



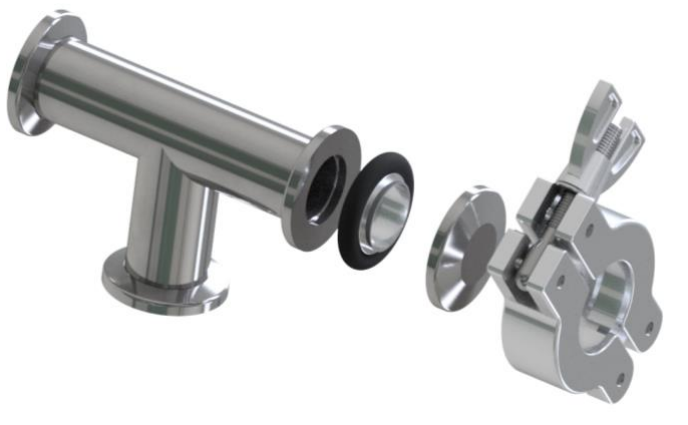
VACUUM COMPONENTS

High vacuum and ultra-high vacuum fittings

Vacuum fittings connect pipes and tubing in vacuum systems to other tubing sections, pipes, hoses, valves, pumps, chambers or other vacuum components. ALFAVAC offers components with various flange systems that meet the connection standards for many applications and flange sizes. The selection of proper materials and the use of high-quality production and cleaning technologies meet the high standards of vacuum technology. Standard components can be modified to meet customer requirements. There are available ISO-KF, ISO-K and ISO-CF fittings.

ISO-KF

Used in High Vacuum (HV) applications



- Suitable for pressures up to 10^{-8} mbar
- Efficient assembly and disassembly without any tools
- According to DIN 28403 and ISO 2861
- Nominal diameter from DN 10 to DN 50
- Special sizes or customer defined fittings upon request

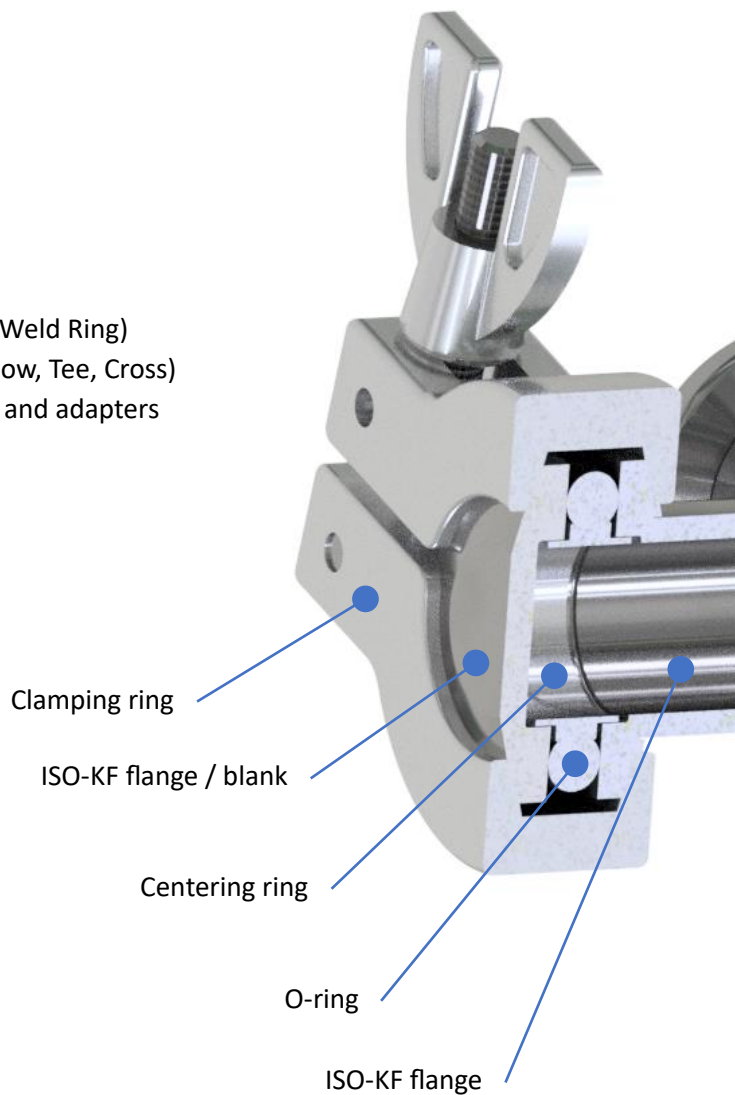
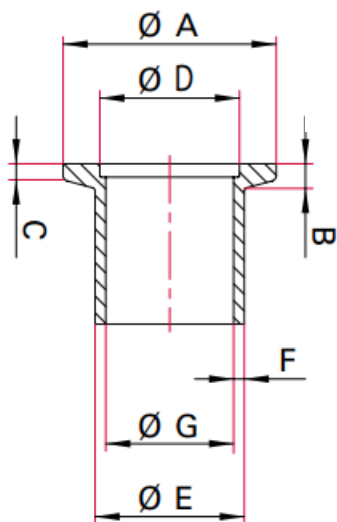
Material

