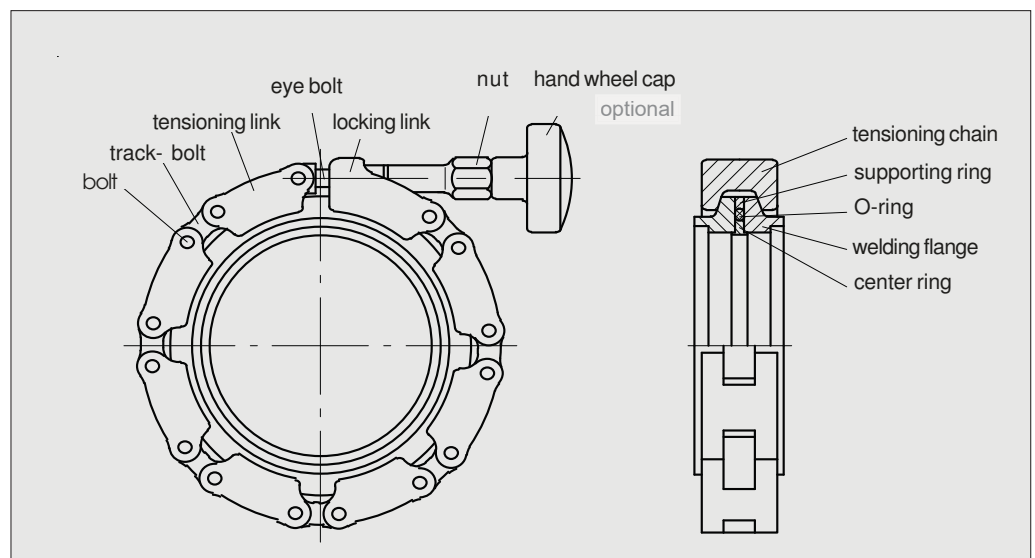


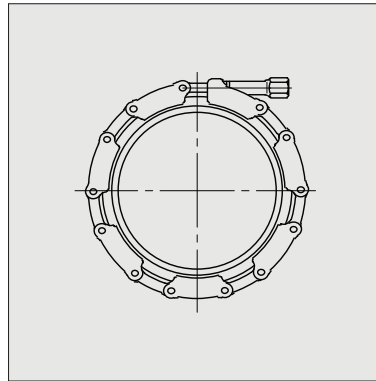
## Description



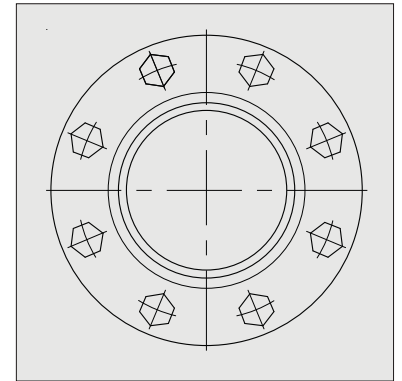
- ▶ Tensioning chain with circular crescent shaped links for conical flanges and seals
- ▶ Elastomer and metal seals are applicable
- ▶ One or two locking screws only
- ▶ To connect pipes
- ▶ To fasten components
- ▶ As mechanical coupling



- Advantages**
- ▶ assembly time
  - ▶ accessibility

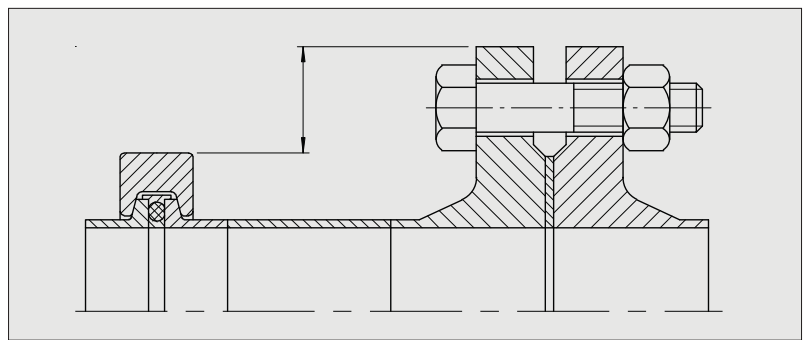


clamp fitting DN 200: 1 screw



DIN-flange DN 200: 8 screws

- ▶ fittingspace
- ▶ weight



clamp fitting DN 40 and pre-welding flange connection DN 40 in accordance with DIN Regulations

- ▶ No screw holes have to be adjusted for welding-on and connecting of the flanges
- ▶ Ideal for hardly accessible mounting positions
- ▶ No loose parts like screws and nuts
- ▶ Tool-free assembly of execution with hand wheel cap
- ▶ Safety lock cannot be unlocked unintentionally
- ▶ Machine-assembly in hazardous areas possible
- ▶ Continuous unlocking at residual pressure possible
- ▶ Clamping force evenly distributed around the circumference
- ▶ All metal seals applicable; multiple use depends on torque value
- ▶ Anti-magnetic execution available

## Field of Application

- ▶ Vacuum technique
- ▶ Nuclear technique
- ▶ Cryo technique
- ▶ Chemistry
- ▶ Construction industry
- ▶ Processengineering
- ▶ Machinetechnologie
- ▶ Piping construction
- ▶ Engineering
- ▶ Hydraulics
- ▶ Defencetechnology
- ▶ Food industry
- ▶ Beverage industry
- ▶ Laboratory technique
- ▶ Bioengineering

## Limitations of use

### DIAMETER:

Standard production series: DN 10 to DN 700  
 Specified constructions: all dimensions available

### TEMPERATURE:

Standard production series: -200°C to +350°C  
 Specified constructions: -273°C to +800°C

### PRESSURE:

Standard production series: ultra-high vacuum up to 46 bar\*  
 Specified constructions: up to high pressure

\*Depends on series, size and material.

The upper limits for pressure and temperature are maximum values. In case of high pressure and high temperature simultaneously lower values are applicable.

## Production Series - Overview

Prod. Series	Based on	Available sizes	Available seals	Available connecting elements
KF	DIN 28403 ISO 2861, Part 1 Pneurop 6606	DN 10/16 to 63	elastomer-seals aluminium-edge seals copper-edge seals copper flat gaskets*	Tensioning chains of: plastik** aluminium precious steel
CF	Flange syst. with sealing edges for standard copper flat gaskets	DN 16 to 250	copper flat gaskets	Tensioning chains of: precious steel
ISO	Flanges for ISO-pipes	DN 80 to 700	elastomer-seals aluminium-edge seals copper edge seals	Tensioning chains of: aluminium precious steel
ISO-Combinations	DIN 28404 ISO 1609 Pneurop 6606	DN 63 to 250	elastomer seals aluminium-edge seals	Tensioning chains of: aluminium precious steel Cap flanges for screws compatible with other flanges systems
ISO-K	DIN 28404 ISO 1609 Pneurop 6606	DN 63 to 250	elastomer seals aluminium-edge seals	Conical cap flanges with tensioning chains of: aluminium precious steel Cap flanges for screws compatible with other flanges systems clamps, claws

\* In combination with flanges of the production series CF.

\*\* Plastic tensioning chains are only appropriate for elastomer seals.

## Tensioning Chains

Please refer to the description of the production series.

## Flanges

Material description	1.4435	1.4301
Material no. as per DIN 17007	1.4435	1.4301
Material indication as per DIN AISI	X 2 Cr Ni Mo 18 14 3 316 L	X 5 Cr Ni 18 10 304
Use	welding flanges blind flanges	cap flanges conical cap flanges
Allowed temperature	350°C	350°C
Remarks	easily weldable corrosion and acid resistant; anti-magnetic	easily weldable corrosion and acid resistant; anti-magnetic

Further materials are available.

## Elastomer Seals

Material description	NBR	FPM
Indication as per DIN ISO ASTM	NB NBR NBR	FP FPM FPM
Basic-polymer	Acrylo-Nitrile-Butadiene	Fluor carbon
Trade name, e.g. <small>® registered trade-mark or manufacturer</small>	Perbunan-N® Buna-N® Nitril	Viton® Fluorel® Tecnoflon®
Temperature limits in air / in vacuum	-20°C to +100°C	-25°C to +180°C
Vacuum up to	10 <sup>-7</sup> mbar	10 <sup>-9</sup> mbar
Available for prod. series	KF, ISO, ISO-Combi, ISO-K	KF, ISO, ISO-Combi, ISO-K
Shore hardness in Shore A	70	70
Colour	black	black

Further materials are available.

