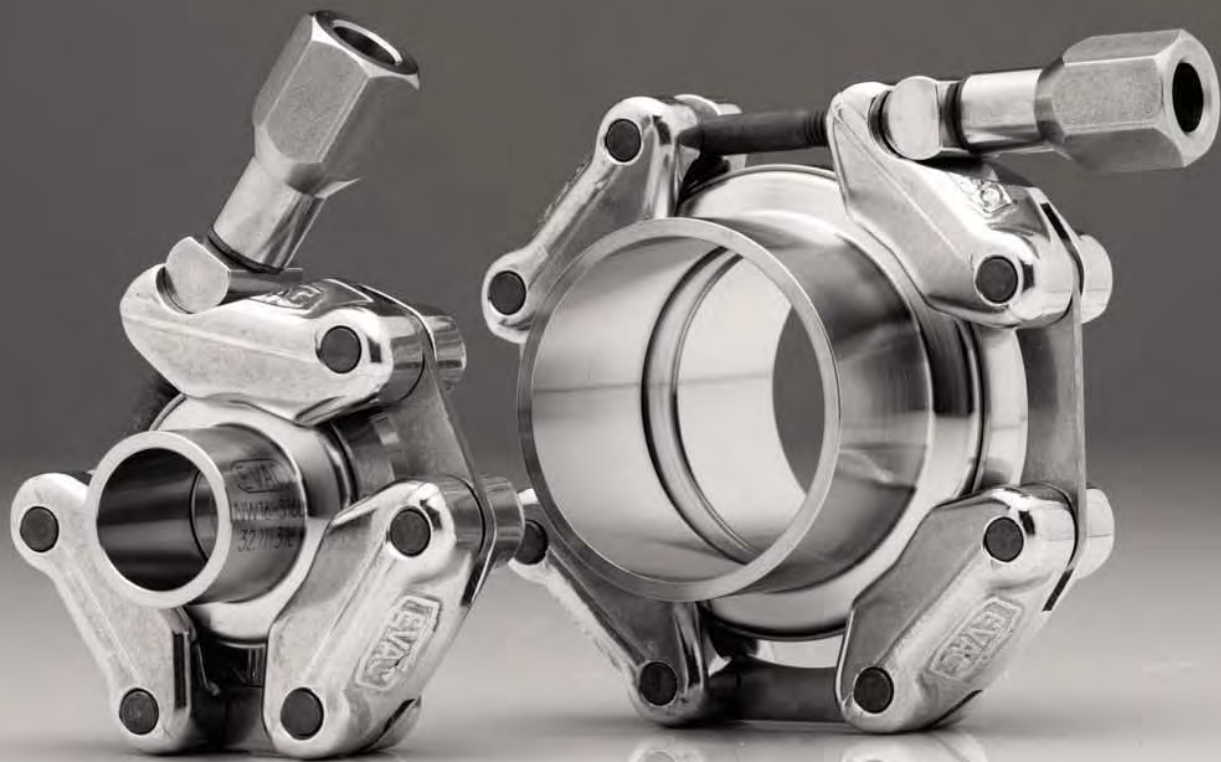


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# Technical Product Catalog 2010



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# EVAC Product Number Key

A	B	C	D	F	G	H	J	K	L	N	O	P	Designation
10													Spare parts
30													Chain clamps
32													Flanges
33													Fittings
34													Seals
35													Bellows and tubes
													<b>Net width</b>
	7	5	0										p.ex. 750 mm
													<b>Material</b>
				0	0	1							Aluminium
				0	0	3							Stainless steel 1.4301
				0	0	4							1.4462 / Duran®
				0	0	5							Stainless steel 316L
				0	0	6							Steel nickel plated / steel (zincated)
				0	0	7							Duran® glass
				0	0	8							Quartz glass
				0	1	0							FRP clamps / stainless steel (links, etc.)
				0	1	2							High temperature FRP clamps / stainless steel (links, etc.)
				0	1	5							Aluminium clamps / stainless steel antimagnetic (links, etc.)
				0	1	9							Aluminium clamps PTFE coated / stainless steel (links, etc.)
				0	3	1							Teflon® (center ring /support ring) / FEP silicone (o-ring)
				0	3	2							Stainless steel (center ring, support ring) / Viton® (o-ring)
				0	3	4							Aluminium (center ring resp. support ring) / Viton® (o-ring)
				0	4	3							Stainless steel center ring / Kalrez® 4079 (o-ring)
				0	6	5							Silicone o-ring
				0	6	7							Viton® o-ring
				0	6	8							Nickel
				0	7	0							Copper
				0	7	3							Copper silver - plated
				0	7	4							FEP (silicone core) o-ring
				0	7	5							FEP ( Viton® core) o-ring
				0	7	7							EPDM o-ring
				0	8	6							Flange 1.4301 / tube 316L / flange 1.4301
				0	8	7							Teflon® bellow (flanges --> fiber-glass reinforced)
				0	8	8							PE
				0	8	9							Flange 1.4301 / bellow 1.4571 / flange 1.4301
				0	9	4							Links (PPS 40% GFK) / stainless steel straps
													<b>Flange type</b>
							0						KF
							1						for KF flanges 15°
							2						for EVAC ISO Tapered™ flanges 20°
							3						for combi flanges 20°
							4						for Conflat®-flanges
							5						for CeFiX® flanges 20°
							6						for CeFiX® flanges 15°
							7						for screw clamps
							8						Over pressure
							9						sTeRlC clamp
													<b>Trailing type number</b>
								x	x	x	x	x	Running number



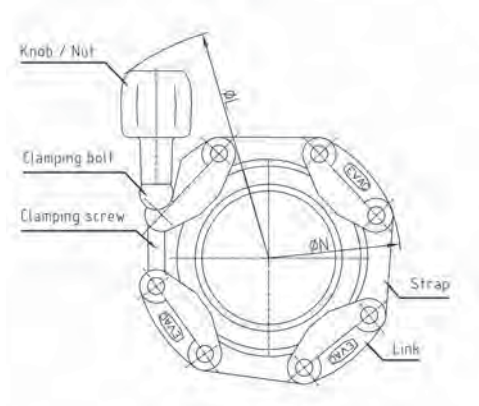
**Applications**

- Low cost applications
- Cryo applications (aluminium version w/ nut)
- Heated use (up to 200 degC U-high temp. version)
- Use of elastomer seals only
- Cost effective for use in solar, LPCVD and similar
- Vacuum up to 10E-9 mbar
- Pressure up to 20 bar (aluminium w/ outer center ring and o-ring)

3

**KF chain clamps, UHV**

NW	L	N	Torque [Nm]	No. of links
10/16	122	60	1	3
20/25	127	70	1.5	4
32/40	141	85	2	4
50	156	105	2.5	5
63	170	120	2.5	6



Type NW	Standard	Plastic high-temp.	Plastic U-high-temp.	Aluminium	Aluminium with nut
10/16	30.016010.131.816	30.016012.131.916	30.016094.100.000	30.016015.111.516	30.016015.114.516
20/25	30.025010.131.825	30.025012.131.925	30.025094.100.000	30.025015.111.525	30.025015.114.525
32/40	30.040010.131.840	30.040012.131.940	30.040094.100.000	30.040015.111.540	30.040015.114.540
50	30.050010.131.850	30.050012.131.950	30.050094.100.000	30.050015.111.550	30.050015.114.550
63	30.063010.131.863	30.063012.131.963	30.063094.100.000	30.063015.111.563	30.063015.114.563



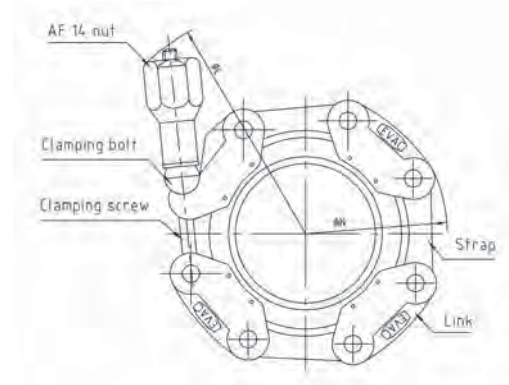
**Applications**

- Food & Beverage applications (stainless steel)
- Cryo applications (all versions)
- Heated use (up to 350 degC w/ nickel and steel)
- Use of elastomer and metal seals
- Especially for UHV applications
- Vacuum up to 10E-11 mbar
- Pressure up to 300 bar (steel with CeFiX® metal seals)

**4**

**KF chain clamps, UHV**

NW	L	N	Torque [Nm]		No. of links
			Elast.	Metal	
10/16	115	60	1	2.5	3
20/25	125	70	1.5	3	3
32/40	135	85	2	4.5	4
50	152	105	2.5	5	5
63	160	120	2.5	5	6



Type NW	Aluminium	Alu Teflon® coated	Nickel plated steel	Stainless steel
10/16	30.016015.151.516	30.016019.159.516	30.016006.151.616	30.016005.151.416
20/25	30.025015.151.523	30.025019.159.523	30.025006.151.623	30.025005.151.423
32/40	30.040015.151.540	30.040019.159.540	30.040006.151.640	30.040005.151.440
50	30.050015.151.550	30.050019.159.550	30.050006.151.650	30.050005.151.450
63	30.063015.151.563	30.063019.159.563	30.063006.151.663	30.063005.151.463



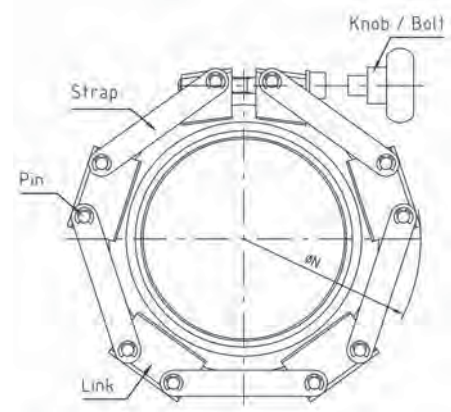
**Applications**

- Low cost applications
- Cryo applications (aluminium version w/ nut)
- Heated use (up to 200 degC U-high temp. version)
- Use of elastomer seals only
- Cost effective for use in solar, LPCVD, and similar
- Vacuum up to 10E-9 mbar
- Pressure up to 20 bar (aluminium w/ o-ring and outer center ring)

5

**EVAC ISO Tapered™ chain clamps, UHV**

		Torque
NW	N	[Nm]
80	165	3.5
100	185	4
125	210	5
160	235	7
200	300	9.5
250	350	12



Type NW	Composite / stainless steel high temp.	Composite / stainless steel U-high temp.	Alu / stainless steel (NW80...NW125 with plastic knob)	Alu / stainless steel with bolt	Stainless steel
80	30.080012.221.908	30.080094.200.000	30.080015.211.508	30.080015.213.408	30.080003.211.308
100	30.100012.221.910	30.100094.200.000	30.100015.211.510	30.100015.213.410	30.100003.211.310
125	30.125012.221.912	30.125094.200.000	30.125015.211.512	30.125015.213.412	30.125003.211.312
160	30.160012.221.916	30.160094.200.000	30.160015.211.516		30.160003.211.316
200			30.200015.211.520		30.200003.211.320
250			30.250015.211.525		30.250003.211.325



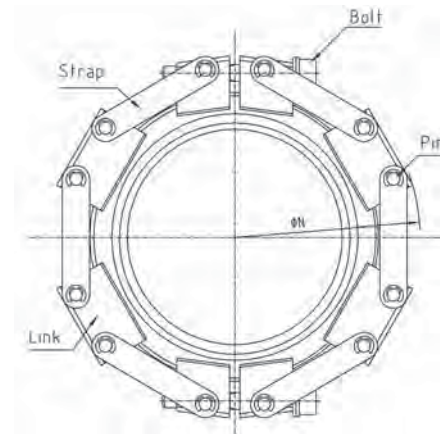
**Applications**

- High performance applications
- Cryo applications (aluminium version w/ nut)
- Heated use (up to 350 degC stainless steel version)
- Use of elastomer seals and metal seals
- Use in CVD applications, UHV, accelerator, LPG, LNG and similar
- Vacuum up to 10E-11 mbar with metal seals
- Pressure up to 20 bar (uncoated w/ outer center ring o-ring)
- Pressure up to 100 bar uncoated w/ metal seal

6

**EVAC ISO Tapered™ chain clamps, UHV**

NW	N	Torque [Nm]	
		Elast.	Metal
80	160	3.5	8.5
100	180	4	10
125	205	5	12.5
160	250	7	18
200	310	9.5	24
250	355	12	30



Type NW	Stainless steel	Alu Teflon® coated / stainless steel, BX type
80	30.080003.200.000	30.080015.242.408
100	30.100003.200.000	30.100015.242.410
125	30.125003.200.000	30.125015.242.412
160	30.160003.200.000	30.160015.242.416
200	30.200003.200.000	
250	30.250003.200.000	



**Applications**

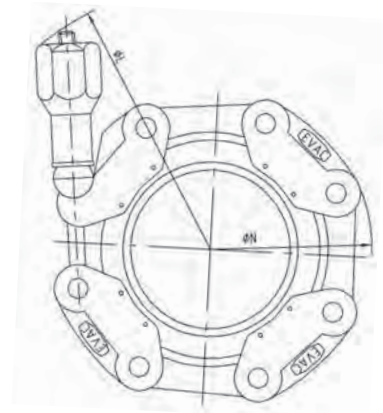
- Food & Beverage applications (stainless steel)
- Cryo applications (all versions)
- Heated use (up to 350 degC w/ nickel seals)
- Oven applications
- Radiation tolerant (RadHard™ applications)
- Especially for UHV applications
- Vacuum up to 10E-11 mbar
- Pressure up to 300 bar (steel with CeFiX® nickel seals)
- For antimagnetic requirements (stainless steel only)

7

**EVAC - CeFiX® chain clamps, UHV**

NW	L	N	Torque [Nm] (seal mat)			No. of links
			Alu	Copper	Nickel	
16	110	60	2	3.5	6	3
25	125	70	2.5	5	8	4
40	140	85	3	6	10	5
50	152	105	4.5	8.5		5
63	162	112	6	10		6*

\* 2 catches



Type NW	Stainless steel	Nickel plated steel
16	30.016005.151.416	30.016006.151.616
25	30.025005.151.425	30.025006.151.625
40	30.040005.151.441	30.040006.151.641
50	30.050005.151.450	30.050006.151.650
63	30.063005.156.463	30.063006.156.663





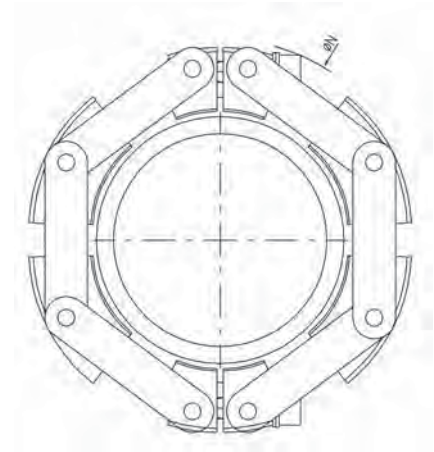
**Applications**

- Extreme performance applications (cryo, nuclear, space, hydraulics,...)
- Ultra wide temperature range (-270 ... +450 degC, nickel seal)
- Cryo applications (all metal seals)
- Oven applications (seals: copper +300 degC and nickel +450 degC)
- Use for UHV and overpressure (up to 100 bar with nickel seal)
- Vacuum up to 10E-11 mbar
- Custom versions up to 300 bar
- CeFiX® seals reusable up to 10 times
- CeFiX® principle patented by EVAC

