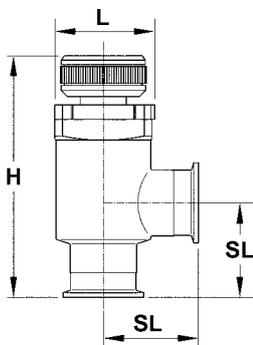


Technical data

| | |
|-----------------------------|--|
| ■ Series | XLH |
| ■ Specifications | compact and light high vacuum angle valve, aluminium - applicable for noncorrosive processes and applications |
| ■ Actuation | manual with handwheel |
| ■ Connection | KF flanges |
| ■ Pressure range | 1.0E-8 mbar to atmospheric pressure |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | aluminium |
| ■ Bellows material | stainless steel |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | within handwheel |
| ■ Durability | up to 100,000 cycles |

| Order code | Connection | Conductance (l/s) | H | L | SL |
|------------|------------|-------------------|-----|----|----|
| XLH-16 | DN16KF | 5 | 101 | 38 | 40 |
| XLH-25 | DN25KF | 14 | 114 | 48 | 50 |
| XLH-40 | DN40KF | 45 | 163 | 66 | 65 |
| XLH-50 | DN50KF | 80 | 180 | 79 | 70 |

Stainless steel housing



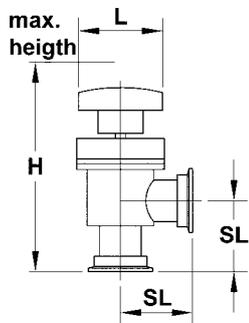
Technical data

| | |
|-----------------------------|---|
| ■ Series | XMH |
| ■ Specifications | compact high vacuum angle valve, stainless steel - for all vacuum applications - applicable for corrosive processes |
| ■ Actuation | manual with handwheel |
| ■ Connection | KF flanges |
| ■ Pressure range | 1.0E-8 mbar to atmospheric pressure |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | stainless steel |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | within handwheel |
| ■ Durability | up to 100,000 cycles |
| ■ Option | - other seals on request |

| Order code | Connection | Conductance (l/s) | H | L | SL |
|------------|------------|-------------------|-----|----|----|
| XMH-16 | DN16KF | 5 | 101 | 38 | 40 |
| XMH-25 | DN25KF | 14 | 114 | 48 | 50 |
| XMH-40 | DN40KF | 45 | 163 | 66 | 65 |
| XMH-50 | DN50KF | 80 | 180 | 79 | 70 |

Standard HV, manual

Stainless steel housing



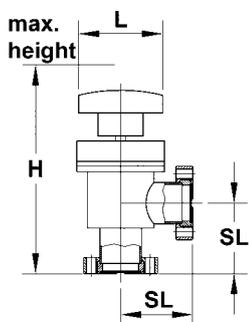
Technical data

| | |
|-----------------------------|---|
| ■ Series | MAV |
| ■ Specifications | rugged, versatile applicable HV angle valve, stainless steel - O-ring sealed housing |
| ■ Actuation | manual with handwheel |
| ■ Pressure range | 1.0E-8 mbar to atmospheric pressure |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | handwheel position |
| ■ Durability | up to 100,000 cycles |

| Order code | Connection | H | L | SL |
|------------|------------|-----|-----|----|
| MAV16K-EU | DN16KF | 142 | 57 | 40 |
| MAV25K-EU | DN25KF | 147 | 57 | 50 |
| MAV40K-EU | DN40KF | 199 | 76 | 65 |
| MAV50K-EU | DN50KF | 236 | 89 | 70 |
| MAV63K-EU | DN63ISO-K | 292 | 102 | 88 |

CF standard UHV, manual

Stainless steel housing



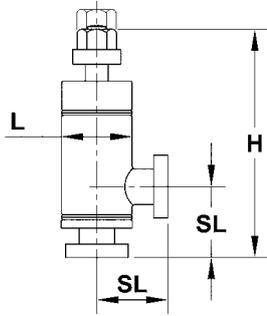
Technical data

| | |
|------------------------------|--|
| ■ Series | MAM |
| ■ Specifications | competitive, rugged and versatile applicable UHV angle valve - metal sealed housing |
| ■ Actuation | manual with handwheel |
| ■ Pressure range | 1.0E-9 mbar to atmospheric pressure |
| ■ Impermeability valve seat | < 1.0E-9 mbar l/s |
| ■ Impermeability equipment | < 1.0E-10 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | copper |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Bakeout temperature opened | max. 200 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | handwheel position |
| ■ Durability | up to 100,000 cycles |

| Order code | Connection | H | L | SL |
|------------|------------|-----|-----|-----|
| MAM16C-EU | DN16CF-R | 139 | 57 | 38 |
| MAM40C-EU | DN40CF-R | 202 | 76 | 63 |
| MAM63C-EU | DN63CF-R | 309 | 102 | 105 |

All-metal, manual

Stainless steel housing



Technical data

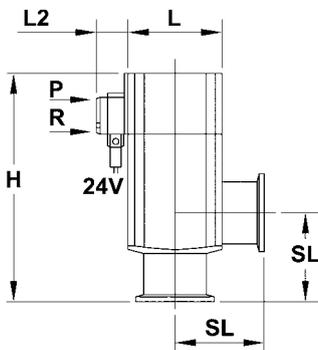
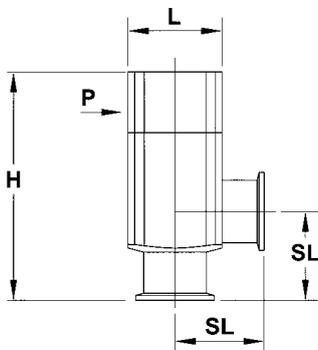
| | |
|------------------------------|---|
| ■ Series | VUV |
| ■ Specifications | all metal UHV angle valve - copper sealed housing and valve seat - for use in UHV and extreme UHV |
| ■ Actuation | manual with hexagon key or allen screw |
| ■ Connection | CF flanges - rotatable |
| ■ Pressure range | 1.0E-12 mbar to atmospheric pressure |
| ■ Leak rate | < 1.0E-10 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | stainless steel |
| ■ Housing seal material | copper |
| ■ Seal valve plate material | replaceable copper gasket |
| ■ Bakeout temperature opened | to 400 °C |
| ■ Bakeout temperature closed | to 250 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | position hexagon bolt |
| ■ Remark | gasket exchange through lateral flange |

| Order code | Connection | H | L | SL |
|------------|------------|-----|----|----|
| GMV-16R | DN16CF-R | 122 | 38 | 38 |
| GMV-40R | DN40CF-R | 170 | 54 | 63 |

6

Compact, pneumatic

Aluminium housing



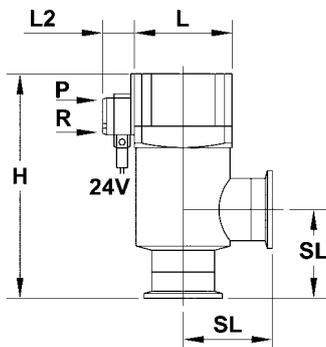
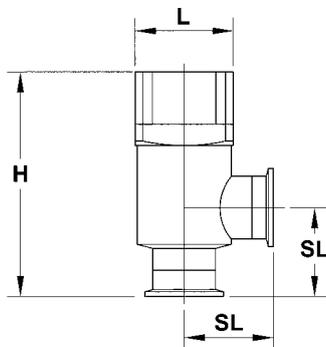
Technical data

- Series XLA
- Specifications compact and light high vacuum angle valve, aluminium, with pneumatic drive,
 - series XLA without solenoid valve
 - series XLAV with integrated solenoid valve
- Actuation pneumatic, single-acting, pressureless closed
- Connection KF and ISO-K flanges
- Pressure range 1.0E-8 mbar to atmospheric pressure
- Leak rate < 1.0E-9 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 4 to 7 bar
- Housing construction 2-parts, drive removable
- Housing material aluminium
- Bellows material stainless steel
- Valve plate material stainless steel
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature
 - series XLA 5 °C to 60 °C
 - series XLAV 5 °C to 50 °C
- Power supply control valve 24 V DC, 0.55 W
- Scope of delivery model XLAV 3 m solenoid connection cable, baffle and plug connection for hose Ø 6 mm incl.
- Mounting position arbitrary
- Visual position indicator within drive cap
- Electric position indicator prepared for mounting of electronic autoswitches from nominal width DN25 also Reed switches
- Durability up to 2,000,000 cycles
- Accessories
 - autoswitches
 - solenoid valves
 - air pressure accessories
- Further options
 - high temperature version to 150 °C
 - other sealing materials
 - double-acting drives
 - other nominal widths on request

| Order code | Connection | Conductance (l/s) | H | L | L2 | SL | Air pressure connection |
|-----------------------|------------|-------------------|-----|-----|------|----|-------------------------|
| XLA-16G | DN16KF | 5 | 103 | 38 | - | 40 | M5 |
| XLA-25G | DN25KF | 14 | 113 | 48 | - | 50 | M5 |
| XLA-40G | DN40KF | 45 | 158 | 66 | - | 65 | Rc 1/8 |
| XLA-50G | DN50KF | 80 | 170 | 79 | - | 70 | Rc 1/8 |
| XLA-63DG | DN63ISO-K | 160 | 196 | 100 | - | 88 | Rc 1/8 |
| XLAV-16G-PACK | DN16KF | 5 | 103 | 38 | 16.5 | 40 | M5 |
| XLAV-25G-PACK | DN25KF | 14 | 113 | 48 | 16.5 | 50 | M5 |
| XLAV-40G-PACK | DN40KF | 45 | 158 | 66 | 17.5 | 65 | M5 |
| XLAV-50G-PACK | DN50KF | 80 | 170 | 79 | 17.5 | 70 | M5 |
| XLAV-63DG-PACK | DN63ISO-K | 160 | 196 | 100 | 29 | 88 | Rc 1/8, M5 |

Compact, pneumatic

Stainless steel housing



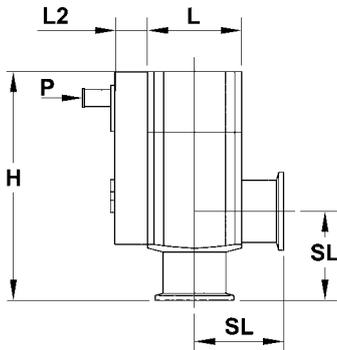
Technical data

- Series XMA
- Specifications compact high vacuum angle valve, stainless steel with pneumatic drive,
 - series XMA without solenoid valve
 - series XMAV with integrated solenoid valve
- Actuation pneumatic, single-acting, pressureless closed
- Connection KF and ISO-K flanges
- Pressure range 1.0E-8 mbar to atmospheric pressure
- Leak rate < 1.0E-9 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 4 to 7 bar
- Housing construction 2-parts, drive removable
- Housing material stainless steel
- Bellows material stainless steel
- Valve plate material stainless steel
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature
 - series XMA 5 °C to 60 °C
 - series XMAV 5 °C to 50 °C
- Power supply control valve 24 V DC, 0.55 W
- Scope of delivery model XMAV 3 m solenoid connection cable, baffle and plug connection for hose Ø 6 mm incl.
- Mounting position arbitrary
- Visual position indicator within drive cap
- Electric position indicator prepared for mounting of electronic autoswitches from nominal width DN25 also Reed switches
- Durability up to 2,000,000 cycles
- Accessories
 - autoswitches
 - solenoid valves
 - air pressure accessories
- Further options
 - high temperature version to 150 °C
 - other sealing materials
 - double-acting drives

| Order code | Connection | Conductance (l/s) | H | L | L2 | SL | Air pressure connection |
|----------------------|------------|-------------------|-----|-----|------|----|-------------------------|
| XMA-16G | DN16KF | 5 | 103 | 30 | - | 40 | M5 |
| XMA-25G | DN25KF | 14 | 113 | 40 | - | 50 | M5 |
| XMA-40G | DN40KF | 45 | 158 | 55 | - | 65 | Rc 1/8 |
| XMA-50G | DN50KF | 80 | 170 | 75 | - | 70 | Rc 1/8 |
| XMA-63DG | DN63ISO-K | 160 | 209 | 100 | - | 88 | Rc 1/8 |
| XMAV-16G-PACK | DN16KF | 5 | 103 | 38 | 16.5 | 40 | M5 |
| XMAV-25G-PACK | DN25KF | 14 | 113 | 48 | 16.5 | 50 | M5 |
| XMAV-40G-PACK | DN40KF | 45 | 158 | 66 | 17.5 | 65 | M5 |
| XMAV-50G-PACK | DN50KF | 80 | 170 | 79 | 28 | 70 | M5 |
| XMAV-63DG-PAC | DN63ISO-K | 160 | 196 | 100 | 29 | 88 | - |