## Metal Seals

Description	aluminium- edgeseal	copper edgeseal	copper flat gasket
Material	aluminium	OFHC-copper	OFHC-copper
Temperature limits in air / in vacuum	-190°C to +200°C not suitable for thermo-shock	-200°C to +350°C	-200°C to +350°C
Vacuum up to	10 <sup>-9</sup> mbar	10 <sup>-9</sup> mbar	10 <sup>-12</sup> mbar
Multiple use *	1 to 10 times	1 to 5 times	1 to 3 times
Available for prod. series	KF, ISO, ISO-Combi ISO-K	KF, ISO, ISO-Combi ISO-K	CF

\* Depending on torque value.

## Premitted Pressures

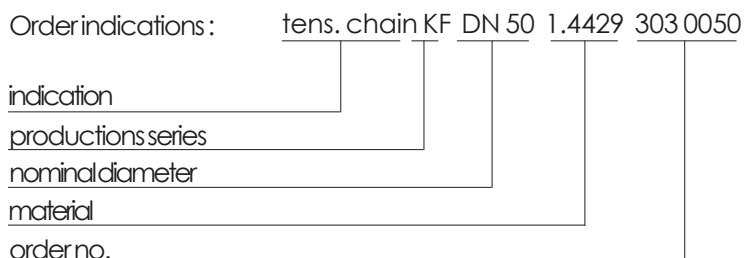
The chart values for the maximum permitted pressure are estimate values. The actual maximum permitted pressure has to be calculated for every single case. It depends on

- the actually applied torque value
  - the operation temperature
  - the required safety factor
- and eventually further influences like:

- axial forces
- radial forces
- turning moments
- vibrations
- pressure pulsations.

If the permitted pressures of the standard tensioning chains are not sufficient, custom-made constructions can be offered. For inquiries please refer to form on page 24.

## Order Indications





## Torque Values

Tensioning chain			Torque value** Md in Nm for ...				Max. torque value*** Md in Nm for operation temperature...			
Production series	Series material	DN*	elastomere-seal	aluminium-edgeseal	copper-edgeseal	copper flat gasket	20°C	70°C	150°C	350°C
KF	300 plastic	10/16	0,18				0,18	0,18		
		20/25	0,24				0,24	0,24		
		32/40	0,35				0,35	0,35		
		50	0,65				0,65	0,65		
		63	0,83				0,83	0,83		
	301 aluminium	10/16	0,18	0,16	0,31		0,6	0,5	0,4	
		20/25	0,24	0,24	0,45		0,7	0,6	0,5	
		32/40	0,35	0,36	0,70		1,1	0,9	0,9	
		50	0,65	0,64	1,23		2,3	1,9	1,8	
		63	0,83	0,88	1,70		2,9	2,5	2,3	
	303 precious steel 1.4429	10/16	0,18	0,16	0,31	0,31	0,6	0,5	0,4	0,4
20/25		0,24	0,24	0,45	0,45	0,7	0,6	0,5	0,5	
32/40		0,35	0,36	0,70	0,70	1,1	0,9	0,9	0,8	
50		0,65	0,64	1,23	1,23	2,3	1,9	1,8	1,6	
63		0,83	0,88	1,70	-	2,9	2,5	2,3	2,0	
CF	320 prec.steel 1.4435	40				1,9	4,0	3,4	3,2	2,8
		50				1,9	4,0	3,4	3,2	2,8
		63				3,3	6,9	5,7	5,5	4,8
	321 prec.steel 1.4435	100				3,6	6,9	5,7	5,5	4,8
		160				8,7	17,5	14,8	14,0	12,2
		200				8,7	17,5	14,8	14,0	12,2
	250				12,2	24,4	20,7	19,5	17,1	
ISO	340 (light) aluminium	80	2,25	2,43	4,69		8,7	7,4	7,0	
		100	2,25	2,47	4,76		8,1	6,9	6,5	
		125	3,09	3,40	6,55		12,1	10,3	9,7	
		160	3,01	3,35	6,46		11,9	10,1	9,5	
		200	4,22	4,67	9,01		14,0	11,9	11,2	
		250	6,04	6,80	13,10		23,0	19,6	18,4	
	341 (standard) aluminium	80	1,67	1,81	3,48		8,7	7,4	7,0	
		100	1,90	2,09	4,03		8,1	6,9	6,5	
		125	2,26	2,49	4,79		12,1	10,3	9,7	
		160	2,60	2,90	5,59		11,9	10,1	9,5	
		200	3,50	3,87	7,46		14,0	11,9	11,2	
		250	4,89	5,50	10,59		23,0	19,6	18,4	
	342 (standard) prec.steel 1.4435	80	1,67	1,81	3,48		8,9	7,6	7,1	6,9
		100	1,90	2,09	4,03		12,0	10,2	9,6	9,3
		125	2,26	2,49	4,79		14,0	11,9	11,2	10,8
		160	2,60	2,90	5,59		13,6	11,6	10,9	10,5
		200	3,50	3,87	7,46		14,0	11,9	11,2	10,8
		250	4,89	5,50	10,59		24,0	20,4	19,2	18,6

\* Torque values for nominal bores exceeding 250 mm upon request.

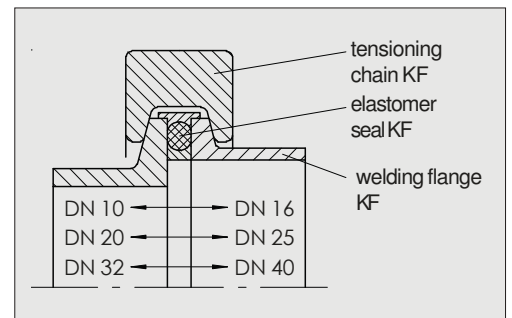
\*\* These torque values guarantee full sealing effect. The figures refer to lubricant-free conical surfaces. Lubricated conical surfaces reduce the necessary torque values. If reuse of metal seals is desired, fastening of nuts should not exceed required sealing effect (if permitted by assembly procedure).

\*\*\* The maximum torque values refer to the strength of the tensioning chains and may not be exceeded. The figures are valid for connections without stresses like pressures, forces, moments and vibrations. In case of alternative operational conditions the maximum torque values have to be calculated. For inquiries please refer to form on page 24.

## Description



- ▶ Every chain link is a tensioning link
- ▶ No transition center rings required
- ▶ Hand wheel caps are available for all tensioning chains
- ▶ All series and sizes can be supplied from stock



The clamp fittings of the production series KF (small flange) are subject to following standards:

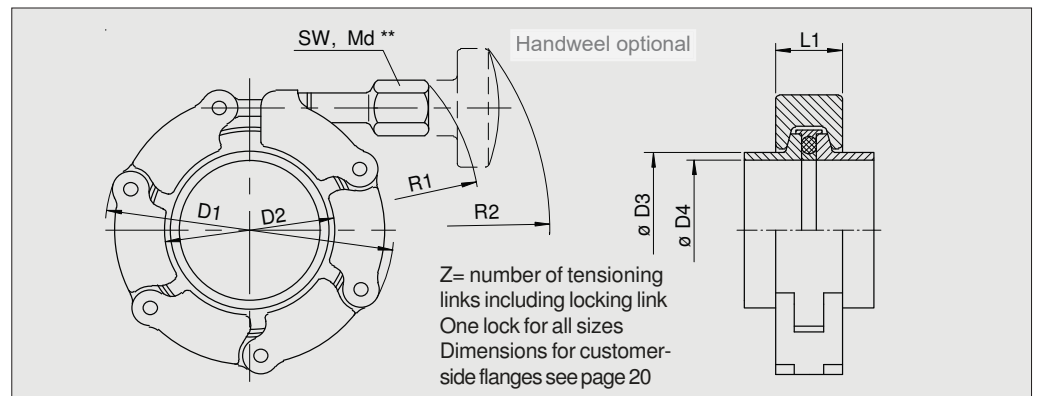
DIN 28403	Vacuum Technique - Fast Connections
DIN 28404	Vacuum Technique - Flanges
ISO 1609	Vacuum Technology - Flanges
DIN 2861	Vacuum Technology - Couplings
Pneurop 6606	Vacuum Flanges and Connections

## Overview Clamp Fittings KF

Tensioning chains series	Material of chain links*	Temperature limits of tensioning chains	Temperature limits of seals in air / in vacuum	Nominal diameter	Max. permitted pressure	Weight of tensioning chain
300	plastic black	-25 to +70°C	NBR: -20 to +100°C FPM: -25 to +180°C	DN 10/16 DN 20/25 DN 32/40 DN 50 DN 63	for pressure-free use only	48g 59g 69g 111g 118g
301	aluminium	-150 to 150°C with metal seal -150 to +100°C	NBR: -20 to +100°C FPM: -25 to +180°C aluminium-edges: -190 to +200°C copper-edges seal: -200 to +350°C	DN 10/16 DN 20/25 DN 32/40 DN 50 DN 63	38 bar** 21 bar** 18 bar** 14 bar**	94g 110g 129g 203g 219g
303	precious steel 1.4429	-200 to +350°C	NBR: -20 to +100°C FPM: -25 to +180°C aluminium-edge.s.: -190 to +200°C copper-edges seal: -200 to +350°C	DN 10/16 DN 20/25 DN 32/40 DN 50 DN 63	46 bar** 32 bar** 19 bar** 16 bar** 13 bar**	196g 242g 291g 504g 527g

\* Material of bolts, eye-bolts and nuts for series 301, 303: 1.4301  
 For series 300: bolts 1.4301, eye-bolts brass nickel-plated, nuts aluminum.  
 The hand wheel caps are made of black plastic. Temperature limits: -30 °C to +75 °C.  
 \*\*ATTENTION! Please absolutely adhere to comments on page 4.

