NEUMO

NEUMO Ehrenberg Group

NEUMO ASEPTIC TECHNOLOGY

In Flow. Globally. Together.



NEUMO Ehrenberg Group

FLOW DIVISION

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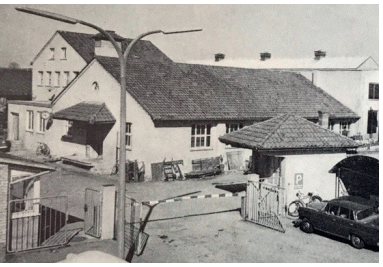
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Subject to technical modifications

Innovations in Stainless Steel – since 1947







Components, equipment and tubes - made of stainless steel and special alloys

NEUMO in Knittlingen was founded by Senator Henry J. Ehrenberg in 1947. The young enterprise quickly became a leading supplier of components for the food processing industry.

NEUMO is the parent company of an owner-managed group of companies with more than 2.150 employees. Today, NEUMO is the leader in technology regarding components, vessels, assemblies and apparatuses, made of stainless steel and special alloys for the fluid handling, used in the significant production processes of the pharmaceutical industry, biotechnology, chemical industry.

NEUMO – Product Innovations for Tomorrow's Markets

When biosciences really started to take off in the 1970s and the triumph of biotechnology appeared to be inevitable, NEUMO made an important strategic decision: to shift its focus on aseptic technology. A successful move as it turned out, since today the majority of all biopharmaceuticals is made in plants equipped with components, apparatuses and tubes supplied by the NEUMO Ehrenberg Group. The production site in Knittlingen is specialised in the development and production of sterile applications, pooling its expertise in the fabrication of high-alloy stainless steels, corrosion resistant duplex steels and nickel-base alloys.

The product range includes special tubing grades, couplings, all kinds of fittings and equipment as well as fabrication to drawing. Furthermore, NEUMO is a significant OEM manufacturer of pharmaceutical vessels and fermenters and a major supplier of equipment such as aseptic heat exchangers.

NEUMO has taken over technological leadership with innovative and unique solutions such as elastomer-free coupling as well as the CleanLip technology. These innovations led for example to the aseptic couplings which have gone from strength to strength in red biotechnology, marketed under the brand names BioConnect®, ConnectS® and BioControl®.



NEUMO-Ehrenberg Campus

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RIEGER
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AWH
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HERRLI
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VNE
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Damstahl®
stainless steel solutions

HPT
NEUMO Ehrenberg Group

EGMO
NEUMO Ehrenberg Group

vargus
NEUMO Ehrenberg Group

IN FLOW. GLOBALLY. TOGETHER



NEUMO ConnectS®

A new era of releasable tube couplings, completely elastomer-free

Advantages of NEUMO ConnectS®



Constructive Benefits

- revolutionary technology
- virtually no dead space
- high pressure design PN100 available
- rounded product range including elastomer-free check valves (BioFlow), sight glasses and interfaces for instrumentation (BioControl CS).
- optimum cleanability (CIP / SIP)
- no more microbial contamination
- maximum process reliability

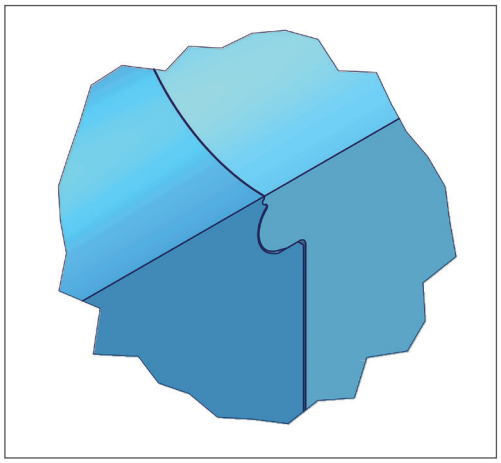


Technical Benefits

- completely elastomer-free construction
- inwrought metal sealing outline
- seals by elastic deformation
- no temperature limitations
- ideally suited for aggressive media
- ideally suited for abrasive media
- very easy assembly (male / female)