- 1.4301/304
- 1.4404/316
- Aluminum

Available components

- Connecting elements
- Seals and centering rings
- Flanges (Half-nipple, Blank, Weld Ring)
- Pipe fittings (Full-nipple, Elbow, Tee, Cross)
- Transition pieces / reducers and adapters

Primary dimensions



| Nominal diameter | DN 10 | DN 16 | DN 25 | DN 40 | DN 50 |
|---|---------|---------|----------|----------|----------|
| | ISO-KF | ISO-KF | ISO-KF | ISO-KF | ISO-KF |
| A – External diameter [mm] | 30 | 30 | 40 | 55 | 75 |
| B – Flange height [mm] | 5 | 5 | 5 | 5 | 5 |
| C [mm] | 3 | 3 | 3 | 3 | 3 |
| D – Centering ring set [mm] | 12,2 | 17,2 | 26,2 | 41,2 | 52,4 |
| E x F – Typical pipe dimension [mm] | 14 x 2 | 20 x 2 | 28 x 2 | 44,5 x 2 | 57 x 3,2 |
| G – Typical internal diameter [mm] | 10 | 16 | 24 | 40,5 | 51 |
| Full Nipple – Total Length [mm] | 60 | 80 | 100 | 130 | 140 |
| Elbow – Arm Length [mm] | 30 | 40 | 50 | 65 | 70 |
| Tee, Cross – Total Length x Arm Length [mm] | 60 x 30 | 80 x 40 | 100 x 50 | 130 x 65 | 140x70 |
| Reducers – Reducing to ISO-KF | | | 10, 16 | 16, 25 | 16,25,40 |

Ordering numbers

K Flanges

| CODE | MATERIAL | SIZE |
|-----------------------|----------------|--------------|
| FW – weld ring flange | SS – 304 | KF10 to KF50 |
| FB – blank flange | S1 – 316 | |
| FN – half nipple* | AL – AW 6082** | |

* Half nipple length is equal to half of full nipple

** Material valid only for blank flange

Ordering number example: FW-SS-KF16

KF Seals

| CODE | MATERIAL | SIZE |
|--|---------------|--------------|
| CR – Centering ring | SS – 304 | KF10 to KF50 |
| CS – Centering ring with screen | S1 – 316 | |
| CO – Outer centering ring | AL – aluminum | |
| CI – Outer centering ring with inner support | FK – FKM* | |
| OR – O-ring | NB – NBR* | |

* Material valid only for O-rings

Ordering number example: CR-SS-K16

KF Fastening Elements

| CODE | MATERIAL | SIZE |
|----------------------------------|---------------|--------------|
| FC – Clamping ring with wing nut | AL – aluminum | KF10 to KF50 |

