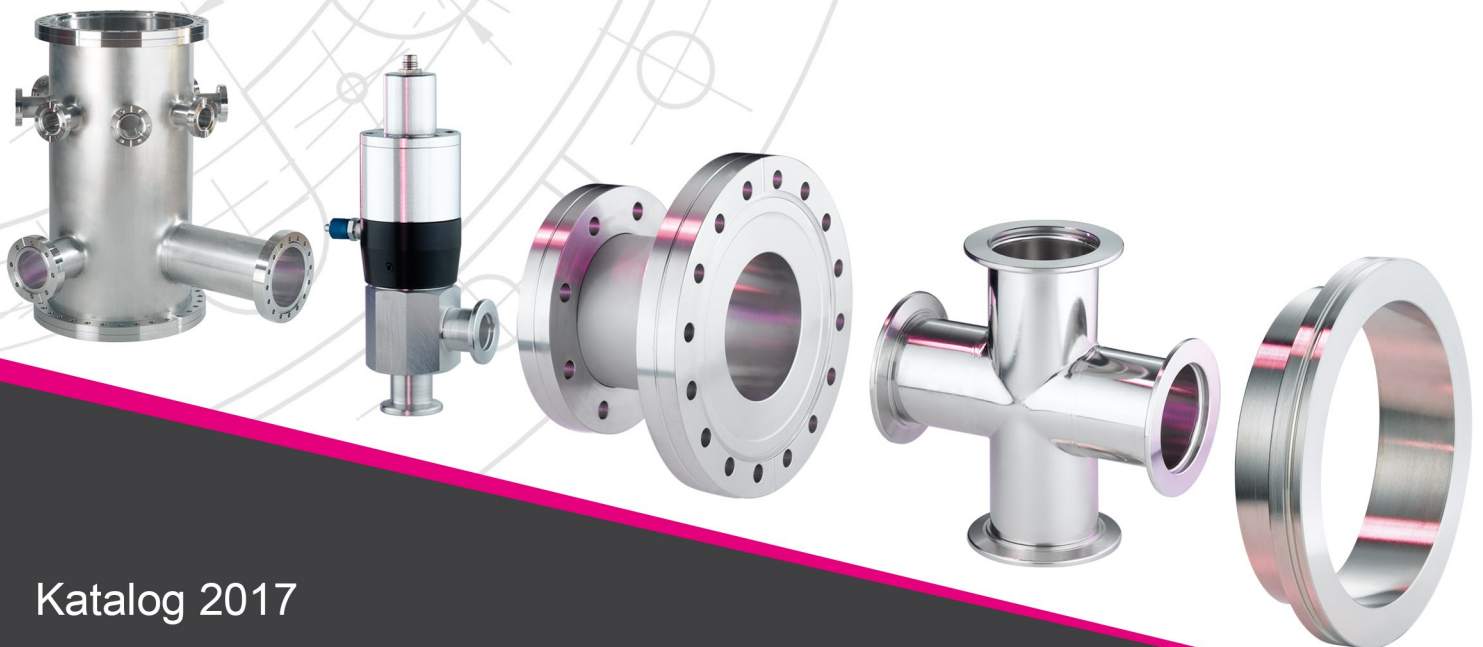


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Katalog 2017

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General information:

This Product Catalogue is valid from January 2017 onwards.

The catalogue is designed to inform you as comprehensively as possible about our products and manufacturing options! You are very welcome to contact us for consultation. We reserve the right of make changes and corrections to errors in the catalogue without prior notice. Furthermore, all specifications on our products are without engagement. Accessory parts included in some of the figures are not included in the scope of delivery. We do not accept liability for printing errors.

Company details

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novotek Mai 2016

novotek – about us

novotek GmbH was founded in August 1973. The focal point of business was the development and manufacturing of laser-optical devices, in particular for laboratories and universities. As of 1976, the area of high vacuum increasingly became the object of our business activities and ultimately replaced the laser area.

Business activity concentrated initially on the development and design of high-vacuum products, whereby the production of the individual components was initially transferred to manufacturing shops and external suppliers. The long-standing partnership with almost all suppliers forms the basis of the present-day well-established co-operation. Following the decision to produce not only the standard components but also, cost-effectively, special components corresponding to customer specifications, it became necessary set up our own production facilities.

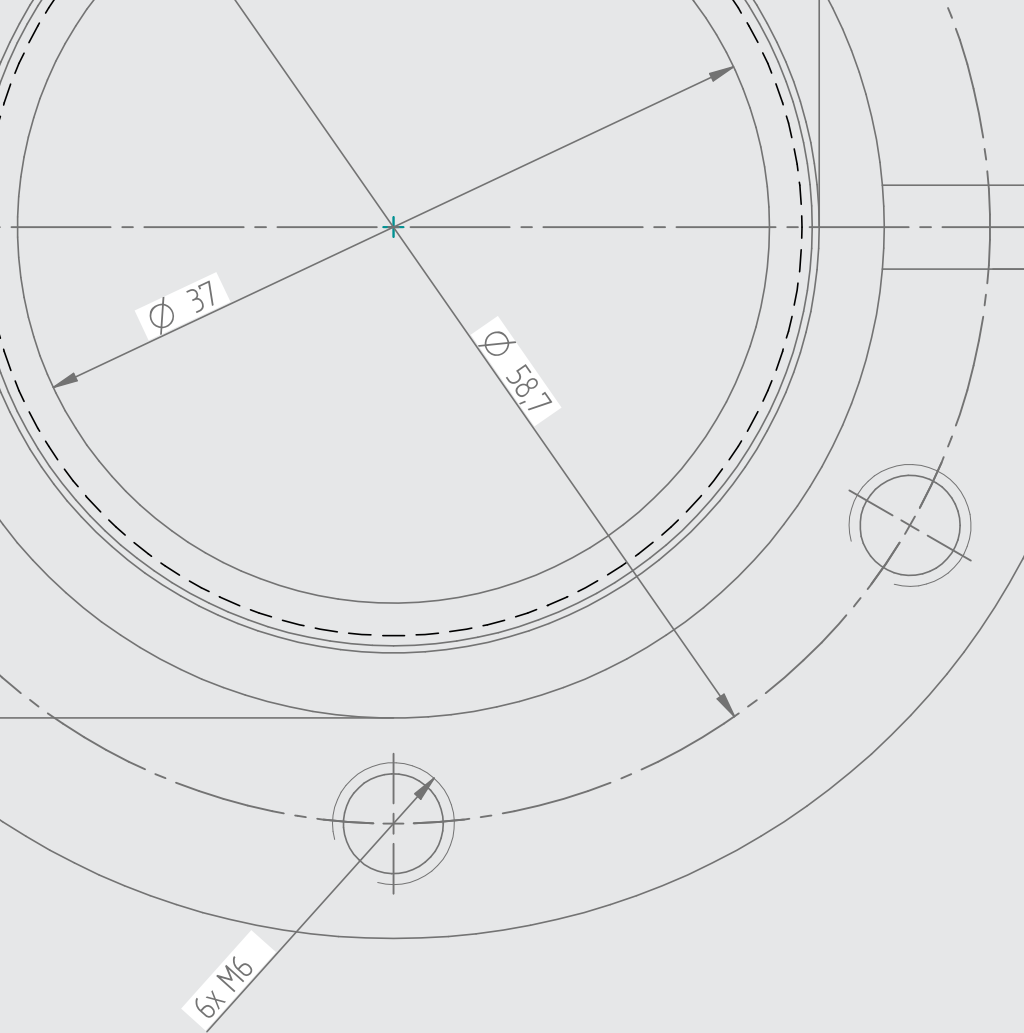
We always had a conservative approach to company growth: our principles are excellent relations with our business partners and fair, sound working principles. Furthermore, we set high standards for ourselves with regard to product quality, competitive prices and short delivery times. In almost all cases, our standard products can be called directly from stock. A further example is the close, and often personal, contact to our customers with the aim of taking care of customer problems and of finding solutions. A very good working atmosphere in the workforce as well as the above-mentioned trusting business relations with our customers and suppliers is the result of our constant turnover growth.

The development of novotek from a supplier of universities and institutes to a supplier of industry was an important step towards sustained growth. The product range now covers all components in the KF, ISO-K and CF range. The continuous further development of all valves is also one of our great strengths.

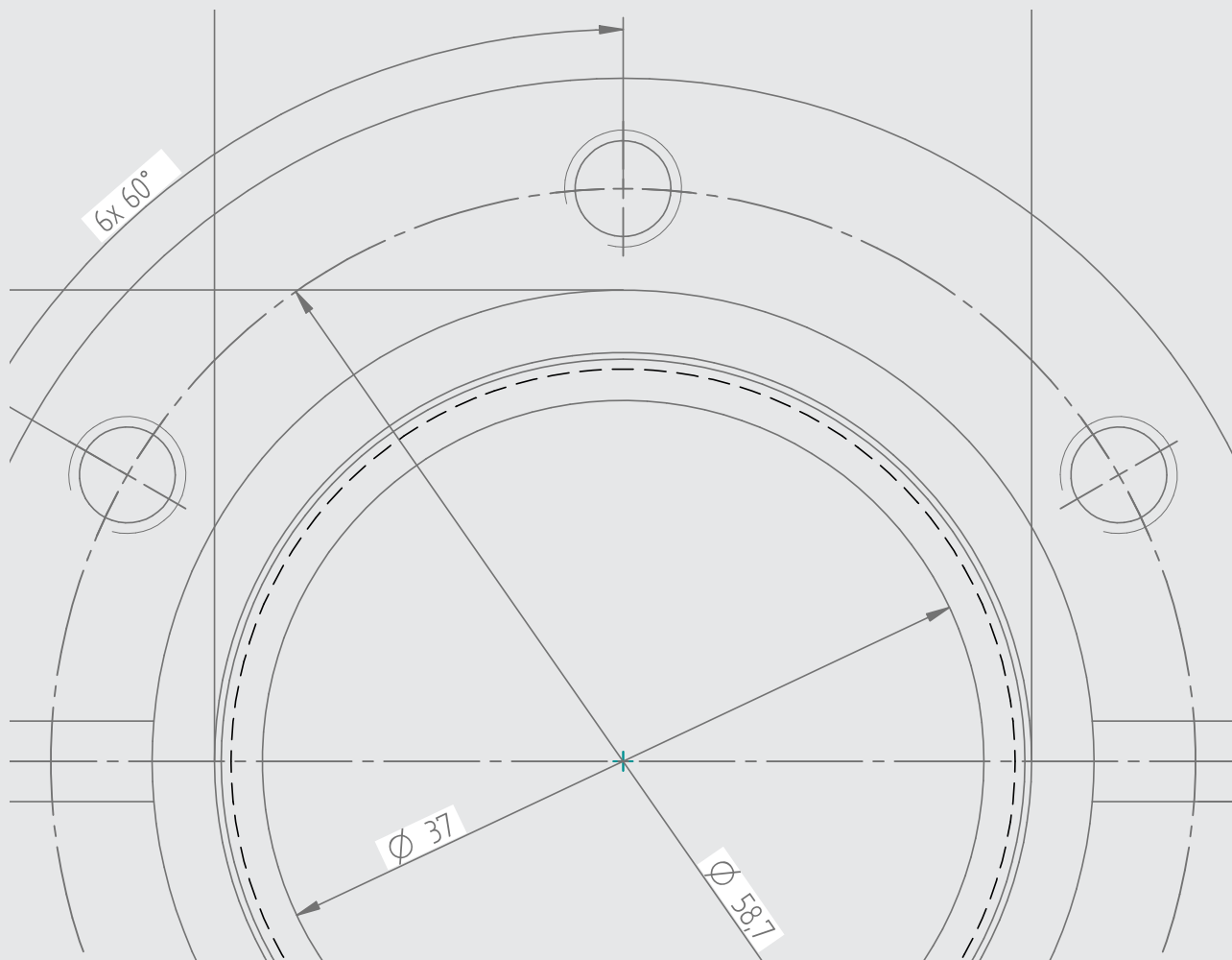
A further strong point of novotek is the preparation of special components according to customer specifications, diagrams, drawings or CAD data. For years now, these special components have been gaining importance and expanding their market presence.

Since 2011, we have also been manufacturing cubic and cylindrical vacuum chambers with different dimensions according to customer drawings. Our vast experience in this area has proved to be beneficial to our customers.

The excellent customer relations, the wide product range, high-quality products at competitive prices and comprehension of the technical problems of our customers, provide us with a solid basis for future success of the company.



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Materials

High-grade steel is the primary material of choice in vacuum technology. It has sufficient strength even during bake-out processes, can be welded vacuum-compatibly and its surface is sufficiently protected for numerous application areas.

Overview of all common high-grade steels and their composition.

Table for chemical composition (as a %) of high-grade steel as per ISO 3506 / EN 10 088-3 (European material designation)

Material number (AISI No.)	Material abbreviation	Cr (%)	Ni (%)	Mo (%)	C (%)	Si (%)	Mn (%)	P (%)	S (%)	other additives / comments
1.4301 (304)	X5CrNi 18 10	15-20	8-19	*	0.1	1	2	0.05	0.015	* MO permissible
1.4303 (305)	X4CrNi 18 12	15-20	8-19	*	0.1	1	2	0.05	0.015	* MO permissible
1.4305 (303)	X8CrNiS 18 9	16-19	5-10	max. 0.7	0.12	1	6.5	0.2	0.15-0.35	Cu, sulphur can be substituted with selenium
1.4306 (304L)	X2CrNi 19 11	18-20	10-12	-	0.03	1	2	0.045	0.015	
1.4307 (304L)	X2CrNi 18 9	17.5-19.5	8-10.5	-	0.03	1	2	0.045	0.015	
1.4310 (301)	X10CrNi 18 10	16-18	6-9.5	max. 0.8	0.05-0.15	2	2	0.045	0.015	
1.4401 (316)	X5CrNiMo 17-12-2	16-18.5	10-15	2-3	0.08	1	2	0.045	0.03	
1.4404 (316L)	X2CrNiMo 17-13-2	16-18.5	10-13	2-2.5	0.03	1	2	0.045	0.015	
1.4429 (316LN)	X2CrNiMo 17-13-3	16.5-18.5	11-14	2.5-3	0.03	1	2	0.045	0.015	
1.4435 (316L)	X2CrNiMo 18-14-3	17-19	12.5-15	2.5-3	0.03	1	2	0.045	0.015	
1.4541 (321)	X6CrNiTi 18-10	17-19	9-12	-	0.08	1	2	0.045	0.015	Mo permissible, must contain Ti or Nb or Ta for stability
1.4571 (316Ti)	X6CrNiMoTi 17 12 2	16.5-18	10.5-13.5	2-2.5	0.08	1	2	0.045	0.015	

Table of properties of high-grade steels

Material number (AISI No.)	0.2% yield point at 20 °C in N/mm2	0.2% yield point at 300 °C in N/mm2	Ten-sile-strength in N/mm2	Coefficient of linear expansion α in 10–6 K–1 bet. 20 °C and 300 °C	Max. operation temperature of air	Structure	Magnetisability
1.4301 (304)	210-250	110	520-720	17	300	Austenitic steel with small ferrite content	possible
1.4306 (304L)	220-250	100	520-670	17	350	Austenitic steel with small ferrite content	possible
1.4307	220-240	100	520-670	17	350	Austenitic steel with small ferrite content	possible
1.4401 (316)	220-250	128	530-680	17	300	Austenitic steel with small ferrite content	less possible
1.4404 (316L)	220-260	118	530-680	17	400	Austenitic steel with small ferrite content	less possible
1.4429 (316LN)	280-310	155	580-770	17	400	Austenitic steel	not possible
1.4435 (316L)	220-260	118	540-700	17	400	Austenitic steel	not possible
1.4541 (321)	200-250	135	520-710	17	400	Austenitic steel with small ferrite content	possible
1.4571 (316Ti)	220-260	145	540-690	18	400	Austenitic steel with small ferrite content	possible

Description of individual high-grade steel types

1.4301:

Austenitic stainless steel. Very high cold formability. Easily weldable. High corrosion resistance. Polishable. Highly suited for vacuum applications.

1.4305:

Easy to machine. Lower corrosion resistance than 1.4301. Not weldable. Moderately suitable for vacuum applications.

1.4306, 1.4307:

Low-carbon variant of 1.4301 with similar properties. Highly weldable due to low carbon level, very insensitive to intergranular corrosion. Highly suited for vacuum applications.

1.4401:

Very high cold formability. Easily weldable. Due to molybdenum additive, more resistant than 1.4301 to non-oxidising acids and chlorine compound, polishable, well suited for vacuum applications.

1.4404:

Significantly less carbon than 1.4401 but with similar properties. Highly weldable due to low carbon level, very insensitive to intergranular corrosion. Highly suited for vacuum applications.

1.4429:

Similar properties to 1.4435 but higher strength due to higher nitrogen share. The nitrogen share also stabilises the austenitic structure. Highly suited for vacuum applications.

1.4435:

Similar properties to 1.4404. The increased share of molybdenum makes 1.4435 more resistant to non-oxidising acids and media containing chlorine than 1.4404. Highly suited for vacuum applications.

1.4541:

Similar properties to 1.4301 but not polishable. Titan-stabilised, which makes it highly weldable in all dimensions without being susceptible to intergranular corrosion. Well suited for vacuum applications.

1.4571:

Similar properties to 1.4401. Titan-stabilised, which makes it highly weldable in all dimensions without being susceptible to intergranular corrosion. Not polishable. Well suited for vacuum applications.

1.4429 ESR:

Very high homogeneity including purity combined with a high hardness level. Of particular importance is its very low magnetic permeability. Other properties correspond to 1.4429 although highly suitable for vacuum applications.

Aluminium components

3.1645/AlCu4PbMgMn or AlCuMgPbF38

3.1655/AlCu4BiPb 3.3214/AlMg1SiCu

Standard aluminium compositions with novotek components. They can be used for a temperature range from –196 °C to 150 °C and a pressure range of 2.5 bar to 10⁻⁷mbar. They are very well suited for static loads.

Aluminium sealing materials and welded parts

3.2315/AlMgSi1

Standard aluminium composition of novotek sealing materials and welded parts. The slightly lower rigidity compared to materials for standard aluminium components makes it perfectly suitable as a sealing material. Furthermore, no permeation of gases takes place. However, these seals can only be used once.

Nickel-plated brass

2.0401/CuZn39Pb3 (MS 58)

Standard turned brass in novotek components. This material is then chem. nickel-plated. This achieves an improved corrosion resistance, hardness, toughness and ductility.

Steel (structural steel)

1.0036-38 (St37-2) 1.0570 or 1.0577 (St52-3)

Standard steel grades for novotek components. They can be welded very easily and can be stress-relieved. Furthermore, they are highly suitable for nickel or zinc coating.

Sealing materials

Elastomer seals are permeable to gas and also emit gases. The gas permeability, or permeation, depends on the material, the type of gas and ambient conditions – mainly the temperature. After an adequate evacuation time, the outward gas stream decreases considerably, which means that a relatively constant permeation gas stream materialises.

Permeation and outgassing are diffusion-dependent. High gas-proofness also means slower outgassing, which means that it takes longer until a constant permeation gas stream is created. This can take up to well over 100 hours. Heating up speeds up this procedure considerably. FPM, for example, has a low gas permeability for air. A final pressure of approx. 10^{-7} mbar is reached in typical cases. The possible final pressure that can be reached is determined by the number of elastomers used. Elastomer seals can be used several times due to their elastic deformation. They require a contact force of a new N/mm². Under the following conditions, elastomer seals can age relatively quickly: UV radiation, oxygen, ozone, heat, cold, high temperature variation, moisture, solvents or mechanical loads.

Storage conditions of elastomer seals:

To ensure that their properties are retained as long as possible, we recommend the following ambient conditions during storage:

- little temperature variation
- where possible, temperatures between 10 °C and 25 °C
- storage in light-proof containers
- atmosphere free of chemicals
- air humidity bet. 60% and 70%

Metal seals made of aluminium are suitable for assembly on high-grade steel flanges and can be used in a temperature range from –196 °C to 150 °C. They can only be used once. For assembly, special clamping elements for metal seals that generate significantly higher contact forces can be used.

Metal seals made of copper are suitable for assembly on high-grade steel flanges and can be used in a temperature range from –196 °C to 200 °C. A silver coating increases the maximum temperature to 450 °C. They can only be used once. They are suitable for a pressure range of 1 bar to 10^{-13} mbar. For assembly, special clamping elements for metal seals that generate significantly higher contact forces must be used.

Properties of elastomer seals

Chemical designation	Abbreviation	Trade name	Temperature application range	Properties and application range
Nitrile rubber	NBR	Perbunan® Buna N®	–30 to +110	Increased media resistance to: hydraulics, pneumatics, petroleum, silicone oils and greases, water up to 80 °C and air. Good helium-proofness final pressures up to 1x10 ⁻⁶ mbar
Fluorocarbon rubber	FKM / FPM	Viton®	–20 to +200	Increased media resistance to: mineral oils and grease, aliphatic, aromatic and chlorinated hydrocarbons, petroleum, diesel, acids, alkaline solutions and silicone oils Suitable for high vacuum 1x10 ⁻⁷ mbar Age resistant, good mechanical properties
Ethylene propylene diene monomer rubber	EPDM	Dutral®	–60 to +150	Increased media resistance to: hot water, steam, alcohols, org. and inorganic acids and alkalis, high cold resistance, ageing resistance and ozone resistance, non-mineral oil resistant, final pressures up to 1x10 ⁻⁶ mbar novotek standard • EPDM with peroxide crosslinking • Advantage: high temperature resistance • More durable • No discolouration after contact with metals and other different materials
Chlorobutadiene rubber	CR	Neoprene®	–40 to +110	Increased media resistance to: ammonia, carbon dioxide, silicone oils, remaining properties comparable to NBR final pressures up to 1x10 ⁻⁶ mbar
Silicone rubber	VMQ	Silicone	–60 to +200	Increased media resistance to: hot air, oxygen, inert gases, ozone and UV radiation. Only suitable for static applications! Final pressures up to 1x10 ⁻⁶ mbar
Perfluor rubber	FFKM	Kalrez® Perlast®	–20 to +330	Very high temperature and chemical resistance. FFKM is mainly used in areas where safety standards are extremely high. It unites the chemical properties of PTFE and the mechanical properties of Viton. Final pressures up to 1x10 ⁻⁷ mbar

KF flange components



KF flange components and connecting elements

Description:

KF connections are used in vacuum systems that work with low, medium and high vacuum. These components are manufactured at novotek in accordance with DIN 28403 and ISO 2861 in sizes NW10 to NW50 and are compatible with components from other well-known manufacturers.

All welded parts have been leak-tested using helium and are leak-proof up to 10^{-9} mbar/l/s.

The KF connection consists of two symmetrical flanges with a centring ring with O-ring seal and a clamping ring (Fig. 1). The necessary contact pressure for the seal is generated via the conical tightening surfaces at the KF flange and clamping ring. Instead of a clamping ring, collar half shells can also be used.

For the assembly of KF connections on base plates, claws (Fig. 2) are used.

KF connections are suitable for a pressure of 2.5 bar (1.5 bar excess pressure) and pressure of up to 10^{-9} mbar. At a max. pressure of up to 4 bar (3 bar excess pressure), an outer retaining ring in conjunction with a solid clamping ring must be installed.

Please refer to the Materials chapter for operation temperatures, sealing materials and clamping elements.

Design information:

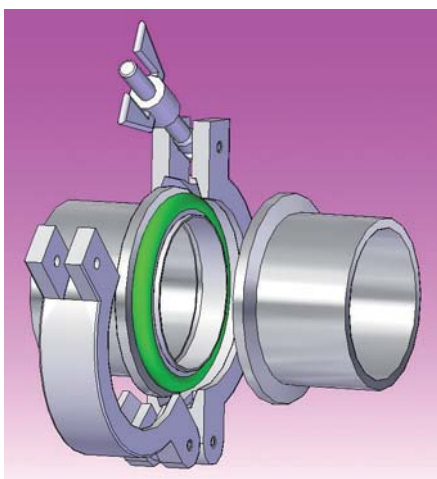


Fig. 1

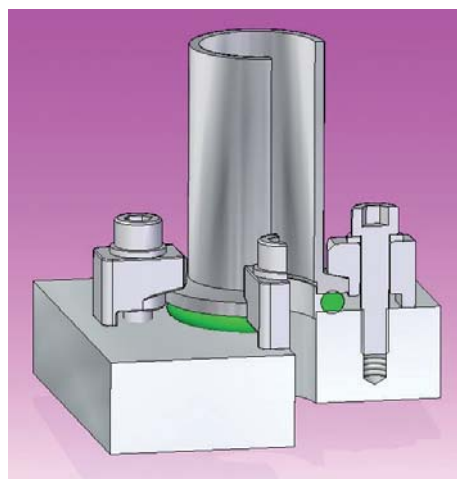
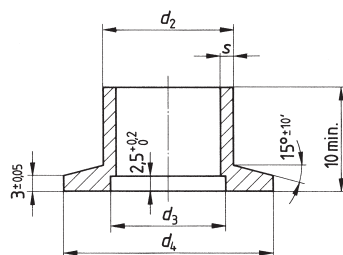


Fig. 2

The KF connections and their components are suitable for vacuum-tight connections. Mechanical loads can only be absorbed to a limited extent. Additional mounts are often necessary if other forces are added to the static or dynamic loads of the vacuum system.

KF flange with flanged socket

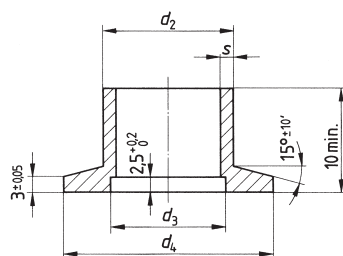
Main dimensions in accordance with DIN 28403



Nominal width DN	d ₂ [mm]	d ₃ [mm]	d ₄ [mm]	s [mm]
10	14	12.2	30	2
16	20	17.2	30	2
20	25	22.2	40	2
25	28	26.2	40	2
32	38	34.2	55	2
40	44.5	41.2	55	2
50	57	52.4	75	3.2

KF flange with flanged socket with imperial pipe

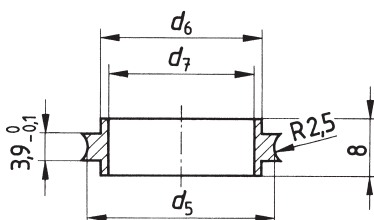
Main dimensions in accordance with DIN 28403



Nominal width DN	d ₂ [mm]	d ₃ [mm]	d ₄ [mm]	s [mm]
10	6.35 (1/4")	12.2	30	0.91
10	12.7 (1/2")	12.2	30	1.65
16	19.05 (3/4")	17.2	30	1.65
25	1" (25.4)	26.2	40	1.65
40	38.1 (1 1/2")	41.2	55	1.65
40	44.5 (1 3/4")	41.2	55	2.0
50	50.8 (2")	52.4	75	1.65

Centring ring

Main dimension in accordance with DIN 28403



Nominal width DN	d ₅ [mm]	d ₆ / -0.1 [mm]	d ₇ [mm]
10	15.3	12	10
16	18.5	17	16
(20)	25.5	22	21
25	28.5	26	25
(32)	40.5	34	32
40	43	41	40
50	55.5	52	50

KF junctions



Properties, aluminium 3.1645:

- high leak rate ($<10^{-7}$ mbarl/s)
- high conductance
- low level of outgassing
- compact structure

Description:

The novotek KF junctions made of aluminium are made of solid material. The criteria for selection of the special aluminum alloy are low vapour pressure, high corrosion resistance and a high level of hardness. The elaborate manufacturing process of these KF components made of solid material has been selected to avoid the porosity associated with cast aluminium. The high level of hardness of this aluminum alloy compared to conventional cast aluminium reduces the risk of damage to the sensitive surfaces prepared with precision. The special novotek forming with high variation in the length of legs permits either a space-saving or – if necessary – a stretched out structure. The dimensional arrangement of the junctions allows easy installation of the clamping rings.

Area of application:

The novotek junctions made of aluminium allow the installation of vacuum attachments for the pressure range of 2500 mbar up to 10^{-7} mbar.



Properties of high-grade steel 1.4301 / 1.4404:

- high leak rate ($<10^{-9}$ mbarl/s)
- high conductance
- gap-free welded
- can be baked out up to 300 °C/350 °C

Description:

The KF junctions made of high-grade steel are either turned parts or welded constructions with interior welded novotek welding flanges.

Area of application:

The novotek junctions made of high-grade steel allow the installation of vacuum attachments for the pressure range of 2500 mbar up to 10^{-9} mbar. They are mainly used in high-vacuum technology if a bake-out capacity or special corrosion resistance is required.



Properties of polyoxymethylene (POM):

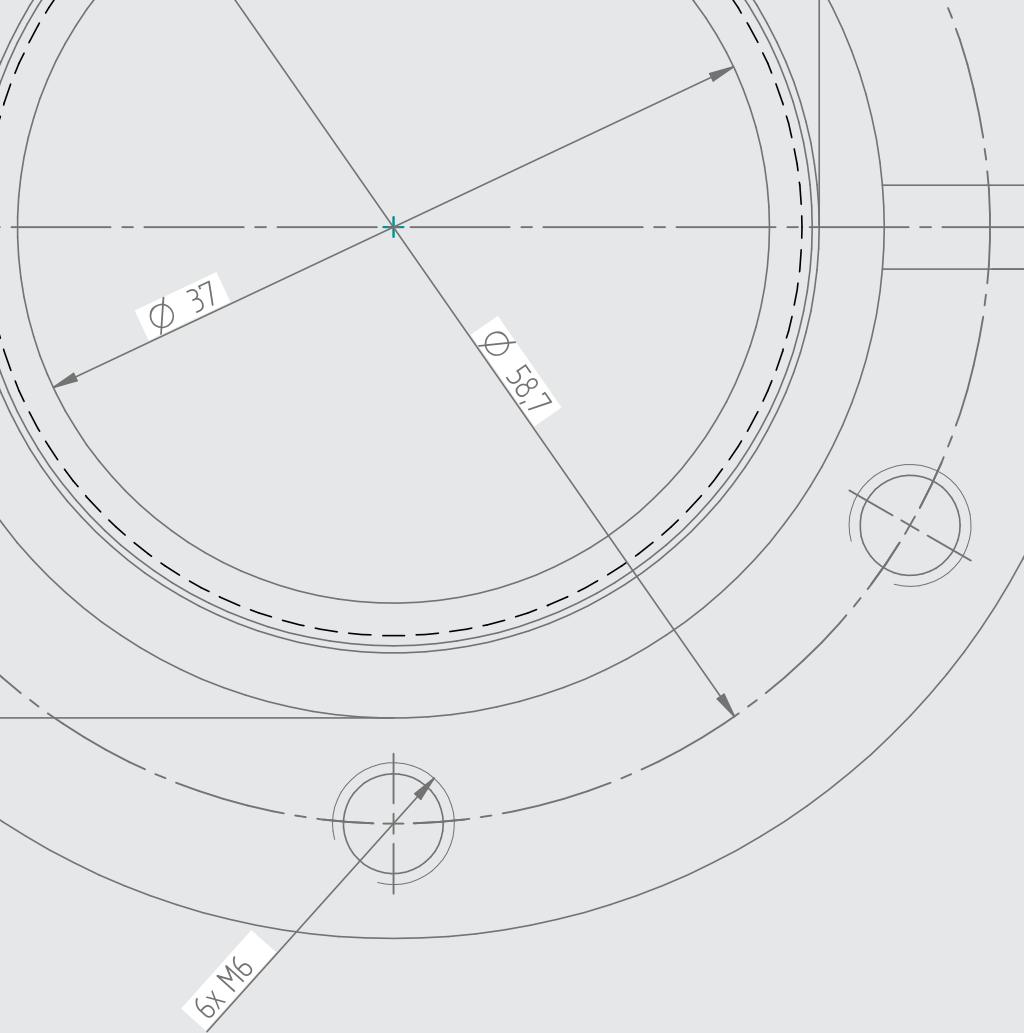
- electr. dielectric strength 25KV/mm
- light weight
- bake-out capacity up to 70°

Description:

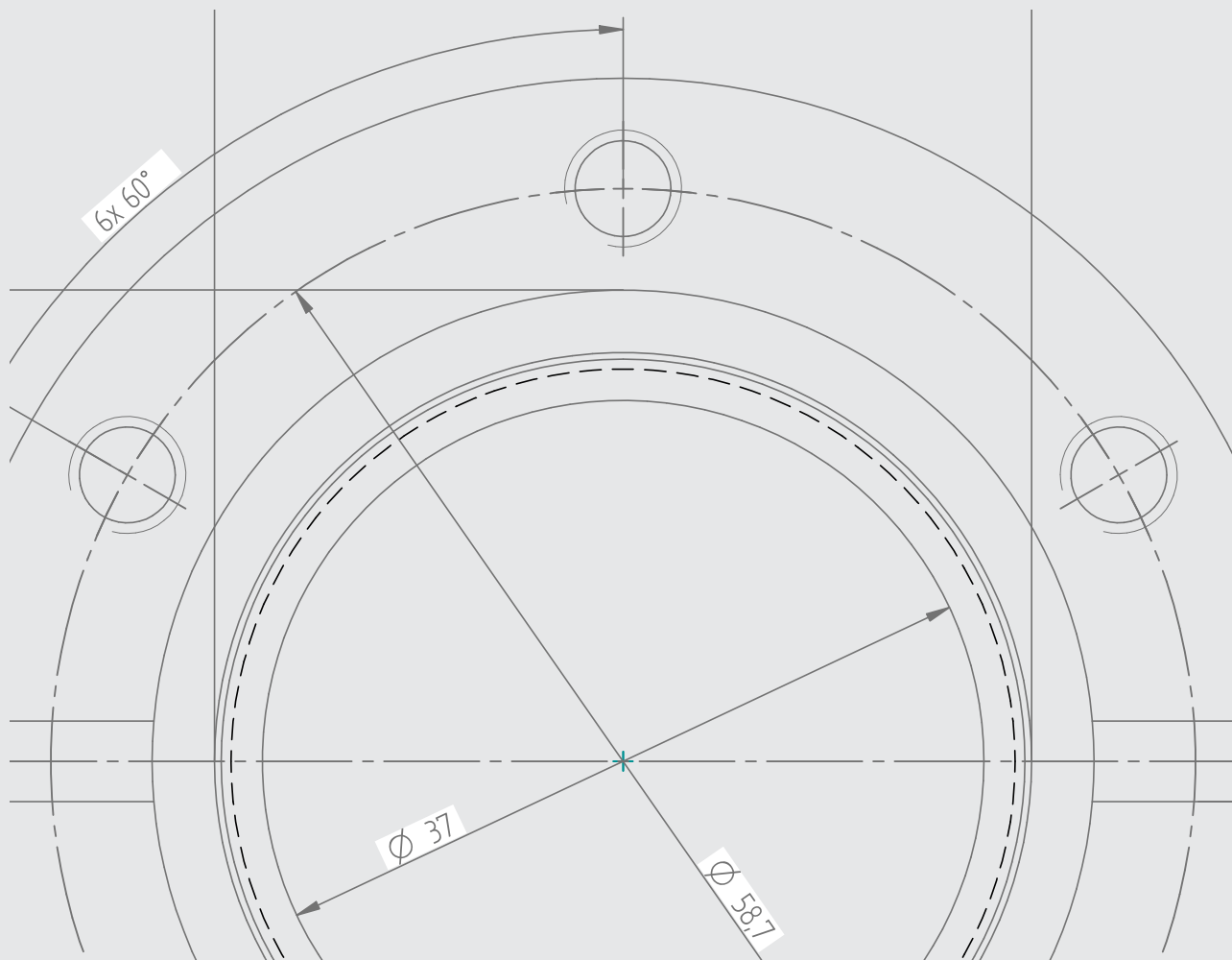
The novotek KF junctions made of polyoxymethylene are manufactured using turning and milling technology. The special novotek forming with high variation in the length of legs permits either a space-saving or – if necessary – a stretched out structure. The dimensional arrangement of the junctions allows easy installation of the clamping rings.

Area of application:

The novotek junctions made of polyoxymethylene allow the installation of vacuum attachments for the pressure range of 2500 mbar up to 10^{-5} mbar. Polyoxymethylene is characterised by its high strength, hardness and stiffness in a wide temperature range. It retains its high toughness up to -40°C , has a high abrasion resistance, a low friction coefficient, high thermoforming stability, good electrical and dielectric properties and low water absorption. Due to the high crystallinity, the natural colour is opal white but the material can be dyed in all muted colours. Delivery state at novotek is opal white.



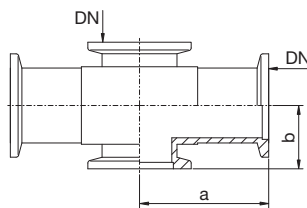
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KF crosspiece

- > Pressure range: 10^{-7} mbar to 2.5 bar*
- > Temperature range: -196 °C to 150 °C*

* Take sealing materials and connecting elements into consideration

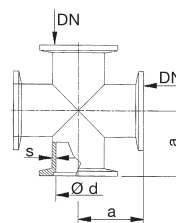


Aluminium 3.1645

Nominal width DN	a [mm]	b [mm]	Article no.	Price €
10	40	20	1011	25.50
16	40	20	1012	25.50
25	50	25	1014	30.00
40	65	35	1016	48.00

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)
- > Surface polished on inside and outside

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

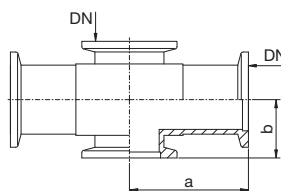
Nominal width DN	a [mm]	dia.d [mm]	S [mm]	Article no.	Price €
10	30	9	1.5	1111	79.00
16	40	15	1.5	1112	79.90
25	50	25	1.5	1114	79.50
40	65	37	1.5	1116	93.00
50	75	49	1.5	1117	112.00

High-grade steel 1.4404

Nominal width DN	A [mm]	dia.d [mm]	S [mm]	Article no.	Price €
10	30	9	1.5	11114	82.00
16	40	15	1.5	11124	83.00
25	50	25	1.5	11144	79.90
40	65	37	1.5	11164	99.40
50	75	49	1.5	11174	149.00

- > Pressure range: 10^{-5} mbar to 2.5 bar*
- > Temperature range: -40 °C to 70 °C*

* Take sealing materials and connecting elements into consideration



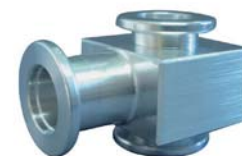
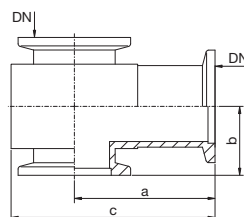
Polyoxymethylene (POM)

Nominal width DN	a [mm]	b [mm]	Article no.	Price €
16	40	20	1012P	27.50
25	50	25	1014P	34.50
40	65	35	1016P	62.00

T piece KF

- > Pressure range: 10^{-7} mbar to 2.5 bar*
- > Temperature range: -196 °C to 150 °C*

* Take sealing materials and connecting elements into consideration

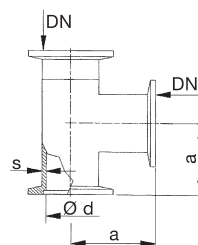


Aluminium 3.1645

Nominal width DN	a [mm]	b [mm]	c [mm]	Article no.	Price €
10	40	20	57.5	1021	19.50
16	40	20	57.5	1022	21.50
25	50	25	72.5	1024	26.50
40	65	35	95	1026	35.50
50	80	50	120	1027	72.00

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)
- > Surface polished on inside and outside

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

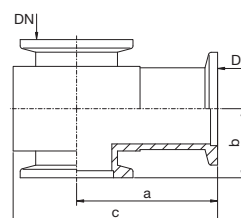
Nominal width DN	a [mm]	dia.d [mm]	s [mm]	Article no.	Price €
10	30	9	1.5	1121	49.50
16	40	15	1.5	1122	49.80
25	50	25	1.5	1124	47.20
40	65	37	1.5	1126	58.90
50	75	49	1.5	1127	79.90

High-grade steel 1.4404

Nominal width DN	a [mm]	dia.d [mm]	s [mm]	Article no.	Price €
10	30	9	1.5	11214	53.00
16	40	15	1.5	11224	49.90
25	50	25	1.5	11244	47.50
40	65	37	1.5	11264	74.00
50	75	49	1.5	11274	95.00

- > Pressure range: 10^{-5} mbar to 2.5 bar*
- > Temperature range: -40 °C to 70 °C*

* Take sealing materials and connecting elements into consideration



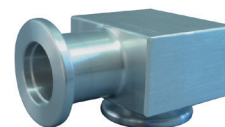
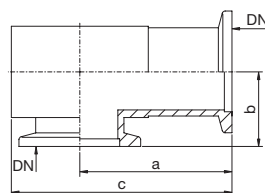
Polyoxymethylene (POM)

Nominal width DN	a [mm]	b [mm]	c [mm]	Article no.	Price €
16	40	20	57.5	1022P	22.50
25	50	25	72.5	1024P	26.50
40	65	35	95	1026P	39.90

KF elbow piece

- > Pressure range: 10^{-7} mbar to 2.5 bar*
- > Temperature range: -196 °C to 150 °C*

* Take sealing materials and connecting elements into consideration

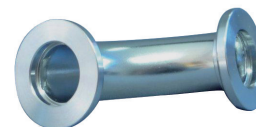
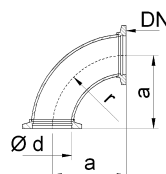


Aluminium 3.1645

Nominal width DN	a [mm]	b [mm]	c [mm]	Article no.	Price €
10	40	20	57.5	1031	19.50
16	40	20	57.5	1032	18.00
25	50	24.5	72.5	1034	21.60
40	65	34.5	95	1036	35.50
50	80	49.5	120	1037	83.00

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)
- > Surface polished on inside and outside

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	a [mm]	dia.d [mm]	s [mm]	r [mm]	Article no.	Price €
10	30	9	1.5	26	1131	35.50
16	40	15	1.5	35	1132	25.00
25	50	25	1.5	45	1134	36.00
40	65	41	2	55	1136	39.00
50	75	49	1.5	70	1137	57.00

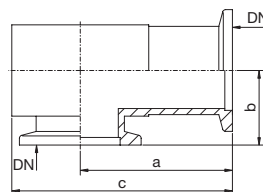
High-grade steel 1.4404

Nominal width DN	A [mm]	dia.d [mm]	s [mm]	r [mm]	Article no.	Price €
10	30	9	1.5	26	11314	35.00
16	40	15	1.5	35	11324	48.00
25	50	25	1.5	45	11344	37.00
40	65	41	2	55	11364	45.00
50	75	49	1.5	70	11374	84.00

- > Pressure range: 10^{-5} mbar to 2.5 bar*
- > Temperature range: -40 °C to 70 °C*

* Take sealing materials and connecting elements into consideration

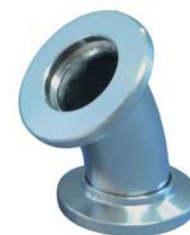
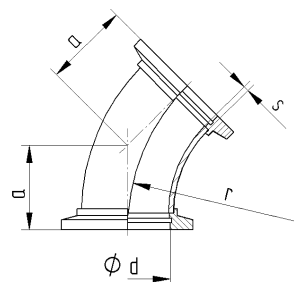
Polyoxymethylene (POM)



Nominal width DN	a [mm]	b [mm]	c [mm]	Article no.	Price €
16	40	20	57.5	1032P	19.50
25	50	25	72.5	1034P	23.50
40	65	35	95	1036P	42.00

KF elbow piece 45°

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)
- > Surface polished on inside and outside
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

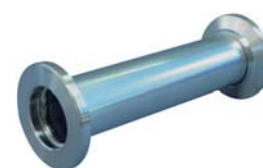
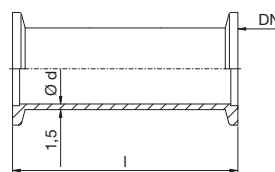
Nominal width DN	a [mm]	dia.d [mm]	s [mm]	r [mm]	Article no.	Price €
10	14.3	9	1.5	26	1131-45	43.50
16	19.5	15	1.5	35	1132-45	43.50
25	25.7	25	1.5	50	1134-45	47.00
40	29.85	37	1.5	60	1136-45	53.50
50	34	49	1.5	70	1137-45	67.50

High-grade steel 1.4404

Nominal width DN	a [mm]	dia.d [mm]	s [mm]	r [mm]	Article no.	Price €
10	14.3	9	1.5	26	1131-454	44.00
16	19.5	15	1.5	35	1132-454	56.50
25	25.7	25	1.5	50	1134-454	59.50
40	29.85	37	1.5	60	1136-454	59.00
50	34	49	1.5	70	1137-454	77.00

KF connecting piece

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)
- > Clean metallic surface on inside and outside
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	l [mm]	dia.d [mm]	Article no.	Price €
10	60	9	1171	24.50
16	80	15	1172	24.90
25	100	25	1174	27.90
40	130	37	1176	32.90
50	150	49	1177	42.90

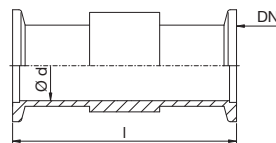
High-grade steel 1.4404

Nominal width DN	l [mm]	dia.d [mm]	Article no.	Price €
10	60	9	11714	37.00
16	80	15	11724	37.70
25	100	25	11744	42.90
40	130	37	11764	53.70
50	150	49	11774	87.20

KF connecting piece

- > Pressure range: 10^{-7} mbar to 2.5 bar*
- > Temperature range: -196 °C to 150 °C*

* Take sealing materials and connecting elements into consideration



Aluminium 3.1645

Nominal width DN	I [mm]	dia.d [mm]	Article no.	Price €
16	80	16	1072	18.90
25	100	25	1074	21.70
40	130	40	1076	29.90

- > Pressure range: 10^{-5} mbar to 2.5 bar*
- > Temperature range: -40 °C to 70 °C*

* Take sealing materials and connecting elements into consideration



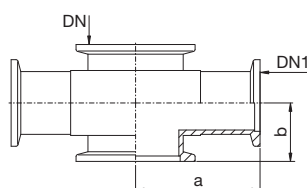
Polyoxymethylene (POM)

Nominal width DN	I [mm]	dia.d [mm]	Article no.	Price €
16	80	16	1072P	19.00
25	100	25	1074P	22.00
40	130	40	1076P	32.00

KF Reducing crosspiece

- > Pressure range: 10^{-7} mbar to 2.5 bar*
- > Temperature range: -196 °C to 150 °C*

* Take sealing materials and connecting elements into consideration

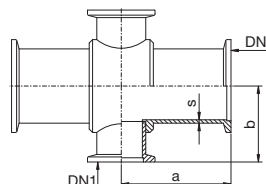


Aluminium 3.1645

Nominal width DN	Reduced nominal width DN 1	a [mm]	b [mm]	Article no.	Price €
25	10	40	22	1042	45.00
25	16	40	22	1046	43.50
40	10	50	30	1044	61.50
40	16	50	30	1047	62.50
40	25	50	30	1048	64.50
50	10	60	40	1045	74.50

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C
- > Surface polished on inside and outside

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

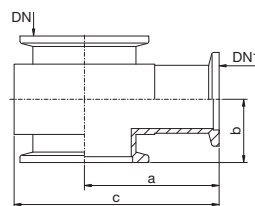
Nominal width DN	Reduced nominal width DN 1	a [mm]	b [mm]	s [mm]	Article no.	Price €
25	10	50	38	1.5	1142	92.50
25	16	50	40	1.5	1146	99.50
40	10	60	40	1.5	1144	112.50
40	16	65	40	1.5	1147	124.50
40	25	65	50	1.5	1148	134.50
50	10	75	45	1.5	1145	167.00
50	16	75	40	1.5	1149	167.50

Reducing T piece, KF

> Pressure range: 10^{-7} mbar to 2.5 bar*

> Temperature range: -196 °C to 150 °C*

* Take sealing materials and connecting elements into consideration



Aluminium 3.1645

Nominal width DN	Reduced nominal width DN 1	a [mm]	b [mm]	c [mm]	Article no.	Price €
25	10	40	22	62.5	1052	40.00
25	16	40	22	62.5	1056	40.00
40	10	55	30	80	1054	54.50
40	16	50	30	80	1057	53.50
40	25	50	30	80	1058	54.50
50	10	70	40	110	1055	82.50

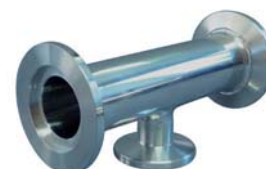
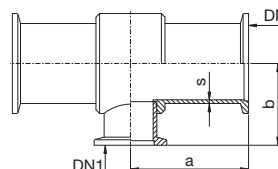
> Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals

> Pressure range: 10^{-9} mbar to 2.5 bar with metal seals

> Temperature range: -196 °C to 300 °C

> Surface polished on inside and outside

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	Reduced nominal width DN 1	a [mm]	b [mm]	s [mm]	Article no.	Price €
25	10	50	38	1.5	1152	69.50
25	16	50	40	1.5	1156	62.00
40	10	60	40	1.5	1154	97.20
40	16	65	40	1.5	1157	82.00
40	25	65	50	1.5	1158	87.00
50	10	75	45	1.5	1155	124.70

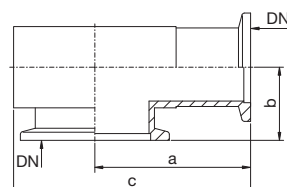
(Optical appearance of bodies can deviate!)