Economic Benefits

- reduces maintenance costs and downtimes
- eliminates procurement and stockkeeping of replacement elastomeres
- enormous potential for reducing total cost of ownership
- minimising the risk of process disturbances







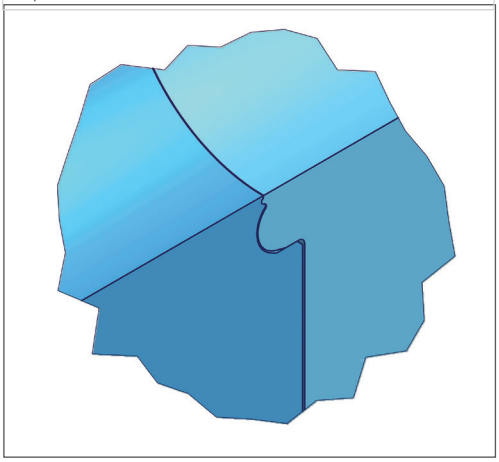
Blind Flange form V

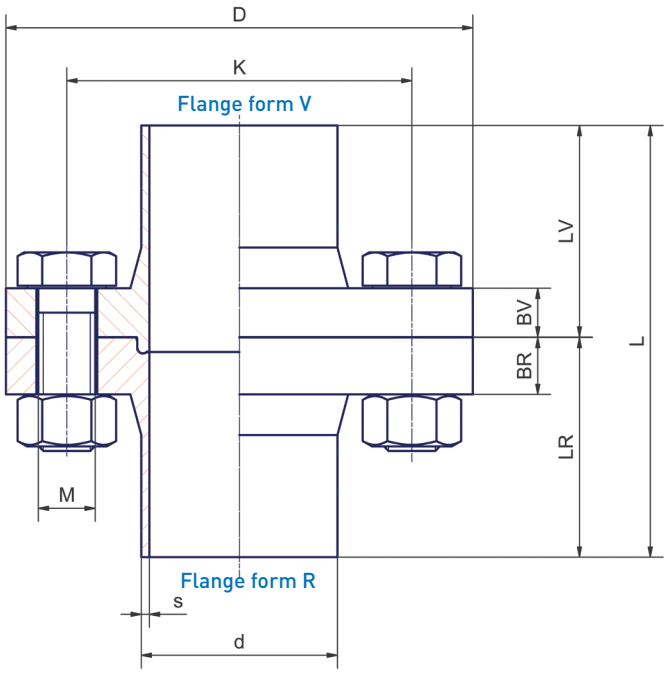


Blind Flange form R

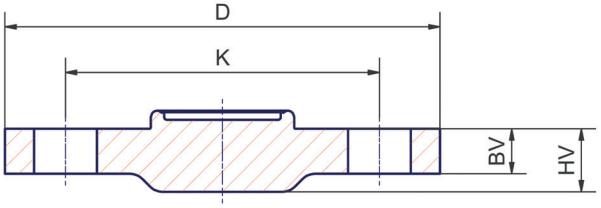
Technical Data	
Material*	1.4435 / 316L
Surface finish (product contacted area)*	Ra < 0,8 µm precision turned
Sealing	Elastomer-free (metallic)
Max. permissible pressure	PN16 (up to DN50 / 2") PN10 (DN65 / 21/2" - DN100 / 4") (high pressure type PN100 up to DN40 available as special design)
Max. operating temperature	-10°C / +200°C
Delta ferrite content (raw material)*	< 1%
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)
Tests	EHEDG 01 cleanability test
Approvals	TÜV-component testing TA-Air

*Alternative material grades (such as 1.4539, 6Mo / UNS N08367, etc.), larger dimensions, different connections, surface qualities and delta ferrite values are available on request