Compact - ready for installation, pneumatic

Aluminium housing



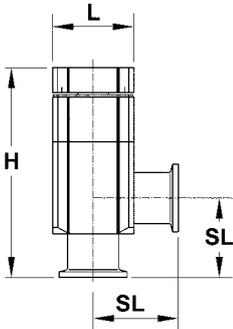
Technical data

| | |
|-------------------------------|---|
| ■ Series | XLAV-PA |
| ■ Specifications | compact and light high vacuum angle valve, aluminium - pneumatic drive - ideal for automated processes - ready for connection with solenoid valve and autoswitches incl. pneumatic, single-acting, pressureless closed |
| ■ Actuation | KF flanges |
| ■ Connection | internal thread M5 |
| ■ Air pressure connection | port RJ45, 8-pin |
| ■ Electrical connections | 1.0E-8 mbar to atmospheric pressure |
| ■ Pressure range | < 1.0E-9 mbar l/s |
| ■ Leak rate | hydroformed bellows |
| ■ Drive seal | 4 to 7 bar |
| ■ Air pressure | 2-parts, drive removable, solenoid valve and plate contact with touch-proof cover |
| ■ Housing construction | aluminium |
| ■ Housing material | stainless steel |
| ■ Bellows material | stainless steel |
| ■ Valve plate material | FKM |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | 5 °C to 50 °C |
| ■ Operating temperature | 24 V DC, 0.55 W |
| ■ Power supply control valve | arbitrary |
| ■ Mounting position | LED - red (closed) - green (open) |
| ■ Visual position indicator | 2 Reed switches, 24 V DC, max. 0.2 A switching current |
| ■ Electric position indicator | up to 2,000,000 cycles |
| ■ Durability | |

| Order code | Connection | Conductance (l/s) | H | L | L2 | SL |
|-------------|------------|-------------------|-----|----|------|----|
| XLAV-16G-PA | DN16KF | 5 | 103 | 38 | 16.5 | 40 |
| XLAV-25G-PA | DN25KF | 14 | 113 | 48 | 16.5 | 50 |
| XLAV-40G-PA | DN40KF | 45 | 158 | 66 | 17.5 | 65 |

Compact with snap closure, pneumatic

Aluminium housing



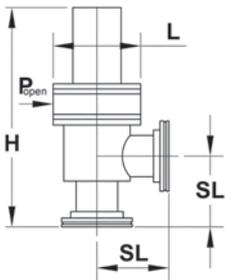
Technical data

- Series XLAQ
- Specifications high vacuum angle valve, aluminium
 - housing snap closure
 - compact and low weight
 - for applications with maintenance intensive processes
 - pneumatic and valve drive removable for cleaning and maintenance via snap closure without demounting of the valve housing
- Actuation pneumatic, single-acting, pressureless closed
- Connection KF flanges
- Pressure range 1.0E-8 mbar to atmospheric pressure
- Leak rate < 1.0E-9 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 4 to 7 bar
- Housing construction 2-parts, drive with snap closure removable
- Housing material aluminium
- Bellows material stainless steel
- Valve plate material stainless steel
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature 5 °C to 60 °C
- Mounting position arbitrary
- Visual position indicator within drive cap
- Electric position indicator prepared for mounting of electronic autoswitches from nominal diameter DN25 also Reed switches
- Accessories
 - autoswitches
 - solenoid valves
 - air pressure accessories
- Further options
 - high temperature version to 150 °C
 - inner surface oxalic acid oxidised
 - other sealing materials

| Order code | Connection | Conductance (l/s) | H | L | SL | Air pressure connection |
|------------|------------|-------------------|-----|----|----|-------------------------|
| XLAQ-16G | DN16KF | 5 | 120 | 38 | 40 | M5 |
| XLAQ-25G | DN25KF | 14 | 133 | 48 | 50 | M5 |
| XLAQ-40G | DN40KF | 45 | 178 | 66 | 65 | Rc 1/8 |
| XLAQ-50G | DN50KF | 80 | 190 | 79 | 70 | Rc 1/8 |

KF standard HV, pneumatic

Stainless steel housing



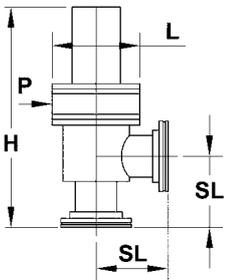
Technical data

| | |
|-------------------------------|--|
| ■ Series | PAV-KF |
| ■ Specifications | rugged high vacuum angle valve, stainless steel with KF flanges and pneumatic drive - versatile use - metric and imperial dimensions |
| ■ Actuation | pneumatic, single-acting, pressureless closed |
| ■ Connection | KF flanges |
| ■ Air pressure connection | internal thread Rc 1/8 |
| ■ Pressure range | 1.0E-8 mbar to atmospheric pressure |
| ■ Blade dimension | ISO or ANSI standard |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Air pressure | 4 to 6.5 bar |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | not available |
| ■ Electric position indicator | 2 Reed switches (optional) 4 to 240 V AC/DC, 5 to 40 mA (temperature max. 50 °C) |
| ■ Durability | up to 1,000,000 cycles |
| ■ Accessories | - solenoid valves - air pressure accessories |

| Order code | Connection | H | L | SL | Dimensions | Autoswitch |
|------------|------------|-----|----|----|------------|------------|
| PAV16K-EU | DN16KF | 142 | 57 | 40 | metric | no |
| PAV25K-EU | DN25KF | 149 | 57 | 50 | metric | no |
| PAV40K-EU | DN40KF | 199 | 76 | 65 | metric | no |
| PAV50K-EU | DN50KF | 246 | 89 | 70 | metric | no |
| PAV16K | DN16KF | 157 | 57 | 55 | imperial | no |
| PAV25K | DN25KF | 150 | 57 | 52 | imperial | no |
| PAV40K | DN40KF | 118 | 76 | 61 | imperial | no |
| PAV50K | DN50KF | 262 | 89 | 86 | imperial | no |
| PAV16KL-EU | DN16KF | 158 | 57 | 40 | metric | yes |
| PAV25KL-EU | DN25KF | 164 | 57 | 50 | metric | yes |
| PAV40KL-EU | DN40KF | 214 | 76 | 65 | metric | yes |
| PAV50KL-EU | DN50KF | 251 | 88 | 70 | metric | yes |
| PAV16KL | DN16KF | 172 | 57 | 55 | imperial | yes |
| PAV25KL | DN25KF | 166 | 57 | 52 | imperial | yes |
| PAV40KL | DN40KF | 210 | 76 | 61 | imperial | yes |
| PAV50KL | DN50KF | 263 | 89 | 86 | imperial | yes |

ISO-K standard HV, pneumatic

Stainless steel housing



6

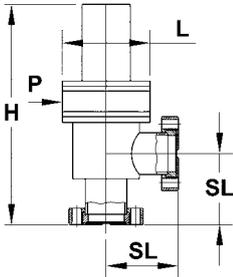
Technical data

| | |
|-------------------------------|---|
| ■ Series | PAV-ISO |
| ■ Specifications | rugged high vacuum angle valve, stainless steel with ISO-K flanges and pneumatic drive - versatile use - metric and imperial dimensions |
| ■ Actuation | pneumatic, double-acting |
| ■ Connection | ISO-K flanges |
| ■ Air pressure connection | internal thread Rc 1/8 |
| ■ Pressure range | 1.0E-8 mbar to atmospheric pressure |
| ■ Blade dimension | ISO or ANSI standard |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Air pressure | 4 to 6.5 bar |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | not available |
| ■ Electric position indicator | 2 Reed switches (optional) 4 to 240 V AC/DC, 5 to 40 mA (temperature max. 50 °C) |
| ■ Durability | up to 500,000 cycles |
| ■ Accessories | - solenoid valves - air pressure accessories |

| Order code | Connection | H | L | SL | Dimensions | Autoswitch |
|-------------|------------|-------|-----|-----|------------|------------|
| PAV63K-EU | DN63ISO-K | 280 | 102 | 88 | metric | no |
| PAV100K-EU | DN100ISO-K | 364.5 | 165 | 108 | metric | no |
| PAV63K | DN63ISO-K | 274 | 102 | 83 | imperial | no |
| PAV100K | DN100ISO-K | 370 | 165 | 114 | imperial | no |
| PAV63KL-EU | DN63ISO-K | 281 | 100 | 88 | metric | yes |
| PAV100KL-EU | DN100ISO-K | 347 | 152 | 108 | metric | yes |
| PAV63KL | DN63ISO-K | 281 | 100 | 88 | imperial | yes |
| PAV100KL | DN100ISO-K | 347 | 152 | 108 | imperial | yes |

Standard UHV, pneumatic

Stainless steel housing



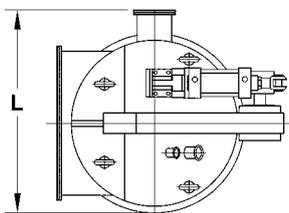
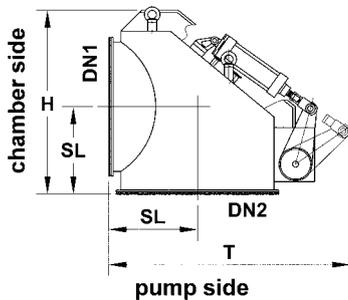
Technical data

| | |
|-------------------------------|---|
| ■ Series | PAM |
| ■ Specifications | rugged UHV angle valve, stainless steel with pneumatic drive - versatile use - metal sealed housing |
| ■ Actuation | pneumatic, single-acting, pressureless closed |
| ■ Connection | CF flanges, rotatable |
| ■ Air pressure connection | internal thread Rc 1/8 |
| ■ Pressure range | 1.0E-9 mbar to atmospheric pressure |
| ■ Blade dimension | ISO or ANSI standard |
| ■ Impermeability valve seat | < 1.0E-9 mbar l/s |
| ■ Impermeability equipment | < 1.0E-10 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Air pressure | 4 to 6.5 bar |
| ■ Housing construction | 2-parts, actuator removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | copper |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Bakeout temperature opened | max. 200 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | not available |
| ■ Electric position indicator | 2 Reed switches (optional) 4 to 240 V AC/DC, 5 to 40 mA (temperature max. 50 °C) |
| ■ Durability | up to 1,000,000 cycles |
| ■ Accessories | - solenoid valves - air pressure accessories |

| Order code | Connection | H | L | SL | Dimensions | Autoswitch |
|------------|------------|-----|----|----|------------|------------|
| PAM16C-EU | DN16CF-R | 140 | 57 | 38 | metric | no |
| PAM40C-EU | DN40CF-R | 198 | 76 | 63 | metric | no |
| PAM16C | DN16CF-R | 166 | 57 | 64 | imperial | no |
| PAM40C | DN40CF-R | 196 | 76 | 62 | imperial | no |
| PAM16CL-EU | DN16CF-R | 156 | 57 | 38 | metric | yes |
| PAM40CL-EU | DN40CF-R | 212 | 76 | 63 | metric | yes |
| PAM16CL | DN16CF-R | 181 | 57 | 64 | imperial | yes |
| PAM40CL | DN40CF-R | 212 | 76 | 62 | imperial | yes |

Big nominal sizes - flap valve, pneumatic

Mild steel or stainless steel housing



Technical data

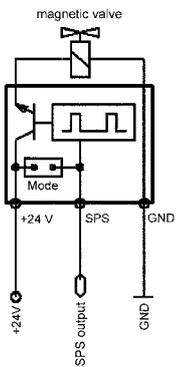
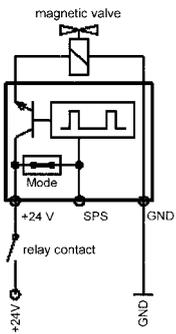
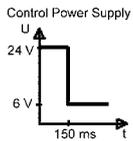
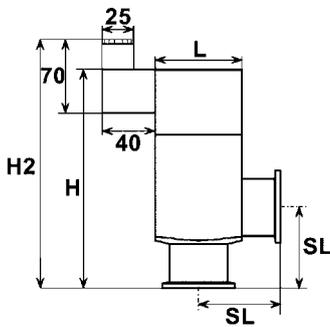
| | |
|----------------------------------|--|
| ■ Series | PAV |
| ■ Specifications | high vacuum angle valve with great nominal widths - ideal for use with diffusion pumps - versions of mild steel or stainless steel - swivelling butterfly valve plate - high conductivity - rugged design |
| ■ Actuation | pneumatic, double-acting |
| ■ Connection chamber-sided | ISO-K flanges |
| ■ Connection pump-sided | ISO-F flanges |
| ■ Bypass connection | 1 x DN100ISO-K |
| ■ Air pressure connection | plug connection PA/PE hose Ø 8 mm |
| ■ Electrical connections | control wire 24 V |
| ■ Further connections | 1 x DN25KF, 1 x DN16KF |
| ■ Pressure range | 1.0E-8 mbar to atmospheric pressure |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Air pressure | 4 to 6 bar |
| ■ Housing construction | one-part, welded |
| ■ Housing material | mild steel or stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | NBR or FKM |
| ■ Seal valve plate material | NBR or FKM |
| ■ Operating temperature | 5 °C to 40 °C |
| ■ Power supply control valve | 24 V DC |
| ■ Opening/Closing times at 6 bar | approx. 5 s |
| ■ Mounting position | vertical mounting |
| ■ Visual position indicator | lever position |
| ■ Electric position indicator | 2 Reed switches 24 V DC/ max. 25 mA with LED |
| ■ Durability | up to 600,000 cycles |

| Nominal diameter | Molecular flow conductance (l/s) | Weight (kg) |
|------------------|----------------------------------|-------------|
| DN400ISO | 12 | 270 |
| DN500ISO | 15 | 300 |
| DN630ISO | 18 | 350 |

| Order code | Connection | H | L | SL | T | Material |
|------------|------------|-----|-----|-----|------|-----------------------|
| PAVN400KMS | DN400ISO-F | 649 | 604 | 320 | 838 | mild steel / NBR |
| PAVN500KMS | DN500ISO-F | 735 | 703 | 350 | 950 | mild steel / NBR |
| PAVN630KMS | DN630ISO-F | 870 | 841 | 430 | 1067 | mild steel / NBR |
| PAVV400KSS | DN400ISO-F | 649 | 604 | 320 | 838 | stainless steel / FKM |
| PAVV500KSS | DN500ISO-F | 735 | 703 | 350 | 950 | stainless steel / FKM |
| PAVV630KSS | DN630ISO-F | 870 | 841 | 430 | 1067 | stainless steel / FKM |
| PAVN400KSS | DN400ISO-F | 649 | 604 | 320 | 838 | stainless steel / NBR |
| PAVN500KSS | DN500ISO-F | 735 | 703 | 350 | 950 | stainless steel / NBR |
| PAVN630KSS | DN630ISO-F | 870 | 841 | 430 | 1067 | stainless steel / NBR |