Reducing elbow piece, KF

> Pressure range: 10^{-7} mbar to 2.5 bar*

> Temperature range: -196 °C to 150 °C*

* Take sealing materials and connecting elements into consideration



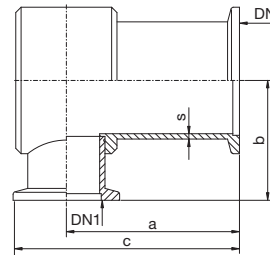
Aluminium 3.1645

Nominal width DN	Reduced nominal width DN 1	a [mm]	b [mm]	c [mm]	Article no.	Price €
25	16	40	22	62.5	1086	32.50
40	16	55	30	80	1087	47.50
40	25	55	30	80	1088	47.50

Reducing elbow piece, KF

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C
- > Surfaces in turning quality

* Take sealing materials and connecting elements into consideration



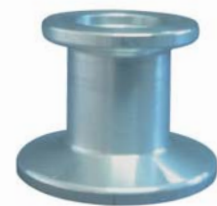
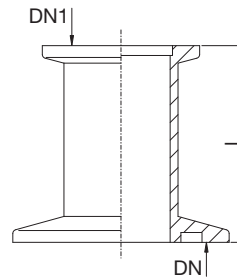
High-grade steel 1.4301

Nominal width DN	Reduced nominal width DN 1	a [mm]	b [mm]	c [mm]	s [mm]	Article no.	Price €
25	16	50	40	65	1.5	1186	59.50
40	16	65	40	80	1.5	1187	67.50
40	25	65	50	84	1.5	1188	77.50

KF reducing fitting

- > Pressure range: 10^{-7} mbar to 2.5 bar*
- > Temperature range: -196 °C to 150 °C*

* Take sealing materials and connecting elements into consideration



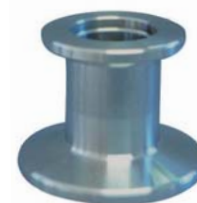
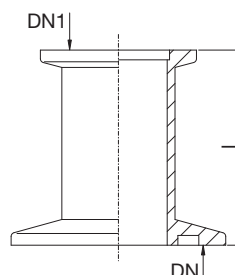
Aluminium 3.1645

Nominal width DN	Reduced nominal width DN 1	l [mm]	Article no.	Price €
25	10	30	1061	17.50
25	16	30	1062	17.00
40	10	30	1063	19.50
40	16	30	1065	19.70
40	25	30	1066	18.50
50	40	30	1068	24.70
50	16	30	1069	24.70
50	25	30	1070	24.50
Nominal width DN	Reduced nominal width DN 1	l [mm]	Article no.	Price €
25	10	40	1061-4	18.90
25	16	40	1062-4	16.00
40	10	40	1063-4	21.20
40	16	40	1065-4	16.95
40	25	40	1066-4	18.00
50	40	40	1068-4	22.95
50	16	40	1069-4	27.00
50	25	40	1070-4	26.00

KF reducing fitting

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	Reduced nominal width DN 1	l [mm]	Article no.	Price €
25	10	30	1161	20.00
25	16	30	1162	18.50
40	10	30	1163	26.50
40	16	30	1165	24.50
40	25	30	1166	26.00
50	40	30	1168	30.00
50	16	30	1169	32.00
50	25	30	1170	29.00
Nominal width DN	Reduced nominal width DN 1	l [mm]	Article no.	Price €
25	10	40	1161-4	21.50
25	16	40	1162-4	20.50
40	10	40	1163-4	32.00
40	16	40	1165-4	27.90
40	25	40	1166-4	27.50
50	40	40	1168-4	35.00
50	16	40	1169-4	36.00
50	25	40	1170-4	35.00

High-grade steel 1.4404

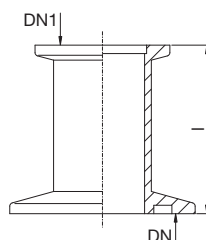
Nominal width DN	Reduced nominal width DN 1	l [mm]	Article no.	Price €
25	16	30	11624	20.00
40	16	30	11654	26.00
40	25	30	11664	29.50
50	25	30	11704	39.50
50	40	30	11684	41.50
50	16	30	11694	32.00

KF reducing fitting

> Pressure range: 10^{-5} mbar to 2.5 bar*

> Temperature range: -40 °C to 70 °C*

* Take sealing materials and connecting elements into consideration



Polyoxymethylene (POM)

Nominal width DN	Reduced nominal width DN 1	l [mm]	Article no.	Price €
25	16	30	1062P	21.00
40	16	30	1065P	23.00
40	25	30	1066P	23.00

KF conical reducing fitting

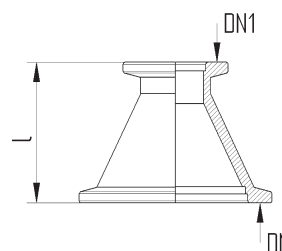
> Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals

> Pressure range: 10^{-9} mbar to 2.5 bar with metal seals

> Temperature range: -196 °C to 300 °C (1.4301)

> Temperature range: -196 °C to 350 °C (1.4404)

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	Reduced nominal width DN 1	l [mm]	Article no.	Price €
25	16	40	1162-4k	19.50
40	16	40	1165-4k	21.50
40	25	40	1166-4k	22.50
50	40	40	1168-4k	29.90
50	16	40	1169-4k	33.50
50	25	40	1170-4k	33.70

High-grade steel 1.4404

Nominal width DN	Reduced nominal width DN 1	l [mm]	Article no.	Price €
25	16	40	1162-4k4	23.50
40	16	40	1165-4k4	30.50
40	25	40	1166-4k4	23.00
50	40	40	1168-4k4	45.00
50	16	40	1169-4k4	50.00
50	25	40	1170-4k4	49.00

KF components



Properties, aluminium 3.1645:

- high leak rate ($<10^{-7}$ mbarl/s)
- high conductance
- low level of outgassing
- compact structure

Description:

The novotek aluminium components are made of solid material. The criteria for selection of the special aluminium alloy are low vapour pressure, high corrosion resistance and a high level of hardness. The elaborate manufacturing process of these KF components made of solid material has been selected to avoid the porosity associated with cast aluminium. The high level of hardness of this aluminium alloy compared to conventional cast aluminium reduces the risk of damage to the sensitive surfaces prepared with precision.

Area of application:

The novotek components made of aluminium allow the installation of vacuum attachments for the pressure range of 2500 mbar up to 10^{-7} mbar.



Properties of high-grade steel 1.4301/1.4404:

- high leak rate ($<10^{-9}$ mbarl/s)
- high conductance
- gap-free welded
- can be baked out up to 300 °C/350 °C

Description:

The novotek KF components are designed in accordance with DIN 28403. This ensures compatibility of all components with one another. The components blind flange and KF with hose nozzle are designed with a nominal width combination, i.e. they can be used for two nominal widths.

Area of application:

The novotek components made of high-grade steel allow the installation of vacuum attachments for the pressure range of 2500 mbar up to 10^{-9} mbar. They are mainly used in high-vacuum technology if a bake-out capacity or special corrosion resistance is required.



Properties of polyoxymethylene (POM):

- resistant to diluted alkaline solutions
- electr. dielectric strength. 25KV/mm
- light weight
- bake-out capacity up to 70°

Description:

The novotek components made of polyoxymethylene are prepared with turning technology. The dimensional arrangement of the junctions allows easy installation of the clamping rings.

Area of application:

The novotek components made of polyoxymethylene allow the installation of vacuum attachments for the pressure range of 2500 mbar up to 10^{-5} mbar. Polyoxymethylene is characterised by its high strength, hardness and stiffness in a wide temperature range. It retains its high toughness up to -40°C , has a high abrasion resistance, a low friction coefficient, high thermoforming stability, good electrical and dielectric properties and low water absorption. Due to the high crystallinity, the natural colour is opal white but the material can be dyed in all muted colours. Delivery state at novotek is opal white.



Properties of steel (1.0037 / 1.0577):

- high leak rate ($<10^{-9}$ mbar/s)
- high conductance
- bake-out capacity up to 300°C

Description:

The KF components are manufactured from steels of grade 1.0036-38 (St37-2) 1.0570 or 1.0577 (St52-3). They can be welded very easily and can be stress-relieved. Furthermore, they are highly suitable for nickel or zinc coating.

Area of application:

The novotek components made of steel allow the installation of vacuum attachments for the pressure range of 2500 mbar up to 10^{-9} mbar. They are mainly used in vacuum technology if special corrosion resistance is not required.



Properties of brass 2.0401 / MS58):

- high leak rate ($<10^{-9}$ mbarl/s)
- high conductance
- bake-out capacity up to 110 °C

Description:

The KF components are manufactured from turned brass of grade 2.0401. They are very easily soldered. Furthermore, they are highly suitable for nickel plating.

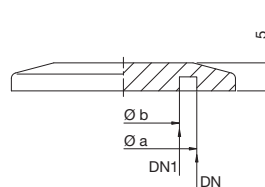
Area of application:

The novotek components made of brass allow the installation of vacuum attachments for the pressure range of 2500 mbar up to 10^{-9} mbar. The nickel-plated variant is often used in high-vacuum technology as a more cost-effective alternative to high-grade steel. However, the corrosion resistance is still high.

KF blind flange

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range: -196 °C to 150 °C

* Take sealing materials and connecting elements into consideration

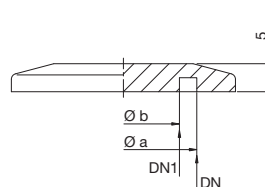


Aluminium 3.1645

Nominal width DN	Nominal width DN1	a [mm]	b [mm]	Article no.	Price €
16	10	17.2	9.8	1402	2.95
25	20	26.2	19.8	1404	3.25
40	32	41.2	31.8	1406	4.15
50		52.4	46.00	1407	8.95

- > Pressure range: 10^{-5} mbar to 2.5 bar*
- > Temperature range: -40 °C to 70 °C*

* Take sealing materials and connecting elements into consideration



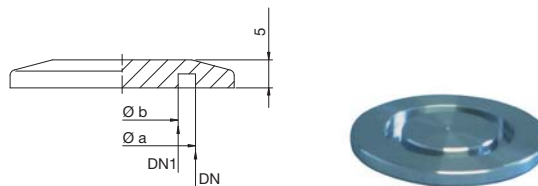
Polyoxymethylene (POM)

Nominal width DN	Nominal width DN1	a [mm]	b [mm]	Article no.	Price €
16	10	17.2	9.8	1402P	4.50
25	20	26.2	19.8	1404P	5.30
40	32	41.2	31.8	1406P	6.80
50		52.4	46.00	1407P	Upon request

KF blind flange

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

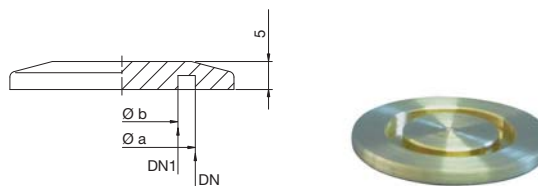
Nominal width DN	Nominal width DN1	a [mm]	b [mm]	Article no.	Price €
16	10	17.2	9.8	1422	3.45
25	20	26.2	19.8	1424	4.45
40	32	41.2	31.8	1426	6.15
50		52.4	46.00	1427	10.20

High-grade steel 1.4404

Nominal width DN	Nominal width DN1	a [mm]	b [mm]	Article no.	Price €
16	10	17.2	9.8	14224	6.00
25	20	26.2	19.8	14244	7.00
40	32	41.2	31.8	14264	9.50
50		52.4	46.00	14274	14.00

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 110 °C

* Take sealing materials and connecting elements into consideration



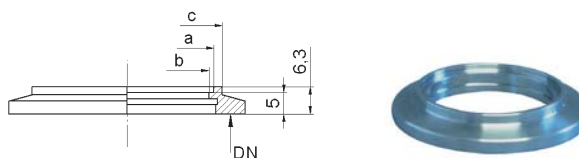
Brass 2.0401

Nominal width DN	Nominal width DN1	a [mm]	b [mm]	Article no.	Price €
16	10	17.2	9.8	1412	5.30
25	20	26.2	19.8	1414	5.70
40	32	41.2	31.8	1416	8.30
50		52.4	46.00	1417	15.00

KF welded flange

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C

* Take sealing materials and connecting elements into consideration

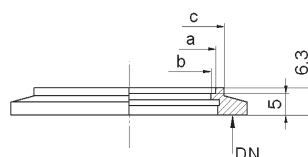


High-grade steel 1.4301

Nominal width DN	a [mm]	b [mm]	c [mm]	Article no.	Price €
10	12.4	10	14.5	1531	5.90
16	18.3	16	20.3	1532	4.40
16	19.3	16	20.3	1532-19	4.60
25	28.3	25.5	30.5	1534	7.45
40	40.3	38	44.3	1536	9.80
40	44.7	40.5	/	1536-45	10.20
50	52.3	50	56	1537	14.40

KF welded flange

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
 - > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
 - > Temperature range: -196°C to 350°C
- * Take sealing materials and connecting elements into consideration

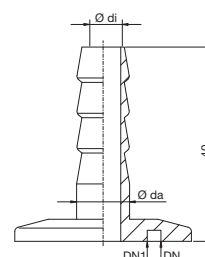


High-grade steel 1.4404

Nominal width DN	a [mm]	b [mm]	c [mm]	Article no.	Price €
10	12.4	10	14.5	15314	6.30
16	18.3	16	20.3	15324	6.15
16	19.3	16	20.3	15324-19	6.30
25	28.3	25.5	30.5	15344	7.95
40	40.3	38	44.3	15364	10.95
40	44.7	40.5	/	15364-45	11.30
50	52.3	50	56	15374	14.95

KF hose nozzle (12/8. 8/4 and 16/13)

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
 - > Temperature range: -196°C to 150°C
- * Take sealing materials and connecting elements into consideration



Aluminium 3.1645 12/8

Nominal width DN	Nominal width DN1	dia.da [mm]	dia.di [mm]	Article no.	Price €
16	10	12	8	1602	7.50
25	20	12	8	1604	10.75
40	32	12	8	1606	14.45
50		12	8	1608	28.30

Aluminium 3.1645 8/4

Nominal width DN	Nominal width DN1	dia.da [mm]	dia.di [mm]	Article no.	Price €
16	10	8	4	1601	10.50
25	20	8	4	1603	12.50
40	32	8	4	1605	15.00
50		8	4	1607	26.00

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
 - > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
 - > Temperature range: -196°C to 300°C
- * Take sealing materials and connecting elements into consideration

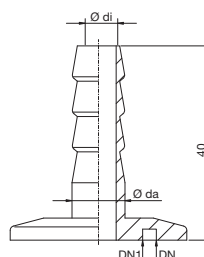
High-grade steel 1.4301 16/13

Nominal width DN	Nominal width DN1	dia.da [mm]	dia.di [mm]	Article no.	Price €
16	10	16	13	1622	27.00
25	20	16	13	1624	29.50
40	32	16	13	1626	33.20
50		16	13	1627	43.70

KF hose nozzle (12/8 and 8/4)

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301 12/8

Nominal width DN	Nominal width DN1	dia.da [mm]	dia.di [mm]	Article no.	Price €
16	10	12	8	1612	18.90
25	20	12	8	1614	24.50
40	32	12	8	1616	29.50
50		12	8	1618	45.20

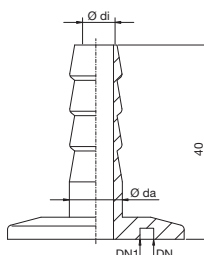
High-grade steel 1.4301 8/4

Nominal width DN	Nominal width DN1	dia.da [mm]	dia.di [mm]	Article no.	Price €
16	10	8	4	1611	18.90
25	20	8	4	1613	24.80
40	32	8	4	1615	27.80

KF hose nozzle (12/8)

- > Pressure range: 10^{-5} mbar to 2.5 bar*
- > Temperature range: -40 °C to 70 °C*

* Take sealing materials and connecting elements into consideration



Polyoxymethylene (POM) 12/8

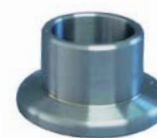
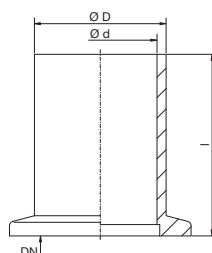
Nominal width DN	Nominal width DN1	dia.da [mm]	dia.di [mm]	Article no.	Price €
16	10	12	8	1602P	11.00
25	20	12	8	1604P	12.50
40	32	12	8	1606P	17.50

KF with flanged socket, short

(novotek standard)

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C

* Take sealing materials and connecting elements into consideration



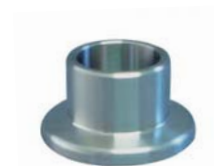
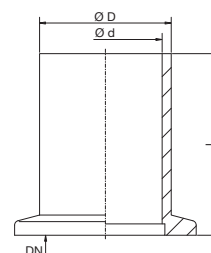
Steel 1.0037

Nominal width DN	l [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	16	14	10	1511	6.70
16	16	20	16	1512	6.70
20	20	25	20	1513	9.20
25	20	29	25	1514	9.30
32	25	38	32	1515	11.40
40	25	45	40	1516	10.90
50	25	55	50	1517	20.70

KF with flanged socket, short

(novotek standard)

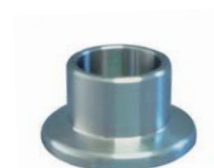
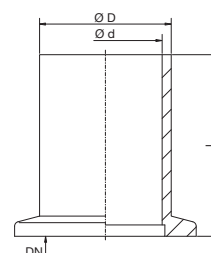
- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	l [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	16	14	10	1521	7.80
16	16	20	16	1522	6.45
20	20	25	20	1523	11.50
25	20	29	25	1524	6.90
32	25	38	32	1525	17.20
40	25	45	40	1526	11.25
50	25	55	50	1527	19.45

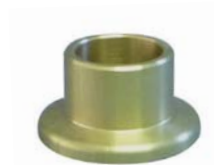
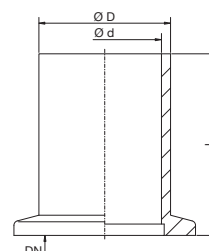
- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C
- > Temperature range: -196 °C to 350 °C
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4404

Nominal width DN	l [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	16	14	10	15214	7.90
16	16	20	16	15224	7.90
25	20	29	25	15244	9.90
40	25	45	40	15264	14.50
50	25	55	50	15274	24.20

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Temperature range: -196 °C to 110 °C
- * Take sealing materials and connecting elements into consideration



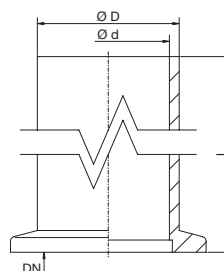
Brass 2.0401

Nominal width DN	l [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	16	14	10	1501	7.20
16	16	20	16	1502	7.50
20	20	25	20	1503	10.90
25	20	29	25	1504	11.70
32	25	38	32	1505	17.20
40	25	45	40	1506	19.20
50	25	55	50	1507	24.20

KF with flanged socket, long

(novotek standard)

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
 - > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
 - > Temperature range: -196 °C to 300 °C
 - > Temperature range: -196 °C to 350 °C
- * Take sealing materials and connecting elements into consideration



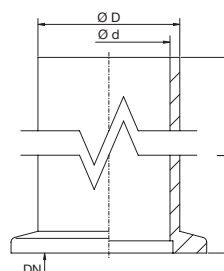
High-grade steel 1.4301

Nominal width DN	l [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	52	14	10	1571	10.85
16	52	20	16	1572	10.85
20	55	25	20	1573	17.90
25	55	29	25	1574	13.40
32	58	38	32	1575	24.50
40	58	45	40	1576	19.90
50	58	55	50	1577	28.60

High-grade steel 1.4404

Nominal width DN	l [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	52	14	10	15714	10.90
16	52	20	16	15724	12.90
25	55	29	25	15744	13.90
40	58	45	40	15764	24.50
50	58	55	50	15774	39.90

- > Pressure range: 10^{-5} mbar to 2.5 bar*
 - > Temperature range: -40 °C to 70 °C*
- * Take sealing materials and connecting elements into consideration



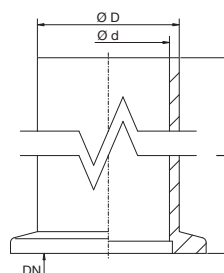
Polyoxymethylene (POM)

Nominal width DN	l [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
16	52	20	16	1572P	11.00
25	55	29	25	1574P	15.00
40	58	45	40	1576P	19.00

KF with flanged socket, long

(novotek standard)

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
 - > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
 - > Temperature range: -196 °C to 300 °C
- * Take sealing materials and connecting elements into consideration



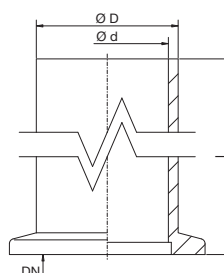
Steel 1.0037

Nominal width DN	l [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	52	14	10	1561	8.95
16	52	20	16	1562	8.95
20	55	25	20	1563	15.70
25	55	29	25	1564	11.95
32	58	38	32	1565	20.70
40	58	45	40	1566	14.95
50	58	55	50	1567	27.95

KF with flanged socket, long

(novotek standard)

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
 - > Temperature range: -196 °C to 110 °C
- * Take sealing materials and connecting elements into consideration



Brass 2.0401

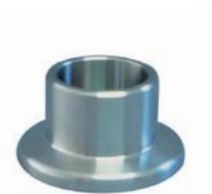
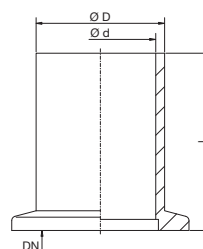
Nominal width DN	l [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	52	14	10	1551	11.90
16	52	20	16	1552	11.90
20	55	25	20	1553	20.30
25	55	29	25	1554	21.70
32	58	38	32	1555	29.00
40	58	45	40	1556	31.50
50	58	55	50	1557	49.20

KF with flanged socket I = 30

(according to DIN28403)

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196°C to 300°C
- > Temperature range: -196°C to 350°C

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	I [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	30	14	10	1521-3	8.70
16	30	20	16	1522-3	8.45
25	30	28	24	1524-3	9.90
40	30	44.5	40.5	1526-3	13.80
50	30	57	51	1527-3	22.90

High-grade steel 1.4404

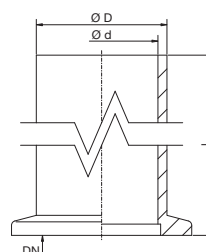
Nominal width DN	I [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	30	14	10	1521-34	9.40
16	30	20	16	1522-34	9.40
25	30	28	24	1524-34	11.70
40	30	44.5	40.5	1526-34	14.50
50	30	57	51	1527-34	23.40

KF with flanged socket I = 70

(according to DIN28403)

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196°C to 300°C
- > Temperature range: -196°C to 350°C

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	I [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	70	14	10	1571-7	13.45
16	70	20	16	1572-7	13.45
25	70	28	24	1574-7	16.40
40	70	44.5	40.5	1576-7	19.95
50	70	57	51	1577-7	42.00

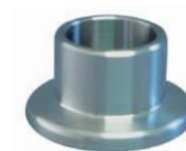
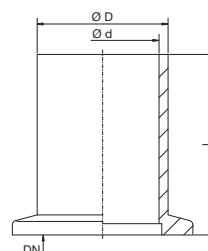
High-grade steel 1.4404

Nominal width DN	I [mm]	dia.D [mm]	dia.d [mm]	Article no.	Price €
10	70	14	10	1571-74	18.90
16	70	20	16	1572-74	20.00
25	70	28	24	1574-74	21.00
40	70	44.5	40.5	1576-74	24.50
50	70	57	51	1577-74	43.00

KF with flanged socket, imperial (for pipe dimensions according to DIN2462/2463)

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 110 °C (brass)
- > Temperature range: -196 °C to 350 °C (1.4404)

* Take sealing materials and connecting elements into consideration



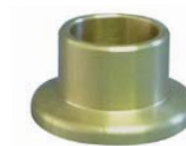
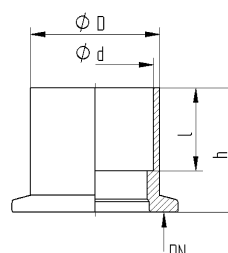
High-grade steel 1.4404

Nominal width DN	l [mm]	dia.D [mm]	Wall thickness [mm]	Article no.	Price €
10	30	1/4" 6.35	0.91	1520-34Z	Upon request
10	30	1/2" 12.7	1.65	1521-34Z	11.00
16	30	3/4" 19.05	1.65	1522-34Z	9.45
25	30	1" 25.4	1.65	1524-34Z	14.20
40	30	1 1/2" 38.1	1.65	1525-34Z	16.70
40	30	1 1/4" 42.4	2.0	15255-34Z	16.70
40	30	1 3/4" 44.5	2.0	1526-34Z	16.45
50	30	2" 50.8	1.65	1527-34Z	26.50

KF brass solder flange for metric copper pipe

- > For pipe dimensions in accordance with DIN 2462/2463
- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 110 °C (brass)

* Take sealing materials and connecting elements into consideration



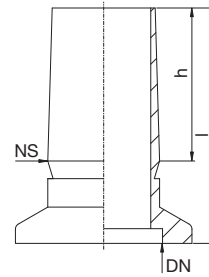
Brass 2.0401

Nominal width DN	dia.d [mm] (for CU pipe)	dia.D [mm]	l [mm]	h [mm]	Article no.	Price €
10	12.1 (12x1)	14	10	20	1520M	8.70
16	15.1 (15x1)	17	12	20	1521M	8.70
16	18.1 (18x1)	20	14	30	1522M	8.70
25	22.12 (22x1)	25	17	30	1523M	16.00
25	28.12 (28x1.5)	31	20	30	1524M	16.00
40	35.15 (35x1.5)	38	24	40	1525M	21.00
40	42.16 (42x1.5)	45	29	40	1526M	21.00
50	54.17 (54x2)	57	29	40	1527M	28.50

KF with male ground joint

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C

* Take sealing materials and connecting elements into consideration



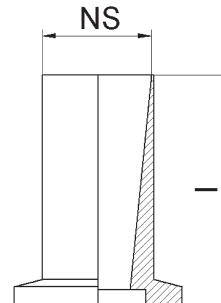
High-grade steel 1.4301

Nominal width DN	NS	h [mm]	l [mm]	Article no.	Price €
10	19/26	26	40	1701	35.00
16	19/26	26	40	1702	37.00
25	29/32	32	41.5	1704	52.00
40	40/45	40	49.5	1706	56.00

KF with female ground joint

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C

* Take sealing materials and connecting elements into consideration



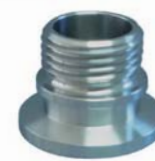
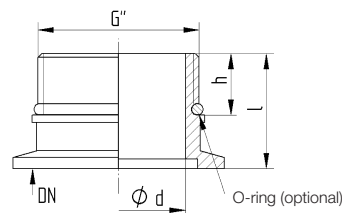
High-grade steel 1.4301

Nominal width DN	NS	l [mm]	Article no.	Price €
10	14/35	38	1711	53.00
10	19/38	41	1712	57.00

KF male thread flange

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > **Optional O-ring, all sizes 2.50 Euro,**
order example: 1594-OR
- > Temperature range: -196 °C to 300 °C

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	Thread [Inches]	dia.d [mm]	h [mm]	l [mm]	O-ring (optional) [mm]	Article no.	Price €
10	1/4"	10	11	18	14x3	1590	17.90
10	3/8"	10	9	18	14x3	1591	17.90
16	1/2"	16	11	22	17x3	1592	17.95
25	3/4"	20	15	26.5	24x3	1593	21.90
25	1"	25	15	26.5	28x3	1594	21.90
40	1 1/4"	35	16	30	38x3	1595	27.90
40	1 1/2"	40	16	30	42x3	1596	27.90
50	2"	50	18	33	55x4	1597	37.90

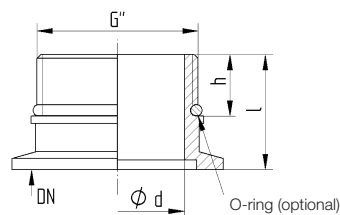
KF male thread flange

> Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals

> **Optional O-ring, all sizes 2.50 Euro,**
order example: 1584-OR

> Temperature range: -196 °C to 110 °C

* Take sealing materials and connecting elements into consideration



Brass 2.0401 nickel-plated

Nominal width DN	Thread [Inches]	dia.d [mm]	h [mm]	l [mm]	O-ring (optional) [mm]	Article no.	Price €
10	1/4"	10	11	18	14x3	1580	17.50
10	3/8"	10	9	18	14x3	1581	17.50
16	1/2"	16	11	22	17x3	1582	17.50
25	3/4"	20	15	26.5	24x3	1583	21.50
25	1"	25	15	26.5	28x3	1584	21.50
40	1 1/4"	35	16	30	38x3	1585	27.00
40	1 1/2"	40	16	30	42x3	1586	27.00
50	2"	50	18	33	55x4	1587	36.00

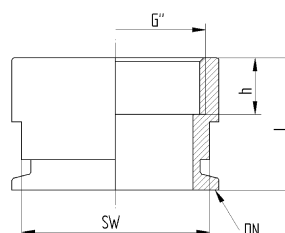
KF female thread flange

> Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals

> Pressure range: 10^{-9} mbar to 2.5 bar with metal seals

> Temperature range: -196 °C to 300 °C

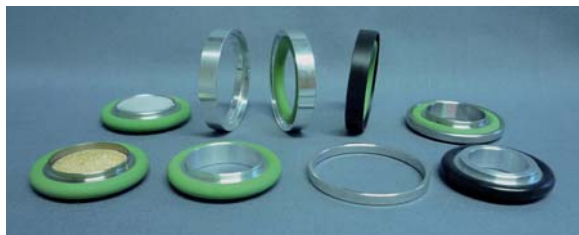
* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	Thread [Inches]	A/F	l [mm]	h [mm]	Article no.	Price €
10	1/4"	22	35	15	1540	24.70
10	3/8"	22	35	15	1541	24.70
16	1/2"	22	35	15	1542	25.00
25	3/4"	30	35	15	1543	27.70
25	1"	36	35	15	1544	27.70
40	1"	50	35	15	1545	36.20
40	1 1/4"	50	35	15	15451	37.50
40	1 1/2"	50	35	15	1546	37.50
50	2"	60	35	15	1547	53.30

KF seal components



Properties:

- temperature range -196 °C to $+200\text{ °C}$
- suitable for high vacuum up to $1 \times 10^{-9}\text{ mbar}$
- combinable depending on application area

Description:

novotek seal components can be selected depending on the technical vacuum requirements, e.g. bake-out capacity, outgassing and corrosion resistance. The O-ring seals used differ with regard to their temperature stability and compatibility with different media. A series of combination options are described under “Materials” at the beginning of our catalogue.

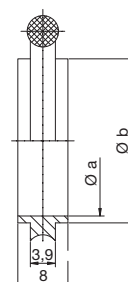
If there are special requirements, e.g. no permeation of gases or long-term high temperature requirements, aluminium sealing rings are used.

Area of application:

The novotek seal components permit the installation of vacuum attachments for the pressure range from 2500 mbar to 10^{-7} mbar for elastomer seals and up to 10^{-9} mbar for metal seals.

Centring ring, aluminium (3.1645)

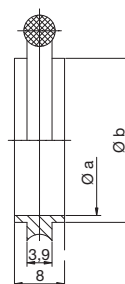
- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range for aluminium: -196 °C to 150 °C*
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	Article no.	Price €
Perbunan® (NBR)	10	10	12	1201	2.45
Perbunan® (NBR)	16	16	17	1202	2.55
Perbunan® (NBR)	20	20	22	1203	3.95
Perbunan® (NBR)	25	25	26	1204	2.95
Perbunan® (NBR)	32	32	34	1205	5.30
Perbunan® (NBR)	40	40	41	1206	3.95
Perbunan® (NBR)	50	50	52	1207	5.95
Viton® (FKM,FPM)	10	10	12	1091	2.90
Viton® (FKM,FPM)	16	16	17	1092	3.00
Viton® (FKM,FPM)	20	20	22	1093	5.70
Viton® (FKM,FPM)	25	25	26	1094	3.45
Viton® (FKM,FPM)	32	32	34	1095	5.40
Viton® (FKM,FPM)	40	40	41	1096	3.95
Viton® (FKM,FPM)	50	50	52	1097	5.95
EPDM	10	10	12	1201E	2.75
EPDM	16	16	17	1202E	2.85
EPDM	25	25	26	1204E	3.75
EPDM	40	40	41	1206E	4.75
EPDM	50	50	52	1207E	6.70
Neoprene® (CR)	10	10	12	1201N	2.75
Neoprene® (CR)	16	16	17	1202N	2.85
Neoprene® (CR)	25	25	26	1204N	3.75
Neoprene® (CR)	40	40	41	1206N	4.75
Neoprene® (CR)	50	50	52	1207N	6.70
Silicone (VMQ)	10	10	12	1201S	2.75
Silicone (VMQ)	16	16	17	1202S	2.85
Silicone (VMQ)	25	25	26	1204S	3.75
Silicone (VMQ)	40	40	41	1206S	4.75
Silicone (VMQ)	50	50	52	1207S	6.70
FFKM	10	10	12	1201F	Upon request
FFKM	16	16	17	1202F	52.50
FFKM	25	25	26	1204F	72.50
FFKM	40	40	41	1206F	98.50
FFKM	50	50	52	1207F	117.50

Centring ring, high-grade steel (1.4301)

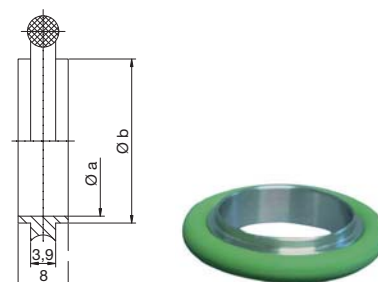
- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range 1.4301: -196 °C to 300 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	Article no.	Price €
Perbunan® (NBR)	10	10	12	1211	2.95
Perbunan® (NBR)	16	16	17	1212	3.45
Perbunan® (NBR)	20	20	22	1213	6.45
Perbunan® (NBR)	25	25	26	1214	4.45
Perbunan® (NBR)	32	32	34	1215	7.45
Perbunan® (NBR)	40	40	41	1216	5.45
Perbunan® (NBR)	50	50	52	1217	7.15
Viton® (FKM,FPM)	10	10	12	1221	2.95
Viton® (FKM,FPM)	16	16	17	1222	2.95
Viton® (FKM,FPM)	20	20	22	1223	6.45
Viton® (FKM,FPM)	25	25	26	1224	3.95
Viton® (FKM,FPM)	32	32	34	1225	7.05
Viton® (FKM,FPM)	40	40	41	1226	4.95
Viton® (FKM,FPM)	50	50	52	1227	5.95
EPDM	10	10	12	1211E	4.20
EPDM	16	16	17	1212E	4.20
EPDM	25	25	26	1214E	5.20
EPDM	40	40	41	1216E	5.40
EPDM	50	50	52	1217E	7.40
O-ring, neoprene® (CR)	10	10	12	1211N	3.40
O-ring, neoprene® (CR)	16	16	17	1212N	3.90
O-ring, neoprene® (CR)	25	25	26	1214N	4.90
O-ring, neoprene® (CR)	40	40	41	1216N	6.45
O-ring, neoprene® (CR)	50	50	52	1217N	8.90
Silicone (VMQ)	10	10	12	1211S	4.25
Silicone (VMQ)	16	16	17	1212S	4.25
Silicone (VMQ)	25	25	26	1214S	5.20
Silicone (VMQ)	40	40	41	1216S	5.70
Silicone (VMQ)	50	50	52	1217S	7.40
FFKM	10	10	12	1211F	Upon request
FFKM	16	16	17	1212F	53.40
FFKM	25	25	26	1214F	74.00
FFKM	40	40	41	1216F	99.80
FFKM	50	50	52	1217F	119.80

Centring ring, high-grade steel (1.4404)

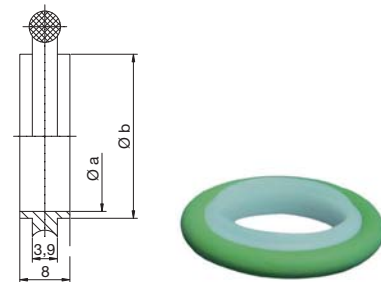
- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range 1.4404: -196 °C to 350 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	Article no.	Price €
Perbunan® (NBR)	10	10	12	12114	2.95
Perbunan® (NBR)	16	16	17	12124	3.45
Perbunan® (NBR)	20	20	22	12134	6.40
Perbunan® (NBR)	25	25	26	12144	4.45
Perbunan® (NBR)	32	32	34	12154	7.40
Perbunan® (NBR)	40	40	41	12164	5.95
Perbunan® (NBR)	50	50	52	12174	8.45
Viton® (FKM,FPM)	10	10	12	12214	3.95
Viton® (FKM,FPM)	16	16	17	12224	3.95
Viton® (FKM,FPM)	20	20	22	12234	6.40
Viton® (FKM,FPM)	25	25	26	12244	4.45
Viton® (FKM,FPM)	32	32	34	12254	7.05
Viton® (FKM,FPM)	40	40	41	12264	5.45
Viton® (FKM,FPM)	50	50	52	12274	7.15
EPDM	10	10	12	1211E4	3.95
EPDM	16	16	17	1212E4	3.95
EPDM	25	25	26	1214E4	4.45
EPDM	40	40	41	1216E4	5.45
EPDM	50	50	52	1217E4	7.15
O-ring, neoprene® (CR)	10	10	12	1211N4	3.95
O-ring, neoprene® (CR)	16	16	17	1212N4	3.95
O-ring, neoprene® (CR)	25	25	26	1214N4	4.45
O-ring, neoprene® (CR)	40	40	41	1216N4	5.45
O-ring, neoprene® (CR)	50	50	52	1217N4	7.15
Silicone (VMQ)	10	10	12	1211S4	3.95
Silicone (VMQ)	16	16	17	1212S4	3.95
Silicone (VMQ)	25	25	26	1214S4	4.85
Silicone (VMQ)	40	40	41	1216S4	6.20
Silicone (VMQ)	50	50	52	1217S4	7.45
FFKM	10	10	12	1211F4	Upon request
FFKM	16	16	17	1212F4	53.90
FFKM	25	25	26	1214F4	74.50
FFKM	40	40	41	1216F4	100.30
FFKM	50	50	52	1217F4	120.50

Centring ring, polyoxymethylene (POM)

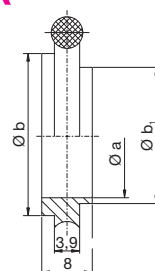
- > Pressure range: 10^{-5} mbar to 2.5 bar*
- > Temperature range for POM: -40 °C to 70 °C*
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	Article no.	Price €
Perbunan® (NBR)	16	16	17	1202P	3.60
Perbunan® (NBR)	25	25	26	1204P	3.80
Perbunan® (NBR)	40	40	41	1206P	5.30
Viton® (FKM,FPM)	16	16	17	1092P	4.00
Viton® (FKM,FPM)	25	25	26	1094P	4.80
Viton® (FKM,FPM)	40	40	41	1096P	5.70
EPDM	16	16	17	1202PE	3.70
EPDM	25	25	26	1204PE	3.90
EPDM	40	40	41	1206PE	5.40
Neoprene® (CR)	16	16	17	1202PN	3.70
Neoprene® (CR)	25	25	26	1204PN	3.90
Neoprene® (CR)	40	40	41	1206PN	5.40
Silicone (VMQ)	16	16	17	1202PS	3.70
Silicone (VMQ)	25	25	26	1204PS	3.90
Silicone (VMQ)	40	40	41	1206PS	5.40
FFKM	16	16	17	1202PF	53.90
FFKM	25	25	26	1204PF	74.50
FFKM	40	40	41	1206PF	100.30

Adapter centring ring, aluminium (3.1645)

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range for aluminium: -196 °C to 150 °C*
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	Nominal width DN1	dia.a [mm]	dia.b [mm]	dia.b1 [mm]	Article no.	Price €
Perbunan® (NBR)	16	10	10	17	12	1231	2.95
Perbunan® (NBR)	25	20	20	26	22	1232	3.45
Perbunan® (NBR)	40	32	32	41	34	1233	5.45
Viton (FKM,FPM)	16	10	10	17	12	1236	3.90
Viton (FKM,FPM)	25	20	20	26	22	1237	4.85
Viton (FKM,FPM)	40	32	32	41	34	1238	6.45
EPDM	16	10	10	17	12	1231E	2.95
EPDM	25	20	20	26	22	1232E	4.60
EPDM	40	32	32	41	34	1233E	6.10
O-ring, neoprene® (CR)	16	10	10	17	12	1231N	2.95
O-ring, neoprene® (CR)	25	20	20	26	22	1232N	4.60
O-ring, neoprene® (CR)	40	32	32	41	34	1233N	6.10
Silicone (VMQ)	16	10	10	17	12	1231S	3.90
Silicone (VMQ)	25	20	20	26	22	1232S	5.20
Silicone (VMQ)	40	32	32	41	34	1233S	7.30

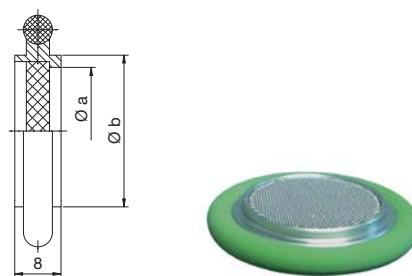
Adapter centring ring, high-grade steel (1.4301)

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range 1.4301: -196 °C to 300 °C

O-ring	Nominal width DN	Nominal width DN1	dia.a [mm]	dia.b [mm]	dia.b1 [mm]	Article no.	Price €
Perbunan® (NBR)	16	10	10	17	12	1241	4.45
Perbunan® (NBR)	25	20	20	26	22	1242	6.45
Perbunan® (NBR)	40	32	32	41	34	1243	8.45
Viton® (FKM,FPM)	16	10	10	17	12	1251	4.50
Viton® (FKM,FPM)	25	20	20	26	22	1252	5.90
Viton® (FKM,FPM)	40	32	32	41	34	1253	7.90
EPDM	16	10	10	17	12	1241E	4.45
EPDM	25	20	20	26	22	1242E	6.95
EPDM	40	32	32	41	34	1243E	8.40
O-ring, neoprene® (CR)	16	10	10	17	12	1241N	4.40
O-ring, neoprene® (CR)	25	20	20	26	22	1242N	6.90
O-ring, neoprene® (CR)	40	32	32	41	34	1243N	8.40
Silicone (VMQ)	16	10	10	17	12	1241S	4.40
Silicone (VMQ)	25	20	20	26	22	1242S	6.90
Silicone (VMQ)	40	32	32	41	34	1243S	8.40

Filter centring ring, 0.3 high-grade steel (1.4301)

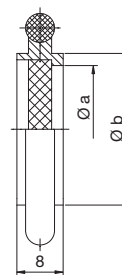
- > High-grade steel wire netting, mesh width 0.315 mm
- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range 1.4301: -196 °C to 300 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	Article no.	Price €
Perbunan® (NBR)	10	9	12	1181-3	19.00
Perbunan® (NBR)	16	14	17	1182-3	19.00
Perbunan® (NBR)	25	23	26	1184-3	23.00
Perbunan® (NBR)	40	38	41	1186-3	29.00
Perbunan® (NBR)	50	49	52	1187-3	36.00
Viton® (FKM,FPM)	10	9	12	1191-3	19.00
Viton® (FKM,FPM)	16	14	17	1192-3	19.00
Viton® (FKM,FPM)	25	23	26	1194-3	23.00
Viton® (FKM,FPM)	40	38	41	1196-3	26.00
Viton® (FKM,FPM)	50	49	52	1197-3	37.00
EPDM	10	9	12	1181-3E	19.50
EPDM	16	14	17	1182-3E	19.50
EPDM	25	23	26	1184-3E	23.50
EPDM	40	38	41	1186-3E	29.50
EPDM	50	49	52	1187-3E	36.50
O-ring, neoprene® (CR)	10	9	12	1181-3N	19.50
O-ring, neoprene® (CR)	16	14	17	1182-3N	19.50
O-ring, neoprene® (CR)	25	23	26	1184-3N	23.50
O-ring, neoprene® (CR)	40	38	41	1186-3N	29.50
O-ring, neoprene® (CR)	50	49	52	1187-3N	36.50
Silicone (VMQ)	10	9	12	1181-3S	19.50
Silicone (VMQ)	16	14	17	1182-3S	19.50
Silicone (VMQ)	25	23	26	1184-3S	23.50
Silicone (VMQ)	40	38	41	1186-3S	29.50
Silicone (VMQ)	50	49	52	1187-3S	36.50
FFKM	10	9	12	1181-3F	Upon request
FFKM	16	14	17	1182-3F	69.00
FFKM	25	23	26	1184-3F	93.00
FFKM	40	38	41	1186-3F	123.50
FFKM	50	49	52	1187-3F	147.50

Filter centring ring, 25µ, high-grade steel (1.4301)

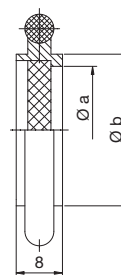
- > High-grade steel wire netting, mesh width 0.025 mm
- > Pressure range: 10⁻⁷mbar to 2.5 bar
- > Temperature range 1.4301: -196 °C to 300 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	Article no.	Price €
Perbunan® (NBR)	10	9	12	1181-25	19.00
Perbunan® (NBR)	16	14	17	1182-25	19.00
Perbunan® (NBR)	25	23	26	1184-25	23.00
Perbunan® (NBR)	40	38	41	1186-25	32.00
Perbunan® (NBR)	50	49	52	1187-25	40.00
Viton® (FKM,FPM)	10	9	12	1191-25	19.00
Viton® (FKM,FPM)	16	14	17	1192-25	19.00
Viton® (FKM,FPM)	25	23	26	1194-25	23.00
Viton® (FKM,FPM)	40	38	41	1196-25	32.00
Viton® (FKM,FPM)	50	49	52	1197-25	40.00
EPDM	10	9	12	1181-25E	19.50
EPDM	16	14	17	1182-25E	19.50
EPDM	25	23	26	1184-25E	23.50
EPDM	40	38	41	1186-25E	32.50
EPDM	50	49	52	1187-25E	40.50
O-ring, neoprene® (CR)	10	9	12	1181-25N	19.50
O-ring, neoprene® (CR)	16	14	17	1182-25N	19.50
O-ring, neoprene® (CR)	25	23	26	1184-25N	23.50
O-ring, neoprene® (CR)	40	38	41	1186-25N	32.50
O-ring, neoprene® (CR)	50	49	52	1187-25N	40.50
Silicone (VMQ)	10	9	12	1181-25S	19.50
Silicone (VMQ)	16	14	17	1182-25S	19.50
Silicone (VMQ)	25	23	26	1184-25S	23.50
Silicone (VMQ)	40	38	41	1186-25S	32.50
Silicone (VMQ)	50	49	52	1187-25S	40.50
FFKM	10	9	12	1181-25F	Upon request
FFKM	16	14	17	1182-25F	69.00
FFKM	25	23	26	1184-25F	93.00
FFKM	40	38	41	1186-25F	126.50
FFKM	50	49	52	1187-25F	151.50

Filter centring ring, 40 μ , high-grade steel (1.4301) sintered metal

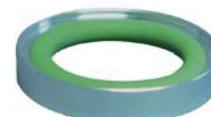
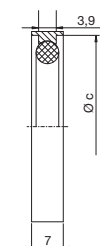
- > Sintered metal element, pore width 0.04 mm
- > Pressure range: 10⁻⁷mbar to 2.5 bar
- > Temperature range 1.4301: -196 °C to 300 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	Article no.	Price €
Perbunan® (NBR)	10	9	8	1181-40	23.00
Perbunan® (NBR)	16	14	17	1182-40	29.00
Perbunan® (NBR)	25	23	22	1184-40	38.00
Perbunan® (NBR)	40	38	36	1186-40	52.00
Viton® (FKM,FPM)	10	9	8	1191-40	23.00
Viton® (FKM,FPM)	16	14	17	1192-40	29.00
Viton® (FKM,FPM)	25	23	22	1194-40	38.00
Viton® (FKM,FPM)	40	38	36	1196-40	52.00
EPDM	10	9	8	1181-40E	23.50
EPDM	16	14	17	1182-40E	29.50
EPDM	25	23	22	1184-40E	38.50
EPDM	40	38	36	1186-40E	52.50
O-ring, neoprene® (CR)	10	9	8	1181-40N	23.50
O-ring, neoprene® (CR)	16	14	17	1182-40N	29.50
O-ring, neoprene® (CR)	25	23	22	1184-40N	38.50
O-ring, neoprene® (CR)	40	38	36	1186-40N	52.50
Silicone (VMQ)	10	9	8	1181-40S	23.50
Silicone (VMQ)	16	14	17	1182-40S	29.50
Silicone (VMQ)	25	23	22	1184-40S	38.50
Silicone (VMQ)	40	38	36	1186-40S	52.50
FFKM	10	9	8	1181-40F	Upon request
FFKM	16	14	17	1182-40F	79.00
FFKM	25	23	22	1184-40F	108.00
FFKM	40	38	36	1186-40F	146.50

Outer centring ring, aluminium (3.1645)

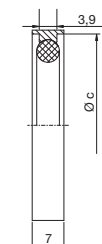
- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range for aluminium: -196 °C to 150 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.c [mm]	Article no.	Price €
Perbunan® (NBR)	10/16	30	1295-2	4.90
Perbunan® (NBR)	20/25	40	1295-4	5.60
Perbunan® (NBR)	32/40	55	1295-6	6.70
Perbunan® (NBR)	50	75	1295-8	12.90
Viton® (FKM,FPM)	10/16	30	1295-1	5.00
Viton® (FKM,FPM)	20/25	40	1295-3	5.80
Viton® (FKM,FPM)	32/40	55	1295-5	6.90
Viton® (FKM,FPM)	50	75	1295-7	13.20
EPDM	10/16	30	1295-2E	5.00
EPDM	20/25	40	1295-4E	5.80
EPDM	32/40	55	1295-6E	6.90
EPDM	50	75	1295-8E	13.00
O-ring, neoprene® (CR)	10/16	30	1295-2N	5.00
O-ring, neoprene® (CR)	20/25	40	1295-4N	5.80
O-ring, neoprene® (CR)	32/40	55	1295-6N	6.90
O-ring, neoprene® (CR)	50	75	1295-8N	13.00
Silicone (VMQ)	10/16	30	1295-2S	5.00
Silicone (VMQ)	20/25	40	1295-4S	5.80
Silicone (VMQ)	32/40	55	1295-6S	6.90
Silicone (VMQ)	50	75	1295-8S	13.00
FFKM	10/16	30	1295-2F	54.90
FFKM	20/25	40	1295-4F	75.60
FFKM	32/40	55	1295-6F	99.90
FFKM	50	75	1295-8F	124.40

Outer centring ring, polyoxymethylene (POM)

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range for polyoxymethylene: -40 °C to 70 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



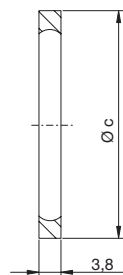
O-ring	Nominal width DN	dia.c [mm]	Article no.	Price €
Perbunan® (NBR)	10/16	30	1235-2	5.80
Perbunan® (NBR)	20/25	40	1235-4	6.50
Perbunan® (NBR)	32/40	55	1235-6	7.50
Viton® (FKM,FPM)	10/16	30	1236-2	6.60
Viton® (FKM,FPM)	20/25	40	1236-4	7.60
Viton® (FKM,FPM)	32/40	55	1236-6	8.90
EPDM	10/16	30	1235-2E	6.80
EPDM	20/25	40	1235-4E	7.50
EPDM	32/40	55	1235-6E	8.50
O-ring, neoprene® (CR)	10/16	30	1235-2N	6.80
O-ring, neoprene® (CR)	20/25	40	1235-4N	7.50
O-ring, neoprene® (CR)	32/40	55	1235-6N	8.50
Silicone (VMQ)	10/16	30	1235-2S	6.80
Silicone (VMQ)	20/25	40	1235-4S	7.50
Silicone (VMQ)	32/40	55	1235-6S	8.50
FFKM	10/16	30	1235-2F	55.80
FFKM	20/25	40	1235-4F	75.00
FFKM	32/40	55	1235-6F	102.00

Retaining ring, aluminium (3.1645)

For use with centring ring

- > Pressure range: 10^{-7} mbar to 4.0 bar*
- > Temperature range: -196 °C to 150 °C*

* Take sealing materials and connecting elements into consideration



Nominal width DN	dia.c [mm]	Article no.	Price €
10	29	1261	2.90
16	32	1262	3.10
20	39	1263	4.50
25	42	1264	3.80
32	55	1265	4.90
40	56	1266	5.10
50	70	1267	6.20

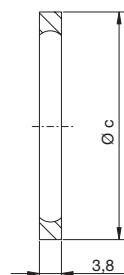
Retaining ring, high-grade steel (1.4301)

For use with centring ring

> Pressure range: 10^{-7} mbar to 4.0 bar*

> Temperature range: -196 °C to 300 °C*

* Take sealing materials and connecting elements into consideration



Nominal width DN	dia.c [mm]	Article no.	Price €
10	29	1361	3.90
16	32	1362	4.30
20	39	1363	6.50
25	42	1364	5.50
32	55	1365	7.00
40	56	1366	6.50
50	70	1367	9.90

Metal searing ring, aluminium (3.2315)

(cutting ring / sharp-edged sealing ring)

> Pressure range: 10^{-7} mbar to 2.5 bar*

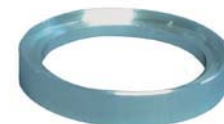
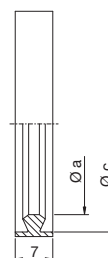
> Temperature range: -196 °C to 150 °C*

> No permeation of gases

> Only use with clamping ring for metal seals

> Only suitable for high-grade steel flanges

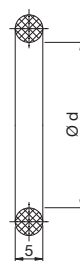
* Take sealing materials and connecting elements into consideration



Nominal width DN	a [mm]	c [mm]	Article no.	Price €
10/16	23	30	1291	3.35
20/25	33	40	1292	3.95
32/40	48	55	1293	4.50
50	68	75	1294	11.00

Spare O-ring for centring ring

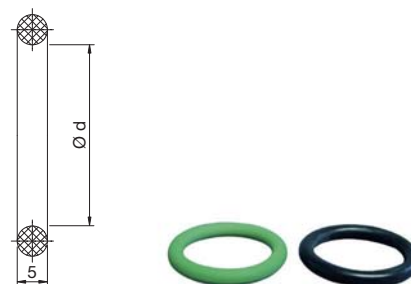
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.d [mm]	Article no.	Price €
Perbunan® (NBR)	10	15	1271	0.50
Perbunan® (NBR)	16	18	1272	0.50
Perbunan® (NBR)	20	25	1273	1.00
Perbunan® (NBR)	25	28	1274	0.60
Perbunan® (NBR)	32	40	1275	1.30
Perbunan® (NBR)	40	42	1276	1.00
Perbunan® (NBR)	50	55	1277	1.20
Viton® (FKM,FPM)	10	15	1281	0.90
Viton® (FKM,FPM)	16	18	1282	1.00
Viton® (FKM,FPM)	20	25	1283	1.70
Viton® (FKM,FPM)	25	28	1284	1.30
Viton® (FKM,FPM)	32	40	1285	2.15
Viton® (FKM,FPM)	40	42	1286	1.50
Viton® (FKM,FPM)	50	55	1287	1.80
EPDM	10	15	1271E	2.35
EPDM	16	18	1272E	1.95
EPDM	25	28	1274E	2.45
EPDM	40	42	1276E	3.20
EPDM	50	55	1277E	3.95
Neoprene® (CR)	10	15	1271N	1.80
Neoprene® (CR)	16	18	1272N	1.95
Neoprene® (CR)	25	28	1274N	2.10
Neoprene® (CR)	40	42	1276N	2.70
Neoprene® (CR)	50	55	1277N	3.20
Silicone (VMQ)	10	15	1271S	1.95
Silicone (VMQ)	16	18	1272S	2.70
Silicone (VMQ)	25	28	1274S	2.70
Silicone (VMQ)	40	42	1276S	2.90
Silicone (VMQ)	50	55	1277S	3.40
FFKM	10	15	1271F	Upon request
FFKM	16	18	1272F	49.55
FFKM	25	28	1274F	69.95
FFKM	40	42	1276F	94.50
FFKM	50	55	1277F	111.50

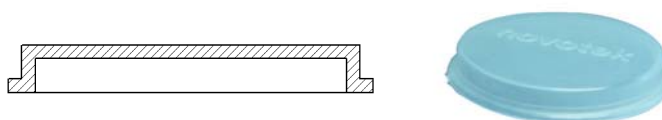
Spare O-ring for adapter centring ring

- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	Nominal width DN 1	dia.d [mm]	Article no.	Price €
Perbunan® (NBR)	16	10	18	1272	0.50
Perbunan® (NBR)	25	20	28	1274	0.60
Perbunan® (NBR)	40	32	42	1276	1.00
Viton® (FKM,FPM)	16	10	18	1282	1.00
Viton® (FKM,FPM)	25	20	28	1284	1.30
Viton® (FKM,FPM)	40	32	42	1286	1.50
EPDM	16	10	18	1272E	1.95
EPDM	25	20	28	1274E	2.45
EPDM	40	32	42	1276E	3.20
Neoprene® (CR)	16	10	18	1272N	1.95
Neoprene® (CR)	25	20	28	1274N	2.10
Neoprene® (CR)	40	32	42	1276N	2.70
Silicone (VMQ)	16	10	18	1272S	2.70
Silicone (VMQ)	25	20	28	1274S	2.70
Silicone (VMQ)	40	32	42	1276S	2.90

Flange cap with novotek logo



Nominal width DN	Nominal width DN 1	Article no.	Price €
10/16	10	1322	3.20 / 10 pcs.
20/25	20	1324	4.30 / 10 pcs.
32/40	32	1326	4.80 / 10 pcs.
50		1327	5.10 / 10 pcs.