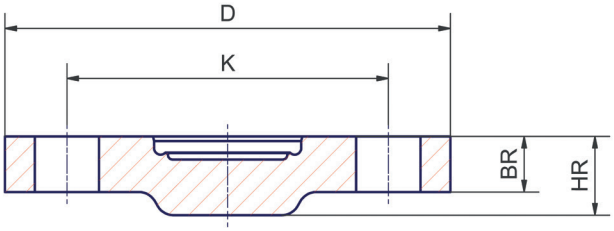




Blind Flange form V



Blind Flange form R



ConnectS® Flange Connection and Blind Flanges, tube dimensions in accordance with DIN11866 line A												
DN	d	s	D	K	L	LR	BR	LV	BV	HR	HV	M
6	8	1	60	40	88	45	10	43	8	13	8	4x M 8x30
8	10	1	60	40	88	45	10	43	8	13	8	4x M 8x30
10	13	1,5	65	45	88	45	10	43	8	13	8	4x M 10x30
15	19	1,5	75	55	88	45	10	43	8	13	8	4x M 10x30
20	23	1,5	85	60	92	47	12	45	10	15	10	4x M 10x35
25	29	1,5	97	70	102	52	12	50	10	17	10	4x M 12x35
32	35	1,5	105	78	102	52	12	50	10	17	14	4x M 12x35
40	41	1,5	115	85	106	54	14	52	12	19	16	4x M 14x40
50	53	1,5	125	95	106	54	14	52	12	19	16	4x M 14x40
65	70	2	145	115	130	66	16	64	14	21	18	8x M 12x45
80	85	2	155	125	130	66	16	64	14	21	18	8x M 12x45
100	104	2	180	150	134	68	18	66	16	23	20	8x M 12x50

ConnectS® Flange Connection and Blind Flanges, tube dimensions in accordance with DIN11866 line B												
DN	d	s	D	K	L	LR	BR	LV	BV	HR	HV	M
6	10,2	1,6	60	40	88	45	10	43	8	13	8	4x M 8x30
8	13,5	1,6	60	40	88	45	10	43	8	13	8	4x M 8x30
10	17,2	1,6	65	45	88	45	10	43	8	13	8	4x M 10x30
15	21,3	1,6	75	55	88	45	10	43	8	13	8	4x M 10x30
20	26,9	1,6	85	60	92	47	12	45	10	17	10	4x M 10x35
25	33,7	2	97	70	102	52	12	50	10	17	10	4x M 12x35
32	42,4	2	105	78	102	52	12	50	10	17	14	4x M 12x35
40	48,3	2	115	85	106	54	14	52	12	19	16	4x M 14x40
50	60,3	2	125	95	106	54	14	52	12	19	16	4x M 14x40
65	76,1	2	145	115	130	66	16	64	14	21	18	8x M 12x45
80	88,9	2,3	155	125	130	66	16	64	14	21	18	8x M 12x45
100	114,3	2,3	180	150	134	68	18	66	16	23	20	8x M 12x50

ConnectS® Flange Connection and Blind Flanges, tube dimensions in accordance with DIN11866 line C												
DN	d	s	D	K	L	LR	BR	LV	BV	HR	HV	M
3/8"	9,53	0,89	60	40	88	45	10	43	8	13	8	4x M 8x30
1/2"	12,7	1,65	65	45	88	45	10	43	8	13	8	4x M 10x30
3/4"	19,05	1,65	75	55	88	45	10	43	8	13	8	4x M 10x30
1"	25,4	1,65	85	60	92	47	12	45	10	17	10	4x M 10x35
1 1/2"	38,1	1,65	105	78	102	52	12	50	10	17	16	4x M 12x35
2"	50,8	1,65	125	95	106	54	14	52	12	19	16	4x M 14x40
2 1/2"	63,5	1,65	135	105	106	54	14	52	12	19	18	6x M 14x40
3"	76,2	1,65	145	115	130	66	16	64	14	22	18	8x M 12x45
4"	101,6	2,11	180	150	134	68	18	66	16	23	20	8x M 12x50