Compact, electromagnetic

Aluminium housing



Technical data

| | |
|-----------------------------|---|
| ■ Series | XLS |
| ■ Specifications | electromagnetic high vacuum angle valve, aluminium - for closure of prevacuum lines and automatic applications - integrated control electronics for coil performance - compact and competitive |
| ■ Actuation | electromagnetic, single-acting, currentless closed |
| ■ Connection | KF flanges |
| ■ Electrical connections | DIN angle plug |
| ■ Pressure range | 1.0E-8 mbar to 2 bar |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | aluminium |
| ■ Bellows material | stainless steel |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 40 °C |
| ■ Power supply | 24 V DC |
| ■ Max. voltage fluctuation | +/-10 % |
| ■ Max. switching frequency | 10 / minute |
| ■ Inductor insulation | class B |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | LED (red) |
| ■ Durability | up to 500,000 cycles |
| ■ CE Marking | |

| Nominal diameter | Conductance (l/s) | Power input | | Current input | |
|------------------|-------------------|-------------|------|---------------|------|
| | | open | hold | open | hold |
| DN16KF | 5 | 36 | 5 | 1.5 | 0.2 |
| DN25KF | 8 | 48 | 5 | 2.0 | 0.2 |

| Order code | Connection | H | H2 | L | SL |
|--------------|------------|-----|-----|----|----|
| XLS-16-5D-RE | DN16KF | 110 | 145 | 38 | 40 |
| XLS-25-5D-RE | DN25KF | 140 | 175 | 48 | 50 |

Power Supply Control

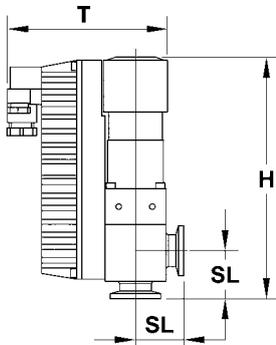
| | |
|-------------------------------|--|
| ■ Model | DIN - angular connector |
| ■ Supply Voltage | 22...24...30 V DC, ripple smaller 2.0 V |
| ■ Inverse-polarity protection | yes |
| ■ Current draw | approximately 1.8 A für approximately 150 ms to open approximately 0.15 A to hold |
| ■ Switching Frequency | max. 0.5 Hz |
| ■ Signaling | LED bright to open (24 V at magnetic valve) LED dark to hold (6 V after 150 ms at magnetic valve) |

Control Possibilities

| | |
|------------|--|
| ■ Option 1 | Relay control: Jumper plugged, 24 V are directly switched, for approximately 150 ms a current of 1.8 A flows through the contact, double poled circuit |
| ■ Option 2 | SPS Control: Jumper open, 24 V (static), the valve is switched using a control input (24 V / 3 mA) |

KF standard HV, electromagnetic

Aluminium or stainless steel housing



Technical data

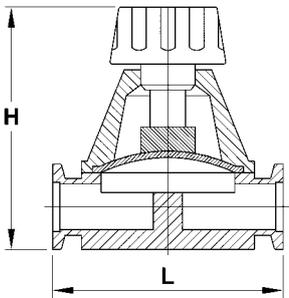
| | |
|--|--|
| ■ Series | PVEK |
| ■ Specifications | electromagnetic high vacuum angle valve - versatile use - versions made of aluminium or stainless steel - autoswitches incl. - high conductivity - rugged |
| ■ Actuation | electromagnetic, single-acting, currentless closed |
| ■ Connection | KF flanges |
| ■ Electrical connections | DIN angle plug |
| ■ Pressure range | 1.0E-9 mbar to 2.1 bar |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | aluminium or stainless steel |
| ■ Bellows material | stainless steel |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Power supply | 240 V AC, 50 / 60 Hz |
| ■ Max. switching frequency | 400 / h |
| ■ Max. differential pressure while opening | 1 bar |
| ■ Mounting position | arbitrary |
| ■ Electric position indicator | 2 Reed switches, max. 24 V AC / V DC, max. 0.25 A, max. 3 W |

| Nominal diameter | Conductance (l/s) | Lifetime (cycles) | Operating temperature (°C) | Power input (VA) | |
|------------------|-------------------|-------------------|----------------------------|------------------|------|
| | | | | open | hold |
| DN16KF | 4 | 500000 | 45 | 417 | 4.7 |
| DN25KF | 10 | 130000 | 50 | 993 | 8.6 |
| DN40KF | 34 | 130000 | 50 | 1986 | 8.6 |

| Order code | Connection | H | SL | T | Material |
|------------|------------|-----|----|-----|-----------------|
| PV16EKA | DN16KF | 160 | 40 | 126 | aluminium |
| PV25EKA | DN25KF | 182 | 50 | 142 | aluminium |
| PV40EKA | DN40KF | 230 | 65 | 170 | aluminium |
| PV16EKS | DN16KF | 160 | 40 | 126 | stainless steel |
| PV25EKS | DN25KF | 182 | 50 | 142 | stainless steel |
| PV40EKS | DN40KF | 230 | 65 | 170 | stainless steel |

Diaphragm valve, manual

Aluminium housing



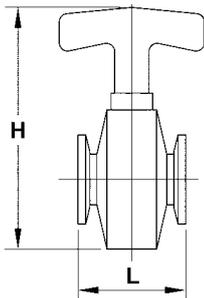
Technical data

| | |
|-----------------------------|--|
| ■ Series | MMV |
| ■ Specifications | diaphragm valve , aluminium for use in rough and medium vacuum - easy and compact |
| ■ Actuation | manual with handwheel |
| ■ Connection | KF flanges |
| ■ Pressure range | 1.0E-6 mbar to atmospheric pressure |
| ■ Leak rate | < 1.0E-7 mbar l/s |
| ■ Drive seal | FKM diaphragm |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | aluminium |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | handwheel position |

| Order code | Connection | H | L |
|------------|------------|-----|-----|
| MMV-10K | DN10KF | 85 | 80 |
| MMV-16K | DN16KF | 85 | 80 |
| MMV-25K | DN25KF | 140 | 100 |

Butterfly valves, manual

Aluminium or stainless steel housing



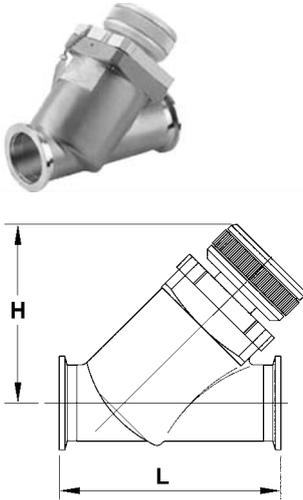
Technical data

| | |
|-----------------------------|---|
| ■ Series | MBV |
| ■ Specifications | high vacuum butterfly valve - versions of aluminium or stainless steel - O-ring sealed rotary feedthrough |
| ■ Actuation | manual with T-handle |
| ■ Connection | KF flanges |
| ■ Pressure range | 1.0E-8 mbar to atmospheric pressure |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | O-rings |
| ■ Housing construction | one-part, driveshaft replaceable |
| ■ Housing material | aluminium or stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | - aluminium: 80 °C - stainless steel: 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | position T-handle |
| ■ Durability | up to 20,000 cycles |

| Order code | Connection | H | L | Material |
|------------|------------|-----|----|-----------------|
| MBV-25KA | DN25KF | 117 | 50 | aluminium |
| MBV-40KA | DN40KF | 132 | 60 | aluminium |
| MBV-50KA | DN50KF | 140 | 60 | aluminium |
| MBV-25KS | DN25KF | 117 | 50 | stainless steel |
| MBV-40KS | DN40KF | 132 | 50 | stainless steel |
| MBV-50KS | DN50KF | 140 | 60 | stainless steel |

KF compact, manual

Stainless steel housing



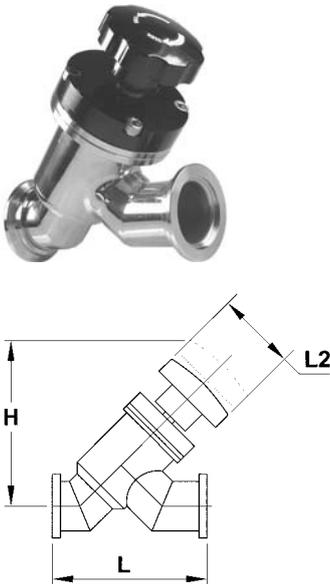
Technical data

| | |
|-----------------------------|---|
| ■ Series | XYH |
| ■ Specifications | compact high vacuum in-line valve, stainless steel - for all vacuum applications - applicable for corrosive processes |
| ■ Actuation | manual with handwheel |
| ■ Connection | KF flanges |
| ■ Pressure range | 1.0E-8 mbar to atmospheric pressure |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | stainless steel |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | within handwheel |
| ■ Durability | up to 100,000 cycles |

| Order code | Connection | Conductance (l/s) | H | L |
|------------|------------|-------------------|-----|-----|
| XYH-25 | DN25KF | 14 | 76 | 101 |
| XYH-40 | DN40KF | 45 | 103 | 130 |
| XYH-50 | DN50KF | 80 | 119 | 178 |

KF standard HV, manual

Stainless steel housing



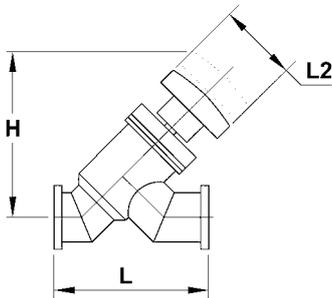
Technical data

| | |
|-----------------------------|--|
| ■ Series | MIV |
| ■ Specifications | competitive and rugged high vacuum in-line valve, stainless steel - versatile use |
| ■ Actuation | manual with handwheel |
| ■ Connection | KF flanges |
| ■ Pressure range | 1.0E-8 mbar to atmospheric pressure |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | handwheel position |
| ■ Durability | up to 100,000 cycles |

| Order code | Connection | H | L | L2 |
|------------|------------|-----|-----|----|
| MIV16K | DN16KF | 113 | 102 | 57 |
| MIV25K | DN25KF | 113 | 107 | 57 |
| MIV40K | DN40KF | 147 | 130 | 76 |
| MIV50K | DN50KF | 173 | 178 | 88 |

CF standard UHV, manual

Stainless steel housing



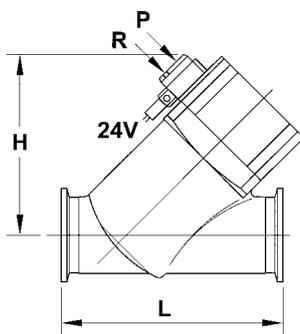
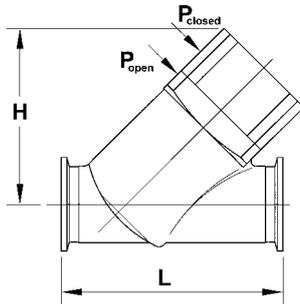
Technical data

| | |
|------------------------------|---|
| ■ Series | MIM |
| ■ Specifications | rugged UHV in-line valve - versatile use - metal sealed housing |
| ■ Actuation | manual with handwheel |
| ■ Connection | CF flanges - rotatable |
| ■ Pressure range | 1.0E-9 mbar to atmospheric pressure |
| ■ Impermeability valve seat | < 1.0E-9 mbar l/s |
| ■ Impermeability equipment | < 1.0E-10 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | copper |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Bakeout temperature opened | max. 200 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | handwheel position |
| ■ Durability | up to 100,000 cycles |

| Order code | Connection | H | L | L2 |
|------------|------------|-----|-----|----|
| MIM16C | DN16CF-R | 120 | 119 | 69 |
| MIM40C | DN40CF-R | 149 | 133 | 83 |

