



Tri-Clamp Connections Chapter 1

1.0 to 1.9 Various Tri-Clamp Closure Clamps

- 2.0 Tri-Clamp Ferrule according ISO
- 2.1 Tri-Clamp Ferrule according ISO
- 2.2 Tri-Clamp Ferrule according DIN
- 2.3 Tri-Clamp Ferrule according BS
- 3.0 Tri-Clamp Gaskets according ISO
- 3.1 Tri-Clamp Gaskets according DIN
- 3.2 Tri-Clamp Gaskets according BS
- 3.3 Table of Material-Resistance for Elastomers
- 4.0 Tri-Clamp End Cap
- 5.0 Clamp Sight Glass



Tri-Clamp Connections

SH Type Closure Clamp

Chapter Tri-Clamp Connections
Page 1.0

Product group: Tri-Clamp Connections

Title: SH Type Closure Clamp

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Tri-Clamp Coupling, Wingnuts und Eye-Bolt Screw from Stainless Steel USA ASTM 316 (1.4401)

Sterilization temperature: 150°C

Type of construction / Surface quality: Closure Clamp with V-Profile, for equal pressure overall the hole diameter. Surface: bright finish

Options: The Wing-Nut can be exchanged by a special Hexagon-Nut
Item-No. for clamps 1/2" to 5" = 200.000.001
Item-No. for clamps from 6" = 200.000.002.

Remarks: Technical contents are subject to change
Data to the maximum operating pressure became in dependingness with the assigned seals (elastomers).
Clamp with Wing-Nut SH Type: Torque rating 5 Nm
Clamp with Hexagon-Nut SHX Type: Torque rating 20 Nm

Technical Datas to SH Type Closure Clamp										
Drawing to table below: see page 1.1 (Chapter 1, Tri-Clamp Connections)										
ISO 2852	DIN 32676	BS 4825	A TC-Size	B Rad.	C Length	W Thick- ness	max. Working- pressure by 150° C	max. Test- pressure	Weight in gramm	Item-Number
DN 6 / 8 / 10	DIN 4 / 6 / 8 / *10	1/2" - *3/4"	25.0	65.0	64.0	17.0	50 bar	120 bar	150 g	200.005.028
	DIN 10 / 15 / 20		34.0	65.0	68.0	17.0	50 bar	120 bar	170 g	200.010.037
DN 8* / 10* 15 / 20 / 25	DIN 25 / 32 40	1" - 1 1/2"	50.5	77.0	93.0	17.0	50 bar	120 bar	250 g	200.025.053
DN 32 / 40	DIN 50	2"	64.0	95.0	108.0	17.0	50 bar	120 bar	330 g	200.050.067
DN 50		2 1/2"	77.5	100.0	125.0	17.0	50 bar	100 bar	380 g	200.065.080
DN 65	DIN 65	3"	91.0	105.0	139.0	17.0	40 bar	90 bar	440 g	200.080.094
DN 80	DIN 80	3 1/2"	106.0	108.0	144.0	17.0	40 bar	90 bar	440 g	200.090.108
	DIN 100	4"	119.0	120.0	171.0	17.0	35 bar	90 bar	570 g	200.100.122
DN 100		4 1/2"	130.0	120.0	173.0	17.0	30 bar	80 bar	600 g	200.114.133
		*5"	144.5	135.0	194.0	19.0	30 bar	80 bar	750 g	200.125.147
	*DIN 125	5 1/2"	155.0	153.0	255.0	24.0	30 bar	70 bar	1390 g	200.125.157
		*6"	167.0	158.0	260.0	24.0	30 bar	50 bar	1380 g	200.150.170
DN 150	DIN 150	6 5/8"	183.0	178.0	275.0	24.0	25 bar	40 bar	1610 g	200.150.170.58
		8"	217.5	195.0	324.0	24.0	20 bar	40 bar	2110 g	200.200.220
DN 200	DIN 200	8 5/8"	233.5	203.0	336.0	24.0	20 bar	40 bar	2250 g	200.200.220.58
	*DIN 250	*10"	268.0	220.0	376.0	24.0	16 bar	32 bar	2780 g	200.250.250
	*DIN 300	*12"	319.0	240.0	450.0	24.0	10 bar	20 bar	3690 g	200.319.304.1
DN 300		12 5/8"	338.5	243.0	453.0	24.0	10 bar	20 bar	3465 g	200.300.338.1

Tri-Clamp Connections

SH Type Closure Clamp

Chapter Tri-Clamp Connections
Page 1.1

Product group: Tri-Clamp Connections

Title: SH Type Closure Clamp

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Tri-Clamp Coupling, Wingnuts und Eye-Bolt Screw from Stainless Steel USA ASTM 316 (1.4401)

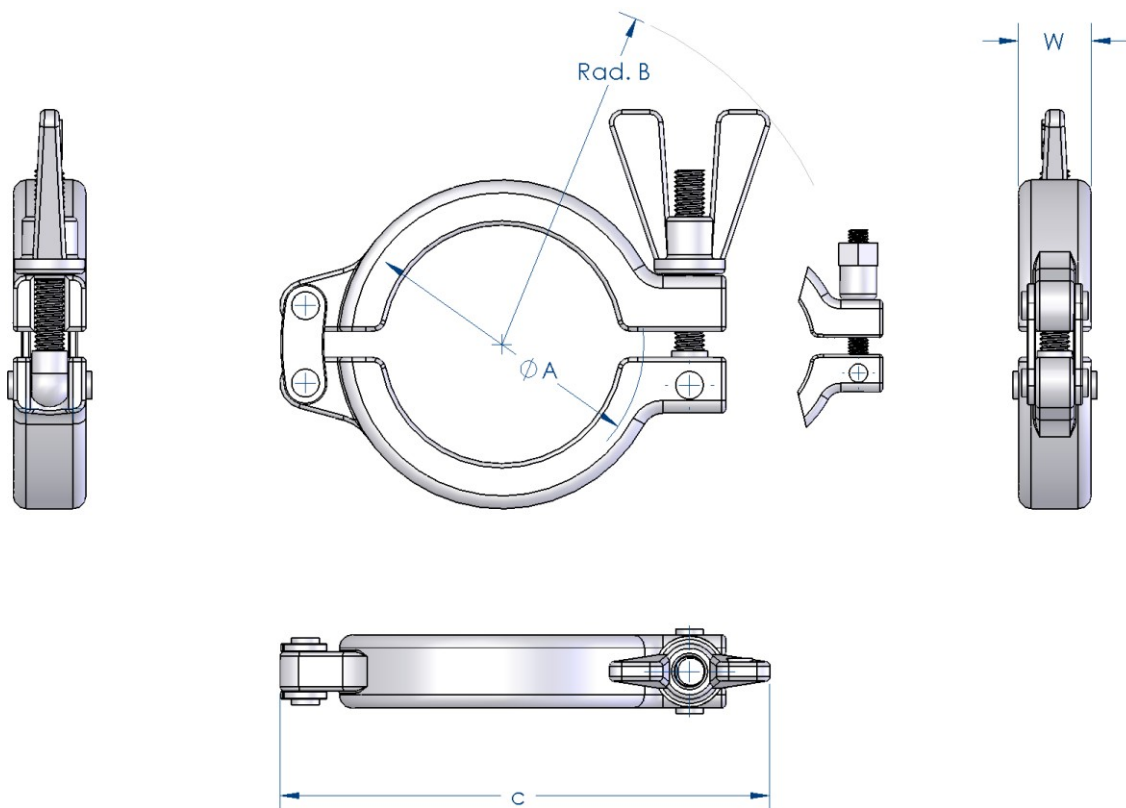
Sterilization temperature: 150°C

Type of construction / Surface quality: Closure Clamp with V-Profile, for equal pressure overall the hole diameter. Surface: bright finish

Remarks: Technical contents are subject to change

Recommended ranges of Application: Pharma- and Biotechnology
For all applications with with high requirements.