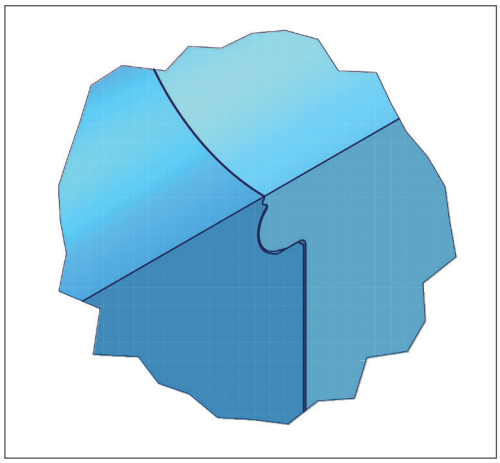
Blind Ferrule form V

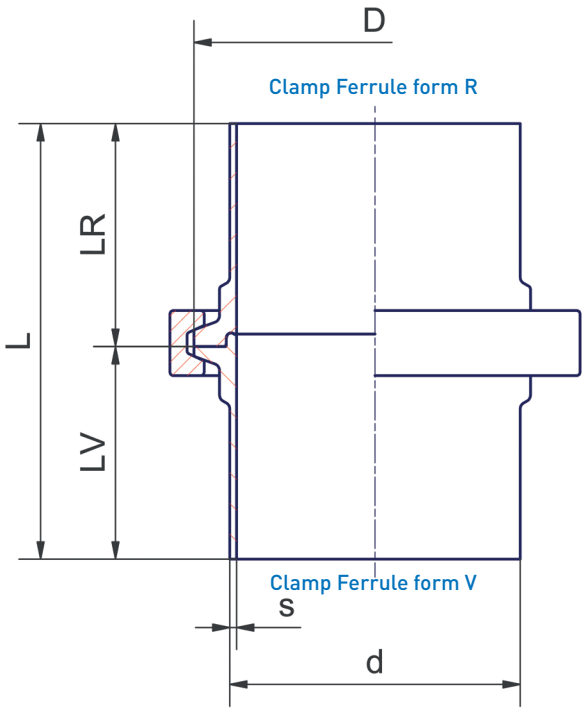


Blind Ferrule form R

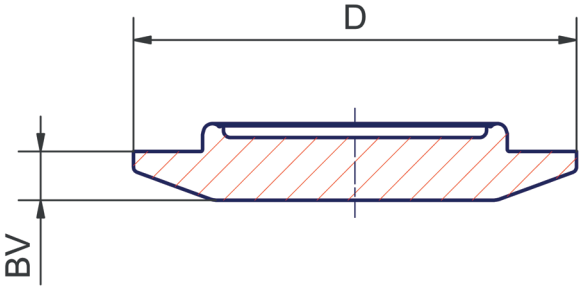
Technical Data	
Material*	1.4435 / 316L
Surface finish (product contacted area)*	Ra < 0,8 µm precision turned
Sealing	Elastomer-free (metallic)
Max. permissible pressure	PN10
Max. operating temperature	-10°C / +200°C
Delta ferrite content (raw material)*	< 1%
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)

* Alternative material grades (such as 1.4539, 6Mo / UNS N08367, etc.), different connections, finish qualities and delta ferrite values are available on request.

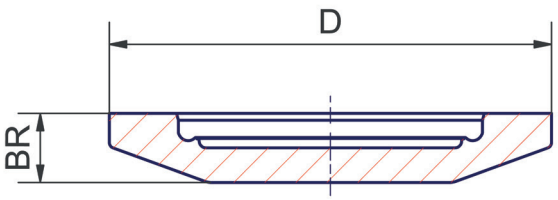




Blind Ferrule form V



Blind Ferrule form R



ConnectS® Clamp Connection and Blind Ferrules, tube dimensions in accordance with DIN11866 line A								
DN	d	s	D	L	LR	BR	LV	BV
6	8	1	25	69,5	35	10	34,5	6
8	10	1	25	69,5	35	10	34,5	6
10	13	1,5	25	69,5	35	10	34,5	6
15	19	1,5	34	68	35	10	33	6
20	23	1,5	50,5	68	35	10	33	7
25	29	1,5	50,5	76	39	10	37	8
32	35	1,5	50,5	76	39	10	37	8
40	41	1,5	64	76	39	10	37	7
50	53	1,5	77,5	76	39	10	37	8