Compact, pneumatic

Stainless steel housing



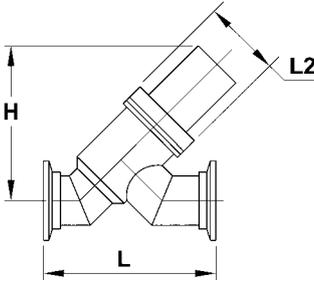
Technical data

- Series XYA
- Specifications compact high vacuum in-line valve, stainless steel with pneumatic drive
 - series XYA without solenoid valve
 - series XYAV with integrated solenoid valve
- Actuation pneumatic, single-acting, pressureless closed
- Connection KF and ISO-K flanges
- Pressure range 1.0E-8 mbar to atmospheric pressure
- Leak rate < 1.0E-9 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 4 to 7 bar
- Housing construction 2-parts, drive removable
- Housing material stainless steel
- Bellows material stainless steel
- Valve plate material stainless steel
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature
 - series XYA 5 °C to 60 °C
 - series XYAV 5 °C to 50 °C
- Power supply control valve 24 V DC, 0.55 W
- Scope of delivery model XYAV 3 m solenoid connection cable, baffle and plug connection for hose Ø 6 mm incl.
- Mounting position arbitrary
- Visual position indicator within drive cap
- Electric position indicator prepared for mounting of electronic autoswitches from nominal width DN25 also Reed switches
- Durability up to 2,000,000 cycles
- Accessories
 - autoswitches
 - solenoid valves
 - air pressure accessories
- Further options
 - high temperature version to 150 °C
 - other sealing materials
 - double-acting drives

| Order code | Connection | Conductance (l/s) | H | L | Air pressure connection |
|----------------|------------|-------------------|------|-----|-------------------------|
| XYA-25G | DN25KF | 14 | 80 | 101 | M5 |
| XYA-40G | DN40KF | 45 | 106 | 130 | Rc 1/8 |
| XYA-50G | DN50KF | 80 | 119 | 178 | Rc 1/8 |
| XYA-63DG | DN63ISO-K | 160 | 149 | 209 | Rc 1/8 |
| XYAV-25G-PACK | DN25KF | 14 | 79.5 | 101 | M5 |
| XYAV-40G-PACK | DN40KF | 45 | 106 | 130 | Rc 1/8 |
| XYAV-50G-PACK | DN50KF | 80 | 119 | 178 | Rc 1/8 |
| XYAV-63DG-PACK | DN63ISO-K | 160 | 149 | 209 | Rc 1/8 |

KF standard HV, pneumatic

Stainless steel housing



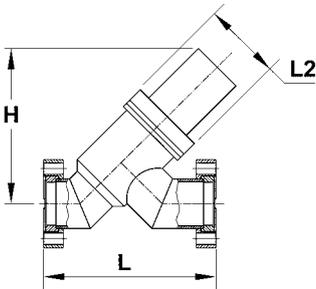
Technical data

- Series PIV
- Specifications rugged high vacuum in-line valve, stainless steel with pneumatic drive
- versatile use
- Actuation pneumatic, single-acting, pressureless closed
- Connection KF flanges
- Air pressure connection internal thread Rc 1/8
- Pressure range 1.0E-8 mbar to atmospheric pressure
- Leak rate < 1.0E-9 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 4 to 6.5 bar
- Housing construction 2-parts, drive removable
- Housing material stainless steel
- Bellows material AM350
- Valve plate material stainless steel
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature 5 °C to 150 °C
- Mounting position arbitrary
- Visual position indicator not available
- Electric position indicator 2 Reed switches (optional)
4 to 240 V AC/DC, 5 to 40 mA (temperature max. 50 °C)
- Durability up to 1,000,000 cycles
- Accessories - solenoid valves
- air pressure accessories

| Order code | Connection | H | L | L2 | Autoswitch |
|------------|------------|-----|-----|----|------------|
| PIV16K | DN16KF | 105 | 102 | 57 | no |
| PIV25K | DN25KF | 106 | 107 | 57 | no |
| PIV40K | DN40KF | 145 | 130 | 76 | no |
| PIV50K | DN50KF | 182 | 178 | 88 | no |
| PIV16KL | DN16KF | 105 | 102 | 57 | yes |
| PIV25KL | DN25KF | 106 | 107 | 57 | yes |
| PIV40KL | DN40KF | 145 | 130 | 76 | yes |
| PIV50KL | DN50KF | 182 | 178 | 88 | yes |

Standard UHV, pneumatic

Stainless steel housing



Technical data

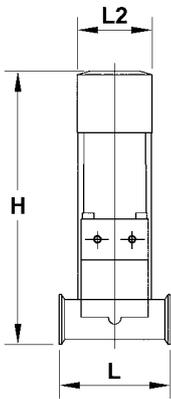
| | |
|-------------------------------|--|
| ■ Series | PIM |
| ■ Specifications | rugged UHV in-line valve, stainless steel with pneumatic drive - optically free channel - metal sealed housing |
| ■ Actuation | pneumatic, single-acting, pressureless closed |
| ■ Connection | CF flanges, rotatable |
| ■ Air pressure connection | internal thread Rc 1/8 |
| ■ Pressure range | 1.0E-9 mbar to atmospheric pressure |
| ■ Impermeability valve seat | < 1.0E-9 mbar l/s |
| ■ Impermeability equipment | < 1.0E-10 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Air pressure | 4 to 6.5 bar |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | copper |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Bakeout temperature opened | max. 200 °C |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | not available |
| ■ Electric position indicator | 2 Reed switches (optional) 4 to 240 V AC/DC, 5 to 40 mA (temperature max. 50 °C) |
| ■ Durability | up to 1,000,000 cycles |
| ■ Accessories | - solenoid valves - air pressure accessories |

| Order code | Connection | H | L | L2 | Autoswitch |
|------------|------------|-----|-----|----|------------|
| PIM16C | DN16CF-R | 105 | 119 | 57 | no |
| PIM40C | DN40CF-R | 142 | 133 | 76 | no |
| PIM16CL | DN16CF-R | 105 | 119 | 57 | yes |
| PIM40CL | DN40CF-R | 145 | 133 | 76 | yes |

6

KF standard HV, electromagnetic

Aluminium or stainless steel housing



Technical data

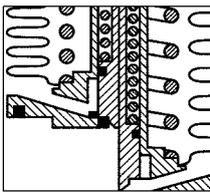
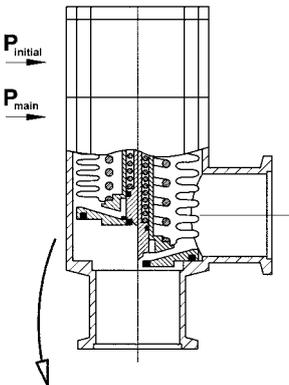
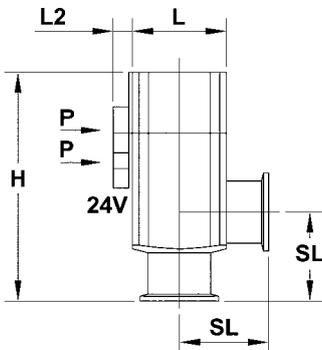
| | |
|--|--|
| ■ Series | IPVEK |
| ■ Specifications | electromagnetic high vacuum in-line valve - versatile use - versions made of aluminium or stainless steel - autoswitches incl. - high conductivity - rugged |
| ■ Actuation | electromagnetic, single-acting, currentless closed |
| ■ Connection | KF flanges |
| ■ Electrical connections | DIN angle plug |
| ■ Pressure range | 1.0E-9 mbar to 2.1 bar |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | aluminium or stainless steel |
| ■ Bellows material | stainless steel |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Power supply | 240 V AC, 50 / 60 Hz |
| ■ Max. switching frequency | 400 / h |
| ■ Max. differential pressure while opening | 1 bar |
| ■ Mounting position | arbitrary |
| ■ Electric position indicator | 2 Reed switches, max. 24 V AC / V DC, max. 0.25 A, max. 3 W |

| Nominal diameter | Conductance (l/s) | Lifetime (cycles) | Operating temperature (°C) | Power input (VA) | |
|------------------|-------------------|-------------------|----------------------------|------------------|------|
| | | | | open | hold |
| DN16KF | 4 | 500000 | 45 | 417 | 4.7 |
| DN25KF | 10 | 130000 | 50 | 993 | 8.6 |
| DN40KF | 34 | 130000 | 50 | 1986 | 8.6 |

| Order code | Connection | H | L | L2 | Material |
|------------|------------|-----|-----|----|-----------------|
| IPV16EKA | DN16KF | 143 | 80 | 38 | aluminium |
| IPV25EKA | DN25KF | 172 | 100 | 51 | aluminium |
| IPV40EKA | DN40KF | 222 | 130 | 76 | aluminium |
| IPV16EKS | DN16KF | 143 | 80 | 38 | stainless steel |
| IPV25EKS | DN25KF | 172 | 100 | 51 | stainless steel |
| IPV40EKS | DN40KF | 222 | 130 | 76 | stainless steel |

Smooth exhaust angle valves, pneumatic

Aluminium housing



Detailed view

Technical data

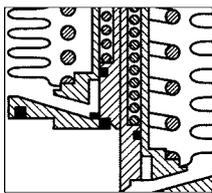
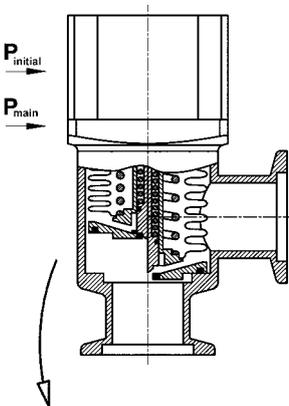
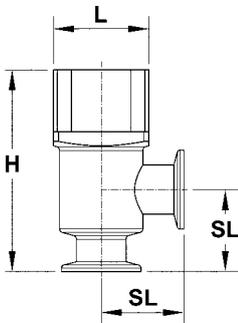
- Series XLD
- Specifications high vacuum angle valve with smooth exhaust
 - for evacuation of vacuum systems and chambers without turbulences
 - compact aluminium housing
 - pneumatic drive
 - series XLD without solenoid valve
 - series XLDV with integrated solenoid valve
- Actuation pneumatic, single-acting, two-stage switchable, pressureless closed
- Connection KF and ISO-K flanges
- Pressure range 1.0E-7 mbar to atmospheric pressure
- Leak rate < 1.0E-9 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 4 to 7 bar
- Housing construction 2-parts, drive removable
- Housing material aluminium
- Bellows material stainless steel
- Valve plate material stainless steel
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature
 - series XLD 5 °C to 60 °C
 - series XLDV 5 °C to 50 °C
- Power supply control valve 24 V DC, 0.55 W
- Scope of delivery model XLDV 3 m solenoid connection cable, baffle and plug connection for hose Ø 6 mm incl.
- Visual position indicator within drive cap
- Electric position indicator prepared for mounting of electronic autoswitches for position of main valve
- Durability
 - nominal diameter DN25 to DN63 up to 2,000,000 cycles
 - nominal diameter DN100 to DN160 up to 1,000,000 cycles
- Accessories
 - autoswitches
 - solenoid valves
 - air pressure accessories
- Further options
 - high temperature version to 150 °C (only series XLD)
 - other sealing materials
 - other nominal diameters on request

| Nominal diameter | Coductance main valve (l/s) | Conductance initial valve (l/s) | Air pressure connection | |
|------------------|-----------------------------|---------------------------------|-------------------------|------|
| | | | XLD | XLDV |
| DN25KF | 14 | 0.5 - 3 | M5 | M5 |
| DN40KF | 45 | 2 - 3 | Rc 1/8 | M5 |
| DN50KF | 80 | 2.5 - 11 | Rc 1/8 | M5 |
| DN63ISO | 160 | 4 - 18 | Rc 1/8 | M5 |

| Order code | | Connection | H | L | L2 | SL |
|------------------------|---------------------|------------|-----|-----|----|----|
| without solenoid valve | with solenoid valve | | | | | |
| XLD-25 | XLDV-25-PACK | DN25KF | 123 | 48 | 11 | 50 |
| XLD-40 | XLDV-40-PACK | DN40KF | 170 | 66 | 12 | 65 |
| XLD-50 | XLDV-50-PACK | DN50KF | 183 | 79 | 12 | 70 |
| XLD-63 | XLDV-63-PACK | DN63ISO-K | 217 | 100 | 13 | 88 |

Smooth exhaust angle valves, pneumatic

Stainless steel housing



Detailed view

Technical data

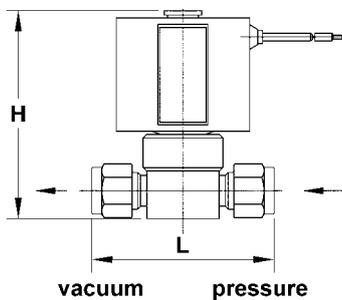
- Series XMD
- Specifications high vacuum angle valve with smooth exhaust
 - for evacuation of vacuum systems and chambers without turbulences
 - compact stainless steel housing
 - pneumatic drive
- Actuation pneumatic, single-acting, two-stage switchable, pressureless closed
- Connection KF and ISO-K flanges
- Pressure range 1.0E-8 mbar to atmospheric pressure
- Leak rate < 1.0E-9 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 4 to 7 bar
- Housing construction 2-parts, drive removable
- Housing material stainless steel
- Bellows material stainless steel
- Valve plate material stainless steel
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature 5 °C to 60 °C
- Mounting position arbitrary
- Visual position indicator within drive cap
- Electric position indicator prepared for mounting of electronic autoswitches for position of main valve
- Durability up to 2,000,000 cycles
- Accessories
 - autoswitches
 - solenoid valves
 - air pressure accessories
- Further options
 - high temperature version to 150 °C
 - other sealing materials

| Nominal diameter | Conductance main valve (l/s) | Conductance initial valve (l/s) | Air pressure connection |
|------------------|------------------------------|---------------------------------|-------------------------|
| DN25KF | 14 | 0.5 - 3 | M5 |
| DN40KF | 45 | 2 - 8 | Rc 1/8 |
| DN50KF | 80 | 2.5 - 11 | Rc 1/8 |
| DN63ISO | 160 | 4 - 18 | Rc 1/8 |

| Order code | Connection | H | L | SL |
|------------|------------|-----|-----|----|
| XMD-25 | DN25KF | 123 | 48 | 50 |
| XMD-40 | DN40KF | 170 | 66 | 65 |
| XMD-50 | DN50KF | 183 | 79 | 70 |
| XMD-63 | DN63ISO-K | 217 | 100 | 88 |