Clamping rings, tension chains and claws



Properties:

- temperature range $-196\text{ }^{\circ}\text{C}$ to $+300\text{ }^{\circ}\text{C}$
- suitable for high vacuum up to $1 \times 10^{-9}\text{ mbar}$
- simple assembly and disassembly
- maximum pressure 4 bar

Description:

novotek offers five variants of clamping components, whereby specific installation conditions have to be met for each type. The most frequently used clamping component for elastomer seals is the KF clamping ring, consisting of two die-cast aluminium shells and special individual parts made of galvanised steel. A large wing screw is used to achieve the necessary contact force.

If certain installation conditions are met, e.g. small design size, the tension band-clamping ring can be inserted. With KF connections with metal seals, higher and more stable contact pressures must be generated. For this application case, the clamping ring "FL-Massiv" or the tension chain for metal seals must be used.

novotek aluminium claws are required in order to firmly screw flanges onto a component with tapped holes.

Area of application:

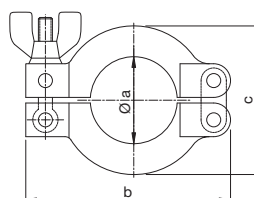
The novotek seal components allow the installation of vacuum attachments for the pressure range of 2500 mbar (4000 mbar in conjunction with an outer retaining ring and a solid tension clip) to 10^{-9} mbar .

Clamping ring, aluminium (3.2982)

(suitable for elastomer seals)

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range for aluminium: $-196\text{ }^{\circ}\text{C}$ to $150\text{ }^{\circ}\text{C}$ *
- > Tightening torque 2 Nm

* Take sealing materials and connecting elements into consideration



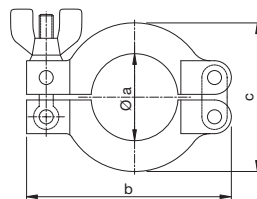
Nominal width DN	Width of clamping ring [mm]	dia.a [mm]	b [mm]	c [mm]	Article no.	Price €
10/16	17	22	63	45	1301	3.40
20/25	17	32	73	52	1302	3.85
32/40	17	47	93	70	1303	4.05
50	22	62	114	95	1304	8.15

Clamping ring, high-grade steel (1.4301)

(suitable for elastomer seals)

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range: -196°C to 300°C^*
- > Tightening torque 2 Nm

* Take sealing materials and connecting elements into consideration



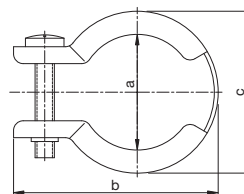
Nominal width DN	Width of clamping ring [mm]	dia.a [mm]	b [mm]	c [mm]	Article no.	Price €
10/16	17	22	63	45	1301VA	10.50
20/25	17	32	73	52	1302VA	12.00
32/40	17	47	92	70	1303VA	12.50
50	22	62	114	95	1304VA	14.70

Tension band-clamping ring, high-grade steel (1.4301)

(suitable for elastomer seals)

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range: -196°C to 300°C^*

* Take sealing materials and connecting elements into consideration



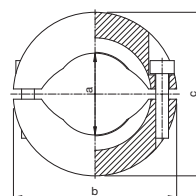
Nominal width DN	Width of clamping ring [mm]	dia.a [mm]	b [mm]	c [mm]	Article no.	Price €
10/16	16	22	45	36	1311	8.00
20/25	16	32	57	46	1312	9.45
32/40	16	47	74	61	1313	11.00

Clamping ring FL Massiv, high-grade steel (1.4301)

(suitable for metal seals and elastomer seals)

- > Pressure range: 10^{-7} mbar to 2.5 bar/4 bar (with outer retaining ring)
- > Temperature range: -196°C to 300°C^*

* Take sealing materials and connecting elements into consideration



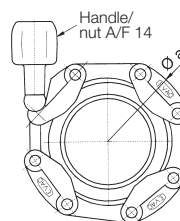
Nominal width DN	Width of clamping ring [mm]	dia.a [mm]	b [mm]	c [mm]	Article no.	Price €
10/16	18	22	55	47	1341	27.90
20/25	18	32	67	57	1342	29.80
32/40	18	47	83	71	1343	32.80
50	21	64	112	95	1344	53.50

Tension roller chain, aluminium/steel

(suitable for metal seals and elastomer seals)

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range: -196°C to 150°C *

* Take sealing materials and connecting elements into consideration



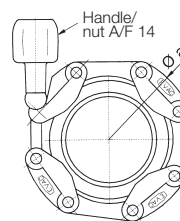
Nominal width DN	Width of clamping ring [mm]	dia.a [mm]	Article no.	Price €
10/16	20	60	1331	32.00
20/25	20	70	1332	39.00
32/40	20	85	1333	42.00
50	20	105	1334	59.00

Tension roller chain, aluminium/steel

(suitable for elastomer seals)

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range: -20°C to 100°C *

* Take sealing materials and connecting elements into consideration



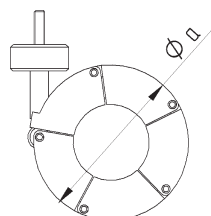
Nominal width DN	Width of clamping ring [mm]	dia.a [mm]	Article no.	Price €
10/16	20	60	1336	14.80
20/25	20	70	1337	17.90
32/40	20	85	1338	19.80
50	20	105	1339	35.00

Tension chain, plastic, max. 60°C

(suitable for elastomer seals)

- > Dielectric strength 26 kV/mm
- > Spec. dielectric resistance 1.0 E12 Ohm x cm
- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range: -20°C to 60°C *

* Take sealing materials and connecting elements into consideration

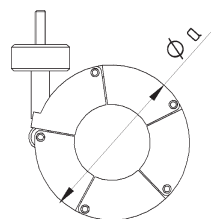


Nominal width DN	Width of clamping ring [mm]	dia.a [mm]	Article no.	Price €
10/16	18	60	1351	15.60
20/25	18	70	1352	18.00
32/40	18	85	1353	19.60
50	18	105	1354	26.50

Tension chain, plastic, max. 100 °C

(suitable for elastomer seals)

- > Dielectric strength 27.5 kV/mm
 - > Spec. dielectric resistance 1.0 E15 Ohm x cm
 - > Pressure range: 10⁻⁷ mbar to 2.5 bar
 - > Temperature range: -20 °C to 100 °C*
- * Take sealing materials and connecting elements into consideration

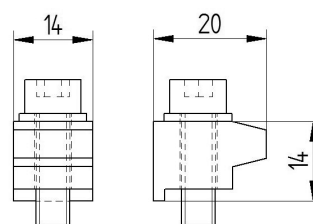


Nominal width DN	Width of clamping ring [mm]	dia.a [mm]	Article no.	Price €
10/16	18	60	1356	18.50
20/25	18	70	1357	21.00
32/40	18	85	1358	22.20
50	18	105	1359	28.00

Claw, aluminium (3.3214)

(suitable for elastomer seals)

- > Pressure range: 10⁻⁷ mbar to 2.5 bar
 - > Temperature range: -196 °C to 150 °C*
- * Take sealing materials and connecting elements into consideration

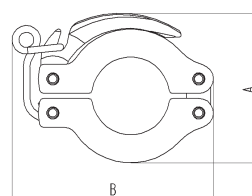


Nominal width DN	Width of claw [mm]	Length [mm]	Height [mm]	Article no.	Price €
10/16	–	20	14	1371	2.95
20/25	14	20	14	1371	2.95
32/40	14	20	14	1371	2.95
50	14	20	14	1371	2.95

Quick-release clamping ring, all-metal

(suitable for elastomer seals)

- > Pressure range: 10⁻⁷ mbar to 1.5 bar
 - > Temperature range: -196 °C to 150 °C*
- * Take sealing materials and connecting elements into consideration



Nominal width DN	Width of clamping ring [mm]	dia.A [mm]	dia.B [mm]	Article no.	Price €
10/16	16	53	71	1305AL	11.70
20/25	16	61	82	1306AL	12.80
32/40	18	78	99	1307AL	14.30

Metal and PVC hoses, metal spring bellows



Properties:

- temperature range $-196\text{ }^{\circ}\text{C}$ to $+350\text{ }^{\circ}\text{C}$
- suitable for high vacuum up to $1 \times 10^{-9}\text{ mbar}$
- metal hose lengths of 5 m and longer are possible

Description:

The novotek metal hoses are circular corrugated all-metal hoses. The profiling on the corrugation determines the elastic pliability and compressive resistance. The typical KF connections are welded onto the metal hoses. To eliminate temper colours and clean the weld seam, in a special vacuum annealing procedure the hoses are baked-out at approx. $1040\text{ }^{\circ}\text{C}$ under forming gas. In this process, the metal hose is simultaneously soft-annealed and thus receives its extremely flexibility property.

The novotek metal spring bellows are corrugated metal bellows. The corrugated sections that run concentrically and parallel to one another give the metal spring bellows axial, angular and lateral mobility, whereby combinations of this are also possible. Metal spring bellows are not annealed.

Area of application:

The novotek metal hose connections and metal spring bellows can be used as a mobile vacuum line. If they are used, ensure that the metal hoses can only execute bending movements in a lateral direction. Dynamic axial movements, i.e. buckling or pulling apart both in axial direction as well as torsional movements can only be executed by metal spring bellows.

High-grade steel hose, extremely flexible with KF 1.4301

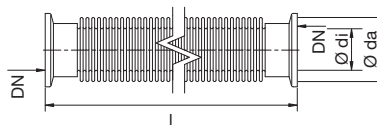
(Flange 1.4301 / Bellows 1.4404)

> Extremely flexible thanks to soft annealing

> Pressure range: 10⁻⁹mbar

> Temperature range: -196 °C to 300 °C*

* Take sealing materials and connecting elements into consideration



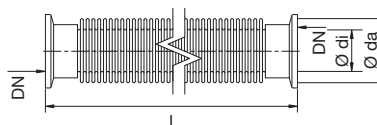
Nominal width DN	Total length [mm]	dia.di [mm]	dia.da [mm]	One-time movement radius R _{st} [mm]	Frequent movement radius R _b [mm]	Maximum pressure [bar]	Article no.	Price €
10	250	10.2	16.2	17	90	2.5	1901	52.00
16	250	16.2	22.8	26	140	2.5	1902	44.40
20	250	20.0	27.0	32	160	2.5	1903	69.00
25	250	25.5	33.0	38	180	2.5	1904	49.40
32	250	31.8	42.0	47	210	2.5	1905	79.00
40	250	40.1	52.0	59	240	1.8	1906	64.40
50	250	50.4	63.0	72	280	1.8	1907	92.40
10	500	10.2	16.2	17	90	2.5	1911	54.90
16	500	16.2	22.8	26	140	2.5	1912	49.40
20	500	20.0	27.0	32	160	2.5	1913	74.00
25	500	25.5	33.0	38	180	2.5	1914	56.45
32	500	31.8	42.0	47	210	2.5	1915	94.00
40	500	40.1	52.0	59	240	1.8	1916	72.40
50	500	50.4	63.0	72	280	1.8	1917	104.40
10	750	10.2	16.2	17	90	2.5	1931	59.90
16	750	16.2	22.8	26	140	2.5	1932	59.90
20	750	20.0	27.0	32	160	2.5	1933	91.00
25	750	25.5	33.0	38	180	2.5	1934	67.90
32	750	31.8	42.0	47	210	2.5	1935	107.00
40	750	40.1	52.0	59	240	1.8	1936	79.45
50	750	50.4	63.0	72	280	1.8	1937	114.25
10	1000	10.2	16.2	17	90	2.5	1921	69.00
16	1000	16.2	22.8	26	140	2.5	1922	64.80
20	1000	20.0	27.0	32	160	2.5	1923	99.50
25	1000	25.5	33.0	38	180	2.5	1924	73.90
32	1000	31.8	42.0	47	210	2.5	1925	111.00
40	1000	40.1	52.0	59	240	1.8	1926	90.00
50	1000	50.4	63.0	72	280	1.8	1927	124.40
10	1500	10.2	16.2	17	90	2.5	1941	75.00
16	1500	16.2	22.8	26	140	2.5	1942	76.00
20	1500	20.0	27.0	32	160	2.5	1943	115.50
25	1500	25.5	33.0	38	180	2.5	1944	95.50
32	1500	31.8	42.0	47	210	2.5	1945	132.00
40	1500	40.1	52.0	59	240	1.8	1946	114.00
50	1500	50.4	63.0	72	280	1.8	1947	157.00
10	2000	10.2	16.2	17	90	2.5	1951	90.00
16	2000	16.2	22.8	26	140	2.5	1952	96.80
20	2000	20.0	27.0	32	160	2.5	1953	134.50
25	2000	25.5	33.0	38	180	2.5	1954	112.00
32	2000	31.8	42.0	47	210	2.5	1955	155.00
40	2000	40.1	52.0	59	240	1.8	1956	138.00
50	2000	50.4	63.0	72	280	1.8	1957	184.00

High-grade steel hose, extremely flexible with KF 1.4404

(Flange 1.4404 / Bellows 1.4404)

- > Extremely flexible thanks to soft annealing
- > Pressure range: 10⁻⁹mbar
- > Temperature range: -196 °C to 350 °C*

* Take sealing materials and connecting elements into consideration



Nominal width DN	Total length [mm]	dia.di [mm]	dia.da [mm]	One-time movement radius R _{st} [mm]	Frequent movement radius R _b [mm]	Maximum pressure [bar]	Article no.	Price €
10	250	10.2	16.2	17	90	2.5	19014	55.00
16	250	16.2	22.8	26	140	2.5	19024	51.90
25	250	25.5	33.0	38	180	2.5	19044	57.40
40	250	40.1	52.0	59	240	1.8	19064	74.50
50	250	50.4	63.0	72	280	1.8	19074	99.70
10	500	10.2	16.2	17	90	2.5	19114	59.00
16	500	16.2	22.8	26	140	2.5	19124	56.40
25	500	25.5	33.0	38	180	2.5	19144	64.40
40	500	40.1	52.0	59	240	1.8	19164	81.70
50	500	50.4	63.0	72	280	1.8	19174	114.50
10	750	10.2	16.2	17	90	2.5	19314	66.50
16	750	16.2	22.8	26	140	2.5	19324	61.90
25	750	25.5	33.0	38	180	2.5	19344	70.95
40	750	40.1	52.0	59	240	1.8	19364	89.70
50	750	50.4	63.0	72	280	1.8	19374	124.00
10	1000	10.2	16.2	17	90	2.5	19214	72.00
16	1000	16.2	22.8	26	140	2.5	19224	67.90
25	1000	25.5	33.0	38	180	2.5	19244	77.95
40	1000	40.1	52.0	59	240	1.8	19264	97.60
50	1000	50.4	63.0	72	280	1.8	19274	137.50
10	1500	10.2	16.2	17	90	2.5	19414	89.00
16	1500	16.2	22.8	26	140	2.5	19424	83.90
25	1500	25.5	33.0	38	180	2.5	19444	96.50
40	1500	40.1	52.0	59	240	1.8	19464	121.60
50	1500	50.4	63.0	72	280	1.8	19474	164.50
10	2000	10.2	16.2	17	90	2.5	19514	97.00
16	2000	16.2	22.8	26	140	2.5	19524	99.90
25	2000	25.5	33.0	38	180	2.5	19544	113.00
40	2000	40.1	52.0	59	240	1.8	19564	146.00
50	2000	50.4	63.0	72	280	1.8	19574	191.50

High-grade steel hose, flexible with KF 1.4301

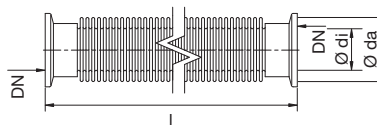
(Flange 1.4301 / Bellows 1.4404)

> Normal version, unannealed

> Pressure range: 10^{-9} mbar

> Temperature range: -196 °C to 300 °C*

* Take sealing materials and connecting elements into consideration



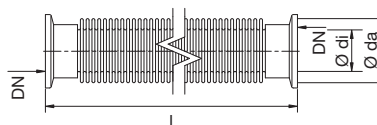
Nominal width DN	Total length [mm]	dia.di [mm]	dia.da [mm]	One-time movement radius R_{st} [mm]	Frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
10	250	10.2	16.2	17	90	2.5	1901U	45.00
16	250	16.2	22.8	26	140	2.5	1902U	44.50
20	250	20.0	27.0	32	160	2.5	1903U	64.00
25	250	25.5	33.0	38	180	2.5	1904U	50.00
32	250	31.8	42.0	47	210	2.5	1905U	74.00
40	250	40.1	52.0	59	240	1.8	1906U	64.75
50	250	50.4	63.0	72	280	1.8	1907U	86.75
10	500	10.2	16.2	17	90	2.5	1911U	50.00
16	500	16.2	22.8	26	140	2.5	1912U	48.85
20	500	20.0	27.0	32	160	2.5	1913U	70.00
25	500	25.5	33.0	38	180	2.5	1914U	56.00
32	500	31.8	42.0	47	210	2.5	1915U	90.00
40	500	40.1	52.0	59	240	1.8	1916U	72.00
50	500	50.4	63.0	72	280	1.8	1917U	98.50
10	750	10.2	16.2	17	90	2.5	1931U	55.00
16	750	16.2	22.8	26	140	2.5	1932U	54.00
20	750	20.0	27.0	32	160	2.5	1933U	84.00
25	750	25.5	33.0	38	180	2.5	1934U	61.95
32	750	31.8	42.0	47	210	2.5	1935U	101.00
40	750	40.1	52.0	59	240	1.8	1936U	77.90
50	750	50.4	63.0	72	280	1.8	1937U	109.50
10	1000	10.2	16.2	17	90	2.5	1921U	63.00
16	1000	16.2	22.8	26	140	2.5	1922U	59.00
20	1000	20.0	27.0	32	160	2.5	1923U	92.00
25	1000	25.5	33.0	38	180	2.5	1924U	68.00
32	1000	31.8	42.0	47	210	2.5	1925U	104.00
40	1000	40.1	52.0	59	240	1.8	1926U	85.00
50	1000	50.4	63.0	72	280	1.8	1927U	119.50
10	1500	10.2	16.2	17	90	2.5	1941U	72.00
16	1500	16.2	22.8	26	140	2.5	1942U	74.00
20	1500	20.0	27.0	32	160	2.5	1943U	110.00
25	1500	25.5	33.0	38	180	2.5	1944U	90.00
32	1500	31.8	42.0	47	210	2.5	1945U	127.00
40	1500	40.1	52.0	59	240	1.8	1946U	119.80
50	1500	50.4	63.0	72	280	1.8	1947U	148.00
10	2000	10.2	16.2	17	90	2.5	1951U	87.00
16	2000	16.2	22.8	26	140	2.5	1952U	90.00
20	2000	20.0	27.0	32	160	2.5	1953U	127.00
25	2000	25.5	33.0	38	180	2.5	1954U	105.00
32	2000	31.8	42.0	47	210	2.5	1955U	146.00
40	2000	40.1	52.0	59	240	1.8	1956U	129.00
50	2000	50.4	63.0	72	280	1.8	1957U	169.00

High-grade steel hose, flexible with KF 1.4404

(Flange 1.4404 / Bellows 1.4404)

- > Normal version, unannealed
- > Pressure range: 10^{-9} mbar
- > Temperature range: -196 °C to 350 °C*

* Take sealing materials and connecting elements into consideration

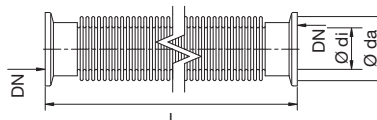


Nominal width DN	Total length [mm]	dia.di [mm]	dia.da [mm]	One-time movement radius R_{st} [mm]	HH frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
10	250	10.2	16.2	17	90	2.5	1901U4	51.00
16	250	16.2	22.8	26	140	2.5	1902U4	51.50
25	250	25.5	33.0	38	180	2.5	1904U4	57.00
40	250	40.1	52.0	59	240	1.8	1906U4	74.00
50	250	50.4	63.0	72	280	1.8	1907U4	98.00
10	500	10.2	16.2	17	90	2.5	1911U4	54.00
16	500	16.2	22.8	26	140	2.5	1912U4	55.00
25	500	25.5	33.0	38	180	2.5	1914U4	63.00
40	500	40.1	52.0	59	240	1.8	1916U4	81.00
50	500	50.4	63.0	72	280	1.8	1917U4	114.00
10	750	10.2	16.2	17	90	2.5	1931U4	65.00
16	750	16.2	22.8	26	140	2.5	1932U4	61.00
25	750	25.5	33.0	38	180	2.5	1934U4	70.00
40	750	40.1	52.0	59	240	1.8	1936U4	89.00
50	750	50.4	63.0	72	280	1.8	1937U4	123.00
10	1000	10.2	16.2	17	90	2.5	1921U4	68.00
16	1000	16.2	22.8	26	140	2.5	1922U4	67.00
25	1000	25.5	33.0	38	180	2.5	1924U4	76.00
40	1000	40.1	52.0	59	240	1.8	1926U4	96.50
50	1000	50.4	63.0	72	280	1.8	1927U4	137.00
10	1500	10.2	16.2	17	90	2.5	1941U4	87.00
16	1500	16.2	22.8	26	140	2.5	1942U4	84.00
25	1500	25.5	33.0	38	180	2.5	1944U4	98.00
40	1500	40.1	52.0	59	240	1.8	1946U4	120.00
50	1500	50.4	63.0	72	280	1.8	1947U4	164.00
10	2000	10.2	16.2	17	90	2.5	1951U4	91.00
16	2000	16.2	22.8	26	140	2.5	1952U4	101.00
25	2000	25.5	33.0	38	180	2.5	1954U4	112.00
40	2000	40.1	52.0	59	240	1.8	1956U4	146.00
50	2000	50.4	63.0	72	280	1.8	1957U4	189.00

High-grade steel hose, extremely flexible with KF, special length

- > Available in lengths of 100 mm to 5000 mm
- > When ordering, specify desired length additionally in text form
- > Pressure range: 10^{-9} mbar
- > Temperature range: -196 °C to 300 °C (1.4301)/ 350 °C (1.4404)*

* Take sealing materials and connecting elements into consideration



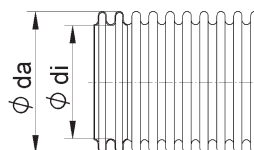
Price example:

High-grade steel hose, extremely flexible 1.4301 NW25 l = 2700 mm contains:	Article no.	Price €
High-grade steel hose, extremely flexible, 1.4301 NW25 l=1000 mm	1924	73.90
High-grade steel hose, extremely flexible, sold by the metre, 1.7 m	1974 x 1.7	$38 \times 1.7 = 64.60$
High-grade steel hose, extremely flexible, 1.4301 NW25 l=2700 mm	1924 x 2.7	Total price = 138.50

High-grade steel hose without flanges, extremely flexible (annealed), sold by the metre, 1.4404

- > Available in lengths of 100 mm to 5000 mm
- > When ordering, specify desired length additionally in text form
- > Pressure range: 10^{-9} mbar
- > Temperature range: -196 °C to 350 °C *

* Take sealing materials and connecting elements into consideration



Nominal width DN	Total length l [mm]	dia.di [mm]	dia.da [mm]	One-time movement radius R_{st} [mm]	Frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
7	1000	4.3	7.2	14	90	2.5	1970	33.00
10	1000	10.2	16.2	17	90	2.5	1971	33.00
12	1000	13	19.3	20	120	2.5	19715	35.00
16	1000	16.2	22.8	26	140	2.5	1972	35.00
20	1000	20.0	27.0	32	160	2.5	1973	42.00
25	1000	25.5	33.0	38	180	2.5	1974	38.00
32	1000	31.8	42.0	47	210	2.5	1975	50.00
40	1000	40.1	52.0	59	240	1.8	1976	52.00
50	1000	50.4	63.0	72	280	1.8	1977	59.50

High-grade steel hose without flanges, flexible (unannealed), sold by the metre, 1.4404

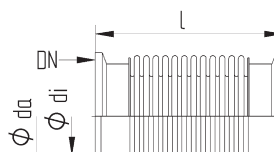
Nominal width DN	Total length l [mm]	dia.di [mm]	dia.da [mm]	One-time movement radius R_{st} [mm]	Frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
7	1000	4.3	7.2	14	90	2.5	1970U	30.00
10	1000	10.2	16.2	17	90	2.5	1971U	30.00
12	1000	13	19.3	20	120	2.5	19715U	32.00
16	1000	16.2	22.8	26	140	2.5	1972U	32.00
20	1000	20.0	27.0	32	160	2.5	1973U	38.00
25	1000	25.5	33.0	38	180	2.5	1974U	35.00
32	1000	31.8	42.0	47	210	2.5	1975U	46.00
40	1000	40.1	52.0	59	240	1.8	1976U	48.00
50	1000	50.4	63.0	72	280	1.8	1977U	54.00

Metal spring bellows with KF 1.4301/1.4571

(Flange 1.4301 / Bellows 1.4571)

- > Pressure range: 10^{-9} mbar
- > 10000 load alternation at 20 °C and 1013 mbar standard air pressure
- > Temperature range: -196 °C to 300 °C 1.4301*
- > Temperature range: -196 °C to 350 °C 1.4404/1.4571*

* Take sealing materials and connecting elements into consideration



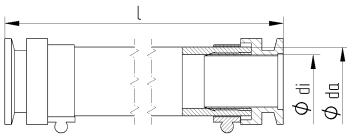
Nominal width DN	Total length [mm]	dia.di [mm]	dia.da [mm]	Negative axial movement [mm]	Article no.	Price €
10	60	10	16	5	1991	55.80
16	60	15	21	5	1992	54.90
25	60	21	32	6	1994	64.90
40	120	40	60	15	1996	69.50
50	150	40	60	21	1997	94.50

Metal spring bellows with KF 1.4404/1.4571

Nominal width DN	Total length [mm]	dia.di [mm]	dia.da [mm]	Negative axial movement [mm]	Article no.	Price €
10	60	10	16	5	19914	65.00
16	60	15	21	5	19924	65.00
25	60	21	32	6	19944	75.00
40	120	40	60	15	19964	79.00
50	150	40	60	21	19974	112.00

PVC hose with KF brass nickel-plated

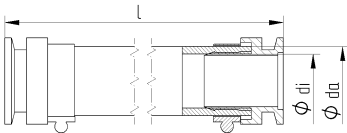
(Brass 2.0401 / MS58)
 > PVC hose with inside spring steel spiral
 > Pressure range: 10⁻³ mbar to 2.5 bar
 > Temperature range: -15 °C to 65 °C*
 * Take sealing materials and connecting elements into consideration



Nominal width DN	Total length [mm]	dia.di (inside dia. of hose) [mm]	dia.da (outside dia. of hose) [mm]	Maximum pressure [bar]	Article no.	Price €
16/16	500	16	22.2	2.5	2012	51.50
25/25	500	25	33	2.0	2014	56.10
40/40	500	40	49.6	1.5	2016	68.90
50/50	500	50	60.8	1.0	2017	99.00
16/16	1000	16	22.2	2.5	2022	56.50
25/25	1000	25	33	2.0	2024	62.00
40/40	1000	40	49.6	1.5	2026	77.00
50/50	1000	50	60.8	1.0	2027	109.70

PVC hose with KF, aluminium

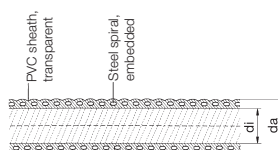
(Aluminium 3.1645)
 > PVC hose with inside spring steel spiral
 > Pressure range: 10⁻³ mbar to 2.5 bar
 > Temperature range: -15 °C to 65 °C*
 * Take sealing materials and connecting elements into consideration



Nominal width DN	Total length [mm]	dia.di (inside dia. of hose) [mm]	dia.da (outside dia. of hose) [mm]	Maximum pressure [bar]	Article no.	Price €
16/19	500	19	26	2.5	2032	50.50
25/25	500	25	33	2.0	2034	56.00
40/25	500	25	33	1.5	2036	69.00
40/40	500	40	49.6	1.0	2037	99.00
16/19	1000	19	26	2.5	2042	56.00
25/25	1000	25	33	2.0	2044	63.00
40/25	1000	25	33	1.5	2046	78.00
40/40	1000	40	49.6	1.0	2047	110.50

PVC hose, sold by the metre

- > PVC hose with inside spring steel spiral
- > Pressure range: 10^{-3} mbar to 2.5 bar
- > Temperature range: -15°C to 65°C *
- * Take sealing materials and connecting elements into consideration

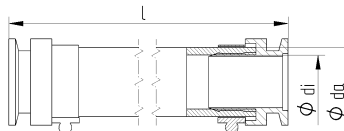


Nominal width DN	Total length [mm]	dia.di (inside dia. of hose) [mm]	dia.da (outside dia. of hose) [mm]	Maximum pressure [bar]	Article no.	Price €
16	1000	19	26	2.5	2050	6.80
16	1000	16	22.2	2.5	2051	6.90
25	1000	25	33	2.0	2052	8.80
40	1000	40	49.6	1.5	2053	14.80
50	1000	50	60.8	1.0	2054	24.80

Other nominal widths upon request!

PVC hose with KF, special length

- > Available in lengths of 100 mm to 50 000 mm
- > PVC hose with inside spring steel spiral
- > Pressure range: 10^{-3} mbar to 2.5 bar
- > Temperature range: -15°C to 65°C *
- * Take sealing materials and connecting elements into consideration



Price example:

PVC hose, brass, nickel-plated NW 25 l = 2700 mm contains:	Article no.	Price €
PVC hose, brass, nickel-plated NW 25 l = 1000 mm	2024	59.80
PVC hose, brass, nickel-plated, sold by the metre 1.7 m	2052 x 1.7	15.81
PVC hose, brass, nickel-plated NW 25 l = 2700 mm	2024 x 2.7	Total price = 75.61

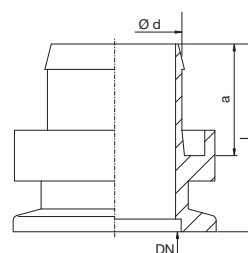
KF joining socket, brass, nickel-plated

(Brass 2.0401 / MS58)

> Pressure range: 10^{-7} mbar to 2.5 bar

> Temperature range: -196 °C to 110 °C*

* Take sealing materials and connecting elements into consideration



Nominal width DN	Hose ID [mm]	d [mm]	l [mm]	a [mm]	Article no.	Price €
16/16	16	16.5	28	15	2061	16.50
25/25	25	26.5	37	22	2062	22.00
40/40	40	40.5	42	29	2063	31.50
50/50	50	51.5	63	38	2064	49.50

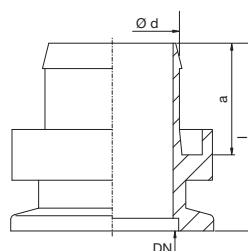
KF joining socket, aluminium

(Aluminium 3.1645)

> Pressure range: 10^{-7} mbar to 2.5 bar

> Temperature range: -196 °C to 150 °C*

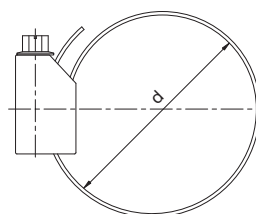
* Take sealing materials and connecting elements into consideration



Nominal width DN	Hose ID [mm]	d [mm]	l [mm]	a [mm]	Article no.	Price €
16/19	19	20.5	40	24	2066	13.00
25/25	25	26.5	40	25	2067	17.00
40/25	40	25.5	42	29	2068	25.50
40/40	40	40.5	42	29	2069	42.50

Hose clamps, (steel 1.0037 galvanised)

(for PVC joining socket with KF)



Nominal width DN	d [mm]	Article no.	Price €
16	12-22	2071	1.65
25	20-32	2072	2.15
40	32-40	2073	3.00
50	50-70	2074	5.80

KF feedthroughs



Properties:

- temperature range -20 °C to $+180\text{ °C}$
- suitable for high vacuum up to $1 \times 10^{-9}\text{ mbar}$
- complete sealing via Viton O-rings
- simple structure

Description:

By pressing the O-rings together over the knurled nut or hex nut on the universal thermocouple feedthroughs, we seal off these components between the component and housing.

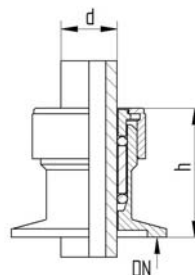
Area of application:

The novotek KF feedthroughs are used everywhere where cylindrical components with a corresponding surface quality have to be led through vacuum-tight.

KF compression fitting

(High-grade steel 1.4301)

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -20 °C to 180 °C
- > Additional diameters upon request



Nominal width DN	dia.d [mm]	h [mm]	Article no.	Price €
16	10	37	1731	63.00
16	12	37	1732	63.00
25	16	39	1733	87.00
40	20	45	1734	97.00
40	25	45	1735	97.00
40	28	45	1736	97.00

(Brass 2.0401 / MS58)

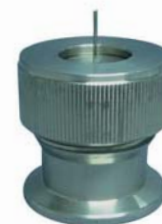
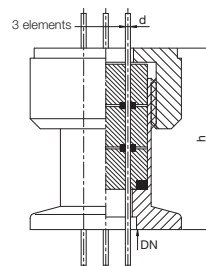
- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -20 °C to 110 °C
- > Additional diameters upon request

Nominal width DN	dia.d [mm]	h [mm]	Article no.	Price €
10	10	37	1721	52.00
10	12	37	1722	52.00
40	20	45	1724	79.00
40	25	45	1725	84.00

KF thermocouple feedthroughs 1-fold to 9-fold

(High-grade steel 1.4301)

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -20 °C to 180 °C
- > Wire diameter 1.5 mm / **specify diameter in case of deviation**
- > Sealing is completely by FKM seals
- > Suitable for mantle thermocouples

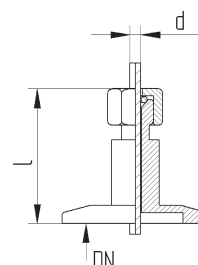


Nominal width DN	Number of wires	d [mm]	h [mm]	Article no.	Price €
10/16	1	1.5 (optional dia.1-9)	37	1751-1	71.00
10/16	2	1.5 (optional dia.1-9)	37	1751-2	79.00
10/16	3	1.5 (optional dia.1-9)	37	1751-3	89.00
25	1	1.5 (optional dia.1-9)	39	1752-1	79.00
25	2	1.5 (optional dia.1-9)	39	1752-2	89.00
25	3	1.5 (optional dia.1-9)	39	1752-3	98.00
25	4	1.5 (optional dia.1-9)	39	1752-4	107.00
25	5	1.5 (optional dia.1-9)	39	1752-5	114.00
25	6	1.5 (optional dia.1-9)	39	1752-6	124.00
25	7	1.5 (optional dia.1-9)	39	1752-7	131.00
40	1	1.5 (optional dia.1-9)	45	1753-1	135.00
40	2	1.5 (optional dia.1-9)	45	1753-2	143.00
40	3	1.5 (optional dia.1-9)	45	1753-3	151.00
40	4	1.5 (optional dia.1-9)	45	1753-4	158.00
40	5	1.5 (optional dia.1-9)	45	1753-5	166.00
40	6	1.5 (optional dia.1-9)	45	1753-6	174.00
40	7	1.5 (optional dia.1-9)	45	1753-7	181.00
40	8	1.5 (optional dia.1-9)	45	1753-8	189.00
40	9	1.5 (optional dia.1-9)	45	1753-9	197.00

Thermocouple feedthroughs 1-fold universal KF

(High-grade steel 1.4301)

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > **Specify wire diameter when ordering! (Standard 1.5 mm)**
- > Temperature range: -20 °C to 180 °C
- > Wire diameter 1.0-3.2 mm / additional diameters upon request
- > Sealing is completely by FKM seals
- > Suitable for mantle thermocouples

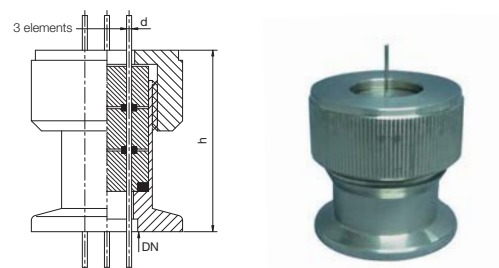


Nominal width DN	Number of wires	d [mm]	h [mm]	Article no.	Price €
16	1	1.0 / 1.5 / 2 / 2.5 / 3 / 3.2	37	1772	31.00
25	1	1.0 / 1.5 / 2 / 2.5 / 3 / 3.2	37	1774	36.00
40	1	1.0 / 1.5 / 2 / 2.5 / 3 / 3.2	37	1776	43.00

Thermocouple feedthroughs 1-9-fold universal KF

(Brass 2.0401 / MS58, housing nickel-plated)

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -20 °C to 110 °C
- > Wire diameter 1.5 mm / **specify diameter in case of deviation**
- > Sealing is completely by FKM seals
- > Suitable for mantle thermocouples



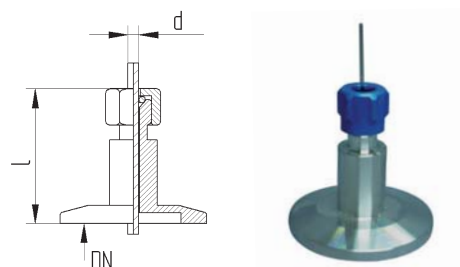
Nominal width DN	Number of wires	d [mm]	h [mm]	Article no.	Price €
10	1	1.5 (optional dia.1-9)	37	1741-1	63.00
10	2	1.5 (optional dia.1-9)	37	1741-2	72.00
10	3	1.5 (optional dia.1-9)	37	1741-3	82.00
25	1	1.5 (optional dia.1-9)	39	1742-1	73.00
25	2	1.5 (optional dia.1-9)	39	1742-2	82.00
25	3	1.5 (optional dia.1-9)	39	1742-3	92.00
25	4	1.5 (optional dia.1-9)	39	1742-4	99.00
25	5	1.5 (optional dia.1-9)	39	1742-5	109.00
25	6	1.5 (optional dia.1-9)	39	1742-6	118.00
25	7	1.5 (optional dia.1-9)	39	1742-7	126.00
40	1	1.5 (optional dia.1-9)	45	1743-1	120.00
40	2	1.5 (optional dia.1-9)	45	1743-2	129.00
40	3	1.5 (optional dia.1-9)	45	1743-3	138.00
40	4	1.5 (optional dia.1-9)	45	1743-4	146.00
40	5	1.5 (optional dia.1-9)	45	1743-5	154.00
40	6	1.5 (optional dia.1-9)	45	1743-6	163.00
40	7	1.5 (optional dia.1-9)	45	1743-7	171.00
40	8	1.5 (optional dia.1-9)	45	1743-8	180.00
40	9	1.5 (optional dia.1-9)	45	1743-9	188.00

Thermocouple feedthroughs 1-fold universal KF

(Brass 2.0401 / MS58, nickel-plated)

> **Specify wire diameter when ordering! (Standard 1.5 mm)**

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -20 °C to 110 °C
- > Wire diameter 1.0-3.2 mm / additional diameters upon request
- > Sealing is completely by FKM seals
- > Suitable for mantle thermocouples



Nominal width DN	Number of wires	d [mm]	h [mm]	Article no.	Price €
16	1	1.0 / 1.5 / 2 / 2.5 / 3 / 3.2	37	1762	32.00
25	1	1.0 / 1.5 / 2 / 2.5 / 3 / 3.2	37	1764	38.00
40	1	1.0 / 1.5 / 2 / 2.5 / 3 / 3.2	37	1766	46.00

KF adapter



Properties:

- temperature range $-196\text{ }^{\circ}\text{C}$ to $+350\text{ }^{\circ}\text{C}$
- suitable for high vacuum up to $1 \times 10^{-9}\text{ mbar}$

Description:

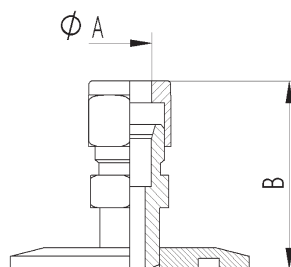
The novotek KF adapters serves as transitions from the KF to various other vacuum-compatible systems.

Area of application:

The novotek KF adapters allow the installation of vacuum attachments for the pressure range of 2500 mbar up to 10^{-9} mbar .

Metric adapter for KF double compression fitting

- > Pressure range: 10^{-9} mbar to 2.5 bar
- > Temperature range.4301: -196 °C to 300 °C
- > Temperature range 1.4404: -196 °C to 350 °C
- * Take sealing materials and connecting elements into consideration



1.4301 (304) Swagelok®-compatible

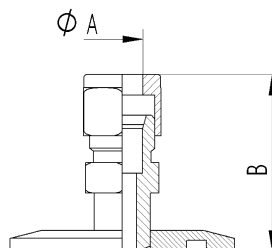
Nominal width DN	A [mm]	B [mm]	Article no.	Price €
16	6	40	1821-6	34.15
16	8	41	1821-8	45.00
16	10	44	1821-10	44.95
16	12	46	1821-12	49.50
20/25	6	40	1824-6	36.90
20/25	8	41	1824-8	44.40
20/25	10	44	1824-10	48.40
20/25	12	46	1824-12	55.70
32/40	6	40	1826-6	38.40
32/40	8	41	1826-8	46.90
32/40	10	44	1826-10	48.90
32/40	12	46	1826-12	57.00
50	6	40	1827-6	48.90
50	8	41	1827-8	55.40
50	10	44	1827-10	54.95
50	12	46	1827-12	63.50

1.4404 (316) Swagelok®-compatible

Nominal width DN	A [mm]	B [mm]	Article no.	Price €
16	6	40	1821-6-4	34.15
16	8	41	1821-8-4	45.00
16	10	44	1821-10-4	44.95
16	12	46	1821-12-4	53.90
20/25	6	40	1824-6-4	36.95
20/25	8	41	1824-8-4	44.45
20/25	10	44	1824-10-4	48.45
20/25	12	46	1824-12-4	57.50
32/40	6	40	1826-6-4	38.45
32/40	8	41	1826-8-4	48.90
32/40	10	44	1826-10-4	49.80
32/40	12	46	1826-12-4	62.00
50	6	40	1827-6-4	53.00
50	8	41	1827-8-4	55.00
50	10	44	1827-10-4	57.00
50	12	46	1827-12-4	65.00

Imperial adapter for KF double compression fitting

- > Pressure range: 10^{-9} mbar to 2.5 bar
- > Temperature range 1.4301: -196°C to 300°C
- > Temperature range 1.4404: -196°C to 350°C
- * Take sealing materials and connecting elements into consideration



1.4301 (304) Swagelok®-compatible

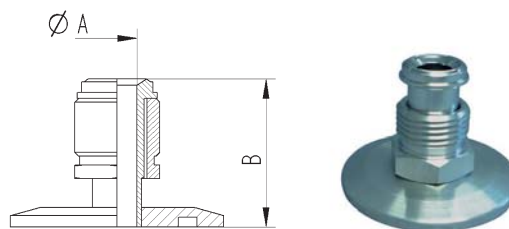
Nominal width DN	A [inches]	B [mm]	Article no.	Price €
16	1/4	38	1831-14	34.45
16	3/8	42.5	1831-38	47.00
16	1/2	46	1831-12	58.95
20/25	1/4	38	1834-14	36.95
20/25	3/8	40	1834-38	47.45
20/25	1/2	44	1834-12	55.90
32/40	1/4	38	1836-14	41.70
32/40	3/8	40	1836-38	54.90
32/40	1/2	44	1836-12	54.90
50	1/4	38	1837-14	52.50
50	3/8	40	1837-38	59.20
50	1/2	45	1837-12	65.00

1.4404 (316) Swagelok®-compatible

Nominal width DN	A [inches]	B [mm]	Article no.	Price €
16	1/4	38	1831-14-4	34.45
16	3/8	42.5	1831-38-4	47.00
16	1/2	46	1831-12-4	58.95
20/25	1/4	38	1834-14-4	38.50
20/25	3/8	40	1834-38-4	47.45
20/25	1/2	44	1834-12-4	59.20
32/40	1/4	38	1836-14-4	43.70
32/40	3/8	40	1836-38-4	59.00
32/40	1/2	44	1836-12-4	54.95
50	1/4	38	1837-14-4	57.00
50	3/8	40	1837-38-4	62.00
50	1/2	45	1837-12-4	67.00

Imperial HTC® adapter, male, KF

- > Pressure range: 10^{-9} mbar to 2.5 bar
- > Temperature range 1.4301: -196 °C to 300 °C
- > Temperature range 1.4404: -196 °C to 350 °C
- * Take sealing materials and connecting elements into consideration



1.4301 (304) VCR®-compatible

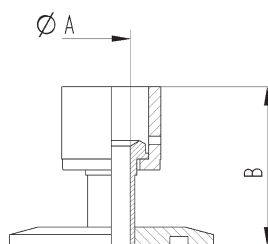
Nominal width DN	A [inches]	B [mm]	Article no.	Price €
16	1/4	34	1851-14	45.90
16	1/2	39	1851-12	62.90
20/25	1/4	34	1854-14	49.40
20/25	1/2	39	1854-12	63.80
32/40	1/4	34	1856-14	52.60
32/40	1/2	39	1856-12	65.90
50	1/4	34	1857-14	62.00
50	1/2	39	1857-12	72.00

1.4404 (316L) VCR®-compatible

Nominal width DN	A [inches]	B [mm]	Article no.	Price €
16	1/4	34	1851-14-4	45.90
16	1/2	39	1851-12-4	62.90
20/25	1/4	34	1854-14-4	49.40
20/25	1/2	39	1854-12-4	63.90
32/40	1/4	34	1856-14-4	52.90
32/40	1/2	39	1856-12-4	65.90
50	1/4	34	1857-14-4	62.00
50	1/2	39	1857-12-4	72.00

Imperial HTC® adapter, female, KF

- > Pressure range: 10⁻⁹ mbar to 2.5 bar
 - > Temperature range 1.4301: -196 °C to 300 °C
 - > Temperature range 1.4404: -196 °C to 350 °C
- * Take sealing materials and connecting elements into consideration



1.4301 (304) VCR®-compatible

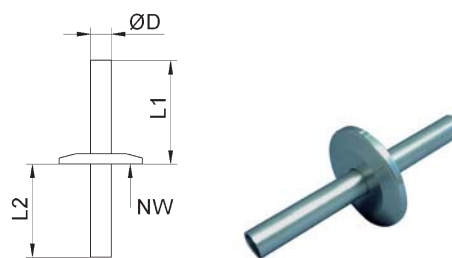
Nominal width DN	A [inches]	B [mm]	Article no.	Price €
16	1/4	41	1841-14	45.90
16	1/2	45	1841-12	64.90
20/25	1/4	41	1844-14	51.70
20/25	1/2	42.5	1844-12	65.90
32/40	1/4	41	1846-14	54.90
32/40	1/2	42.5	1846-12	67.90
50	1/4	41	1847-14	62.00
50	1/2	42.5	1847-12	77.00

1.4404 (316L) VCR®-compatible

Nominal width DN	A [inches]	B [mm]	Article no.	Price €
16	1/4	41	1841-14-4	45.90
16	1/2	45	1841-12-4	64.70
20/25	1/4	41	1844-14-4	51.90
20/25	1/2	42.5	1844-12-4	65.70
32/40	1/4	41	1846-14-4	54.90
32/40	1/2	42.5	1846-12-4	67.95
50	1/4	41	1847-14-4	65.00
50	1/2	42.5	1847-12-4	83.00

Liquid feedthrough, single, KF

- > Pressure range: 10^{-9} mbar to 2.5 bar
 - > Temperature range: -196 °C to 300 °C 1.4301*
 - > Temperature range: -196 °C to 350 °C 1.4404*
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

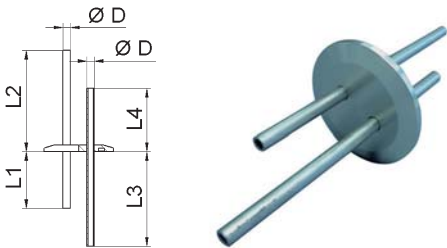
Nominal width DN	dia.D [mm]	L1 [mm]	L2 [mm]	Article no.	Price €
16	6	50	45	1862-6	47.00
16	10	50	45	1862-10	49.00
16	12	50	45	1862-12	52.00
20/25	6	50	45	1864-6	52.00
20/25	10	50	45	1864-10	57.00
20/25	12	50	45	1864-12	59.00
32/40	6	50	45	1866-6	57.00
32/40	10	50	45	1866-10	63.00
32/40	12	50	45	1866-12	65.00

High-grade steel 1.4404

Nominal width DN	dia.D [mm]	L1 [mm]	L2 [mm]	Article no.	Price €
16	6	50	45	1862-6-4	52.00
16	10	50	45	1862-10-4	57.00
16	12	50	45	1862-12-4	59.00
20/25	6	50	45	1864-6-4	55.00
20/25	10	50	45	1864-10-4	61.00
20/25	12	50	45	1864-12-4	65.00
32/40	6	50	45	1866-6-4	63.00
32/40	10	50	45	1866-10-4	68.00
32/40	12	50	45	1866-12-4	73.00

Liquid feedthrough, double, KF

- > Pressure range: 10⁻⁹ mbar to 2.5 bar
 - > Temperature range: -196 °C to 300 °C 1.4301*
 - > Temperature range: -196 °C to 350 °C 1.4404*
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width	dia.D [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	Article no.	Price €
32/40	6	50	75	80	45	1876-6	77.00

High-grade steel 1.4404

Nominal width	dia.D [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	Article no.	Price €
32/40	6	50	75	80	45	1876-6-4	87.00

ISO-K clamping flange components



ISO-K clamping flange components and connecting elements

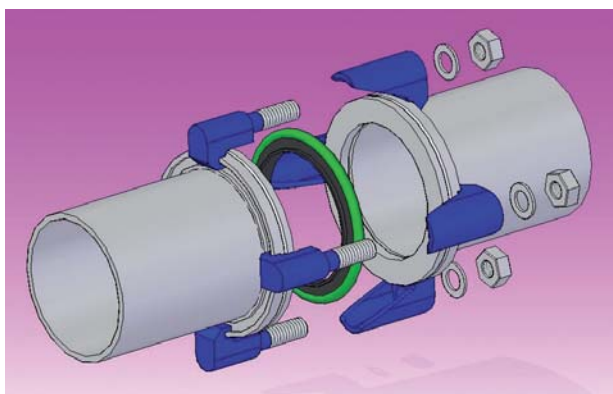
In accordance with DIN 28404 and ISO 1609

Description:

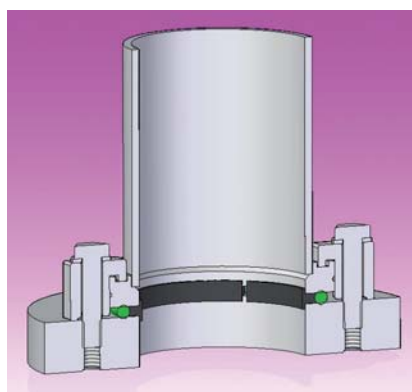
novotek clamping flange components are manufactured in accordance with DIN 28404 and ISO 1609. All components manufactured by novotek are 100% leak-tested and have leak rates better than 10^{-9} mbar/s. Standard sizes are NW 63 to 320. Nominal widths of up to 630 can be manufactured upon request. ISO-K clamping flange connections are suitable for establishing high-vacuum connection from 10^{-9} mbar to 1.5 bar. Assembly is via screw clamps, claws or a collar flange with snap ring and screws. The clamps, claws or screws must be tightened such that the flanges butt against the centring ring. This requires a considerable increase in torque. Sealing takes place according to the respective requirements via elastomer seals or an aluminium sealing ring. In the case of metal seals, the increased contact forces mean that correspondingly more screw clamps are required (see following table). A collar flange provides a problem-free transition to ISO-F. The transition to KF connections and also CF connections is easily possible using ISO-K/KF or ISO-K/CF adapter pieces.