## Tensioning Chains KF

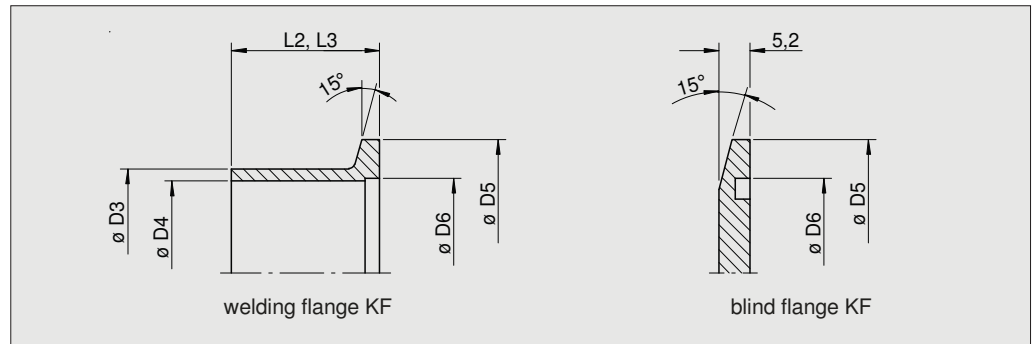


DN mm	D1 mm	D2 mm	D3 mm	D4 mm	R1 mm	R2 mm	L1 mm	SW mm	Z
10/16	52	23	14/20	10/16	48	125	18	13	4
20/25	64	31	25/28	21/24	55	138	18	13	5
32/40	78	46	38/45	32/41	59	144	18	13	6
50	97	68	57	50	68	161	20	13	7
63	111	80	76	70	76	173	20	13	8

DN mm	order no.*			
	tensioning chain KF series 300 plastic	Aluminum tensioning chain KF serie 301 with Aluminum nut	Aluminum tensioning chain KF serie 301 with Stainless steel nut	tensioning chain KF series 303 precious steel 1.4429
10/16	300 1016	301 A 1016	301 C 1016	303 1016
20/25	300 2025	301 A 2025	301 C 2025	303 2025
32/40	300 3240	301 A 3240	301 C 3240	303 3240
50	300 0050	301 A 0050	301 C 0050	303 0050
63	300 0063	301 A 0063	301 C 0063	303 0063

\* Tensioning chains with hand wheel cap are marked with the letter "H" behind the order no.  
 \*\* Torque values see page 5.

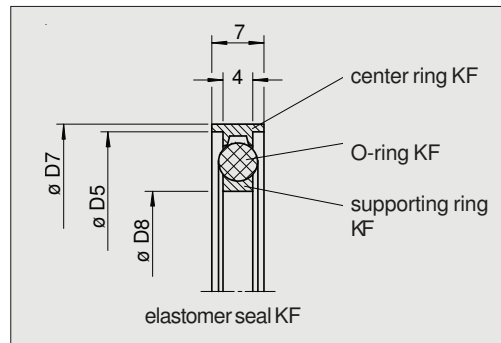
## Flanges KF



DN mm	D3 mm	D4 mm	D5 mm	D6 mm	L2 mm	L3 mm	Order no.		
							welding flange KF short 1.4435	welding flange KF long 1.4435	blind flange KF 1.4435
10	14	10	30	12,2	20	52	400 0010	401 0010	402 0010
16	20	16	30	17,2	20	52	400 0016	401 0016	402 0016
20	25	21	40	22,2	20	55	400 0020	401 0020	402 0020
25	28	24	40	26,2	20	55	400 0025	401 0025	402 0025
32	38	32	55	34,2	25	58	400 0032	401 0032	402 0032
40	45	41	55	41,2	25	58	400 0040	401 0040	402 0040
50	57	50	75	52,2	25	58	400 0050	401 0050	402 0050
63	76	70	87	70,0	25	58	400 0063	401 0063	402 0063

Flanges KF are available in other materials, special lengths and with different pipe connection diameters.

## Elastomer-Seals KF



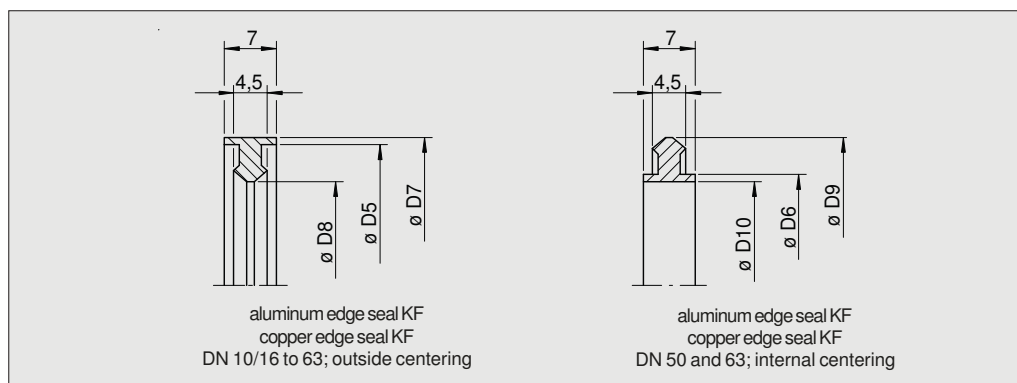
DN mm	D5 mm	D7 mm	D8 mm
10/16	30	32	16
20/25	40	42	24
32/40	55	57	40
50	75	77	52
63	87	89	68

DN	order no. elastomer seal KF			
	aluminium NBR 1.4435	aluminium FPM 1.4435	1.4435 NBR 1.4435	1.4435 FPM 1.4435
10/16	501 1016	503 1016	505 1016	507 1016
20/25	501 2025	503 2025	505 2025	507 2025
32/40	501 3240	503 3240	505 3240	507 3240
50	501 0050	503 0050	505 0050	507 0050
63	501 0063	503 0063	505 0063	507 0063

Order no. for replacement O-rings: please refer to price list.  
Further materials are available.

**Aluminium Edge Seals KF**

**Copper Edge Seals KF**



DN mm	outside centering*					internal centering				
	D5 mm	D7 mm	D8 mm	order no.		D6 mm	D9 mm	D10 mm	order no.	
				aluminium- edge seal KF aluminium	copper- edge seal KF OFHC-copper				aluminium- edge seal KF aluminium	copper- edge seal KF OFHC-copper
10/16	30	32	20	510 1016	515 1016	-	-	-	-	-
20/25	40	42	30	510 2025	515 2025	-	-	-	-	-
32/40	55	57	45	510 3240	515 3240	-	-	-	-	-
50	75	77	59	510 0050	515 0050	52,2	62	50	511 0050	516 0050
63	87	89	70	510 0063	515 0063	70,0	80	68	511 0063	516 0063

\* Standard. Preferred use.