Gas shut-off valves, electromagnetic

Stainless steel housing



Technical data

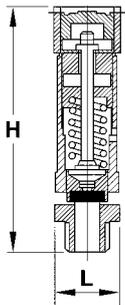
| | |
|--|--|
| ■ Series | XSA |
| ■ Specifications | high vacuum gas shut-off valve for ventilation and inlet of process gases - metal-sealed - used for purest gas application - overpressure stable - stainless steel housing |
| ■ Actuation | electromagnetic, single-acting, currentless closed |
| ■ Connection | gas bolting VCR or Swagelok |
| ■ Electrical connections | DIN angle plug |
| ■ Pressure range vacuum-sided | to 1.0E-8 mbar |
| ■ Leak rate | < 1.0E-8 mbar l/s |
| ■ Drive seal | welded |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | stainless steel |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | stainless steel |
| ■ Operating temperature | 5 °C to 40 °C |
| ■ Power supply | 24 V DC, 5 - 11 W |
| ■ Max. voltage fluctuation | +/-10 % |
| ■ Max. differential pressure while opening | 3 to 10 bar (see chart) |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | not available |
| ■ Durability | up to 2,000,000 cycles |

| Order code | Max. pressure difference during opening (bar) | Max. inverse pressure difference (bar) |
|------------|---|--|
| XSA1-12S | 5 | 8 |
| XSA2-22S | 4 | 10 |
| XSA3-32S | 2 | 8 |
| XSA1-12V | 5 | 8 |
| XSA2-22V | 4 | 10 |
| XSA3-32V | 2 | 8 |

| Order code | Connection | H | L | Inner diameter | CV value |
|------------|---------------|------|----|----------------|----------|
| XSA1-12S | Swagelok 1/4" | 64 | 56 | 2 | 0.17 |
| XSA2-22S | Swagelok 1/4" | 75.5 | 61 | 3 | 0.33 |
| XSA3-32S | Swagelok 1/4" | 82 | 61 | 4.5 | 0.6 |
| XSA1-12V | VCR 1/4" | 64 | 51 | 2 | 0.17 |
| XSA2-22V | VCR 1/4" | 75.5 | 57 | 3 | 0.33 |
| XSA3-32V | VCR 1/4" | 82 | 57 | 4.5 | 0.6 |

Overpressure valves, manual

Stainless steel housing



Technical data

| | |
|-----------------------------|--|
| ■ Series | OPV |
| ■ Specifications | adjustable overpressure valve for rough and medium vacuum, stainless steel - easy handling - merely mechanical operating mode - low maintenance |
| ■ Connection | KF flanges |
| ■ Actuating pressure | 1 - 2 bar free adjustable (1.3 bar recommended) |
| ■ Pressure range | 1.0E-6 mbar to 2 bar |
| ■ Adjustment | manual with screwdriver |
| ■ Leak rate | < 1.0E-8 mbar l/s |
| ■ Housing material | stainless steel |
| ■ Valve plate material | stainless steel |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 140 °C |
| ■ Mounting position | arbitrary |
| ■ Further options | other activation pressures on request |

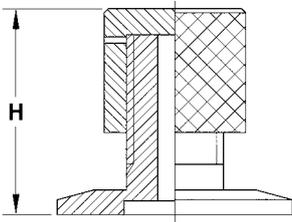
| Order code | Connection | H | L |
|------------|------------|----|----|
| OPV-GA14 | G 1/4" | 65 | 20 |

Accessories

| Order code | Description | Connection |
|------------|-------------------------------|-----------------|
| KF10GI14 | KF-G adapter, stainless steel | DN10KF - G 1/4" |
| KF16GI14 | KF-G adapter, stainless steel | DN16KF - G 1/4" |
| KF25GI14 | KF-G adapter, stainless steel | DN25KF - G 1/4" |
| VR11.5-3 | O-ring, FKM | - |

Vent valves, manual

Stainless steel housing



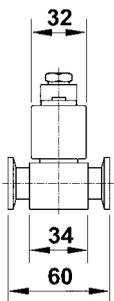
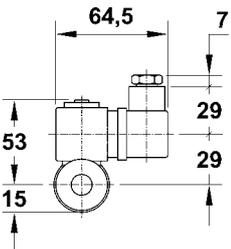
Technical data

| | |
|-------------------------|--|
| ■ Series | VVK |
| ■ Specifications | high vacuum venting valve, stainless steel - easy handling - low maintenance |
| ■ Connection | KF flanges |
| ■ Pressure range | 1.0E-9 mbar to 2 bar |
| ■ Closure principle | manual with knurled nut |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Seal catch | O-ring |
| ■ Housing material | stainless steel |
| ■ Knurled nut material | stainless steel |
| ■ Seal material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Mounting position | arbitrary |

| Order code | Connection | H |
|------------|------------|----|
| VV16K | DN16KF | 32 |
| VV25K | DN25KF | 32 |
| VV40K | DN40KF | 32 |

Vent valves, electromagnetic

Aluminium housing



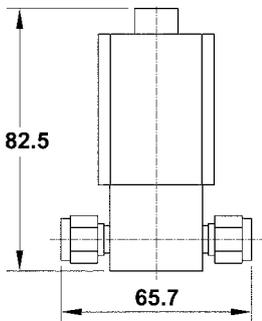
Technical data

| | |
|-------------------------------|--|
| ■ Series | IPVA |
| ■ Specifications | high vacuum venting valve, aluminium with electromagnetic drive - easy mounting - for inert gas and air |
| ■ Actuation | electromagnetic, single-acting, currentless closed or opened |
| ■ Connection | DN10KF flange |
| ■ Electrical connections | DIN angle plug |
| ■ Pressure range vacuum-sided | < 1.0E-8 mbar |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | - 20 °C to 55 °C |
| ■ Media temperature | - 10 °C to 130 °C |
| ■ Max. switching frequency | 100 / minute |
| ■ Max. flow | 10 l in 12 s |
| ■ Cycle time | 30 ms |
| ■ Inductor insulation | class F |
| ■ Degree of protection | IP65 |
| ■ Durability | > 100,000 cycles |

| Order code | Power supply | Power input activate | Power input hold | Drive dead |
|------------------|--------------|----------------------|------------------|------------|
| IPVA10EK-C240VAC | 240 VAC | 9.5 VA | 6.3 VA | closed |
| IPVA10EK-C24VDC | 24 VDC | 5 W | 5 W | closed |
| IPVA10EK-240VAC | 240 VAC | 9.5 VA | 6.3 VA | open |
| IPVA10EK-24VDC | 24 VDC | 5 W | 5 W | open |

Softvent valves, pneumatic

Stainless steel housing



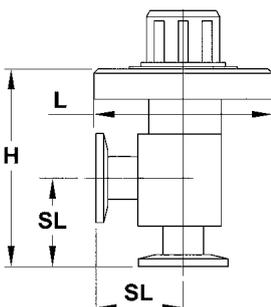
Technical data

| | |
|-------------------------------------|--|
| ■ Series | XVD |
| ■ Specifications | high vacuum ventilation valve with softvent function to dose ventilation of vacuum systems and chambers, pneumatic drives, for air and inert gases |
| ■ Actuation | pneumatic, single-acting, two-stage switchable, pressureless closed |
| ■ Connection | gas bolting 1/4" VCR or 1/4" Swagelok |
| ■ Air pressure connection | internal thread M5 |
| ■ Pressure range | 1.0E-8 mbar to 2 bar |
| ■ Leak rate | < 1.0E-9 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Air pressure | 4 to 7 bar |
| ■ Valve equipment material | stainless steel, intern electropolished |
| ■ Bellows material | stainless steel |
| ■ Drive housing material | aluminium |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | stainless steel diaphragm |
| ■ Operating temperature | 5 °C to 60 °C |
| ■ Bakeout temperature | max. 150 °C |
| ■ Eff. cross-section inlet | 4.6 mm ² |
| ■ Eff. cross-section softvent inlet | 0.2 to 4.6 mm ² |
| ■ Diameter inlet bore | 3 mm ² |
| ■ Visual position indicator | within drive cap |
| ■ Durability | up to 500,000 cycles |
| ■ Accessories | - solenoid valves - air pressure accessories |

| Order code | Connection |
|------------|---------------|
| XVD2-02S | Swagelok 1/4" |
| XVD2-02V | VCR 1/4" |

High vacuum needle valves, manual

Aluminium housing



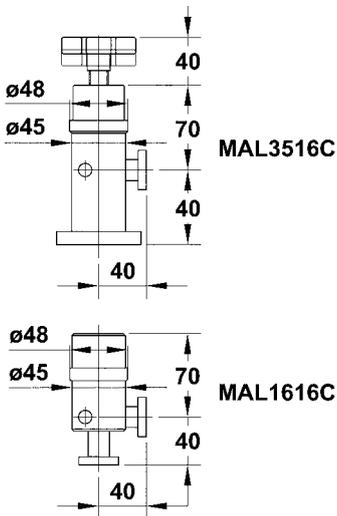
Technical data

| | |
|-----------------------------|---|
| ■ Series | LV10K |
| ■ Specifications | needle valve for rough, medium and high vacuum - easy handling - applicable for air and inert gases |
| ■ Actuation | manual with handwheel |
| ■ Connection | KF flanges |
| ■ Pressure range | 1.0E-5 mbar to 2.1 bar |
| ■ Leak rate | < 1.0E-7 mbar l/s |
| ■ Housing material | aluminium |
| ■ Drive housing material | brass |
| ■ Needle material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Max. flow | 0.1 l/s (at 1 bar pressure difference) |
| ■ Mounting position | arbitrary |
| ■ Visual position indicator | 100-division scale at handwheel |

| Order code | Connection | H | L | SL |
|------------|------------|------|----|----|
| LV10K | DN10KF | 88.5 | 62 | 30 |

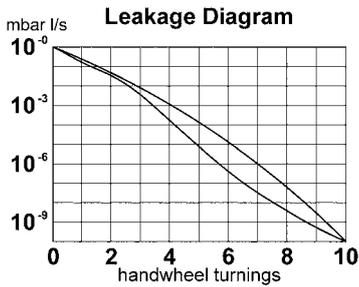
UHV gas dosing valves, manual

Stainless steel housing



Technical data

- Series MAL
- Specifications all metal UHV gas dosing valve with diaphragm-sealed valve seat
 - precise and reproducible proportioning
 - durable and low maintenance
 - motor drive retrofit
- Actuation manual with handwheel
- Connection CF flanges - rotatable, 1/4" VCR- or 1/4" Swagelok connection
- Range of control 1.0E-10 to 1 mbar l/s
- Pressure range 1.0E-10 mbar to 10 bar
- Leak rate < 1.0E-10 mbar l/s
- Housing construction multipart, drive replaceable (not demountable)
- Housing material stainless steel
- Drive and housing seal one combined gold plated stainless steel diaphragm
- Dead volume: main flange side 1.0 to 1.4 cm³
- Dead volume: lateral flange side 4.6 cm³
- Bakeout temperature opened to 450 °C
- Bakeout temperature valve adjustable to 300 °C
- Max. differential pressure 10 bar from any side
- Mounting position arbitrary
- Visual position indicator handwheel position, 0 - 10 revolutions
- Durability 100,000 cycles until first service
- Accessories
 - heating element with intergrated thermocouple
 - controller for heating element
- Option
 - step motor with controller (retrofit)
 - controllable via analog signal 0 to 10 V DC
 - other connection combinations
- Further options

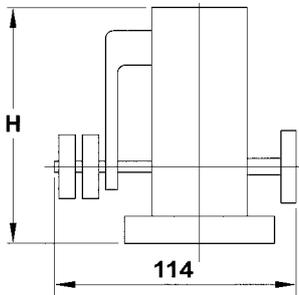


| Order code | Connection 1 | Connection 2 |
|------------|---------------|---------------|
| MAL1616C | DN16CF-R | DN16CF-R |
| MAL4016C | DN40CF-R | DN16CF-R |
| MAL14VCR | VCR 1/4" | VCR 1/4" |
| MAL14SWA | Swagelok 1/4" | Swagelok 1/4" |

| Order code | Description |
|------------|----------------------------|
| MAL-KIT-MC | step motor with controller |