Please refer to the Materials chapter for operation temperatures, sealing materials and information on the different metals.

Installation variants:



ISO-K flange connection "with screw clamps"



ISO-K flange connection "with claws"

Design features and main dimensions of ISO-K components

Nominal width DN	NW 63	NW 80	NW 100	NW 160	NW 200	NW 250	NW 320	NW 400	NW 500	NW 630
Outside diameter dia.a [mm]	95	110	130	180	240	290	370	450	550	690
Centring ring shoulder dia.b [mm]	70	83	102	153	213	261	318	400	501	651
Flange thickness h [mm]	12	12	12	12	12	12	17	17	17	22
Matching pipe dimension	76x3	88.9x3	108x3	159x3	219x3	273x3	323x3	406x3	508x4	660x5
Free diameter dia.d [mm]	70	83	102	153	213	267	317	400	500	650
Number of screw clamps with elastomer seals	4	4	4	4	6	6	8	8	12	12
Number of screw clamps with metal seals (aluminium)	4	6	8	10	12	14	–	–	–	–
Number of claws or through bolts	4	8	8	8	12	12	12	16	16	20

Design features and main dimensions of collar flanges

Nominal width DN	NW 63	NW 80	NW 100	NW 160	NW 200	NW 250	NW 320	NW 400	NW 500	NW 630
Outside diameter dia.a [mm]	130	145	165	225	285	335	425	510	610	750
Inside diameter dia.b [mm]	95.5	110.5	130.5	180.7	240.7	290.7	370.7	450.7	550.7	690.8
Flange thickness h [mm]	12	12	12	16	16	16	20	20	20	24
Pitch circle dia.c [mm]	110	125	145	200	260	310	395	480	580	720
Number and bore dia. [mm]	9x4	8x9	9x8	11x8	11x8	12x11	12x13.5	16x13.5	16x13.5	20x13.5
Diameter of snap ring [mm]	3	3	3	5	5	5	–	–	–	–

ISO-K junctions



Properties of high-grade steel 1.4301/1.4404:

- high leak rate ($<10^{-9}$ mbarl/s)
- high conductance
- gap-free welded
- can be baked out up to 300 °C/350 °C

Description:

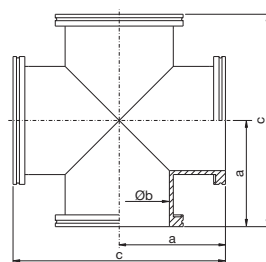
The novotek ISO-K junctions made of high-grade steel are designed as welded constructions. The welds are made on the inside, which guarantees an absolutely gap-free finish. The flanges that guarantee compatibility are manufactured in accordance with DIN 28404 Form B. This makes a trouble-free connection of all components possible. For the flange dimensions, please refer to the design features at the start of this chapter.

Area of application:

The novotek junctions made of high-grade steel allow the installation of vacuum attachments for the pressure range of 1.5 mbar up to 10^{-9} mbar. They can be used in low, medium and high vacuum technology. The components have a bake-out capacity, are corrosion-resistant and their installation location is as desired.

ISO-K crosspiece

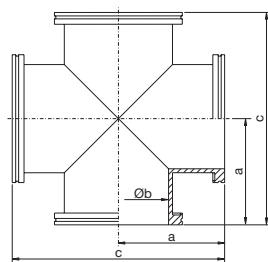
- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
 - > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
 - > Temperature range 1.4301: -196 °C to 300 °C
 - > Temperature range 1.4404: -196 °C to 350 °C
 - > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	a [mm]	dia.b (pipe dimension) [mm]	c [mm]	Article no.	Price €
63	88	66 (70x2)	176	6111	235.00
100	108	100 (104x2)	216	6112	314.00
160	138	153 (159x3)	276	6113	589.00
200	178	213 (219x3)	356	6114	989.00
250	208	267 (273x3)	416	6115	1,249.00

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
 - > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
 - > Temperature range 1.4301: -196°C to 300°C
 - > Temperature range 1.4404: -196°C to 350°C
 - > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.
- * Take sealing materials and connecting elements into consideration

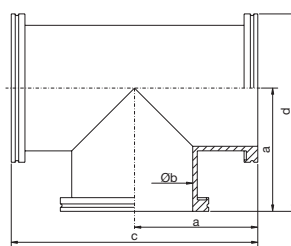


High-grade steel 1.4404

Nominal width DN	a [mm]	dia.b (pipe dimension) [mm]	c [mm]	Article no.	Price €
63	88	66 (70x2)	176	61114	248.50
100	108	100 (104x2)	216	61124	389.50
160	138	153 (159x3)	276	61134	679.50
200	178	213 (219x3)	356	61144	1,115.00
250	208	267 (273x3)	416	61154	1,425.00

T piece ISO-K

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
 - > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
 - > Temperature range 1.4301: -196°C to 300°C
 - > Temperature range 1.4404: -196°C to 350°C
 - > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	a [mm]	dia.b (pipe dimension) [mm]	c [mm]	d [mm]	Article no.	Price €
63	88	66 (70x2)	176	135.5	6121	163.00
100	108	100 (104x2)	216	173	6122	220.00
160	138	153 (159x3)	276	228	6123	481.00
200	178	213 (219x3)	356	298	6124	664.00
250	208	267 (273x3)	416	353	6125	934.00

High-grade steel 1.4404

Nominal width DN	a [mm]	dia.b (pipe dimension) [mm]	c [mm]	d [mm]	Article no.	Price €
63	88	66 (70x2)	176	135.5	61214	187.50
100	108	100 (104x2)	216	173	61224	230.00
160	138	153 (159x3)	276	228	61234	490.00
200	178	213 (219x3)	356	298	61244	790.00
250	208	267 (273x3)	416	353	61254	1,090.00

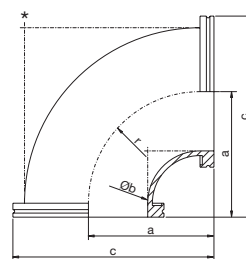
- > Pressure range: 10^{-7} mbar to 1.5 bar
 - > Temperature range: -196°C to 150°C
- * Take sealing materials and connecting elements into consideration

Aluminium 3.2315

Nominal width DN	A [mm]	dia.b (pipe dimension) [mm]	c [mm]	d [mm]	Article no.	Price €
63	83	70 (76x3)	166	130.5	6121A	199.00
100	111.5	100 (108x4)	225.5	176.5	6122A	238.00

Pipe bend/pipe elbow ISO-K

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range 1.4301: -196 °C to 300 °C
- > Temperature range 1.4404: -196 °C to 350 °C
- > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	a [mm]	dia.b (pipe dimension) [mm]	c [mm]	r [mm]	Article no.	Price €
63	88	66 (70x2)	133.5	80	6131	88.50
100	108	100 (104x2)	173	100	6132	134.50
160	233	150 (154x2)	323	225	6133	286.50
160	138	153 (159x3)	228	-	6133w	287.00
200	178	213 (219x3)	298	-	6134w	489.00
250	208	267 (273x3)	353	-	6135w	589.00

High-grade steel 1.4404

Nominal width DN	a [mm]	dia. b (pipe dimension) [mm]	c [mm]	r [mm]	Article no.	Price €
63	88	66 (70x2)	133.5	80	61314	109.00
100	108	100 (104x2)	173	100	61324	160.00
160	233	150 (154x2)	323	225	61334	327.00
160	138	153 (159x3)	228	-	6133w4	317.00
200	178	213 (219x3)	298	-	6134w4	526.00
250	208	267 (273x3)	353	-	6135w4	637.00

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -196 °C to 150 °C
- * Take sealing materials and connecting elements into consideration

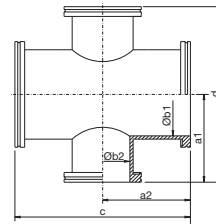
Aluminium 3.2315

Nominal width DN	a [mm]	dia. b (pipe dimension) [mm]	c [mm]	r [mm]	Article no.	Price €
63	71	70 (76x3)	118.5	64	6131A	135.00
100	108	103 (108x2.5)	173	100.5	6132A	165.00
160	158	150 (160x5)	248	150.5	6133A	275.00

ISO-K reducing crosspiece

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.

* Take sealing materials and connecting elements into consideration



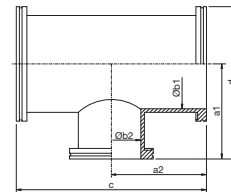
High-grade steel 1.4301

DN	a1 [mm]	b1 [mm]	a2 [mm]	b2 [mm]	c [mm]	d [mm]	Article no.	Price €
100/63	107	102	108	70	216	214	6141	452.00
160/63	130	153	138	70	276	260	6142	477.00
160/100	131	153	138	102	276	262	6143	574.00
200/160	168	213	178	153	356	336	6144	893.00
250/200	195	261	208	213	416	390	6145	1,330.00
200/100	168	213	178	102	356	336	6146	798.00

Reducing T piece ISO-K

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C bis 300 °C
- > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.

* Take sealing materials and connecting elements into consideration



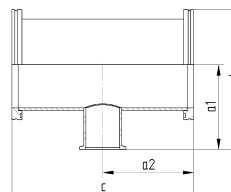
High-grade steel 1.4301

DN	a1 [mm]	b1 [mm]	a2 [mm]	b2 [mm]	c [mm]	d [mm]	Article no.	Price €
100/63	107	102	108	70	216	172	6151	279.00
160/63	130	153	138	70	276	220	6152	374.00
160/100	131	153	138	102	276	221	6153	399.00
200/160	168	213	178	153	356	288	6154	754.00
250/200	195	261	208	213	416	340	6155	1,158.00
250/160	192	261	208	153	416	282	6156	1,062.00
200/100	161	213	178	102	356	281	6157	689.00

Reducing T piece ISO-K/KF

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

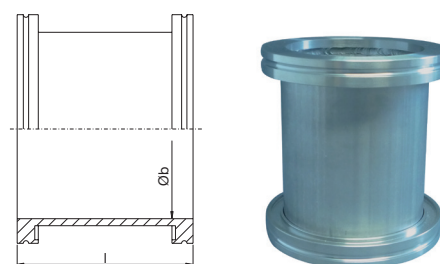
DN	a1 [mm]	b1 [mm]	a2 [mm]	b2 [mm]	c [mm]	d [mm]	Article no.	Price €
63/16	75	70	88	15	176	122.5	6310	191.00
63/25	75	70	88	25	176	122.5	6311	193.00
63/40	75	70	88	37	176	122.5	6312	196.00
63/50	75	70	88	49	176	122.5	6313	199.00
100/16	100	102	108	15	216	165	6314	241.00

100/25	100	102	108	25	216	165	6315	243.00
100/40	100	102	108	37	216	165	6316	246.00
100/50	100	102	108	49	216	165	6317	249.00
160/16	125	153	138	15	276	215	6318	321.00
160/25	125	153	138	25	276	215	6319	323.00
160/40	125	153	138	37	276	215	6320	326.00
160/50	125	153	138	49	276	215	6321	329.00

ISO-K connecting piece

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)
- > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	dia.b [mm]	l [mm]	Article no.	Price €
63	70	According to customer request (standard 100 mm)	6171	99.00
100	102	According to customer request (standard 100 mm)	6172	129.00
160	153	According to customer request (standard 100 mm)	6173	169.00
200	213	According to customer request (standard 100 mm)	6174	324.00
250	267	According to customer request (standard 100 mm)	6175	479.00

High-grade steel 1.4404

Nominal width DN	dia.b [mm]	l [mm]	Article no.	Price €
63	70	According to customer request (standard 100 mm)	61714	115.00
100	102	According to customer request (standard 100 mm)	61724	133.00
160	153	According to customer request (standard 100 mm)	61734	209.00
200	213	According to customer request (standard 100 mm)	61744	348.00
250	267	According to customer request (standard 100 mm)	61754	537.00

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -196 °C to 150 °C

* Take sealing materials and connecting elements into consideration

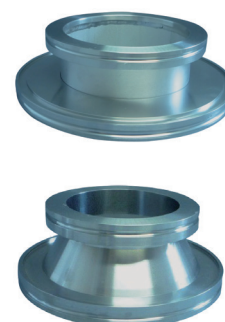
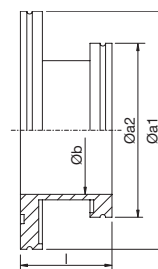
Aluminium 3.2315

Nominal width DN	dia.b [mm]	l [mm]	Article number.	Price €
63	70 (76x3)	According to customer request (standard 100 mm)	6171A	127.00
100	102 (108x3)	According to customer request (standard 100 mm)	6172A	137.00
160	152 (160x4)	According to customer request (standard 100 mm)	6173A	155.00

Reducing fitting straight/conical ISO-K

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)
- > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	a1 [mm]	a2 [mm]	dia.b [mm]	l [mm]	Article no.	Price €
100/63	130	95	70	50	6161	99.00
160/63	180	95	70	50	6162	121.70
160/100	180	130	102	50	6163	138.00
200/63	240	95	70	50	6166	325.00
200/100	240	130	102	50	6165	263.00
200/160	240	180	153	50	6164	375.00
250/63	290	95	70	50	6170	395.00
250/100	290	130	102	50	6169	445.00
250/160	290	180	153	50	6168	482.00
250/200	290	240	213	50	6167	535.00
100/63	130	95	conical	50	6161k	165.00
160/63	180	95	conical	50	6162k	237.00
160/100	180	130	conical	70	6163k	259.00

High-grade steel 1.4404

Nominal width DN	a1 [mm]	a2 [mm]	dia.b [mm]	l [mm]	Article no.	Price €
100/63	130	95	70	50	61614	127.00
160/63	180	95	70	50	61624	173.00
160/100	180	130	102	50	61634	188.00
200/63	240	95	70	50	61664	335.00
200/100	240	130	102	50	61654	354.00
200/160	240	180	153	50	61644	410.00
250/63	290	95	70	50	61704	410.00
250/100	290	130	102	50	61694	415.00
250/160	290	180	153	50	61684	585.00
250/200	290	240	213	50	61674	695.00
100/63	130	95	conical	50	6161k4	249.00
160/63	180	95	conical	50	6162k4	299.00
160/100	180	130	conical	70	6163k4	299.00

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -196 °C to 150 °C

* Take sealing materials and connecting elements into consideration

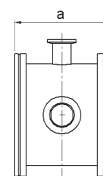
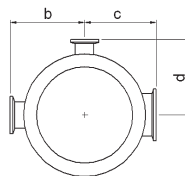
Aluminium 3.2315

Nominal width DN	a1 [mm]	a2 [mm]	dia.b [mm]	l [mm]	Article no.	Price €
100/63	130	95	70	50	6161A	127.00
160/63	180	95	70	50	6162A	137.00
160/100	180	130	102	50	6163A	152.00

Measuring cross ISO-K

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Outlets respectively 1x KF16, KF25, KF40
- > Temperature range: -196°C to 300°C (1.4301)
- > Temperature range: -196°C to 350°C (1.4404)
- > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Article no.	Price €
63	100	64	57	62	6391	269.00
100	100	79	76	80	6392	339.00
160	100	106	104	105	6393	382.00
200	120	136	135	136	6394	535.00
250	120	160	159	160	6395	750.00

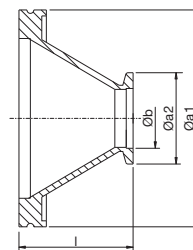
High-grade steel 1.4404

Nominal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Article no.	Price €
63	100	64	57	62	63914	291.00
100	100	79	76	80	63924	367.00
160	100	106	104	105	63934	397.00
200	120	136	135	136	63944	642.00
250	120	160	159	160	63954	772.00

ISO-K/KF conical adapter piece

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196°C to 300°C (1.4301)
- > Temperature range: -196°C to 150°C (3.2315)
- > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	a [mm]	a2 [mm]	b [mm]	l [mm]	Article no.	Price €
63/25	95	40	25	50	6181k	92.00
63/40	95	55	40	50	6182k	81.90
63/50	95	75	50	50	6183k	104.00

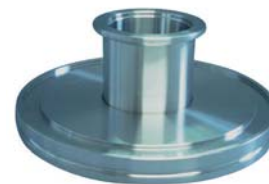
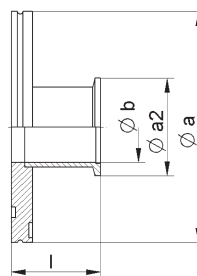
Aluminium 3.2315

Nominal width DN	a [mm]	a2 [mm]	b [mm]	l [mm]	Article no.	Price €
63/25	95	40	25	50	6181kA	69.50
63/40	95	55	40	50	6182kA	53.90
63/50	95	75	50	50	6183kA	63.90

ISO-K/KF adapter piece

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C bis 350 °C (1.4404)
- > Clean metallic surfaces on inside and outside.
Polished or glass bead blasted upon request.

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	a [mm]	a2 [mm]	b [mm]	l [mm]	Article no.	Price €
63/16	95	30	16	50	6180	54.90
63/25	95	40	25	50	6181	55.90
63/40	95	55	40	50	6182	57.90
63/50	95	75	50	50	6183	69.00
100/16	130	30	16	50	6184	64.90
100/25	130	40	25	50	6185	69.90
100/40	130	55	40	50	6186	77.00
100/50	130	75	50	50	6187	81.90
160/25	180	40	25	50	6188	95.50
160/40	180	55	40	50	6189	99.00
160/50	180	75	50	50	6190	109.00
200/25	240	40	25	50	6191	272.00
200/40	240	55	40	50	6192	292.00
200/50	240	75	50	50	6193	307.00
250/40	290	55	40	50	6194	340.00
250/50	290	75	50	50	6195	365.00

High-grade steel 1.4404

Nominal width DN	a [mm]	a2 [mm]	b [mm]	l [mm]	Article no.	Price €
63/16	95	30	16	50	61804	73.00
63/25	95	40	25	50	61814	76.80
63/40	95	55	40	50	61824	78.50
63/50	95	75	50	50	61834	99.00
100/16	130	30	16	50	61844	98.50
100/25	130	40	25	50	61854	102.00
100/40	130	55	40	50	61864	107.00
100/50	130	75	50	50	61874	117.00
160/25	180	40	25	50	61884	132.00
160/40	180	55	40	50	61894	142.00
160/50	180	75	50	50	61904	152.00
200/25	240	40	25	50	61914	325.00
200/40	240	55	40	50	61924	325.00
200/50	240	75	50	50	61934	375.00
250/40	290	55	40	50	61944	425.00
250/50	290	75	50	50	61954	455.00

ISO-K components



Properties of high-grade steel 1.4301/1.4404:

- high leak rate ($<10^{-9}$ mbarl/s)
- high conductance
- gap-free welded
- can be baked out up to 300 °C/350 °C

Description:

Apart from the ISO-K flanges with a long flanged socket all novotek components in the high-grade steel area are turned from solid material or steel tubing. This guarantees maximum precision and an absolute gap-free finish. The flanges that guarantee compatibility are manufactured in accordance with DIN 28404 Form B. This makes a trouble-free connection of all components possible. For the flange dimensions, please refer to the design features at the start of this chapter.

Area of application:

The novotek clamping flange components made of high-grade steel allow the installation of vacuum attachments for the pressure range of 1500 mbar up to 10^{-9} mbar. For aluminium attachments, the pressure range from 1500 mbar to 10^{-7} mbar can be set up. They can be used in low, medium and high vacuum technology. The components have a bake-out capacity, are corrosion-resistant and their installation location is as desired. Compatibility with pipe system in accordance with DIN 11850 is guaranteed.

Blind flange ISO-K

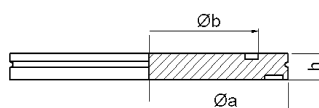
> Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals

> Pressure range: 10^{-9} mbar to 1.5 bar with metal seals

> Temperature range: -196 °C to 300 °C (1.4301)

> Temperature range: -196 °C to 350 °C (1.4404)

* Take sealing materials and connecting elements into consideration

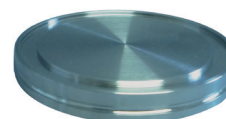
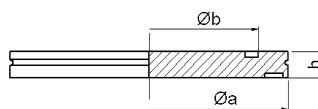


High-grade steel 1.4301

Nominal width DN	a [mm]	b [mm]	h [mm]	Article no.	Price €
63	95	70	12	6421	25.50
80	110	83	12	64215	31.60
100	130	102	12	6422	33.80
160	180	153	12	6423	61.00
200	240	213	12	6424	139.50
250	290	261	12	6425	183.00
320	370	318	17	6426	389.00

Blind flange ISO-K

High-grade steel 1.4404



Nominal width DN	a [mm]	b [mm]	h [mm]	Article no.	Price €
63	95	70	12	64214	29.30
80	110	83	12	642154	36.90
100	130	102	12	64224	39.00
160	180	153	12	64234	68.50
200	240	213	12	64244	149.50
250	290	261	12	64254	189.70
320	370	318	17	64264	395.00

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -196 °C to 150 °C

* Take sealing materials and connecting elements into consideration

Aluminium 3.2315

Nominal width DN	a [mm]	b [mm]	h [mm]	Article no.	Price €
63	95	70	12	6421A	24.90
100	130	102	12	6422A	32.90
160	180	153	12	6423A	59.20

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C

* Take sealing materials and connecting elements into consideration

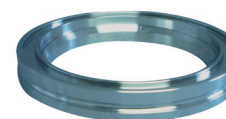
Steel 1.0037

Nominal width DN	a [mm]	b [mm]	h [mm]	Article no.	Price €
63	95	70	12	6421St	26.90
100	130	102	12	6422St	35.50
160	180	153	12	6423St	42.90

Welding flange ISO-K

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

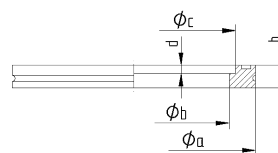
Nominal width DN	dia.a [mm]	dia.b [mm]	dia.c (pipe dimensions) [mm]	d [mm]	h [mm]	Article no.	Price €
63	95	70	76.6 (76x3)	4.5	12	6511	23.50
63	95	70	70.3 (70x2)	4.5	12	65115	23.50
80	110	83	89.3 (88.9x3)	4.5	12	6511-80	31.70
100	130	102	108.6 (108x3)	4.5	12	6512	30.50
100	130	102	104.6 (104x2)	4.5	12	65125	30.50
160	180	153	159.8 (159x3)	4.5	12	6513	43.00
160	180	153	154.8 (154x2)	4.5	12	65135	43.00
200	240	213	219.8 (219x3)	4.5	12	6514	131.80
250	290	261	273.8 (273x3)	4.5	12	6515	174.00
320	370	318	324.6 (323.9x3)	7	17	6516	314.00

High-grade steel 1.4404

Nominal width DN	dia.a [mm]	dia.b [mm]	dia.c (pipe dimensions) [mm]	d [mm]	h [mm]	Article no.	Price €
63	95	70	76.6 (76x3)	4.5	12	65114	24.95
63	95	70	70.3 (70x2)	4.5	12	651154	24.95
63	95	70	63.8 (63.5x1.65)	4.5	12	65114-IM	24.95
80	110	83	89.3 (88.9x3)	4.5	12	65114-80	31.70
100	130	102	108.6 (108x3)	4.5	12	65124	33.90
100	130	100	104.6 (104x2)	4.5	12	651254	33.90
100	130	102	102 (101.6x2.11)	4.5	12	65124-IM	33.90
160	180	153	159.8 (159x3)	4.5	12	65134	53.90
160	180	153	154.8 (154x2)	4.5	12	651354	53.90
160	180	153	153 (152.4x2.77)	4.5	12	65134-IM	53.90
200	240	213	219.8 (219x3)	4.5	12	65144	137.90
250	290	261	273.8 (273x3)	4.5	12	65154	177.00
320	370	318	324.6 (323.9x3)	7	17	65164	415.00

Welding flange ISO-K

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -196 °C to 150 °C
- * Take sealing materials and connecting elements into consideration



Aluminium 3.2315

Nominal width DN	dia.a [mm]	dia.b [mm]	dia.c (pipe dimensions) [mm]	d [mm]	h [mm]	Article no.	Price €
63	95	70	76.6 (76x3)	4.5	12	6511A	26.00
100	130	102	108.6 (108x3)	4.5	12	6512A	32.00
160	180	153	160.8 (160x4)	4.5	12	6513A	46.00

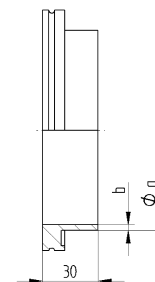
- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C
- * Take sealing materials and connecting elements into consideration

Steel 1.0037

Nominal width DN	dia.a [mm]	dia.b [mm]	dia.c (pipe dimensions) [mm]	d [mm]	h [mm]	Article no.	Price €
63	95	70	76.6 (76x3)	4.5	12	6511St	23.90
100	130	102	108.6 (108x3)	4.5	12	6512St	27.90
160	180	153	159.8 (159x3)	4.5	12	6513St	34.90
200	240	213	219.8 (219x3)	4.5	12	6514St	Upon request
250	290	261	273.8 (273x3)	4.5	12	6515St	Upon request

ISO-K flange with short flanged socket

- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	dia.a (pipe dimension) [mm]	b [mm]	l [mm]	Article no.	Price €
63	76 (76x3)	3	30	6521	47.00
100	108 (108x3)	3	30	6522	57.00
160	159 (159x3)	3	30	6523	87.00
200	219 (219x3)	3	30	6524	Upon request
250	273 (273x3)	3	30	6525	Upon request

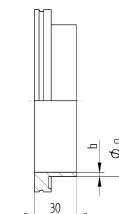
High-grade steel 1.4404

Nominal width DN	dia.a (pipe dimension) [mm]	b [mm]	l [mm]	Article no.	Price €
63	76 (76x3)	3	30	65214	57.00
100	108 (108x3)	3	30	65224	77.00
160	159 (159x3)	3	30	65234	107.00
200	219 (219x3)	3	30	65244	Upon request
250	273 (273x3)	3	30	65254	Upon request

ISO-K flange with short flanged socket

- > Pressure range: 10⁻⁷mbar to 1.5 bar
- > Temperature range: -196 °C to 150 °C

* Take sealing materials and connecting elements into consideration



Aluminium 3.2315

Nominal width DN	dia.a (pipe dimension) [mm]	b [mm]	l [mm]	Article no.	Price €
63	76 (76x3)	3	30	6521A	52.00
100	108 (108x3)	3	30	6522A	67.00
160	160 (160x4)	3	30	6523A	97.00

- > Pressure range: 10⁻⁷mbar to 1.5 bar with elastomer seals
- > Pressure range: 10⁻⁹mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C * Take sealing materials and connecting elements into consideration

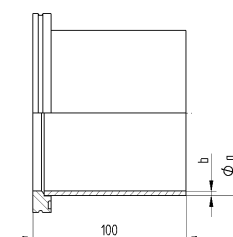
Steel 1.0037

Nominal width DN	dia.a (pipe dimension) [mm]	b [mm]	l [mm]	Article no.	Price €
63	76 (76x3)	3	30	6521St	38.00
100	108 (108x3)	3	30	6522St	48.00
160	159 (159x3)	3	30	6523St	73.00
200	219 (219x3)	3	30	6524St	Upon request
250	273 (273x3)	3	30	6525St	Upon request

ISO-K flange with long flanged socket

- > Pressure range: 10⁻⁷mbar to 1.5 bar with elastomer seals
- > Pressure range: 10⁻⁹mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C (1.4301)
- > Temperature range: -196 °C to 350 °C (1.4404)

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

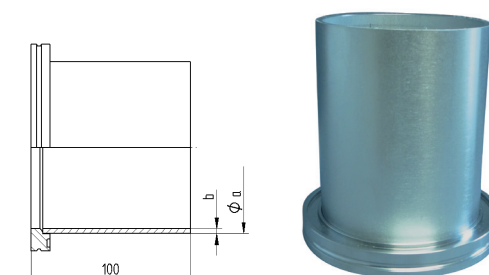
Nominal width DN	dia.a (pipe dimension) [mm]	b [mm]	l [mm]	Article no.	Price €
63	76 (76x3)	3	100	6571	49.50
100	108 (108x3)	3	100	6572	69.00
160	159 (159x3)	3	100	6573	93.50
200	219 (219x3)	3	100	6574	149.00
250	273 (273x3)	3	100	6575	272.00

High-grade steel 1.4404

Nominal width DN	dia.a (pipe dimension) [mm]	b [mm]	l [mm]	Article no.	Price €
63	76 (76x3)	3	100	65714	58.90
63	63.5 (63.5x1.65)	3	100	65714-IM	49.50
100	108 (108x3)	3	100	65724	78.00
100	101.6 (101.6x2.11)	3	100	65724-IM	69.00
160	159 (159x3)	3	100	65734	112.00
200	219 (219x3)	3	100	65744	199.00
250	273 (273x3)	3	100	65754	297.00

ISO-K flange with long flanged socket

- > Pressure range: 10^{-7} mbar to 1.5 bar
- > Temperature range: -196 °C to 150 °C
- * Take sealing materials and connecting elements into consideration



Aluminium 3.2315

Nominal width DN	dia.a (pipe dimension) [mm]	b [mm]	l [mm]	Article no.	Price €
63	76 (76x3)	3	100	6571A	49.00
100	108 (108x3)	3	100	6572A	67.00
160	160 (160x4)	3	100	6573A	89.00

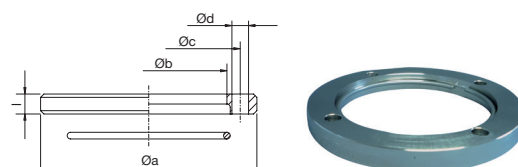
- > Pressure range: 10^{-7} mbar to 1.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 1.5 bar with metal seals
- > Temperature range: -196 °C to 300 °C
- * Take sealing materials and connecting elements into consideration

Steel 1.0037

Nominal width DN	dia.a (pipe dimension) [mm]	b [mm]	l [mm]	Article no.	Price €
63	76 (76x3)	3	100	6571St	49.00
100	108 (108x3)	3	100	6572St	66.00
160	159 (159x3)	3	100	6573St	89.00
200	219 (219x3)	3	100	6574St	Upon request
250	273 (273x3)	3	100	6575St	Upon request

ISO collar flange with snap ring

- > Temperature range: -10 °C to 150 °C 1.0037
- > Temperature range: -196 °C to 300 °C 1.4301
- * Take sealing materials and connecting elements into consideration



Steel 1.0037 nickel-plated

Nominal width DN	dia.a [mm]	dia.b [mm]	dia.c [mm]	dia.d [mm]	l [mm]	Bores	dia. ring [mm]	Article no.	Price €
63	130	95.5	110	9	12	4x90°	3	6581	47.00
100	165	130.5	145	9	12	8x45°	3	6582	63.00
160	225	180.7	200	11	16	8x45°	5	6583	92.00
200	285	240.7	260	11	16	12x30°	5	6584	172.00
250	335	290.7	310	11	16	12x30°	5	6585	212.00

High-grade steel 1.4301

Nominal width DN	dia.a [mm]	dia.b [mm]	dia.c [mm]	dia.d [mm]	l [mm]	Bores	dia. ring [mm]	Article no.	Price €
63	130	95.5	110	9	12	4x90°	3	6591	59.90
100	165	130.5	145	9	12	8x45°	3	6592	84.70
160	225	180.7	200	11	16	8x45°	5	6593	144.00
200	285	240.7	260	11	16	12x30°	5	6594	Upon request
250	335	290.7	310	11	16	12x30°	5	6595	Upon request

ISO-K hoses and metal spring bellows



Properties of high-grade steel 1.4301 / 1.4404:

- temperature range -196 °C to $+350\text{ °C}$
- suitable for high vacuum up to $1 \times 10^{-9}\text{ mbar}$
- metal hose lengths of up to 5 m are possible

Description:

The novotek metal hoses are circular corrugated all-metal hoses. The profiling on the corrugation determines the elastic pliability and compressive resistance. The typical clip flange connections are welded onto the metal hoses. To eliminate temper colours and clean the weld seam, in a special vacuum annealing procedure the hoses are baked-out at approx. 1040 °C under forming gas. In this process, the metal hose is simultaneously soft-annealed and thus receives its extremely flexibility property. The flexibility makes smaller bending radii possible.

The novotek metal spring bellows are corrugated metal bellows. The corrugated sections that run concentrically and parallel to one another give the metal spring bellows axial, angular and lateral mobility, whereby combinations of this are also possible. Metal spring bellows are not annealed.

Area of application:

The novotek metal hose connections and metal spring bellows can be used as a mobile vacuum line. If they are used, ensure that the metal hoses can only execute bending movements in a lateral direction. Dynamic axial movements, i.e. buckling or pulling apart both in axial direction as well as torsional movement can only be executed by metal spring bellows.

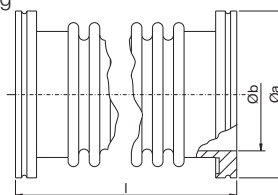
Important note:

During evacuation of metal hoses as well as metal spring bellows, the air pressure applied from the outside results in a considerable force acting on the flanges, which causes compression. Only the spring power of the hose and bellows counteracts this. It may be necessary to compensate for the forces that develop.

ISO-K corrugated hose with flange, annealed

(Flange 1.4301. 1.4404 / hose 1.4404)

- > Flexible without annealing / extremely flexible through soft annealing
 - > Pressure range: 10^{-9} mbar
 - > Temperature range 1.4301: -196 °C to 300 °C*
 - > Temperature range 1.4404: -196 °C to 350 °C*
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	Total length l [mm]	dia.a [mm]	dia.b [mm]	One-time movement radius R_{st} [mm]	Frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
63	250	80	65	90	330	1.7	6901	150.50
100	250	120	100	131	530	1.3	6902	192.00
160	250	180	153	216	1050	1.1	6903	332.00
63	500	95	70	90	330	1.7	6911	167.50
100	500	130	102	131	530	1.3	6912	238.00
160	500	180	153	216	1050	1.1	6913	398.00
63	750	95	70	90	330	1.7	6931	192.00
100	750	130	102	131	530	1.3	6932	267.00
160	750	180	153	216	1050	1.1	6933	452.00
63	1000	95	70	90	330	1.7	6921	235.00
100	1000	130	102	131	530	1.3	6922	297.00
160	1000	180	153	216	1050	1.1	6923	498.00

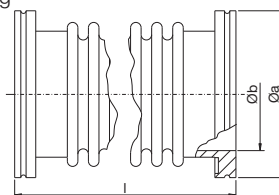
High-grade steel 1.4404

Nominal width DN	Total length l [mm]	dia.a [mm]	dia.b [mm]	One-time movement radius R_{st} [mm]	Frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
63	250	80	65	90	330	1.7	69014	160.00
100	250	120	100	131	530	1.3	69024	202.00
160	250	180	153	216	1050	1.1	69034	352.00
63	500	95	70	90	330	1.7	69114	182.00
100	500	130	102	131	530	1.3	69124	242.00
160	500	180	153	216	1050	1.1	69134	412.00
63	750	95	70	90	330	1.7	69314	210.00
100	750	130	102	131	530	1.3	69324	287.00
160	750	180	153	216	1050	1.1	69334	477.00
63	1000	95	70	90	330	1.7	69214	238.00
100	1000	130	102	131	530	1.3	69224	332.00
160	1000	180	153	216	1050	1.1	69234	547.00

ISO-K corrugated hose with flange, unannealed

(Flange 1.4301. 1.4404 / hose 1.4404)

- > Flexible without annealing / extremely flexible through soft annealing
 - > Pressure range: 10^{-9} mbar
 - > Temperature range 1.4301: -196 °C to 300 °C*
 - > Temperature range 1.4404: -196 °C to 350 °C*
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	Total length l [mm]	dia.a [mm]	dia.b [mm]	One-time movement radius R_{st} [mm]	Frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
63	250	80	65	90	330	1.7	6901U	146.50
100	250	120	100	131	530	1.3	6902U	187.00
160	250	180	153	216	1050	1.1	6903U	326.00
63	500	95	70	90	330	1.7	6911U	162.50
100	500	130	102	131	530	1.3	6912U	232.00
160	500	180	153	216	1050	1.1	6913U	392.00
63	750	95	70	90	330	1.7	6931U	181.50
100	750	130	102	131	530	1.3	6932U	255.00
160	750	180	153	216	1050	1.1	6933U	444.00
63	1000	95	70	90	330	1.7	6921U	198.50
100	1000	130	102	131	530	1.3	6922U	284.00
160	1000	180	153	216	1050	1.1	6923U	489.00

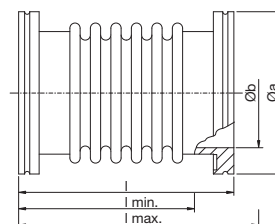
High-grade steel 1.4404

Nominal width DN	Total length l [mm]	dia.a [mm]	dia.b [mm]	One-time movement radius R_{st} [mm]	Frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
63	250	80	65	90	330	1.7	69014U	156.00
100	250	120	100	131	530	1.3	69024U	197.00
160	250	180	153	216	1050	1.1	69034U	346.00
63	500	95	70	90	330	1.7	69114U	177.00
100	500	130	102	131	530	1.3	69124U	236.00
160	500	180	153	216	1050	1.1	69134U	405.00
63	750	95	70	90	330	1.7	69314U	204.00
100	750	130	102	131	530	1.3	69324U	280.00
160	750	180	153	216	1050	1.1	69334U	469.00
63	1000	95	70	90	330	1.7	69214U	231.00
100	1000	130	102	131	530	1.3	69224U	324.00
160	1000	180	153	216	1050	1.1	69234U	538.00

ISO-K metal spring bellows 304L/316L

- > Pressure range: 10^{-9} mbar
- > 10000 load alternation at 20 °C and 1013 mbar standard air pressure
- > Temperature range: -196 °C to 300 °C* 1.4301
- > Temperature range: -196 °C to 350 °C* 1.4404

* Take sealing materials and connecting elements into consideration



Flange and connection pipe 1.4301 / bellows 1.4571

Nominal width DN	dia.a [mm]	dia.b [mm]	Total length l [mm]	Lmin [mm]	Lmax [mm]	Maximum pressure [bar]	Article no.	Price €
63	95	70	130	116	140	1.7	6991	141.90
100	130	102	130	116	140	1.3	6992	184.00
160	180	153	220	170	230	1.1	6993	324.50
200	240	213	220	185	230	1.0	6994	690.00
250	290	261	220	185	230	1.0	6995	990.00

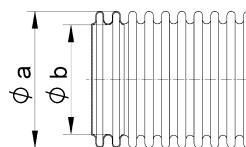
Flange and connection pipe 1.4404 / bellows 1.4571

Nominal width DN	dia.a [mm]	dia.b [mm]	Total length l [mm]	Lmin [mm]	Lmax [mm]	Maximum pressure [bar]	Article no.	Price €
63	95	70	130	116	140	1.7	69914	171.00
100	130	102	130	116	140	1.3	69924	210.00
160	180	153	220	170	230	1.1	69934	352.00
200	240	213	220	185	230	1.0	69944	795.00
250	290	261	220	185	230	1.0	69954	1,190.00

ISO-K corrugated hose, annealed, sold by the metre 1.4404

- > Available in lengths of 100 mm to 5000 mm
- > When ordering, specify desired length additionally in text form
- > Pressure range: 10^{-9} mbar
- > Temperature range: -196 °C to 350 °C*

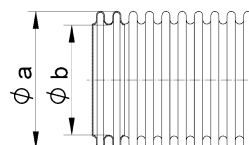
* Take sealing materials and connecting elements into consideration



Nominal width DN	Total length l [mm]	dia.a [mm]	dia.b [mm]	One-time movement radius R _{st} [mm]	Frequent movement radius R _b [mm]	Maximum pressure [bar]	Article no.	Price €
63	1000	80	65	90	330	1.7	6971	131.00
100	1000	120	100	131	530	1.3	6972	172.00
160	1000	180	153	216	1050	1.1	6973	213.00

ISO-K corrugated hose, unannealed, sold by the metre 1.4404

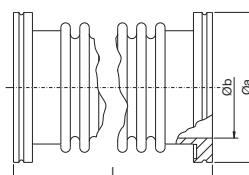
- > Available in lengths of 100 mm to 5000 mm
- > When ordering, specify desired length additionally in text form
- > Pressure range: 10^{-9} mbar
- > Temperature range: -196°C to 350°C *
- * Take sealing materials and connecting elements into consideration



Nominal width DN	Total length l [mm]	dia.a [mm]	dia.b [mm]	One-time movement radius R_{st} [mm]	Frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
63	1000	80	65	90	330	1.7	6971U	124.00
100	1000	120	100	131	530	1.3	6972U	164.00
160	1000	180	153	216	1050	1.1	6973U	204.00

Special length ISO-K corrugated hose, annealed with ISO-K flange

- > Available in lengths of 100 mm to 5000 mm
- > When ordering, specify desired length additionally in text form
- > Pressure range: 10^{-9} mbar
- > Temperature range: -196°C to 300°C (1.4301)/ 350°C (1.4404)*
- * Take sealing materials and connecting elements into consideration

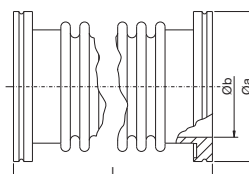


Price example:

High-grade steel hose, extremely flexible 1.4301 NW100 l = 2700 mm contains:	Article no.	Price €
High-grade steel hose, extremely flexible 1.4301 ISO-K NW100 l = 1000 mm	6922	297.00
High-grade steel hose, extremely flexible ISO-K NW100 sold by the metre 1.7 m	6972 x 1.7	$172 \times 1.7 = 292.40$
High-grade steel hose, extremely flexible 1.4301 ISO-K NW100 l = 2700 mm	6922 x 2.7	Total price = 589.40

Special length ISO-K corrugated hose, unannealed with ISO-K flange

- > Available in lengths of 100 mm to 5000 mm
- > When ordering, specify desired length additionally in text form
- > Pressure range: 10^{-9} mbar
- > Temperature range: -196°C to 300°C (1.4301)/ 350°C (1.4404)*
- * Take sealing materials and connecting elements into consideration



Price example:

High-grade steel hose, flexible 1.4301 NW100 l = 2700 mm contains:	Article no.	Price €
High-grade steel hose, flexible 1.4301 ISO-K NW100 l = 1000 mm	6922U	284.00
High-grade steel hose, flexible ISO-K NW100 sold by the metre 1.7 m	6972U x 1.7	$164 \times 1.7 = 278.80$
High-grade steel hose, flexible 1.4301 ISO-K NW100 l = 2700 mm	6922U x 2.7	Total price = 562.80

ISO-K seal components



Properties:

- temperature range $-60\text{ }^{\circ}\text{C}$ to $+200\text{ }^{\circ}\text{C}$
- suitable for high vacuum up to 1×10^{-7} mbar
- combinable depending on application area

Description:

novotek seal components can be selected depending on the technical vacuum requirements, e.g. bake-out capacity, outgassing and corrosion resistance. The O-ring seals used differ with regard to their temperature stability and compatibility with different media. A series of combination options are described under "Materials" at the beginning of our catalogue.

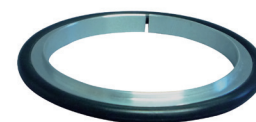
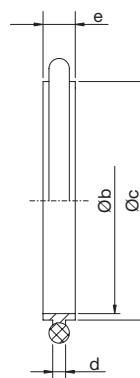
If there are special requirements, e.g. no permeation of gases or long-term high temperature requirements, aluminium sealing rings are used.

Area of application:

The novotek seal components allow the installation of vacuum attachments for the pressure range of 1500 mbar up to 10^{-7} mbar.