- Description**
- ▶ More solid than production series KF
  - ▶ Flanges with sealing edges for standard copper flat gaskets
  - ▶ Especially designed for UHV technique
  - ▶ Crack-free
  - ▶ Temperatures up to 350 °C
  - ▶ Pressures up to 10<sup>-12</sup> mbar
  - ▶ Copper flat gaskets can be used up to 3 times - depending on the torque value

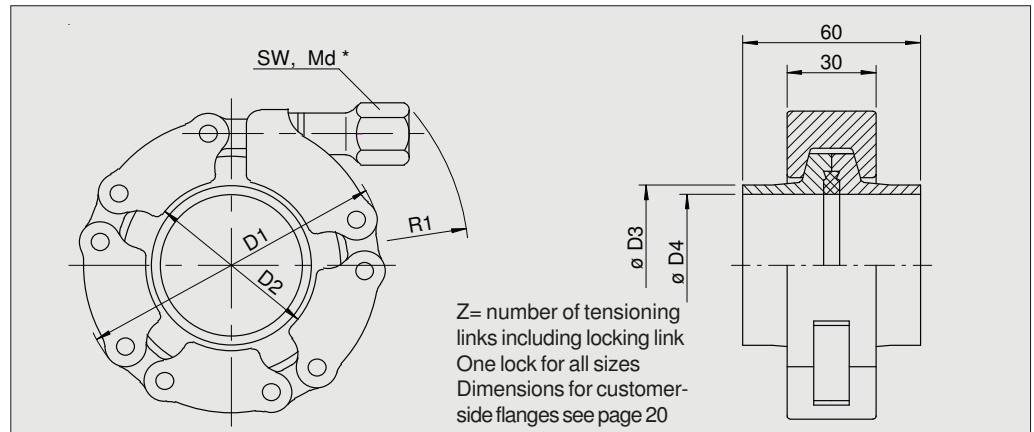


## Overview Clamp Fittings CF

Tensioning chains series	Material of chain links*	Temperature limits of tens. chains	Temperature limits of seals in air / in vacuum	Max. permitted pressure**	Weight of tensioning chain
320	precious steel 1.4435	-200 to +350°C	-200 to +350°C	DN 40 30bar	DN 40 810g
				DN 50 25bar	DN 50 970g
				DN 63 25bar	DN 63 1.090g
321	precious steell 1.4435	-200 to +350°C	-200 to +350°C	DN 100 15bar	DN 100 2.270g
				DN 160 14bar	DN 160 4.950g
				DN 200 12bar	DN 200 5.980g
				DN 250 10bar	DN 250 6.950g
303	precious steel 1.4429	-200 to +350°C	-200 to +350°C	DN 10/16 46bar	DN 10/16 196g
				DN 20/25 32bar	DN 20/25 242g
				DN 32/40 19bar	DN 32/40 291g
				DN 50 16bar	DN 50 504g

\* Material of bolts, eve-bolts and nuts: 1.4301

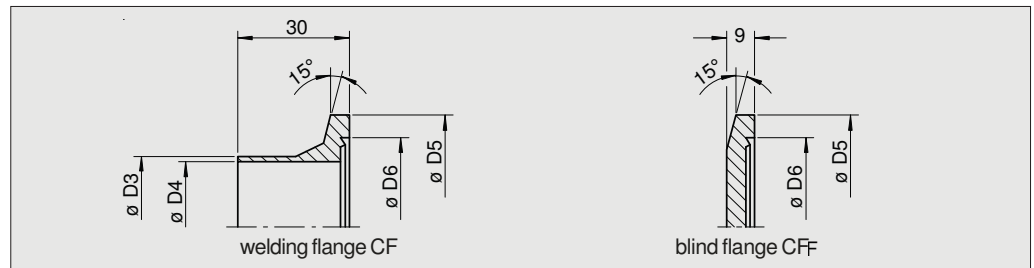
**Tensioning Chains CF**  
DN 40 to DN 63



DN mm	D1 mm	D2 mm	D3 mm	D4 mm	R1 mm	SW mm	Z	order no. tensioning chain CF 1.4435
40	92	48	38	35	101	17	4	320 0040
50	104	58	57	50	112	17	5	320 0050
63	136	84	70	63	144	17	6	320 0063

\* Fastening moments see page 5.

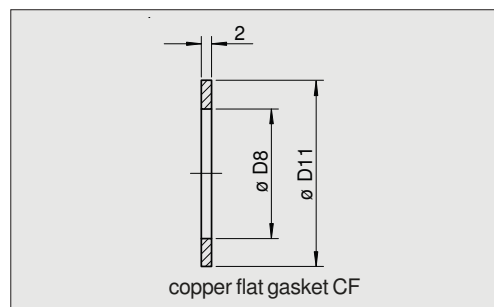
**Flanges CF**  
DN 40 to DN 63



DN mm	D3 mm	D4 mm	D5 mm	D6 mm	order no.	
					welding flange CF 1.4435	blind flange CF 1.4435
40	38	35	60	48,2	420 0040	421 0040
50	57	50	75	61,7	420 0050	421 0050
63	70	63	96	82,5	420 0063	421 0063

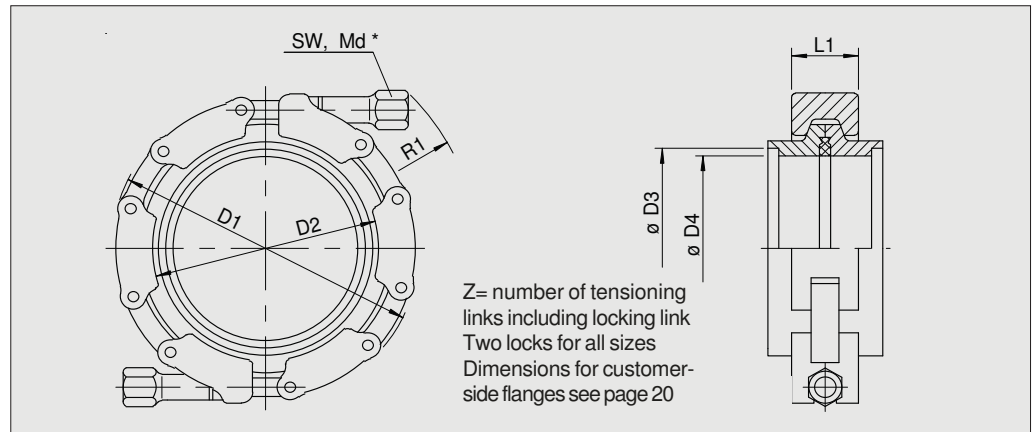
Flanges CF are available in further materials, special lengths and with different pipe connection diameters.

**Copper Flat Gaskets CF**  
DN 40 to DN 63



DN mm	D8 mm	D11 mm	order no. copper fl. gas. CF OFHC-copper
40	40	48,1	520 0040
50	50,8	61,6	520 0050
63	63,6	82,4	520 0063

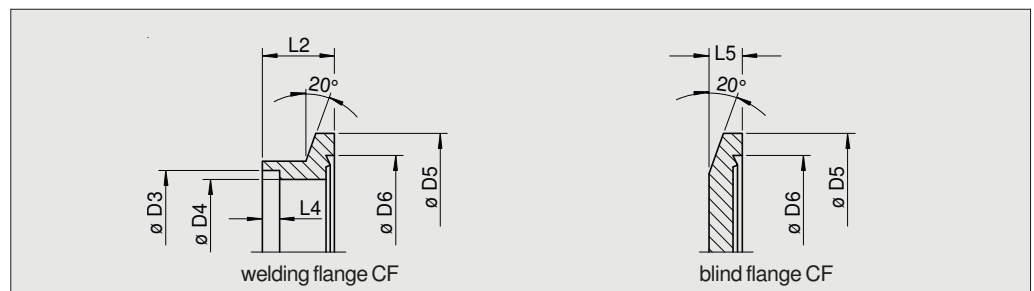
## Tensioning Chains CF DN 100 to DN 250



DN mm	D1 mm	D2 mm	D3 mm	D4 mm	R1 mm	L1 mm	SW	Z	order no. tensioning chain CF 1.4435
100	166	122	108,4	100	220	36	19	8	321 0100
160	234	172	159,3	150	284	36	19	8	321 0160
200	300	234	205,3	200	358	40	19	10	321 0200
250	346	284	256,3	250	405	40	22	10	321 0250

\* Torque values see page 5.

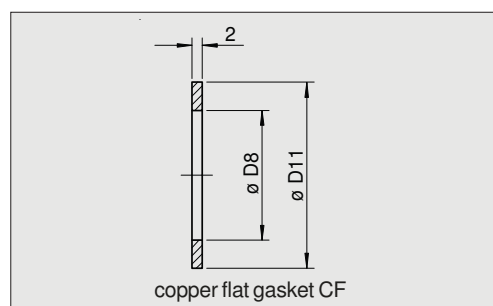
## Flanges CF DN 100 to DN 250



DN mm	D3 mm	D4 mm	D5 mm	D6 mm	L2 mm	L4 mm	L5 mm	order no.	
								welding flange CF 1.4435	blind flange CF 1.4435
100	108,4	100	134	120,6	21	3,2	12,5	422 0100	423 0100
160	159,3	150	196	171,5	21	3,2	13,5	422 0160	423 0160
200	205,3	200	250	222,3	25	4,5	13,5	422 0200	423 0200
250	256,3	250	298	273,3	30	5,0	14,0	422 0250	423 0250

Flanges CF are available in further materials, special lengths and with different pipe connection diameters.