UHV gas dosing valves, manual

Stainless steel housing



Technical data

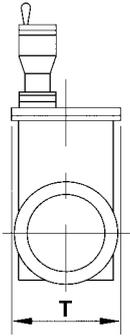
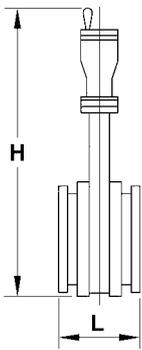
| | |
|------------------------------------|--|
| ■ Series | VLVE |
| ■ Specifications | all metal UHV gas metering valve with sapphire sealing - precise metering - easy handling |
| ■ Actuation | manual with handwheel |
| ■ Connection | CF flanges - inlet rotatable - outlet trapped |
| ■ Range of control | 2.0E-10 to 1 mbar l/s |
| ■ Pressure range | 1.0E-11 mbar l/s |
| ■ Leak rate | < 1.0E-10 mbar l/s |
| ■ Drive seal | stainless steel diaphragm |
| ■ Housing construction | welded |
| ■ Housing material | stainless steel |
| ■ Valve plate material | copper alloy sealing elements (replaceable) |
| ■ Seal valve plate material | sapphire gasket |
| ■ Dead volume: main flange side | 1.0 to 1.4 cm ³ |
| ■ Dead volume: lateral flange side | 4.6 cm ³ |
| ■ Bakeout temperature | to 450 °C |
| ■ Max. differential pressure | 10 bar from any side |
| ■ Mounting position | arbitrary |
| ■ Durability | - approx. 300 cycles without baking - approx. 100 cycles at baking temperature 250 °C - approx. 20 to 30 cycles at baking temperature 450 °C |

| Order code | Connection vacuum | Connection inlet | H |
|------------|-------------------|------------------|-----|
| VLVE-1000 | DN40CF-F | DN16CF-R | 109 |
| VLVE-2000 | DN16CF-F * | DN16CF-R | 98 |

* Flange with imperial tapped holes

Standard HV, manual

Stainless steel housing



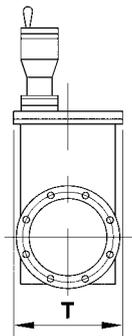
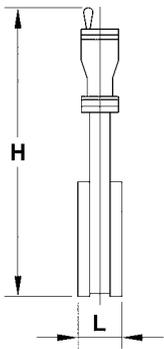
Technical data

| | |
|--|--|
| ■ Series | 11110 |
| ■ Specifications | high vacuum gate valve, stainless steel - housing and valve seat O-ring sealed (replaceable) - intern and extern electropolished - rugged and durable |
| ■ Actuation | manual with handwheel |
| ■ Connection | KF and ISO-F flanges |
| ■ Pressure range | 1.0E-9 mbar to atmospheric pressure |
| ■ Leak rate | < 2.0E-10 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Housing construction | 2-parts, drive removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | stainless steel |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 5 °C to 150 °C |
| ■ Max. differential pressure while opening | 25 mbar |
| ■ Mounting position | arbitrary (from DN200 onwards please specify with ordering) |
| ■ Visual position indicator | within handwheel |
| ■ Durability | up to 100,000 cycles |
| ■ Further options | - other flange standards - lateral measuring voltage |

| Order code | Connection | Conductance (l/s) | H | L | T |
|------------|------------|-------------------|------|----|-----|
| 11110-0063 | DN16KF | 13 | 103 | 40 | 48 |
| 11110-0153 | DN40KF | 88 | 206 | 51 | 84 |
| 11110-0203 | DN50KF | 317 | 227 | 51 | 97 |
| 11110-0253 | DN63ISO-F | 615 | 273 | 52 | 90 |
| 11110-0403 | DN100ISO-F | 2122 | 477 | 61 | 178 |
| 11110-0603 | DN160ISO-F | 7140 | 574 | 60 | 222 |
| 11110-0803 | DN200ISO-F | 11597 | 687 | 68 | 286 |
| 11110-1003 | DN250ISO-F | 24990 | 907 | 80 | 344 |
| 11110-1203 | DN320ISO-F | 43268 | 1050 | 80 | 403 |

CF standard UHV, manual

Stainless steel housing



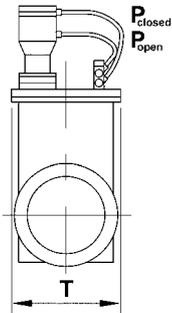
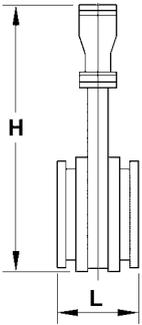
Technical data

- Series 11120
- Specifications UHV gate valve, stainless steel
 - metal sealed housing
 - valve seat O-ring sealed (replaceable)
 - intern and extern electropolished
 - rugged and durable
- Actuation manual with handwheel
- Connection CF flanges - fixed with metric threaded holes
- Pressure range 1.0E-10 mbar to atmospheric pressure
- Leak rate < 2.0E-10 mbar l/s
- Drive seal hydroformed bellows
- Housing construction 2-parts, drive removable, intern and extern electropolished
- Housing material stainless steel
- Bellows material AM350
- Valve plate material stainless steel
- Housing seal material copper
- Seal valve plate material FKM
- Operating temperature 5 °C to 150 °C
- Bakeout temperature opened max. 200 °C
- Max. differential pressure while opening 25 mbar
- Mounting position arbitrary (from DN200 onwards please specify with ordering)
- Visual position indicator within handwheel
- Durability up to 100,000 cycles
- Further options - lateral measuring flange

| Order code | Connection | Conductance (l/s) | H | L | T |
|------------|------------|-------------------|-----|----|-----|
| 11120-0064 | DN16CF-F | 12 | 103 | 40 | 48 |
| 11120-0154 | DN40CF-F | 128 | 206 | 52 | 84 |
| 11120-0254 | DN63CF-F | 524 | 264 | 61 | 111 |
| 11120-0404 | DN100CF-F | 1726 | 473 | 75 | 178 |
| 11120-0604 | DN160CF-F | 5289 | 563 | 81 | 222 |
| 11120-0804 | DN200CF-F | 12006 | 671 | 85 | 286 |
| 11120-1004 | DN250CF-F | 21497 | 896 | 99 | 344 |

Standard HV, pneumatic

Stainless steel housing



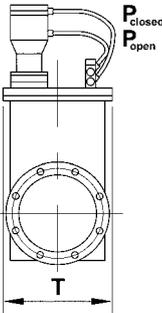
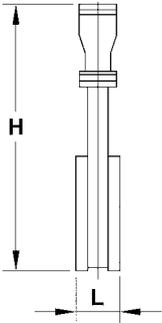
Technical data

- Series 11213
- Specifications high vacuum gate valve, stainless steel with pneumatic drive
 - solenoid valve and autoswitches incl.
 - housing and valve seat O-ring sealed (replaceable)
 - intern and extern electropolished
 - rugged and durable
- Actuation pneumatic, double-acting
- Connection KF and ISO-F flanges
- Air pressure connection internal thread NPT 1/8
- Pressure range 1.0E-9 mbar to atmospheric pressure
- Leak rate < 2.0E-10 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 4 to 6 bar
- Housing construction 2-parts, drive removable, intern and extern electropolished
- Housing material stainless steel
- Bellows material AM350
- Valve plate material stainless steel
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature valve and housing 5 °C to 150 °C
pneumatic drive to 60 °C
- Power supply control valve 220 V AC, 4 W
- Max. differential pressure while opening 25 mbar
- Mounting position arbitrary (from DN200 onwards please specify with ordering)
- Visual position indicator not available
- Electric position indicator 2 Reed switches, to 28 V DC, to 20 mA (only for valves with nominal width > DN40)
- Durability up to 100,000 cycles
- Further options
 - other flange standards
 - high temperature microswitch
 - differing operating voltage
 - lateral measuring voltage

| Order code | Connection | Conductance (l/s) | H | L | T |
|-------------|------------|-------------------|------|-----|-----|
| 11213-0063 | DN16KF | 13 | 109 | 40 | 48 |
| 11213-0153R | DN40KF | 88 | 251 | 51 | 84 |
| 11213-0203R | DN50KF | 317 | 272 | 51 | 97 |
| 11213-0253R | DN63ISO-F | 615 | 318 | 52 | 111 |
| 11213-0403R | DN100ISO-F | 2122 | 456 | 61 | 178 |
| 11213-0603R | DN160ISO-F | 7140 | 553 | 60 | 222 |
| 11213-0803R | DN200ISO-F | 11597 | 666 | 68 | 286 |
| 11213-1003R | DN250ISO-F | 24990 | 863 | 80 | 344 |
| 11213-1203R | DN320ISO-F | 43268 | 1006 | 80 | 403 |
| 11213-1603R | DN400ISO-F | 74905 | 1247 | 109 | 503 |
| 11213-2003R | DN500ISO-F | 132197 | 1500 | 121 | 645 |
| 11213-2403R | DN600ISO-F | 228856 | 1746 | 121 | 813 |

CF standard UHV, pneumatic

Stainless steel housing



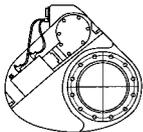
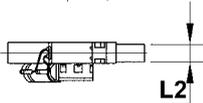
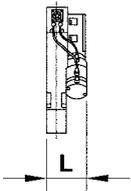
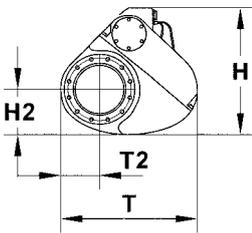
Technical data

- Series 11223
- Specifications UHV gate valve, stainless steel with pneumatic drive
 - solenoid valve and autoswitches incl.
 - metal sealed housing
 - valve seat O-ring sealed (replaceable)
 - intern and extern electropolished
 - rugged and durable
- Actuation pneumatic, double-acting
- Connection CF flanges - fixed with metric threaded holes
- Air pressure connection internal thread NPT 1/8
- Pressure range 1.0E-10 mbar to atmospheric pressure
- Leak rate < 2.0E-10 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 4 to 6 bar
- Housing construction 2-parts, drive removable, intern and extern electropolished
- Housing material stainless steel
- Bellows material AM350
- Valve plate material stainless steel
- Housing seal material copper
- Seal valve plate material FKM
- Operating temperature valve and housing 5 °C to 150 °C
pneumatic drive to 60 °C
- Bakeout temperature opened max. 200 °C, with high temperature micro switches and drives
- Power supply control valve 220 V AC, 4 W
- Max. diff. pressure while opening 25 mbar
- Mounting position arbitrary (from DN200 onwards please specify with ordering)
- Visual position indicator not available
- Electric position indicator 2 Reed switches, to 28 V DC, to 20 mA (only for valves with nominal width > DN40)
- Durability up to 100,000 cycles
- Further options
 - other flange standards
 - high temperature microswitch
 - differing operating voltage
 - lateral measuring voltage
 - lateral measurement flange

| Order code | Connection | Conductance (l/s) | H | L | T |
|-------------|------------|-------------------|-----|----|-----|
| 11223-0064 | DN16CF-F | 12 | 108 | 40 | 48 |
| 11223-0154R | DN40CF-F | 128 | 251 | 52 | 84 |
| 11223-0254R | DN63CF-F | 524 | 309 | 61 | 111 |
| 11223-0404R | DN100CF-F | 1726 | 452 | 75 | 178 |
| 11223-0604R | DN160CF-F | 5289 | 542 | 81 | 222 |
| 11223-0804R | DN200CF-F | 12006 | 650 | 85 | 286 |
| 11223-1004R | DN250CF-F | 21497 | 852 | 99 | 344 |

Pendulum Gate Valve - compact drive, pneumatic

Aluminium housing



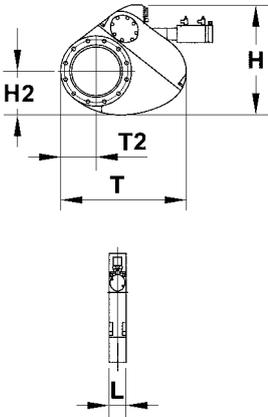
Technical data

| | |
|--|---|
| ■ Series | 30411-RXA |
| ■ Specifications | high vacuum pendulum gate valve, pneumatic actuator mounted compact at the housing |
| | - aluminium housing, valve plate and actuator |
| | - including solenoid valve and position indicator |
| | - seals against atmosphere in both directions |
| | - housing and bonnet O-ring sealed (replaceable) |
| | - actuator shaft bellows sealed |
| | - maintenance without remove of the housing |
| | - 2-parts, actuator demountable |
| ■ Actuation | pneumatic, double-acting |
| ■ Connection | ISO-F flanges |
| ■ Pressure range | 1.0E-9 mbar to atmosphere |
| ■ Leak rate | < 1.0E-10 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Air pressure | 5.5 bar |
| ■ Housing construction | 2-parts, actuator removable |
| ■ Valve equipment material | aluminium |
| ■ Bellows material | AM350 |
| ■ Valve plate material | aluminium 6061-T6 |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 0 °C to 100 °C |
| ■ Bakeout temperature | max. 150 °C (standard) |
| ■ Power supply control valve | 24 VDC |
| ■ Max. differential pressure while opening | < 27 mbar |
| ■ Mounting position | any |
| ■ Visual position indicator | not available |
| ■ Electric position indicator | 2 Reed-switches, to 28 VDC, to 20 mA |
| ■ Durability | to 1,000,000 cycles application depending |
| ■ Further options | - other flange types and dimensions - additional gauge ports - high temperature microswitches - alternate voltage controls |

| Order code | Connection | Conductance (l/s) | H | L | T | H2 | L2 | T2 |
|---------------|------------|-------------------|-----|-----|-----|-----|-----|-----|
| 30411-0403RXA | DN100ISO-F | 1825 | 336 | 135 | 338 | 99 | 71 | 87 |
| 30411-0603RXA | DN160ISO-F | 7140 | 404 | 151 | 447 | 139 | 60 | 117 |
| 30411-0803RXA | DN200ISO-F | 11597 | 491 | 146 | 523 | 174 | 68 | 149 |
| 30411-1003RXA | DN250ISO-F | 24990 | 558 | 163 | 637 | 218 | 80 | 179 |
| 30411-1203RXA | DN320ISO-F | 28990 | 646 | 222 | 723 | 270 | 120 | 217 |