ConnectS® Clamp Connection and Blind Ferrules, tube dimensions in accordance with DIN11866 line B								
DN	d	s	D	L	LR	BR	LV	BV
6	10,2	1,6	25,0	69,5	35	10	34,5	6
8	13,5	1,6	25,0	69,5	35	10	34,5	6
10	17,2	1,6	25,0	69,5	35	10	34,5	6
15	21,3	1,6	50,5	68	35	10	33	7
20	26,9	1,6	50,5	68	35	10	33	7
25	33,7	2	50,5	76	39	10	37	7
32	42,4	2	50,5	76	39	10	37	7
40	48,3	2	64,0	76	39	10	37	7

ConnectS® Clamp Connection and Blind Ferrules, tube dimensions in accordance with DIN11866 line C								
DN	d	s	D	L	LR	BR	LV	BV
3/8"	9,53	0,89	25,0	68	35	10	34,5	6
1/2"	12,7	1,65	25,0	68	35	10	34,5	6
3/4"	19,05	1,65	25,0	68	35	10	33	6
1"	25,4	1,65	50,5	68	35	10	33	7
1 1/2"	38,1	1,65	50,5	76	39	10	37	7
2"	50,8	1,65	64,0	76	39	10	37	7



NEUMO BioConnect®

The flexible tube connection with an option: elastomer or metallic sealing



Advantages of NEUMO BioConnect®

Constructive Benefits

- one technology, 3 connection types
- high flexibility: smooth switch to the metallic sealing CleanLip is possible at a later time without changing the flange connection
- cGMP compliant design
- virtually no dead space
- high pressure design PN100 - available up to DN40



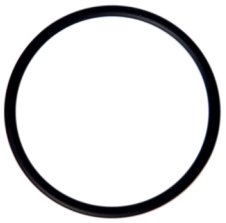
Technical Benefits

- stay flexible - use optionally with chambered elastomer or the innovative stainless steel sealing element CleanLip.
- minimum exposure of the medium to the elastomere
- optimal cleanability (CIP / SIP)
- controlled elastomer pressing by metallic stop and full chambering
- defined expansion volume for the elastomer with expansion chamber on the side averting the media
- no elastomer return

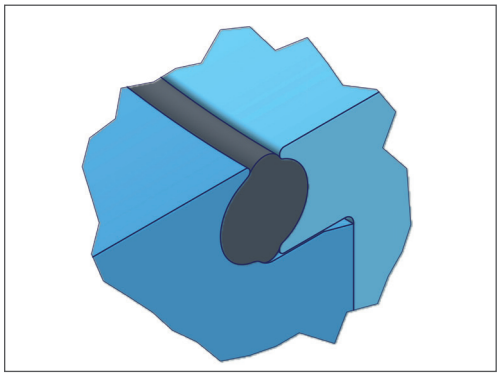


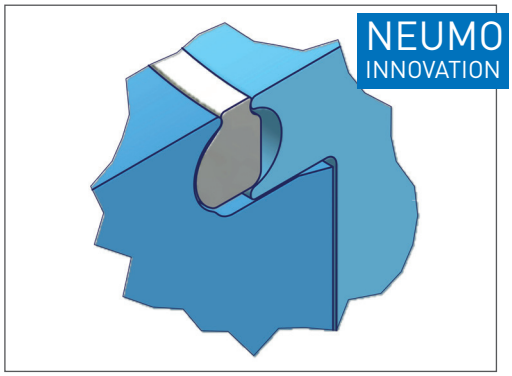
Economic Benefits

- reduces maintenance costs and downtimess
- high potential for reducing total cost of ownership
- minimising the risks of process disturbances
- high flexibility of production due to low SIP / CIP times