## Copper Flat Gaskets CF DN 100 to DN 250

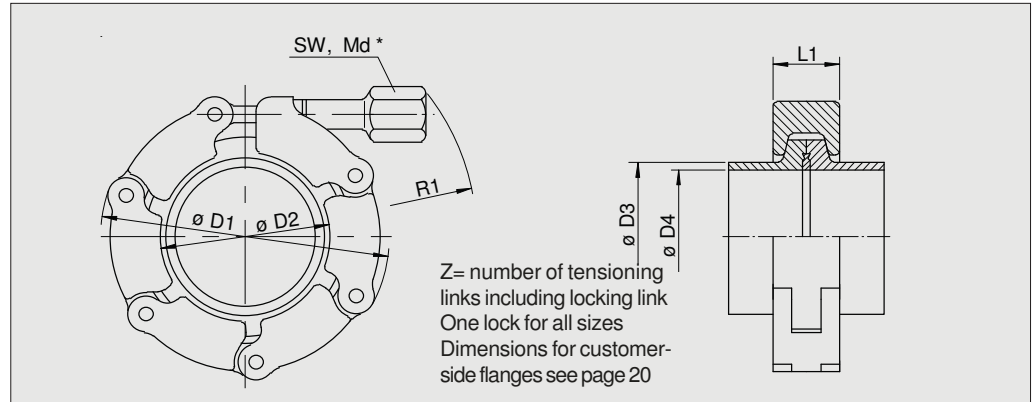


DN mm	D8 mm	D11 mm	order no. copper fl. gas. CF OFHC-copper
100	101,7	120,4	520 0100
160	152,5	171,3	520 0160
200	203,3	222,1	520 0200
250	254,0	273,0	520 0250



## Tensioning Chains KF with Flanges CF- KF DN 16 to DN 50

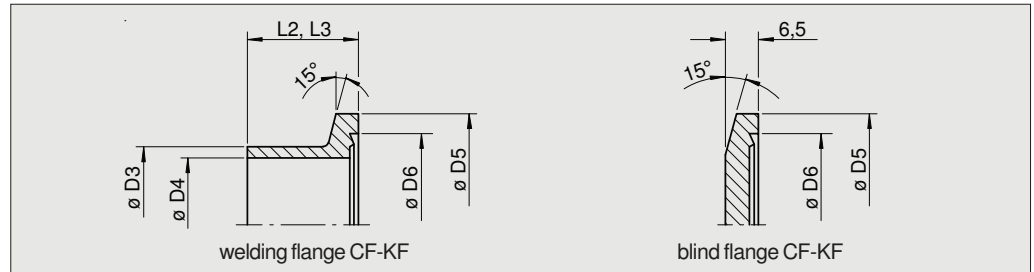
The flanges of the series CF-KF enable the combination of copper flat gaskets CF with tensioning chains KF.



DN mm	D1 mm	D2 mm	D3 mm	D4 mm	R1 mm	L1 mm	SW mm	Z	order no.	
										tens. chain KF series 303 1.4435
10/16	52	23	20	16	48	18	13	4		303 1016
20/25	64	31	28	24	55	18	13	5		303 2025
32/40	78	46	45	41	59	18	13	6		303 3240
50	97	68	57	50	68	20	13	7		303 0050

\* Torque values see page 5

## Flanges CF-KF DN 16 to DN 50

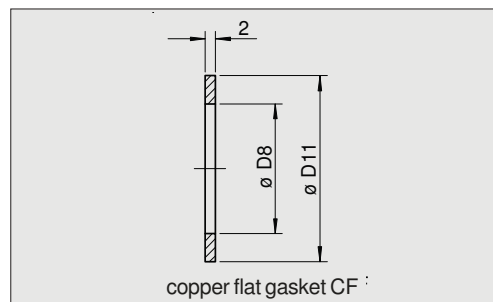


DN mm	D3 mm	D4 mm	D5 mm	D6 mm	L2* mm	L3 mm	order no.		
							welding flange CF-KF short* 1.4435	welding flange CF-KF long 1.4435	blinde flange CF-KF 1.4435
16	20	16	30	21,4	20	52	424 0016	425 0016	426 0016
25	28	24	40	32,9	20	52	424 0025	425 0025	426 0025
40	45	41	55	48,2	25	58	424 0040	425 0040	426 0040
50	57	50	75	61,7	25	58	424 0050	425 0050	426 0050

Flanges CF-KF are available in further materials, special lengths and with different pipe connection diameters.

\* Standard. Preferred use.

## Copper Flat Gaskets. CF DN 16 to DN 50



DN mm	D8 mm	D11 mm	order no. copper fl. gas. CF OFHC-copper
16	16,2	21,3	520 0016
25	25,4	32,8	520 0025
40	40,0	48,1	520 0040
50	50,8	61,6	520 0050

- Description**
- ▶ Extended diameter range
  - ▶ Light execution and standard execution available
  - ▶ Partly available with hand wheel cap
  - ▶ Elastomer and metal seals can be used



## Overview Clamp Fittings ISO

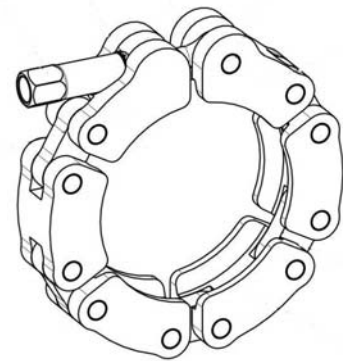
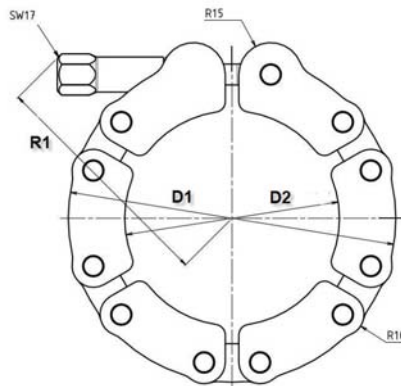
tens. chain series	material of chain links*	temperature limits of tens. chains	temperatur limits of seals in air / in vacuum	nominal diameter	max. perm. pressure**	weight of tensioning chain
341 (light)	aluminium	-150 to +150°C	NBR: -20 to +100°C FPM: -25 to +180°C aluminium-ed.seal: -190 to +200°C coppered.seal: -200 to +350°C	DN 80 DN 100 DN 125 DN 160 DN 200 DN 250 DN 320 to DN 700	7bar 6bar 4bar 3bar 2bar 1bar upon request	405g 434g 670g 1122g 1415g 1650g upon request
341 (standard)	aluminium	-150 to +150°C	NBR: -20 to +100°C FPM: -25 to +180°C aluminium-ed.seal: -190 to +200°C coppered.seal: -200 to +350°C	DN 80 DN 100 DN 125 DN 160 DN 200 DN 250 DN 320 to DN 700	9bar 8bar 6bar 5bar 4bar 3bar upon request	485g 725g 1116g 1220g 1510g 1910g upon request
342 (standard)	precious steel 1.4435	-200 to +350°C	NBR: -20 to +100°C FPM: -25 to +180°C aluminium-ed.seal: -190 to +200°C coppered.seal: -200 to +350°C	DN 80 DN 100 DN 125 DN 160 DN 200 DN 250	11bar 10bar 8bar 7bar 6bar 5bar	1420g 1520g 3270g 3570g 4410g 5580g

\* Material of bolts, eye-bolts and nuts for all series: 1.4301

The hand wheel caps are made of black plastic. Temperature limits: -30 °C to +75 °C.

\*\* Attention! Please adhere absolutely to comments on page 4. In case of internal pressure supporting rings are required.