Pendulum Gate Valve - straight drive, pneumatic

Aluminium housing



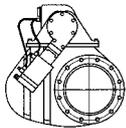
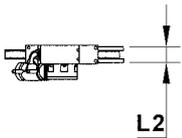
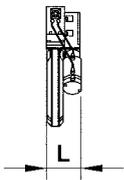
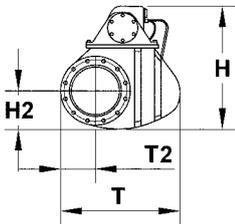
Technical data

- Series 30611-RXA
- Specifications high vacuum pendulum gate valve, pneumatic actuator mounted straight at the housing
 - aluminium housing, valve plate and actuator
 - including solenoid valve and position indicator
 - seals against atmosphere in both directions
 - housing and bonnet O-ring sealed (replaceable)
 - actuator shaft bellows sealed
 - maintenance without remove of the housing
 - 2-parts, actuator demountable
- Actuation pneumatic, double-acting
- Connection ISO-F flanges
- Pressure range 1.0E-9 mbar to atmosphere
- Leak rate < 1.0E-10 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 5.5 bar
- Housing construction 2-parts, actuator removable
- Housing material aluminium 6061-T6
- Bellows material AM350
- Valve plate material aluminium 6061-T6
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature 0 °C to 100 °C
- Bakeout temperature max. 150 °C (standard)
- Power supply control valve 24 VDC
- Max. differential pressure while opening < 27 mbar
- Mounting position any
- Visual position indicator not available
- Electric position indicator 2 Reed-switches, to 28 VDC, to 20 mA
- Durability to 1,000,000 cycles application depending
- Further options
 - other flange types and dimensions
 - additional gauge ports
 - high temperature microswitches
 - alternate voltage controls

| Order code | Connection | Conductance (l/s) | H | L | T | H2 | T2 |
|---------------|------------|-------------------|-----|-----|-----|-----|-----|
| 30611-0403RXA | DN100ISO-F | 1825 | 336 | 135 | 338 | 99 | 87 |
| 30611-0603RXA | DN160ISO-F | 7140 | 404 | 151 | 447 | 139 | 117 |
| 30611-0803RXA | DN200ISO-F | 11597 | 491 | 146 | 523 | 174 | 149 |
| 30611-1003RXA | DN250ISO-F | 24990 | 558 | 163 | 637 | 218 | 179 |
| 30611-1203RXA | DN320ISO-F | 28990 | 646 | 222 | 723 | 270 | 217 |

Pendulum Gate Valve - compact drive, pneumatic

Stainless steel-aluminium housing



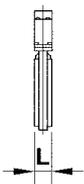
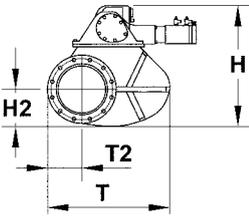
Technical data

| | |
|-------------------------------------|---|
| ■ Series | 30411-RXT |
| ■ Specifications | high vacuum pendulum gate valve, pneumatic actuator mounted compact at the housing |
| | - stainless steel housing |
| | - aluminium valve plate and actuator |
| | - including solenoid valve and position indicator |
| | - seals against atmosphere in both directions |
| | - housing and bonnet O-ring sealed (replaceable) |
| | - actuator shaft bellows sealed |
| | - maintenance without remove of the housing |
| | - 2-parts, actuator demountable |
| ■ Actuation | pneumatic, double-acting |
| ■ Connection | ISO-F flanges or metricCF flanges |
| ■ Pressure range | 1.0E-9 mbar to 1 bar |
| ■ Leak rate | < 1.0E-10 mbar l/s |
| ■ Drive seal | hydroformed bellows |
| ■ Air pressure | 5.5 bar |
| ■ Housing construction | 2-parts, actuator removable |
| ■ Housing material | stainless steel |
| ■ Bellows material | AM350 |
| ■ Valve plate material | aluminium 6061-T6 |
| ■ Housing seal material | FKM |
| ■ Seal valve plate material | FKM |
| ■ Operating temperature | 0 °C to 100 °C |
| ■ Bakeout temperature | max. 150 °C (standard) |
| ■ Power supply control valve | 24 VDC |
| ■ Max. diff. pressure while opening | < 27 mbar |
| ■ Mounting position | any |
| ■ Visual position indicator | not available |
| ■ Electric position indicator | 2 Reed-switches, to 28 VDC, to 20 mA |
| ■ Durability | to 1,000,000 cycles application depending |
| ■ Further options | - other flange types and dimensions - additional gauge ports - high temperature microswitches - alternate voltage controls |

| Order code | Connection | Conductance (l/s) | H | L | T | H2 | L2 | T2 |
|---------------|------------|-------------------|-----|-----|-----|-----|-----|-----|
| 30411-0403RXT | DN100ISO-F | 1825 | 368 | 135 | 308 | 83 | 71 | 83 |
| 30411-0603RXT | DN160ISO-F | 7140 | 419 | 151 | 388 | 113 | 60 | 118 |
| 30411-0803RXT | DN200ISO-F | 11597 | 502 | 146 | 493 | 143 | 68 | 148 |
| 30411-1003RXT | DN250ISO-F | 24990 | 588 | 163 | 600 | 168 | 80 | 183 |
| 30411-1203RXT | DN320ISO-F | 28990 | 690 | 222 | 754 | 212 | 101 | 243 |
| 30411-0404RXT | DN100CF-F | 1553 | 366 | 135 | 301 | 81 | 85 | 76 |
| 30411-0604RXT | DN160CF-F | 5289 | 419 | 151 | 377 | 118 | 80 | 102 |
| 30411-0804RXT | DN200CF-F | 12006 | 502 | 146 | 476 | 148 | 85 | 127 |
| 30411-1004RXT | DN250CF-F | 21497 | 588 | 163 | 584 | 183 | 93 | 152 |

Pendulum Gate Valve - straight drive, pneumatic

Stainless steel-aluminium housing

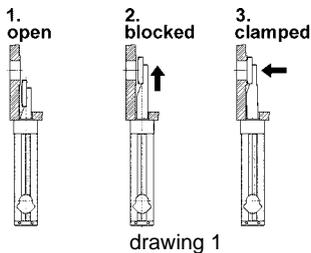


Technical data

- Series 30611-RXT
- Specifications high vacuum pendulum gate valve, pneumatic actuator mounted straight at the housing
 - stainless steel housing
 - aluminium valve plate and actuator
 - including solenoid valve and position indicator
 - seals against atmosphere in both directions
 - housing and bonnet O-ring sealed (replaceable)
 - actuator shaft bellows sealed
 - maintenance without remove of the housing
 - 2-parts, actuator demountable
- Actuation pneumatic, double-acting
- Connection ISO-F flanges or metric CF flanges
- Pressure range 1.0E-9 mbar to atmosphere
- Pressure resistance < 1.0E-10 mbar l / s
- Drive seal hydroformed bellows
- Air pressure 5.5 bar
- Housing construction 2-parts, actuator removable
- Housing material stainless steel
- Bellows material AM350
- Valve plate material aluminium 6061-T6
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature 0 °C to 100 °C
- Bakeout temperature max. 150 °C (standard)
- Power supply control valve 24 VDC
- Max. diff. pressure while opening < 27 mbar
- Mounting position arbitrary
- Visual position indicator not available
- Electric position indicator 2 Reed-switches, to 28 VDC, to 20 mA
- Durability to 1,000,000 cycles application depending
- Further options
 - other flange types and dimensions
 - additional gauge ports
 - high temperature microswitches
 - alternate voltage controls

| Order code | Connection | Conductance (l/s) | H | L | T | H2 | T2 |
|---------------|------------|-------------------|-----|-----|-----|-----|-----|
| 30611-0403RXT | DN100ISO-F | 1825 | 368 | 135 | 308 | 83 | 83 |
| 30611-0603RXT | DN160ISO-F | 7140 | 419 | 151 | 388 | 113 | 118 |
| 30611-0803RXT | DN200ISO-F | 11597 | 502 | 146 | 493 | 143 | 148 |
| 30611-1003RXT | DN250ISO-F | 24990 | 588 | 163 | 600 | 168 | 148 |
| 30611-1203RXT | DN320ISO-F | 28990 | 690 | 222 | 754 | 212 | 243 |
| 30611-0404RXT | DN100CF-F | 1553 | 366 | 135 | 301 | 81 | 76 |
| 30611-0604RXT | DN160CF-F | 5289 | 419 | 151 | 377 | 118 | 102 |
| 30611-0804RXT | DN200CF-F | 12006 | 502 | 146 | 476 | 148 | 127 |
| 30611-1004RXT | DN250CF-F | 21497 | 588 | 163 | 584 | 183 | 152 |

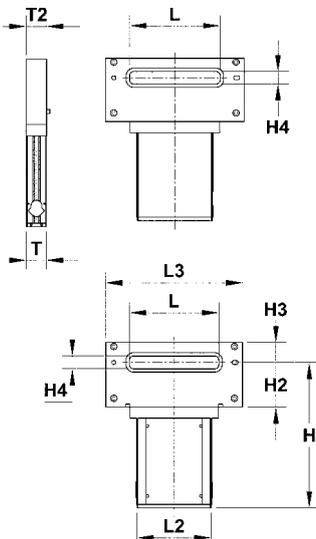
Rectangular gate valve, pneumatic



Technical data

- Series XGT
- Specifications rectangular gate valve, aluminium, with pneumatic drive for use in semiconductor production
 - versions as rectangular door or with cassette housing
 - autoswitches incl.
 - high durability
 - lowest particle emission
- Actuation pneumatic, double-acting
- Connection
 - cassette housing standard
 - cassette housing MESC-compatible (half height)
 - cassette housing MESC-compatible (complete height)
 - rectangular door without flange
- Pressure range 1.0E-8 mbar to atmospheric pressure
- Closure principle L motion (see drawing 1)
- Impermeability valve seat < 1.0E-8 mbar l/s
- Impermeability equipment < 1.0E-9 mbar l/s
- Drive seal hydroformed bellows
- Air pressure 4.5 to 6 bar
- Housing material aluminium
- Valve plate material aluminium
- Housing seal material FKM
- Seal valve plate material FKM
- Operating temperature valve and housing 5 °C to 150 °C
pneumatic drive 5 °C to 60 °C
- Max. differential pressure while opening 40 mbar
- Mounting position vertical
- Visual position indicator not available
- Electric position indicator 2 Reed switches, to 24 V DC, to 40 mA, with circular connector (6-pin)
- Durability to 2,000,000 cycles possible

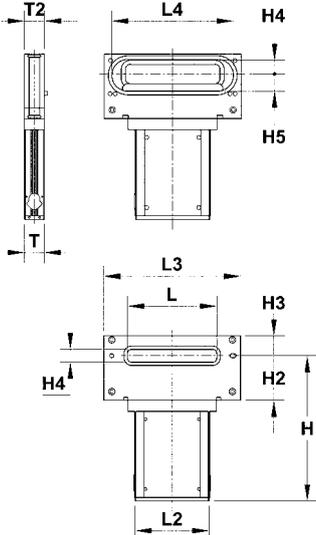
Connection: standard cassette housing



| Order code | Wafer sizes | H | H2 | H3 | H4 | L | L2 | L3 | T | T2 |
|--------------|-------------|-----|-----|----|----|-----|-----|-----|----|----|
| XGT222-32222 | Ø 200 mm | 365 | 112 | 36 | 32 | 222 | 184 | 340 | 49 | 50 |
| XGT222-46236 | Ø 200 mm | 365 | 112 | 36 | 46 | 236 | 184 | 340 | 49 | 50 |
| XGT312-50336 | Ø 300 mm | 377 | 112 | 50 | 50 | 336 | 224 | 440 | 59 | 60 |

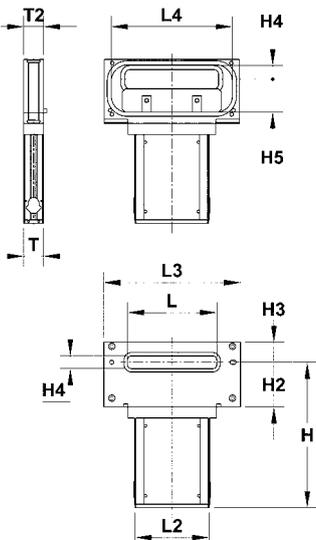
Rectangular gate valve, pneumatic

Connection: half MESC cassette housing



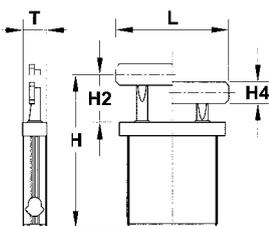
| Order code | Wafer sizes | H | H2 | H3 | H4 | H5 | L | L2 | L3 | L4 | T | T2 |
|--------------|-------------|-----|-----|----|----|----|-----|-----|-----|----|----|-----|
| XGT223-46236 | Ø 200 mm | 365 | 112 | 50 | 36 | 44 | 236 | 184 | 340 | 49 | 50 | 305 |
| XGT313-50336 | Ø 300 mm | 377 | 112 | 50 | 36 | 45 | 336 | 244 | 440 | 59 | 60 | 405 |

Connection: full MESC cassette housing



| Order code | Wafer sizes | H | H2 | H3 | H4 | H5 | L | L2 | L3 | L4 | T | T2 |
|--------------|-------------|-----|-----|----|----|----|-----|-----|-----|----|----|-----|
| XGT224-46236 | Ø 200 mm | 365 | 112 | 50 | 36 | 85 | 236 | 184 | 340 | 49 | 50 | 305 |

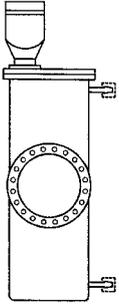
Connection: rectangle door without flange



| Order code | Wafer sizes | H | H2 | H4 | L | T |
|--------------|-------------|-----|-----|----|-----|----|
| XGT221-32222 | Ø 200 mm | 365 | 112 | 45 | 235 | 49 |
| XGT221-46236 | Ø 200 mm | 365 | 112 | 59 | 249 | 49 |
| XGT311-50336 | Ø 300 mm | 377 | 97 | 62 | 348 | 59 |

With special equipment

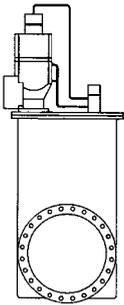
Laminar flow gate valves, series 13000



- These valves have a gas inlet through which an inert gas can be let into the valve to avoid a destruction of the valve mechanics while eliminating contact of the corrosive process gas.