SH Type Closure Clamp
Technical Datas to drawing below: see page 1.0 (Chapter 1, Tri-Clamp Connections)



Tri-Clamp Connections

SH Type (Double Bolted) Closure Clamp

Chapter Tri-Clamp Connections
Page 1.2

Product group: Tri-Clamp Connections

Title: SH Type (Double Bolted) Closure Clamp

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Tri-Clamp Coupling, Wingnuts und Eye-Bolt Screw from Stainless Steel USA ASTM 316 (1.4401)

Sterilization temperature: 150°C

Type of construction / Surface quality: Closure Clamp with V-Profile, for equal pressure overall the hole diameter. Surface: bright finish

Options: The Wing-Nuts can be exchanged by special Hexagon-Nuts:
Item-No. for clamps 1/2" to 5" = 200.000.001
Item-No. for clamps from 6" = 200.000.002.

Remarks: Technical contents are subject to change
Data to the maximum operating pressure became in dependingness with the assigned seals (elastomers).
Clamp with Wing-Nut SH Type: Torque rating 5 Nm
Clamp with Hexagon-Nut SHX Type: Torque rating 20 Nm

Technical Datas to SH Type (Double Bolted) Closure Clamp										
Drawing to table below: see page 1.3 (Chapter 1, Tri-Clamp Connections)										
ISO 2852	DIN 32676	BS 4825	A TC-Size	B Rad.	C Length	W Thick- ness	max. Working- pressure by 150° C	max. Test- pressure	Weight in gramm	Item-Number
	*DIN 125	5 1/2"	155.0	153.0	265.0	24.0	30 bar	70 bar	1470 g	200.125.157.-2
		*6"	167.0	158.0	270.0	24.0	30 bar	50 bar	1670 g	200.150.170.-2
DN 150	DIN 150	6 5/8"	183.0	178.0	258.0	24.0	25 bar	40 bar	1690 g	200.150.170.59
		8"	217.5	195.0	334.0	24.0	20 bar	40 bar	2190 g	200.200.220
DN 200	DIN 200	8 5/8"	233.5	203.0	346.0	24.0	20 bar	40 bar	2340 g	200.200.220.59
	*DIN 250	*10"	268.0	220.0	376.0	24.0	16 bar	32 bar	2780 g	200.250.250.-2
DN 250		10 5/8"	287.5	230.0	396.0	24.0	16 bar	30 bar	2970 g	200.250.250.58
	*DIN 300	*12"	319.0	240.0	450.0	24.0	10 bar	20 bar	3690 g	200.319.304.2
DN 300		12 5/8"	338.5	250.0	460.0	24.0	10 bar	20 bar	3370 g	200.300.338.2

Tri-Clamp Connections

SH Type (Double Bolted) Closure Clamp

Chapter Tri-Clamp Connections
Page 1.3

Product group: Tri-Clamp Connections

Title: SH Type (Double Bolted) Closure Clamp

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Tri-Clamp Coupling, Wingnuts und Eye-Bolt Screw from Stainless Steel USA ASTM 316 (1.4401)

Sterilization temperature: 150°C

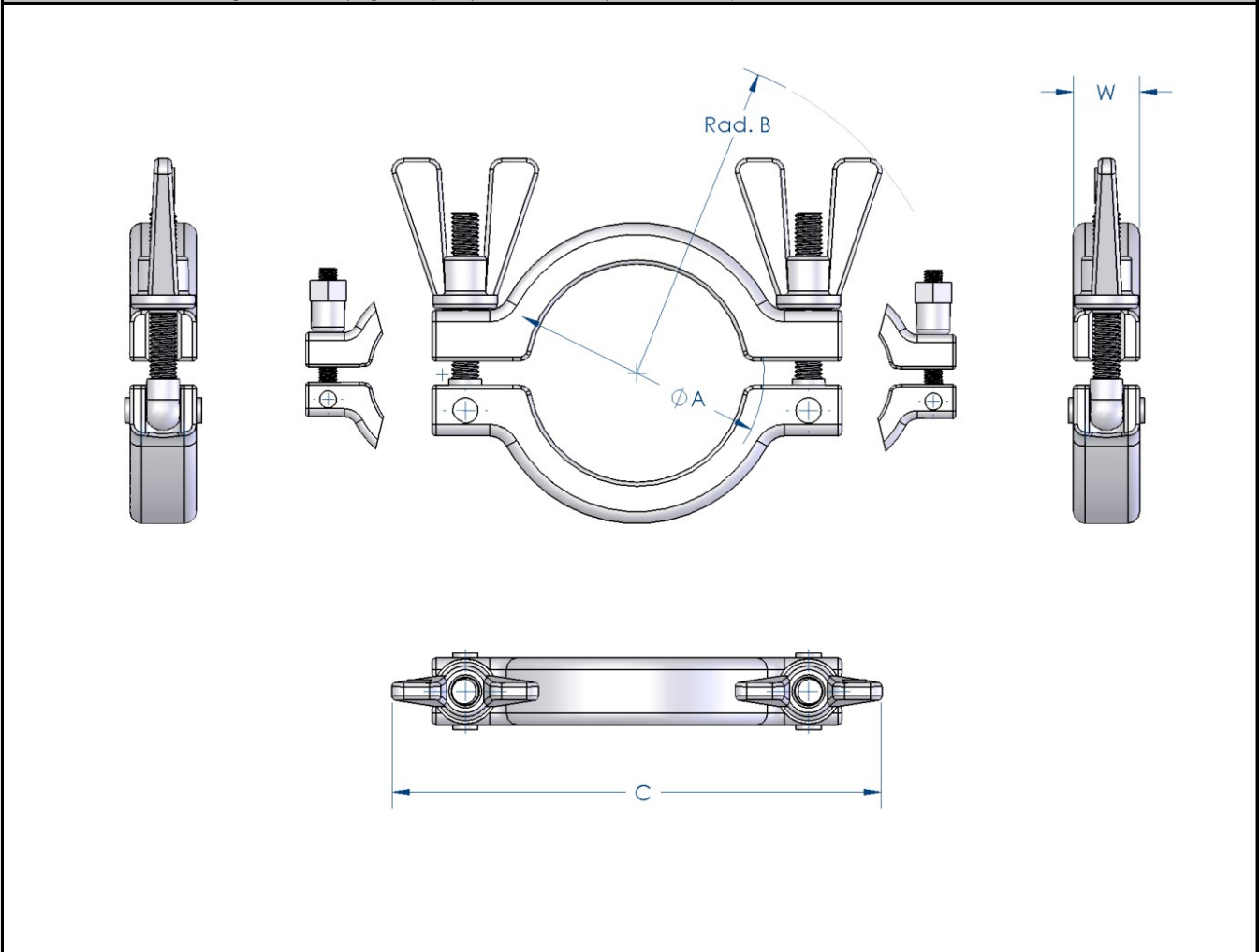
Type of construction / Surface quality: Closure Clamp with V-Profile, for equal pressure overall the hole diameter. Surface: bright finish

Remarks: Technical contents are subject to change

Recommended ranges of Application: Pharma- and Biotechnology. Suitable for the majority of all applications, with pressure ratings from 10bar to 30bar (dependant on clamp size).