Ordering number example: FC-AL-KF16

KF Piping Components

| CODE | MATERIAL | SIZE |
|------------------------|----------|--------------|
| PF – Full Nipple | SS – 304 | KF10 to KF50 |
| PE – Elbow 90°, Radius | S1 – 316 | |
| PL – Elbow 45°, Radius | | |
| PT – Tee | | |
| PC – 4-Way Cross | | |
| RT – Reducer Tee* | | |
| RC – Reducer Cross* | | |
| RN – Straight Reducer* | | |

** Size for reducers is listed with both DN as follows (for example KF25/16)
Ordering number example: PF-SS-KF16*

ISO-K

Used in High Vacuum (HV) applications



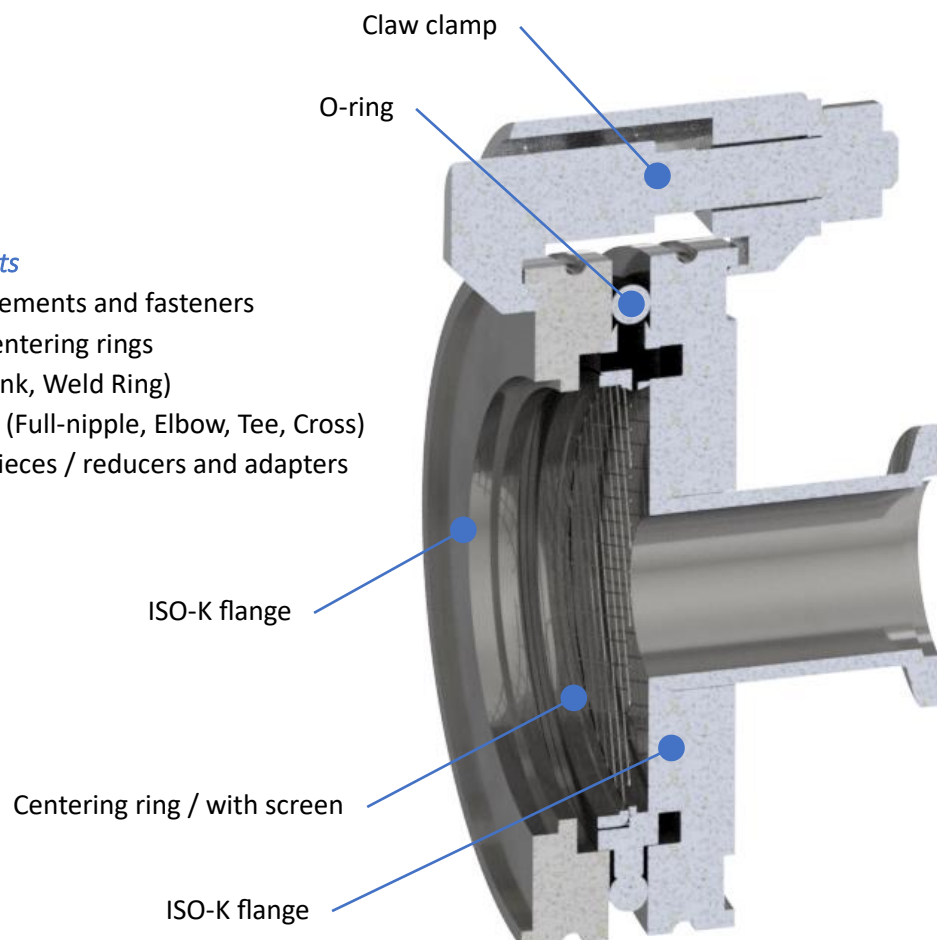
- Suitable for pressures up to 10^{-8} mbar
- According to DIN 28404 and ISO 1609
- Nominal diameter from DN 63 to DN 250
- Special sizes or customer defined fittings upon request