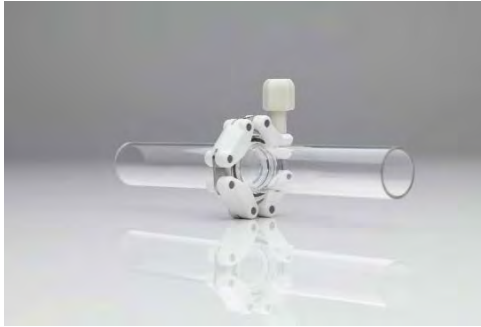
8

**EVAC - CeFiX® chain clamps, UHV**

NW	N	Torque [Nm]			No. of links
		Alu	Copper	Nickel	
80	155	9	18	30	5
100	192	18	36	60	6
160	256	27	54	90	6
200	310	36	72	120	10
250	360	36	84	140	10



Type NW	Stainless steel
80	30.080005.522.308
100	30.100005.522.310
160	30.160005.522.316
200	30.200005.522.320
250	30.250005.522.325



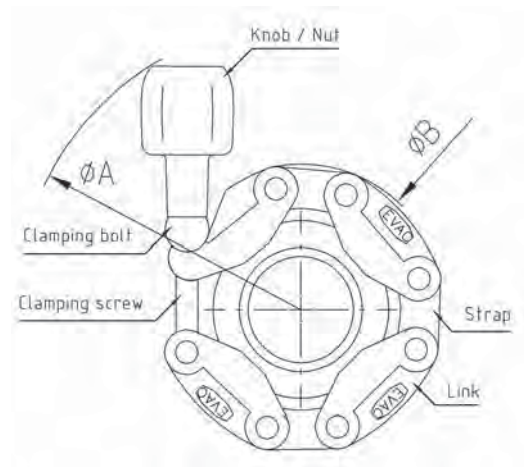
**Applications**

- Medical applications (high-temperature versions, sterilizable)
- Moderate overpressure (up to 2 bar)
- Heated use (up to 200 degC high U-high temp. versions)
- Use of elastomer seals w/ special carriers
- Easy tightening by hand
- Vacuum up to 10E-9
- For ultra clean applications (ion implanters, w/ quartz flanges)
- For standard and for EVAC Glass™ flanges

9

**KF chain clamps, UHV**

NW	A	B
10/16	122	60
20/25	127	70
32/40	141	85
50	156	105
63	170	120



Type NW	Standard	High-temperature	Standard with torque limitation	High-temp. with torque limitation	Plastic Ultra High-temperature
10/16	30.016010.131.816	30.016012.131.916	30.016010.132.816	30.016012.132.916	30.016094.100.000
20/25	30.025010.131.825	30.025012.131.925	30.025010.132.825	30.025012.132.925	30.025094.100.000
32/40	30.040010.131.840	30.040012.131.940	30.040010.132.840	30.040012.132.940	30.040094.100.000
50	30.050010.131.850	30.050012.131.950	30.050010.132.850	30.050012.132.950	30.050094.100.000
63	30.063010.131.863	30.063012.131.963	30.063010.132.863	30.063012.132.963	30.063094.100.000



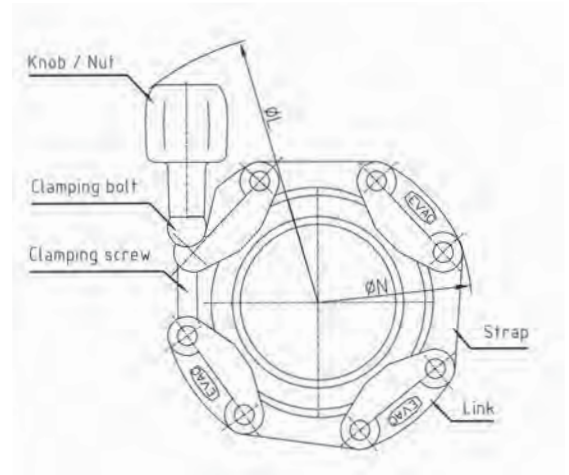
### Applications

- Applications: food, dairy, beverage, pharmaceutical and biotech
- Vacuum 10E-7 mbar for overpressure up to 10 bar
- Fully sterilizable
- Temperature range -20 up to 60 degC (standard)
- Temperature range -20 up to 150 degC (high-temperature)
- Temperature range -200 up to 200 degC (ultra-high-temperature)
- Other materials on request

10

### sTeRlc clamp™ chain clamps

Size	L	N
8	120	55
10	120	55
15	122	58
20	127	66
25	127	66
32	141	81
40	141	81
50	156	99
65	166	111
80	180	128



Size	Standard	High-temperature	Ultra-high-temp.
8	30.010010.951.810	30.010012.900.000	30.010094.900.000
10	30.010010.951.810	30.010012.900.000	30.010094.900.000
15	30.015010.951.820	30.015012.900.000	30.015094.900.000
20	30.025010.951.825	30.020012.900.000	30.020094.900.000
25	30.025010.951.825	30.025012.900.000	30.025094.900.000
32	30.040010.951.840	30.040012.900.000	30.040094.900.000
40	30.040010.951.840	30.040012.900.000	30.040094.900.000
50	30.050010.951.850	30.050012.900.000	30.050094.900.000
65	30.065010.951.865	30.065012.900.000	30.065094.900.000
80	30.080010.951.880	30.080012.900.000	30.080094.900.000

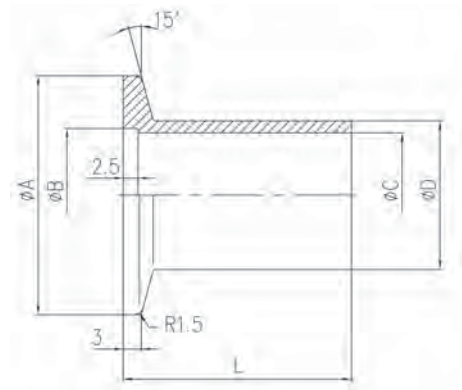


**Applications**

- Extreme UHV up to 10E-11 mbar
- Stainless steel for hassle free operations
- For inner and outer center rings
- Antimagnetic versions available
- For radiation hardened and cryo applications
- Temperature range -270 ... +350 degC
- Extreme surface precision and flatness even under high bending
- Different welding stub length available

**KF flanges, UHV**

NW	A	B	C	D	L	
					short	long
10	30	12.2	10	14	20	50
16	30	17.2	16	20	20	50
25	40	26.2	24	28	20	50
40	55	41.2	40	44.5	25	50
50	75	52.2	50	57	30	60
63	87		70	76	30	60



Type NW	Short flange 304	Short flange 316L	Long flange 304	Long flange 316L
10	32.010003.111.510	32.010005.111.310	32.010003.112.510	32.010005.112.310
16	32.016003.111.516	32.016005.111.316	32.016003.112.516	32.016005.112.316
25	32.025003.111.525	32.025005.111.325	32.025003.112.525	32.025005.112.325
40	32.040003.111.540	32.040005.111.340	32.040003.112.540	32.040005.112.340
50	32.050003.111.550	32.050005.111.350	32.050003.112.550	32.050005.112.350
63	32.063003.111.563	32.063005.111.363	32.063003.112.563	32.063005.112.363



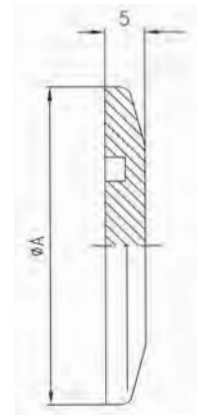
### Applications

- Stainless steel blanking plates (304)
- Applications UHV 10E-11 mbar for overpressure up to 20 bar
- For inner and outer center ring o-rings
- Wide temperature range -270...+300 degC (special seals / clamps)
- Suitable for aluminium edge type seals

## 12

### KF blank flanges according to ISO 2861, UHV

NW	A
16	30
25	40
40	55
50	75
63	87



Type NW	SUS 304
16	32.016003.120.516
25	32.025003.120.525
40	32.040003.120.540
50	32.050003.120.550
63	32.063003.120.563

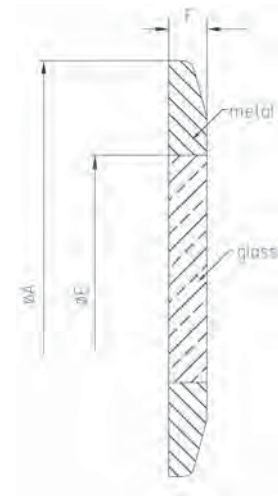


**Applications**

- Inspection windows for plasma and oven applications
- UV protection (Duran® windows)
- Basic temperature range of Duran® up to 450 degC
- Use of polymer o-rings with outer center ring only
- Use of aluminium metal seals with outer center ring possible
- Use of metal chain clamp possible
- Temperature range -30 ... +280 degC
- Fused glass-metal for UHV up to 10E-11 mbar (aluminium gasket)

**KF viewports, UHV**

NW	A	E	F
25	40	20	5
40	55	30	5
50	75	40	7
63	87	45	7



Type NW	Duran® / 1.4462
25	32.025004.130.325
40	32.040004.130.340
50	32.050004.130.350
63	32.063004.130.363



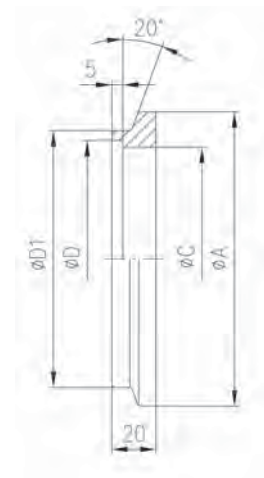
### Applications

- Extreme UHV up to 10E-11 mbar (aluminium edge type seals)
- Stainless steel for hassle free operations
- For inner and outer center rings
- Antimagnetic versions on request
- For radiation hardened and cryo applications
- Temperature range -270 ... +300 degC
- Extreme surface precision and flatness even under high bending
- Different welding stub length on request

## 14

### EVAC ISO Tapered™ flanges, UHV

NW	A	C	D	D1
80	114	83	88.9	97
100	134	102	108	117
125	161	127	133	144
160	190	153	159	168
200	252	213	219.1	230
250	301	261	273	279



Type NW	SUS 304
80	32.080003.210.308
100	32.100003.210.310
125	32.125003.210.312
160	32.160003.210.316
200	32.200003.210.320
250	32.250003.210.325

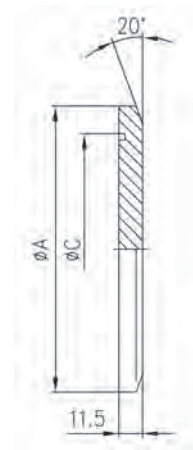


**Applications**

- Stainless steel blanking plates (304)
- Applications UHV 10E-11 mbar for overpressure up to 20 bar
- For inner and outer center ring o-rings
- Wide temperature range -270...+300 degC (special seals / clamps)
- Suitable for aluminium edge type seals

**EVAC ISO Tapered™ blanking flanges, UHV**

NW	A	C
80	114	83
100	134	102
125	161	127
160	190	153
200	252	213
250	301	261



Type NW	SUS 304
80	32.080003.220.308
100	32.100003.220.310
125	32.125003.220.312
160	32.160003.220.316
200	32.200003.220.320
250	32.250003.220.325





**Applications**

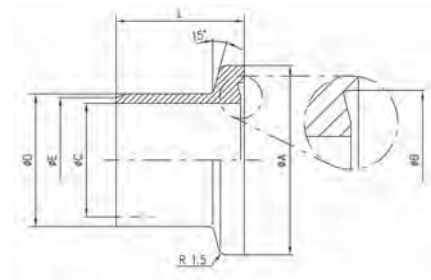
- UHV applications up to 10E-11 mbar
- Pressurized applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 300 degC (copper seals)
- CeFiX® system registered by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- 316L stainless steel for nuclear and military applications
- Helium leak test notches provided

**16**

**EVAC KF-CeFiX® flanges, UHV**

NW	A	B	C	D	E	L
16	30	21.4	16	20	-	22
25	40	32.9	24	28	-	22
40	55	48.3	40	44.5	-	27
50	75	61.8	50	57	-	30
63	87	82.5	70	76	-	30
16(US)*	30	21.4	16	20	19	22
25(US)*	40	32.9	24	28	27	22
40(US)*	55	48.3	35	44.5	38	27

\* US size dimensions in mm



Type NW	SUS 316L	SUS 316L
16	32.016005.631.316	32.016005.637.316
25	32.025005.631.325	32.025005.637.325
40	32.040005.631.340	32.040005.637.340
50	32.050005.637.350	
63	32.063005.631.363	

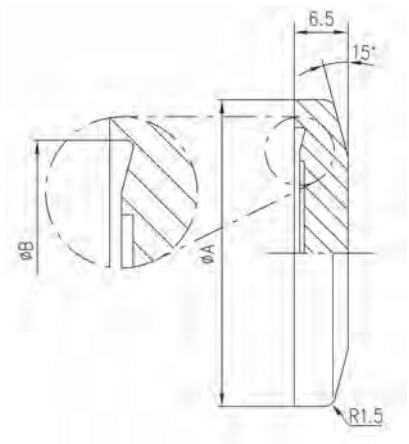


**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 300 degC (copper seals)
- CeFiX® system registered by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- 316L stainless steel for nuclear and military applications
- Helium leak test notches provided

**EVAC KF-CeFiX® blanking plates**

NW	A	B
16	30	21.4
25	40	32.9
40	55	48.3
50	75	61.8
63	87	82.5



Type NW	SUS 316L
16	32.016005.640.316
25	32.025005.640.325
40	32.040005.640.340
50	32.050005.640.350
63	32.063005.640.363



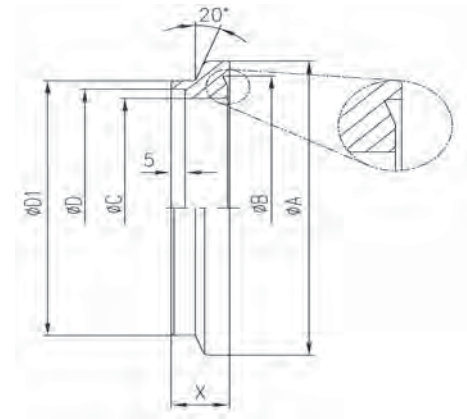
### Applications

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 100 bar (special chain clamps)
- Cryo applications down to -270 degC
- Oven applications up to 300 degC (copper seals)
- CeFiX® system registered by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- 316L stainless steel for nuclear and military applications
- Helium leak test notches provided

## 18

### EVAC ISO-CeFiX® flanges, UHV

NW	A	B	C	D	D1	X
80	104.8	91.6	76.5	82.6	86	20
100	134	120.65	100	108.4	117	20
160	190	171.45	150	159.3	168	20
200	242	222.30	200	205.3	218	25
250	292	273.15	250	256.3	270	30



Type NW	SUS 316L
80	32.080005.531.308
100	32.100005.531.310
160	32.160005.531.316
200	32.200005.531.320
250	32.250005.531.325

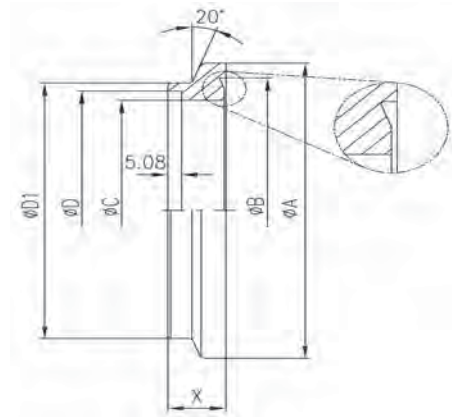


**Applications**

- UHV applications up to 10E-11 mbar
- Pressurised applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 300 degC (copper seals)
- CeFiX® system registered by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- 316L stainless steel for nuclear and military applications
- Helium leak test notches provided