SH Type (Double Bolted) Closure Clamp

Technical Datas to drawing below: see page 1.2 (Chapter 1, Tri-Clamp Connections)



Tri-Clamp Connections

S Typ Closure Clamp

Chapter Tri-Clamp Connections
Page 1.4

Product group: Tri-Clamp Connections

Title: S-Type Closure Clamp

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Tri-Clamp Coupling, Wingnuts und Eye-Bolt Screw from Stainless Steel USA ASTM 316 (1.4401)

Sterilization temperature: 150°C

Type of construction / Surface quality: Closure Clamp with V-Profile, for equal pressure overall the hole diameter. Surface: bright finish

Options: On request: Wing-Nuts can be exchanged by special Hexagon-Nuts. Technical contents are subject to change

Remarks: Data to the maximum operating pressure became in dependingness with the assigned seals (elastomers).

Technical Datas to S Type Closure Clamp

Drawing to table below: see page 1.5 (Chapter 1, Tri-Clamp Connections)

ISO 2852	DIN 32676	BS 4825	A TC-Size	B Rad.	C Length	W Thick- ness	max. Working- pressure by 150° C	max. Test- pressure	Weight in gramm	Item-Number
DN 6 / 8 / 10	DIN 4 / 6 / 8 / *10	1/2" - *3/4"	25.0	63.0	60.0	17.0	25 bar	60 bar	130 g	204.005.028
	DIN 10 / 15 / 20		34.0	73.0	69.0	17.0	25 bar	60 bar	170 g	204.010.037
DN 8* / 10* 15 / 20 / 25	DIN 25 / 32 40	1" - 1 1/2"	50.5	78.0	85.0	17.0	25 bar	60 bar	210 g	204.025.053
DN 32 / 40	DIN 50	2"	64.0	82.0	99.0	17.0	25 bar	60 bar	250 g	204.050.067
DN 50		2 1/2"	77.5	89.0	112.0	17.0	25 bar	60 bar	350 g	204.065.080
DN 65	DIN 65	3"	91.0	96.0	126.0	17.0	20 bar	48 bar	420 g	204.080.095
DN 80	DIN 80	3 1/2"	106.0	103.0	140.0	17.0	20 bar	48 bar	440 g	204.090.108
	DIN 100	4"	119.0	110.0	154.0	17.0	17 bar	40 bar	510 g	204.100.122
DN 100		4 1/2"	130.0	115.0	165.0	17.0	15 bar	30 bar	600 g	204.144.133
		*6"	167.0	134.0	216.0	25.0	15 bar	30 bar	880 g	204.150.170

Tri-Clamp Connections

S Typ Closure Clamp

Chapter Tri-Clamp Connections
Page 1.5

Product group: Tri-Clamp Connections

Title: S-Type Closure Clamp

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Tri-Clamp Coupling, Wingnuts und Eye-Bolt Screw from Stainless Steel USA ASTM 316 (1.4401)

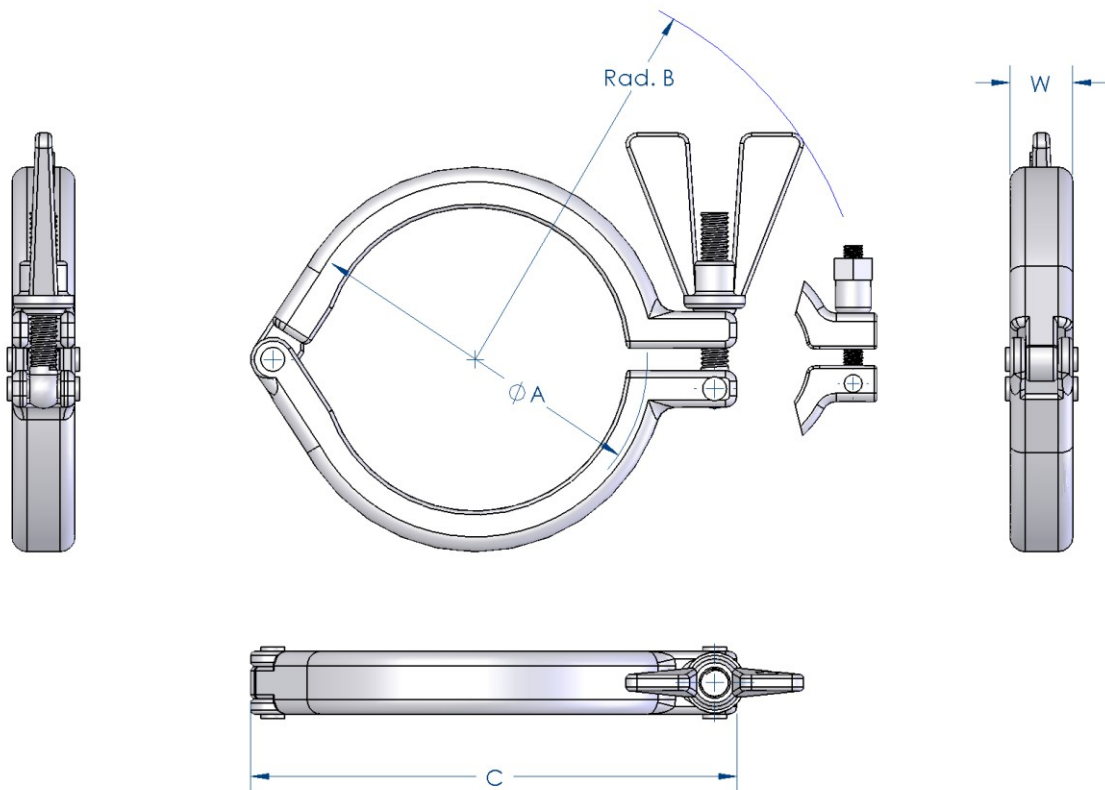
Sterilization temperature: 150°C

Type of construction / Surface quality: Closure Clamp with V-Profile, for equal pressure overall the hole diameter. Surface: bright finish

Remarks: Technical contents are subject to change

Recommended ranges of Application: Pharma- and Biotechnology
For all application where high-pressure ratings are not a critical factor.

S-Type Closure Clamp
Technical Datas to drawing below: see page 1.4 (Chapter 1, Tri-Clamp Connections)



Tri-Clamp Connections

SSH Type (Heavy Duty) Closure Clamp

Chapter Tri-Clamp Connections
Page 1.6

Product group: Tri-Clamp Connections

Title: SSH Type (Heavy Duty) Closure Clamp

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Tri-Clamp Coupling, Hexagon-Nuts and Eye-Bolt Screw from Stainless Steel USA ASTM 316 (1.4401)

Sterilization temperature: 150°C

Type of construction / Surface quality: Closure Clamp with V-Profile, for equal pressure overall the hole diameter. Surface: bright finish

Remarks: Technical contents are subject to change
Data to the maximum operating pressure became in dependingness with the assigned seals (elastomers).