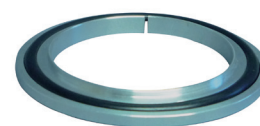
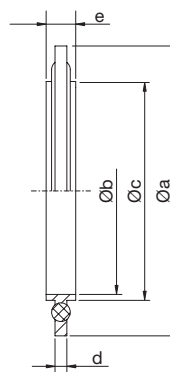
ISO-K centring ring, aluminium, without outer ring

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range for aluminium: -196 °C to 150 °C*
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.b [mm]	dia.c [mm]	d [mm]	e [mm]	Article no.	Price €
Perbunan® (NBR)	63	67.5	70	3.9	8	6201	13.20
Perbunan® (NBR)	80	80.2	83.2	3.9	8	62015	18.10
Perbunan® (NBR)	100	99.5	102	3.9	8	6202	18.10
Perbunan® (NBR)	160	150	153	3.9	8	6203	19.70
Viton® (FKM,FPM)	63	67.5	70	3.9	8	6211	12.20
Viton® (FKM,FPM)	80	80.2	83.2	3.9	8	62115	18.70
Viton® (FKM,FPM)	100	99.5	102	3.9	8	6212	16.00
Viton® (FKM,FPM)	160	150	153	3.9	8	6213	23.90
EPDM	63	67.5	70	3.9	8	6201E	14.20
EPDM	100	99.5	102	3.9	8	6202E	18.50
EPDM	160	150	153	3.9	8	6203E	22.10
Neoprene® (CR)	63	67.5	70	3.9	8	6201N	14.20
Neoprene® (CR)	100	99.5	102	3.9	8	6202N	18.50
Neoprene® (CR)	160	150	153	3.9	8	6203N	22.10
Silicone (VMQ)	63	67.5	70	3.9	8	6201S	15.60
Silicone (VMQ)	100	99.5	102	3.9	8	6202S	19.30
Silicone (VMQ)	160	150	153	3.9	8	6203S	23.80
FFKM	63	67.5	70	3.9	8	6201F	Upon request
FFKM	100	99.5	102	3.9	8	6202F	Upon request
FFKM	160	150	153	3.9	8	6203F	Upon request

ISO-K centring ring, aluminium, with outer ring

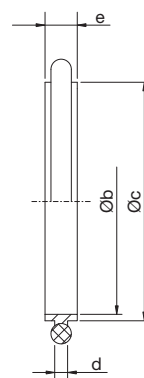


- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range for aluminium: -196 °C to 150 °C*
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C

O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	dia.c [mm]	d [mm]	e [mm]	Article no.	Price €
Perbunan® (NBR)	63	94	67.5	70	3.9	8	6241	13.80
Perbunan® (NBR)	80	110	80.2	83.2	3.9	8	62415	18.70
Perbunan® (NBR)	100	128	99.5	102	3.9	8	6242	18.70
Perbunan® (NBR)	160	179	150	153	3.9	8	6243	21.50
Perbunan® (NBR)	200	236	210	213	3.9	8	6244	30.50
Perbunan® (NBR)	250	287	258	261	3.9	8	6245	41.00
Perbunan® (NBR)	320	358	313	318	5.6	14	6246	89.70
Viton® (FKM,FPM)	63	94	67.5	70	3.9	8	6251	16.40
Viton® (FKM,FPM)	80	110	80.2	83.2	3.9	8	62515	22.40
Viton® (FKM,FPM)	100	128	99.5	102	3.9	8	6252	22.40
Viton® (FKM,FPM)	160	179	150	153	3.9	8	6253	27.90
Viton® (FKM,FPM)	200	236	210	213	3.9	8	6254	39.30
Viton® (FKM,FPM)	250	287	258	261	3.9	8	6255	46.35
Viton® (FKM,FPM)	320	358	313	318	5.6	14	6256	99.50
EPDM	63	94	67.5	70	3.9	8	6241E	14.40
EPDM	100	128	99.5	102	3.9	8	6242E	18.70
EPDM	160	179	150	153	3.9	8	6243E	22.30
EPDM	200	236	210	213	3.9	8	6244E	Upon request
EPDM	250	287	258	261	3.9	8	6245E	Upon request
EPDM	320	358	313	318	5.6	14	6246E	Upon request
Neoprene® (CR)	63	94	67.5	70	3.9	8	6241N	14.40
Neoprene® (CR)	100	128	99.5	102	3.9	8	6242N	18.70
Neoprene® (CR)	160	179	150	153	3.9	8	6243N	22.30
Neoprene® (CR)	200	236	210	213	3.9	8	6244N	Upon request
Neoprene® (CR)	250	287	258	261	3.9	8	6245N	Upon request
Neoprene® (CR)	320	358	313	318	5.6	14	6246N	Upon request
Silicone (VMQ)	63	94	67.5	70	3.9	8	6241S	15.80
Silicone (VMQ)	100	128	99.5	102	3.9	8	6242S	19.50
Silicone (VMQ)	160	179	150	153	3.9	8	6243S	24.00
Silicone (VMQ)	200	236	210	213	3.9	8	6244S	Upon request
Silicone (VMQ)	250	287	258	261	3.9	8	6245S	Upon request
Silicone (VMQ)	320	358	313	318	5.6	14	6246S	Upon request
FFKM	63	94	67.5	70	3.9	8	6241F	Upon request
FFKM	100	128	99.5	102	3.9	8	6242F	Upon request
FFKM	160	179	150	153	3.9	8	6243F	Upon request

ISO-K centring ring, high-grade steel 1.4301 without outer ring

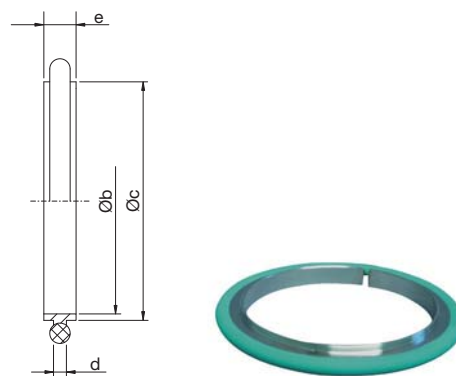
- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range 1.4301: -196 °C to 300 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.b [mm]	dia.c [mm]	d [mm]	e [mm]	Article no.	Price €
Perbunan® (NBR)	63	67.5	70	3.9	8	6221	19.80
Perbunan® (NBR)	80	80.2	83.2	3.9	8	62215	22.60
Perbunan® (NBR)	100	99.5	102	3.9	8	6222	22.60
Perbunan® (NBR)	160	150	153	3.9	8	6223	38.30
Viton® (FKM,FPM)	63	67.5	70	3.9	8	6231	19.80
Viton® (FKM,FPM)	80	80.2	83.2	3.9	8	62315	25.80
Viton® (FKM,FPM)	100	99.5	102	3.9	8	6232	25.80
Viton® (FKM,FPM)	160	150	153	3.9	8	6233	39.90
EPDM	63	67.5	70	3.9	8	6221E	19.90
EPDM	100	99.5	102	3.9	8	6222E	22.70
EPDM	160	150	153	3.9	8	6223E	38.30
Neoprene® (CR)	63	67.5	70	3.9	8	6221N	19.90
Neoprene® (CR)	100	99.5	102	3.9	8	6222N	22.70
Neoprene® (CR)	160	150	153	3.9	8	6223N	38.30
Silicone (VMQ)	63	67.5	70	3.9	8	6221S	19.90
Silicone (VMQ)	100	99.5	102	3.9	8	6222S	24.30
Silicone (VMQ)	160	150	153	3.9	8	6223S	38.30
FFKM	63	67.5	70	3.9	8	6221F	Upon request
FFKM	100	99.5	102	3.9	8	6222F	Upon request
FFKM	160	150	153	3.9	8	6223F	Upon request

ISO-K centring ring, high-grade steel 1.4404 without outer ring

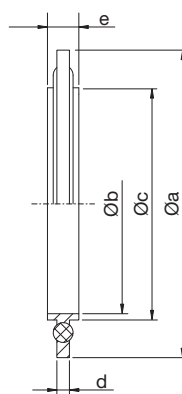
- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range 1.4404: -196 °C to 350 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.b [mm]	dia.c [mm]	d [mm]	e [mm]	Article no.	Price €
Perbunan® (NBR)	63	67.5	70	3.9	8	62214	20.80
Perbunan® (NBR)	80	80.2	83.2	3.9	8	622145	23.80
Perbunan® (NBR)	100	99.5	102	3.9	8	62224	23.80
Perbunan® (NBR)	160	150	153	3.9	8	62234	39.90
Viton® (FKM,FPM)	63	67.5	70	3.9	8	62314	20.80
Viton® (FKM,FPM)	80	80.2	83.2	3.9	8	623145	27.00
Viton® (FKM,FPM)	100	99.5	102	3.9	8	62324	27.00
Viton® (FKM,FPM)	160	150	153	3.9	8	62334	41.50
EPDM	63	67.5	70	3.9	8	62214E	20.90
EPDM	100	99.5	102	3.9	8	62224E	23.90
EPDM	160	150	153	3.9	8	62234E	39.90
Neoprene® (CR)	63	67.5	70	3.9	8	62214N	20.90
Neoprene® (CR)	100	99.5	102	3.9	8	62224N	23.90
Neoprene® (CR)	160	150	153	3.9	8	62234N	39.90
Silicone (VMQ)	63	67.5	70	3.9	8	62214S	20.90
Silicone (VMQ)	100	99.5	102	3.9	8	62224S	25.50
Silicone (VMQ)	160	150	153	3.9	8	62234S	39.90
FFKM	63	67.5	70	3.9	8	62214F	Upon request
FFKM	100	99.5	102	3.9	8	62224F	Upon request
FFKM	160	150	153	3.9	8	62234F	Upon request

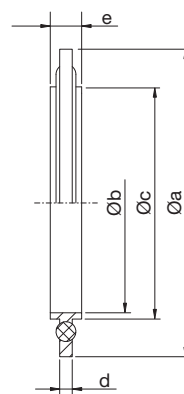
ISO-K centring ring, high-grade steel 1.4301 with outer ring Al

- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range 1.4301: -196 °C to 300 °C
- > Temperature range for aluminium 3.1645 -196 °C to 150 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	dia.c [mm]	d [mm]	e [mm]	Article no.	Price €
Perbunan® (NBR)	63	94	67.5	70	3.9	8	6261	21.70
Perbunan® (NBR)	80	110	80.2	83.2	3.9	8	62615	24.30
Perbunan® (NBR)	100	128	99.5	102	3.9	8	6262	24.30
Perbunan® (NBR)	160	179	150	153	3.9	8	6263	42.40
Perbunan® (NBR)	200	236	210	213	3.9	8	6264	63.00
Perbunan® (NBR)	250	287	258	261	3.9	8	6265	70.50
Perbunan® (NBR)	320	358	313	318	5.6	14	6266	Upon request
Viton® (FKM,FPM)	63	94	67.5	70	3.9	8	6271	23.50
Viton® (FKM,FPM)	80	110	80.2	83.2	3.9	8	62715	26.30
Viton® (FKM,FPM)	100	128	99.5	102	3.9	8	6272	26.30
Viton® (FKM,FPM)	160	179	150	153	3.9	8	6273	42.90
Viton® (FKM,FPM)	200	236	210	213	3.9	8	6274	67.00
Viton® (FKM,FPM)	250	287	258	261	3.9	8	6275	76.50
Viton® (FKM,FPM)	320	358	313	318	5.6	14	6276	Upon request
EPDM	63	94	67.5	70	3.9	8	6261E	21.70
EPDM	100	128	99.5	102	3.9	8	6262E	24.30
EPDM	160	179	150	153	3.9	8	6263E	42.90
EPDM	200	236	210	213	3.9	8	6264E	Upon request
EPDM	250	287	258	261	3.9	8	6265E	Upon request
EPDM	320	358	313	318	5.6	14	6266E	Upon request
Neoprene® (CR)	63	94	67.5	70	3.9	8	6261N	21.70
Neoprene® (CR)	100	128	99.5	102	3.9	8	6262N	24.30
Neoprene® (CR)	160	179	150	153	3.9	8	6263N	42.90
Neoprene® (CR)	200	236	210	213	3.9	8	6264N	Upon request
Neoprene® (CR)	250	287	258	261	3.9	8	6265N	Upon request
Neoprene® (CR)	320	358	313	318	5.6	14	6266N	Upon request
Silicone (VMQ)	63	94	67.5	70	3.9	8	6261S	21.70
Silicone (VMQ)	100	128	99.5	102	3.9	8	6262S	24.30
Silicone (VMQ)	160	179	150	153	3.9	8	6263S	42.90
Silicone (VMQ)	200	236	210	213	3.9	8	6264S	Upon request
Silicone (VMQ)	250	287	258	261	3.9	8	6265S	Upon request
Silicone (VMQ)	320	358	313	318	5.6	14	6266S	Upon request
FFKM	63	94	67.5	70	3.9	8	6261F	Upon request
FFKM	100	128	99.5	102	3.9	8	6262F	Upon request
FFKM	160	179	150	153	3.9	8	6263F	Upon request

ISO-K centring ring, high-grade steel 1.4404 with outer ring Al



- > Pressure range: 10^{-7} mbar to 2.5 bar
- > Temperature range 1.4404: -196 °C to 350 °C
- > Temperature range for aluminium 3.1645 -196 °C to 150 °C
- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C

O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	dia.c [mm]	d [mm]	e [mm]	Article no.	Price €
Perbunan® (NBR)	63	94	67.5	70	3.9	8	62614	22.70
Perbunan® (NBR)	80	110	80.2	83.2	3.9	8	626145	25.50
Perbunan® (NBR)	100	128	99.5	102	3.9	8	62624	25.50
Perbunan® (NBR)	160	179	150	153	3.9	8	62634	44.00
Perbunan® (NBR)	200	236	210	213	3.9	8	62644	65.00
Perbunan® (NBR)	250	287	258	261	3.9	8	62654	73.00
Perbunan® (NBR)	320	358	313	318	5.6	14	62664	Upon request
Viton® (FKM,FPM)	63	94	67.5	70	3.9	8	62714	24.50
Viton® (FKM,FPM)	80	110	80.2	83.2	3.9	8	627145	27.50
Viton® (FKM,FPM)	100	128	99.5	102	3.9	8	62724	27.50
Viton® (FKM,FPM)	160	179	150	153	3.9	8	62734	45.50
Viton® (FKM,FPM)	200	236	210	213	3.9	8	62744	69.00
Viton® (FKM,FPM)	250	287	258	261	3.9	8	62754	79.00
Viton® (FKM,FPM)	320	358	313	318	5.6	14	62764	Upon request
EPDM	63	94	67.5	70	3.9	8	62614E	22.70
EPDM	100	128	99.5	102	3.9	8	62624E	25.50
EPDM	160	179	150	153	3.9	8	62634E	44.50
EPDM	200	236	210	213	3.9	8	62644E	Upon request
EPDM	250	287	258	261	3.9	8	62654E	Upon request
EPDM	320	358	313	318	5.6	14	62664E	Upon request
Neoprene® (CR)	63	94	67.5	70	3.9	8	62614N	22.70
Neoprene® (CR)	100	128	99.5	102	3.9	8	62624N	25.50
Neoprene® (CR)	160	179	150	153	3.9	8	62634N	44.50
Neoprene® (CR)	200	236	210	213	3.9	8	62644N	Upon request
Neoprene® (CR)	250	287	258	261	3.9	8	62654N	Upon request
Neoprene® (CR)	320	358	313	318	5.6	14	62664N	Upon request
Silicone (VMQ)	63	94	67.5	70	3.9	8	62614S	22.70
Silicone (VMQ)	100	128	99.5	102	3.9	8	62624S	25.50
Silicone (VMQ)	160	179	150	153	3.9	8	62634S	44.50
Silicone (VMQ)	200	236	210	213	3.9	8	62644S	Upon request
Silicone (VMQ)	250	287	258	261	3.9	8	62654S	Upon request
Silicone (VMQ)	320	358	313	318	5.6	14	62664S	Upon request
FFKM	63	94	67.5	70	3.9	8	62614F	Upon request
FFKM	100	128	99.5	102	3.9	8	62624F	Upon request
FFKM	160	179	150	153	3.9	8	62634F	Upon request

ISO-K spare O-ring for centring ring

- > Temperature range for NBR: -30 °C to 110 °C
- > Temperature range for FKM/FPM: -20 °C to 200 °C
- > Temperature range for EPDM: -60 °C to 150 °C
- > Temperature range for CR: -40 °C to 110 °C
- > Temperature range for VMQ: -60 °C to 200 °C



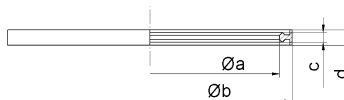
O-ring	Nominal width DN	dia.a [mm]	dia.b [mm]	Article no.	Price €
Perbunan® (NBR)	63	75.6	5.3	6281	1.40
Perbunan® (NBR)	80	88.3	5.3	62815	1.80
Perbunan® (NBR)	100	107.3	5.3	6282	1.80
Perbunan® (NBR)	160	158.3	5.3	6283	2.80
Perbunan® (NBR)	200	209.1	5.3	6284	4.10
Perbunan® (NBR)	250	253.4	5.3	6285	4.70
Viton® (FKM,FPM)	63	75.6	5.3	6286	3.30
Viton® (FKM,FPM)	80	88.3	5.3	62865	4.30
Viton® (FKM,FPM)	100	107.3	5.3	6287	4.30
Viton® (FKM,FPM)	160	158.3	5.3	6288	9.00
Viton® (FKM,FPM)	200	209.1	5.3	6289	13.80
Viton® (FKM,FPM)	250	253.4	5.3	6290	16.00
EPDM	63	75.6	5.3	6281E	1.75
EPDM	100	107.3	5.3	6282E	3.50
EPDM	160	158.3	5.3	6283E	5.50
EPDM	200	209.1	5.3	6284E	Upon request
EPDM	250	253.4	5.3	6285E	Upon request
Neoprene® (CR)	63	75.6	5.3	6281N	1.75
Neoprene® (CR)	100	107.3	5.3	6282N	5.50
Neoprene® (CR)	160	158.3	5.3	6283N	6.90
Neoprene® (CR)	200	209.1	5.3	6284N	Upon request
Neoprene® (CR)	250	253.4	5.3	6285N	Upon request
Silicone (VMQ)	63	75.6	5.3	6281S	1.75
Silicone (VMQ)	100	107.3	5.3	6282S	3.50
Silicone (VMQ)	160	158.3	5.3	6283S	5.50
Silicone (VMQ)	200	209.1	5.3	6284S	Upon request
Silicone (VMQ)	250	253.4	5.3	6285S	Upon request
FFKM	63	75.6	5.3	6281F	Upon request
FFKM	100	107.3	5.3	6282F	Upon request
FFKM	160	158.3	5.3	6283F	Upon request

ISO-K metal sealing ring, aluminium 3.2315 (AlMgSi1)

(Cutting ring / sharp-edged sealing ring / centred on outside)

- > Pressure range: 10^{-7} mbar to 1.5 bar*
- > Temperature range: -196 °C to 150 °C*
- > No permeation of gases
- > Only suitable for high-grade steel flanges
- > Can only be used once
- > Tightening torque approx. 30 – 35 Nm

* Take sealing materials and connecting elements into consideration



Nominal width DN	dia.a [mm]	dia.b [mm]	c [mm]	d [mm]	Article no.	Price €
63	85	97	4.6	7	6291	27.90
100	120.5	132	4.6	7	6292	39.70
160	170.5	180.5	4.6	7	6293	63.20
200	233	240	4.6	7	6294	Upon request
250	283	290	4.6	7	6295	Upon request

ISO-K connecting components and accessories



Properties:

- temperature range $-196\text{ }^{\circ}\text{C}$ to $+300\text{ }^{\circ}\text{C}$
- suitable for high vacuum up to $1 \times 10^{-9}\text{ mbar}$
- simple assembly and disassembly
- maximum pressure 1.5 bar

Description:

novotek offers various version of connecting elements in nominal widths DN63 to DN500. They are all compatible with high-vacuum components in accordance with DIN 28404.

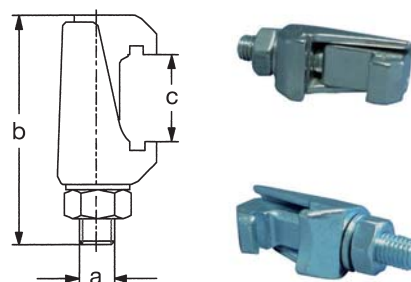
Area of application:

The novotek connecting components allow the installation of vacuum attachments for the pressure range of 1500 mbar up to 10^{-9} mbar .

ISO-K screw clamp

- > Pressure range: 10^{-9} mbar to 1.5 bar*
- > Temperature range: high-grade steel $-196\text{ }^{\circ}\text{C}$ to $300\text{ }^{\circ}\text{C}$ *, steel, galvanized, $0\text{ }^{\circ}\text{C}$ to $150\text{ }^{\circ}\text{C}$
- > High-grade steel screw clamps should only be used with thread lubricant.
- > Suitable for elastomer seals and metal seals

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

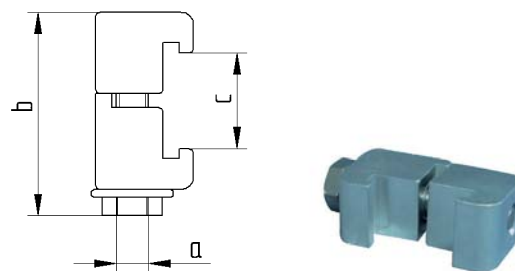
Nominal width DN	Required number	a	b [mm]	c [mm]	Article no.	Price €
63/160	4	M10	61	18-30	6005	6.95
200/250	6	M10	61	18-30	6005	6.95
320/400	8	M12	83	27-37	6006	14.25
500	12	M12	83	27-37	6006	14.25

Steel, galvanised

Nominal width DN	Required number	a	b [mm]	c [mm]	Article no.	Price €
63/160	4	M10	61	18-30	6003	3.95
200/250	6	M10	61	18-30	6003	3.95
63-160	4	M10	68	26-36	6003L	4.25
200/250	6	M10	68	26-36	6003L	4.25
320/400	8	M12	87	30-37	6007	9.40
500	12	M12	87	30-37	6007	9.40
630	14	M12	86	38-47	6009	11.00

ISO-K screw clamp

- > Pressure range: 10^{-9} mbar to 1.5 bar*
 - > Temperature range: -196 °C to 200 °C
 - > Suitable for elastomer seals
- * Take sealing materials and connecting elements into consideration

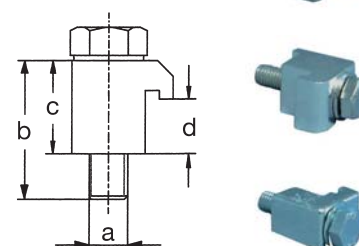


Aluminium 3.3214

Nominal width DN	Required number	a	b [mm]	c [mm]	Article no.	Price €
63/100	4	M8	50	23-34	6002	2.95
160	4	M10	50	23-34	6004	3.95
200/250	6	M10	50	23-34	6004	3.95
320/400	8	M12	66	34-52	6008	8.45
500	12	M12	66	34-52	6008	8.45

ISO-K claw

- > Pressure range: 10^{-9} mbar to 1.5 bar*
 - > Temperature range: high-grade steel -196 °C to 300 °C*, steel, galvanized, 0 °C – 150 °C
 - > Temperature range for aluminium: -196 °C to 200 °C
 - > High-grade steel screw clamps should only be used with thread lubricant.
 - > Suitable for elastomer seals and metal seals
 - > Pitch circle dia., see ISO collar flanges
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4301

Nominal width DN	Required number	a	b [mm]	c [mm]	d [mm]	Article no.	Price €
63	4	M8	35	22.5	13.9	6015	4.85
100	8	M8	35	22.5	13.9	6015	4.85
160	8	M10	35	23	13.9	6016	5.65
200/250	12	M10	35	23	13.9	6016	5.65
320/500	12	M12	50	30	20.6	6018	Upon request

Steel, galvanised

Nominal width DN	Required number	a	b [mm]	c [mm]	d [mm]	Article no.	Price €
63	4	M8	35	23	13.9	6011	3.20
100	8	M8	35	23	13.9	6011	3.20
160	8	M10	35	23	13.9	6012	4.15
200/250	12	M10	35	23	13.9	6012	4.15
320/500	12	M12	50	30	20.6	6017	8.85

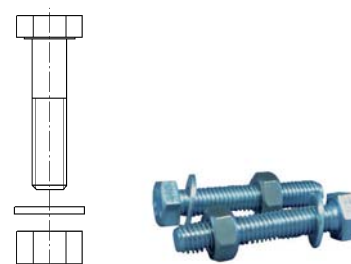
Aluminium 3.3214

Nominal width DN	Required number	a	b [mm]	c [mm]	d [mm]	Article no.	Price €
63	4	M8	35	23.5	13.5	6013	2.95
100	8	M8	35	23.5	13.5	6013	2.95
160	8	M10	35	23.5	13.5	6014	4.65
200/250	12	M10	35	23.5	13.5	6014	4.65
320/500	12	M12	50	30	20.6	6019	Upon request

ISO-F screw set 1.4301

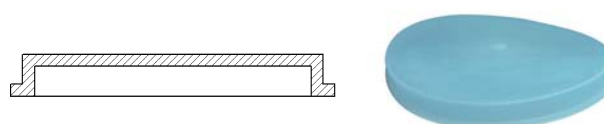
- > Pressure range: 10⁻⁹ mbar to 1.5 bar*
- > Temperature range: high-grade steel -196 °C to 300 °C*
- > High-grade steel screw clamps should only be used with thread lubricant.
- > Suitable for elastomer seals and metal seals

* Take sealing materials and connecting elements into consideration

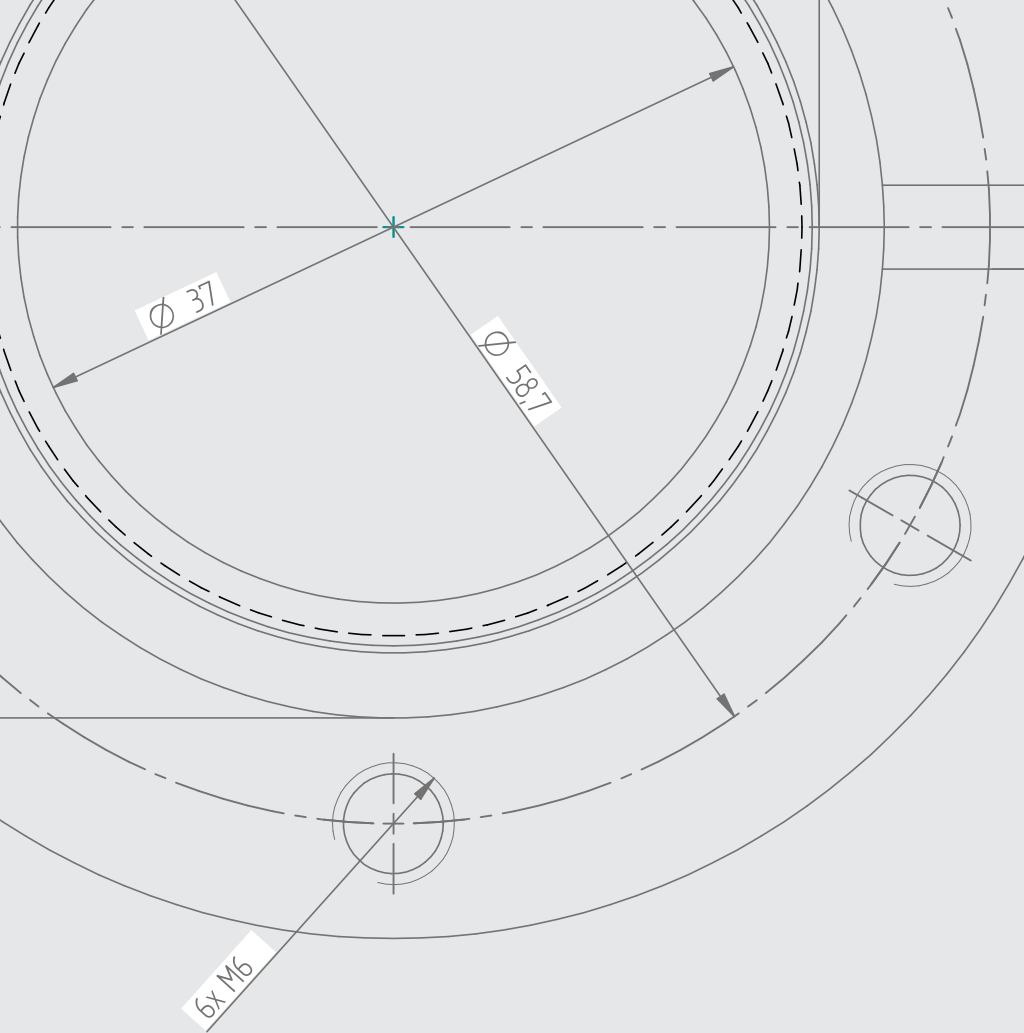


Nominal width DN	Required number	Screw connection	Screw length l [mm]	Article no.	Price €
63	4	M8	40	6021	2.95
100	8	M8	40	6022	5.65
160	8	M10	50	6023	12.20
200/250	12	M10	50	6024	17.00
320/500	16	M12	65	6025	34.00

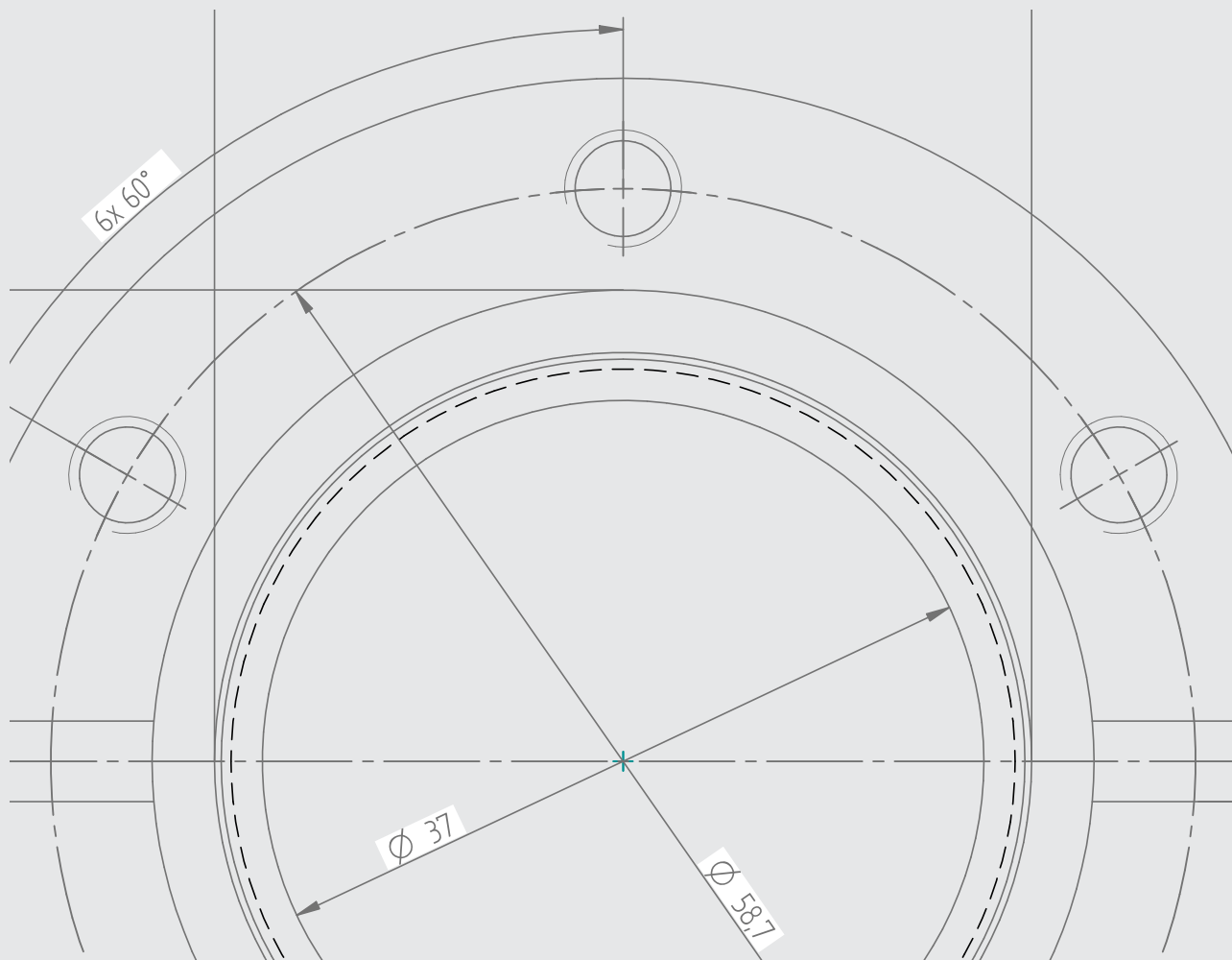
Flange cap, plastic



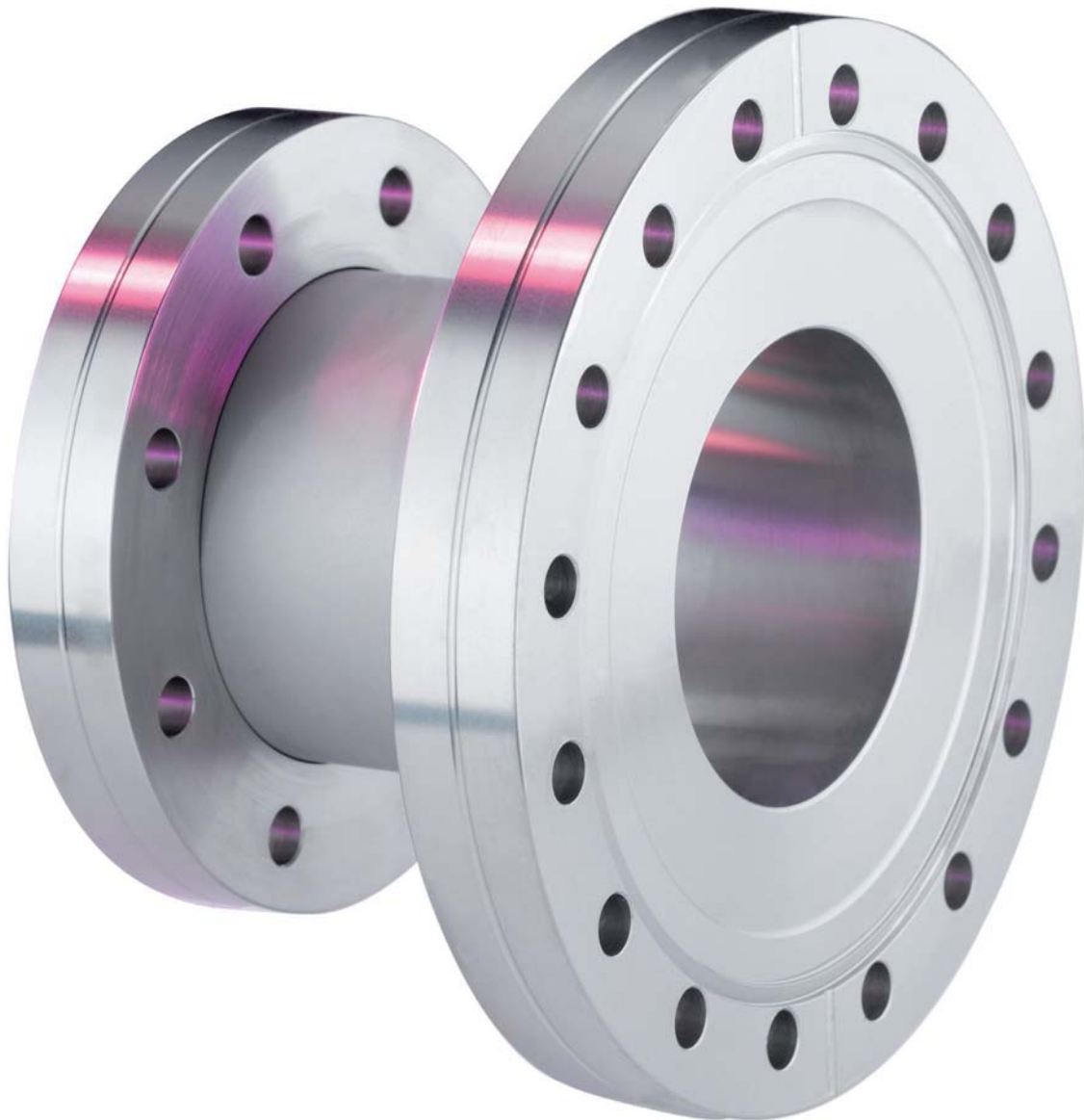
Nominal width DN	Article no.	Price €
63	6041	0.70
80	60415	1.05
100	6042	0.95
160	6043	1.05
200	6044	5.60
250	6045	10.40
320	6046	19.80



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CF components and connections



CF flange components and connecting elements

As per ISO 3669 (corresponds to ConFlat® flange)

Description:

novotek CF components are manufactured according to ISO 3669. All components manufactured by novotek are 100% leak-tested and have leak rates better than 10^{-10} mbar/s. Standard sizes are NW 16 to 250. Nominal widths of up to 400 can be manufactured upon request. The ultra high vacuum range (UHV) designates the pressure range $<10^{-8}$ mbar. To reach and maintain this low pressure range, a very low outgassing rate is required in the vacuum system. This is achieved by using material with as low a desorption, diffusion and permeation rate as possible and by preventing unventilated cavities and gaps and by using vacuum-compatible cleaning systems. Please refer to the Materials chapter for operation temperatures, sealing materials and information on the different metals.

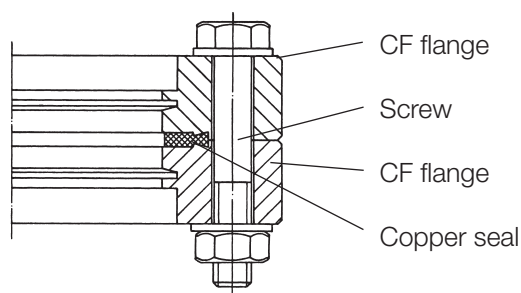
Sealing principle:

The CF connection is sealed off by the cutting edge profile in the flange and a copper sealing washer. The copper sealing washer is inserted in the flange groove and, at the same time, centres the flange pair. When bolting the flanges, the cutting edges of the flanges for sealing are pressed deeply into the soft sealing washer, whereby the metal "flows away" radially and is pressed on the outside against the flange groove and limited. Even in the case of material creeping, this guarantees leak-tightness.

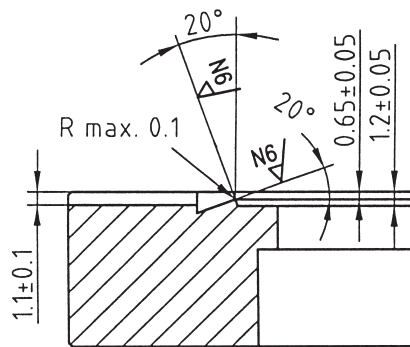
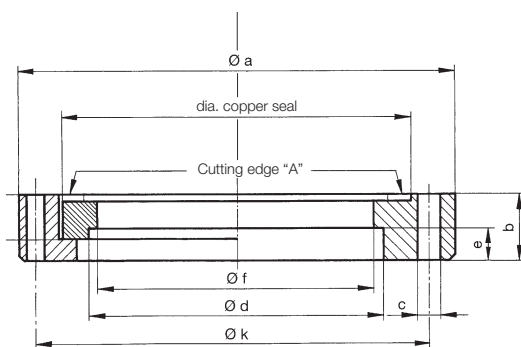
Design features:

The flanges of the CF components are designed according to ISO 3669. They are compatible with the ConFlat® flanges of other leading manufacturers. Retrofitting in novotek CF systems or systems from other manufacturers is possible. The standard material used is low-carbon high-grade steel with material number 1.4306 (304L). For the most common flanges and components, higher quality high-grade steels 1.4404 (316L) can also be used. The material number for the component can be found in the respective catalogue sections. Due to the bake-out capacity required in UHV technology, sealing of the CF flanges is by means of a flat seal made of oxygen-free (OFHC) copper. The contact pressure is generated by diametrical tightening of the screws. The copper seal can only be used once. When baking out CF connections, ensure that heating up and cooling is carried out uniformly and relatively slowly.

Installation variant, CF flange connection



CF main dimensions + tightening torque



Nominal width DN	dia.a [mm]	dia.f [mm]	Height b [mm]	Flanged socket d [mm]	Pitch circle dia.k [mm]	Bore dia.c [mm]	Number of screws [n]	Immersion depth of flanged socket e [mm]	Tightening torque [Nm]
16	34	16.5	7.6	18.1	27	4.3	6xM4	2.80	4
38	70	35	12.7	38.2	58.7	6.6	6xM6	7.90	10
40	70	37	12.7	40.2	58.7	6.6	6xM6	7.90	10
63	113.5	66	17.5	70.3	92.1	8.4	8xM8	9.40	20
100	152	100.5	19.9	104.3	130.3	8.4	16xM8	10.40	20
160 (150)	203	150.5	22.3	154.5	181	8.4	20xM8	12.80	20
200	254	200.5	24.6	204.5	231.8	8.4	24xM8	15.10	20
250	305	250	25	254.5	284	8.4	32xM8	12.30	20

CF junctions



Properties of high-grade steel 1.4306/1.4404:

- high leak rate ($<10^{-10}$ mbarl/s)
- high conductance
- gap-free welded
- bake-out capacity up to 450 °C
- cleaned in UHV-compatible manner
- special dimensions upon request

Description:

The novotek CF junctions made of high-grade steel are designed as welded constructions. The CF flange are always welded using WIG welding technology gap-free on the inside and vacuum-tight. The surface of NW16 to NW63 is polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.

Upon special request, the components can also be electropolished prior to delivery.

Area of application:

The novotek CF junctions can be used in systems with pre-, high- and UHV-vacuum.

Materials:

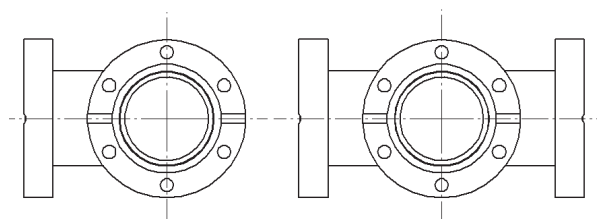
CF welding flanges made of 1.4306 (304L), 1.4404(316L) and pipe components made of 1.4404 (316L) / 1.4571 (316Ti)

Special material such as 1.4429 ESR is available upon request.

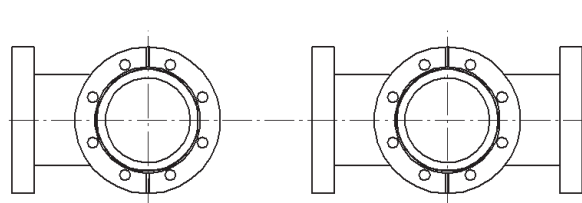
Basic design of pipe components

Hole pitch of components on component axis

CF 16 and CF 40

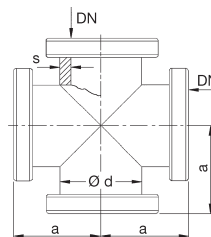


as of CF 63



CF crosspiece flanges, fixed

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbar/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Bake-out capacity up component to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



Flanges made of 1.4306 (304L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	16 (19x1.5)	1.5	7111F	120.00
40	63	38.4 (42.4x2)	2	7112F	153.00
63	105	66 (70x2)	2	7113F	340.00
100	135	100 (104x2)	2	7114F	530.00
160	167	150 (154x2)	2	7115F	980.00
200	187.5	200 (204x2)	2	7116F	1,420.00
250	229	250 (254x2)	2	7117F	2,620.00

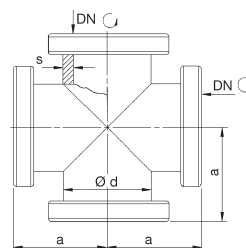
Flanges made of 1.4404 (316L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	16 (19x1.5)	1.5	7111F4	134.50
40	63	38.4 (42.4x2)	2	7112F4	172.00
63	105	66 (70x2)	2	7113F4	360.00
100	135	100 (104x2)	2	7114F4	592.00
160	167	150 (154x2)	2	7115F4	937.00
200	187.5	200 (204x2)	2	7116F4	Upon request
250	229	250 (254x2)	2	7117F4	Upon request

Component with flanges made of 316LNS upon request.

CF crosspiece, 2 flanges, rotatable

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbarl/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Bake-out capacity up component to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



Flanges made of 1.4306 (304L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no. (F=flange, fixed) (R=flange, rotatable)	Price €
16	38	16 (19x1.5)	1.5	7111R	124.00
40	63	38.4 (42.4x2)	2	7112R	169.50
63	105	66 (70x2)	2	7113R	347.00
100	135	100 (104x2)	2	7114R	539.00
160	167	150 (154x2)	2	7115R	989.00
200	187.5	200 (204x2)	2	7116R	1,485.00
250	229	250 (254x2)	2	7117R	2,920.00

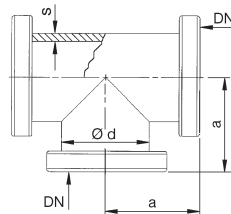
Flanges made of 1.4404 (316L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no. (F=flange, fixed) (R=flange, rotatable)	Price €
16	38	16 (19x1.5)	1.5	7111R4	154.50
40	63	38.4 (42.4x2)	2	7112R4	192.00
63	105	66 (70x2)	2	7113R4	395.00
100	135	100 (104x2)	2	7114R4	654.00
160	167	150 (154x2)	2	7115R4	997.00
200	187.5	200 (204x2)	2	7116R4	Upon request
250	229	250 (254x2)	2	7117R4	Upon request

Component with flanges made of 316LNS upon request.

CF-T piece flanges, fixed

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbar/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Component bake-out capacity up to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



Flanges made of 1.4306 (304L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	16 (19x1.5)	1.5	7121F	95.00
40	63	38.4 (42.4x2)	2	7122F	115.00
63	105	66 (70x2)	2	7123F	225.00
100	135	100 (104x2)	2	7124F	319.00
160	167	150 (154x2)	2	7125F	602.00
200	187.5	200 (204x2)	2	7126F	1,020.00
250	229	250 (254x2)	2	7127F	1,910.00

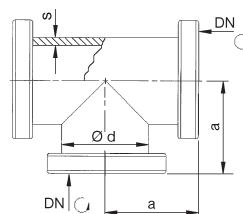
Flanges made of 1.4404 (316L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	16 (19x1.5)	1.5	7121F4	99.00
40	63	38.4 (42.4x2)	2	7122F4	137.00
63	105	66 (70x2)	2	7123F4	245.00
100	135	100 (104x2)	2	7124F4	319.00
160	167	150 (154x2)	2	7125F4	670.00
200	187.5	200 (204x2)	2	7126F4	Upon request
250	229	250 (254x2)	2	7127F4	Upon request

Component with flanges made of 316LNS upon request.

CF-T piece, 2 flanges, rotatable

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbarl/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Component bake-out capacity up to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



Flanges made of 1.4306 (304L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	16 (19x1.5)	1.5	7121R	98.00
40	63	38.4 (42.4x2)	2	7122R	124.00
63	105	66 (70x2)	2	7123R	257.00
100	135	100 (104x2)	2	7124R	339.00
160	167	150 (154x2)	2	7125R	629.00
200	187.5	200 (204x2)	2	7126R	1,089.00
250	229	250 (254x2)	2	7127R	2,340.00

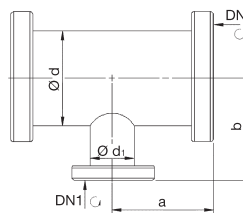
Flanges made of 1.4404 (316L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	16 (19x1.5)	1.5	7121R4	104.00
40	63	38.4 (42.4x2)	2	7122R4	158.00
63	105	66 (70x2)	2	7123R4	332.00
100	135	100 (104x2)	2	7124R4	476.00
160	167	150 (154x2)	2	7125R4	995.00
200	187.5	200 (204x2)	2	7126R4	Upon request
250	229	250 (254x2)	2	7127R4	Upon request

Component with flanges made of 316LNS upon request.

CF reducer T piece, 2 flanges, rotatable

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbarl/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Component bake-out capacity up to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



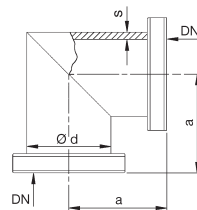
Flanges made of 1.4306 (304L), pipe component 1.4571 (316Ti) or 1.4404 (316L)

DN	a [mm]	b [mm]	Inside diameter dia.d [mm] (pipe dimension)	Inside diameter dia.d1 [mm] (pipe dimension)	Article no.	Price €
40/16	63	60	38.4 (42.4x2)	16 (19x1.5)	7152R	129.50
63/40	105	75	66 (70x2)	38.4 (42.4x2)	7153R	229.00
100/63	135	95	100 (104x2)	66 (70x2)	7154R	324.00
160/63	167	120	150 (154x2)	66 (70x2)	7155R	529.00
160/100	167	120	150 (154x2)	100 (104x2)	7156R	569.00

Component with flanges made of 316LNS upon request.

CF angles, flanges, fixed

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbarl/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Component bake-out capacity up to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



Flanges made of 1.4306 (304L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	16 (19x1.5)	1.5	7131F	70.00
40	63	38.4 (42.4x2)	2	7132F	85.00
63	105	66 (70x2)	2	7133F	188.00
100	135	100 (104x2)	2	7134F	280.00
160	167	150 (154x2)	2	7135F	442.00
200	187.5	200 (204x2)	2	7136F	825.00
250	229	250 (254x2)	2	7137F	1,390.00

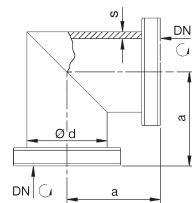
Flanges made of 1.4404 (316L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	16 (19x1.5)	1.5	7131F4	76.00
40	63	38.4 (42.4x2)	2	7132F4	102.00
63	105	66 (70x2)	2	7133F4	186.00
100	135	100 (104x2)	2	7134F4	292.00
160	167	150 (154x2)	2	7135F4	556.00
200	187.5	200 (204x2)	2	7136F4	Upon request
250	229	250 (254x2)	2	7137F4	Upon request

Component with flanges made of 316LNS upon request.

CF angles, 2 flanges, rotatable

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbarl/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Component bake-out capacity up to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



Flanges made of 1.4306 (304L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	16 (19x1.5)	1.5	7131R	74.50
40	63	38.4 (42.4x2)	2	7132R	89.00
63	105	66 (70x2)	2	7133R	194.00
100	135	100 (104x2)	2	7134R	290.00
160	167	150 (154x2)	2	7135R	482.00
200	187.5	200 (204x2)	2	7136R	859.00
250	229	250 (254x2)	2	7137R	1,835.00

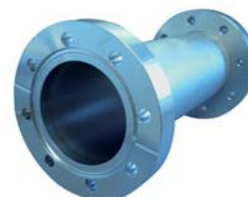
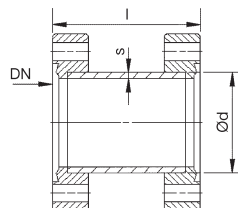
Flanges made of 1.4404 (316L), pipe component 1.4404 (316L)

Nominal width DN	a [mm]	Inside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	16 (19x1.5)	1.5	7131R4	84.00
40	63	38.4 (42.4x2)	2	7132R4	109.00
63	105	66 (70x2)	2	7133R4	239.00
100	135	100 (104x2)	2	7134R4	455.00
160	167	150 (154x2)	2	7135R4	682.00
200	187.5	200 (204x2)	2	7136R4	Upon request
250	229	250 (254x2)	2	7137R4	Upon request

Component with flanges made of 316LNS upon request.

CF connecting piece, flanges, fixed

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbarl/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Component bake-out capacity up to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



Flanges made of 1.4306 (304L), pipe component 1.4404 (316L)

Nominal width DN	L [mm]	Outside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	According to customer request (standard 76 mm)	19 (19x1.5)	1.5	7171F	45.00
40	According to customer request (standard 126 mm)	42.4 (42.4x2)	2	7172F	52.00
63	According to customer request (standard 210 mm)	70 (70x2)	2	7173F	142.00
100	According to customer request (standard 270 mm)	104 (104x2)	2	7174F	192.00
160	According to customer request (standard 334 mm)	154 (154x2)	2	7175F	385.00
200	According to customer request (standard 375 mm)	204 (204x2)	2	7176F	725.00
250	According to customer request (standard 458 mm)	254 (254x2)	2	7177F	1,210.00

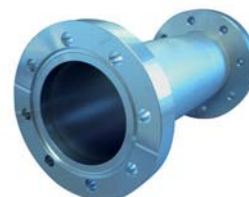
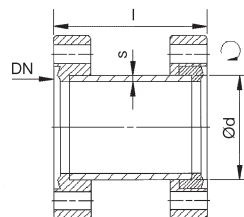
Flanges made of 1.4404 (316L), pipe component 1.4404 (316L)

Nominal width DN	L [mm]	Outside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	According to customer request (standard 76 mm)	19 (19x1.5)	1.5	7171F4	45.00
40	According to customer request (standard 126 mm)	42.4 (42.4x2)	2	7172F4	56.00
63	According to customer request (standard 210 mm)	70 (70x2)	2	7173F4	146.00
100	According to customer request (standard 270 mm)	104 (104x2)	2	7174F4	205.50
160	According to customer request (standard 334 mm)	154 (154x2)	2	7175F4	372.00
200	According to customer request (standard 375 mm)	204 (204x2)	2	7176F4	Upon request
250	According to customer request (standard 458 mm)	254 (254x2)	2	7177F4	Upon request

Component with flanges made of 316LNS upon request.

CF connecting piece, 1 flange, rotatable

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbarl/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Component bake-out capacity up to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



Flanges made of 1.4306 (304L), pipe component 1.4404 (316L)

Nominal width DN	I [mm]	Outside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	According to customer request (standard 76 mm)	19 (19x1.5)	1.5	7171R	46.00
40	According to customer request (standard 126 mm)	42.4 (42.4x2)	2	7172R	56.00
63	According to customer request (standard 210 mm)	70 (70x2)	2	7173R	152.00
100	According to customer request (standard 270 mm)	104 (104x2)	2	7174R	199.00
160	According to customer request (standard 334 mm)	154 (154x2)	2	7175R	404.50
200	According to customer request (standard 375 mm)	204 (204x2)	2	7176R	744.50
250	According to customer request (standard 458 mm)	254 (254x2)	2	7177R	1,392.00

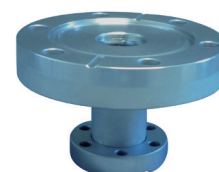
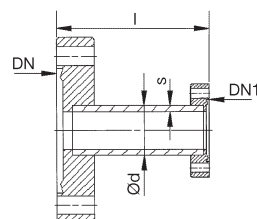
Flanges made of 1.4404 (316L), pipe component 1.4404 (316L)

Nominal width DN	I [mm]	Outside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	According to customer request (standard 76 mm)	19 (19x1.5)	1.5	7171R4	47.80
40	According to customer request (standard 126 mm)	42.4 (42.4x2)	2	7172R4	58.60
63	According to customer request (standard 210 mm)	70 (70x2)	2	7173R4	156.00
100	According to customer request (standard 270 mm)	104 (104x2)	2	7174R4	244.00
160	According to customer request (standard 334 mm)	154 (154x2)	2	7175R4	409.00
200	According to customer request (standard 375 mm)	204 (204x2)	2	7176R4	Upon request
250	According to customer request (standard 458 mm)	254 (254x2)	2	7177R4	Upon request

Component with flanges made of 316LNS upon request.

CF reducing fitting, flanges, fixed

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbarl/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Component bake-out capacity up to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



Flanges made of 1.4306 (304L), pipe component 1.4404 (316L)

DN / DN1	L [mm]	Outside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
40 / 16	45	19 (19x1.5)	1.5	7161F	59.00
63 / 16	75	19 (19x1.5)	1.5	7162F	84.50
63 / 40	75	42.4 (42.4x2)	2	7163F	100.00
100 / 40	95	42.4 (42.4x2)	2	7164F	114.00
100 / 63	95	70 (70x2)	2	7165F	134.00
160 / 40	105	42.4 (42.4x2)	2	7166F	179.50
160 / 63	105	70 (70x2)	2	7167F	235.00
160 / 100	105	104 (104x2)	2	7168F	245.00

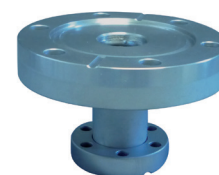
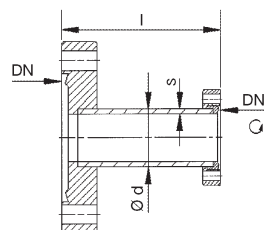
Flanges made of 1.4404 (316L), pipe component 1.4404 (316L)

DN / DN1	L [mm]	Outside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
40 / 16	45	19 (19x1.5)	1.5	7161F4	65.00
63 / 16	75	19 (19x1.5)	1.5	7162F4	90.00
63 / 40	75	42.4 (42.4x2)	2	7163F4	105.00
100 / 40	95	42.4 (42.4x2)	2	7164F4	124.00
100 / 63	95	70 (70x2)	2	7165F4	155.00
160 / 40	105	42.4 (42.4x2)	2	7166F4	212.00
160 / 63	105	70 (70x2)	2	7167F4	275.00
160 / 100	105	104 (104x2)	2	7168F4	325.00

Component with flanges made of 316LNS upon request.

CF reducing fitting, 1 flange, rotatable

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbarl/s)
- > Temperature range: -196 °C to 300 °C 1.4306
- > Temperature range: -196 °C to 350 °C 1.4404
- > Component bake-out capacity up to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



Flanges made of 1.4306 (304L), pipe component 1.4404 (316L)

Nominal width DN	l [mm]	Outside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
40 / 16	45	19 (19x1.5)	1.5	7161R	59.00
63 / 16	75	19 (19x1.5)	1.5	7162R	89.50
63 / 40	75	42.4 (42.4x2)	2	7163R	104.50
100 / 40	95	42.4 (42.4x2)	2	7164R	119.50
100 / 63	95	70 (70x2)	2	7165R	164.00
160 / 40	105	42.4 (42.4x2)	2	7166R	189.50
160 / 63	105	70 (70x2)	2	7167R	249.00
160 / 100	105	104 (104x2)	2	7168R	265.00

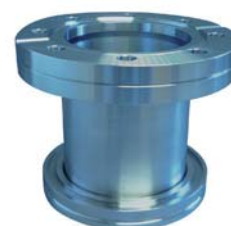
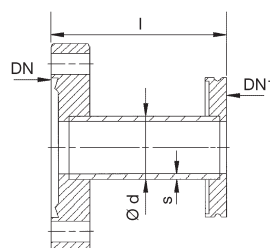
Flanges made of 1.4404 (316L), pipe component 1.4404 (316L)

Nominal width DN	l [mm]	Outside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
40 / 16	45	19 (19x1.5)	1.5	7161R4	72.00
63 / 16	75	19 (19x1.5)	1.5	7162R4	95.50
63 / 40	75	42.4 (42.4x2)	2	7163R4	112.00
100 / 40	95	42.4 (42.4x2)	2	7164R4	135.00
100 / 63	95	70 (70x2)	2	7165R4	194.00
160 / 40	105	42.4 (42.4x2)	2	7166R4	265.00
160 / 63	105	70 (70x2)	2	7167R4	315.00
160 / 100	105	104 (104x2)	2	7168R4	399.00

Component with flanges made of 316LNS upon request.