Material

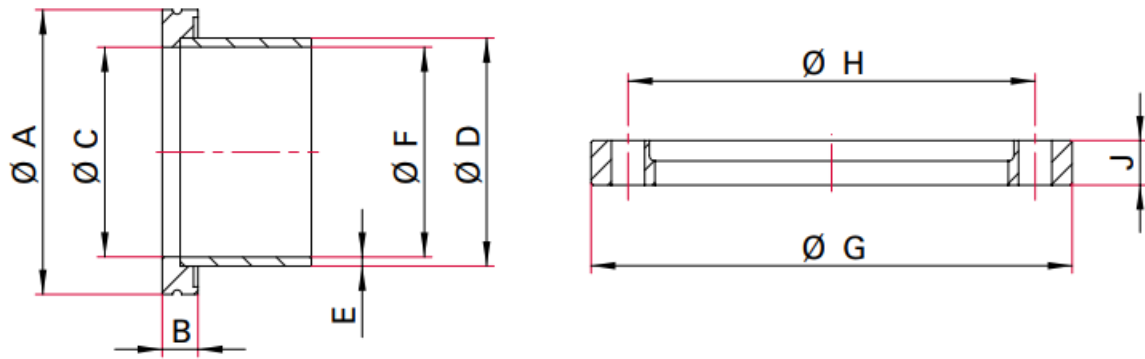
- 1.4301/304
- 1.4404/316
- Aluminum

Available components

- Clamping elements and fasteners
- Seals and centering rings
- Flanges (Blank, Weld Ring)
- Pipe fittings (Full-nipple, Elbow, Tee, Cross)
- Transition pieces / reducers and adapters



Primary dimensions



| Nominal diameter | DN 63 ISO-K | DN 80 ISO-K | DN 100 ISO-K | DN 160 ISO-K | DN 200 ISO-K | DN 250 ISO-K |
|-------------------------------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| A – External diameter [mm] | 95 | 110 | 130 | 180 | 240 | 290 |
| B – Flange height [mm] | 12 | 12 | 12 | 12 | 12 | 12 |
| C - Centering ring set [mm] | 70 | 83 | 102 | 153 | 213 | 261 |
| D x E – Typical pipe dimension [mm] | 76,1 x 3 | 88,9x3 | 108 x 3 | 159 x 3 | 219 x 3 | 273 x 3 |
| F – Typical internal diameter [mm] | 70 | 83 | 102 | 153 | 213 | 261 |
| G – External diameter [mm] | 130 | 145 | 165 | 225 | 285 | 335 |
| H – Bolt holes [mm] | 110 | 125 | 145 | 200 | 260 | 310 |
| J – Height [mm] | 12 | 12 | 12 | 16 | 16 | 16 |
| Number of holes x diameter [mm] | 4 x 9 | 8 x 9 | 8 x 9 | 8 x 11 | 12 x 11 | 12 x 11 |
| Recommended number of screws | 4 | 6 | 6 | 8 | 10 | 12 |
| Minimal number of screws | 4 | 4 | 4 | 4 | 6 | 6 |
| Number of claws / screws | 4 / M8 | 8 / M8 | 8 / M8 | 8 / M10 | 12/M10 | 12/M10 |
| Full Nipple – Total Length [mm] | 88 | | 108 | 138 | 178 | 208 |
| Elbow – Arm Length [mm] | 88 | | 108 | 232 | | |
| Tee, Cross – Total L x Arm L [mm] | 176 x 88 | | 216x108 | 276x138 | 356x178 | 416x208 |
| Reducers – Reducing to ISO-K | | | 63 | 63, 100 | 100, 160 | 160,200 |

Ordering numbers

K Flanges

| CODE | MATERIAL | SIZE |
|-----------------------|----------|-------------|
| FW – weld ring flange | SS – 304 | K63 to K250 |
| FB – blank flange | S1 – 316 | |
| FN – half nipple* | | |

* Half nipple length is equal to half of full nipple

Ordering number example: FW-SS-K16

K Seals

| CODE | MATERIAL | SIZE |
|-------------------------------------|---------------|-------------|
| CR – Centering ring with outer ring | SS – 304 | K63 to K250 |
| CS – Centering ring with screen | S1 – 316 | |
| OR – O-ring | AL – aluminum | |
| | FK – FKM* | |
| | NB – NBR* | |