Technical Datas to SSH Type (Heavy Duty) Closure Clamp										
Drawing to table below: see page 1.7 (Chapter 1, Tri-Clamp Connections)										
ISO 2852	DIN 32676	BS 4825	A TC-Size	B Rad.	C Length	W Thick- ness	max. Working- pressure by 150° C	max. Test- pressure	Weight in gramm	Item-Number
DN 6 / 8 / 10	DIN 4 / 6 / 8 / *10	1/2" - *3/4"	25.0	34.0	65.0	16.0	75 bar	180 bar	160 g	203.005.028
DN 8* / 10* 15 / 20 / 25	DIN 25 / 32 40	1" - 1 1/2"	50.5	60.0	103.0	26.0	75 bar	180 bar	660 g	203.025.053
DN 32 / 40	DIN 50	2"	64.0	67.0	113.0	26.0	75 bar	180 bar	820 g	203.050.067
DN 50		2 1/2"	77.5	75.0	128.0	26.0	75 bar	180 bar	940 g	203.065.080
DN 65	DIN 65	3"	91.0	80.0	137.0	26.0	60 bar	144 bar	1020 g	203.080.094
DN 80	DIN 80	3 1/2"	106.0	88.0	150.0	26.0	60 bar	144 bar	1070 g	203.090.108
	DIN 100	4"	119.0	93.0	165.0	26.0	53 bar	128 bar	1270 g	203.100.122
DN 100		4 1/2"	130.0	110.0	110.0	26.0	45 bar	108 bar	1330 g	203.144.133
		6"	167.0	130.0	130.0	26.0	45 bar	108 bar	1930 g	203.150.170
DN 150	DIN 150	6 5/8"	183.0	140.0	140.0	26.0	38 bar	91 bar	2110 g	203.150.170.58
DN 200	DIN 200	8 5/8"	233.0	160.0	160.0	26.0	30 bar	72 bar	2520 g	203.200.220.58
DN 250		10 5/8"	286.0	190.0	190.0	30.0	24 bar	58 bar	3000 g	203.250.250.58
DN 300		12 5/8"	338.0	220.0	220.0	30.0	15 bar	36 bar	4000 g	203.300.338

Tri-Clamp Connections

SSH Type (Heavy Duty) Closure Clamp

Chapter Tri-Clamp Connections
 Page 1.7

Product group: Tri-Clamp Connections

Title: SSH Type (Heavy Duty) Closure Clamp

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Tri-Clamp Coupling, Hexagon-Nuts and Eye-Bolt Screw from Stainless Steel USA ASTM 316 (1.4401)

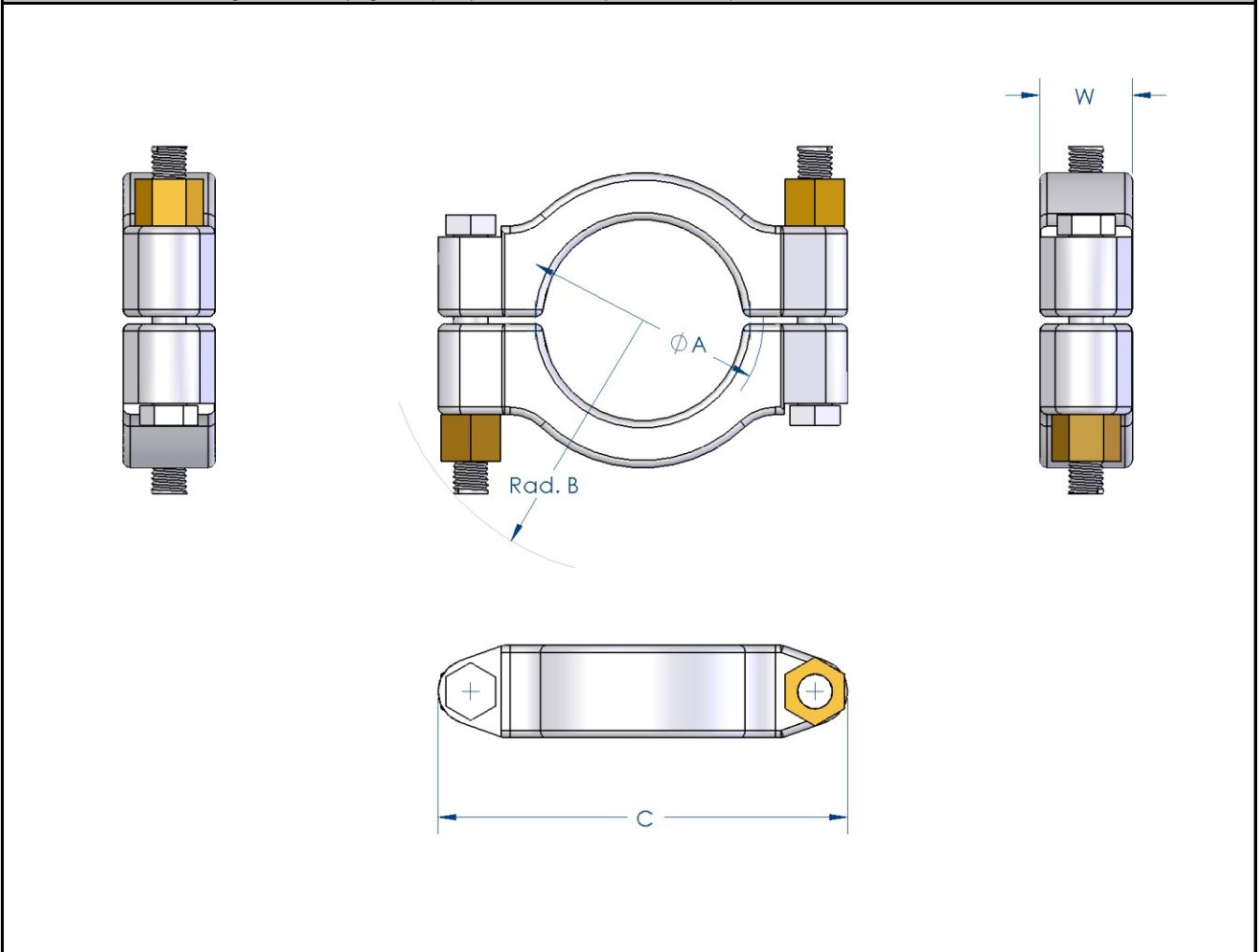
Sterilization temperature: 150°C

Type of construction / Surface quality: Closure Clamp with V-Profile, for equal pressure overall the hole diameter. Surface: bright finish

Remarks: Technical contents are subject to change

Recommended ranges of Application: Pharma, Biotechnology and Industry.
 For all applications, where very high pressure ratings are required.

SSH Type (Heavy Duty) Closure Clamp
 Technical Datas to drawing below: see page 1.6 (Chapter 1, Tri-Clamp Connections)



Tri-Clamp Connections

3 Segment Type Closure Clamp

Chapter Tri-Clamp Connections
Page 1.8

Product group: Tri-Clamp Connections

Title: 3 Segment Type Closure Clamp

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Tri-Clamp Coupling, Wingnuts und Eye-Bolt Screw from Stainless Steel USA ASTM 316 (1.4401)

Sterilization temperature: 150°C

Type of construction / Surface quality: 3 Segment-Clamp with V-profile, for equal pressure overall the hole diameter. Surface: bright finish

Remarks: Technical contents are subject to change
No data to the pressure ratings. Clamp is not in accordance to the CE-guidelines.

Technical Datas to 3 Segment Type Closure Clamp										
Drawing to table below: see page 1.9 (Chapter 1, Tri-Clamp Connections)										
ISO 2852	DIN 32676	BS 4825	A TC-Size	B Rad.	C Length	W Thick- ness	max. Working- pressure by 150° C	max. Test- pressure	Weight in gramm	Item-Number
DN 8* / 10* 15 / 20 / 25	DIN 25 / 32 40	1" - 1 1/2"	50.5	76.5	81.7	19.0	----	----	370 g	201.025.053
DN 32 / 40	DIN 50	2"	64.0	82.0	93.5	19.0	----	----	420 g	201.050.067
DN 50		2 1/2"	77.5	87.0	109.0	19.5	----	----	490 g	201.065.080
DN 65	DIN 65	3"	91.0	96.0	126.5	19.5	----	----	630 g	201.080.094

Tri-Clamp Connections

3 Segment Type Closure Clamp

Chapter Tri-Clamp Connections
 Page 1.9

Product group: Tri-Clamp Connections

Title: 3 Segment Type Closure Clamp

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Tri-Clamp Coupling, Wingnuts und Eye-Bolt Screw from Stainless Steel USA ASTM 316 (1.4401)