CF-ISO-K adapter piece, flange fixed

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196°C to 300°C 1.4306
- > Temperature range: -196°C to 350°C 1.4404
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration

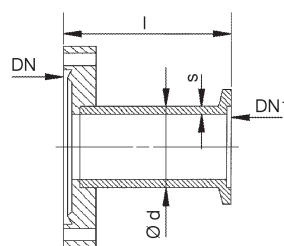


CF flange 1.4306 (304L), IOS-K flange made of 1.4301 (304), pipe component 1.4404

DN / DN1	l [mm]	Outside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
CF63 / ISO-K 63	90	70 (70x2)	2	7191	133.00
CF100 / ISO-K 63	90	70 (70x2)	2	7192	178.50
CF100 / ISO-K 100	90	104 (104x2)	2	7193	204.50
CF100 / ISO-K 160	90	104 (104x2)	2	7194	262.00
CF160 / ISO-K 63	90	70 (70x2)	2	7195	236.00
CF160 / ISO-K 100	90	104 (104x2)	2	7196	238.00
CF160 / ISO-K 160	90	154 (154x2)	2	7197	256.00

CF-KF adapter piece, flange fixed

- > Pressure range: 10^{-7} mbar to 2.5 bar with elastomer seals
- > Pressure range: 10^{-9} mbar to 2.5 bar with metal seals
- > Temperature range: -196°C to 300°C 1.4306
- > Temperature range: -196°C to 350°C 1.4404
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration

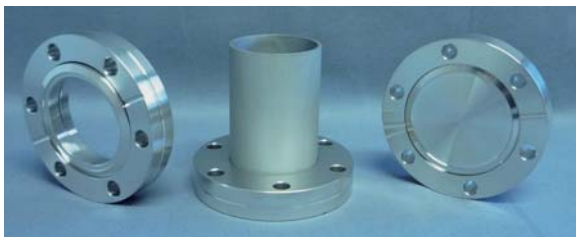


CF flange 1.4306 (304L), KF flange made of 1.4301 (304)

DN / DN1	l [mm]	Outside diameter dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
CF16 / KF16	36	20 (20x2)	2.0	7181	36.40
CF16 / KF25	36	18 (18x1.5)	1.5	7182	48.00
CF40 / KF16	36	20 (20x2)	2.0	7183	49.00
CF40 / KF25	36	29 (29x2)	2.0	7184	55.70
CF40 / KF40	50	45 (45x2.5)	2.5	7185	58.70
CF63 / KF25	50	29 (29x2)	2.0	7186	109.80
CF63 / KF40	50	45 (45x2.5)	2.5	7187	119.00
CF100 / KF25	50	29 (29x2)	2.0	7188	144.00
CF100 / KF40	50	45 (45x2.5)	2.5	7189	153.00

Component with flanges made of 316L or 316LNS upon request.

CF components



Properties of high-grade steel 1.4306/1.4404:

- high leak rate ($<10^{-10}$ mbarl/s)
- high conductance
- gap-free welded
- bake-out capacity up to 450 °C
- cleaned in UHV-compatible manner
- special dimensions upon request

Description:

The novotek CF components are turned from high-grade steel. Particular emphasis is placed on exact profile production during this process. The cutting edge, the decisive element of the CF components, is protected by a flange cap. Any damage to the cutting edge renders the component unusable. On the cutting edge side, the flanges have a radial leak detection groove so that, during the leak test, a check directly at the seal is possible.

Area of application:

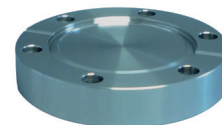
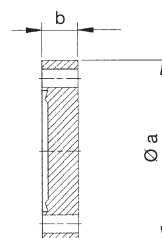
The novotek CF junctions can be used in systems with pre-, high- and UHV-vacuum.

Materials:

CF welding flanges made of 1.4306 (304L), 1.4404(316L) and pipe components made of 1.4404 (316L) / 1.4571 (316Ti) Special material such as 1.4429 ESR is available upon request.

CF blind flange, fixed

- > Pressure range: 10^{-12} mbar to 1.0 bar
 - > Temperature range 1.4301: -196 °C to 300 °C
 - > Temperature range 1.4404: -196 °C to 350 °C
 - > Flanges made of 1.4306 (304L), 1.4404 (316L)
 - > Bake-out capacity up to 450 °C
 - > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4306 (304L)

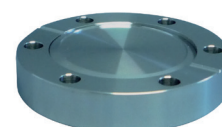
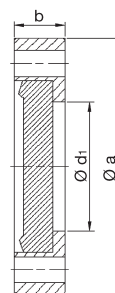
Nominal width DN	dia.a [mm]	b [mm]	Article no.	Price €
16	34	7.6	7421F	10.80
40	70	12.7	7422F	12.70
63	113.5	17.5	7423F	46.00
100	152	19.9	7424F	65.90
160	203	22.3	7425F	106.00
200	254	24.6	7426F	229.00
250	305	25	7427F	392.00

High-grade steel 1.4404 (316L)

Nominal width DN	dia.a [mm]	b [mm]	Article no.	Price €
16	34	7.6	7421F4	10.80
40	70	12.7	7422F4	18.90
63	113.5	17.5	7423F4	56.00
100	152	19.9	7424F4	107.50
160	203	22.3	7425F4	199.00
200	254	24.6	7426F4	Upon request
250	305	25	7427F4	Upon request

CF blind flange, rotatable 1.4306 (304L)

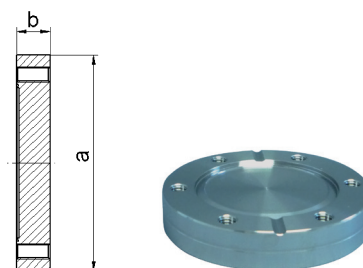
- > Pressure range: 10^{-12} mbar to 1.0 bar
 - > Temperature range: -196 °C to 300 °C
 - > Bake-out capacity up to 450 °C
 - > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration



Nominal width DN	dia.a [mm]	b [mm]	dia.d1 [mm]	Article no.	Price €
16	34	7.6	19	7421R	16.90
40	70	12.7	42.5	7422R	19.50
63	113.5	17.5	72	7423R	65.00
100	152	19.9	109	7424R	88.90
160	203	22.3	161	7425R	209.50
200	254	24.6	207	7426R	335.00
250	305	25	260	7427R	Upon request

CF blind flange, fixed, with thread

- > Pressure range: 10^{-12} mbar to 1.0 bar
 - > Temperature range 1.4301: -196 °C to 300 °C
 - > Temperature range 1.4404: -196 °C to 350 °C
 - > Flanges made of 1.4306 (304L), 1.4404 (316L)
 - > Bake-out capacity up to 450 °C
 - > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4306 (304L)

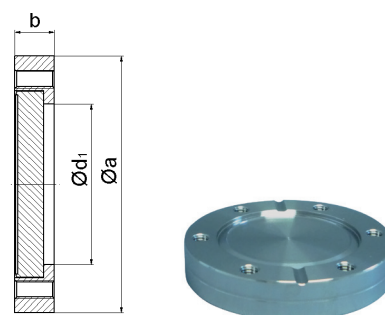
Nominal width DN	dia.a [mm]	b [mm]	Article no.	Price €
16	34	7.6	7421FG	14.40
40	70	12.7	7422FG	19.90
63	113.5	17.5	7423FG	64.00
100	152	19.9	7424FG	97.00
160	203	22.3	7425FG	139.50
200	254	24.6	7426FG	239.00
250	305	25	7427FG	432.00

High-grade steel 1.4404 (316L)

Nominal width DN	dia.a [mm]	b [mm]	Article no.	Price €
16	34	7.6	7421FG4	16.20
40	70	12.7	7422FG4	21.00
63	113.5	17.5	7423FG4	74.00
100	152	19.9	7424FG4	125.00
160	203	22.3	7425FG4	Upon request
200	254	24.6	7426FG4	Upon request
250	305	25	7427FG4	Upon request

CF blind flange, rotatable with thread 1.4306 (304L)

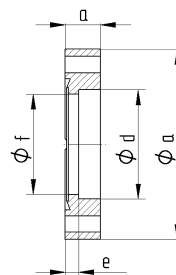
- > Pressure range: 10^{-12} mbar to 1.0 bar
 - > Temperature range: -196 °C to 300 °C
 - > Flanges made of 1.4306 (304L)
 - > Bake-out capacity up to 450 °C
 - > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration



Nominal width DN	dia.a [mm]	b [mm]	dia.d1 [mm]	Article no.	Price €
16	34	7.6	19	7421RG	23.00
40	70	12.7	42.5	7422RG	30.90
63	113.5	17.5	72	7423RG	73.00
100	152	19.9	109	7424RG	139.00
160	203	22.3	161	7425RG	Upon request
200	254	24.6	207	7426RG	Upon request
250	305	25	260	7427RG	Upon request

CF welding flange, fixed

- > Pressure range: 10^{-12} mbar to 1.0 bar
 - > Temperature range 1.4306: -196 °C to 300 °C
 - > Temperature range 1.4404: -196 °C to 350 °C
 - > Bake-out capacity up to 450 °C
 - > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4306 (304L)

Nominal width DN	dia.a [mm]	b [mm]	dia.d [mm]	e [mm]	dia.f [mm]	Article no.	Price €
16	34	7.6	18	4.8	16.5	7511F	10.70
38	70	12.7	38.2	4.8	35	7512F3	13.10
40	70	12.7	40.2	4.8	37	7512F4	13.10
63	113.5	17.5	70.3	7.9	66	7513F	46.00
100	152	19.9	104.3	9.5	100.5	7514F	62.00
160	203	22.3	154.3	9.5	150.5	7515F	105.00
200	254	24.6	204.5	9.5	200.5	7516F	192.00
250	305	25	254.7	12.7	250	7517F	Upon request

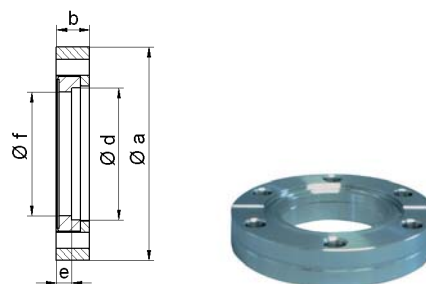
High-grade steel 1.4404 (316L)

Nominal width DN	dia.a [mm]	b [mm]	dia.d [mm]	e [mm]	dia.f [mm]	Article no.	Price €
16	34	7.6	18	4.8	16.5	7511F4	10.70
38	70	12.7	38.2	4.8	35	7512F34	18.20
40	70	12.7	40.2	4.8	37	7512F44	18.20
63	113.5	17.5	70.3	7.9	66	7513F4	56.00
100	152	19.9	104.3	9.5	100.5	7514F4	97.00
160	203	22.3	154.3	9.5	150.5	7515F4	139.00
200	254	24.6	204.5	9.5	200.5	7516F4	Upon request
250	305	25	254.7	12.7	250	7517F4	Upon request

Flange made of 316LNS upon request!

CF welding flange, rotatable

- > Pressure range: 10^{-12} mbar to 1.0 bar
 - > Temperature range 1.4306: -196 °C to 300 °C
 - > Temperature range 1.4404: -196 °C to 350 °C
 - > Bake-out capacity up to 450 °C
 - > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4306 (304L)

Nominal width DN	dia.a [mm]	b [mm]	dia.d [mm]	e [mm]	dia.f [mm]	Article no.	Price €
16	34	7.6	18	4.8	16.5	7511R	17.40
38	70	12.7	38.2	4.8	35	7512R3	18.40
40	70	12.7	40.2	4.8	37	7512R4	18.40
63	113.5	17.5	70.3	7.9	66	7513R	62.00
100	152	19.9	104.3	9.5	100.5	7514R	90.90
160	203	22.3	154.3	9.5	150.5	7515R	185.00
200	254	24.6	204.5	9.5	200.5	7516R	255.00
250	305	25	254.7	12.7	250	7517R	Upon request

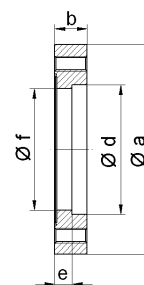
High-grade steel 1.4404 (316L)

Nominal width DN	dia.a [mm]	b [mm]	dia.d [mm]	e [mm]	dia.f [mm]	Article no.	Price €
16	34	7.6	18	4.8	16.5	7511R4	17.30
38	70	12.7	38.2	4.8	35	7512R34	28.80
40	70	12.7	40.2	4.8	37	7512R44	28.80
63	113.5	17.5	70.3	7.9	66	7513R4	83.90
100	152	19.9	104.3	9.5	100.5	7514R4	142.00
160	203	22.3	154.3	9.5	150.5	7515R4	227.00
200	254	24.6	204.5	9.5	200.5	7516R4	Upon request
250	305	25	254.7	12.7	250	7517R4	Upon request

Flange made of 316LNS upon request!

CF welding flange, fixed, with thread

- > Pressure range: 10^{-12} mbar to 1.0 bar
 - > Temperature range 1.4306: -196 °C to 300 °C
 - > Temperature range 1.4404: -196 °C to 350 °C
 - > Bake-out capacity up to 450 °C
 - > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4306 (304L)

Nominal width DN	dia.a [mm]	b [mm]	dia.d [mm]	e [mm]	dia.f [mm]	Article no.	Price €
16	34	7.6	18	4.8	16.5	7511FG	14.90
38	70	12.7	38.2	4.8	35	7512FG3	22.00
40	70	12.7	40.2	4.8	37	7512FG4	22.00
63	113.5	17.5	70.3	7.9	66	7513FG	65.00
100	152	19.9	104.3	9.5	100.5	7514FG	102.00
160	203	22.3	154.3	9.5	150.5	7515FG	149.00
200	254	24.6	204.5	9.5	200.5	7516FG	272.00
250	305	25	254.7	12.7	250	7517FG	Upon request

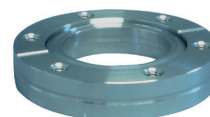
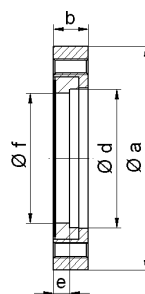
High-grade steel 1.4404 (316L)

Nominal width DN	dia.a [mm]	b [mm]	dia.d [mm]	e [mm]	dia.f [mm]	Article no.	Price €
16	34	7.6	18	4.8	16.5	7511FG4	15.00
25	54	12	28.2	7.2	25	75115FG4	16.70
38	70	12.7	38.2	4.8	35	7512FG34	25.00
40	70	12.7	40.2	4.8	37	7512FG44	25.00
63	113.5	17.5	70.3	7.9	66	7513FG4	Upon request
100	152	19.9	104.3	9.5	100.5	7514FG4	112.00
160	203	22.3	154.3	9.5	150.5	7515FG4	165.00
200	254	24.6	204.5	9.5	200.5	7516FG4	Upon request
250	305	25	254.7	12.7	250	7517FG4	Upon request

Flange made of 316LNS upon request!

CF welding flange, rotatable, with thread

- > Pressure range: 10^{-12} mbar to 1.0 bar
- > Temperature range 1.4306: -196 °C to 300 °C
- > Temperature range 1.4404: -196 °C to 350 °C
- > Bake-out capacity up to 450 °C
- > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4306 (304L)

Nominal width DN	dia.a [mm]	b [mm]	dia.d [mm]	e [mm]	dia.f [mm]	Article no.	Price €
16	34	7.6	18	4.8	16.5	7511RG	23.00
38	70	12.7	38.2	4.8	35	7512R3G	30.90
40	70	12.7	40.2	4.8	37	7512R4G	30.90
63	113.5	17.5	70.3	7.9	66	7513RG	97.00
100	152	19.9	104.3	9.5	100.5	7514RG	145.00
160	203	22.3	154.3	9.5	150.5	7515RG	214.00
200	254	24.6	204.5	9.5	200.5	7516RG	Upon request
250	305	25	254.7	12.7	250	7517RG	Upon request

High-grade steel 1.4404 (316L)

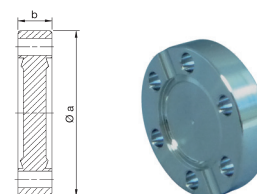
Nominal width DN	dia.a [mm]	b [mm]	dia.d [mm]	e [mm]	dia.f [mm]	Article no.	Price €
16	34	7.6	18	4.8	16.5	7511RG4	21.00
38	70	12.7	38.2	4.8	35	7512R3G4	36.00
40	70	12.7	40.2	4.8	37	7512R4G4	36.00
63	113.5	17.5	70.3	7.9	66	7513RG4	105.00
100	152	19.9	104.3	9.5	100.5	7514RG4	165.00
160	203	22.3	154.3	9.5	150.5	7515RG4	248.00
200	254	24.6	204.5	9.5	200.5	7516RG4	Upon request
250	305	25	254.7	12.7	250	7517RG4	Upon request

Flange made of 316LNS upon request!

CF double-sided blind flange 1.4306 (304L)

- > Pressure range: 10^{-12} mbar to 1.0 bar
- > Temperature range: -196 °C to 300 °C
- > Flanges made of 1.4306 (304L)
- > Bake-out capacity up to 450 °C
- > Other materials and sizes upon request

* Take sealing materials and connecting elements into consideration

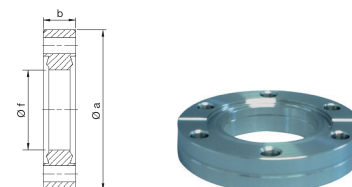


Nominal width DN	dia.a [mm]	b [mm]	Article no.	Price €
16	34	7.6	7431F	32.50
40	70	12.7	7432F	46.00
63	113.5	17.5	7433F	136.00
100	152	19.9	7434F	196.00
160	203	22.3	7435F	250.00

CF double-sided feedthrough flange 1.4306 (304L)

- > Pressure range: 10^{-12} mbar to 1.0 bar
- > Temperature range: -196 °C to 300 °C
- > Flanges made of 1.4306 (304L)
- > Bake-out capacity up to 450 °C
- > Other materials and sizes upon request

* Take sealing materials and connecting elements into consideration

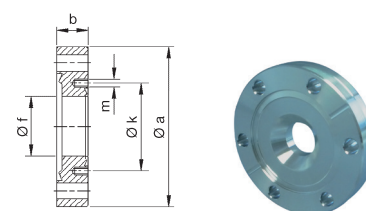


Nominal width DN	dia.a [mm]	b [mm]	dia.f [mm]	Article no.	Price €
16	34	7.6	16.5	7531	29.20
40	70	12.7	38.5	7532	39.20
63	113.5	17.5	66	7533	119.20
100	152	19.9	100.5	7534	234.00
160	203	22.3	150.5	7535	250.00

CF reducing flange 1.4306 (304L)

- > Pressure range: 10^{-12} mbar to 1.0 bar
- > Temperature range: -196 °C to 300 °C
- > Flanges made of 1.4306 (304L)
- > Bake-out capacity up to 450 °C
- > Other materials and sizes upon request

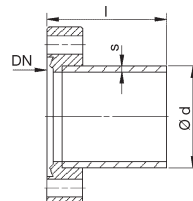
* Take sealing materials and connecting elements into consideration



Nominal width DN / DN1	dia.a [mm]	b [mm]	dia.f [mm]	dia.k [mm]	m [thread]	Article no.	Price €
40 / 16	70	12.7	16	27	M4	7541	53.00
63 / 16	113.5	17.5	16	27	M4	7542	99.00
63 / 40	113.5	17.5	37	58.7	M6	7543	81.00
100 / 40	152	19.9	37	58.7	M6	7544	137.00
100 / 63	152	19.9	66	92.1	M8	7545	147.00
160 / 40	203	22.3	37	58.7	M6	7546	242.00
160 / 63	203	22.3	66	92.1	M8	7547	242.00
160 / 100	203	22.3	100.5	130.3	M8	7548	265.00

CF flange with flanged socket, fixed

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbar/s)
 - > Temperature range 1.4306: -196 °C to 300 °C
 - > Temperature range 1.4404: -196 °C to 350 °C
 - > Flanges made of 1.4306 (304L), 1.4404 (316L) and pipes made of 1.4404 (316L)
 - > Component bake-out capacity up to 450 °C
 - > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
 - > Special dimensions upon request
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4306 (304L)

Nominal width DN	l [mm]	dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	18 (18x1)	1.0	7571F	25.50
38	63	38 (38x1.5)	1.5	7572F3	33.90
40	63	40 (40x1.5)	2.0	7572F4	33.90
63	105	70 (70x2)	2.0	7573F	85.50
100	135	104 (104x2)	2.0	7574F	124.00
160	167	154 (154x2)	2.0	7575F	194.00
200	167	204 (204x2)	2.0	7576F	373.00
250	167	254 (254x2)	2.0	7577F	489.00

High-grade steel 1.4404 (316L)

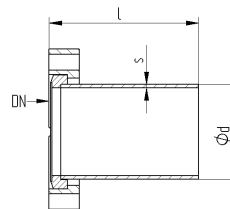
Nominal width DN	l [mm]	dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	18 (18x1)	1.0	7571F4	29.00
38	63	38 (38x1.5)	1.5	7572F34	36.00
40	63	40 (40x1.5)	2.0	7572F44	37.00
63	105	70 (70x2)	2.0	7573F4	95.00
100	135	104 (104x2)	2.0	7574F4	137.00
160	167	154 (154x2)	2.0	7575F4	196.00
200	167	204 (204x2)	2.0	7576F4	Upon request
250	167	254 (254x2)	2.0	7577F4	Upon request

Flange made of 316LNS upon request!

CF flange with flanged socket, rotatable

- > Pressure range: 10^{-12} mbar to 1.0 bar
(with a leak rate under helium of 1×10^{-10} mbarl/s)
- > Temperature range 1.4306: -196 °C to 300 °C
- > Temperature range 1.4404: -196 °C to 350 °C
- > Flanges made of 1.4306 (304L), 1.4404 (316L) and pipes made of 1.4404 (316L)
- > Component bake-out capacity up to 450 °C
- > Surface NW16 to NW63 polished on outside and inside, NW100 to NW250 polished on inside, outside matted or glass bead blasted.
- > Special dimensions upon request

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4306 (304L)

Nominal width DN	l [mm]	dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	18 (18x1)	1.0	7571R	29.00
38	63	38 (38x1.5)	1.5	7572R3	42.00
40	63	40 (40x1.5)	2.0	7572R4	42.00
63	105	70 (70x2)	2.0	7573R	102.00
100	135	104 (104x2)	2.0	7574R	143.00
160	167	154 (154x2)	2.0	7575R	248.00
200	167	204 (204x2)	2.0	7576R	395.00
250	167	254 (254x2)	2.0	7577R	692.00

High-grade steel 1.4404 (316L)

Nominal width DN	l [mm]	dia.d [mm] (pipe dimension)	s [mm]	Article no.	Price €
16	38	18 (18x1)	1.0	7571R4	37.00
38	63	38 (38x1.5)	1.5	7572R34	46.00
40	63	40 (40x1.5)	2.0	7572R44	48.00
63	105	70 (70x2)	2.0	7573R4	107.00
100	135	104 (104x2)	2.0	7574R4	164.00
160	167	154 (154x2)	2.0	7575R4	255.00
200	167	204 (204x2)	2.0	7576R4	Upon request
250	167	254 (254x2)	2.0	7577R4	Upon request

Flange made of 316LNS upon request!

CF adapter



Properties of high-grade steel 1.4306/1.4404:

- high leak rate ($<10^{-9}$ mbarl/s)
- high conductance
- gap-free welded
- cleaned in UHV-compatible manner
- special dimensions upon request

Description:

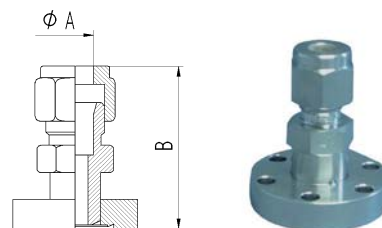
The novotek CF adapters serve as transitions from the CF flange to a very wide variety of vacuum-compatible systems.

Area of application:

The novotek CF adapters allow the installation of vacuum attachments for the pressure range of 1000 mbar up to 10^{-9} mbar.

CF adapter for double compression fitting, metric

- > Pressure range: 10^{-9} mbar to 1.0 bar
- > Temperature range 1.4306: -196°C to 300°C
- > Flanges made of 1.4306 (304L), adapter 1.4404 (316L)
- > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration

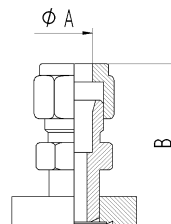


1.4306 (304L) Swagelok®-compatible

Nominal width DN	dia.A [mm]	B [mm]	Article no.	Price €
16	6	39	7551-6	44.40
16	8	40	7551-8	53.00
16	10	42	7551-10	54.60
16	12	45	7551-12	60.00
40	6	39	7552-6	50.00
40	8	40	7552-8	55.40
40	10	42	7552-10	58.50
40	12	45	7552-12	68.50

CF adapter for double compression fitting, metric

- > Pressure range: 10⁻⁹mbar to 1.0 bar
- > Temperature range 1.4404: -196 °C to 350 °C
- > Flanges made of 1.4404 (316L), adapter 1.4404 (316L)
- > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration

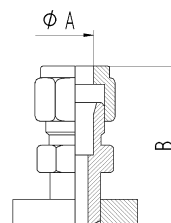


1.4404 (316L) Swagelok®-compatible

Nominal width DN	dia.A [mm]	B [mm]	Article no.	Price €
16	6	39	7551-6-4	44.40
16	8	40	7551-8-4	52.50
16	10	42	7551-10-4	54.50
16	12	45	7551-12-4	66.00
40	6	39	7552-6-4	56.00
40	8	40	7552-8-4	58.00
40	10	42	7552-10-4	59.00
40	12	45	7552-12-4	67.00

CF adapter for double compression fitting, imperial

- > Pressure range: 10⁻⁹mbar to 1.0 bar
- > Temperature range 1.4306: -196 °C to 300 °C
- > Temperature range 1.4404: -196 °C to 350 °C
- > Flanges made of 1.4306 (304L) 1.4404 (316L), adapter 1.4404 (316L)
- > Other materials and sizes upon request
- * Take sealing materials and connecting elements into consideration



1.4306 (304L) Swagelok®-compatible

Nominal width DN	dia.A [mm]	B [mm]	Article no.	Price €
16	1/4"	39	7556-14	54.00
16	3/8"	41	7556-38	57.00
16	1/2"	45	7556-12	66.00
40	1/4"	39	7557-14	57.00
40	3/8"	41	7557-38	63.00
40	1/2"	45	7557-12	68.00

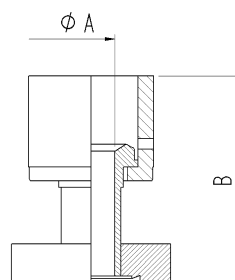
1.4404 (316L) Swagelok®-compatible

Nominal width DN	dia.A [mm]	B [mm]	Article no.	Price €
16	1/4"	39	7556-14-4	54.00
16	3/8"	41	7556-38-4	59.00
16	1/2"	45	7556-12-4	68.00
40	1/4"	39	7557-14-4	57.00
40	3/8"	41	7557-38-4	63.50
40	1/2"	45	7557-12-4	69.00

CF-HTC adapter, female

- > Pressure range: 10⁻⁹mbar to 1.0 bar
- > Temperature range 1.4306: -196 °C to 300 °C
- > Temperature range 1.4404: -196 °C to 350 °C
- > Flanges made of 1.4306 (304L) 1.4404 (316L), adapter 1.4404 (316L)
- > Other materials and sizes upon request

* Take sealing materials and connecting elements into consideration



1.4306 (304L) VCR®-compatible

Nominal width DN	dia.A [mm]	B [mm]	Article no.	Price €
16	¼"	42	7561-14	61.50
16	½"	44	7561-12	72.50
40	¼"	42	7562-14	64.50
40	½"	44	7562-12	78.00

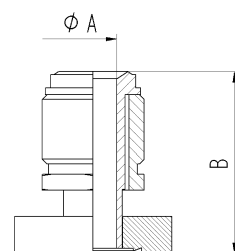
1.4404 (316L) VCR®-compatible

Nominal width DN	dia.A [mm]	B [mm]	Article no.	Price €
16	¼"	42	7561-14-4	62.00
16	½"	44	7561-12-4	72.80
40	¼"	42	7562-14-4	65.00
40	½"	44	7562-12-4	82.00

CF-HTC adapter, male

- > Pressure range: 10⁻⁹mbar to 1.0 bar
- > Temperature range 1.4306: -196 °C to 300 °C
- > Temperature range 1.4404: -196 °C to 350 °C
- > Flanges made of 1.4306 (304L) 1.4404 (316L), adapter 1.4404 (316L)
- > Other materials and sizes upon request

* Take sealing materials and connecting elements into consideration



1.4306 (304L) VCR®-compatible

Nominal width DN	dia.A [mm]	B [mm]	Article no.	Price €
16	¼"	34	7566-14	55.50
16	½"	39	7566-12	72.50
40	¼"	37	7567-14	62.50
40	½"	39	7567-12	75.00

1.4404 (316L) VCR®-compatible

Nominal width DN	dia.A [mm]	B [mm]	Article no.	Price €
16	¼"	34	7566-14-4	56.00
16	½"	39	7566-12-4	72.80
40	¼"	37	7567-14-4	63.00
40	½"	39	7567-12-4	77.00

CF hoses and metal spring bellows



Properties of high-grade steel 1.4306/1.4404:

- temperature range -196 °C to $+350\text{ °C}$
- suitable for high vacuum up to $1 \times 10^{-9}\text{ mbar}$
- metal hose lengths of 5 m and longer are possible

Description:

The novotek metal hoses are circular corrugated all-metal hoses. The profiling on the corrugation determines the elastic pliability and compressive resistance. The typical CF flanges are welded onto the metal hoses. To eliminate temper colours and clean the weld seam, in a special vacuum annealing procedure the hoses are baked-out at approx. 1040 °C under forming gas. In this process, the metal hose is simultaneously soft-annealed and thus receives its extremely flexibility property. The flexibility makes complicated line runs with small bending radii possible.

The novotek metal spring bellows are corrugated metal bellows. The corrugated sections that run concentrically and parallel to one another give the metal spring bellows axial, angular and lateral mobility, whereby combinations of this are also possible. Metal spring bellows are not annealed.

Area of application:

The novotek metal hose connections and metal spring bellows can be used as a mobile vacuum line. If they are used, ensure that the metal hoses can only execute bending movements in a lateral direction. Dynamic axial movements, i.e. buckling or pulling apart both in axial direction as well as torsional movement can only be executed by metal spring bellows.

Important comment: During evacuation of metal hoses as well as metal spring bellows, the air pressure applied from the outside results in a considerable force acting on the flanges, which causes compression. Only the spring power of the hose and bellows counteracts this. It may be necessary to compensate for the forces that develop.

CF corrugated hose, extremely flexible, 1 flange, rotatable

> All technical data and properties apply at normal air pressure of 1013 mbar and a temperature of 20 °C

> **Extremely flexible thanks to soft annealing**

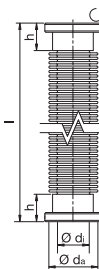
> Pressure range: 10⁻⁹mbar

> Temperature range 1.4306: -196 °C to 300 °C

> Temperature range 1.4404: -196 °C to 350 °C

> Special lengths upon request

* Take sealing materials and connecting elements into consideration



Flange 1.4306 (304L) / hose 1.4404

Nominal width DN	Total length [mm]	Corrugated hose dia.da [mm]	Corrugated hose dia.di [mm]	h [mm]	One-time movement radius R _{st} [mm]	Frequent movement radius R _b [mm]	Maximum pressure [bar]	Article no.	Price €
16	250	22.8	16.2	35	26	140	1.0	7901R	93.00
40	250	52	40.1	55	59	240	1.0	7902R	119.00
63	250	80	65	75	90	330	1.0	7903R	247.00
100	250	120	100	80	131	530	1.0	7904R	343.00
16	500	22.8	16.2	35	26	140	1.0	7911R	99.00
40	500	52	40.1	55	59	240	1.0	7912R	127.00
63	500	80	65	75	90	330	1.0	7913R	272.00
100	500	120	100	80	131	530	1.0	7914R	389.00
16	750	22.8	16.2	35	26	140	1.0	7931R	105.00
40	750	52	40.1	55	59	240	1.0	7932R	137.00
63	750	80	65	75	90	330	1.0	7933R	302.00
100	750	120	100	80	131	530	1.0	7934R	499.00
16	1000	22.8	16.2	35	26	140	1.0	7921R	116.00
40	1000	52	40.1	55	59	240	1.0	7922R	144.00
63	1000	80	65	75	90	330	1.0	7923R	325.00
100	1000	120	100	80	131	530	1.0	7924R	530.00

Flange 1.4404 (316L) / hose 1.4404

Nominal width DN	Total length [mm]	Corrugated hose dia.da [mm]	Corrugated hose dia.di [mm]	h [mm]	One-time movement radius R _{st} [mm]	Frequent movement radius R _b [mm]	Maximum pressure [bar]	Article no.	Price €
16	250	22.8	16.2	35	26	140	1.0	7901R4	99.00
40	250	52	40.1	55	59	240	1.0	7902R4	127.00
63	250	80	65	75	90	330	1.0	7903R4	259.00
100	250	120	100	80	131	530	1.0	7904R4	368.00
16	500	22.8	16.2	35	26	140	1.0	7911R4	107.00
40	500	52	40.1	55	59	240	1.0	7912R4	136.00
63	500	80	65	75	90	330	1.0	7913R4	284.50
100	500	120	100	80	131	530	1.0	7914R4	414.00
16	750	22.8	16.2	35	26	140	1.0	7931R4	115.00
40	750	52	40.1	55	59	240	1.0	7932R4	148.00
63	750	80	65	75	90	330	1.0	7933R4	317.00
100	750	120	100	80	131	530	1.0	7934R4	516.00
16	1000	22.8	16.2	35	26	140	1.0	7921R4	126.00
40	1000	52	40.1	55	59	240	1.0	7922R4	155.00
63	1000	80	65	75	90	330	1.0	7923R4	339.00
100	1000	120	100	80	131	530	1.0	7924R4	547.50

CF corrugated hose, flexible, 1 flange, rotatable

> All technical data and properties apply at normal air pressure of 1013 mbar and a temperature of 20 °C

> **Flexible without annealing**

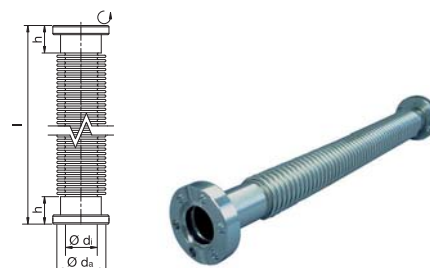
> Pressure range: 10⁻⁹mbar

> Temperature range 1.4306: -196 °C to 300 °C

> Temperature range 1.4404: -196 °C to 350 °C

> Special lengths upon request

* Take sealing materials and connecting elements into consideration



Flange 1.4306 (304L) / hose 1.4404

Nominal width DN	Total length [mm]	Corrugated hose dia.da [mm]	Corrugated hose dia.di [mm]	h [mm]	One-time movement radius R _{st} [mm]	Frequent movement radius R _b [mm]	Maximum pressure [bar]	Article no.	Price €
16	250	22.8	16.2	35	26	140	1.0	7901RU	89.50
40	250	52	40.1	55	59	240	1.0	7902RU	115.00
63	250	80	65	75	90	330	1.0	7903RU	243.00
100	250	120	100	80	131	530	1.0	7904RU	347.00
16	500	22.8	16.2	35	26	140	1.0	7911RU	95.00
40	500	52	40.1	55	59	240	1.0	7912RU	122.50
63	500	80	65	75	90	330	1.0	7913RU	267.00
100	500	120	100	80	131	530	1.0	7914RU	394.00
16	1000	22.8	16.2	35	26	140	1.0	7921RU	110.00
40	1000	52	40.1	55	59	240	1.0	7922RU	137.50
63	1000	80	65	75	90	330	1.0	7923RU	318.00
100	1000	120	100	80	131	530	1.0	7924RU	522.00
16	750	22.8	16.2	35	26	140	1.0	7931RU	100.00
40	750	52	40.1	55	59	240	1.0	7932RU	131.50
63	750	80	65	75	90	330	1.0	7933RU	296.00
100	750	120	100	80	131	530	1.0	7934RU	492.00

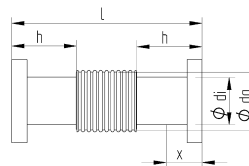
Flange 1.4404 (316L) / hose 1.4404

Nominal width DN	Total length [mm]	Corrugated hose dia.da [mm]	Corrugated hose dia.di [mm]	h [mm]	One-time movement radius R _{st} [mm]	Frequent movement radius R _b [mm]	Maximum pressure [bar]	Article no.	Price €
16	250	22.8	16.2	35	26	140	1.0	7901RU4	96.50
40	250	52	40.1	55	59	240	1.0	7902RU4	123.00
63	250	80	65	75	90	330	1.0	7903RU4	255.00
100	250	120	100	80	131	530	1.0	7904RU4	362.00
16	500	22.8	16.2	35	26	140	1.0	7911RU4	103.00
40	500	52	40.1	55	59	240	1.0	7912RU4	131.50
63	500	80	65	75	90	330	1.0	7913RU4	279.50
100	500	120	100	80	131	530	1.0	7914RU4	409.00
16	750	22.8	16.2	35	26	140	1.0	7931RU4	110.00
40	750	52	40.1	55	59	240	1.0	7932RU4	138.50
63	750	80	65	75	90	330	1.0	7933RU4	311.00
100	750	120	100	80	131	530	1.0	7934RU4	509.00
16	1000	22.8	16.2	35	26	140	1.0	7921RU4	120.00
40	1000	52	40.1	55	59	240	1.0	7922RU4	148.50
63	1000	80	65	75	90	330	1.0	7923RU4	332.00
100	1000	120	100	80	131	530	1.0	7924RU4	539.50

CF metal spring bellows 1.4306 / 1.4404 / 1.4571

- > Pressure range: 10^{-9} mbar
- > 10000 load alternation at 20 °C and 1013 mbar standard air pressure
- > Temperature range: -196 °C to 300 °C 1.4306*
- > Temperature range: -196 °C to 350 °C 1.4404 / 1.4571*

* Take sealing materials and connecting elements into consideration



Flange 1.4306 / connection pipe 1.4404 / bellows 1.4571

Nominal width DN	Bellows inside diameter dia.di [mm]	Bellows outside diameter dia.da [mm]	Neutral length l [mm]	Axial stroke x [mm]	h [mm]	Article no.	Price €
16	15	21	110	± 6	35	7991R	122.00
40	40	60	160	± 12	55	7992R	128.50
63	65.5	90	220	± 18	75	7993R	314.00
100	105	132	230	± 18	80	7994R	430.00
160	153	180	270	± 14	85	7995R	685.00
200	-	-	285	± 12	85	7996R	998.00
250	250	286	300	± 12	85	7997R	1,850.00

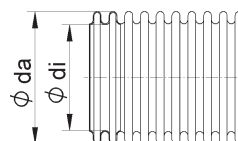
Flange 1.4404 / connection pipe 1.4404 / bellows 1.4571

Nominal width DN	Bellows inside diameter dia.di [mm]	Bellows outside diameter dia.da [mm]	Neutral length l [mm]	Axial stroke x [mm]	h [mm]	Article no.	Price €
16	15	21	110	± 6	35	7991R4	132.00
40	40	60	160	± 12	55	7992R4	165.00
63	65.5	90	220	± 18	75	7993R4	355.00
100	105	132	230	± 18	80	7994R4	540.00
160	153	180	270	± 14	85	7995R4	785.00
200	-	-	285	± 12	85	7996R4	Upon request
250	250	286	300	± 12	85	7997R4	Upon request

CF corrugated hose, extremely flexible, sold by the metre 1.4404

- > Available in lengths of 100 mm to 5000 mm
- > When ordering, specify desired length additionally in text form
- > Pressure range: 10^{-9} mbar
- > Temperature range: -196°C to 350°C *

* Take sealing materials and connecting elements into consideration

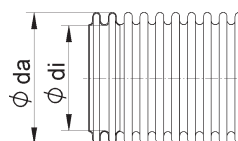


Nominal width DN	Total length l [mm]	dia.di [mm]	dia.da [mm]	One-time movement radius R_{st} [mm]	HH frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
16	1000	16.2	22.8	26	140	2.5	7971	40.00
40	1000	40.1	52	59	240	1.8	7972	64.00
63	1000	65	80	90	330	1.7	7973	130.00
100	1000	100	120	131	530	1.3	7974	170.00

CF corrugated hose, extremely flexible, sold by the metre 1.4404

- > Available in lengths of 100 mm to 5000 mm
- > When ordering, specify desired length additionally in text form
- > Pressure range: 10^{-9} mbar
- > Temperature range: -196°C to 350°C *

* Take sealing materials and connecting elements into consideration



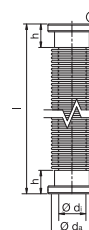
Nominal width DN	Total length l [mm]	dia.di [mm]	dia.da [mm]	One-time movement radius R_{st} [mm]	HH frequent movement radius R_b [mm]	Maximum pressure [bar]	Article no.	Price €
16	1000	16.2	22.8	26	140	2.5	7971U	35.00
40	1000	40.1	52	59	240	1.8	7972U	58.00
63	1000	65	80	90	330	1.7	7973U	124.00
100	1000	100	120	131	530	1.3	7974U	164.00

Price example, special length CF corrugated hose with flange

- > Available in lengths of 100 mm to 5000 mm
- > When ordering, specify desired length additionally in text form
- > Pressure range: 10^{-9} mbar
- > Temperature range: -196°C to 300°C (1.4301)/ 350°C (1.4404)*

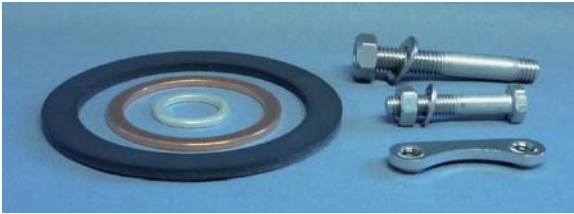
* Take sealing materials and connecting elements into consideration

Price example:



High-grade steel hose, extremely flexible with flange connection, one side rotatable, NW100 l = 2700 mm contains:	Article no.	Price €
High-grade steel hose with CF flange connection, one side rotatable, extremely flexible, NW100 l = 1000 mm in 1.4306 (304L)	7924R	530.00
High-grade steel hose, extremely flexible, NW 100, sold by the metre, 1.7 m	7974 x 1.7	$170 \times 1.7 = 289.00$
High-grade steel hose with CF flange connection, one side rotatable, extremely flexible CF NW100 l = 2700 mm in 1.4306 (304L)	7924 x 2.7	Total price = 819.00

CF seal components



Properties:

- metallic joint
- bake-out capacity up to 450 °C
- combinable depending on application area
- use thread lubricant for screw connections
- when baking out, use silver plated seals

Description:

The CF seal components are required to establish a metallic UHV-tight connection. The standard sealing material used is oxygen-free OFHC copper. The Cu sealing washer can only be used once and for temperatures up to 200 °C. To prevent oxidation and for temperatures up to 450 °C, silver-plated copper seals are used. For test purposes and pressures up to 1×10^{-7} mbar, CF Viton seals, which can be used several times, are often used. The CF connecting components are suitable for establishing up a reliable flange connection. The screws are compiled in various sets corresponding to the usage and handling. To guarantee fast and easy assembly of flanges with smaller nominal widths, DUO nuts are often used.

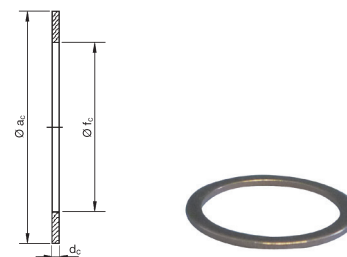
Important note:

When baking out CF connections and components, ensure that heating up and cooling and is carried out uniformly and slowly. Leaks and stress occur at the flanges due to high temperature differences.

High temperature gradients must be avoided in all circumstances!

CF copper seal made of OFHC copper, unannealed

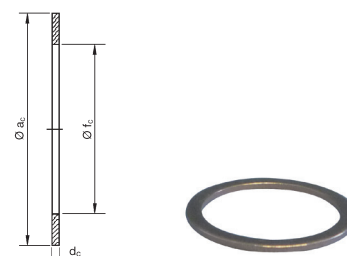
- > Pressure range: 10^{-13} mbar to 1.0 bar
- > Temperature range: -196 °C to 200 °C
- > Can only be used once



Nominal width DN	dia.ac [mm]	dia.fc [mm]	dc [mm]	Packaging unit [pcs.]	Article no.	Price €
16	21	16	2	10	7201	10.20
16	21	16	2	1	7201-S	1.20
40	48	39	2	10	7202	13.20
40	48	39	2	1	7202-S	1.60
63	82	63	2	10	7203	25.70
63	82	63	2	1	7203-S	3.50
100	120	101	2	10	7204	35.20
100	120	101	2	1	7204-S	4.70
160	171	152	2	5	7205	29.20
160	171	152	2	1	7205-S	7.00
200	222	203	2	5	7206	37.20
200	222	203	2	1	7206-S	9.00
250	273	254	2	5	7207	129.00
250	273	254	2	1	7207-S	29.90

CF copper seal made of OFHC copper, soft-annealed

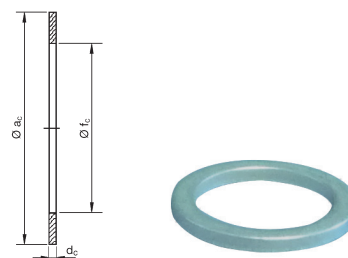
- > Pressure range: 10^{-13} mbar to 1.0 bar
- > Temperature range: -196 °C to 200 °C
- > Soft-annealed, therefore suitable for aluminium flanges, inspection glasses and window flanges
- > Can only be used once



Nominal width DN	dia.ac [mm]	dia.fc [mm]	dc [mm]	Packaging unit [pcs.]	Article no.	Price €
16	21	16	2	5	7201W	9.90
16	21	16	2	1	7201W-S	2.40
40	48	39	2	5	7202W	13.50
40	48	39	2	1	7202W-S	3.10
63	82	63	2	5	7203W	26.00
63	82	63	2	1	7203W-S	6.20
100	120	101	2	5	7204W	35.10
100	120	101	2	1	7204W-S	8.50
160	171	152	2	5	7205W	47.00
160	171	152	2	1	7205W-S	10.70
200	222	203	2	5	7206W	61.00
200	222	203	2	1	7206W-S	13.70
250	273	254	2	5	7207W	179.00
250	273	254	2	1	7207W-S	37.00

CF copper seal made of OFHC copper, silver-plated

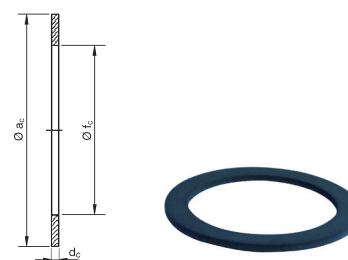
- > Pressure range: 10^{-13} mbar to 1.0 bar
- > Temperature range: -196 °C to 450 °C
- > Can only be used once



Nominal width DN	dia.ac [mm]	dia.fc [mm]	dc [mm]	Packaging unit [pcs.]	Article no.	Price €
16	21	16	2	5	7211	9.70
16	21	16	2	1	7211-S	2.40
40	48	39	2	5	7212	15.20
40	48	39	2	1	7212-S	3.50
63	82	63	2	5	7213	24.20
63	82	63	2	1	7213-S	5.70
100	120	101	2	5	7214	29.70
100	120	101	2	1	7214-S	7.70
160	171	152	2	5	7215	42.50
160	171	152	2	1	7215-S	10.50
200	222	203	2	5	7216	69.70
200	222	203	2	1	7216-S	16.50
250	273	254	2	5	7217	197.00
250	273	254	2	1	7217-S	43.00

CF seal made of FKM/FPM

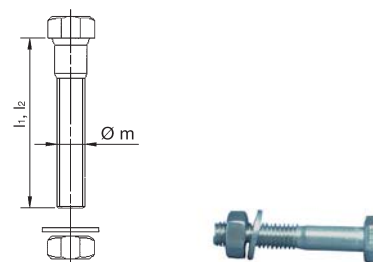
- > Pressure range: 10^{-7} mbar to 1.0 bar
- > Temperature range: -20 °C to 160 °C
- > Can be used several times



Nominal width DN	dia.ac [mm]	dia.fc [mm]	dc [mm]	Packaging unit [pcs.]	Article no.	Price €
16	21	16	3	3	7251	5.85
16	21	16	2	1	7251-S	2.20
40	48	37	3	3	7252	9.30
40	48	37	2	1	7252-S	3.55
63	82	63	3	3	7253	14.70
63	82	63	2	1	7253-S	5.15
100	120	101	3	3	7254	21.50
100	120	101	2	1	7254-S	7.40
160	171	152	3	3	7255	32.00
160	171	152	2	1	7255-S	10.90
200	222	203	3	3	7256	69.00
200	222	203	2	1	7256-S	23.50
250	273	254	3	3	7257	95.00
250	273	254	2	1	7257-S	32.50

CF hexagon screw set A2

- > Screw set as shown with screw, nut and washer
- > Suitable for the assembly of 2 flanges with through-holes
- > Can be used several times

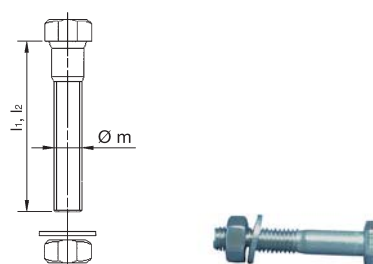


For flanges with through-holes

Nominal width DN	L ₁ [mm]	m [thread]	Packaging unit [pcs.]	Article no.	Price €
16	20	M4	6	7001	2.90
40	35	M6	6	7002	3.70
63	50	M8	8	7003	6.30
100	55	M8	16	7004	12.60
160	55	M8	20	7005	16.80
200	60	M8	24	7006	21.50
250	60	M8	32	7007	31.90

CF hexagon screw set A2

- > Screw set as shown with screw, nut and washer
- > Suitable for the assembly of 1 flange with through-holes and 1 double-side flange
- > Can be used several times

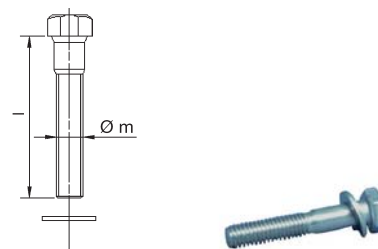


For double-sided CF flanges

Nominal width DN	L ₂ [mm]	m [thread]	Packaging unit [pcs.]	Article no.	Price €
16	35	M4	6	7011	3.20
40	50	M6	6	7012	4.10
63	60	M8	8	7013	7.90
100	70	M8	16	7014	16.40
160	80	M8	20	7015	24.30
200	90	M8	24	7016	34.70
250	90	M8	32	7017	46.80

CF hexagon screw set A2

- > Screw set as shown with screw, and washer
- > Suitable for assembly of 2 flanges with 1x through-hole and one thread.
- > Can be used several times

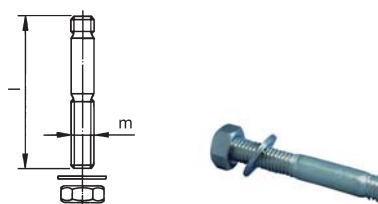


For CF flanges with threaded holes

Nominal width DN	L ₂ [mm]	m [thread]	Packaging unit [pcs.]	Article no.	Price €
16	16	M4	6	7021	2.80
40	25	M6	6	7022	3.60
63	30	M8	8	7023	6.10
100	35	M8	16	7024	12.80
160	35	M8	20	7025	16.20
200	45	M8	24	7026	20.20
250	50	M8	32	7027	31.00

CF stud screw set A2

- > Screw set as shown with stud screw, nut and washer
- > Suitable for assembly of 2 flanges with 1x through-hole and one thread.
- > Can be used several times

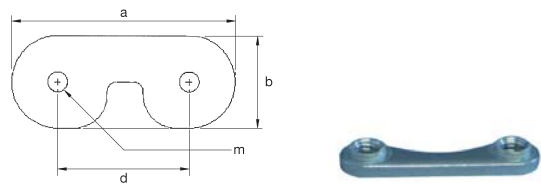


For CF flanges with threaded holes

Nominal width DN	l [mm]	m [thread]	Packaging unit [pcs.]	Article no.	Price €
16	25	M4x20	6	8031	Upon request
40	36	M6x30	6	8032	11.50
63	48	M8x40	8	8033	16.00
100	53	M8x45	16	8034	32.00
160	53	M8x45	20	8035	39.00
200	53	M8x45	24	8036	43.00
250	53	M8x45	32	8037	55.00

CF Duo nut

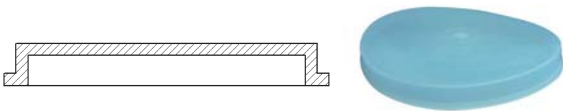
- > Duo nut as shown
- > Suitable for the assembly of 2 flanges with through-holes
- > Suitable for fast assembly and with space problems



For CF flanges with threaded holes

Nominal width DN	a [mm]	b [mm]	m [thread]	d [mm]	Packaging unit [pcs.]	Article no.	Price €
16	20.5	7	M4	13	25	7051	47.50
40	40	11	M6	29	25	7052	63.50
63	48	13	M8	35	25	7053	75.00
100	44	12	M8	25	25	7054	96.00
160	44	12	M8	28	25	7055	96.00

CF flange cap, plastic



Nominal width DN	Article no.	Price €
16	7081	0.80
40	7082	1.00
63	7083	2.00
100	7084	2.20
160	7085	3.20
200	7086	10.20
250	7087	14.50

Valves



Corner and full-way valves, manually actuated and electro-pneumatic



Properties

- high leak rate ($<10^{-8}$ mbarl/s)
- single-acting pneumatic unit
- high conductance
- spring bellows and internal components made of high-grade steel
- valve face and housing are FKM-sealed
- reliable function in all installation positions
- long service life and low-maintenance

Description:

The novotek corner and full-way valves made of aluminium and high-grade steel meet special leak-tightness requirements of high-vacuum valves. To achieve this leak-tightness, novotek uses spring bellows seals in conjunction with FKM-sealed connecting components. The valve housing is manufactured from a drawn aluminium profile or from high-grade steel solid material. The connection between valve plate, spring bellows and sealing plate is laser-welded and guarantees high-vacuum sealing at all times.