** Material valid only for O-rings*

Ordering number example: CR-SS-K16

K Fastening Elements

| CODE | MATERIAL |
|-------------------------|----------------------|
| FD – Double Claw Clamp* | SS – stainless steel |
| | AL – aluminum |

** Fit to flange size DN 63 to 250*

Ordering number example: FD-AL

K Piping Components

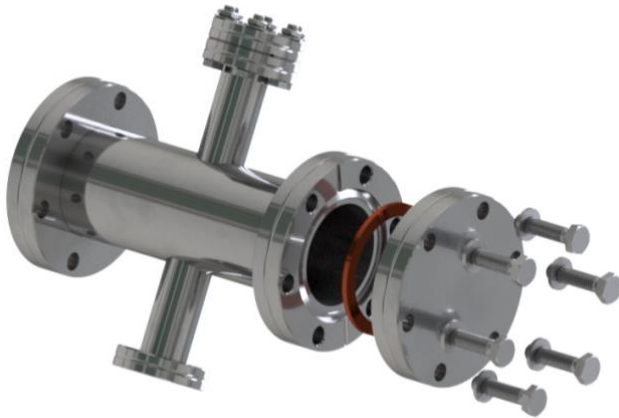
| CODE | MATERIAL | SIZE |
|------------------------|----------|-------------|
| PF – Full Nipple | SS – 304 | K63 to K250 |
| PE – Elbow 90°, Radius | S1 – 316 | |
| PT – Tee | | |
| PC – 4-Way Cross | | |
| RT – Reducer Tee* | | |
| RC – Reducer Cross* | | |
| RN – Straight Reducer* | | |

** Size for reducers is listed with both DN as follows (for example K100/63)*

Ordering number example: PF-SS-K63

ISO-CF

Used in Ultra High Vacuum (UHV) applications



- From ambient pressure up to less than 10^{-12} mbar
- Bakeable up to 450° C
- According to ISO 3669
- Nominal diameters from DN 16 to DN 250
- Special sizes or customer defined fittings upon request

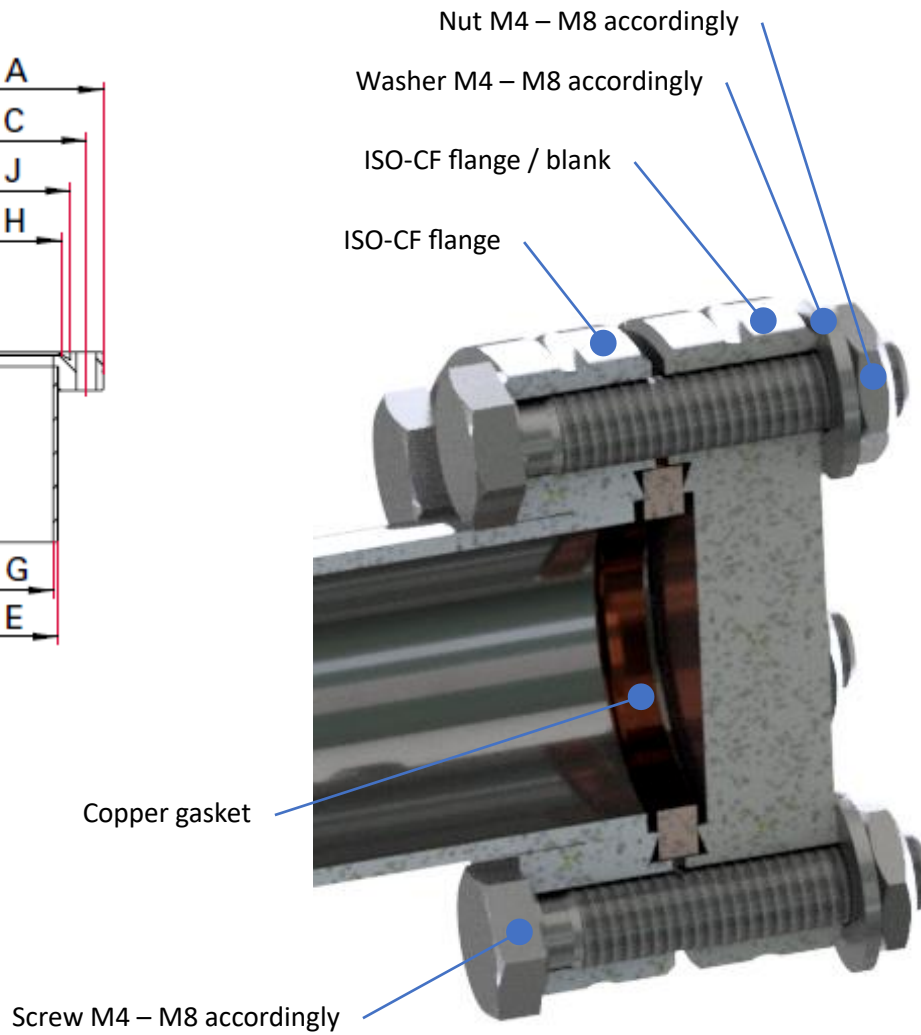
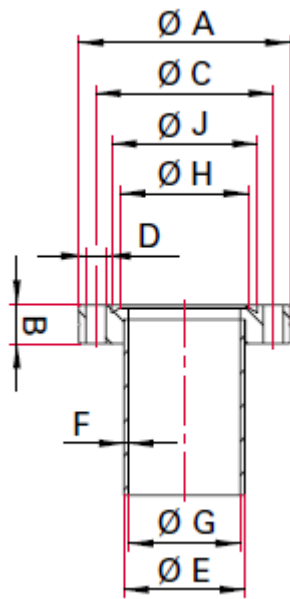
Material