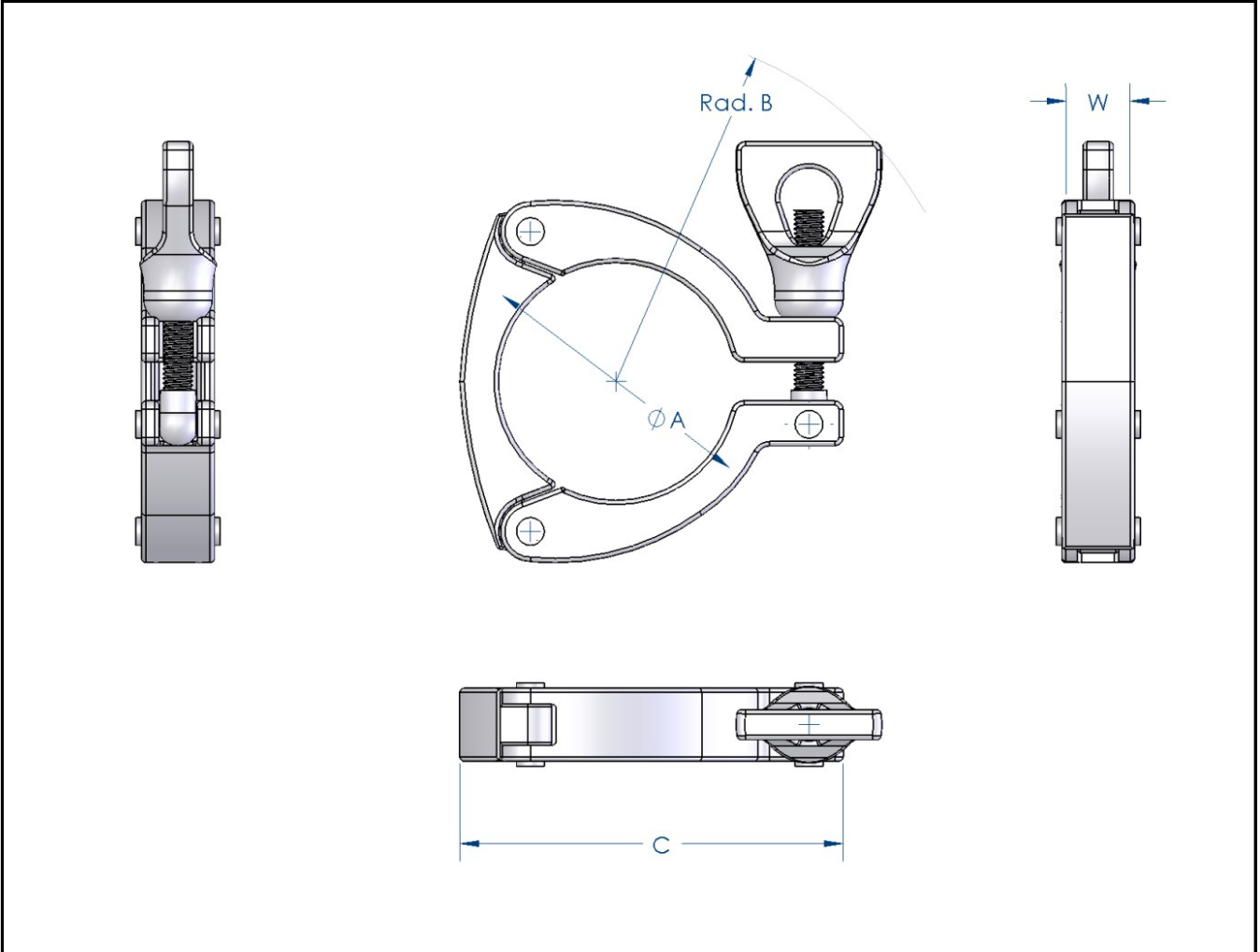
Sterilization temperature: 150°C

Type of construction / Surface quality: 3 Segment-Clamp with V-profile, for equal pressure overall the hole diameter. Surface: bright finish

Remarks: Technical contents are subject to change

Recommended ranges of Application: Pharma, Biotechnology and Industry.
 Everywhere where an exact passport to the flange connection is recommended.

3 Segment Type Closure Clamp
 Technical Datas to drawing below: see page 1.8 (Chapter 1, Tri-Clamp Connections)



Tri-Clamp Connections

Tri-Clamp Ferrule

Chapter Tri-Clamp Connections
Page 2.0

Product group: Tri-Clamp Connections

Title: Tri-Clamp Ferrule, Type Biotechnology

Valid Norms: ISO 2852 with pipe connection acc. ISO 1127

Material: Stainless steel 1.4435 BN2 (Fe < 0,5%) acc. EN 10088

Sterilizing temperature: 150°C

Type of construction / Surface quality: Inside and outside surface: bright finish. Butt-weld-Ends for orbital-welding. Ra inside < 0,4 µm, Ra outside: < 0.8 µm

Pipe-Hygienic Classes: H 3 / H 4 acc. DIN 11866

Marking: Size, Material, Batch-Number, Producer

Certificates: Certificate acc. EN 10204-3.1B

Option: Electropolishing

Remarks: Technical contents are subject to change

Dimensions for Tri-Clamp Ferrules						
Sizes	A	AD	ID	L	Item-Number	
according ISO 2852 / ISO 1127						
ISO DN 6	25.0	10.2	7.0	28.5	210.010.007	
ISO DN 8	25.0	13.5	10.3	28.5	210.013.010	
ISO DN 8	50.5	13.5	10.3	21.6	210.013.010.S	
ISO DN 10	25.0	17.2	14.0	28.5	210.017.014	
ISO DN 10	50.5	17.2	14.0	21.6	210.017.013	
ISO DN 10	50.5	17.2	14.0	28.5	210.017.013.28	
ISO DN 15	50.5	21.3	18.1	21.6	210.021.018	
ISO DN 15	50.5	21.3	18.1	28.5	210.021.018.28	
ISO DN 20	50.5	26.9	22.9	21.6	210.026.022	
ISO DN 20	50.5	26.9	22.9	28.5	210.026.022.28	
ISO DN 20/1	50.5	26.9	23.7	21.6	210.026.023	
ISO DN 20/1	50.5	26.9	23.7	28.5	210.026.023.28	
ISO DN 25	50.5	33.7	28.7	21.6	210.033.028	
ISO DN 25	50.5	33.7	28.7	28.5	210.033.028.28	
ISO DN 25/1	50.5	33.7	29.7	21.6	210.033.029	
ISO DN 25/1	50.5	33.7	29.7	28.5	210.033.029.28	
ISO DN 32	64.0	42.4	38.4	21.6	210.042.038	
ISO DN 32	64.0	42.4	38.4	28.5	210.042.038.28	
ISO DN 40	64.0	48.3	44.3	21.6	210.048.044	
ISO DN 40	64.0	48.3	44.3	28.5	210.048.044.28	
ISO DN 50	77.5	60.3	56.3	21.6	210.060.056	
ISO DN 50	77.5	60.3	56.3	28.5	210.060.056.28	

Tri-Clamp Connections

Tri-Clamp Ferrule

Chapter Tri-Clamp Connections
Page 2.1

Product group: Tri-Clamp Connections

Title: Tri-Clamp Ferrule, Type Biotechnology

Valid Norms: ISO 2852 with pipe connection acc. ISO 1127

Material: Stainless steel 1.4435 BN2 (Fe < 0,5%) acc. EN 10088

Sterilizing temperature: 150°C

Type of construction / Surface quality: Inside and outside surface: bright finish. Butt-weld-Ends for orbital-welding. Ra inside < 0,4 µm, Ra outside: < 0.8 µm