## Tensioning Chains ISO Light

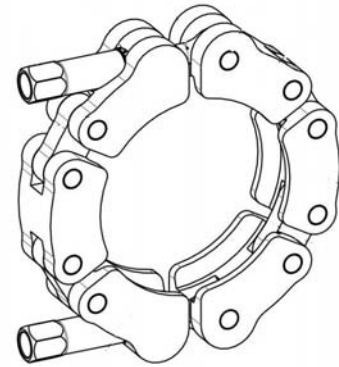
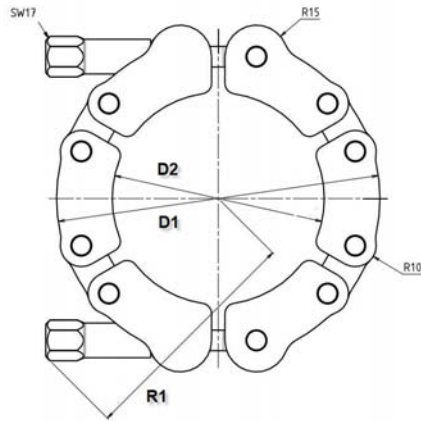


DN mm	D1 mm	D2 mm	D3 mm	D4 mm	R1 mm	R2 mm	L1 mm	SW mm	Z	order no. tensioning chain ISO light aluminium
80	154	101	88,9	83	118	145	34	17	5	341-0080-LEICHT
100	170	121	108,0	102	130	152	34	17	5	341-0100-LEICHT
125	214	148	133,0	127	139	179	34	17	6	341-0125-LEICHT
160	244	172	159,0	153	154	194	34	17	6	341-0160-LEICHT
200	310	234	219,1	213	180	220	36	17	7	341-0200-LEICHT
250	358	284	267,0	261	211	251	36	19	7	341-0250-LEICHT
320	391	339	323,9	318	221	261	36	19	10	341-0320-LEICHT
400	490	421	406,4	400	271	311	40	22	12	341-0400-LEICHT
500	604	531	508,0	501	327	367	40	22	14	341-0500-LEICHT
630	762	683	660,4	651	400	440	40	27	16	341-0630-LEICHT
700	804	733	711,0	702	425	465	40	27	18	341-0700-LEICHT

\* Tensioning chains with hand wheel cap are marked with the letter "H" behind the order number.

\*\* Torque values: see page 5.

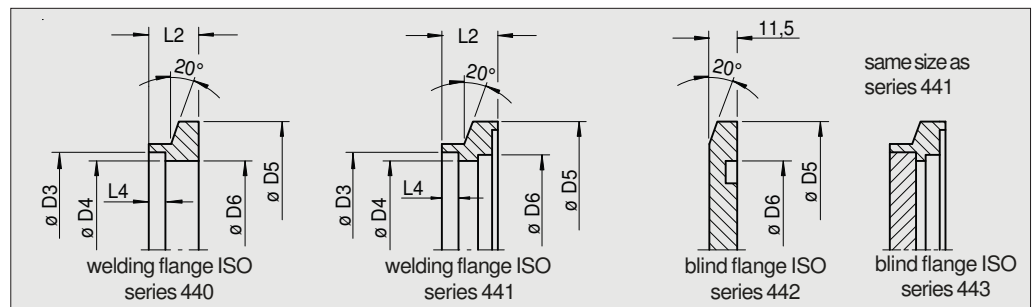
## Tensioning Chains ISO Standard



DN mm	D1 mm	D2 mm	D3 mm	D4 mm	R1 mm	L1 mm	SW mm	Z	order no.	
									tens. chain ISO standard aluminium	tens. chain ISO standard 1.4435
80	154	101	88,9	83	118	34	17	6	341-0080-SCHWER	342-0080
100	170	121	108,0	102	130	34	17	6	341-0100-SCHWER	342-0100
125	214	148	133,0	127	139	34	17	6	341-0125-SCHWER	342-0125
160	244	172	159,0	153	154	34	17	8	341-0160-SCHWER	342-0160
200	310	234	219,1	213	180	36	17	8	341-0200-SCHWER	342-0200
250	358	284	267,0	261	211	36	19	8	341-0250-SCHWER	342-0250
320	391	339	323,9	318	221	36	19	10	341-0320-SCHWER	342-0320
400	490	421	406,4	400	271	40	22	12	341-0400-SCHWER	342-0400
500	604	531	508,0	501	327	40	22	14	341-0500-SCHWER	342-0500
630	762	683	660,4	651	400	40	27	16	341-0630-SCHWER	342-0630
700	804	733	711,0	702	425	40	27	18	341-0700-SCHWER	342-0700

\* Torque values see page 5.

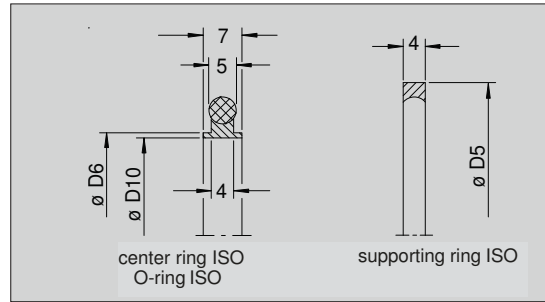
## Flanges ISO



DN mm	D3 mm	D4 mm	D5 mm	D6 mm	L2 mm	L4 mm	order no.	
							welding flange ISO 1.4435	blind flange ISO 1.4435
80	88,9	83	114	83	20	5	440 0080	442 0080
100	108,0	102	134	102	20	5	440 0100	442 0100
125	133,0	127	161	127	20	5	440 0125	442 0125
160	159,0	153	190	153	20	5	440 0160	442 0160
200	219,1	213	252	213	20	5	440 0200	442 0200
250	267,0	261	301	261	20	5	440 0250	442 0250
320	323,9	318	356	321	25	5	441 0320	443 0320
400	406,4	400	438	403	25	5	441 0400	443 0400
500	508,0	501	548	505	35	8	441 0500	443 0500
630	660,4	651	700	655	35	8	441 0630	443 0630
700	711,0	702	750	706	35	8	441 0700	443 0700

Flanges ISO are available in further materials, special lengths and with different pipe connection diameters.

**Center rings ISO  
O-rings ISO  
Supporting rings ISO**

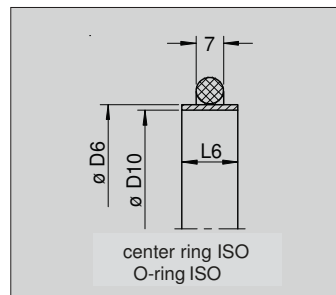


DN mm	D5 mm	D6 mm	D10 mm
80	114	83	81
100	134	102	100
125	161	127	125
160	190	153	151
200	252	213	211
250	301	261	259

DN	centering ISO		O-ring ISO		supporting ring ISO *	
	aluminium	1.4435	NBR	FPM	aluminium	1.4435
80	540 0080	541 0080	542 0080	543 0080	544 0080	545 0080
100	540 0100	541 0100	542 0100	543 0100	544 0100	545 0100
125	540 0125	541 0125	542 0125	543 0125	544 0125	545 0125
160	540 0160	541 0160	542 0160	543 0160	544 0160	545 0160
200	540 0200	541 0200	542 0200	543 0200	544 0200	545 0200
250	540 0250	541 0250	542 0250	543 0250	544 0250	545 0250

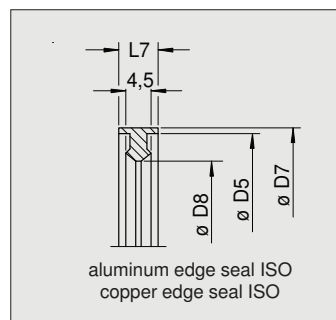
\* The supporting ring is required in case of internal pressure.