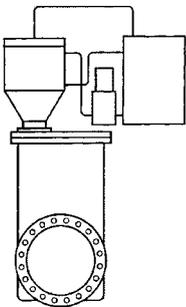
6

3-position gate valves, series 21700



- These electropneumatic valves can be used maintenance-free up to 1,000,000 cycles (depending on application) and they can, besides the open and closed position, take any set third position. Thus the pumping speed of the attached pump can be reduced.

Throttle gate valves, series 21800



- These electropneumatic valves can take each position between the open and closed status. Thus together with pressure and flow controller, a pressure and flow regulation is possible. For these valves a maintenance-free handling up to 1,000,000 cycles (depending on application) can be warranted as well.

Solenoid valves including assembly kit for simply-acting pneumatic valves

Technical data

- Monostable, currentless closed, opened under voltage
- Pressure 4 - 7 bar

230 V AC, 1/8" connection

| Order Code | Constituents | Specifications | Piece number |
|----------------|---|--|---|
| KITSTV1-230-18 | <ul style="list-style-type: none"> ■ EVZ512M-4DO-01F ■ K31 ■ SD18F ■ DN18R ■ KQH06-U01 | <ul style="list-style-type: none"> solenoid valve monostable DIN power socket baffle for solenoid valve double nipple with external thread straight connector for hose 6 mm | <ul style="list-style-type: none"> 1 1 1 1 1 |

24 V DC, 1/8" connection

| Order Code | Constituents | Specifications | Piece number |
|---------------|---|--|---|
| KITSTV1-24-18 | <ul style="list-style-type: none"> ■ EVZ512M-5DO-01F ■ K31 ■ SD18F ■ DN18R ■ KQH06-U01 | <ul style="list-style-type: none"> solenoid valve monostable DIN power socket baffle for solenoid valve double nipple with external thread straight connector for hose 6 mm | <ul style="list-style-type: none"> 1 1 1 1 1 |

230 V AC, M5 connection

| Order Code | Constituents | Specifications | Piece number |
|----------------|--|--|---|
| KITSTV1-230-M5 | <ul style="list-style-type: none"> ■ VZ110-4DO-M5 ■ K31 ■ AN120-M5 ■ M-5UN ■ KJH06-M5 | <ul style="list-style-type: none"> solenoid valve monostable DIN power socket baffle for solenoid valve double nipple for compressed air straight connection for compressed air | <ul style="list-style-type: none"> 1 1 1 1 1 |

24 V DC, M5 connection

| Order Code | Constituents | Specifications | Piece number |
|---------------|--|--|---|
| KITSTV1-24-M5 | <ul style="list-style-type: none"> ■ VZ110-5DO-M5 ■ K31 ■ AN120-M5 ■ M-5UN ■ KJH06-M5 | <ul style="list-style-type: none"> solenoid valve monostable DIN power socket baffle for solenoid valve double nipple for compressed air straight connection for compressed air | <ul style="list-style-type: none"> 1 1 1 1 1 |

Solenoid valves including assembly kit for double-acting pneumatic valves

Technical data

- Impulse control. Position change via piloting each connection.
- Bistable, holds currentless the chosen position
- Pressure 4 - 7 mbar

230 V AC, 1/8" connection

| Order Code | Constituents | Specifications | Piece number |
|------------------------|---|---|---|
| KITSTV22-230-18 | <ul style="list-style-type: none"> ■ SY5220-4YO-01F-Q ■ K41 ■ SD18F ■ WA18R ■ KQH06-U01 ■ KQL06-U01 ■ TU0604BU | <ul style="list-style-type: none"> solenoid valve bistable DIN power socket baffle for solenoid valve angular connector with external thread straight connector for hose 6 mm angular connector for compressed air compressed air hose, polyurethane, blue, 6 mm | <ul style="list-style-type: none"> 1 2 2 1 2 1 0.2 m |

6

24 V DC, 1/8" connection

| Order Code | Constituents | Specifications | Piece number |
|-----------------------|---|---|---|
| KITSTV22-24-18 | <ul style="list-style-type: none"> ■ SY5220-5YO-01F-Q ■ K41 ■ SD18F ■ WA18R ■ KQH06-U01 ■ KQL06-U01 ■ TU0604BU | <ul style="list-style-type: none"> solenoid valve bistable DIN power socket baffle for solenoid valve angular connector with external thread straight connector for hose 6 mm angular connector for compressed air compressed air hose, polyurethane, blue, 6 mm | <ul style="list-style-type: none"> 1 2 2 1 2 1 0.2 m |

230 V AC, M5 connection

| Order Code | Constituents | Specifications | Piece number |
|------------------------|--|---|--|
| KITSTV22-230-M5 | <ul style="list-style-type: none"> ■ VZ3223-4DO-M5 ■ K31 ■ AN120-M5 ■ M-5UN ■ M-5UL ■ KJH06-M5 ■ KJL06-M5 ■ TU0604BU | <ul style="list-style-type: none"> solenoid valve bistable DIN power socket baffle for solenoid valve double nipple for compressed air angular connector for compressed air straight connection for compressed air angular connector for compressed air compressed air hose, polyurethane, blue, 6 mm | <ul style="list-style-type: none"> 1 2 2 1 1 2 1 0.2 m |

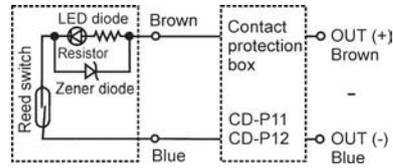
24 V DC, M5 connection

| Order Code | Constituents | Specifications | Piece number |
|-----------------------|--|---|--|
| KITSTV22-24-M5 | <ul style="list-style-type: none"> ■ VZ3223-5DO-M5 ■ K31 ■ AN120-M5 ■ M-5UN ■ M-5UL ■ KJH06-M5 ■ KJL06-M5 ■ TU0604BU | <ul style="list-style-type: none"> solenoid valve bistable DIN power socket baffle for solenoid valve double nipple for compressed air angular connector for compressed air straight connection for compressed air angular connector for compressed air compressed air hose, polyurethane, blue, 6 mm | <ul style="list-style-type: none"> 1 2 2 1 1 2 1 0.2 m |

Valve Accessories

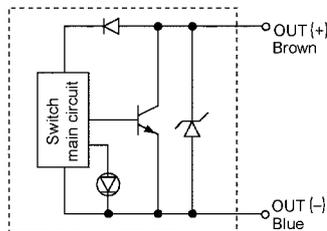
Autoswitches

Reed switch with LED, 2-pole



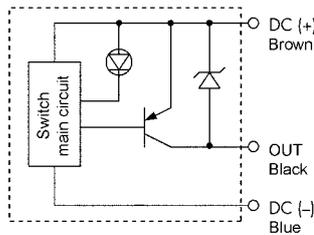
| Order code | Connection | Length (m) |
|------------|------------|------------|
| D-A93L | cable | 3 |
| D-A93-M8 | M5 plug | 0.5 |

Electronic switch with LED, 2-pole



| Order code | Connection | Length (m) |
|-------------|------------|------------|
| D-M9BL | cable | 3 |
| D-M9BSAPC | M5 plug | 0.5 |
| D-M9BL-PAAR | cable | 2 x 3 |

Electronic switch with LED, 3-pole



| Order code | Connection | Length (m) |
|-------------|------------|------------|
| D-M9PL | cable | 3 |
| D-M9PSAPC | M5 plug | 0.5 |
| D-M9PL-PAAR | cable | 2 x 3 |

Socket outlet with cable

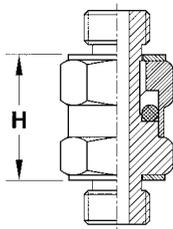
For solenoid valves of series XL, XM, XY, without switching



| Order code | Length (m) |
|----------------|------------|
| SY100-30-4A-10 | 1 |
| SY100-30-4A-20 | 2 |
| SY100-30-4A-30 | 3 |

Straight connectors

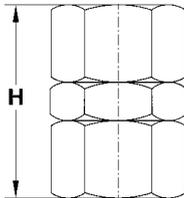
External thread double-sided



| Order code | Connection | Type | H |
|------------|------------|----------|----|
| M-5UN | M5 | pivoting | 10 |
| DN18G | G1/8 | fixed | 12 |
| DN18R | R1/8 | fixed | 12 |

- Screw connection with double-sided external thread as connection between internal threads.

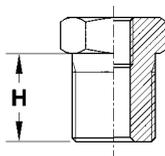
Internal thread double-sided



| Order code | Connection | Type | H |
|------------|------------|-------|----|
| MU18G | G1/8 | fixed | 18 |

- Screw connection with double-sided internal thread as connection between external threads.

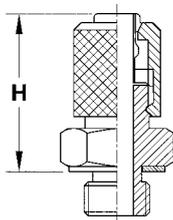
Internal and external thread



| Order code | Inner thread | Outer thread | H |
|------------|--------------|--------------|---|
| M-5B | M5 | R1/8 | 7 |

- Screw connection with double-sided external and internal thread as connection between threads of different sizes.

Connectors from thread to 6 mm hose



| Order code | Connection | Type | H |
|------------|----------------------|-----------|------|
| M-5H6 | M5 | fixed | 12.5 |
| KJH06-M5 | M5 | rotatable | 14.7 |
| M-01H-6 | R1/8 | fixed | 16.5 |
| KJH06-01S* | R1/8 | rotatable | 15.4 |
| KQH06-U01 | universal thread 1/8 | rotatable | 15.4 |

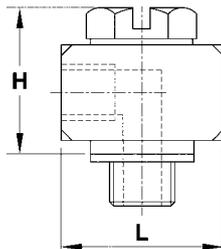
* Thread Teflon® plated

** gasket over gasket

- Straight connection between internal thread and hose (nylon, soft nylon, polyurethane) with external diameter 6 mm.

Angular connectors, pivoting

Internal and external thread

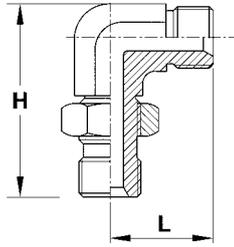


| Order code | Connection | H | L |
|------------|------------|------|----|
| M-5UL | M5 | 11.3 | 13 |

Valve Accessories

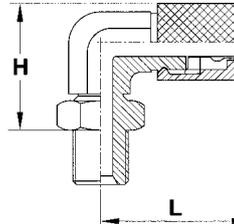
Angular connectors, pivoting

External thread double-sided



| Order code | Connection | H | L |
|------------|------------|----|----|
| WA18R | R1/8 | 12 | 12 |

Plug connection - angular connectors from thread to 6 mm hose



| Order code | Connection | H | L |
|-------------|----------------------|------|------|
| M-5HL6 | M5 | 10.2 | 13.5 |
| KJL06-M5 | M5 | 17.4 | 16.1 |
| KJL06-01S* | R1/8 | 18.5 | 17.8 |
| KQL06-U01** | universal thread 1/8 | 23.5 | 20 |

* Thread Teflon® plated

** gasket over gasket

- 90° connection between inner thread and hose (nylon, soft nylon, polyurethane) with external diameter 6 mm

Baffles



| Order code | Connection | Material | Attenuation (dB) (A) |
|------------|------------|-----------------|----------------------|
| AN120-M5 | M5 | sintered bronze | > 18 |
| AN110-01 | R1/8 | sintered bronze | > 19 |
| AN103-01 | R1/8 | plastics | > 25 |
| SD18F | G1/8 | sintered bronze | - |

Air pressure hose, polyurethane, material sold by metre



| Order code | Outer diameter | Inner diameter |
|------------|----------------|----------------|
| TU0604BU | 6 | 4 |

Replacement gaskets



| Order code | Outer thread |
|------------|----------------------|
| M-5G1 | M5 |
| KQG-U01 | universal thread 1/8 |