Pipe-Hygienic Classes: H 3 / H 4 acc. DIN 11866

Marking: Size, Material, Batch-Number, Producer

Certificates: Certificate acc. EN 10204-3.1B

Option: Electropolishing

Remarks: Technical contents are subject to change

Dimensions for Tri-Clamp Ferrules						
Sizes	A	AD	ID	L	Item-Number	
according ISO 2852 / ISO 1127						
ISO DN 65	91.0	76.1	72.1	21.6	220.076.072.SP	
ISO DN 65	91.0	76.1	72.1	28.5	220.076.072.28	
ISO DN 80	106.0	88.9	84.3	21.6	220.088.084	
ISO DN 80	106.0	88.9	84.3	28.5	220.088.084.28	
ISO DN 100	130.0	114.3	109.7	21.6	220.114.109.7	
ISO DN 150	182.7	168.3	163.1	28.5	220.000.150	
ISO DN 200	233.5	219.1	213.9	28.5	220.000.200	
ISO DN *250	286.1	273.1	266.3	28.5	220.000.250	
ISO DN *300	338.5	323.9	315.9	28.5	220.000.300	

Tri-Clamp Connections

Tri-Clamp Ferrule

Chapter Tri-Clamp Connections
Page 2.2

Product group: Tri-Clamp Connections

Title: Tri-Clamp Ferrule, Type Biotechnology

Valid Norms: DIN 32676 with pipe connection acc. DIN 11850, *non standard

Material: Stainless steel 1.4435 BN2 (Fe < 0,5%) acc. EN 10088

Sterilizing temperature: 150°C

Type of construction / Surface quality: Inside and outside surface: bright finish. Butt-weld-Ends for orbital-welding. Ra inside < 0,4 µm, Ra outside: < 0.8 µm

Pipe-Hygienic Classes: H 3 / H 4 acc. DIN 11866

Marking: Size, Material, Batch-Number, Producer

Certificates: Certificate acc. EN 10204-3.1B

Option: Electropolishing

Remarks: Technical contents are subject to change

Dimensions for Tri-Clamp Ferrules						
Sizes	A	AD	ID	L	Item-Number	
according DIN 32676 / DIN 11850						
DIN *4	25.0	6.0	4.0	28.5	210.006.004	
DIN *6	25.0	8.0	6.0	28.5	210.008.006	
DIN *8	25.0	10.0	8.0	28.5	210.010.008	
DIN *10	25.0	12.0	10.0	28.5	210.010.010	
DIN 10	34.0	13.0	10.0	28.5	215.013.010.DIN	
DIN 15	34.0	19.0	16.0	28.5	215.019.016.DIN	
DIN 20	34.0	23.0	20.0	28.5	215.023.020.DIN	
DIN 25	50.5	29.0	26.0	28.5	210.029.026.DIN	
DIN 32	50.5	35.0	32.0	28.5	210.035.032.DIN	
DIN 40	50.5	41.0	38.0	28.5	210.041.038.DIN	
DIN 50	64.0	53.0	50.0	28.5	210.053.050.DIN	
DIN 65	91.0	70.0	66.0	28.5	210.070.066.DIN	
DIN 80	106.0	85.0	81.0	28.5	210.085.081.DIN	
DIN 100	119.0	104.0	100.0	28.5	210.104.100.DIN	
DIN 125	155.0	129.0	125.0	28.5	210.129.125.DIN	
DIN 150	183.0	154.0	150.0	28.5	210.154.150.DIN	
DIN 200	233.5	204.0	200.0	28.5	210.204.200.DIN	

Tri-Clamp Connections

Tri-Clamp Ferrule

Chapter Tri-Clamp Connections
Page 2.3

Product group: Tri-Clamp Connections

Title: Tri-Clamp Ferrule, Type Biotechnology

Valid Norms: BS 4825 with pipe connection acc. ASME-BPE 1997, *non standard

Material: Stainless steel 1.4435 BN2 (Fe < 0,5%) acc. EN 10088

Sterilizing temperature: 150°C

Type of construction / Surface quality: Inside and outside surface: bright finish. Buttweld-Ends for orbital-welding. Ra inside < 0,4 µm, Ra outside: < 0.8 µm

Pipe-Hygienic Classes: H 3 / H 4 acc. DIN 11866

Marking: Size, Material, Batch-Number, Producer

Certificates: Certificate acc. EN 10204-3.1B

Option: Electropolishing

Remarks: Technical contents are subject to change

Dimensions for Tri-Clamp Ferrules						
Sizes	A	AD	ID	L	Item-Number	
according BS 4825 / ASME-BPE 1997						
OD 1/2"	25.0	12.7	9.4	28.5	220.012.009	<p>The diagram shows a cross-section of a Tri-Clamp Ferrule. It is a cylindrical component with a central bore. The outer diameter is labeled 'AD', the inner diameter is 'ID', and the length is 'L'. The total height of the ferrule is 'A'. The ends of the ferrule are beveled and have a chamfered edge. The drawing is a technical sketch with hatching to indicate the material and the internal bore.</p>
OD 3/4"	25.0	19.05	15.75	28.5	220.019.016	
OD 1"	50.5	25.4	22.1	21.6	220.025.022	
OD 1 1/2"	50.5	38.1	34.8	21.6	220.038.034	
OD 2"	64.0	50.8	47.5	21.6	220.050.047	
OD 2 1/2"	77.5	63.5	60.2	21.6	220.064.060	
OD 3"	91.0	76.2	72.9	21.6	220.076.072	
OD *3 1/2"	106.0	88.9	84.3	21.6	220.088.084	
OD 4"	119.0	101.6	97.4	21.6	220.102.097	
OD *4 1/2"	130.0	114.3	109.1	21.6	220.114.109	
OD *5"	144.5	127.0	120.0	21.6	220.127.120	
OD *5 1/2"	144.5	119.8	113.8	21.6	220.119.113	
OD 6"	167.0	152.4	146.86	21.6	220.154.147	
OD *8"	217.5	205.0	198.0	21.6	220.205.198	
OD *10"	268.0	254.0	250.0	28.5	220.254.250	
OD *12"	319.0	304.8	300.8	28.5	220.304.300	

Tri-Clamp Connections

Tri-Clamp Gaskets

Chapter Tri-Clamp Connections
Page 3.0

Product group: Tri-Clamp Connections

Title: Tri-Clamp Gasket, Type Biotechnology

Standards: ISO 2852, *non standard

Material: Virgin PTFE (Polytetrafluorethylen), PTFE with core from Fluor-Rubber FPM, Viton®, Polymerisat from Vinylidenfluorid and Hexafluorpropylen.

Sterelizing temperature: Platinum cured silicone, EPDM Aethylen-Propylen-Dien-Kautschuk, Viton®
EPDM: 132°C (shortly up to 150°C), Silicone, Viton® und Teflon® (PTFE): 150°C

Type of construction / Surface quality: Surface smoothly and nonporously, free of laminar recesses and increases.
Edges without tears and notches.

Marking: Marking on packing units

Certificates: Incl. Certificate of conformance FDA-21 CFR 177.2600 for Elastomers.

Incl. Certificate of conformance FDA-21 CFR 177.1550 for PTFE

Remarks: Technical contents are subject to change

Viton® and Teflon® are registered trademarks of DuPont Dow Elastomers

PTFE Gaskets do not have a fixing-lip.