**EVAC ISO-CeFiX® flanges, US**

NW	A	B	C	D	D1	X
63	96.01	82.55	60.45	63.75	76.20	21.08
100	134.11	120.65	98.04	101.85	117.09	21.08
160	189.99	171.45	148.08	152.91	167.89	21.08
200	242.06	222.25	198.12	203.71	217.93	24.89
250	291.85	273.05	246.13	254.51	270	29.97



Type NW	SUS 316L
63	32.063005.537.306
100	32.100005.537.310
160	32.160005.537.316
200	32.200005.537.320
250	32.250005.537.325



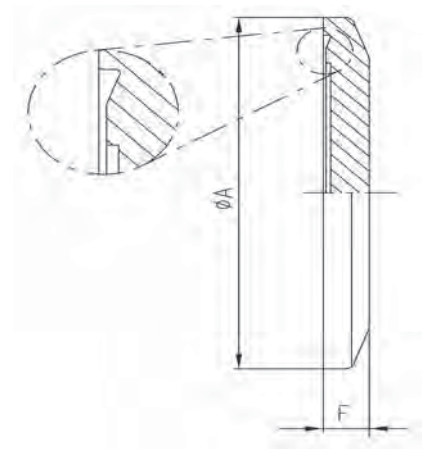
**Applications**

- UHV applications up to 10E-11 mbar
- Pressurised applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 300 degC (copper seals)
- CeFiX® system registered by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- 316L stainless steel for nuclear and military applications
- Helium leak test notches provided

**20**

**EVAC ISO-CeFiX® blanking plates**

NW	A	F
80	104.8	9
100	134	12.5
160	190	13.5
200	242	13.5
250	292	14



Type NW	SUS 316L
80	32.080005.540.308
100	32.100005.540.310
160	32.160005.540.316
200	32.200005.540.320
250	32.250005.540.325

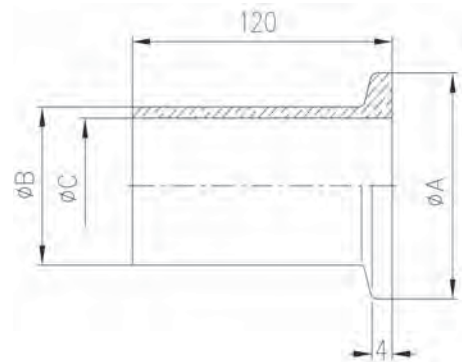


**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultra pure processes as ion implanters etc. (quartz)

**KF glass components, UHV**

NW	A	B		C	
		Duran®	Quartz	Duran®	Quartz
10	30	16	16	12.4	13
16	30	20	20	16.4	17
25	40	30	30	26	27
40	55	46	46	41.4	42
50	75	56	57	51	52
63	87	75	75	70.6	70.6



Type NW	Duran®	Quartz
10	32.010007.113.710	32.010008.113.810
16	32.016007.113.716	32.016008.113.816
25	32.025007.113.725	32.025008.113.825
40	32.040007.113.740	32.040008.113.840
50	32.050007.113.750	32.050008.113.850
63	32.063007.113.763	32.063008.113.863



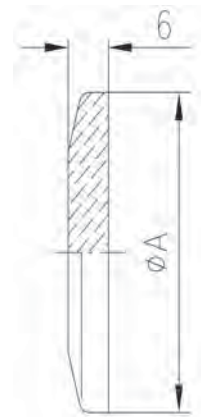
**Applications**

- Inspection windows for plasma and oven applications
- Insertion of (UV) laser light into reaction chambers (quartz windows)
- UV protection with Duran® windows
- Quartz for lowest UV absorption
- Temperature range of Duran® up to 450 degC
- Temperature range of quartz up to 1000 degC
- Optical polish for reduced beam scattering available
- Vacuum up to 10E-9 mbar

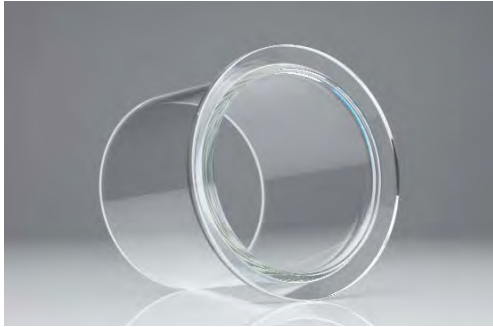
**22**

**KF glass blanking flanges, UHV**

NW	A
16	30
25	40
40	55
50	75
63	87



Type NW	Duran® Standard	Quartz Standard	Duran® optical	Quartz optical
16	32.016007.123.716	32.016008.123.816	32.016007.125.716	32.016008.125.816
25	32.025007.123.725	32.025008.123.825	32.025007.125.725	32.025008.125.825
40	32.040007.123.740	32.040008.123.840	32.040007.125.740	32.040008.125.840
50	32.050007.123.750	32.050008.123.850	32.050007.125.750	32.050008.125.850

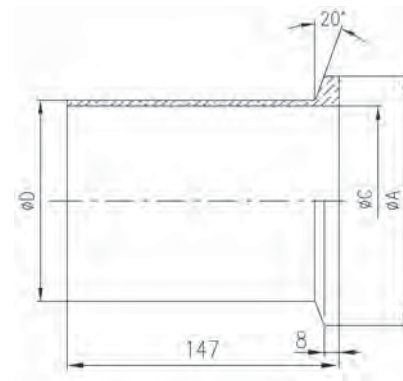


**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultra pure processes as ion implanters etc. (quartz)

**EVAC ISO glass flanges**

NW	A	C	D
80	114	83	89
100	134	102	110
125	161	127	135
160	190	153	160



Type NW	Duran®	Quartz
80	32.080007.213.708	32.080008.213.808
100	32.100007.213.710	32.100008.213.810
125	32.125007.213.712	32.125008.213.812
160	32.160007.213.716	32.160008.213.816





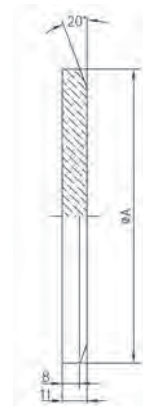
**Applications**

- Inspection windows for plasma and oven applications
- Insertion of (UV) laser light into reaction chambers (quartz windows)
- UV protection with Duran® windows
- Quartz for lowest UV absorption
- Temperature range of Duran® up to 450 degC
- Temperature range of quartz up to 1000 degC
- Optical polish for reduced beam scattering available
- Vacuum up to 10E-9 mbar

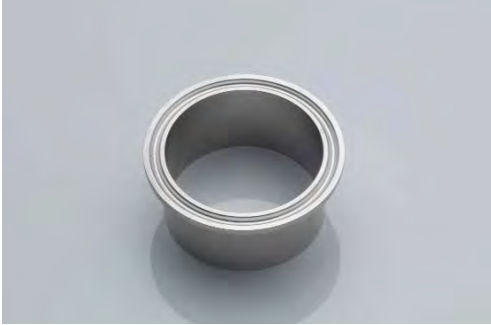
**24**

**EVAC ISO blank flanges**

NW	A
80	114
100	134
125	161
160	190



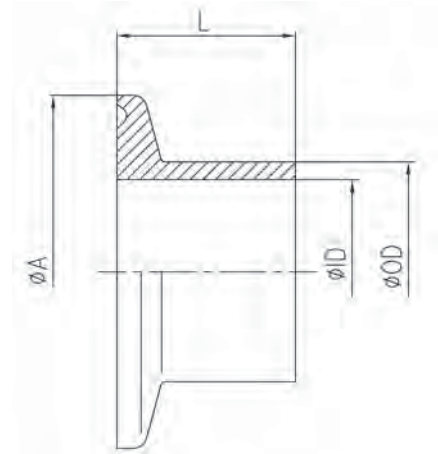
Type NW	Duran® Standard	Quartz Standard	Duran® optical	Quartz optical
80	32.080007.223.708	32.080008.223.808	32.080007.224.708	32.080008.224.808
100	32.100007.223.710	32.100008.223.810	32.100007.224.710	32.100008.224.810
125	32.125007.223.712	32.125008.223.812	32.125007.224.712	32.125008.224.812
160	32.160007.223.716	32.160008.223.816	32.160007.224.716	32.160008.224.816

**Applications**

- Applications: food, dairy, beverage, pharmaceutical and biotech
- Vacuum 10E-7 mbar for overpressure up to 10 bar
- Fully sterilizable (CIP-conform)
- Extreme fine surface roughness for ultra clean applications
- Wide temperature range -200...+200 degC (special seals / clamps)
- Non standard stub length on request

**25****sTeRlc Clamp™ flange, ISO 2852 with tube ISO 1127**

Size	A	DN*/OD	ID	L
8	25	13.5	10.3	28.5
10	25	17.2	14	28.5
15	34	21.3	18.1	21.6
20	50.5	26.9	22.9	21.6
25	50.5	33.7	28.7	21.6
32	64	42.4	38.4	21.6
40	64	48.3	44.3	21.6
50	77.5	60.3	56.3	21.6
65	91	76.1	72.1	21.6
80	106	88.9	84.3	21.6



\*Diameter Nominal

Size	Stainless steel
8	32.008005.951.308
10	32.010005.951.310
15	32.015005.951.315
20	32.020005.951.320
25	32.025005.951.325
32	32.032005.951.332
40	32.040005.951.340
50	32.050005.951.350
65	32.065005.951.365
80	32.080005.951.380

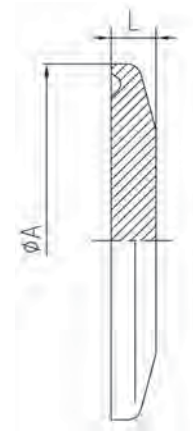

**Applications**

- Applications: food, dairy, beverage, pharmaceutical and biotech
- Vacuum  $10E-7$  mbar for overpressure up to 10 bar
- Fully sterilizable
- Extremely fine surface roughness for ultra clean applications
- Wide temperature range  $-200...+200$  degC (special seals / clamps)
- Duran® available for non UV applications
- Quartz available for high UV transmission
- Stainless steel blanking plates (316L)

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**sTeRlc clamp™ blanking plate, ISO 2852**

Size	A	L
10	25	5.5
15	34	5.5
25	50.5	6.4
40	64	6.4
50	77.5	6.4
65	91	6.4
80	106	6.4



Size	Stainless steel	Duran®	Quartz
10	32.010005.960.310		
15	32.020005.960.320		
25	32.025005.960.325	32.025007.960.725	32.025008.960.825
40	32.040005.960.340	32.040007.960.740	32.040008.960.840
50	32.050005.960.350	32.050007.960.750	32.050008.960.850
65	32.065005.960.365	32.065007.960.765	32.065008.960.865
80	32.080005.960.380	32.080007.960.780	32.080008.960.880

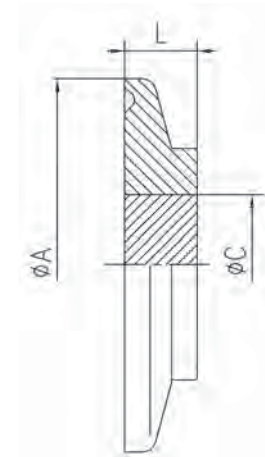


**Applications**

- Applications: food, dairy, beverage, pharmaceutical and biotech
- Vacuum 10E-7 mbar for overpressure up to 10 bar
- Fully sterilizable
- Extreme fine surface roughness for ultra clean applications
- Wide temperature range -200...+200 degC (special seals / clamps)
- Duran® available for UV protected applications

sTeRlc clamp™ viewports, ISO 2852

Size	A	C	L
25	50.5	25	7
40	64	52	7
65	91	76	10
80	106	90	10



Size	1.4462 / Duran®
25	32.025004.961.325
40	32.040004.961.340
65	32.065004.961.365
80	32.080004.961.380



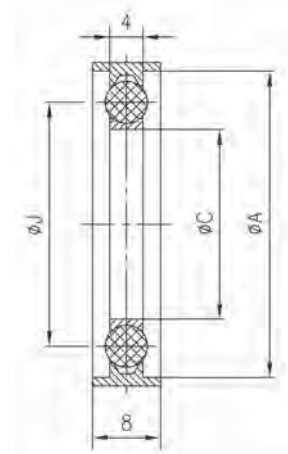
**Applications**

- Carriers made of Teflon®, aluminium or stainless steel 316L
- FEP multilayer material (Teflon® with silicone core)
- FEP o-ring material for low temperatures down to -50 degC
- High temperature Viton® up to 200 degC available
- Outer center ring for overpressure up to 20 bar
- Inner support ring for UHV applications
- Vacuum up to 10E-9 mbar
- Inner support ring and outer center ring with intrinsic torque stop

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**KF elastomer seals, outer center ring**

NW	A	C	J
10/16	30	16	23
20/25	40	24	33
32/40	55	40	48
50	75	50	59
63	87	68	77



Type NW	Teflon® / FEP	Teflon® / Viton®	Alu / Viton®	Alu/SUS/Viton®	SUS / Viton®
10/16	-	34.016035.121.616	34.016037.121.816	34.016034.121.516	34.016032.121.316
20/25	34.025031.121.225	34.025035.121.625	34.025037.121.825	34.025034.121.525	34.025032.121.325
32/40	34.040031.121.240	34.040035.121.640	34.040037.121.840	34.040034.121.540	34.040032.121.340
50	34.050031.121.250	34.050035.121.650	34.050037.121.850	34.050034.121.550	34.050032.121.350
63	34.063031.121.263	34.063035.121.663			

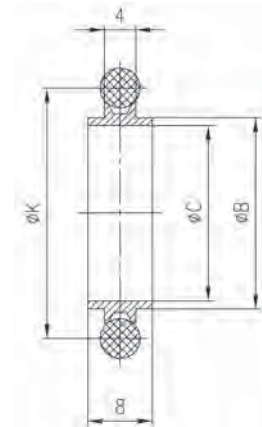


**Applications**

- Carriers made of aluminium or stainless steel 316L
- Kalrez® o-ring for high temperatures up to 315 degC
- High temperature Viton® up to 200 degC available
- Vacuum up to 10E-9 mbar
- Inner center ring with intrinsic torque stop

**KF elastomer seals, inner center ring**

NW	B	C	K
16	17	16	25
25	26	24	35
40	41	40	49
50	52	50	61.5
63	70	68	80



Type NW	SUS / Kalrez® 4079	Alu / Viton®	SUS / Viton®
16	34.016043.121.F16-iz	34.016037.121.816-iz	34.016032.121.316-iz
25	34.025043.121.F25-iz	34.025037.121.825-iz	34.025032.121.325-iz
40	34.040043.121.F40-iz	34.040037.121.840-iz	34.040032.121.340-iz
50	34.050043.121.F50-iz	34.050037.121.850-iz	34.050032.121.350-iz
63		34.063037.211.806	34.063032.211.306



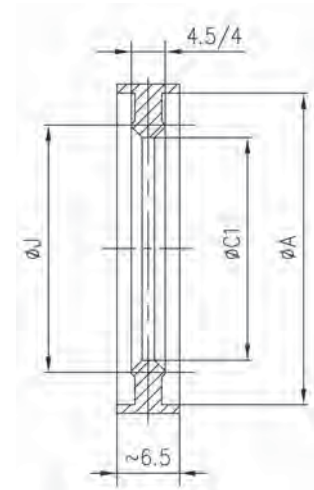
**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 20 bar
- Cryo applications down to -270 degC
- Maximum temperature up to 150 degC
- Only for one time use
- Radiation tolerant and nuclear applications
- Cleanroom compatible