- 1.4301/304
- 1.4404/316

Available components

- Connecting elements
- Metal gaskets
- Flanges (Fixed, Rotatable, Weld, Blank, Spacer)
- Pipe fittings (Full-nipple, Elbow, Tee, Cross)
- Transition pieces / reducers and adapters

Primary dimensions



| Nominal diameter | DN 16 ISO-CF | DN 25 ISO-CF | DN 40 ISO-CF | DN 50 ISO-CF | DN 63 ISO-CF |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| A – External diameter [mm] | 34 | 54 | 69,9 | 85,7 | 113,5 |
| B – Flange height [mm] | 7,75 | 12 | 12,7 | 17,3 | 17,5 |
| C – Bolt hole diameter for screws [mm] | 27 | 41,3 | 58,7 | 72,4 | 92,2 |
| D – Number x Dia. Screw bore holes [mm] | 6 x 4,4 | 4 x 6,6 | 6 x 6,6 | 8 x 8,4 | 8 x 8,4 |
| D – Number x Dia. thread holes [mm] | 6 x M4 | 4 x M6 | 6 x M6 | 8 x M8 | 8 x M8 |
| E x F – Typical outside pipe diameter [mm] | 18 x 1 | 28 x 2 | 40 x 1,5 | 50,8x1,65 | 70 x 2 |
| G – Typical internal diameter [mm] | 16 | 24 | 37 | 47,5 | 66 |
| H – Diameter cutting edge [mm] | 18,3 | 27,7 | 41,9 | 55,9 | 77 |
| J – Diameter groove for flange seal [mm] | 21,4 | 33 | 48,25 | 61,8 | 82,5 |
| Full Nipple – Total Length [mm] | 76 | | 126 | | 210 |
| Elbow – Arm Length [mm] | 38 | | 63 | | 105 |
| Tee, Cross – Total Length x Arm Length [mm] | 76 x 38 | | 126 x 63 | | 210x105 |
| Reducers – Reducing to ISO-CF | | | 16 | | 40 |