Pneumatic valves:

The pneumatic unit is single-acting. This means that the valve is de-energized and closed unpressurised. The valve is opened either directly via compressed air or controlled via an optionally integrated pilot valve that forwards the compressed air to the valve. For special applications, which are usually safety-relevant, the valves can also be supplied in the version open when de-energised and depressurised. The position indicator (optional) signals the open or closed position. Valves supplied without position indicator and control valve signal the open and closed position by means of a pin on the valve cover.

Area of application:

They are used as shut-off valves, vent valves and high-vacuum valves, have a light weight, a small overall height and a high conductivity value. They can be installed as required and fail-safe in compact systems. The electro-pneumatically actuated valves are suitable for an automated vacuum system (usually controlled via PLC).

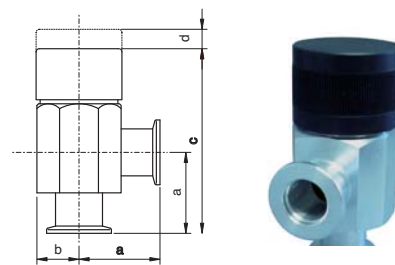
Materials:

The different materials are compiled as follows:

Aluminium housing 3.1645, high-grade steel housing and high-grade steel internal parts 1.4301 or 1.4305. Metal bellows made of high-grade steel 1.4571 and seals made of FKM/FPM.

Corner valves KF/ISO-K, manually actuated, aluminium (3.1645)

- > Bellows sealed 1.4571
- > Internal parts made of 1.4301
- > Rotary knob aluminium-anodized
- * Take sealing materials and connecting elements into consideration



Nomi- nal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Con- ductiv- ity value [l/s]	Leak-tight- ness [mbarl/s]	Pressure range	Service life	Bake-out tempera- ture [°C]	Weight [kg]	Article no.	Price €
16	40	20	91	8	5.2	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	140	0.3	3002	159.50
25	50	25	114	12	12.4	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	140	0.5	3004	189.50
40	65	35	139	16	33.5	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	140	1.1	3006	239.50
50	70	40	144	16	62.7	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	140	1.4	3007	329.50
63*	88	53	242	19	160	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	140	3.2	8002	620.00

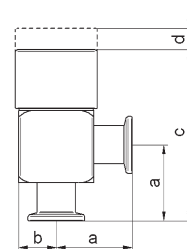
> The nominal widths marked with * are VAT valves

Gasket kit

Nominal width DN	Article no.	Price €
16	31993002	15.80
25	31993004	15.80
40	31993006	17.80
50	31993007	19.80
63	31998002	Upon request

Corner valves KF/ISO-K manually actuated, high-grade steel (1.4301)

- > Bellows sealed 1.4571
- > Internal parts made of 1.4301
- > Rotary knob aluminium-anodized
- * Take sealing materials and connecting elements into consideration



Nomi- nal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Con- ductiv- ity value [l/s]	Leak- tightness [mbarl/s]	Pressure range	Service life	Bake-out tempera- ture [°C]	Weight [kg]	Article no.	Price €
16	40	20	90	8	5.4	1*10 ⁻⁸	1 x 10 ⁻⁸	300000	160	0.5	3012	219.50
25	50	25	112	12	12.8	1*10 ⁻⁸	1 x 10 ⁻⁸	300000	160	0.9	3014	234.00
40	65	32	140	16	34.2	1*10 ⁻⁸	1 x 10 ⁻⁸	300000	160	1.9	3016	324.50
50	70	53	150	16	64	1*10 ⁻⁸	1 x 10 ⁻⁸	300000	160	2.2	3017	469.50
63*	88	53	170	19	163	1*10 ⁻⁸	1 x 10 ⁻⁸	300000	160	3.2	8012	790.00

> The nominal widths marked with * are VAT valves

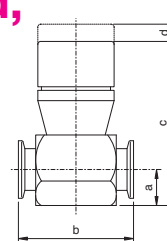
Gasket kit

Nominal width DN	Article no.	Price €
16	31993012	15.80
25	31993014	15.80
40	31993016	17.80
50	31993017	19.80
63	31998012	23.80

KF full-way valves, manually actuated, aluminium (3.1645)

- > Bellows sealed 1.4571
- > Internal parts made of 1.4301
- > Rotary knob aluminium-anodized

* Take sealing materials and connecting elements into consideration



Nominal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Conductivity value [l/s]	Leak-tightness [mbarl/s]	Pressure range	Service life	Bake-out temperature [°C]	Weight [kg]	Article no.	Price €
16	20	70	86	8	2	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	140	0.32	3022	229.50
25	25	80	108.5	12	8	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	140	0.69	3024	269.50
40	35	110	150	16	16.5	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	140	1.05	3026	329.50

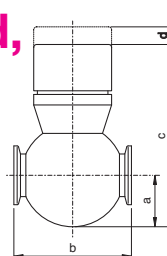
Gasket kit

Nominal width DN	Article no.	Price €
16	31993022	15.80
25	31993024	15.80
40	31993026	17.80

KF full-way valves, manually actuated, high-grade steel (1.4301)

- > Bellows sealed 1.4571
- > Internal parts made of 1.4301
- > Rotary knob aluminium-anodized

* Take sealing materials and connecting elements into consideration



Nominal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Conductivity value [l/s]	Leak-tightness [mbarl/s]	Pressure range	Service life	Bake-out temperature [°C]	Weight [kg]	Article no.	Price €
16	30	70	105	8	2.5	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	160	0.65	3032	294.00
25	35	80	124	12	9.5	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	160	0.71	3034	309.00
40	35	80	129	12	18	<5*10 ⁻⁹	1 x 10 ⁻⁸	300000	160	1.2	3036	379.00

Gasket kit

Nominal width DN	Article no.	Price €
16	31993032	15.80
25	31993034	15.80
40	31993036	17.80

Corner valves KF/ISO-K, electro-pneumatic, aluminium (3.1645)

> Please specify control voltage when ordering!

> Possible control voltage is **24V** and 230V (**special voltage upon request**)

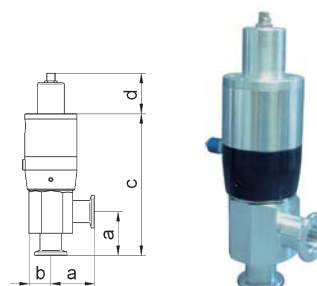
> Bellows sealed 1.4571

> Internal parts made of 1.4301

> Electro-pneumatic drive unit, aluminium housing 3.1645

> All data that is not specified can be obtained from Manual valves

* Take sealing materials and connecting elements into consideration

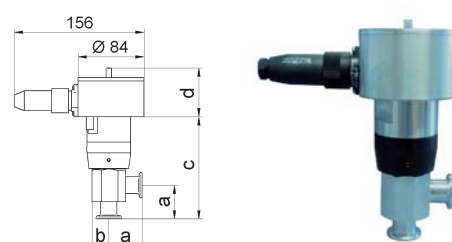


NW DN	a [mm]	b [mm]	c [mm]	d [mm]	Weight [kg]	Compr. air [bar]	Closing time [ms]	With position indicator	With control valve	Version closed	Version open	Article no.	Price €
16	40	20	133	–	0.5	6-8	150			X (top)		310212	227.00
16	40	20	133	40	0.5	6-8	150	X		X (top)		310222	273.00
16	40	20	120	58	0.9	6-8	150		X	X		310232	282.00
16	40	20	120	58	0.9	6-8	150	X	X	X		310242	307.00
16	40	20	133	–	0.5	6-8	150				X (top)	310211	227.00
16	40	20	133	40	0.5	6-8	150	X			X (top)	310221	273.00
16	40	20	120	58	0.9	6-8	150		X		X	310231	282.00
16	40	20	120	58	0.9	6-8	150	X	X		X	310241	307.00
25	50	25	154	–	0.63	6-8	200			X (top)		310412	268.00
25	50	25	154	40	0.7	6-8	200	X		X (top)		310422	303.00
25	50	25	145	58	1.2	6-8	200		X	X		310432	313.00
25	50	25	145	58	1.2	6-8	200	X	X	X		310442	348.00
25	50	25	154	–	0.63	6-8	200				X (top)	310411	268.00
25	50	25	154	40	0.7	6-8	200	X			X (top)	310421	303.00
25	50	25	145	58	1.2	6-8	200		X		X	310431	313.00
25	50	25	145	58	1.2	6-8	200	X	X		X	310441	348.00
40	65	35	182	–	1.37	6-8	300			X (top)		310612	289.00
40	65	35	182	40	1.37	6-8	300	X		X (top)		310622	324.00
40	65	35	170	58	1.6	6-8	300		X	X		310632	334.00
40	65	35	170	58	1.6	6-8	300	X	X	X		310642	369.00
40	65	35	182	–	1.37	6-8	300				X (top)	310611	289.00
40	65	35	182	40	1.37	6-8	300	X			X (top)	310621	324.00
40	65	35	170	58	1.6	6-8	300		X		X	310631	334.00
40	65	35	170	58	1.6	6-8	300	X	X		X	310641	369.00
50 *	70	–	169	10.5	1.45	4-8	650			X		310712	350.00
50 *	70	–	169	10.5		4-8	650	X		X		310722	385.00
50 *	70	–	169	10.5		4-8	650		X	X		310732	395.00
50 *	70	–	169	10.5		4-8	650	X	X	X		310742	430.00
50 *	70	–	169	10.5	1.45	4-8	650				X	310711	Upon req.
50 *	70	–	169	10.5		4-8	650	X			X	310721	Upon req.
50 *	70	–	169	10.5		4-8	650		X		X	310731	Upon req.
50 *	70	–	169	10.5		4-8	650	X	X		X	310741	Upon req.
63 *	88	–	197	32.6	2.9	4-8	700			X		810212	650.00
63 *	88	–	197	32.6		4-8	700	X		X		810222	685.00
63 *	88	–	197	32.6		4-8	700		X	X		810232	695.00
63 *	88	–	197	32.6		4-8	700	X	X	X		810242	730.00
63 *	88	–	197	32.6	2.9	4-8	700				X	810211	Upon req.
63 *	88	–	197	32.6		4-8	700	X			X	810221	Upon req.
63 *	88	–	197	32.6		4-8	700		X		X	810231	Upon req.
63 *	88	–	197	32.6		4-8	700	X	X		X	810241	Upon req.

> The nominal widths marked with * are VAT valves!

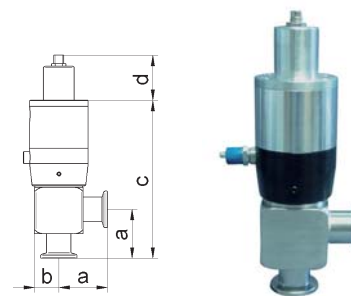
Gasket kit

Nominal width DN	Article no.	Price €
16	31993102	22.30
25	31993104	22.30
40	31993106	25.40
50	31993107	Upon request
63	31998102	Upon request



Corner valves KF/ISO-K electro-pneumatically actuated, high-grade steel (1.4301)

- > Please specify control voltage when ordering!
 - > Possible control voltage is **24V** and 230V (special voltage upon request)
 - > Bellows sealed 1.4571
 - > Internal parts made of 1.4301
 - > Electro-pneumatic drive unit, aluminium housing 3.1645
 - > All data that is not specified can be obtained from Manual valves
- * Take sealing materials and connecting elements into consideration

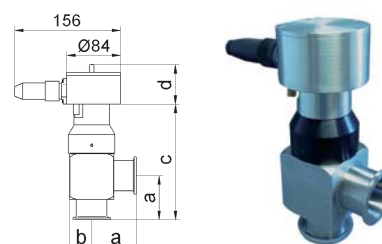


NW DN	a [mm]	b [mm]	c [mm]	d [mm]	Weight [kg]	Compr. air [bar]	Closing time [ms]	With position indicator	With control valve	Version closed	Version open	Article no.	Price €
16	40	20	130	–	0.8	6-8	150			X (top)		311212	288.00
16	40	20	130	40	0.8	6-8	150	X		X (top)		311222	323.00
16	40	20	122	58	1.4	6-8	150		X	X		311232	343.00
16	40	20	122	58	1.4	6-8	150	X	X	X		311242	368.00
16	40	20	130	–	0.8	6-8	150				X (top)	311211	288.00
16	40	20	130	40	0.8	6-8	150	X			X (top)	311221	323.00
16	40	20	122	58	1.4	6-8	150		X		X	311231	343.00
16	40	20	122	58	1.4	6-8	150	X	X		X	311241	368.00
25	50	25	154	–	1.28	6-8	200			X (top)		311412	337.00
25	50	25	154	40	1.28	6-8	200	X		X (top)		311422	372.00
25	50	25	145	58	1.8	6-8	200		X	X		311432	382.00
25	50	25	145	58	1.8	6-8	200	X	X	X		311442	418.00
25	50	25	154	–	1.28	6-8	200				X (top)	311411	337.00
25	50	25	154	40	1.28	6-8	200	X			X (top)	311421	372.00
25	50	25	145	58	1.8	6-8	200		X		X	311431	382.00
25	50	25	145	58	1.8	6-8	200	X	X		X	311441	418.00
40	65	35	180	–	1.50	6-8	300			X (top)		311612	389.00
40	65	35	180	40	2.0	6-8	300	X		X (top)		311622	424.00
40	65	35	170	58	2.6	6-8	300		X	X		311632	434.00
40	65	35	170	58	2.6	6-8	300	X	X	X		311642	469.00
40	65	35	180	–	1.50	6-8	300				X (top)	311611	389.00
40	65	35	180	40	2.0	6-8	300	X			X (top)	311621	424.00
40	65	35	170	58	2.6	6-8	300		X		X	311631	434.00
40	65	35	170	58	2.6	6-8	300	X	X		X	311641	469.00
50 *	70	-	169	10.5	1.61	4-8	650			X		311712	490.00
50 *	70	-	169	10.5		4-8	650	X		X		311722	535.00
50 *	70	-	169	10.5		4-8	650		X	X		311732	545.00
50 *	70	-	169	10.5		4-8	650	X	X	X		311742	570.00
50 *	70	-	169	10.5	1.61	4-8	650				X	311711	Upon req.
50 *	70	-	169	10.5		4-8	650	X			X	311721	Upon req.
50 *	70	-	169	10.5		4-8	650		X		X	311731	Upon req.
50 *	70	-	169	10.5		4-8	650	X	X		X	311741	Upon req.
63 *	88	-	197	32.6	3.8	4-8	700			X		811212	850.00
63 *	88	-	197	32.6		4-8	700	X		X		811222	885.00
63 *	88	-	197	32.6		4-8	700		X	X		811232	895.00
63 *	88	-	197	32.6		4-8	700	X	X	X		811242	930.00
63 *	88	-	197	32.6	3.8	4-8	700				X	811211	Upon req.
63 *	88	-	197	32.6		4-8	700	X			X	811221	Upon req.
63 *	88	-	197	32.6		4-8	700		X		X	811231	Upon req.
63 *	88	-	197	32.6		4-8	700	X	X		X	811241	Upon req.

> The nominal widths marked with * are VAT valves.

Gasket kit

Nominal width DN	Article no.	Price €
16	31993112	22.30
25	31993114	22.30
40	31993116	25.40
50	31993117	Upon request
63	31998112	Upon request



KF full-way valves, electro-pneumatically actuated, aluminium (3.1645)

> Please specify control voltage when ordering!

> Possible control voltage is **24V** and 230V (**special voltage upon request**)

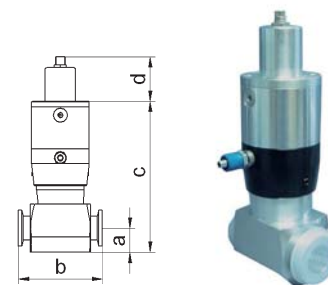
> Bellows sealed 1.4571

> Internal parts made of 1.4301

> Electro-pneumatic drive unit, aluminium housing 3.1645

> All data that is not specified can be obtained from Manual valves

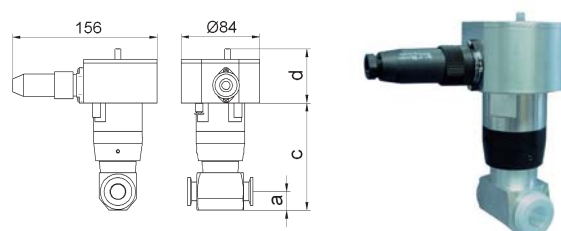
* Take sealing materials and connecting elements into consideration



NW DN	a [mm]	b [mm]	c [mm]	d [mm]	Weight [kg]	Compr. air [bar]	Closing time [ms]	With position indicator	With control valve	Version closed	Version open	Article no.	Price €
16	20	70	126	–	0.47	6-8	150			X (top)		312212	315.00
16	20	70	126	40	0.47	6-8	150	X		X (top)		312222	350.00
16	20	70	118	58	1.1	6-8	150		X	X		312232	360.00
16	20	70	118	58	1.1	6-8	150	X	X	X		312242	395.00
16	20	70	126	–	0.47	6-8	150				X (top)	312211	315.00
16	20	70	126	40	0.47	6-8	150	X			X (top)	312221	350.00
16	20	70	118	58	1.1	6-8	150		X		X	312231	360.00
16	20	70	118	58	1.1	6-8	150	X	X		X	312241	395.00
25	25	80	152	–	0.76	6-8	200			X (top)		312412	355.00
25	25	80	152	40	0.76	6-8	200	X		X (top)		312422	390.00
25	25	80	142	58	1.3	6-8	200		X	X		312432	400.00
25	25	80	142	58	1.3	6-8	200	X	X	X		312442	435.00
25	25	80	152	–	0.76	6-8	200				X (top)	312411	355.00
25	25	80	152	40	0.76	6-8	200	X			X (top)	312421	390.00
25	25	80	142	58	1.3	6-8	200		X		X	312431	400.00
25	25	80	142	58	1.3	6-8	200	X	X		X	312441	435.00
40	35	110	185	–	1.5	6-8	300			X (top)		312612	379.00
40	35	110	185	40	1.5	6-8	300	X		X (top)		312622	414.00
40	35	110	146	58	2	6-8	300		X	X		312632	424.00
40	35	110	146	58	2	6-8	300	X	X	X		312642	459.00
40	35	110	185	–	1.5	6-8	300				X (top)	312611	379.00
40	35	110	185	40	1.5	6-8	300	X			X (top)	312621	414.00
40	35	110	146	58	2	6-8	300		X		X	312631	424.00
40	35	110	146	58	2	6-8	300	X	X		X	312641	459.00

Gasket kit

Nominal width DN	Article no.	Price €
16	31993122	22.30
25	31993124	22.30
40	31993126	25.40



KF full-way valves, electro-pneumatically actuated, high-grade steel (1.4301)

> **Please specify control voltage when ordering!**

> Possible control voltage is **24V** and 230V (**special voltage upon request**)

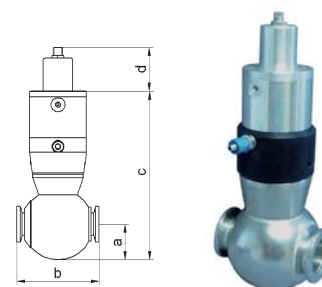
> Bellows sealed 1.4571

> Internal parts made of 1.4301

> Electro-pneumatic drive unit, aluminium housing 3.1645

> All data that is not specified can be obtained from Manual valves

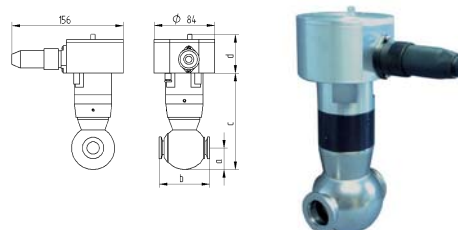
* Take sealing materials and connecting elements into consideration



NW DN	a [mm]	b [mm]	c [mm]	d [mm]	Weight [kg]	Compr. air [bar]	Closing time [ms]	With position indicator	With control valve	Version closed	Version open	Article no.	Price €
16	30	70	145	–	1.0	6-8	150			X (top)		313212	365.00
16	30	70	145	40	1.0	6-8	150	X		X (top)		313222	400.00
16	30	70	135	58	1.5	6-8	150		X	X		313232	410.00
16	30	70	135	58	1.5	6-8	150	X	X	X		313242	445.00
16	30	70	145	–	1.0	6-8	150				X (top)	313211	365.00
16	30	70	145	40	1.0	6-8	150	X			X (top)	313221	400.00
16	30	70	135	58	1.5	6-8	150		X		X	313231	410.00
16	30	70	135	58	1.5	6-8	150	X	X		X	313241	445.00
25	35	80	166	–	1.28	6-8	200			X (top)		313412	425.00
25	35	80	166	40	1.28	6-8	200	X		X (top)		313422	460.00
25	35	80	157	58	1.8	6-8	200		X	X		313432	470.00
25	35	80	157	58	1.8	6-8	200	X	X	X		313442	505.00
25	35	80	166	–	1.28	6-8	200				X (top)	313411	425.00
25	35	80	166	40	1.28	6-8	200	X			X (top)	313421	460.00
25	35	80	157	58	1.8	6-8	200		X		X	313431	470.00
25	35	80	157	58	1.8	6-8	200	X	X		X	313441	505.00
40	35	80	170	–	1.5	6-8	300			X (top)		313612	555.00
40	35	80	170	40	1.5	6-8	300	X		X (top)		313622	590.00
40	35	80	163	58	1.9	6-8	300		X	X		313632	600.00
40	35	80	163	58	1.9	6-8	300	X	X	X		313642	635.00
40	35	80	170	–	1.5	6-8	300				X (top)	313611	555.00
40	35	80	170	40	1.5	6-8	300	X			X (top)	313621	590.00
40	35	80	163	58	1.9	6-8	300		X		X	313631	600.00
40	35	80	163	58	1.9	6-8	300	X	X		X	313641	635.00

Gasket kit

Nominal width DN	Article no.	Price €
16	31993132	22.30
25	31993134	22.30
40	31993136	25.40



CF corner valves, manually actuated, high-grade steel (1.4301)

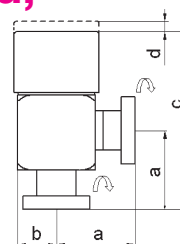
> Flanges with thread

> Bellows sealed 1.4571

> Internal parts made of 1.4301

> Rotary knob aluminium-anodized

* Take sealing materials and connecting elements into consideration



Nominal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Conductivity value [l/s]	Leak-tightness [mbarl/s]	Pressure range	Service life	Bake-out temperature [°C]	Weight [kg]	Article no.	Price €
16	40	20	96	8	5.7	<5*10 ⁻⁹	1*10 ⁻⁸ mbar to 1 bar	300000	160	0.5	7031	325.00
40	63	35	145	16	37.7	<5*10 ⁻⁹	1*10 ⁻⁸ mbar to 1 bar	300000	160	2.3	7032	445.00
63	105	53	187	19	90	<5*10 ⁻⁹	1*10 ⁻⁸ mbar to 1 bar	300000	160	4.4	7033	645.00

Gasket kit

Nominal width DN	Article no.	Price €
16	31997031	15.80
40	31997032	17.80
63	31997033	23.80

CF full-way valves, manually actuated high-grade steel (1.4301)

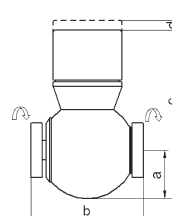
> Flanges with thread

> Bellows sealed 1.4571

> Internal parts made of 1.4301 / 1.4305

> Rotary knob aluminium-anodized

* Take sealing materials and connecting elements into consideration



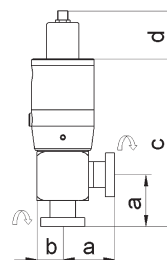
Nominal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Conductivity value [l/s]	Leak-tightness [mbarl/s]	Pressure range	Service life	Bake-out temperature [°C]	Weight [kg]	Article no.	Price €
16	30	70	105	8	5.7	<5*10 ⁻⁹	1*10 ⁻⁸ mbar to 1 bar	300000	160	0.5	7332	289.00
40	35	84	130	16	37.7	<5*10 ⁻⁹	1*10 ⁻⁸ mbar to 1 bar	300000	160	2.3	7336	475.00

Gasket kit

Nominal width DN	Article no.	Price €
16	31997332	15.80
40	31997336	17.80

CF corner valves, electro-pneumatically actuated, high-grade steel (1.4301)

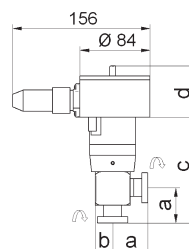
- > **Please specify control voltage when ordering!**
 - > Possible control voltage is **24V** and 230V (**special voltage upon request**)
 - > Bellows sealed 1.4571
 - > Housing made of 1.4301 / internal parts made of 1.4301
 - > Electro-pneumatic drive unit, aluminium housing 3.1645
 - > All data that is not specified can be obtained from Manual valves
 - > **Flanges with thread**
- * Take sealing materials and connecting elements into consideration



NW DN	a [mm]	b [mm]	c [mm]	d [mm]	Weight [kg]	Compr. air [bar]	Closing time [ms]	With position indicator	With control valve	Version closed	Version open	Article no.	Price €
16	40	20	130	40	0.8	6-8	150			X (top)		706112	349.00
16	40	20	130	40	0.8	6-8	150	X		X (top)		706122	384.00
16	40	20	120	58	1.3	6-8	150		X	X		706132	394.00
16	40	20	120	58	1.3	6-8	150	X	X	X		706142	429.00
16	40	20	130	40	0.8	6-8	150				X (top)	706111	349.00
16	40	20	130	40	0.8	6-8	150	X			X (top)	706121	384.00
16	40	20	172	58	1.3	6-8	150		X		X	706131	394.00
16	40	20	172	58	1.3	6-8	150	X	X		X	706141	429.00
40	63	35	176	40	2.3	6-8	300			X (top)		706212	475.00
40	63	35	176	40	2.3	6-8	300	X		X (top)		706222	510.00
40	63	35	168	58	2.5	6-8	300		X	X		706232	520.00
40	63	35	168	58	2.5	6-8	300	X	X	X		706242	555.00
40	63	35	176	40	2.3	6-8	300				X (top)	706211	475.00
40	63	35	176	40	2.3	6-8	300	X			X (top)	706221	510.00
40	63	35	220	58	2.5	6-8	300		X		X	706231	520.00
40	63	35	168	58	2.5	6-8	300	X	X		X	706241	555.00

Gasket kit

Nominal width DN	Article no.	Price €
16	31997061	22.30
40	31997062	25.40



CF full-way valves, electro-pneumatic high-grade steel

> Please specify control voltage when ordering!

> Possible control voltage is **24V** and 230V (**special voltage upon request**)

> Bellows sealed 1.4571

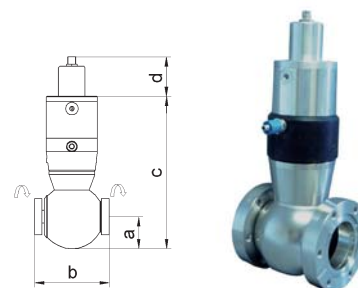
> Housing made of 1.4301 / internal parts made of 1.4301

> Electro-pneumatic drive unit, aluminium housing 3.1645

> All data that is not specified can be obtained from Manual valves

> Flanges with thread

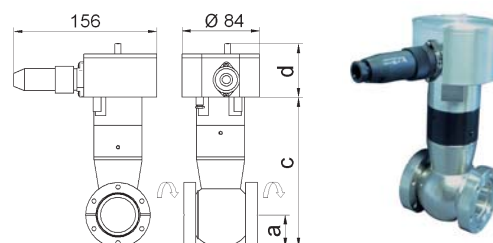
* Take sealing materials and connecting elements into consideration



NW DN	a [mm]	b [mm]	c [mm]	d [mm]	Weight [kg]	Compr. air [bar]	Closing time [ms]	With position indicator	With control valve	Version closed	Version open	Article no.	Price €
16	30	70	145	–	1	6-8	150			X (top)		773212	431.00
16	30	70	145	40	1	6-8	150	X		X (top)		773222	466.00
16	30	70	135	58	1.4	6-8	150		X	X		773232	476.00
16	30	70	135	58	1.4	6-8	150	X	X	X		773242	511.00
16	30	70	145	–	1	6-8	150				X (top)	773211	431.00
16	30	70	145	40	1	6-8	150	X			X (top)	773221	466.00
16	30	70	135	58	1.4	6-8	150		X		X	773231	476.00
16	30	70	135	58	1.4	6-8	150	X	X		X	773241	511.00
40	35	84	170	–	1.8	6-8	300			X (top)		773612	598.00
40	35	84	170	40	1.8	6-8	300	X		X (top)		773622	633.00
40	35	84	163	58	2.2	6-8	300		X	X		773632	643.00
40	35	84	163	58	2.2	6-8	300	X	X	X		773642	678.00
40	35	84	170	–	1.8	6-8	300				X (top)	773611	598.00
40	35	84	170	40	1.8	6-8	300	X			X (top)	773621	633.00
40	35	84	163	58	2.2	6-8	300		X		X	773631	643.00
40	35	84	163	58	2.2	6-8	300	X	X		X	773641	678.00

Gasket kit

Nominal width DN	Article no.	Price €
16	31997732	22.30
40	31997736	25.40



Butterfly valves KF/ISO-K, manually actuated and electro-pneumatic



Properties:

- high leak rate ($<10^{-8}$ mbarl/s)
- single-acting pneumatic unit
- high conductance
- internal parts made of high-grade steel
- FKM O-ring sealed
- optical position display (manual)
- long service life and low-maintenance
- compact design and light weight

Description:

The novotek butterfly valves made of aluminium and high-grade steel meet special leak-tightness requirements of high-vacuum valves. To achieve this leak-tightness, novotek uses O-ring connections with FKM-sealed connecting components. The valve housings are manufactured from aluminium or high-grade steel solid material. Thanks to their compact design, they are also used in areas that are otherwise reserved for gate valves. Closing is carried out by swivelling the viton-sealed valve plate into the housing sealing surface. The T handle, which permits simple actuation even for inaccessible attachments, also serves as an easily visible position display.

Pneumatic valves:

The pneumatic unit is single-acting. Upon request, it can also be supplied with a double-acting swivel drive. This means that the valve is de-energized and depressurised when closed. The valve is opened either directly via compressed air or controlled via a pilot valve that forwards the compressed air to the valve. The position indicator (optional) signals the open or closed position.

Area of application:

They are used as shut-off valves, vent valves and high-vacuum valves, have a light weight, a small overall height and a high conductivity value. They can be installed as required fail-safe in compact systems. The electro-pneumatically actuated valves are suitable for an automated vacuum system (usually controlled via PLC). They are also often used as a cost-effective alternative to gate valves if an optically free passage is not required.

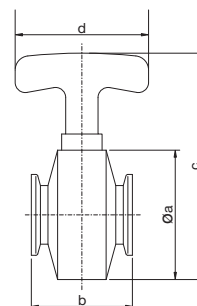
Materials:

The different materials are compiled as follows: aluminium housing 3.1645, high-grade steel housing and high-grade steel internal parts 1.4301, 1.4404 and seals made of FKM/FPM.

Butterfly valves KF manual, aluminium (3.1645)

- > Internal parts made of 1.4301, body made of aluminium 3.1645
- > T handle made of plastic
- > Can be used in high-vacuum area but not in the pressure range above 1 bar.
- > Valve position display via T handle
- > Almost completely free passage in open position.

* Take sealing materials and connecting elements into consideration



Nominal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Conductivity value [l/s]	Leak-tightness [mbarl/s]	Pressure range	Service life	Bake-out temperature [°C]	Weight [kg]	Article no.	Price €
25	65	50	112	68	11	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	140	0.4	4002	134.50
40	80	50	129	80	31	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	140	0.5	4004	149.50
50	88	60	137	80	60	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	140	0.6	4005	239.50

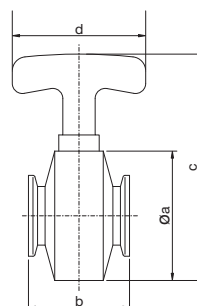
Gasket kit for drive shaft and valve plate

Nominal width DN	Article no.	Price €
25	31994002	3.90
40	31994004	4.70
50	31994005	6.20

Butterfly valves KF manual, high-grade steel (1.4301)

- > Internal parts made of 1.4301, body made of high-grade steel 1.4301
- > T handle made of plastic
- > Can be used in high-vacuum area but not in the pressure range above 1 bar.
- > Valve position display via T handle
- > Almost completely free passage in open position.

* Take sealing materials and connecting elements into consideration



Nominal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Conductivity value [l/s]	Leak-tightness [mbarl/s]	Pressure range	Service life	Bake-out temperature [°C]	Weight [kg]	Article no.	Price €
25	65	50	112	68	11	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	160	0.7	4012	214.50
40	80	50	129	80	31	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	160	1.0	4014	234.00
50	88	60	137	80	60	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	160	1.4	4015	327.00
63	88	115	143	80	60	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	160	1.9	4016	Upon request

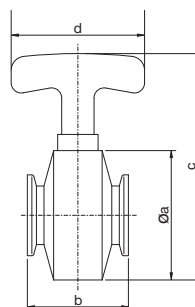
Gasket kit for drive shaft and valve plate

Nominal width DN	Article no.	Price €
25	31994012	3.90
40	31994014	4.70
50	31994015	6.20
63	31994016	6.80

Butterfly valves KF manual, high-grade steel (1.4404)

- > Internal parts and body made of high-grade steel 1.4404
- > T handle made of plastic
- > Can be used in high-vacuum area but not in the pressure range above 1 bar.
- > Valve position display via T handle
- > Almost completely free passage in open position.

* Take sealing materials and connecting elements into consideration



Nominal width DN	a [mm]	b [mm]	c [mm]	d [mm]	Conductivity value [l/s]	Leak-tightness [mbarl/s]	Pressure range	Service life	Bake-out temperature [°C]	Weight [kg]	Article no.	Price €
25	65	50	112	68	11	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	160	0.7	40124	224.50
40	80	50	129	80	31	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	160	1.0	40144	244.50
50	88	60	137	80	60	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	160	1.4	40154	342.00

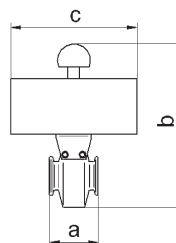
Gasket kit for drive shaft and valve plate

Nominal width DN	Article no.	Price €
25	319940124	3.90
40	319940144	4.70
50	319940154	6.20

Butterfly valves KF electro-pneum., high-grade steel (1.4404)

- > **Please specify control voltage when ordering!**
- > Possible control voltage is **24V** and 230V (**special voltage upon request**)
- > Single-acting, with spring reset (double-acting upon request)
- > Can be used in high-vacuum area but not in the pressure range above 1 bar.
- > Almost completely free passage in open position.
- > Electro-pneumatic drive unit, aluminium housing 3.1645
- > All data that is not specified can be obtained from Manual valves

* Take sealing materials and connecting elements into consideration



NW DN	a [mm]	b [mm]	c [mm]	Weight [kg]	Compr. air [bar]	Closing time [ms]	With position indicator	With control valve	Article no.	Price €
25	50	170	132	1.5	4-8	2.7			411212	397.00
25	50	170	132	1.5	4-8	2.7	X		411222	517.00
25	50	170	132	1.7	4-8	2.7		X	411232	492.00
25	50	170	132	1.7	4-8	2.7	X	X	411242	612.00
40	50	185	132	1.8	4-8	2.7			411412	415.00
40	50	185	132	1.8	4-8	2.7	X		411422	535.00
40	50	185	132	2.0	4-8	2.7		X	411432	510.00
40	50	185	132	2.0	4-8	2.7	X	X	411442	620.00

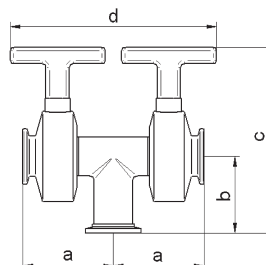
Gasket kit for drive shaft and valve plate

Nominal width DN	Article no.	Price €
25	31994112	3.90
40	31994114	4.70
50	31994115	6.20

3-way butterfly valve KF manual, high-grade steel 1.4404

- > Body and internal parts 1.4404
- > T handle made of plastic
- > Can be used in high-vacuum area but not in the pressure range above 1 bar.
- > Valve position display via T handle
- > Almost completely free passage in open position.
- > The valve is suitable as a vacuum manifold
- > Special nominal widths of the side connections available upon request
- > The valve permits four switching statuses and can be used as a T and L variant

* Take sealing materials and connecting elements into consideration



NW DN	a [mm]	b [mm]	c [mm]	d [mm]	Conductivity value [l/s] / single valve	Leak- tightness [mbarl/s]	Pressure range	Service life	Bake-out tempera- ture [°C]	Weight [kg]	Article no.	Price €
25	65	55	134	150	11	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	160		4074	334.00
40	75	65	155	180	31	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	160		4076	353.00
50	90	75	170	200	60	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 1 bar	20000	160		4077	450.00

dia. special nominal widths of the side connections available upon request

Gasket kit for drive shaft and valve plate

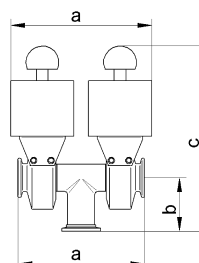
Nominal width DN	Article no.	Price €
25	31994074	7.80
40	31994076	9.40
50	31994077	12.40

3-way butterfly valves KF electro-pneum., high-grade steel (1.4404)

> Please specify control voltage when ordering!

- > Possible control voltage is **24V** and 230V (**special voltage upon request**)
- > Body and internal parts 1.4404
- > Single-acting, with spring reset (double-acting upon request)
- > Can be used in high-vacuum area but not in the pressure range above 1 bar.
- > Almost completely free passage in open position.
- > Drive unit housing, aluminium
- > All data that is not specified can be obtained from Manual valves
- > The valve is suitable as a vacuum manifold
- > Special nominal widths of the side connections available upon request
- > The valve permits four switching statuses and can be used as a T and L variant

* Take sealing materials and connecting elements into consideration



NW DN	a [mm]	b [mm]	c [mm]	d [mm]	Weight [kg]	Com- pressed air [bar]	Closing time [ms]	With position indicator	With control valve	Article no.	Price €
25	130	55	190	145	2.2	4-8	2.7			417412	655.00
25	130	55	190	145	2.2	4-8	2.7	X		417422	875.00
25	130	55	190	145	2.4	4-8	2.7		X	417432	835.00
25	130	55	190	145	2.4	4-8	2.7	X	X	417442	1,055.00
40	150	65	210	165	3.58	4-8	2.7			417612	697.00
40	150	65	210	165	3.8	4-8	2.7	X		417622	917.00
40	150	65	210	165	4.0	4-8	2.7		X	417632	877.00
40	150	65	210	165	4.0	4-8	2.7	X	X	417642	1,097.00

dia. special nominal widths of the side connections available upon request

Gasket kit for drive shaft and valve plate

Nominal width DN	Article no.	Price €
25	31994174	7.80
40	31994176	9.40
50	31994177	12.40

KF ball valve, actuated manually and electro-pneumatically



Properties:

- single-acting pneumatic unit
- high conductance
- PTFE-sealed
- reliable function in all installation positions
- long service life and low-maintenance
- optical position display (with manual actuation)

Description:

The ball valves are shut-off valves with a ball as an active shut-off element, which is surrounded by two PTFE-sealed ball seats. The shifting shaft is sealed off by a Viton- or PTFE-sealed compression gland. The manually actuated ball valves are actuated by rotating the switching handle 180°. At the same time, the switching handle serves as a position display. The three-way ball valve has an L design with a 180° stop. The supply line 1 can be connected either with outlet 2 or 3. During switch-over, all outlets are separated from one another.

Pneumatic valves:

The pneumatic unit is single-acting. Upon request, it can also be supplied with a double-acting swivel drive. This means that the ball valve is de-energized and depressurised when closed. The ball valve is opened either directly via compressed air or controlled via a pilot valve that forwards the compressed air to the ball valve. The position indicator (optional) signals the open or closed position.

Area of application:

The ball valves can be used as shut-off valves with full bore in vacuum and low-pressure systems. They can be used in a pressure range from 10^{-6} mbar to 2.5 bar and can be installed fail-safe as required in compact systems. The electro-pneumatically actuated valves are suitable for automated vacuum systems (usually controlled via PLC).

Materials:

Housing: hot-pressed brass, nickel-plated 2.0401 (MS 58) or high-grade steel 1.4408

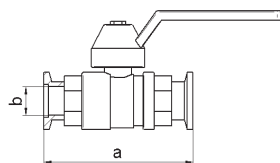
Ball: brass 2.0401 (MS 58) hard-chrome plated or high-grade steel 1.4408 / 1.4401

Ball sealer: PTFE

Stem seal: FKM or PTFE

2-way ball valve KF manual

- > Handle used for position display open / closed
- > Pressure range: 10^{-6} mbar to 2.5 bar
- > Free passage in open position
- > Sealing material FKM, PTFE
- > Brass maintenance-free / high-grade steel 20000 cycles
- * Take sealing materials and connecting elements into consideration



Brass 2.0401

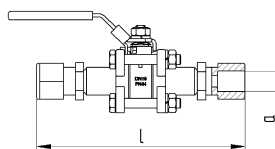
Nominal width DN	a [mm]	b [mm]	Leak-tightness [mbarl/s]	Pressure range	Service life	Medium temperature [°C]	Weight [kg]	Article no.	Price €
10	63	10	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-20 °C to 120 °C	0.18	4021	68.00
16	78	15	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-20 °C to 120 °C	0.26	4022	54.30
25	97	25	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-20 °C to 120 °C	0.58	4024	69.00
40	126	40	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-20 °C to 120 °C	1.22	4026	99.40
50	140	50	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-20 °C to 120 °C	2.0	4027	148.35

High-grade steel 1.4408

Nominal width DN	a [mm]	b [mm]	Leak-tightness [mbarl/s]	Pressure range	Service life	Medium temperature [°C]	Weight [kg]	Article no.	Price €
10	102	10	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	0.28	4031	74.80
16	107	15	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	0.38	4032	76.90
25	140	25	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	1.04	4034	108.90
40	174	40	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	2.3	4036	164.90
50	200	50	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	3.8	4037	224.90

2-way ball valve with double compression fitting

- > Handle used for position display open / closed
- > Pressure range: 10^{-6} mbar to 2.5 bar
- > Free passage in open position
- > Sealing material FKM, PTFE
- > Brass maintenance-free / high-grade steel 20000 cycles
- * Take sealing materials and connecting elements into consideration

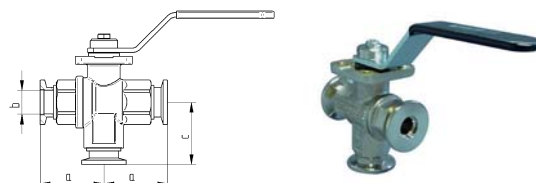


High-grade steel 1.4408/1.4404 Swagelok®-compatible

Nominal width DN	a [mm]	b [mm]	Leak-tightness [mbarl/s]	Pressure range	Service life	Medium temperature [°C]	Weight [kg]	Article no.	Price €
6	82	6/10	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	260	4081	89.50
8	84	8/10	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	270	4082	99.50
10	88	10	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	300	4083	99.50
12	94	12/10	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	320	4084	114.50
1/4"	82	1/4"/10	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	260	4085	89.50
3/8"	87	3/8"/10	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	300	4086	99.50
1/2"	94	1/2"/10	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	320	4087	119.50

3-way ball valve KF manual

- > Handle used for position display open / closed
- > Pressure range: 10^{-6} mbar to 2.5 bar
- > Sealing material FKM, PTFE
- > Brass maintenance-free / high-grade steel 20000 cycles
- > Brass without overlaps / high-grade steel with overlaps
- * Take sealing materials and connecting elements into consideration

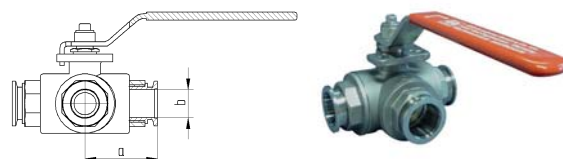


Brass 2.0401

NW DN	a [mm]	b [mm]	c [mm]	Leak- tightness [mbar/s]	Pressure range	Service life	Medium temperature [°C]	Weight [kg]	Article no.	Price €
10	35	10	35	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-20 °C to 120 °C	0.4	4041	147.00
16	43	15	42	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-20 °C to 120 °C	0.52	4042	155.00
25	56	25	58	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-20 °C to 120 °C	1.14	4044	214.50
40	70	40	76	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-20 °C to 120 °C	1.9	4046	368.00
50	80	50	82	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-20 °C to 120 °C	2.6	4047	498.00

3-way ball valve KF manual

- > Handle used for position display open / closed
- > Pressure range: 10^{-6} mbar to 2.5 bar
- > Sealing material FKM, PTFE
- > Brass maintenance-free / high-grade steel 20000 cycles
- > Brass without overlaps / high-grade steel with overlaps
- * Take sealing materials and connecting elements into consideration



High-grade steel 1.4408

Nominal width DN	a [mm]	b [mm]	Leak- tightness [mbar/s]	Pressure range	Service life	Medium temperature [°C]	Weight [kg]	Article no.	Price €
16	50.5	15	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	0.4	4062	185.00
25	65	24	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	0.52	4064	260.00
40	81	40	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	1.14	4066	385.00
50	97	50	$<1 \cdot 10^{-6}$	$1 \cdot 10^{-6}$ mbar to 2.5 bar	20000	-30 °C to 180 °C	1.9	4067	582.00

2-way ball valve KF electro-pneumatic

> Please specify control voltage when ordering!

> Possible control voltage is **24V** and 230V

(special voltage upon request)

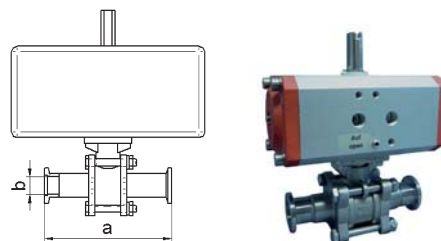
> Pressure range: 10^{-4} mbar to 2.5 bar

> Free passage in open position.

> Sealing material FKM, PTFE

> Brass maintenance-free / high-grade steel 20000 cycles

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4408

NW DN	a [mm]	b [mm]	Leak-tightness [mbarl/s]	Pressure range	Compr. air [bar]	Weight [kg]	With position indicator	With control valve	Version closed	Article no.	Price €
16	107	15	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-			X	413212	269.00
16	107	15	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X		X	413222	385.00
16	107	15	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-		X	X	413232	361.00
16	107	15	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X	X	X	413242	477.00
25	140	25	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-			X	413412	299.00
25	140	25	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X		X	413422	415.00
25	140	25	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-		X	X	413432	391.00
25	140	25	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X	X	X	413442	507.00
40	174	40	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-			X	413612	494.00
40	174	40	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X		X	413622	610.00
40	174	40	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-		X	X	413632	586.00
40	174	40	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X	X	X	413642	702.00
50	200	50	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-			X	413712	550.00
50	200	50	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X		X	413722	666.00
50	200	50	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-		X	X	413732	642.00
50	200	50	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X	X	X	413742	758.00

3-way ball valve KF electro-pneumatic

> Please specify control voltage when ordering!

> Possible control voltage is **24V** and 230V

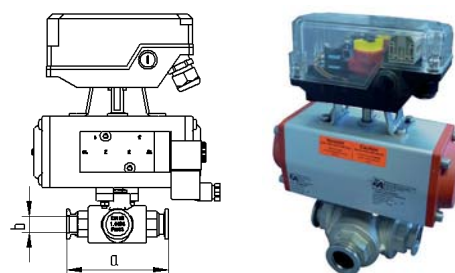
(special voltage upon request)

> Pressure range: 10^{-4} mbar to 2.5 bar

> Sealing material FKM, PTFE

> Brass maintenance-free / high-grade steel 20000 cycles

* Take sealing materials and connecting elements into consideration



High-grade steel 1.4408

NW DN	a [mm]	b [mm]	Leak-tightness [mbarl/s]	Pressure range	Compr. air [bar]	Weight [kg]	With position indicator	With control valve	Version closed	Article no.	Price €
16	50.5	15	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-			X	416212	378.00
16	50.5	15	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X		X	416222	494.00
16	50.5	15	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-		X	X	416232	470.00
16	50.5	15	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X	X	X	416242	586.00
25	65	25	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-			X	416412	498.00
25	65	25	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X		X	416422	614.00
25	65	25	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-		X	X	416432	590.00
25	65	25	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X	X	X	416442	706.00
40	81	40	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-			X	416612	755.00
40	81	40	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X		X	416622	871.00
40	81	40	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-		X	X	416632	847.00
40	81	40	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X	X	X	416642	963.00
50	97	50	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-			X	416712	1,075.00
50	97	50	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X		X	416722	1,191.00
50	97	50	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-		X	X	416732	1,167.00
50	97	50	$<1 \cdot 10^{-4}$	$1 \cdot 10^{-4}$ mbar to 2.5 bar	6-8	-	X	X	X	416742	1,283.00

KF vent valve



Properties:

- FKM/FPM-sealed
- reliable function in all installation positions
- long service life and low-maintenance
- connection KF NW10

Actuation:

The valve is actuated by tightening or releasing the knurled cap.