**30**

**KF aluminium edge seals, outer center ring**

NW	A	C1	J
10/16	30	20	23
20/25	40	32	33
32/40	55	45	48
50	75	65	68
63	87	77	80



Type	Aluminium
10/16	34.016001.142.116-az
20/25	34.025001.142.125-az
32/40	34.040001.142.140-az
50	34.050001.142.150-az
63	34.063001.142.163-az



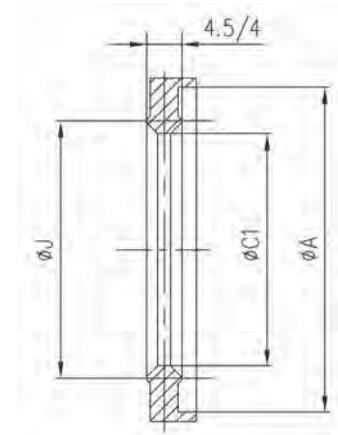
### Applications

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 20 bar
- Cryo applications down to -270 degC
- Maximum temperature up to 150 degC
- Only for one time use
- Radiation tolerant and nuclear applications
- Cleanroom compatible

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### KF aluminium edge seals, one-side outer center ring

NW	A	C1	J
10/16	30	20	23
20/25	40	32	33
32/40	55	45	48
50	75	65	68
63	87	77	80



Type NW	Aluminium
10/16	34.016001.142.116az1
20/25	34.025001.142.125az1
32/40	34.040001.142.140az1
50	34.050001.142.150az1
63	34.063001.142.163az1





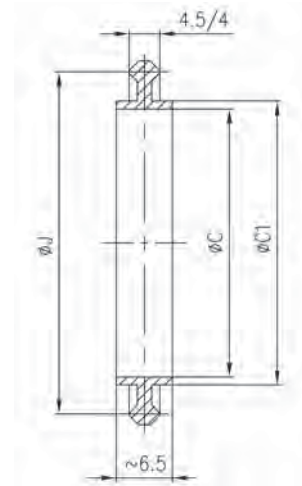
**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 20 bar
- Cryo applications down to -270 degC
- Maximum temperature up to 150 degC
- Only for one time use
- Radiation tolerant and nuclear applications
- Cleanroom compatible

**32**

**KF aluminium edge seals, inner center ring**

NW	C	C1	J
16	15	17	21
25	24	26	30
40	39	41	47
50	50	52	59
63	68	70	77



Type NW	Aluminium
16	34.016001.142.116-iz
25	34.025001.142.125-iz
40	34.040001.142.140-iz
50	34.050001.142.150-iz
63	34.063001.142.163-iz

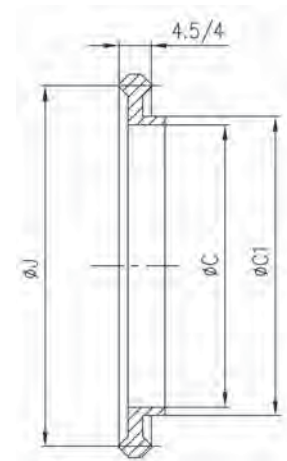


**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 20 bar
- Cryo applications down to -270 degC
- Maximum temperature up to 150 degC
- Only for one time use
- Radiation tolerant and nuclear applications
- Cleanroom compatible

**KF aluminium edge seals, one-side inner center ring**

NW	C	C1	J
16	15	17	21
25	24	26	30
40	39	41	47
50	50	52	59
63	68	70	77



Type NW	Aluminium
16	34.016001.142.116iz1
25	34.025001.142.125iz1
40	34.040001.142.140iz1
50	34.050001.142.150iz1
63	34.063001.142.163iz1



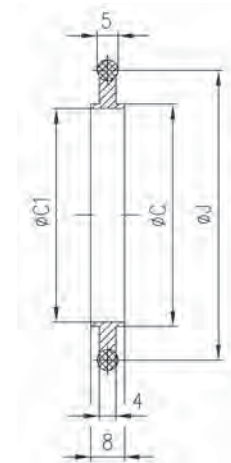
**Applications**

- Carriers made of aluminium or stainless steel 316L
- Kalrez® o-ring for high temperatures up to 315 degC
- High temperature Viton® up to 200 degC available
- Vacuum up to 10E-9 mbar
- Inner center ring with intrinsic torque stop

**34**

**Elastomer seals, inner center ring**

NW	C	C1	J
80	83	81	98
100	102	100	118
125	127	125	144
160	153	151	167
200	213	211	227
250	261	259	275



Type NW	Alu / Viton®	SUS / Viton®	Teflon® / Viton®	Teflon® / FEP	SUS / Kalrez® 4079
80	34.080037.211.808	34.080032.211.308	34.080035.211.508	34.080031.211.208	34.080043.211.F08
100	34.100037.211.810	34.100032.211.310	34.100035.211.510	34.100031.211.210	34.100043.211.F10
125	34.125037.211.812	34.125032.211.312	34.125035.211.512	34.125031.211.212	34.125043.211.F12
160	34.160037.211.816	34.160032.211.316	34.160035.211.516	34.160031.211.216	34.160043.211.F16
200	34.200037.211.820	34.200032.211.320	34.200035.211.520		34.200043.211.F20
250	34.250037.211.825	34.250032.211.325	34.250035.211.525		34.250043.211.F25



**Applications**

- High temperature Viton® up to 200 degC
- Vacuum up to 10E-9 mbar (Viton®)
- Vacuum up to 10E-6 mbar (FEP)

**Spare o-rings**

NW	C
80	88
100	110
125	135
160	155
200	215
250	260



Type NW	Viton®	FEP
80	34.080067.200.808	34.080074.200.208
100	34.100067.200.810	34.100074.200.210
125	34.125067.200.812	34.125074.200.212
160	34.160067.200.816	34.160074.200.216
200	34.200067.200.820	
250	34.250067.200.825	



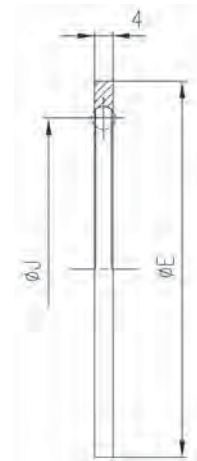
**Applications**

- Carriers made of aluminium
- Additional support ring for pressure applications
- High temperature up to 350 degC
- Without o-ring

**36**

**Outer rings, UHV**

NW	J	E
80	98	112
100	118	132
125	144	157
160	167	182
200	227	242
250	275	292



Type NW	Aluminium
80	34.080001.289.108
100	34.100001.289.110
125	34.125001.289.112
160	34.160001.289.116
200	34.200001.289.120
250	34.250001.289.125



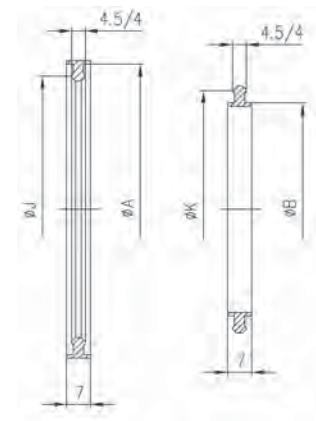
### Applications

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 20 bar
- Cryo applications down to -270 degC
- Maximum temperature up to 150 degC
- Only for one time use
- Radiation tolerant and nuclear applications
- Cleanroom compatible

37

### EVAC ISO Tapered™ knife edge seals, 4,5mm/4mm

NW	A	J	B	K
80	114	107	83	90
100	134	127	102	109
125	161	154	127	134
160	190	183	153	160
200	252	245	213	220
250	301	294	261	268



Type NW	Aluminium outer center ring	Aluminium inner center ring
80	34.080001.272.108	34.080001.342.108
100	34.100001.272.110	34.100001.342.110
125	34.125001.272.112	34.125001.342.112
160	34.160001.272.116	34.160001.342.116
200	34.200001.272.120	34.200001.342.120
250	34.250001.272.125	34.250001.342.125



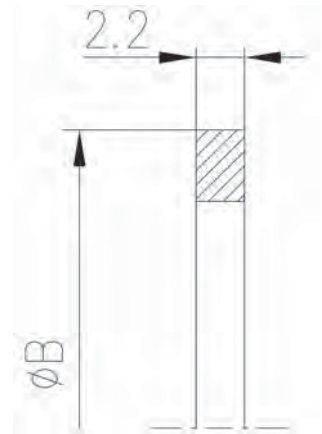
**Applications**

- CeFiX® registered system by EVAC
- Seals reusable up to 10 times
- Use for cryo applications down to -271 degC
- Use for high temperature applications
- Al. up to 200 degC, copper up to 300 degC, nickel up to 450 degC
- Radiation tolerant
- Use for overpressure applications (nickel up to 300 bar)

**38**

**EVAC KF - CeFiX® seals**

NW	B
16	21.4
25	32.9
40	48.3
50	61.8
63	82.55



Type NW	Aluminium	OFS Copper	OFS Copper silver-plated	Nickel
16	34.016001.663.101	34.016070.663.401	34.016073.663.901	34.016068.663.601
25	34.025001.663.102	34.025070.663.402	34.025073.663.902	34.025068.663.602
40	34.040001.663.104	34.040070.663.404	34.040073.663.904	34.040068.663.604
50	34.050001.663.105	34.050070.663.405	34.050073.663.905	
63	34.063001.663.106	34.063070.663.406	34.063073.663.906	

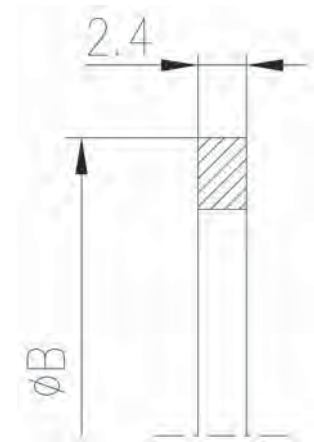


**Applications**

- CeFiX® registered system by EVAC
- Seals reusable up to 10 times
- Use for Cryo applications down to -271 degC
- Use for high temperature applications
- Al. up to 200 degC, copper up to 300 degC, nickel up to 450 degC
- Radiation tolerant
- Use for overpressure applications (nickel up to 300 bar)

**EVAC ISO - CeFiX® seals**

NW	B
80	91.55
100	120.55
160	171.3
200	222.25
250	273.15



Type NW	Aluminium	OFS Copper	OFS Copper silver-plated	Nickel
80	34.080001.563.108	34.080070.563.408	34.080073.563.908	34.080068.563.608
100	34.100001.563.110	34.100070.563.410	34.100073.563.910	34.100068.563.610
160	34.160001.563.116	34.160070.563.416	34.160073.563.916	34.160068.563.616
200	34.200001.563.120	34.200070.563.420	34.200073.563.920	34.200068.563.620
250	34.250001.563.125	34.250070.563.425	34.250073.563.925	34.250068.563.625





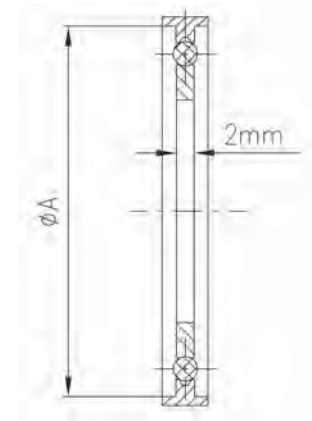
**Applications**

- Only for 4mm EVAC glass system flanges
- For pressure applications up to 2 bar
- For ultra high vacuum applications 10E-9 mbar
- For ultra pure applications in combination with quartz flanges
- Temperature range for Viton® up to 200 degC
- Teflon® carrier and outer center ring
- FEP for low temperatures down to -50 degC

**40**

**KF elastomer seals, 2mm for glass to glass connection**

NW	A
10/16	30
25	40
40	55
50	75
63	87



Type NW	Teflon® / Viton®	Teflon® / FEP
10/16	34.016035.122.616	34.016031.122.216
25	34.025035.122.625	34.025031.122.225
40	34.040035.122.640	34.040031.122.240
50	34.050035.122.650	34.050031.122.250
63	34.063035.122.663	34.063031.122.263

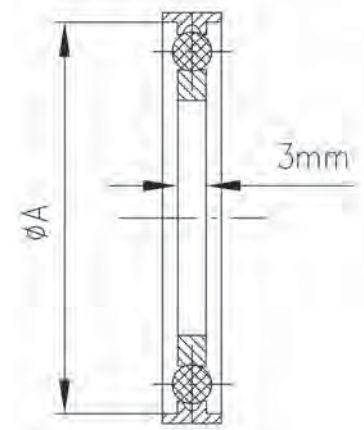


**Applications**

- Only for 4mm EVAC Glass™ to 3mm metal flange transition
- For pressure applications up to 2 bar
- For ultra high vacuum applications 10E-9 mbar
- For ultra pure applications in combination with quartz flanges
- Temperature range for Viton® up to 200 degC
- Teflon® carrier and outer center ring
- FEP for low temperatures down to -50 degC

**KF elastomer seals, 3mm for glass to metal connection**

NW	A
10/16	30
25	40
40	55
50	75
63	87



Type NW	Teflon® / Viton®	Teflon® / FEP
10/16	34.016035.123.616	34.016031.123.216
25	34.025035.123.625	34.025031.123.225
40	34.040035.123.640	34.040031.123.240
50	34.050035.123.650	34.050031.123.250
63	34.063035.123.663	34.063031.123.263



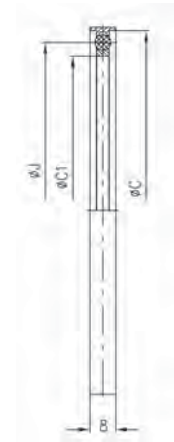
**Applications**

- Only for 4mm EVAC Glass™ system flanges
- For pressure applications up to 2 bar
- For ultra high vacuum applications 10E-9 mbar
- For ultra pure applications in combination with quartz flanges
- Temperature range for Viton® up to 200 degC
- Teflon® carrier and outer center ring
- FEP for low temperatures down to -50 degC

**42**

**ISO elastomer seals, outer center ring**

NW	C	C1	J
80	114	83	92
100	134	102	114
125	161	127	139
160	190	153	162



Type	Teflon® / Viton®	Teflon® / FEP
80	34.080035.212.508	34.080031.212.208
100	34.100035.212.510	34.100031.212.210
125	34.125035.212.512	34.125031.212.212
160	34.160035.212.516	34.160031.212.216

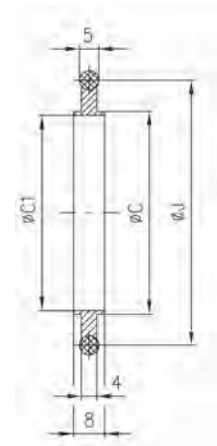


**Applications**

- ISO glass system flanges
- For ultra high vacuum applications 10E-9 mbar
- For ultra pure applications in combination with quartz flanges
- Temperature range for Viton® up to 200 degC
- Teflon® inner center ring
- FEP for low temperatures down to -50 degC

**ISO elastomer seals, inner center ring**

NW	C	C1	J
80	83	81	98
100	102	100	118
125	127	125	144
160	153	151	167



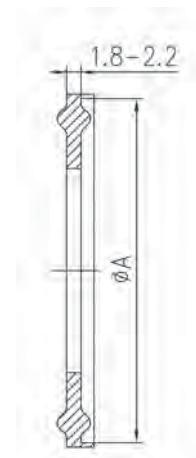
Type NW	Teflon® / Viton®	Teflon® / FEP
80	34.080035.211.508	34.080031.211.208
100	34.100035.211.510	34.100031.211.210
125	34.125035.211.512	34.125031.211.212
160	34.160035.211.516	34.160031.211.216