CleanLip for BioConnect®-flange connections only

test report: EHEDG 01 cleanability test





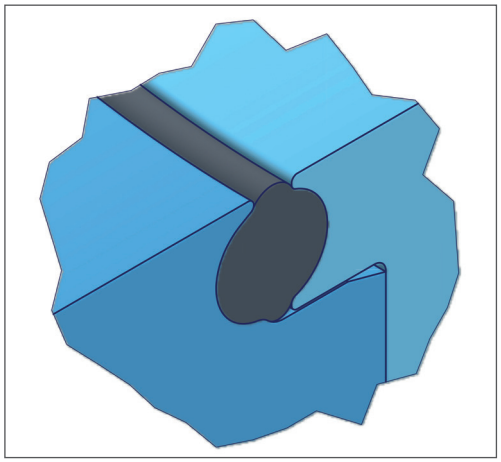
Blind Flange form V

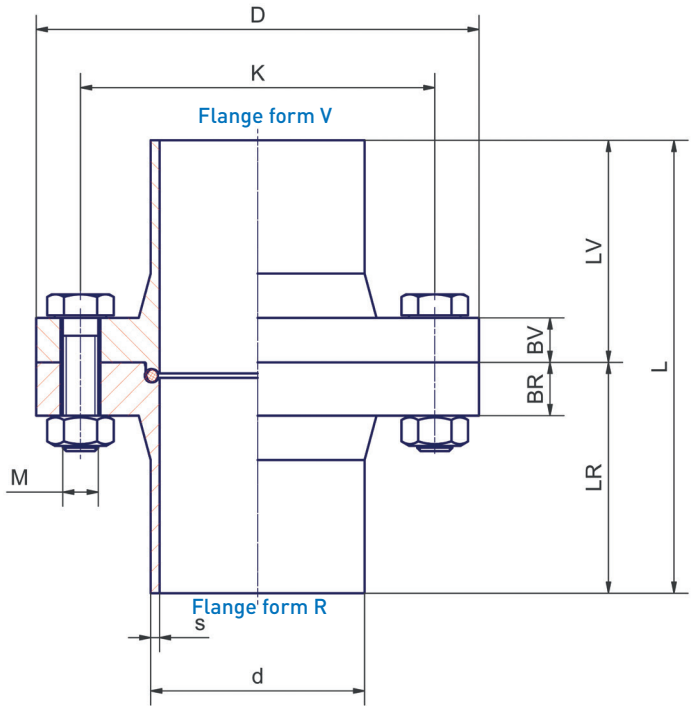


Blind Flange form R

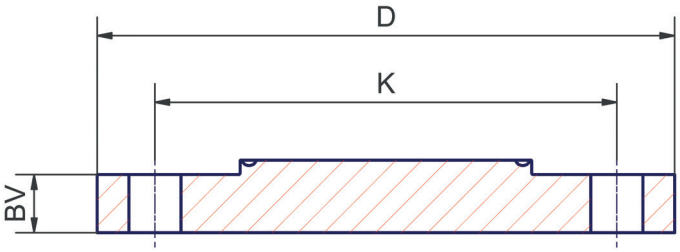
Technical Data	
Material*	1.4435 / 316L
Surface finish (product contacted area)*	Ra < 0,8 µm precision turned
Sealing*	EPDM (FDA + USP Class VI)
Max. permissible pressure *	PN16 (up to DN100 / 4") PN10 (from DN125 / 6") (high pressure type PN100 available as special design)
Max. operating temperature	-10°C / +150°C (up to 200°C with O-ring PTFE or CleanLip)
Delta ferrite content (raw material)*	< 1%
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)
Approvals	TÜV-component testing TA-air EHEDG

* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.), alternative seal materials (such as Viton, Viton / FEP-encapsulated, PTFE, CleanLip, etc.), higher pressure resistances (such as PN50), as well as different connections, surface qualities and delta ferrite values are available on request.