Dimensions for Tri-Clamp Gaskets						
Size	A	Item-Number Viton®	Item-Number Silicone	Item-Number EPDM	Item-Number Teflon® / PTFE	
according ISO 2852 / ISO 1127						
ISO DN 8	22.0	240.022.010	241.022.010	242.022.010	244.022.010	
ISO DN *8	34.0	240.034.011	241.034.011	242.034.011	243.034.011	
ISO DN 8	50.5	240.050.010	241.050.010	242.050.010	243.050.010	
ISO DN 10	22.0	240.022.014	241.022.014	242.022.014	244.022.014	
ISO DN *10	34.0	240.034.014	241.034.014	242.034.014	243.034.014	
ISO DN 10	50.5	240.050.014	241.050.014	242.050.014	243.050.014	
ISO DN *15	34.0	240.034.019	241.034.019	242.034.019	243.034.019	
ISO DN 15	50.5	240.050.019	241.050.019	242.050.019	243.050.019	
ISO DN 20	50.5	240.050.022	241.050.022	242.050.022	243.050.022	
ISO DN 20/1	50.5	240.050.024	241.050.024	242.050.024	243.050.024	
ISO DN 25	50.5	240.050.030	241.050.030	242.050.030	243.050.030	
ISO DN 25/1	50.5	240.050.030	241.050.030	242.050.030	243.050.030	
ISO DN 32	64.0	240.064.039	241.064.039	242.064.039	243.064.039	
ISO DN 40	64.0	240.064.044	241.064.044	242.064.044	243.064.044	
ISO DN 50	77.5	240.077.056	241.077.056	242.077.056	243.077.056	
ISO DN 65	91.0	240.091.072	241.091.072	242.091.072	243.091.072	
ISO DN 80	106.0	240.106.084	241.106.084	242.106.084	243.106.084	
ISO DN 100	130.0	240.130.110	241.130.110	242.130.110	244.130.110	
ISO DN 150	182.7	240.000.150	241.000.150	242.000.150	243.000.150	
ISO DN 200	233.5	240.000.200	241.000.200	242.000.200	243.000.200	
ISO DN 250	287.5	240.000.250	241.000.250	242.000.250	243.000.250	
ISO DN 300	338.3	240.000.300	241.000.300	242.000.300	243.000.300	

Tri-Clamp Connections

Tri-Clamp Gaskets

Chapter Tri-Clamp Connections
Page 3.1

Product group: Tri-Clamp Connections

Title: Tri-Clamp Gasket, Type Biotechnology

Standards: DIN 32676, *non standard

Material: Virgin PTFE (Polytetrafluorethylen), PTFE with core from Fluor-Rubber FPM, Viton®, Polymerisat from Vinylidenfluorid and Hexafluorpropylen.
Platinum cured silicone, EPDM Aethylen-Propylen-Dien-Kautschuk, Viton®

Sterelizing temperature: EPDM: 132°C (shortly up to 150°C), Silicone, Viton® and Teflon® (PTFE): 150°C

Type of construction / Surface quality: Surface smoothly and nonporously, free of laminar recesses and increases.
Edges without tears and notches.

Marking: Marking on packing units

Certificates: Incl. Certificate of conformance FDA-21 CFR 177.2600 for Elastomers.
Incl. Certificate of conformance FDA-21 CFR 177.1550 for PTFE

Remarks: Technical contents are subject to change
Viton® and Teflon® are registered trademarks of DuPont Dow Elastomers
PTFE Gaskets do not have a fixing-lip.

Dimensions for Tri-Clamp Gaskets						
Size	A	Item-Number Viton®	Item-Number Silicone	Item-Number EPDM	Item-Number Teflon® / PTFE	
according DIN 32676 / DIN 11850						
DIN *4	22.0	240.022.003	241.022.004	242.022.004	244.022.004	
DIN *6	22.0	240.022.006	241.022.006	242.022.006	244.022.006	
DIN *8	22.0	240.022.008	241.022.008	242.022.008	244.022.008	
DIN *10	22.0	240.022.010	241.022.010	242.022.010	244.022.010	
DIN 10	34.0	240.034.010	241.034.010	242.034.010	243.034.010	
DIN 15	34.0	240.034.016	241.034.016	242.034.016	243.034.016	
DIN 20	34.0	240.034.020	241.034.020	242.034.020	243.034.020	
DIN 25	50.5	240.050.026	241.050.026	242.050.026	244.050.026	
DIN 32	50.5	240.050.032	241.050.032	242.050.032	244.050.032	
DIN 40	50.5	240.050.038	241.050.038	242.050.038	244.050.038	
DIN 50	64.0	240.064.050	241.064.050	242.064.050	244.064.050	
DIN 65	91.0	240.091.066	241.091.066	242.091.066	244.091.066	
DIN 80	106.0	240.106.081	241.106.081	242.106.081	244.106.081	
DIN 100	119.0	240.119.100	241.119.100	242.119.100	243.119.100	
DIN 125	155.0	240.155.125	241.155.125	242.155.125	244.155.125	
DIN 150	183.0	240.183.150	241.183.150	242.183.150	244.182.150	
DIN 200	233.5	240.233.200	241.233.200	242.233.200	244.233.200	

Tri-Clamp Connections

Tri-Clamp Gaskets

Chapter Tri-Clamp Connections
Page 3.2

Product group: Tri-Clamp Connections

Title: Tri-Clamp Gasket, Type Biotechnology

Standards: BS 4825, *non standard

Material: Virgin PTFE (Polytetrafluorethylen), PTFE with core from Fluor-Rubber FPM, Viton®, Polymerisat from Vinylidenfluorid and Hexafluorpropylen.
Platinum cured silicone, EPDM Aethylen-Propylen-Dien-Kautschuk, Viton®

Sterelizing temperature: EPDM: 132°C (shortly up to 150°C), Silicone, Viton® and Teflon® (PTFE): 150°C

Type of construction / Surface quality: Surface smoothly and nonporously, free of laminar recesses and increases.
Edges without tears and notches.

Marking: Marking on packing units

Certificates: Incl. Certificate of conformance FDA-21 CFR 177.2600 for Elastomers.
Incl. Certificate of conformance FDA-21 CFR 177.1550 for PTFE

Remarks: Technical contents are subject to change
Viton® and Teflon® registered trademarks of DuPont Dow Elastomers
PTFE Gaskets do not have a fixing-lip.

Dimensions for Tri-Clamp Gaskets						
Size	A	Item-Number Viton®	Item-Number Silikon	Item-Number EPDM	Item-Number Teflon® / PTFE	
according BS 4825 / ASME BPE 1997						
OD 1/2"	22.0	240.022.010	241.022.010	242.022.010	244.022.010	
OD 3/4"	22.0	240.022.017	241.022.017	242.022.017	244.022.017	
OD 1"	50.5	240.050.022	241.050.022	242.050.022	243.050.022	
OD 1 1/2"	50.5	240.050.034	241.050.034	242.050.034	243.050.034	
OD 2"	64.0	240.064.047	241.064.047	242.064.047	243.064.047	
OD 2 1/2"	77.5	240.077.059	241.077.059	242.077.059	243.077.059	
OD 3"	91.0	240.091.072	241.091.072	242.091.072	243.091.072	
OD *3 1/2"	106.0	240.106.084	241.106.084	242.106.084	243.106.084	
OD 4"	119.0	240.119.097	241.119.097	242.119.097	243.119.097	
OD *4 1/2"	130.0	240.130.110	241.130.110	242.130.110	244.130.110	
OD *5"	144.0	240.144.121	241.144.121	242.144.121	244.144.121	
OD *5 1/2"	144.0	240.144.121	241.144.121	242.144.121	244.144.121	
OD *6"	167.0	240.167.146	241.167.146	242.167.146	243.167.146	
OD *8"	217.5	240.217.197	241.217.197	242.217.197	243.217.197	
OD *10"	268.0	240.268.250	241.268.250	242.268.250	243.268.250	
OD *12"	319.0	240.304.300	241.304.300	242.304.300	244.304.300	

Tri-Clamp Connections

Table of Material-Resistance for Elastomers

Chapter Tri-Clamp Connections
Page 3.3

Product group: Tri-Clamp Connections

Title: Table of Material-Resistance for Elastomers

Standards: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Virgin PTFE (Polytetrafluorethylen), PTFE with core from Fluor-Rubber FPM, Viton®, Polymerisat from Vinylidenfluorid and Hexafluorpropylen.
Platinum cured silicone, EPDM Aethylen-Propylen-Dien-Kautschuk, Viton®

Sterelizing temperature: EPDM: 132°C (shortly up to 150°C), Silicone, Viton® and Teflon® (PTFE): 150°C

Type of construction / Surface quality: Surface smoothly and nonporously, free of laminar recesses and increases.
Edges without tears and notches.