**Applications**

- Applications: food, dairy, beverage, pharmaceutical and biotech
- Vacuum 10E-7 mbar for overpressure up to 10 bar
- Fully sterilizable
- Viton® from -20 up to +200 degC
- Silicone for -50 up to +150 degC
- Teflon® covered Viton® from -200 up to +200 degC
- EPDM for -30 up to +180 degC
- Other materials on request

**44**
**sTeRlc clamp™ seals, ISO2852**

Size	A
8	25
10	25
15	34
20	50.5
25	50.5
32	64
40	64
50	77.5
65	91
80	106



Size	Viton®	Silicone	Viton® (inside) Teflon® (outside)	EPDM
8	34.008067.900.808	34.008065.900.508	34.008075.900.308*	34.008077.900.000
10	34.010067.900.810	34.010065.900.510	34.010075.900.310*	34.010077.900.000
15	34.015067.900.815	34.015065.900.515	34.015075.900.315	34.015077.900.000
20	34.020067.900.820	34.020065.900.520	34.020075.900.320	34.020077.900.000
25	34.025067.900.825	34.025065.900.525	34.025075.900.325	34.025077.900.000
32	34.032067.900.832	34.032065.900.532	34.032075.900.332	34.032077.900.000
40	34.040067.900.840	34.040065.900.540	34.040075.900.340	34.040077.900.000
50	34.050067.900.850	34.050065.900.550	34.050075.900.350	34.050077.900.000
65	34.065067.900.865	34.065065.900.565	34.065075.900.365	34.065077.900.000
80	34.080067.900.880	34.080065.900.580	34.080075.900.380	34.080077.900.000

\* completely Teflon®

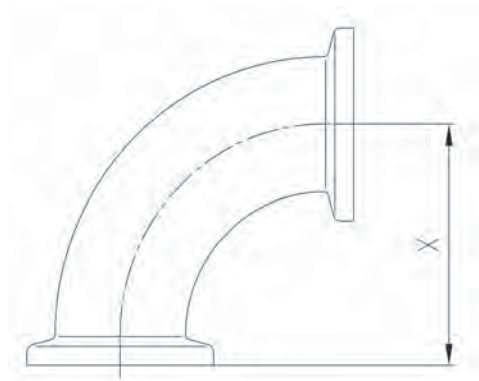


**Applications**

- Extreme UHV up to 10E-11 mbar
- Stainless steel for hassle free operations
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -270 ... +350 degC
- Extreme surface precision and flatness even under high bending

**KF elbows**

NW	X
16	40
25	50
40	65
50	70
63	88



Type NW	Stainless steel
16	33.016003.150.516
25	33.025003.150.525
40	33.040003.150.540
50	33.050003.150.550
63	33.063003.150.563



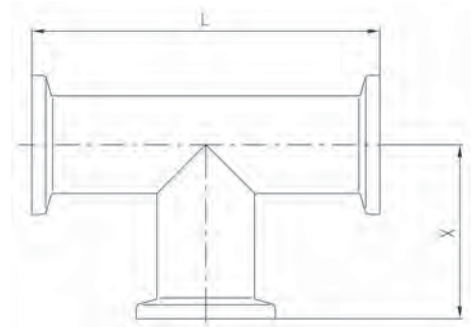
**Applications**

- Extreme UHV up to 10E-11 mbar
- Stainless steel for hassle free operations
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -270 ... +350 degC
- Extreme surface precision and flatness even under high bending

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**KF tees**

NW	L	X
16	80	40
25	100	50
40	130	65
50	140	70
63	176	88



Type NW	Stainless steel
16	33.016003.160.516
25	33.025003.160.525
40	33.040003.160.540
50	33.050003.160.550
63	33.063003.160.563



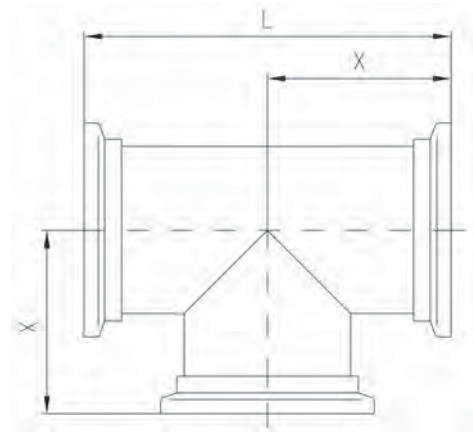
**Applications**

- Extreme UHV up to 10E-11 mbar
- Stainless steel (304) for hassle free operations
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -270 ... +350 degC
- Extreme surface precision and flatness even under high bending

**50**

**EVAC ISO Tapered™ tees, UHV**

NW	X	L
80	98	196
100	108	216
125	118	236
160	138	276
200	178	356
250	208	416



Type NW	SUS 304
80	33.080003.260.308
100	33.100003.260.310
125	33.125003.260.312
160	33.160003.260.316
200	33.200003.260.320
250	33.250003.260.325



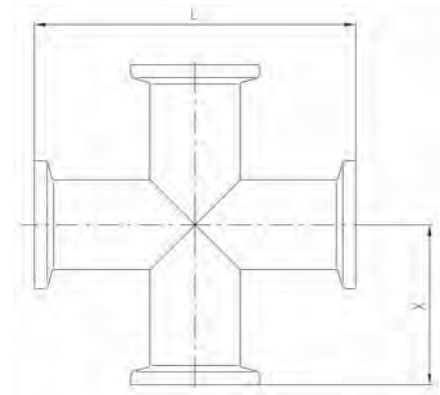


**Applications**

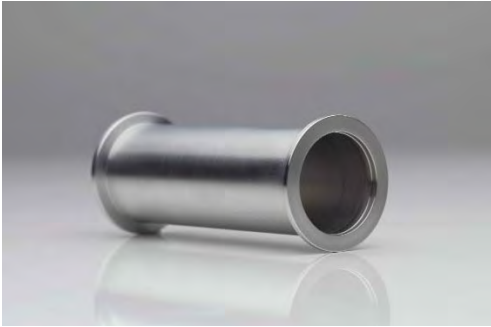
- Extreme UHV up to 10E-11 mbar
- Stainless steel for hassle free operations
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -270 ... +350 degC
- Extreme surface precision and flatness even under high bending

**KF crosses**

NW	L	X
16	80	40
25	100	50
40	130	65
50	140	70
63	176	88



Type NW	Material
	Stainless steel
16	33.016003.170.516
25	33.025003.170.525
40	33.040003.170.540
50	33.050003.170.550
63	33.063003.170.563



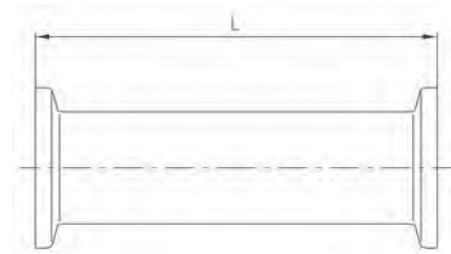
**Applications**

- Extreme UHV up to 10E-11 mbar
- Stainless steel (304) for hassle free operations
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -270 ... +350 degC
- Extreme surface precision and flatness even under high bending

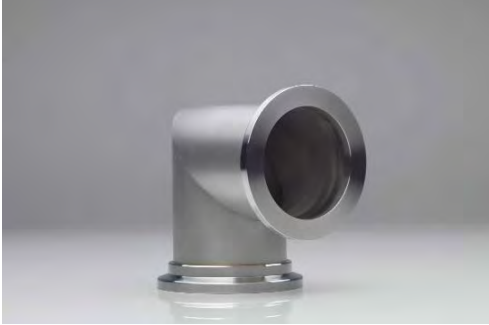
**48**

**KF adapters**

NW	L
16	80
25	100
40	130
50	140
63	176



Type NW	Stainless steel
16	33.016003.111.516
25	33.025003.111.525
40	33.040003.111.540
50	33.050003.111.550
63	33.063003.111.563

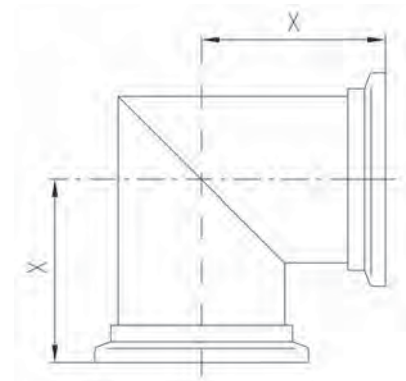


**Applications**

- Extreme UHV up to 10E-11 mbar
- Stainless steel for hassle free operations
- Antimagnetic versions upon request
- Temperature range -270 ... +300 degC
- Extreme surface precision and flatness even under high bending
- Suitable for aluminium edge type seals

**EVAC ISO Tapered™ elbows, UHV**

NW	X
80	98
100	108
125	118
160	138
200	178
250	208



Type NW	SUS 304
80	33.080003.250.308
100	33.100003.250.310
125	33.125003.250.312
160	33.160003.250.316
200	33.200003.250.320
250	33.250003.250.325

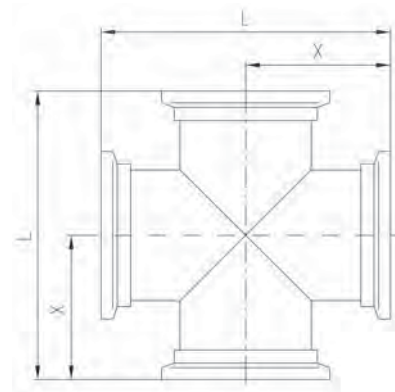


**Applications**

- Extreme UHV up to 10E-11 mbar
- Stainless steel (304) for hassle free operations
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -270 ... +350 degC
- Extreme surface precision and flatness even under high bending

**EVAC ISO Tapered™ crosses, UHV**

NW	X	L
80	98	196
100	108	216
125	118	236
160	138	276
200	178	356
250	208	416



Type NW	SUS 304
80	33.080003.270.308
100	33.100003.270.310
125	33.125003.270.312
160	33.160003.270.316
200	33.200003.270.320
250	33.250003.270.325



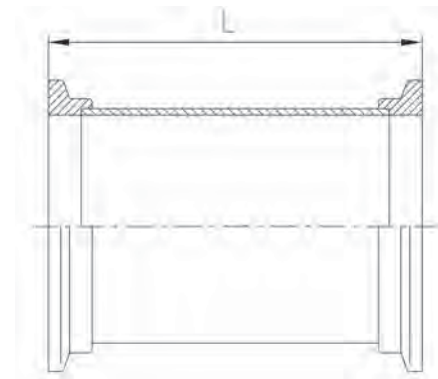
**Applications**

- Extreme UHV up to 10E-11 mbar
- Stainless steel (304) for hassle free operations
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -270 ... +350 degC
- Extreme surface precision and flatness even under high bending

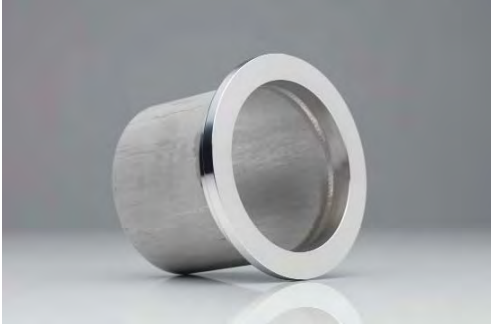
**52**

**EVAC ISO Tapered™ adapters, UHV**

NW	L
80	196
100	216
125	236
160	276
200	356
250	416



Type NW	SUS 304
80	33.080003.244.308
100	33.100003.244.310
125	33.125003.244.312
160	33.160003.244.316
200	33.200003.244.320
250	33.250003.244.325



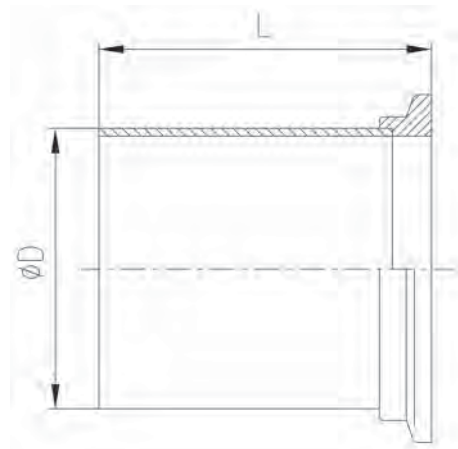
**Applications**

- Extreme UHV up to 10E-11 mbar
- Stainless steel for hassle free operations
- Antimagnetic versions upon request
- Temperature range -270 ... +350 degC
- Extreme surface precision and flatness even under high bending
- Suitable for aluminium edge type seals

**EVAC ISO Tapered™ stubs**

NW	D	L	L(US)*
80	88.9	100	63.5
100	108	100	76.2
125	133	100	
160	159	100	152.4
200	219.1	100	203.2
250	273	100	254

\* US size



Type NW	SUS 304	SUS 304 (US) Size
80	33.080003.222.308	33.080003.227.308
100	33.100003.222.310	33.100003.227.310
125	33.125003.222.312	
160	33.160003.222.316	33.160003.227.316
200	33.200003.222.320	33.200003.227.320
250	33.250003.222.325	33.250003.227.325



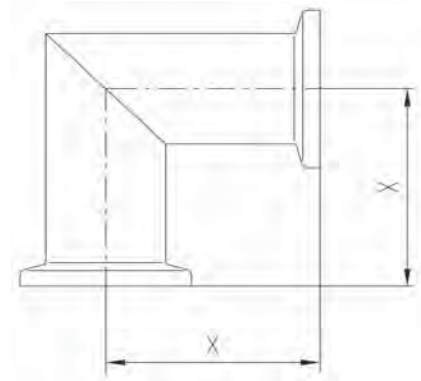
**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 450 degC (nickel seals)
- CeFiX® registered systems by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- Helium leak test notches provided

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**EVAC KF-CeFiX® elbows**

NW	X
16	38
25	52
40	63
50	82
63	105



Type NW	SUS 316L
16	33.016005.651.316
25	33.025005.651.325
40	33.040005.651.340
50	33.050005.651.350
63	33.063005.651.363

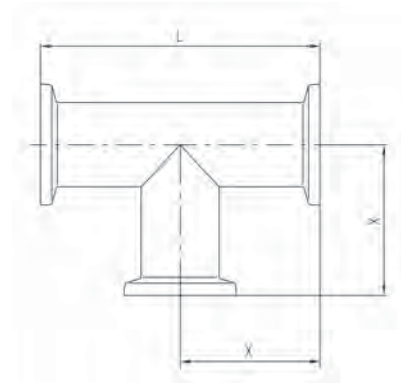


**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 450 degC (nickel seals)
- CeFiX® registered system by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- Helium leak test notches provided

**EVAC KF-CeFiX® tees**

NW	L	X
16	76	38
25	104	52
40	126	63
50	164	82
63	210	105



Type NW	SUS 316L
16	33.016005.661.316
25	33.025005.661.325
40	33.040005.661.340
50	33.050005.661.350
63	33.063005.661.363





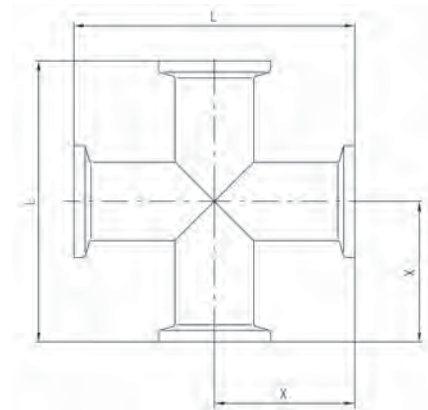
**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 450 degC (nickel seals)
- CeFiX® registered system by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- Helium leak test notches provided