Area of application:

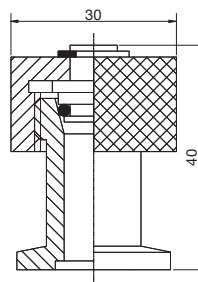
Venting of vacuum chambers and receivers

Materials:

Housing: brass, nickel-plated 2.0401 (MS 58) or high-grade steel 1.4301

Seal: FKM

- > Actuation of knurled cap
 - > Temperature range: -30 °C to 110 °C brass
 - > Temperature range -30 °C to 160 °C high-grade steel
 - > Sealing material FKM/PTFE
- * Take sealing materials and connecting elements into consideration



Brass 2.0401 (nickel-plated)

Nominal width DN	Height [mm]	Width [mm]	Leak-tightness [mbar/s]	Pressure range	Venting medium	Weight [kg]	Article no.	Price €
10	40	30	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 2.5 bar	Ambient air	0.12	5021	57.00

High-grade steel 1.4301

Nominal width DN	Height [mm]	Width [mm]	Leak-tightness [mbar/s]	Pressure range	Venting medium	Weight [kg]	Article no.	Price €
10	40	30	<5*10 ⁻⁹	5*10 ⁻⁹ mbar to 2.5 bar	Ambient air	0.13	5031	69.70

3-way valve KF, aluminium 3.1645



Properties:

- FKM-sealed
- reliable function in all installation positions
- long service life and low-maintenance
- optical position display (manual)
- freely selectable KF connections
- high leak rate

Description:

The novotek 3/3-way valves consist of an aluminium housing with three freely available KF connections. The 3/3-way valve has an L-design. The supply line 1 can be connected either with outlet 2 or 3. Outlet 2 cannot be connected with output 3. In neutral position, all connection are separated from one another. The valve position is displayed using the actuation lever.

Area of application:

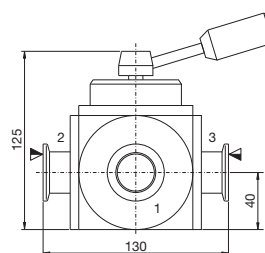
The 3/3-way valve replaces two corner valves and its usage is therefore cost-saving. It is also suitable as a pre-vacuum bypass valve.

Materials:

Housing: aluminium 3.1645

Internal parts: brass 2.0401 (MS 58) hard-chrome plated

Seals: FKM



> Handle used for position display open / closed

> Sealing material FKM

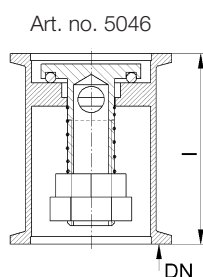
* Take sealing materials and connecting elements into consideration

Nominal width DN	Conductivity value [l/s]	Leak-tightness [mbar/l/s]	Pressure range	Service life	Operating temperature [°C]	Weight [kg]	Article no.	Price €
16	4	<1*10 ⁻⁸	1*10 ⁻⁸ mbar to 2.5 bar	10000	-30 °C to 120 °C	1.95	4052	470.00
25	8	<1*10 ⁻⁸	1*10 ⁻⁸ mbar to 2.5 bar	10000	-30 °C to 120 °C	1.95	4054	460.00
40	25	<1*10 ⁻⁸	1*10 ⁻⁸ mbar to 2.5 bar	10000	-30 °C to 120 °C	1.95	4056	460.00

Pressure relief valve, spring preloaded KF/ISO-K, high-grade steel 1.4301

The spring-loaded pressure relief valve uses a spring to pull a plunger with an O-ring seal made of Viton against a sealing face. If an overpressure exists vis-à-vis the ambient pressure of the valve, this acts against the spring. The opening pressure can be adjusted via the spring preload. For this purpose, the nut on the plunger is turned in the direction of the spring or in the opposite direction. Note that the transition between vacuum-tight and a clear decrease of pressure is not abrupt. The specified leak rate $< 1 \cdot 10^{-7} \text{ mbar} \cdot \text{l/s}$ is based on the case internal vacuum, external atmosphere. If the spring preload is too low, there is a risk of a permanent leakage because the contact force on the sealing ring is too low. In normal cases, the opening and closing pressure are not identical because the O-ring, depending on application conditions, adheres more or less to the sealing face and this additional force has to be applied by the overpressure. The flow rate depends on the pressure differential between the internal and external pressure. Following high flow volumes, which have led to considerable lifting of the plunger, the valve has to be checked and possibly cleaned with alcohol.

- > Opens in case of overpressure
 - > Works in all installation positions
 - > Sealing material FKM
 - > The valve is not suitable for safety-critical applications.
 - > An exhaust gas hose can be connected on the exhaust gas side
- * Take sealing materials and connecting elements into consideration

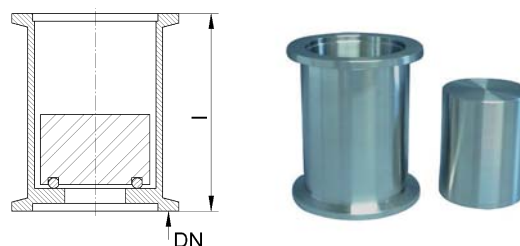


Nominal width DN	l [mm]	Max. free cross-section in case of overpressure [mm ²]	Leak-tightness [mbar/l/s]	Adjustable opening pressure	Operating temperature [°C]	Article no.	Price €
16	35	12.6	$< 1 \cdot 10^{-7}$	100 mbar to 270 mbar	-0 °C to 120 °C	5042	125.00
40	65	113.1	$< 1 \cdot 10^{-7}$	70 mbar to 270 mbar	-0 °C to 120 °C	5046	147.00
63	100	491	$< 1 \cdot 10^{-7}$	70 mbar to 250 mbar	-0 °C to 120 °C	6051	287.00

KF overflow valve, high-grade steel 1.4301

The overflow valve works according to the suspended-body principle. If an overpressure exists vis-à-vis the ambient pressure of the valve, it will raise the suspended body. The opening pressure is set according to the size of the suspended body. Note that the transition between vacuum-tight and a clear decrease of pressure is not abrupt. The specified leak rate $< 1 \cdot 10^{-5}$ mbar•l/s is based on the case internal vacuum and external atmosphere. If the pressure differential is too low, there is a risk of a permanent leakage because the contact force on the sealing ring is too low. In normal cases, the opening and closing pressure are not identical because the O-ring, depending on application conditions, adheres more or less to the sealing face and this additional force has to be applied by the overpressure.

- > Opens in case of overpressure
 - > Can only be installed vertically **"installation position-dependent"**
 - > Sealing material FKM
 - > The valve is not suitable for safety-critical applications.
 - > An exhaust gas hose can be connected on the exhaust gas side
- * Take sealing materials and connecting elements into consideration



Nominal width DN	l [mm]	Max. free cross-section in case of overpressure [mm ²]	Leak-tightness [mbarl/s]	Opening pressure for suspended body [mbar]	Operating temperature [°C]	Article no.	Price €
40	65	113.1	$< 1 \cdot 10^{-5}$	20 mbar	-0 °C to 120 °C	5056-20	110.00
40	65	113.1	$< 1 \cdot 10^{-5}$	40 mbar	-0 °C to 120 °C	5056-40	120.00

Gate valves, manually and electro-pneumatically actuated



Properties

- high conductance
- very good leak rate
- slideway
- FKM-sealed valve seat
- reliable function in all installation positions
- long service life and low-maintenance

Description:

The gate valves marketed by novotek are products from the Swiss company VAT Vakuumventile. The closure mechanism is implemented with the patented VATLOCK system, which guarantees maximum reliability and minimal abrasion. In this case, we offer only a selection of the standard version with aluminium housing and high-grade steel housing. Upon request, we can also supply larger nominal widths as well as other values that are not listed here. The great advantage of gate valves is their relatively low weight and the flat design.

Pneumatic valves:

The pneumatic drive is double-acting. The valve is opened either directly via compressed air or controlled via an optionally integrated pilot valve that forwards the compressed air to the valve. The position indicator (optional) signals the open or closed position.

Area of application:

Gate valves are used when a very high conductance value or an optically free passage is required. The flat design permits further advantageous applications.

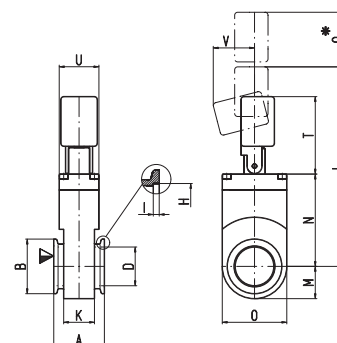
Materials:

Aluminium housing 3.3206 and 3.3547, high-grade steel housing 1.4301, mechanical system for aluminium gate valve: 1.4301. 1.4310. 1.4034, high-grade steel gate valve in addition 1.4404, FKM seals.

Mini vacuum gate valve KF, manually actuated, VAT® series 01.2, aluminium

- > VAT gate valve with VATLOCK system, slideway and vulcanised plate seal
- > Valve plate 1.4301
- > Head and plate seal FKM
- > Valve position visually detectable
- > Temperature resistance of handle 80 °C

* Take sealing materials and connecting elements into consideration



Nominal width DN	A [mm]	O [mm]	M+N+T [mm]	M+L+Q [mm]	Conductivity value [l/s]	Leak-tightness [mbar/l/s]	Pressure range	Service life	Bake-out temperature, housing [°C]	Weight [kg]	Article no.	Price €
16	40	30	91	140	10	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000	100	0.4	3042	530.00
25	50	44	131	196	34	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000	100	0.4	3044	580.00
40	51	65	210.5	295.5	140	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000	100	0.7	3046	650.00
50	55	75	238.5	342.5	260	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000	100	0.7	3047	680.00

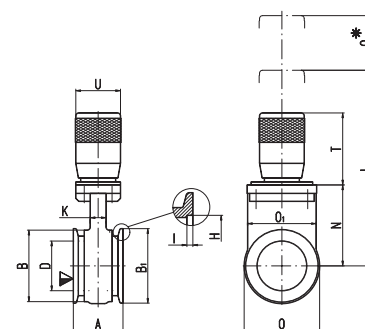
Gasket kit

Nominal width DN	Article no.	Price €
16	31993042	120.00
25	31993044	130.00
40	31993046	130.00
50	31993047	140.00

Mini UHV gate valve KF/CF, manually actuated VAT® series 01.0, high-grade steel

- > VAT gate valves with Monovat system, lubricant-free and bellows sealed
- > Valve housing and valve plate 1.4301. Flanges and bellows 1.4435
- > Head seal, metal, plate seal FKM
- > Valve position visually detectable
- > Temperature resistance of handle 80 °C

* Take sealing materials and connecting elements into consideration



Nominal width DN	A [mm]	O [mm]	B/2+N +T [mm]	B/2+L +Q	Conductivity value [l/s]	Leak-tightness [mbarl/s]	Pressure range	Service life	Bake-out temperature, housing [°C]	Weight [kg]	Article no.	Price €
KF 25	50	76	191	289	38	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000	250	1.5	3054	1,410.00
KF 40	50	76	191	289	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000	250	1.5	3056	1,410.00
KF 50	50	76	193	289	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000	250	1.5	3057	1,410.00
CF 40	35	76	191	289	220	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000	250	1.5	7042	1,410.00

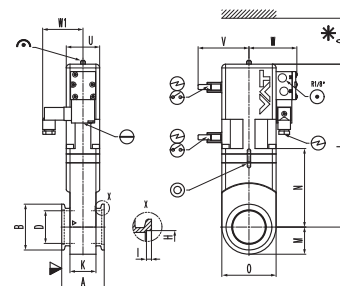
Gasket kit

Nominal width DN	Article no.	Price €
KF 25	31993054	160.00
KF 40	31993056	160.00
KF 50	31993057	160.00
CF 40	31997042	160.00

Mini vacuum gate valve KF, electro-pneumatic VAT® series 01.2, aluminium

- > VAT gate valves with VATLOCK system
- > Slideway and vulcanised plate seal
- > Valve plate 1.4301
- > Head and plate seal FKM
- > Valve position visually detectable
- > Control valve 24 VDC, 5.4W
- > Position indicator ≤ 50V, 0.5A, (10W)
- > Bake-out temperature, housing 100 °C
- > Heating up and cooling speed ≤ 50 °C

* Take sealing materials and connecting elements into consideration



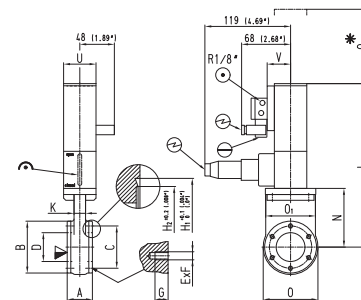
NW DN	A [mm]	O [mm]	M+L [mm]	M+L+ Q [mm]	Con- duc- tivity value [l/s]	Leak- tightness [mbarl/s]	Pressure range	Service life	Weight [kg]	With position indica- tor	With control valve	Article no.	Price €
16	40	30	120	145	10	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000	0.8			314214	670.00
16	40	30	120	145	10	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000		X		314224	735.00
16	40	30	120	145	10	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000		X	X	314244	810.00
25	50	44	158	193	34	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000	1.1			314414	720.00
25	50	44	158	193	34	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000		X		314424	785.00
25	50	44	158	193	34	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000		X	X	314444	860.00
40	51	65	228.5	283.5	140	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000	1.2			314614	810.00
40	51	65	228.5	283.5	140	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000		X		314624	875.00
40	51	65	228.5	283.5	140	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000		X	X	314644	950.00
50	55	75	257.5	322.5	260	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000	1.3			314714	860.00
50	55	75	257.5	322.5	260	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000		X		314724	925.00
50	55	75	257.5	322.5	260	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	50000		X	X	314744	1,000.00

Gasket kit

Nominal width DN	Article no.	Price €
16	31993142	120.00
25	31993144	130.00
40	31993146	130.00
50	31993147	140.00

- > VAT gate valves with VATLOCK system
- > Slideway and vulcanised plate seal
- > Flanges and bellows 1.4435, plate 1.4301
- > Head seal, metal, plate seal FKM
- > Valve position visually detectable
- > Control valve 24 VDC, 5.4W (with spring reset 9W)
- > Position indicator $\leq 50V \leq 3A, \leq 250V \leq 5A$
- > Bake-out temperature, housing 250 °C
- > Heating up and cooling speed ≤ 50 °C

* Take sealing materials and connecting elements into consideration



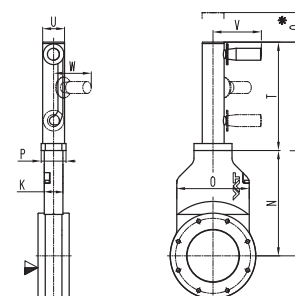
NW DN	A [mm]	O [mm]	B/2+ L [mm]	B/2+ L+Q [mm]	Conduc- tivity value [l/s]	Leak- tightness [mbarl/s]	Pressure range	Service life	Weight [kg]	With position indica- tor	With control valve	Article no.	Price €
25	50	76	266	321	38	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000	1.8			315414	1,660.00
25	50	76	266	321	38	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000		X		315424	1,800.00
25	50	76	266	321	38	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000		X	X	315444	1,870.00
40	50	76	266	321	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000	1.8			315614	1,660.00
40	50	76	266	321	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000		X		315624	1,800.00
40	50	76	266	321	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000		X	X	315644	1,870.00
50	50	76	266	321	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000	1.8			315714	1,660.00
50	50	76	266	321	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000		X		315724	1,800.00
50	50	76	266	321	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000		X	X	315744	1,870.00
CF 40	35	76	266	321	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000	1.8			714214	1,660.00
CF 40	35	76	266	321	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000		X		714224	1,800.00
CF 40	35	76	266	321	160	<1*10 ⁻⁹	1*10 ⁻¹⁰ mbar to 2 bar	50000		X	X	714244	1,870.00

Nominal width DN	Article no.	Price €
16	31993154	160.00
25	31993156	160.00
40	31993157	160.00
50	31997142	160.00

HV gate valve ISO-F, manually actuated VAT® series 12, aluminium

- > VAT gate valve with VATLOCK system,
with slideway
- > Valve housing and valve plate made of 1.4301
- > Head and plate seal FKM
- > Valve position visually detectable
- > Temperature resistance of handle 80 °C

* Take sealing materials and connecting elements into consideration



Nominal width DN	A [mm]	O1 [mm]	O1/2 +L [mm]	O1/2 +L+Q [mm]	Conductivity value [l/s]	Leak-tightness [mbarl/s]	Pressure range	Service life	Bake-out temperature, housing [°C]	Weight [kg]	Article no.	Price €
63	60	131	395	420	550	<1*10 ⁻⁹	1*10 ⁻⁷ mbar bis 1.6 bar	200000	120	3.0	8042	1,100.00
100	60	166	496	521	2000	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	200000	120	4.5	8044	1,430.00
160	70	237	665.5	725.5	6000	<1*10 ⁻⁹	1*10 ⁻⁷ mbar to 1 bar	100000	120	9.0	8046	1,740.00

Gasket kit

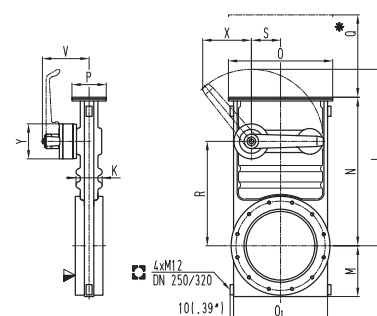
Nominal width DN	Article no.	Price €
63	31998042	55.00
100	31998044	70.00
160	31998046	140.00

HV gate valve ISO-F, manually actuated VAT® series 14, high-quality steel

> With hand lever

- > VAT gate valves with VATLOCK system
- > Valve housing and valve plate made of 1.4301
- > Head seal and plate seal FKM
- > Valve position visually detectable
- > Temperature resistance of handle 80 °C
- > *Q=required removal height

* Take sealing materials and connecting elements into consideration



Nominal width DN	A [mm]	B [mm]	M + L [mm]	M+N +Q* [mm]	Conductivity value [l/s]	Leak-tightness [mbarl/s]	Pressure range	Service life	Bake-out temperature, housing [°C]	Weight [kg]	Article no.	Price €
63	70	136	349	464	440	<1*10 ⁻⁹	1*10 ⁻⁸ mbar to 2 bar	200000	150	8	8072	1,780.00
100	70	176	408	583	1700	<1*10 ⁻⁹	1*10 ⁻⁸ mbar to 2 bar	200000	150	13	8074	2,100.00
160	80	225	578	785	5000	<1*10 ⁻⁹	1*10 ⁻⁸ mbar to 2 bar	200000	150	24	8076	2,610.00
200	80	288	663	939	12000	<1*10 ⁻⁹	1*10 ⁻⁸ mbar to 2 bar	200000	150	30	8078	3,940.00
250	100	350	994	1197	22000	<1*10 ⁻⁹	1*10 ⁻⁸ mbar to 1.2 bar	200000	150	58	8079	6,240.00

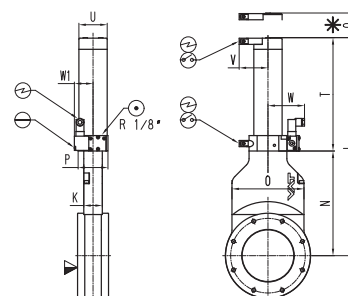
Gasket kit (plate seal)

Nominal width DN	Article no.	Price €
63	31998072	60.00
100	31998074	80.00
160	31998076	110.00
200	31998078	150.00
250	31998079	250.00

HV gate valve ISO-F, electro-pneumatic VAT® series 12, aluminium 3.3547

- > VAT gate valves with VATLOCK system, slideway
- > Valve plate 1.4301
- > Head and plate seal FKM
- > Valve position visually detectable
- > Control valve 24 VDC, 5.4W
- > Position indicator $\leq 50V \leq 1.2A$, $\leq 250V \leq 2A$
- > Bake-out temperature, housing 120 °C
- > Heating up and cooling speed ≤ 50 °C
- > *Q=required removal height

* Take sealing materials and connecting elements into consideration



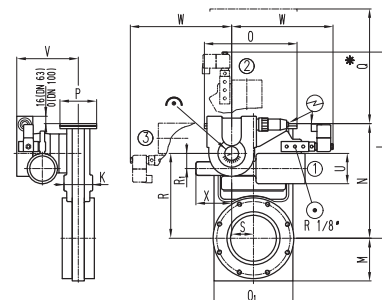
NW DN	A [mm]	O1 [mm]	O1/2 +L [mm]	O1/2 +L+Q [mm]	Con- duc- tivity value [l/s]	Leak- tightness [mbarl/s]	Pressure range	Ser- vice life	Weight [kg]	With posi- tion indica- tor	With con- trol valve	Article no.	Price €
63	60	131	407	432	550	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	200000	3.0			814214	1,100.00
63	60	131	407	432	550	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	200000		X		814224	1,165.00
63	60	131	407	432	550	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	200000		X	X	814244	1,230.00
100	60	166	508	533	2000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	200000	4.5			814414	1,430.00
100	60	166	508	533	2000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	200000		X		814424	1,495.00
100	60	166	508	533	2000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	200000		X	X	814444	1,560.00
160	70	237	665.5	725.5	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	100000	9.0			814614	2,000.00
160	70	237	665.5	725.5	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	100000		X		814624	2,065.00
160	70	237	665.5	725.5	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	100000		X	X	814644	2,130.00
200	80	290	833	913	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	100000	18.0			814814	2,860.00
200	80	290	833	913	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	100000		X		814824	2,925.00
200	80	290	833	913	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.6 bar	100000		X	X	814844	2,990.00
250	70	352	1019	1119	22000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.2 bar	100000	25.0			814914	4,000.00
250	55	352	1019	1119	22000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.2 bar	100000		X		814924	4,065.00
250	55	352	1019	1119	22000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-7}$ mbar to 1.2 bar	100000		X	X	814944	4,130.00

Gasket kit

Nominal width DN	Article no.	Price €
63	31998142	55.00
100	31998144	70.00
160	31998146	140.00
200	31998148	210.00
250	31998149	330.00

HV gate valve ISO-F, electro-pneumatic VAT® series 14, high-quality steel

- > VAT gate valves with VATLOCK system
 - > Valve plate and housing 1.4301
 - > Head and plate seal FKM
 - > Valve position visually detectable
 - > Control valve 24 VDC, 5.4W
 - > Position indicator $\leq 50V \leq 1.2A, \leq 250V \leq 2A$
 - > Bake-out temperature, housing 120 °C
 - > Heating up and cooling speed ≤ 50 °C
 - > *Q=required removal height
- * Take sealing materials and connecting elements into consideration



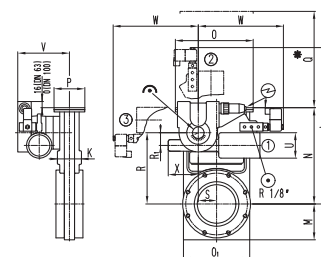
NW DN	A [mm]	O1 [mm]	O1/2 +L [mm]	O1/2 +L+Q [mm]	Con- duc- tivity value [l/s]	Leak- tightness [mbarl/s]	Pressure range	Service life	Weight [kg]	With position indicator	With control valve	Article no.	Price €
63	70	134	407	432	550	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000	10.0			817214	2,070.00
63	70	134	407	432	550	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000		X		817224	2,190.00
63	70	134	407	432	550	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000			X	817234	2,140.00
63	70	134	407	432	550	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000	15.0	X	X	817244	2,260.00
100	70	172	508	533	2000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000				817414	2,500.00
100	70	172	508	533	2000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000		X		817424	2,620.00
100	70	172	508	533	2000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000	27.0		X	817434	2,570.00
100	70	172	508	533	2000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000		X	X	817444	2,690.00
160	70	222	665.5	725.5	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000				817614	3,000.00
160	70	222	665.5	725.5	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000	33.0	X		817624	3,120.00
160	70	222	665.5	725.5	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000			X	817634	3,070.00
160	70	222	665.5	725.5	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000		X	X	817644	3,190.00
200	80	274	833	913	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000	33.00			817814	4,350.00
200	80	274	833	913	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000		X		817824	4,470.00
200	80	274	833	913	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000			X	817834	4,420.00
200	80	274	833	913	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	200000		X	X	817844	4,540.00
250	100	356	1019	1119	22000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 1.2 bar	200000	62.0			817914	7,020.00
250	100	356	1019	1119	22000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 1.2 bar	200000		X		817924	7,140.00
250	100	356	1019	1119	22000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 1.2 bar	200000			X	817934	7,090.00
250	100	356	1019	1119	22000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 1.2 bar	200000		X	X	817944	7,210.00

Gasket kit (plate seal)

Nominal width DN	Article no.	Price €
63	31998172	60.00
100	31998174	80.00
160	31998176	110.00
200	31998178	150.00
250	31998179	250.00

UHV gate valve CF with manual drive VAT® series 10, high-grade steel 1.4301

- > VAT gate valves with VATLOCK system
- > Valve housing and valve plate made of 1.4301
- > Head seal, metal, plate seal FKM, vulcanised
- > *Q=required removal height
- * Take sealing materials and connecting elements into consideration



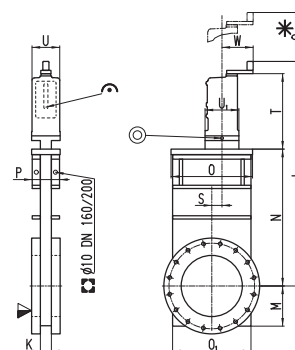
Nomi- nal width DN	A [mm]	B [mm]	B/2+ L [mm]	B/2+ L+Q* [mm]	Con- ductivi- ty value [l/s]	Leak- tight- ness [mbarl/s]	Pressure range	Ser- vice life	Bake-out tempera- ture, housing [°C]	Weight [kg]	Article no.	Price €
63	70	113.5	465	645	600	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.6 bar	50000	250	9	7043	2,330.00
100	70	151.6	538	758	1700	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.6 bar	50000	250	12	7044	2,950.00
160	70	202.4	653	943	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.6 bar	50000	250	18	7045	3,910.00
200	80	253.2	787	1137	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.6 bar	50000	250	25	7046	5,370.00
250	100	350	1016	1456	26000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.2 bar	50000	250	52	7047	8,540.00

Gasket kit

Nominal width DN	Article no.	Price €
63	31997043	180.00
100	31997044	190.00
160	31997045	210.00
200	31997046	280.00
250	31997047	310.00

UHV gate valve CF electro-pneumatic VAT® series 10, high-grade steel 1.4301

- > VAT gate valves with VATLOCK system via handwheel
 - > Valve plate and housing 1.4301
 - > Head, metal, and plate seal FKM vulcanised
 - > Control valve 24 VDC, 5.4W
 - > Position indicator $\leq 50V \leq 1.2A, \leq 250V \leq 2A$
 - > Bake-out temperature, housing 250 °C
 - > Heating up and cooling speed ≤ 50 °C
 - > *Q=required removal height
- * Take sealing materials and connecting elements into consideration



NW DN	A [mm]	O1 [mm]	O1/2 +L [mm]	O1/2 +L+Q [mm]	Con- ductiv- ity value [l/s]	Leak- tightness [mbarl/s]	Pressure range	Service life	Weight [kg]	With position indicator	With control valve	Article no.	Price €
63	70	113.5	402.5	582.5	600	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.6 bar	50000	9.0			707314	2,370.00
63	70	113.5	402.5	582.5	600	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.6 bar	50000		X		707324	2,590.00
63	70	113.5	402.5	582.5	600	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.6 bar	50000		X	X	707344	2,650.00
100	70	151.6	494	714	1700	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	50000	12.0			707414	2,960.00
100	70	151.6	494	714	1700	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	50000		X		707424	3,180.00
100	70	151.6	494	714	1700	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	50000		X	X	707444	3,240.00
160	70	202.4	624	914	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	50000	18.0			707514	4,070.00
160	70	202.4	624	914	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	50000		X		707524	4,290.00
160	70	202.4	624	914	6000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-8}$ mbar to 2.0 bar	50000		X	X	707544	4,350.00
200	80	253.2	756.5	1106	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.6 bar	50000	24.0			707614	5,400.00
200	80	253.2	756.5	1106	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.6 bar	50000		X		707624	5,620.00
200	80	253.2	756.5	1106	12000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.6 bar	50000		X	X	707644	5,680.00
250	100	350	975	1425	26000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.2 bar	50000	42.0			707714	8,540.00
250	100	350	975	1425	26000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.2 bar	50000		X		707724	8,760.00
250	100	350	975	1425	26000	$<1 \cdot 10^{-9}$	$1 \cdot 10^{-10}$ mbar to 1.2 bar	50000		X	X	707744	8,820.00

Gasket kit

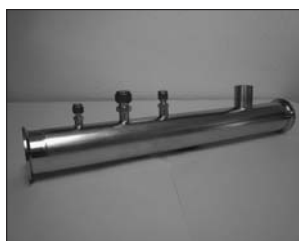
Nominal width DN	Article no.	Price €
63	31997073	180.00
100	31997074	190.00
160	31997075	210.00
200	31997076	280.00
250	31997077	310.00

Special components / special products



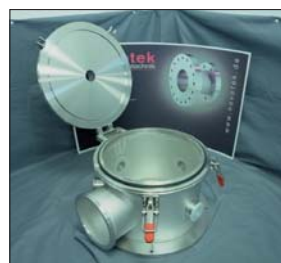
Special components made from standard components

The novotek special component made from KF – ISO-K and CF standard components are produced mainly according to drawings, diagrams or descriptions. In accordance with high-vacuum technology requirements, they are manufactured using WIG manual welding technology, if necessary, using a microscope, laser welding or orbital welding. Our customers decide on the surface characteristics, such as unplated, glass bead blasted, electropolished or vacuum-annealed and on the leak rate requirements. In this case, we are able to produce standard components up to 1×10^{-9} mbarl/s and special components up to 1×10^{-10} mbarl/s. Furthermore, we have a very wide range of extremely varied materials and have the option of cleaning the components in a special ultrasonic cleaning procedure suitable for high vacuum.



Special components according to customer drawing

A small selection of special components according to customer requirements serves to demonstrate our options for a very wide variety of production processes. Since the start of 2011 we have been using our own CNC-controlled lathe and mill cutters, which allow us to offer the shortest possible delivery times of a few days and hours.



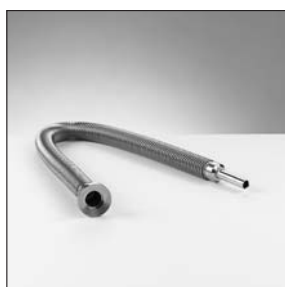
Chambers and receivers for high-vacuum applications

The novotek chambers are used in the partial pressure and high-vacuum areas. They are manufactured from a very wide variety of materials according to customer requirements and are installed in research and industrial plants. Our Production department works to very high quality standards at all times. A final leak test record documents the leak-tightness of our chambers.



Metal hoses, metal bellows and diaphragm bellows as special components

The novotek hoses and bellows are manufactured in different designs. We shall be glad to help you in the design phase of the bellows. The associated bellows request for quotation follows directly.



Checklist for bellows requests for quotation

Fax: 07159/80569-11
E-mail: info@novotek.de

Customer: _____	Telephone: _____
Address: _____	Fax: _____
_____	E-mail: _____
_____	Internet: _____
Contact person: _____	Date: _____
_____	Project: _____
_____	_____

Underlined features are mandatory for all bellows designs.

Diaphragm bellows data () = standard

<u>Material</u>	☐ AISI 316L	☐ AM 350	☐ Others
<u>Inside diameter</u>	ID mm	☐ exact or	☐ min.
<u>Outside diameter</u>	OD mm	☐ exact or	☐ max.
Operating stroke	axial mm	lateral mm	angular °
or stroke position	from Lc mm With a combined or angular stroke, a diagram is very helpful	to Le mm	frequency Hz
Permissible forces	axial N	lateral N	angular °
<u>Service life</u>	☐ Nz (10'000) cycles	☐ Nz > cycles	
Temperature	Operation °C (20 °C)	Baking out °C (80 °C)	
<u>Operating pressure</u>	inside bar (0)	outside bar (l)	
Installation pos.	☐ any	☐ vertical	☐ horizontal
Max. installation dimensions (length, diameter) if known and/or required		length mm	dia. mm

End pieces

☐ Provided by customer

Please note: connection to bellows in acc. with our seal-weld lip standard
Material for bellows end pieces: 1.4435 ESR or forged.

☐ No end pieces

☐ With end pieces

Standard: ☐ End piece with pipe ☐ End piece from DN 63 without pipe
☐ CF flange ☐ x fixed ☐ x rotating

☐ ISO-KF
☐ ISO-K

Special: ☐ End piece according to drawing
☐ CF flange: ☐ with thread ☐ in 1.4429/316 LN ☐ according to drawing

☐ ISO-F ☐ ISO-KF L = _____ ☐ according to drawing

☐ Align end pieces

to one another: ☐ ± 5° (by eye) ☐ ± _____°

Certificates

☐ Helium Leak Test ☐ Material Certificate for Strip Material ☐ Material Certificate for End Piece Pipe Material
☐ Measurement records (only with drawing)

Unit count/quantity units _____

Comment/drawing (insert)

Inspection glasses and glass elements



Components made of borosilicate



Properties:

- transmission range 0.4 – 2.0 μm
- vacuum-tight $> 1 \times 10^{-11}$ mbar/s
- light weight
- max. temperature 350 °C

Area of application:

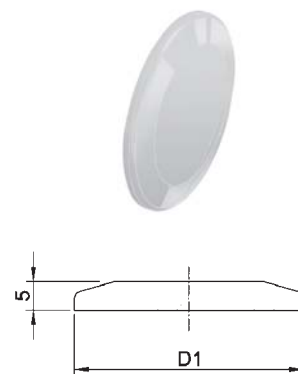
Many technical vacuum applications require that the process room within the vacuum plant is optically observed. Depending on the process, the requirements range from simple visual observation for position tasks to high-precision optical measurements.

Following selection criteria may be helpful:

- Wave length, surface characteristics (scratches, flatness, parallelism, heat treatment, coating, anti-reflection coating), pressure range, radiation level, media characteristics, e.g. aggressive gases, temperature range.

KF glass flange (blind flange)

- > Pressure range: 10^{-7} mbar to 1.5 bar*
 - > Temperature range: -15°C to 150°C *
 - > Chemically resistant
 - > Low thermal expansion and temperature-resistant
 - > Heating up and cooling with max. $300^{\circ}\text{C}/\text{hour}$
 - > Standard inspection glass for visible area
 - > Limited transmission in UV range ($0.4\ \mu\text{m}$ – $2.0\ \mu\text{m}$)
- * Take sealing materials and connecting elements into consideration

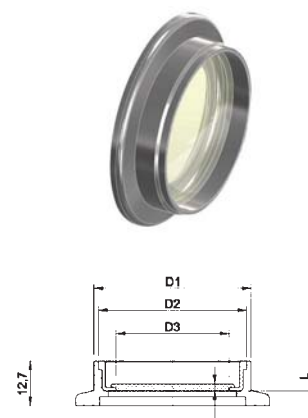


Borosilicate

Nominal width DN	D1	Article no.	Price €
16	30	2112	29.20
25	40	2114	33.70
40	55	2116	37.90
50	75	2117	49.70

KF inspection glass

- > Pressure range: 10^{-9} mbar to 1.5 bar*
 - > Temperature range: -100°C to 300°C *
 - > Chemically resistant
 - > Low thermal expansion and temperature-resistant
 - > Heating up and cooling with max. $300^{\circ}\text{C}/\text{hour}$
 - > Standard inspection glass for visible area
 - > Limited transmission in UV range ($0.4\ \mu\text{m}$ – $2.0\ \mu\text{m}$)
 - > Flange made of high-grade steel with integrated FPM O-ring
- * Take sealing materials and connecting elements into consideration

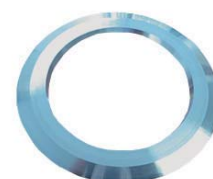
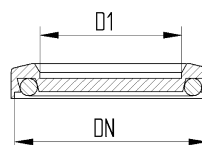


Borosilicate/ high-grade steel 1.4301

Nominal width DN	D1 [mm]	D2 [mm]	D3 [mm]	T [mm]	L [mm]	Article no.	Price €
16	22	19	16	1.6	8.5	2122	89.00
25	25.4	19	16	1.6	8.5	2124	104.50
40	44.5	42	32	3	8.5	2126	109.50
50	50.5	42	32	3	7	2127	123.50

KF inspection glass, aluminium

- > Pressure range: 10^{-9} mbar to 3 bar*
 - > Temperature range: -15°C to 150°C *
 - > Chemically resistant
 - > Low thermal expansion and temperature-resistant
 - > Heating up and cooling with max. $300^{\circ}\text{C}/\text{hour}$
 - > Standard inspection glass for visible area
 - > Limited transmission in UV range ($0.4\ \mu\text{m}$ – $2.0\ \mu\text{m}$)
 - > Flange made of aluminium with integrated FPM O-ring
- * Take sealing materials and connecting elements into consideration



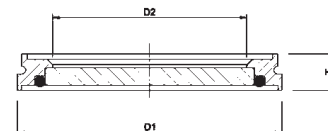
Borosilicate/ aluminium (3.2315)

Nominal width DN	D [mm]	D1 [mm]	h [mm]	Article no.	Price €
25	40	26	10	2134	95.00
40	57	41	10	2136	97.50
50	77	52	10	2137	107.50

ISO-K inspection glass

- > Pressure range: 10^{-9} mbar to 1.5 bar*
- > Temperature range: -15 °C to 150 °C*
- > Chemically resistant
- > Low thermal expansion and temperature-resistant
- > Heating up and cooling with max. 300 °C/hour
(from NW200 max. 100 °C/h)
- > Standard inspection glass for visible area
- > Limited transmission in UV range (0.4 μ m – 2.0 μ m)
- > Flange made of high-grade steel 1.4301 with integrated FPM O-ring
- > Assembly without additional seal.
(claw are not suitable)

* Take sealing materials and connecting elements into consideration



Borosilicate / high-grade steel 1.4301

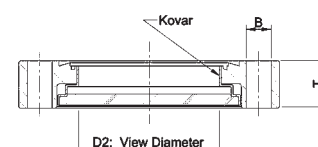
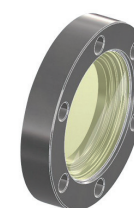
Nominal width DN	D1 [mm]	D2 [mm]	T [mm]	Article no.	Price €
63	98	72	13.5	6531	124.70
100	133	104	15.5	6532	177.20
160	183	153	17.2	6533	288.50
200	-	-	-	6534	Upon request
250	-	-	-	6535	Upon request

Borosilicate / aluminium (3.2315)

Nominal width DN	D1 [mm]	D2 [mm]	T [mm]	Article no.	Price €
63	98	72	13.5	6531A	129.50
100	133	104	15.5	6532A	195.00
160	183	153	17.2	6533A	279.00
200	-	-	-	6534A	Upon request
250	-	-	-	6535A	Upon request

CF inspection glass

- > Pressure range: 10^{-11} mbar to 1.0 bar*
 - > Temperature range: -15 °C to 350 °C*
 - > Chemically resistant
 - > Low thermal expansion and temperature-resistant
 - > Heating up and cooling with max. 180 °C/hour
 - > Standard inspection glass for visible area
 - > Limited transmission in UV range (0.4 μ m – 2.0 μ m)
 - > Flange made of high-grade steel 1.4301
 - > Assembly only with annealed copper seals or FKM seals
- * Take sealing materials and connecting elements into consideration



Borosilicate / high-grade steel 1.4301

Nominal width DN	D2 [mm]	B [mm]	T [mm]	Article no.	Price €
16	16	4.4	12	7411	96.90
40	38	6.7	12.7	7412	89.70
63	63	8.4	17.5	7413	135.20
100	90	8.4	19.9	7414	273.00
160	135	8.4	22.3	7415	437.00
200	136.7	8.4	24.6	7416	599.00

Accessories

High-vacuum grease Dow Corning®

- > Temperature range: -40 °C to 150 °C*
- > Vapour pressure: at 60 °C = 1.3×10^{-7} mbar, at 110 °C = 2×10^{-5} mbar, at 150 °C = 1×10^{-3} mbar
- > Colour: transparent
- > Good lubrication and sealing behaviour, tends to creep
- > Not suitable for coating plants because even an extremely small amount of grease is sufficient to prevent paint from adhering.



	Article no.	Price €
High vacuum grease 50g	7009	18.00

Thread lubricant Molykote®

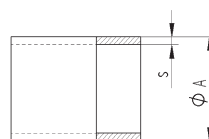
- > Suitable for high-grade steel screw connections, in particular, with heated flanges
- > Prevents seizing of screws during release and when creating a screw connection
- > Very favourable friction coefficient
- > Operation temperature -30 °C to 650 °C



	Article no.	Price €
Thread lubricant for screw sets 100g	7010	17.80

Stock list, pipes

- > Pressure range: 10⁻⁹mbar to 2.5 bar
- > Temperature range 1.4301: -196 °C to 300 °C*
- > Surface unplated
- > Price quotation per metre, maximum length 6 m
- > Tolerances according to EN ISO 1127 for high-grade steel

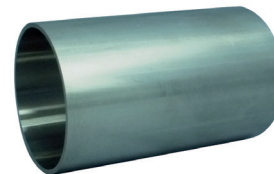
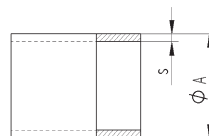


High-grade steel 1.4301

Material	dia.A [mm]	Wall thickness s [mm]	Article no.	Price €
1.4301	6	1	9001	16.00
1.4301	8	1	9002	22.00
1.4301	10	1	9003	22.00
1.4301	12	1	9004	25.00
1.4301	12	2	9005	29.00
1.4301	18	1	9006	26.00
1.4301	18	1.5	9007	26.00
1.4301	19	1.5	9008	26.00
1.4301	20	2	90081	36.50
1.4301	25.4	1.63	9009	47.50
1.4301	28	1.5	9010	35.00
1.4301	38	1.5	9011	39.00
1.4301	40	1.5	9012	39.00
1.4301	42.4	2	9013	45.00
1.4301	44.5	2	9014	41.00
1.4301	48.3	2	9015	44.00
1.4301	52	1.5	9016	47.00
1.4301	60.3	2	90161	59.00
1.4301	70	2	9017	69.00
1.4301	76	3	9018	77.00
1.4301	88.9	3	9019	87.00
1.4301	104	2	9020	92.50
1.4301	108	3	9021	99.50
1.4301	154	2	9022	137.00
1.4301	159	3	9023	147.00
1.4301	219	3	9025	185.00
1.4301	273	3	9027	Upon request

Stock list, pipes

- > Pressure range: 10⁻⁹mbar to 2.5 bar
- > Temperature range 3.2315. 1.0037: -196 °C to 300 °C*
- > Temperature range 1.4404. 1.4541: -196 °C to 350 °C*
- > Surface unplated
- > Price quotation per metre, maximum length 6 m
- > Tolerances according to EN ISO 1127 for high-grade steel
- > Tolerances according to DIN EN 755-1/-2/-9 for aluminium
- > Tolerances according to EN 10217-1 and EN 10219-1 for steel



High-grade steel 1.4404/1.4541

Material	dia.A [mm]	Wall thickness s [mm]	Article no.	Price €
1.4404	6	1	90014	17.50
1.4404	6.35	0.89	900114	22.50
1.4404	8	1	90024	23.50
1.4404	10	1	90034	23.50
1.4404	12	1	90044	25.00
1.4404	18	1	90064	28.00
1.4404	18	1.5	90074	28.00
1.4404	19	1.5	90084	28.00
1.4404	20	2	900814	32.00
1.4404	25.4	1.65	900824	37.50
1.4404	28	1.5	90104	37.50
1.4404	38	1.5	90114	41.50
1.4404	40	1.5	90124	41.50
1.4404	42.4	2	90134	48.00
1.4404	44.5	2	90144	44.50
1.4404	48.3	2	90154	47.50
1.4404	52	1.5	90164	51.00
1.4404	54	2	901614	55.00
1.4404	70	2	90174	74.00
1.4404	76	3	90184	82.00
1.4404	88.9	3	90194	92.00
1.4404	101.6	2.11	901914	98.50
1.4404	104	2	90204	97.50
1.4404	108	3	90214	105.00
1.4404	154	2	90224	143.00
1.4571	104	2	90205	92.50
1.4571	159	3	90235	156.00
1.4404	204	2	90244	169.00
1.4404	219	3	90254	189.50
1.4404	254	2	90264	Upon request
1.4404	273	3	90274	Upon request

Aluminium

3.2315	76	3	9040	58.00
3.2315	108	3	9041	73.50
3.2315	160	4	9042	99.50

Steel

1.0037	76	3	9050	57.00
1.0037	108	3	9051	69.00
1.0037	159	3	9052	97.00

General terms and conditions of business, delivery and payment

The individually agreed conditions or the following General Terms and Conditions of Business shall apply.

1. General

These general conditions or sales and delivery apply to all quotations, orders, purchase contracts, work contracts and deliveries that novotek provides to the customer. General business terms and conditions of the customer that deviate from these business terms and conditions shall not apply even if we have not objected to them expressly. Other terms and conditions shall only apply if they have been expressly acknowledged by us in writing. If individual provisions of the contract turn out to be legally invalid in whole or in part, this shall not affect the validity of the remaining provisions. The contracting parties shall replace the aforesaid provision by a new provision which comes as close as possible to the legal and economic intention of the invalid provision. A contract shall only be concluded when novotek issues a written order confirmation. If, in exception cases, no separate order confirmation is prepared, the invoice shall be deemed to be the order confirmation. We reserve the right to make technical modifications during the delivery period that will not adversely affect the function of the items supplied. novotek reserves all property and copyrights with regard to samples, cost estimates, drawings and similar. Information of a corporeal and incorporeal nature – including in electronic form – must not be made accessible to third parties. Similarly, novotek undertakes not to make information or documents designated by the customer as being confidential accessible to third parties without prior approval.

2. Prices and terms of payment

Our prices are net without value-added tax. All prices are plus the value-added tax prescribed by law that is applicable on the day of delivery. They shall apply ex warehouse in Magstadt, plus packaging and shipping costs unless otherwise agreed (in accordance with Incoterms 1990). The invoice amount shall be paid within 30 days after the date of invoicing, without any deduction. In the event of delayed or deferred payment, novotek shall be entitled to charge interest according to bank practices even without prior notification. Packaging cannot be returned. Unless our prices have been expressly confirmed as fixed prices, in case of increases in material, wage and other costs, we reserve the right to correct the prices. No interest shall be paid for advance payments. The right to withhold payments or to offset with counterclaims shall only be granted to the customer to the extent that his counterclaims are undisputed or have been legally upheld. Unless expressly prescribed by the customer, we shall not conclude transport insurance. Costs of any desired transport insurance shall be borne by the customer.

3. Technical documents

Technical documents shall remain our property and must not be copied, reproduced nor disclosed to third parties. Technical documentation relating to offers not resulting in a subsequent order must be returned to us upon request.

4. Delivery times

The delivery times specified in our quotations and order confirmations shall be regarded as targets but are not binding. The delivery time shall start on the date of order confirmation, however only if the order exactly matches the order confirmation and any documentation to be submitted by the customer is at our disposal. The delivery time shall be extended appropriately in case of unforeseen hindrances that are beyond the control of novotek despite using due diligence, irrespective of whether the cause rests with novotek itself, the customer or a third party. As soon as the cause for delay has been removed, the delivery period shall be rescheduled in writing. The customer shall only have the right to cancel the contract in the event of gross negligence or wilful misconduct on the part of novotek. The delivery date has been adhered to if the object to be delivered has been dispatched or collected by novotek or the supplier's plant within the agreed time, or if readiness to deliver has been notified.

5. Cancellation

Cancellation of an order places the customer under the obligation of paying for all expenses and costs incurred at the time of cancellation.

6. Transfer of risk, acceptance

The risk shall pass to the customer when the article to be supplied has left novotek or the supply plant, even if partial deliveries are made or if the supplier has assumed ancillary obligations such as costs of dispatch for the delivery and its installation. If acceptance is to take place, this is the determining factor with regard to the transfer of risk. If dispatch is delayed or not executed for reasons for which the supplier cannot be held responsible, the risk will be transferred to the customer from the day of notification of the dispatch or readiness to accept. novotek undertakes to take out the insurance policy which the customer requests at the customer's expense. – Partial deliveries are permissible as far as these can be reasonably expected of the customer. The customer undertakes to inspect the deliveries and services within a reasonable period and to notify novotek in writing without delay of any possible deficiencies. Transport damage must be reported to novotek within five working days. If this is not the case, the deliveries and services shall be deemed as accepted.

7. Reservation of ownership

The products supplied or sold by novotek shall remain the property of novotek until each and every claim novotek has on the customer arising from the respective contract has been paid. This shall also apply in the event that the delivered goods and services are processed or combined and/resold (extended and lengthened proprietary rights). The customer of novotek is entitled to the ownership and the contractual use of the object of purchase as long as he fulfils obligations arising from the agreement or from these General Terms and Conditions of Business and is not in payment default. If the customer of

novotek is in payment default or has not fulfilled his obligations with regard to the reservation of ownership, novotek shall have the right to declare the cancellation of the contract. novotek can demand the return of the objects of the contract from the contractual partner and, after expiration of a reasonable deadline, can utilise the goods by selling them. The customer is obliged to notify novotek immediately in the event of any action of third parties, for example, seizures and consultation or initiation of insolvency proceedings. A withdrawal from the contract if a ground for insolvency exist for enforcement of the reservation of ownership and extended/lengthened reservation of ownership is not required.

8. Liability for defects, warranty payments

novotek shall grant a warranty for material defects in the delivery, to the exclusion of further claims, as follows: All such parts that have been found to be defective as a result of a circumstance occurring prior to the transfer of risk shall be repaired or replaced free-of-charge as novotek chooses. If such deficiencies are determined, novotek must be informed immediately in writing. Replaced parts shall become the property of novotek. The customer shall discuss with the supplier and agree upon a specific period and provide him with the requisite facilities for the apparently necessary repairs and replacement deliveries to be made; if the customer fails to do so, the supplier will not be liable for the consequences. Only in urgent cases where there is a risk to operational safety and to avert disproportionate further damage does the orderer have the right to rectify the defect himself or have a third party do the repair and to demand appropriate repayment for his costs. In such cases, the supplier has to be informed immediately. If the complaint is found to be well-founded, novotek shall bear the cost of repairs or substitute deliveries including shipping. In the framework of the statutory provisions, the purchaser has a right to rescind the contract if the supplier – taking account of the statutory exemptions – allows a reasonable period for the subsequent improvement or replacement delivery due to a quality defect to elapse fruitlessly. If only a minor deficiency exists, the customer only has a right to reduce the contractual price. Under no other circumstances shall the customer be entitled to demand a reduction in the contractual price. There shall be no claim for defects of the object of the contract under any of the conditions stated below: unsuitable or improper use; faulty assembly or commissioning by the customer and/or third parties; natural wear; faulty or negligent construction work, chemical, electrochemical or electric influences – unless these are the responsibility of novotek. If the customer or a third party makes an improper improvement, then novotek shall not be liable for the resulting consequences. The same shall apply to changes made to the object of delivery without the prior consent of the company. Claims for defects for all new objects sold shall become statute-barred one year after delivery of the object. Obvious defects have to be reported within 2 weeks in a written notification to novotek, based on sending of the notification, otherwise the vendor is exempt from liability for defects. If the object of the contract is defective, the contractual partner of the company shall have the following rights: novotek is obliged to make good the defect and will bring this about at its discretion by removing the defect or by supplying goods that are not defective. If the repairs or the replacements fail, the contracting party can demand a reduction of the purchase price or a rescission of the contract. Rescission of the contract is not permitted where the breach of duty on the part of novotek is only insubstantial.

9. Liability, exclusion of further liability

If the delivery item cannot be used by the customer for the contractually agreed purpose, due to culpability on the part of novotek, as a result of ignoring or faultily implementing proposals and advice put forward before or after signing of the contract, or through the violation of other additional contractual obligations, particularly instructions for operating and maintaining the object of delivery, then the arrangements specified under section 8 shall apply, with all further claims by the customer being ruled out, and the following: For loss or damage not suffered by the delivery item itself, novotek shall be liable (whatever the legal grounds involved) only

- in the event of wrongful,
- in the event of gross negligence on the part of the owner/the boards or senior executives,
- in the event of culpable injury to life, limb and human health,
- in the event of defects which the supplier has maliciously failed to disclose or whose absence it has guaranteed,
- in the event of defects in the delivery item, insofar as liability exists under the German Product Liability Act for injury to persons or damage to privately used property. In the event of culpable violation of significant contractual obligations, novotek shall also be liable in the event of gross negligence of non-senior executives and in the event of slight negligence. In the latter case, liability shall be limited to reasonably foreseeable loss or damage typical of the contract. No further claims shall be accepted.

10. Rules for governing law, jurisdiction and place of performance

All legal relationships between novotek and the customer shall be governed solely by the law of the Federal Republic of Germany which governs legal relationships between German parties. The place of jurisdiction shall be the court responsible for the novotek's place of business. However, novotek shall be entitled to file a lawsuit at the customer's head office.

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