| Nominal diameter | DN 75 | DN 100 | DN 130 | DN 160 | DN 200 |
|---|----------|----------|----------|-----------|----------|
| | ISO-CF | ISO-CF | ISO-CF | ISO-CF | ISO-CF |
| A – External diameter [mm] | 117,4 | 152 | 171,4 | 202,4 | 253,2 |
| B – Flange height [mm] | 17,5 | 19,8 | 21,4 | 22,2 | 24,5 |
| C – Bolt hole diameter for screws [mm] | 102,3 | 130,3 | 151,6 | 181 | 231,8 |
| D – Number x Dia. Screw bore holes [mm] | 10 x 8,4 | 16 x 8,4 | 18 x 8,4 | 20 x 8,4 | 24 x 8,4 |
| D – Number x Dia. thread holes [mm] | 10 x M8 | 16 x M8 | 18 x M8 | 20 x M8 | 24 x M8 |
| E x F – Typical outside pipe diameter [mm] | 76,1 x 2 | 108 x 2 | 127x1,65 | 159 x 2 | 205x2,5 |
| G – Typical internal diameter [mm] | 72,1 | 104 | 123,7 | 154,5 | 200 |
| H – Diameter cutting edge [mm] | 86,2 | 115,3 | 136,3 | 166,1 | 216,9 |
| J – Diameter groove for flange seal [mm] | 91,6 | 120,6 | 141,8 | 171,4 | 222,2 |
| Full Nipple – Total Length [mm] | | 270 | | 334 | |
| Elbow – Arm Length [mm] | | 135 | | 167 | |
| Tee, Cross – Total Length x Arm Length [mm] | | 270x135 | | 334x167 | |
| Reducers – Reducing to ISO-CF | | 40, 63 | | 40,63,100 | |

| Nominal diameter | DN 250 |
|--|----------|
| | ISO-CF |
| A – External diameter [mm] | 304,8 |
| B – Flange height [mm] | 26 |
| C – Bolt hole diameter for screws [mm] | 284 |
| D – Number x Dia. Screw bore holes [mm] | 32 x 8,4 |
| D – Number x Dia. thread holes [mm] | 32 x M8 |
| E x F – Typical outside pipe diameter [mm] | 256 x 3 |
| G – Typical internal diameter [mm] | 250 |
| H – Diameter cutting edge [mm] | 267 |
| J – Diameter groove for flange seal [mm] | 273,1 |

Ordering numbers

CF Flanges

| CODE | MATERIAL | SIZE | THREADED | ROTATABLE |
|-----------------------|----------|---------------|----------------|---------------|
| FW – weld flange | SS – 304 | CF16 to CF250 | 0 – bore holes | 0 – none |
| FB – blank flange | S1 – 316 | | 1 – threaded | 1 – rotatable |
| FS – spacer flange | | | | |
| FN – half nipple* | | | | |
| FR – reducer flange** | | | | |

* Half nipple length is equal to half of full nipple

** Size for reducers is listed with both DN as follows (for example CF40/16)

Ordering number example: FW-SS-CF16-0-0

CF Gaskets

| CG | - | MATERIAL | - | SIZE |
|----|---|-------------------------|---|---------------|
| | | CP – copper FK – FKM | | CF16 to CF250 |

Ordering number example: CG-CP-CF16

CF Fastening Elements

| FE | - | SIZE |
|----|---|---------------|
| | | CF16 to CF250 |

Ordering number example: FE-CF16

CF Piping Components

| CODE | - | MATERIAL | - | SIZE |
|------------------------|---|----------|---|---------------|
| PF – Full Nipple | | SS – 304 | | CF16 to CF250 |
| PE – Elbow 90° | | S1 – 316 | | |
| PT – Tee | | | | |
| PC – 4-Way Cross | | | | |
| RT – Reducer Tee* | | | | |
| RN – Straight Reducer* | | | | |