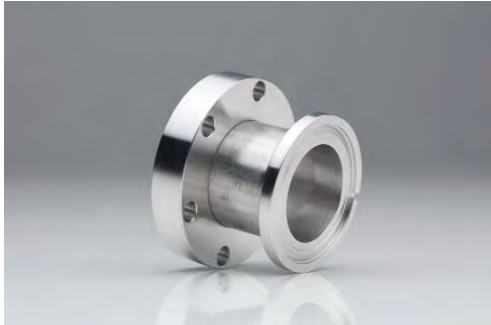
**56**

**EVAC KF-CeFiX® crosses**

NW	L	X
16	76	38
25	104	52
40	126	63
50	164	82
63	210	105



Type NW	SUS 316L
16	33.016005.671.316
25	33.025005.671.325
40	33.040005.671.340
50	33.050005.671.350
63	33.063005.671.363

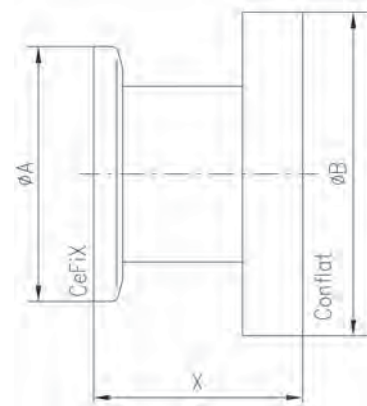


**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 450 degC (nickel seals)
- CeFiX® registered system by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- Helium leak test notches provided
- CF flange SUS304 / CeFiX® flange and tube 316L

**EVAC KF-CeFiX® adapters**

NW	CF	A	B	X
16	1.333"	30	34	30
25	2.125"	40	54	45
40	2.750"	55	70	45
50	3.375"	75	86	50
63	4.500"	87	114	60



Type NW	SUS 304 / SUS 316L
16	33.016003.68A.301/01
25	33.025003.68A.302/02
40	33.040003.68A.304/04
50	33.050003.68A.305/05
63	33.063003.58A.306/06



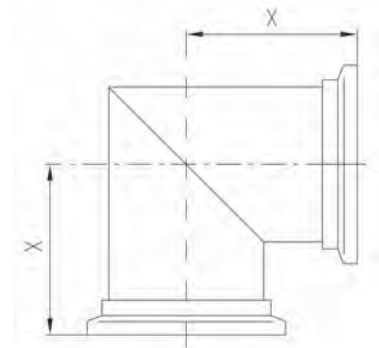
**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 450 degC (nickel seals)
- CeFiX® registered system by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- Helium leak test notches provided

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EVAC - CeFiX® elbows

NW	X
80	110
100	135
160	167
200	210
250	254



Type NW	SUS 316L
80	33.080005.552.308
100	33.100005.552.310
160	33.160005.552.316
200	33.200005.552.320
250	33.250005.552.325

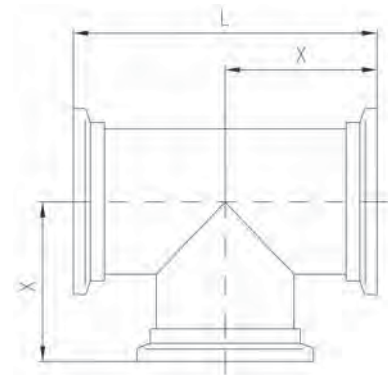


**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 450 degC (nickel seals)
- CeFiX® registered sytem by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- Helium leak test notches provided

**EVAC - CeFiX® tees**

NW	L	X
80	220	110
100	270	135
160	334	167
200	420	210
250	508	254



Type NW	SUS 316L
80	33.080005.562.308
100	33.100005.562.310
160	33.160005.562.316
200	33.200005.562.320
250	33.250005.562.325



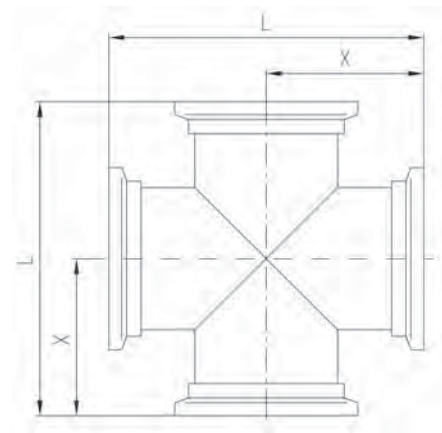
**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 450 degC (nickel seals)
- CeFiX® registered system by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- Helium leak test notches provided

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**EVAC - CeFiX® crosses**

NW	L	X
80	220	110
100	270	135
160	334	167
200	420	210
250	508	254



Type NW	SUS 316L
80	33.080005.572.308
100	33.100005.572.310
160	33.160005.572.316
200	33.200005.572.320
250	33.250005.572.325

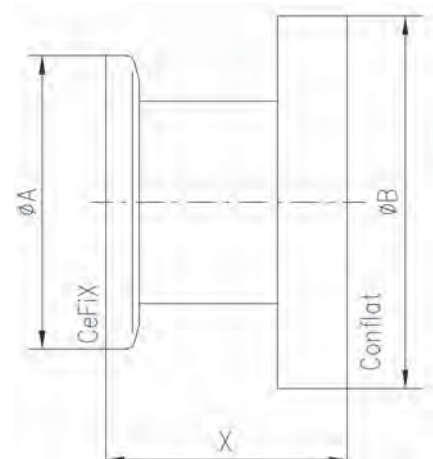


**Applications**

- UHV applications up to 10E-11 mbar
- Pressurized applications up to 300 bar
- Cryo applications down to -270 degC
- Oven applications up to 450 degC (nickel seals)
- CeFiX® registered system by EVAC
- Flange seals reusable up to 10 times (provided no scratches)
- Helium leak test notches provided
- CF flange SUS304 / CeFiX® flange and tube 316L

**EVAC - CeFiX® adapters**

NW	CF	A	B	X
100	6"	134	152	80
160	8"	190	203	86
200	10"	242	254	90
250	12"	292	305	90



Type NW	SUS 304 / SUS 316L
100	33.100003.58A.310/10
160	33.160003.58A.316/16
200	33.200003.58A.320/20
250	33.250003.58A.325/25



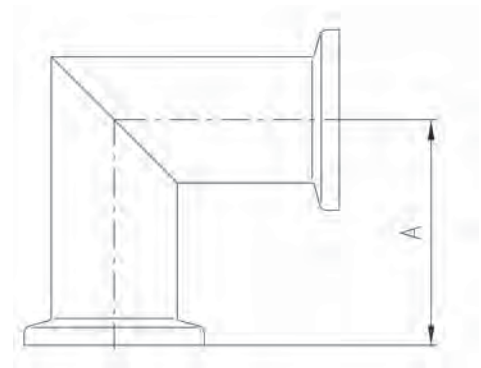
**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultra pure processes as ion implanters etc. (quartz)

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**KF elbows**

NW	A
10	40
16	40
25	50
40	65
50	70
63	75



Type NW	Duran®	Quartz
10	33.010007.151.710	33.010008.151.810
16	33.016007.151.716	33.016008.151.816
25	33.025007.151.725	33.025008.151.825
40	33.040007.151.740	33.040008.151.840
50	33.050007.151.750	33.050008.151.850
63	33.063007.151.763	33.063008.151.863

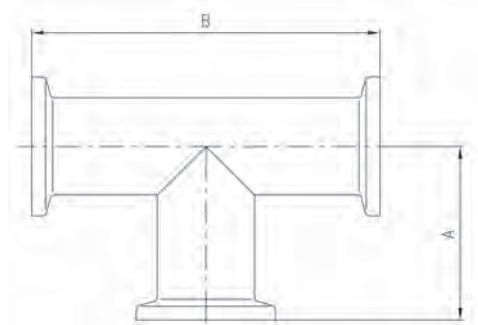


**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultra pure processes as ion implanters etc. (quartz)

**KF tees**

NW	A	B
10	40	80
16	40	80
25	50	100
40	65	130
50	70	140
63	75	150



Type NW	Duran®	Quartz
10	33.010007.161.710	33.010008.161.810
16	33.016007.161.716	33.016008.161.816
25	33.025007.161.725	33.025008.161.825
40	33.040007.161.740	33.040008.161.840
50	33.050007.161.750	33.050008.161.850
63	33.063007.161.763	33.063008.161.863





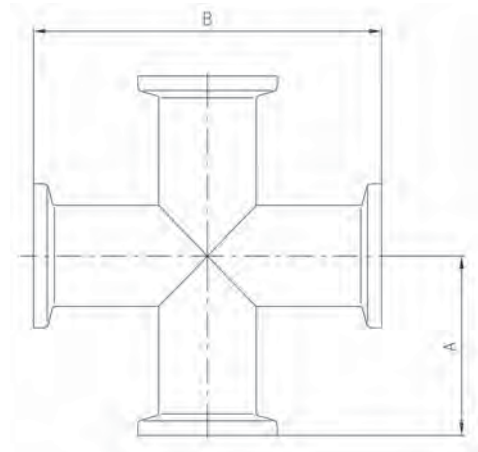
**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultra pure processes as ion implanters etc. (quartz)

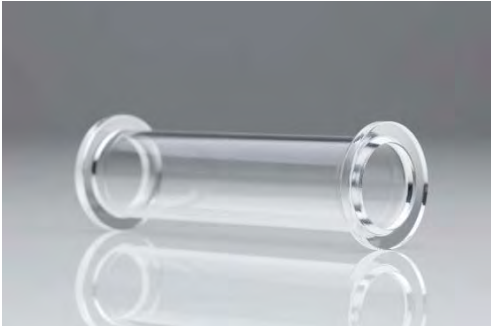
**64**

**KF crosses**

NW	A	B
10	40	80
16	40	80
25	50	100
40	65	130
50	70	140
63	75	150



Type NW	Duran®	Quartz
10	33.010007.171.710	33.010008.171.810
16	33.016007.171.716	33.016008.171.816
25	33.025007.171.725	33.025008.171.825
40	33.040007.171.740	33.040008.171.840
50	33.050007.171.750	33.050008.171.850
63	33.063007.171.763	33.063008.171.863

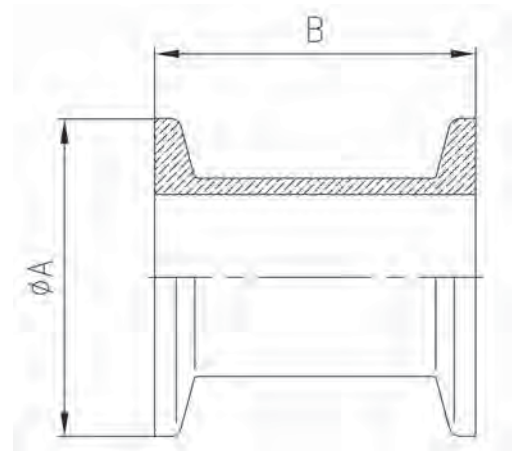


**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultra pure processes as ion implanters etc. (quartz)

**KF adapters**

NW	A	B
10	30	120
16	30	120
25	40	120
40	55	120
50	75	120
63	87	120



Type NW	Duran®	Quartz
10	33.010007.141.710	33.010008.141.810
16	33.016007.141.716	33.016008.141.816
25	33.025007.141.725	33.025008.141.825
40	33.040007.141.740	33.040008.141.840
50	33.050007.141.750	33.050008.141.850
63	33.063007.141.763	33.063008.141.863



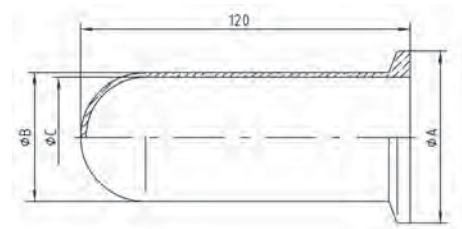
**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- for ultra pure processes as ion implanters etc. (quartz)

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**KF jars**

NW	A	B	C
10	30	16	12
16	30	20	16
25	40	30	26
40	55	46	42
50	75	56	52
63	87	76	70



Type NW	Duran®	Quartz
10	33.010007.11A.710	33.010008.11A.810
16	33.016007.11A.716	33.016008.11A.816
25	33.025007.11A.725	33.025008.11A.825
40	33.040007.11A.740	33.040008.11A.840
50	33.050007.11A.750	33.050008.11A.850
63	33.063007.11A.763	33.063008.11A.863

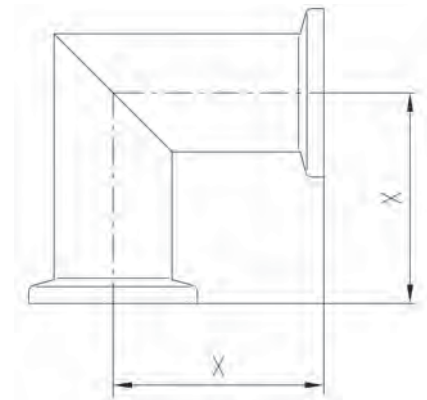


**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultra pure processes as ion implanters etc. (quartz)

**EVAC ISO Tapered™ elbows**

NW	X
80	98
100	108
125	118
160	138



Type NW	Duran®	Quartz
80	33.080007.251.708	33.080008.251.808
100	33.100007.251.710	33.100008.251.810
125	33.125007.251.712	33.125008.251.812
160	33.160007.251.716	33.160008.251.816



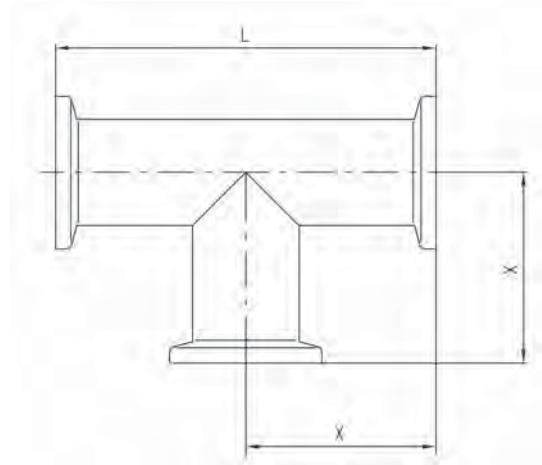
**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultra pure processes as ion implanters etc. (quartz)

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**EVAC ISO Tapered™ tees**

NW	L	X
80	196	98
100	216	108
125	236	118
160	276	138



Type NW	Duran®	Quartz
80	33.080007.261.708	33.080008.261.808
100	33.100007.261.710	33.100008.261.810
125	33.125007.261.712	33.125008.261.812
160	33.160007.261.716	33.160008.261.816

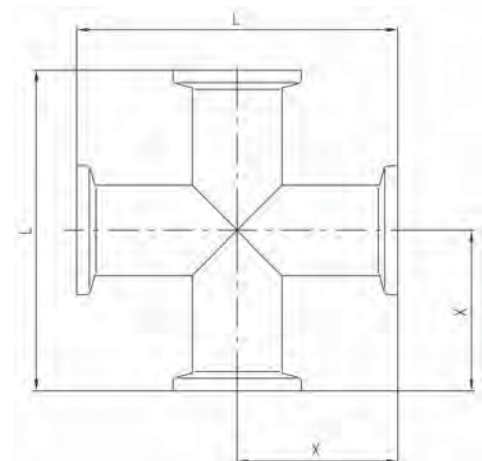


**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultra pure processes as ion implanters etc. (quartz)

**EVAC ISO Tapered™ crosses**

NW	L	X
80	196	98
100	216	108
125	236	118
160	276	138



Type NW	Duran®	Quartz
80	33.080007.271.708	33.080008.271.808
100	33.100007.271.710	33.100008.271.810
125	33.125007.271.712	33.125008.271.812
160	33.160007.271.716	33.160008.271.816