**Center Rings ISO  
O-Rings ISO**



DN mm	D6 mm	D10 mm	L6 mm	order no.		
				centering ISO 1.4435	O-ring ISO NBR	O-ring ISO FPM
320	321	318	13	551 0320	552 0320	553 0320
400	403	400	13	551 0400	552 0400	553 0400
500	505	501	20	551 0500	552 0500	553 0500
630	655	651	20	551 0630	552 0630	553 0630
700	706	702	20	551 0700	552 0700	553 0700

**Aluminium Edge  
Seals ISO  
Copper Edge Seals  
ISO**

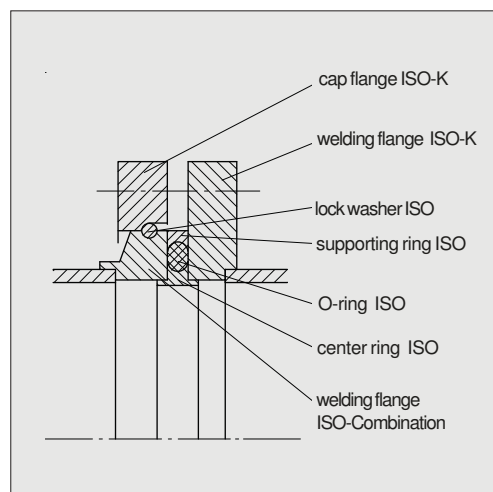
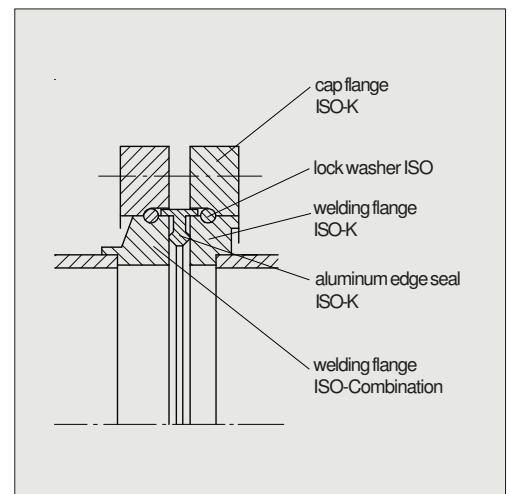
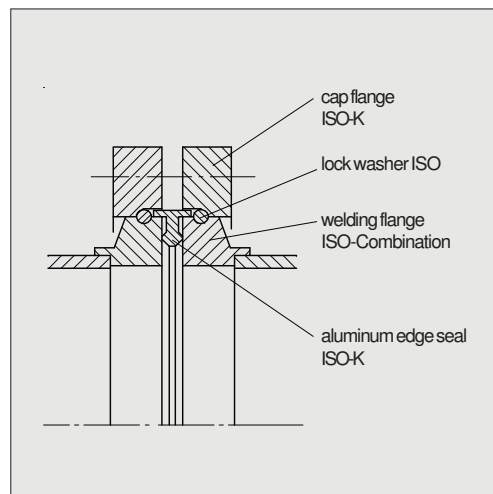
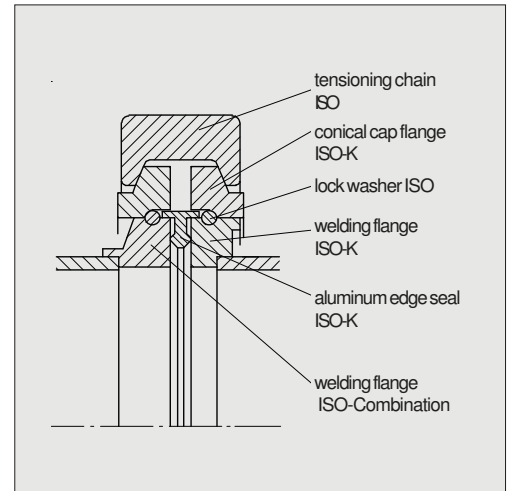
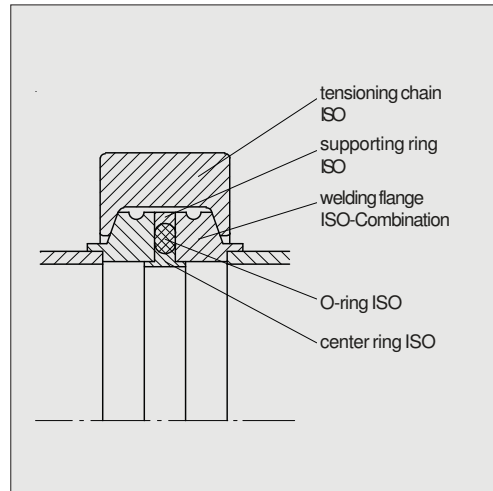


DN mm	D5 mm	D7 mm	D8 mm	L7 mm	order no.	
					aluminium- edge seal ISO aluminium	copper- edge seal ISO OFHC-copper
80	114	116	100	8	555 0080	556 0080
100	134	136	120	8	555 0100	556 0100
125	161	163	145	8	555 0125	556 0125
160	190	192	170	8	555 0160	556 0160
200	252	254	230	8	555 0200	556 0200
250	301	303	280	8	555 0250	556 0250
320	356	359	337	13	555 0320	556 0320
400	438	441	419	13	555 0400	556 0400
500	548	551	524	13	555 0500	556 0500
630	700	703	675	13	555 0630	556 0630
700	750	753	726	13	555 0700	556 0700

**Description** ▶ The welding flanges ISO-Combination enable the use of tensioning chains and the connection to other flange systems.

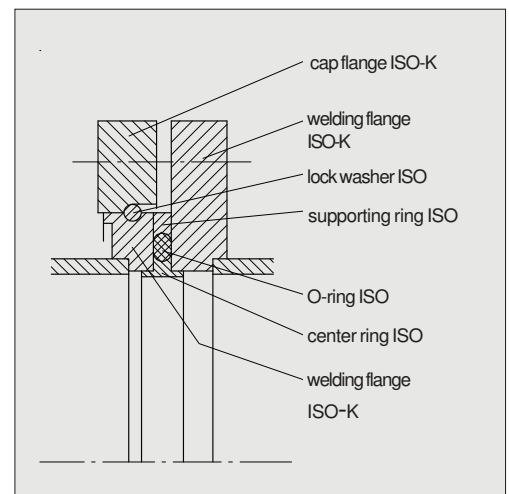
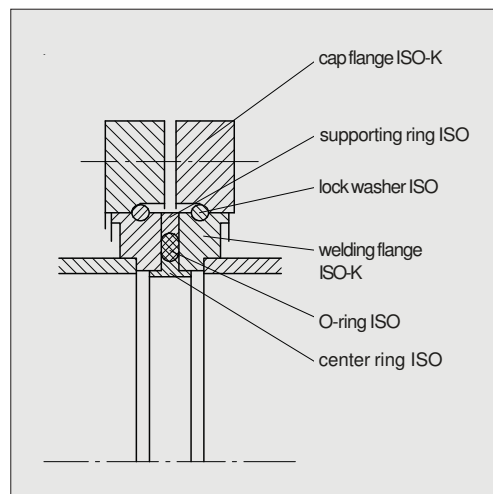
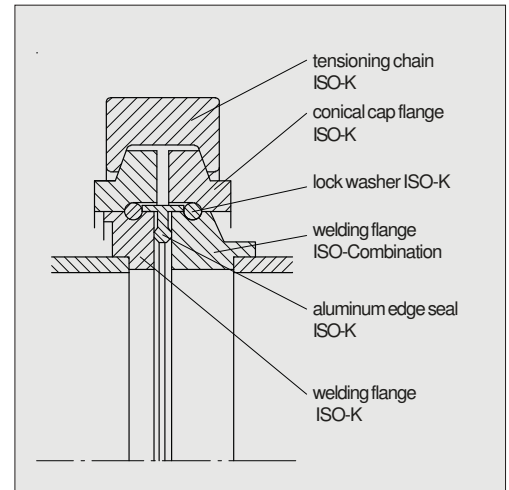
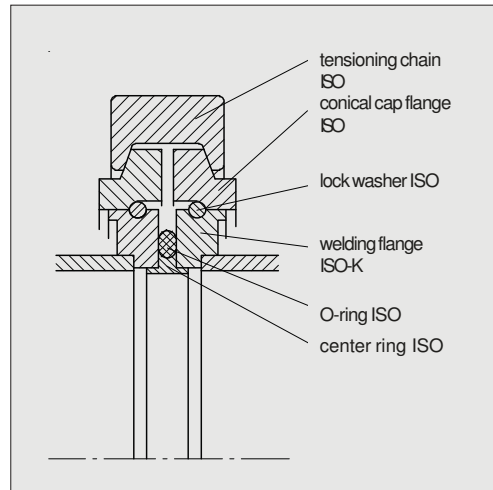
▶ Elastomer and metal seals can be used.  
▶ Available for DN 63 to 250.