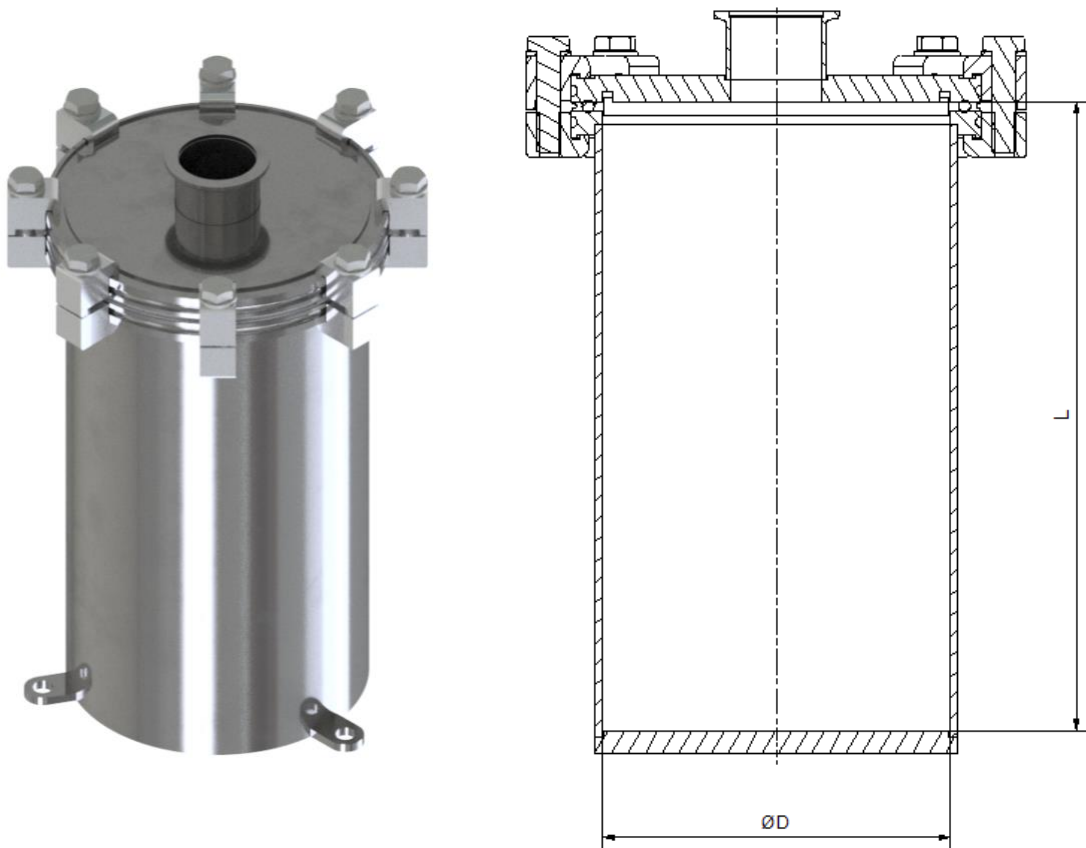
** Size for reducers is listed with both DN as follows (for example CF40/16)*

One rotatable flange per axis, the other fixed

Ordering number example: PF-SS-CF16

High Vacuum Chambers

Our standardized vacuum chambers, crafted from high-quality AISI 304 stainless steel, are engineered for precision and durability in high-vacuum applications, suitable for pressures up to 10^{-8} mbar. Designed for versatility, these chambers feature modular construction, allowing ports to be configured according to your specific requirements. Equipped with ISO flanges, our vacuum chambers are fully compatible with a wide range of vacuum components. Additionally, they are capable of bake-out processes, ensuring optimal performance in demanding environments. Whether for research, manufacturing, or industrial use, our chambers offer reliable and customizable solutions to meet your vacuum technology needs. Nominal sizes are available from 160 mm to 400 mm.



Nominal diameter

DN 160 DN 250 DN 320 DN 400
ISO-K ISO-K ISO-K ISO-K

D – Internal diameter [mm]

153 250 318 400

L – Internal height [mm]

250 300 350 400

Standard ISO port (on lid)

KF 40 KF 40 KF 50 KF 50

Ordering numbers

| VN | - | SIZE |
|----|---|------------|
| | | 160 to 400 |

Ordering number example: VN-160

Ordering Information

For a quote please contact us at:

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