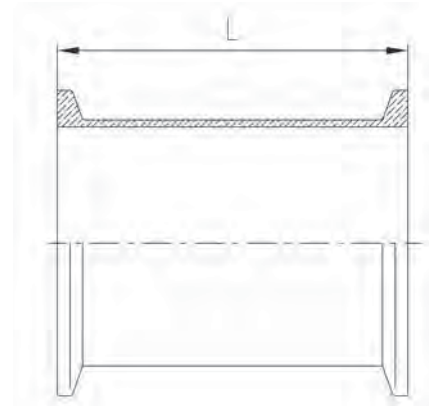
**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran® up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultrapure processes as ion implanters etc. (quartz)

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**EVAC ISO Tapered™ adapters**

NW	L
80	196
100	216
125	236
160	276



Type NW	Duran®	Quartz
80	33.080007.222.708	33.080008.222.808
100	33.100007.222.710	33.100008.222.810
125	33.125007.222.712	33.125008.222.812
160	33.160007.222.716	33.160008.222.816

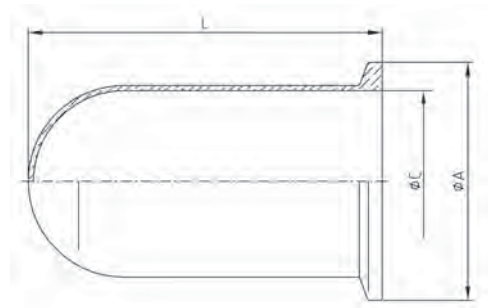


**Applications**

- Inspectable flanges for process control, plasma and oven
- Insertion of (UV) laser light into reaction tube (quartz flange)
- UV protection with Duran® flanges
- Quartz for lowest UV absorption
- Vacuum up to 10E-9 mbar
- Temp. range of quartz up to 1000 degC / Duran up to 450 degC
- Pressure up to 2 bar
- Minimum temperature -30 degC
- For ultra pure processes as ion implanters etc. (quartz)

**EVAC ISO Tapered™ jars**

NW	A	C	L
80	114	83	200
100	134	102	200
125	161	127	200
160	190	153	200



Type NW	Duran®	Quartz
80	33.080007.21A.708	33.080008.21A.808
100	33.100007.21A.710	33.100008.21A.810
125	33.125007.21A.712	33.125008.21A.812
160	33.160007.21A.716	33.160008.21A.816





**Applications**

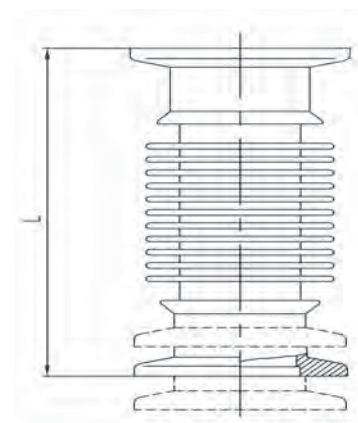
- Extreme UHV up to 10E-9 mbar
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -200 ... +350 degC
- Extreme surface precision and flatness even under high bending

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**ISO KF metal bellows, UHV**

NW	L	Axial travel [+/-mm]	Lateral travel [+/-mm]	max. angle [+/-°]	Pmax. [bar]
10	70	7	8.5	65	6
16	70	6.5	4	35	3.5
25	80	12.5	7	48	2.5
40	100	20	10	50	1.2
50	100	18	7	36	1
63	100	17	6.5	26	0.5

Pmax. = internal pressure.



Type NW	SUS 304 (flange) / 316Ti (bellow)
10	35.010089.101.310
16	35.016089.101.316
25	35.025089.102.325
40	35.040089.103.340
50	35.050089.103.350
63	35.063089.103.363



### Applications

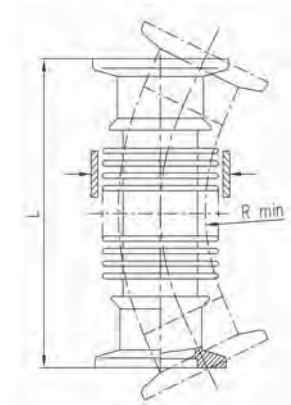
- Extreme UHV up to 10E-9 mbar
- Stainless steel (316L) for hassle free operations
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -200 ... +350 degC
- Extreme surface precision and flatness even under high bending

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### ISO KF metal hose, standard flexibility

NW	Rmin	Pmax. [bar]
10	30	6
16	50	3.5
25	60	2.5
40	100	1.2
50	130	1
63	180	0.5

\*Pmax. = internal pressure



Type NW	L=250	L=500	L=750	L=1000
10	35.010086.111.310	35.010086.112.310	35.010086.113.310	35.010086.114.310
16	35.016086.111.316	35.016086.112.316	35.016086.113.316	35.016086.114.316
25	35.025086.111.325	35.025086.112.325	35.025086.113.325	35.025086.114.325
40	35.040086.111.340	35.040086.112.340	35.040086.113.340	35.040086.114.340
50	35.050086.111.350	35.050086.112.350	35.050086.113.350	35.050086.114.350
63	35.063086.111.363	35.063086.112.363	35.063086.113.363	35.063086.114.363



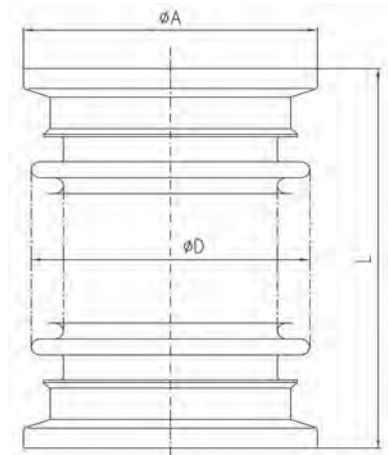
**Applications**

- Extreme UHV up to 10E-9 mbar
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -200 ... +350 degC
- Extreme surface precision and flatness even under high bending

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**EVAC ISO Tapered™ metal bellows**

NW	A	D	L	Axial travel [+/-mm]	Lateral travel [+/-mm]	max. angle [+/-°]
80	114	101	120	16	4.1	20.2
100	134	120	120	15	3	15
125	161	154	120	15.7	2.1	12.9
160	190	173	200	27.5	8	20



Type NW	Flange SUS 304 / Bellow 316Ti
80	35.080089.221.308
100	35.100089.221.310
125	35.125089.221.312
160	35.160089.223.316



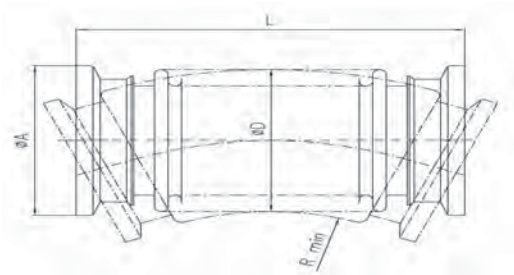
**Applications**

- Extreme UHV up to 10E-9 mbar
- Stainless steel (316L) for hassle free operations
- For inner and outer center rings
- Antimagnetic
- For radiation hardened and cryo applications
- Temperature range -200 ... +350 degC
- Extreme surface precision and flatness even under high bending

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**EVAC ISO Tapered™ metal hose**

NW	A	D	L	Rmin
80	114	96	250	150
100	134	127	250	550
125	161	152	250	850
160	190	174	500	1150



Type NW	Flange SUS 304 / Hose 316L
80	35.080086.271.308
100	35.100086.271.310
125	35.125086.271.312
160	35.160086.272.316



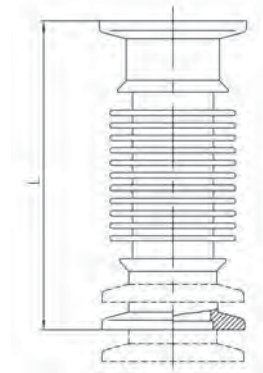
**Applications**

- Ideal for medical and laboratory applications
- Dustfree packing, sterile packing optional
- Ultra high vacuum up to 10E-9 mbar
- Excellent corrosion resistance
- GRP reinforced flanges
- Excellent electric insulation
- Antimagnetic
- Very good radiation tolerance
- For metal and elastomer seals

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**ISO KF bellows, Teflon®**

NW	L	Axial travel [+/-mm]	Lateral travel [+/-mm]	max. angle [+/-°]
10	70	6	5	20
16	70	7	6	25
25	80	10	6	25
40	100	20	8	30
50	100	18	8	30
63	100	17	8	30



Type NW	Teflon®
10	35.010087.101.610
16	35.016087.101.616
25	35.025087.102.625
40	35.040087.103.640
50	35.050087.103.650
63	35.063087.103.663

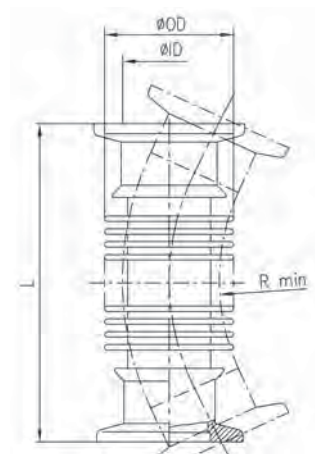


**Applications**

- Applications: food, dairy, beverage, pharmaceutical and biotech
- Vacuum 10E-7 mbar for overpressure up to 10 bar
- Fully sterilizable (CIP-conform)
- Easy to clean due to reduced dead space
- Temperature range -200 up to 200 degC (special seals / clamps)
- Other materials on request

**sTeRlc clamp™ hoses**

Size	OD	ID	Rmin	L
8	14	8	40	250
10	18	10	50	250
15	25	16	70	250
20	30	20	85	250
25	37	25	100	250
32	45	32	110	250
40	55	40	130	250
50	68	50	150	250
65	84	65	185	250
80	100	80	215	250

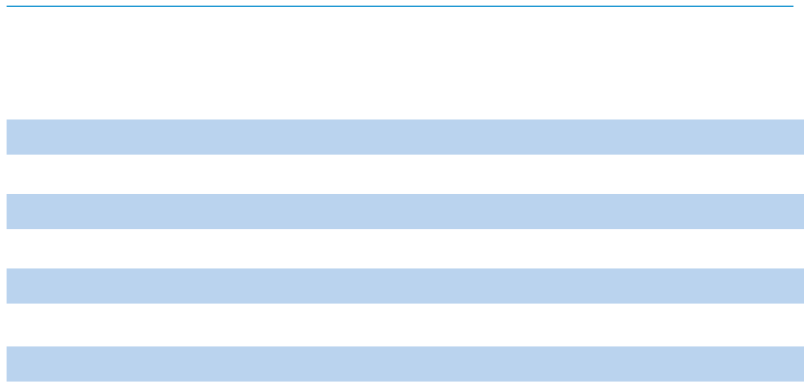


Size	Material	Part Number
	Stainless steel 316L	
8		35.008005.911.308
10		35.010005.911.310
15		35.015005.911.315
20		35.020005.911.320
25		35.025005.911.325
32		35.032005.911.332
40		35.040005.911.340
50		35.050005.911.350
65		35.065005.911.365
80		35.080005.911.380

**Applications**

Some clamp chains are pre-lubricated with a dry MoS<sub>2</sub> type lubricant which is polished, radiation-resistant and has good adhesion. During use, the high compression forces required for all metal seals cause the film to wear and therefore the chain clamps have to be re-lubricated periodically. As a guideline, after every 5 to 10 closures, the chain clamp should be coated lightly with a spray lubricant, which can be purchased through EVAC or a distributor for Dow Corning products. Protective caps being used to protect the flange sealing surfaces against scratches.

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Type NW	Protective cap		Molykote D-321R
16	00.016088.1116.00-Ks		00.0000.9900.00
25	00.025088.1125.00-Ks		
40	00.040088.1140.00-Ks		
50	00.050088.1150.00-Ks		
63	00.063088.1163.00-Ks		

## Flanges

Flanges can be connected using EVAC chain clamps and elastomer seals or metal seals for UHV applications. Several systems: EVAC ISO KF, EVAC ISO Tapered™, EVAC ISO CeFiX®

### EVAC ISO KF / EVAC ISO Tapered™ systems (metal)

Materials: SUS 304 / SUS 316L  
 SUS 304: -271 ... +300 degC;  
 SUS 316L: -271 ... +350 degC  
 Leak rate [mbar / s-1...]: <1x 10-9; antimagnetic, cryogenics.

### EVAC ISO CeFiX® systems

The most striking feature of the EVAC-CeFiX® flange compared to the Conflat® flange is the lack of a cutting edge. The edge is easily-damaged and requires high sealing forces and has therefore been omitted with the CeFiX® system.

The seals are designed in such a way that they seal on the 20 degree taper of the flange, thereby reducing the necessary sealing force by up to 50%.

Since the dimensions of the sealing groove of both systems are absolutely identical, the CeFiX® seal can also be used for standard CF flanges. So the seal can also be used for flanges with slightly damaged flange edges.

Thanks to the reduced sealing force, nickel alloys can also be used, but just for EVAC CeFiX® flanges, since standard CF flanges could be damaged.

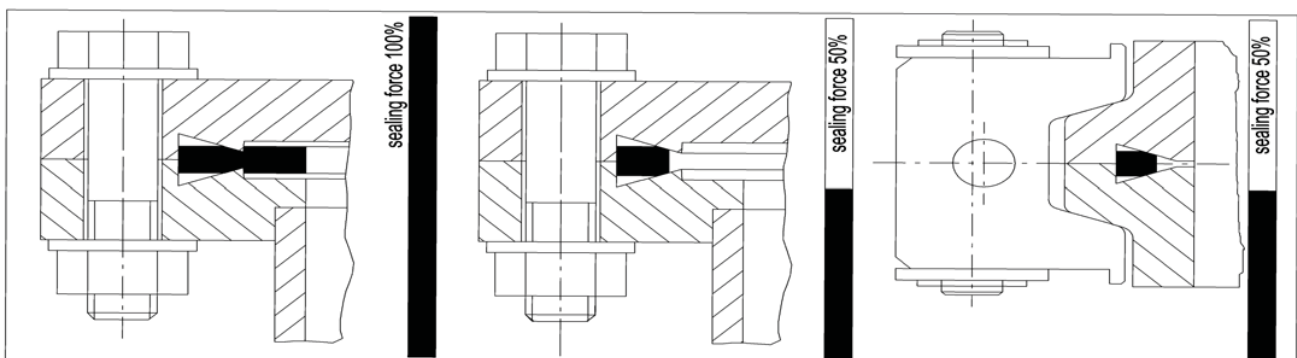
EVAC offers the seals in three materials:  
 - Aluminium  
 - OFS copper  
 - Nickel

Comparison of sealing force (N/mm sealing length)

	CeFiX®	Standard
Aluminium	70	100
Copper	220	410
Nickel	400	680

Materials: SUS 316L  
 Temperature: -271 ... +350 degC  
 Leak rate [mbar / s-1] : <1x 10-11 ; antimagnetic, cryogenics, suitable for UHV, excess pressure, resistant to chemicals

Standard Conflat® connection:      EVAC-CeFiX® seal with Conflat® flanges      EVAC-CeFiX® seal with chain clamp EVAC flanges:



Conflat® is a registered trademark of Varian Inc. Palo Alto, CA



### EVAC Glass™ Systems

Glass components for ultra-pure processes  
These glass elements meet the ever increasing demands for ultra-pure processes. Glass is highly resistant to water and most chemicals and can be thoroughly cleaned and sterilized, which ensures that your processes are much cleaner than with stainless steel or aluminium.