## Combinations Possibilities



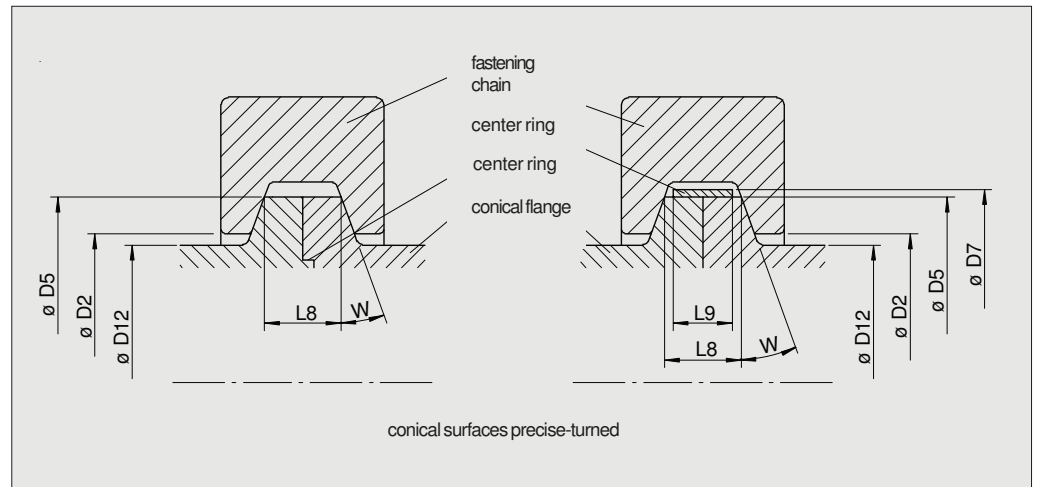
- Description**
- ▶ The advantages of the tensioning chains are applicable for clamped flange connections as well. In this case conical cap flanges have to be employed.
  - ▶ Elastomer and metal seals can be used.
  - ▶ Available for DN 63 to 250.

## Combination Possibilities



## Flange Dimensions for Fastening Chain Series

For the use of fastening chains on special flanges following dimensions have to be considered.



tensioning chain				flange dimensions					
production series	series	DN mm	D2 mm	D12max. mm	D5 mm	D7max. mm	L8 mm	L9 mm	W
KF	300 to 303	10/16	23	21	30	32	10	7 - 9	15°
		20/25	31	28	40	42	10	7 - 9	15°
		32/40	46	43	55	57	10	7 - 9	15°
		50	68	64	75	77	10	7 - 9	15°
		63	80	76	87	89	10	7 - 9	15°
CF	320	40	48	45	60	62	14	10 - 12	15°
		50	58	54	75	77	14	10 - 12	15°
		63	84	80	96	98	14	10 - 12	15°
	321	100	122	117	134	136	20	14 - 18	20°
		160	172	167	196	198	20	14 - 18	20°
		200	234	228	250	252	24	15 - 20	20°
		250	284	278	298	300	24	15 - 20	20°
ISO	340 to 342	080	101	97	114	116	20,2	14 - 18	20°
		100	121	116	134	136	20,2	14 - 18	20°
		125	148	143	161	163	20,2	14 - 18	20°
		160	172	167	190	192	20,2	14 - 18	20°
		200	234	228	252	254	20,2	14 - 18	20°
		250	284	278	301	303	20,2	14 - 18	20°
		320	339	332	356	359	24,2	18 - 22	20°
		400	421	414	438	441	24,2	18 - 22	20°
		500	531	523	548	551	24,2	18 - 22	20°
		630	683	675	700	703	24,2	18 - 22	20°
700	733	725	750	753	24,2	18 - 22	20°		





**Limitations of use** Available sizes: all sizes can be delivered  
 Pressures/forces: up to high pressure  
 Temperatures: -273°C to +800°C

**Chain materials**

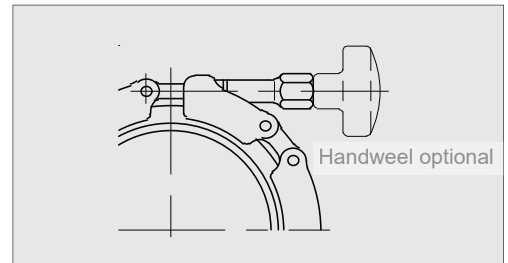
- ▶ plastic
- ▶ aluminium
- ▶ precious steel

**Surface treatments:**

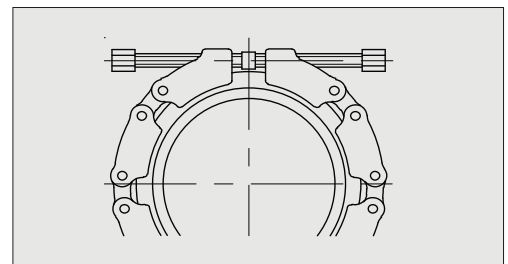
- ▶ parkerizing
- ▶ chromating
- ▶ chemical nickel-plating
- ▶ Gleitmo<sup>R</sup> coating

**Locks**

- ▶ Eye-bolt with nut
- ▶ Eye-bolt with nut and hand wheel cap
- ▶ Fastening screw with counter-rotating thread
- ▶ Eccentric lock - no sticking out components, self-securing
- ▶ Lever lock
- ▶ Emergency opening via bowden cable activated bolts



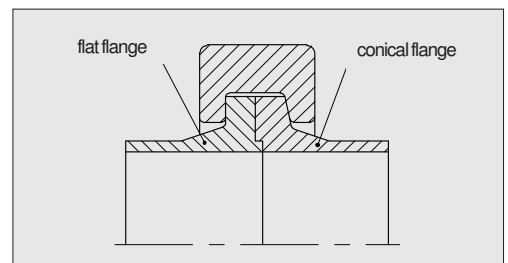
Eye-bolt with nut and hand wheel cap



Fastening screw with counter-rotating thread

**Detailed variations**

- ▶ Asymmetrical connection with a flat flange
- ▶ Fastening of tensioning chain at one of the flanges/components
- ▶ Tensioning chain with limited aperture angle



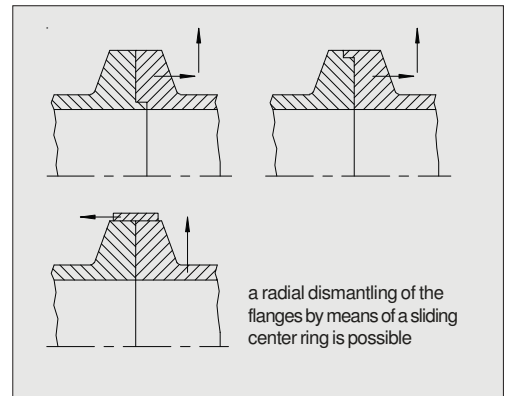
asymmetrical connection with a flat flange

**Flanges** The conical flanges are normally delivered with the tensioning chain. Connecting dimensions, materials and surface treatments are carried out in accordance with customer's specification. For existing conical flanges only the tensioning chains can be delivered.

**Centerings** The flanges/components have to be centred to each other. The tensioning chains do not take over any centering functions.

**Seals** All seal types (metal seals included) can be applied.

**Inquiries** The form on page 24 can be used for all inquiries.



centering possibilities

To:

Date:

From Company:  Contact :

Street:  Department :

Postcode/place:  Position :

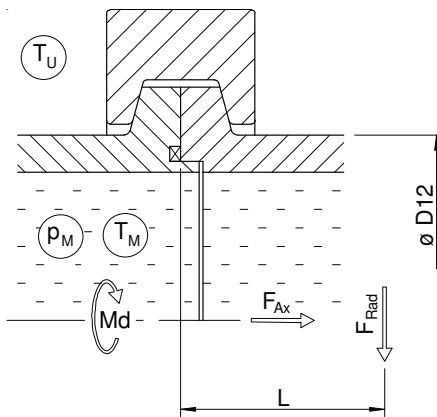
Telephone :  Tel. extension :

Telefax :  Fax extension :

Please submit free of charge and without obligation your offer for clamp fittings/tensioning chains as specified below:

Place of use:  for existing parts:  for new constructions:

Technical data :



Pipe outer diam.  $D12 =$   mm

Medium

Medium pressure  $P_M =$   bar max.

Medium temp.  $T_M =$   to  °C

Ambient temp.  $T_U =$   to  °C

Axial force  $F_{Ax} =$   N max.

Radial force  $F_{Rad} =$   N max.

Lever arm  $L =$   mm

Turning moment  $Md =$   Nm max.

Safety factor  $f =$   times

mainly dead load  rising/changing load/pressure pulsation

Material of chain  plastic  aluminium  prec. steel

Lock of chain  eye-bolt with nut  eye-bolt with nut and hand wheel cap

Conical flanges:

Customer parts - flange outside dimension as per enclosed sketch has to be maintained

Customer parts - flange outside dim. in accordance with data from chain manufact. flange mat.

additional offer - pipe connecting dimension (welding seam) and flange material in accordance with enclosed sketch

Seal:  not required  customer part - mounting space in acc. with enclosed sketch  addit. offer required sealing force  N/mm sealing length

Requirement:  pcs now  pcs per year  pcs in total

Dates/deadlines: Offer is required until  Parts are required until

Remarks, Security reference, Required licences, documents, certificates