Marking: Marking on packing units

Certificates: Incl. Certificate of conformance FDA-21 CFR 177.2600 for Elastomers.
Incl. Certificate of conformance FDA-21 CFR 177.1550 for PTFE

Remarks: Technical contents are subject to change
Viton® and Teflon® are registered trademarks of DuPont Dow Elastomers
PTFE Gaskets do not have a fixing-lip.

Chemical Description	Fluorcautchuc Viton®	Siliconecaoutchuc	Aethylen-Propylen- Dien-Caoutchuc	Teflon®	**Silkoflon
Short Description according ISO 1629	FPM	MVQ	EPDM	PTFE	FEP/MVQ
Specifications					
Abrasion-Resistance	good	good till excellent	good till excellent	excellent	excellent
Steam-Resistance	poor	poor	good till excellent	excellent	excellent
Dielectricity Quality	good	excellent	excellent	excellent	excellent
Fire-Resistance	good	poor	poor	excellent	excellent
Ozon-Resistance	excellent	excellent	excellent	excellent	excellent
Acid-Resistance	good	good	good till excellent	excellent	excellent
Temperature-Resistance	-29°C to 204°C	-62°C to 232°C	-46°C to 132°C shortly up to 150°C	-78°C to 232°C	-60°C to 200°C
Weather-Resistance	good	excellent	excellent	excellent	excellent
Zerreiisfestigkeit	neutral	excellent	good	excellent	excellent
Tensilestrength	good till excellent	good	good till excellent	excellent	excellent

**Gasketmaterial Silkoflon: For Aseptic O-Ring Unions (Chapter 4 - Datasheet 4.0)

Tri-Clamp Connections

Tri-Clamp End Cap, Type Biotechnology

Chapter Tri-Clamp Connections
Page 4.0

Product group: Tri-Clamp Connections

Title: Tri-Clamp End Cap, Type Biotechnology

Valid Norms: ISO 2852, DIN 32676, BS 4825, *non standard

Material: Stainless steel 1.4435 BN2 (Fe < 0,5%) acc. EN 10088

Sterilizing temperature: 150°C

Type of construction / Surface quality: Surface inside and outside; bright finish
Ra inside < 0,4 µm, Ra outside: < 0.8 µm

Pipe-Hygienic Classes: H 3 / H 4 acc. DIN 11866

Marking: Size, Material, Batch-Number, Producer

Certificates: Certificate acc. EN 10204-3.1B

Option: Electropolishing

Remarks: Technical contents are subject to change

Dimensions for Tri-Clamp End Cap						
ISO 2852	DIN 32676	BS 4825 A	T	Item-Number		
DN 6 / 8 / 10	DIN 4 / 6 / 8 / *10	1/2" / *3/4"	25.0	5.5	230.005.025	
	DIN 10 / 15 / 20		34.0	5.5	230.010.034	
*DN 8 / *10 / 15 20 / 25	DIN 25 / 32 / 40	1" / 1 1/2"	50.5	6.4	230.025.050	
DN 32 / 40	DIN 50	2"	64.0	6.4	230.050.064	
DN 50		2 1/2"	77.5	6.4	230.065.077	
DN 65	DIN 65	3"	91.0	6.4	230.080.091	
DN 80	DIN 80	3 1/2"	106.0	6.4	230.090.106	
	DIN 100	4"	119.0	6.4	230.100.119	
DN 100		4 1/2"	130.0	10.0	230.114.130	
	*DIN 125	*5"	144.5	10.0	230.125.144	
	DIN 125	5 1/2"	155.0	10.0	230.155.135	
		*6"	167.0	11.0	230.150.167	
DN 150	DIN 150	6 5/8"	183.0	11.0	230.000.150	
		8"	217.5	14.0	230.200.217	
DN 200	DIN 200	8 5/8"	233.5	14.0	230.000.200	
	*DIN 250	*10"	268.0	14.0	230.250.268	
DN 250		*10 5/8"	286.1	14.0	230.000.250	
		*12"	319.0	20.0	230.319.304	
DN 300		12 5/8"	338.5	20.0	230.000.300	

Tri-Clamp Connections

Clamp Sight Glass

Chapter Tri-Clamp Connections
Page 5.0

Product group: Tri-Clamp Connections

Title: Metalhelded Clamp Sight Glass, sterile execution

Valid standards: ISO 2852, DIN 32676, BS 4825, * non standard

Material: Stainless steel 1.4462 Duplex acc. EN 10088
Glass: Borosilicate acc. DIN 7080
Other materials (e.g. 2.4602 or 2.4610) on request

Permissible operating temperature: -30° to +280° C

Permissible operating pressure: -1 to +16 bar (size dependent - see table below)

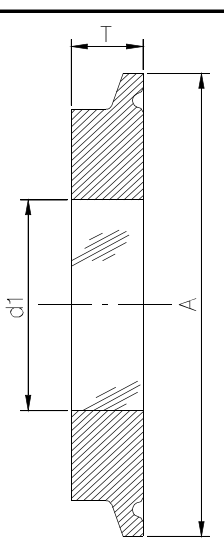
Type of construction / Surface quality: Inside and outside surface: sanded and polished.
Ra inside < 0,25 µm, Ra outside: < 0.8 µm

Permission: 3A-Standard for food

Marking: Material-Number, Batch-Number, Permission character

Certificates: Certificate acc. EN 10204-3.1B

Remarks: Technical contents are subject to change

Dimensions for Clamp Sight Glass								
ISO 2852	DIN 32676	BS 4825	A	T	d1	Item-Number	max. Pressure	
*DN 8 / *10 / 15 20 / 25	DIN 25 / 32 / 40	1" / 1 1/2"	50.5	7.0	25.0	231.000.025	16 bar	
DN 32 / 40	DIN 50	2"	64.0	7.0	30.0	231.000.050	16 bar	
DN 50		2 1/2"	77.5	10.0	35.0	231.000.077	16 bar	
DN 65	DIN 65	3"	91.0	10.0	40.0	231.000.065	10 bar	
DN 80	DIN 80	3 1/2"	106.0	10.0	50.0	231.000.080	10 bar	
	DIN 100	4"	119.0	12.0	55.0	231.000.100	10 bar	
		5"	144.5	16.0	65.0	231.000.145	10 bar	
	DIN 125	5 1/2"	155.0	16.0	70.0	231.000.155	6 bar	
		*6"	167.0	16.0	75.0	231.000.167	6 bar	
DN 150	DIN 150	6 5/8"	183.0	16.0	75.0	231.000.150	6 bar	
		8"	217.5	16.0	100.0	231.000.217	6 bar	
DN 200	DIN 200	8 5/8"	233.5	16.0	100.0	231.000.200	6 bar	
DN 250		*10"	268.0	18.0	120.0	231.000.258	6 bar	
	DIN 250	*10 5/8"	287.5	18.0	120.0	231.000.250	6 bar	
	DIN 300	*12"	319.0	20.0	140.0	231.000.319	6 bar	
DN 300		12 5/8"	338.5	20.0	140.0	231.000.300	6 bar	