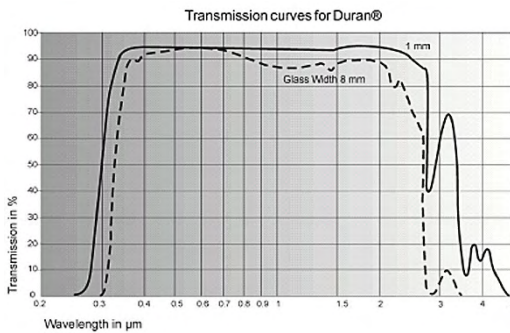
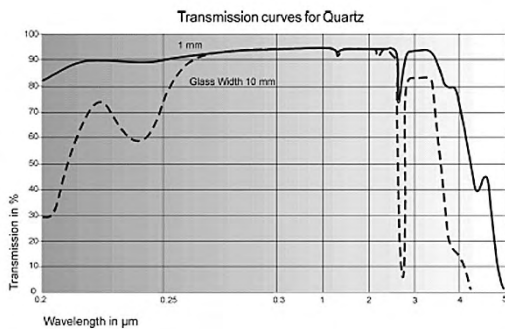
#### Evac offers two qualities:

1. Duran® (borosilicate) glass
2. Quartz glass

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#### Applications:

- CVD and PVD processes
- Plasma etching and cleaning processes
- UV, IR and laser measurement
- High frequency and microwave supported processes
- Physical / chemical experiments
- Inspection glasses, flow rate observation
- High-voltage applications



#### Transition from glass to metal

The transition from glass to metal is no longer a problem but simply a matter of connecting two flanges. Vacuum measuring devices can, for example, easily be connected to glass systems by means of metal flanges.

#### Blank flanges become inspection glasses

Blank flanges can be used as inspection glasses. Optical blank flanges (parallel 6', level <3m) are available. This allows measurements with IR, UV or visible light. Glass or metal blanking flanges can be machined for leads through (e.g. current, high voltage, measuring current, water, liquid nitrogen, mechanical movements).

#### Electric insulation

In metal systems, adapters made from glass can be used for electric insulation.

Tecnical properties	Quartz
Max. continous baking	1000 degC
UV/IR transmission	UV/IR
Transmission HF	OK
Microwave losses	small
Linear coeff. of expansion	$0.55 \cdot 10^{-8} K^{-1}$
Thermal conductivity at 100	$1.45 Wm^{-1} K^{-1}$

Tecnical properties	Duran®
Max. continous baking	450 degC
UV/IR transmission	IR
Transmission HF	OK
Microwave losses	large
Linear coeff. of expansion	$3.25 \cdot 10^{-8} K^{-1}$
Thermal conductivity at 100	$1.16 Wm^{-1} K^{-1}$



#### **KF glass flanges (EVAC Glass™ system)**

The flange dimensions are identical to the KF flanges, with the exception of the side width on the outside diameter, which is 4 mm instead of 3 mm. The larger dimension makes the glass flanges stronger to prevent cracking when the chain is tightened. The (compressed) seal ring width is therefore only 2 mm. Connection to a standard KF flange is always possible with the aid of a wider seal (3 mm).

#### **ISO tapered flanges (EVAC Glass™ system)**

ISO tapered flanges can be directly mounted on EVAC ISO Tapered™ flanges

NW 80...125 can be directly mounted on ISO F flanges (with plastic wall clamps)

#### Properties:

antimagnetic, radiation resistant, suitable for cleanrooms,  
useable only with elastomer seals,  
Leak rate [mbar / s-1] : <math>1 \times 10^{-9}</math>

## Seals

Seals with center rings on the inside or outside made from various elastomer materials.  
Seals with center rings on the inside or outside as aluminium edge seals with various cross-sections.  
CeFiX® Seals for UHV applications in aluminium, copper or nickel.  
Moulded seals in various shapes and sizes, aluminium.

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### Elastomer seals for KF and EVAC ISO Tapered™ metal and EVAC Glass™ flanges

Various combinations:

Teflon®/Viton® : suitable for cleanrooms, electric insulation,  
Leak rate [mbar/s-1]:  $< 1 \times 10^{-9}$  , antimagnetic, -20 ... +200 degC

Teflon®/FEP: suitable for clean rooms, electrical insulation,  
Leak rate [mbar/s-1]:  $< 1 \times 10^{-6}$  , antimagnetic, chem./corrosion, -50 ... +200 degC

Alu/Viton®: suitable for cleanrooms, pressure, antimagnetic,  
Leak rate [mbar/s-1]:  $< 1 \times 10^{-9}$  , -20 ... +200 degC

Stainless steel/Viton®: pressure, suitable for cleanrooms, leak rate [mbar/s-1]:  $< 1 \times 10^{-9}$  , antimagnetic, -20 ... +200 degC

Stainless steel/Kalrez®): excellent chem./corrosion, suitable for cleanrooms, antimagnetic,  
Leak rate [mbar/s-1]:  $< 1 \times 10^{-9}$  , -10 ... +315 degC

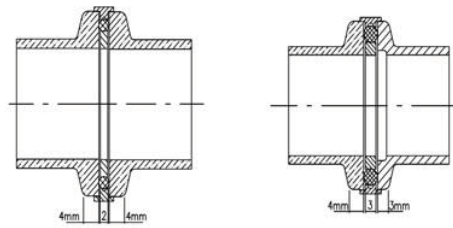
### Elastomer seals for use of KF glass-glass or glass-metal connections

Two sealing widths (2mm and 3mm)  
Since the EVAC glass flanges have a 1mm wider OD, the sealing width (compressed) is no longer 4mm\* but 2mm.

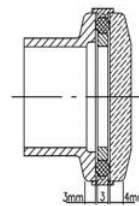
For connections between a standard KF metal flange and a glass flange, a 3mm wide seal is used.

\* (4mm for metal to metal connections)

Glass to glass connection      Glass to metal connection



KF flange with glass blank flange



The total width of two flanges and one seal is always 10mm.

**(4+2+4=10 for glass to glass connections)**

**(4+3+3=10 for glass to metal connections)**

**(3+4+3=10 for metal to metal connections)**

### Metal seals for KF and EVAC ISO Tapered™ metal flanges

Aluminium: radiation resistant, cryogenics, antimagnetic,  
temperature range: -271 ... +150 degC  
Leak rate [mbar/s-1]:  $< 1 \times 10^{-11}$

### EVAC - CeFiX® seals (for CeFiX® flanges)

Aluminium: antimagnetic, radiation resistant,  
cryogenics, temperature range: -271 ... +150 degC  
Leak rate [mbar/s-1]:  $< 1 \times 10^{-11}$

OFS Copper/ OFS Copper silver plated: radiation resistant,  
antimagnetic, pressure, temperature range: -271 ... +350 degC  
cryogenics, Leak rate [mbar/s-1]:  $< 1 \times 10^{-11}$

Nickel: antimagnetic, radiation resistant, cryogenics,  
pressure, temperature range: -271 ... +350 degC  
Leak rate [mbar/s-1]:  $< 1 \times 10^{-11}$



## Chain clamps

### a) General

These are chains for quick connection of two tubes by means of tapered flanges. The tubes are centered by means of the inserted seals and a tight vacuum is ensured.

Due to the sturdy design, high compression strengths can be achieved and various types of metal seals used. A decisive aspect in many applications, tightening can be done evenly, with just one or two screws. Tightness is guaranteed once a certain tightening torque has been reached. When opening the chains, just one screw needs to be loosened to remove the chain - swift work ensured.

Since suitable materials are used, such connections are usually not any larger - and above all, they are lighter - than fixed flange couplings. There are various standard designs. The entire system is designed for a wide range of diameters and forces so that corresponding combination of standardized parts can cater to many special demands regarding to sealing force, excess pressure and materials.

The main advantages of this system are:

- High tightening forces
- Even distribution of force
- Simple and swift assembly and removal
- Assembly possible even in places that are difficult to access
- Great flexibility of design
- Versatile use of various seals

### b) Range of applications

These chains are the preferred choice for:

- Vacuum technology and applications demanding the highest sealing tightness (metal seals)
- Locations subject to radiation (nuclear industry, accelerators, etc.) where radiation-proof seals and quick assembly are essential
- Connections that have to withstand high temperatures or baking (UHV connections, furnaces, etc.)
- Chemical industry (corrosion resistant design), petrochemical industry
- Cryogenics
- Generally for connections with medium to large diameters
- Customized designs for critical applications (restricted space, pressure, etc.)
- Securing of units or assemblies with or without sealing but respective center rings (securing of filters, valves, etc.)

The application range is virtually limitless. The maximum diameter depends on requirements and is between 500 and 700 mm. There are various materials for various purposes, such as antimagnetic systems made from aluminium and stainless steel.

### KF chain clamps/ KF-CeFiX® chain clamps

Plastic standard: -20 ... +60 degC, (80 degC short time), antimagnetic only for elastomer seals, electric insulation, suitable for cleanrooms, for glass and metal flanges.

Plastic high-temp.: -20 ... +100 degC, (150 degC short time), antimagnetic, only for elastomer seals, electric insulation, suitable for cleanrooms, for glass and metal flanges.

Plastic ultra high-temp.: -20 ... +200 degC, (220 degC short time), only for elastomer seals, electric insulation, antimagnetic, suitable for cleanrooms, for glass and metal flanges.

Cast aluminium: -20 ... +100 degC, antimagnetic, only for elastomer seals, suitable for cleanrooms.

Forged aluminium: -271 ... +150 degC, cryogenics, antimagnetic, for metal and elastomer seals, radiation resistant.

Nickel plated steel: -271 ... +350 degC, cryogenics, pressure, radiation resistant, for metal and elastomer seals.

Stainless steel: -271 ... +350 degC, cryogenics, pressure, antimagnetic, radiation resistant, for elastomer and metal seals.

### EVAC ISO Tapered™ chain clamps:

Plastic high-temp.: -20 ... +100 degC, (150 degC short time), antimagnetic, only for elastomer seals, electric insulation, suitable for cleanrooms, for glass and metal flanges.

Plastic ultra high-temp.: -20 ... +200 degC, (220 degC short time), only for elastomer seals, electric insulation, antimagnetic, suitable for cleanrooms, for glass and metal flanges.

Aluminium BX Type with knob (1 catch): -271 ... +150 degC, suitable for cleanrooms, antimagnetic, only for elastomer seals.

Stainless steel (1catch): -271 ... +350 degC, cryogenics, antimagnetic, radiation resistant, only elastomer seals.

Stainless steel (2 screws): -271 ... +350 degC, cryogenics, antimagnetic, radiation resistant, metal and elastomer seals.



Aluminium/Aluminium BX type (2 screws):  
-271 ... +150 degC, antimagnetic, for elastomer and  
metal seals, cryogenics.

EVAC-ISO CeFiX® chain clamps

Stainless steel: -271 ... +350 degC, pressure, radiation  
resistant, for aluminium, copper and nickel seals, antimagnetic.



## Bellows

Advantages of metal bellows:

- Highly flexible, without annealing
- Highest bending and torsion strength
- Can be used for ultra-high vacuum to slight pressure
- Bakeable, suitable for cryogenics
- Radiation resistant, antimagnetic
- Perfect to clean (ultrasound)
- Optimum corrosion resistance
- Individually packed, dust-free
- Guaranteed leak rate
- Minimum outgassing

Advantages of Teflon® bellows:

- High flexibility
- Individually packed, dust-free
- Excellent corrosion resistance
- Long service life
- Suitable for glass and metal systems
- GRP reinforced flanges
- Machined from one piece
- Electrical insulation
- Antimagnetic

Behaviour under pressure:

Metal bellows and tubes are used for vacuum, excess pressure and on both sides. If subjected to excess pressure, the bellows and tubes tend to elongate or - in the case of tightly clamped flanges - to buckle.

The maximum pressure values indicated apply for:

- Axially clamped flanges with buckling prevention

Applications:

- Compensation of axial, lateral or angular set-offs
- Prevention of vibration transfer
- Substitute for elastomer compensators
- Compensate thermal expansion

Metal bellows:

Materials: flanges(SUS304), bellows(316Ti), cryogenics, antimagnetic, radiation resistant, suitable for clean rooms,  
Leak rate [mbar / s-1] : <1x10<sup>-9</sup>  
-200 ... +350 degC, usable with metal or elastomer seals

Teflon® bellows:

Material: Flanges (Teflon® GRP), bellow (Teflon®)  
-50 ... +200 degC, antimagnetic, suitable for cleanrooms,  
useable with elastomer seals,



## Hoses

Advantages:

- Highly flexible, without annealing
- Highest bending and torsion strength
- Can be used for ultra-high vacuum to slight pressure
- Bakeable, suitable for cryogenics
- Radiation resistant, antimagnetic
- Perfect to clean (ultrasound)
- Good corrosion resistance
- Individually packed, dust-free
- Guaranteed leak rate
- Minimum outgassing
- Long service life

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Applications:

- Compensation of axial, lateral or angular displacement
- Prevention of vibration transfer
- Substitute for elastomer compensators
- Compensate thermal expansion

Materials: flanges(SUS304), bellows(316L), cryogenics,  
antimagnetic, radiation resistant, suitable for clean rooms,  
Leak rate [mbar / s-1] :  $<1 \times 10^{-9}$   
-200 ... +350 degC, usable with metal or elastomer seals







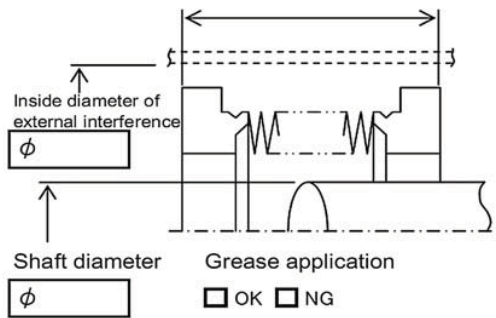
### Welded bellows design inquiry

Acceptance no. ....

To EVAC AG Sender ..... Sign.....  
Customer ..... Dept.....(.....) Issue date.....  
Name of machine ..... Model # .....(.....)

Material  SUS316L  AM350  HC-22  None specified  Other .....(.....)  
Displacement ..... <Bellows size> ..... <Spec.> .....  
 Bellows only .....mm ID Ø..... Temp. ....~.....degC  
 Including flange Operating range ..... Baking .....(.....degC)  
.....~..... OD Ø..... Life cycles .....Times

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<Pressure>  
Inside  Vacuum  Atmospheric pressure  Vacuum to Atmospheric pressure ( MPa)  
 Gauge pressure  Absolute pressure  
Outside  Vacuum  Atmospheric pressure  Vacuum to Atmospheric pressure ( MPa)  
 Gauge pressure  Absolute pressure

Inside and outside are atmosphere operation. (Only at the time of installation and maintenance)

Helium leak rate  standard ( $5 \times 10^{-8}$  mbar l/s)  Customer spec. (.....mbar l/s)  
Lateral displacement X .....mm Y.....mm  XY complex displacement  XY independent displacement  
Angular displacement .....degC (Center point of angular displacement)  
Displacement speed  max. 100mm/s or less  Max.....mm/s  
Mounting posture  horizontal  perpendicular  the horizontal to .....degC inclination  
no. of lot EA/Lot Forecasting.....(EA/...../month, ...../year)

Product usage and other reports

Customer's drawing DWG: no.: ..... Installing device name .....  
Drawing  application drawing  outline drawing (  CAD  sketch )  not wanted Date presentation .....  
Cost  Want  not wanted .....  
Order schedule  Unofficial announcement Delivery  Design products  
Order received

Customer information	(opinion and demands for us)	Check <input checked="" type="checkbox"/>	5	3	1			
			Delivery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
			Performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
			Price	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> Failure to receive an order			Good	←				→ B