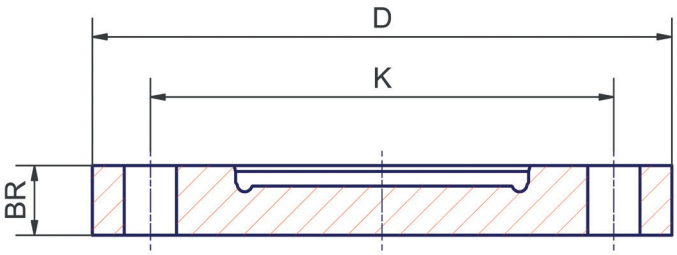




Blind Flange form V



Blind Flange form R



BioConnect® Flange Connection and Blind Flanges, tube dimensions in accordance with DIN11866 line A										
DN	d	s	D	K	L	LR	BR	LV	BV	M
6	8	1	60	40	88	45	10	43	8	4x M 8x30
8	10	1	60	40	88	45	10	43	8	4x M 8x30
10	13	1,5	65	45	88	45	10	43	8	4x M 8x30
15	19	1,5	75	55	88	45	10	43	8	4x M 8x30
20	23	1,5	80	60	92	47	12	45	10	4x M 8x30
25	29	1,5	85	65	102	52	12	50	10	4x M 8x30
32	35	1,5	95	75	102	52	12	50	10	4x M 8x30
40	41	1,5	100	80	102	52	12	50	10	4x M 8x30
50	53	1,5	110	90	106	54	14	52	12	4x M 8x35
65	70	2	140	115	130	66	16	64	14	4x M 10x40
80	85	2	150	125	130	66	16	64	14	8x M 10x40
100	104	2	175	150	134	68	18	66	16	8x M 10x45
125	129	2	190	165	118	60	18	58	16	8x M 10x45
150	154	2	215	190	118	60	18	58	16	8x M 12x50
200	204	2	270	245	118	60	20	58	18	12x M 12x55

BioConnect® Flange Connection and Blind Flanges, tube dimensions in accordance with DIN11866 line B										
DN	d	s	D	K	L	LR	BR	LV	BV	M
6	10,2	1,6	60	40	88	45	10	43	8	4x M 8x30
8	13,5	1,6	60	40	88	45	10	43	8	4x M 8x30
10	17,2	1,6	65	45	88	45	10	43	8	4x M 8x30
15	21,3	1,6	75	55	88	45	10	43	8	4x M 8x30
20	26,9	1,6	80	60	92	47	12	45	10	4x M 8x30
25	33,7	2	85	65	102	52	12	50	10	4x M 8x30
32	42,4	2	95	75	102	52	12	50	10	4x M 8x30
40	48,3	2	100	80	102	52	12	50	10	4x M 8x30
50	60,3	2	110	90	106	54	14	52	12	4x M 8x35
65	76,1	2	140	115	130	66	16	64	14	4x M 10x40
80	88,9	2,3	150	125	130	66	16	64	14	8x M 10x40
100	114,3	2,3	175	150	134	68	18	66	16	8x M 10x45
125	139,7	2,6	200	175	118	60	18	58	16	8x M 10x45
150	168,3	2,6	230	205	118	60	18	58	16	8x M 12x50
200	219,1	2,6	285	260	118	60	20	58	18	12x M 12x55

BioConnect® Flange Connection and Blind Flanges, tube dimensions in accordance with DIN11866 line C										
DN	d	s	D	K	L	LR	BR	LV	BV	M
3/8"	9,53	0,89	60	40	88	45	10	43	8	4x M 8x30
1/2"	12,7	1,65	65	45	88	45	10	43	8	4x M 8x30
3/4"	19,05	1,65	75	55	88	45	10	43	8	4x M 8x30
1"	25,4	1,65	80	60	92	47	12	45	10	4x M 8x30
1 1/2"	38,1	1,65	100	80	102	52	12	50	10	4x M 8x30
2"	50,8	1,65	100	80	102	52	12	50	10	4x M 8x30
2 1/2"	63,5	1,65	110	90	106	54	14	52	12	4x M 8x35
3"	76,2	1,65	140	115	130	66	16	64	14	8x M 10x40
4"	101,6	2,11	175	150	134	68	18	66	16	8x M 10x45
6"	152,4	2,77	215	190	118	60	18	58	16	8x M 12x50





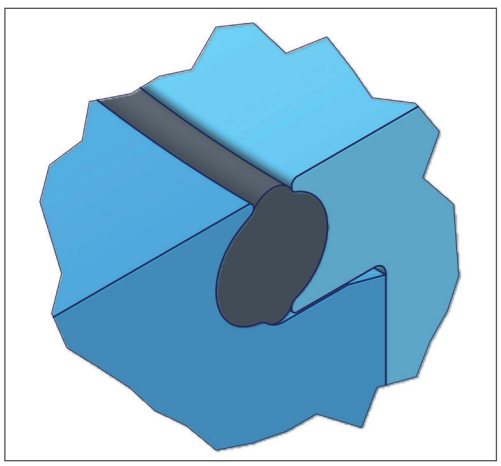
Blind Ferrule form V

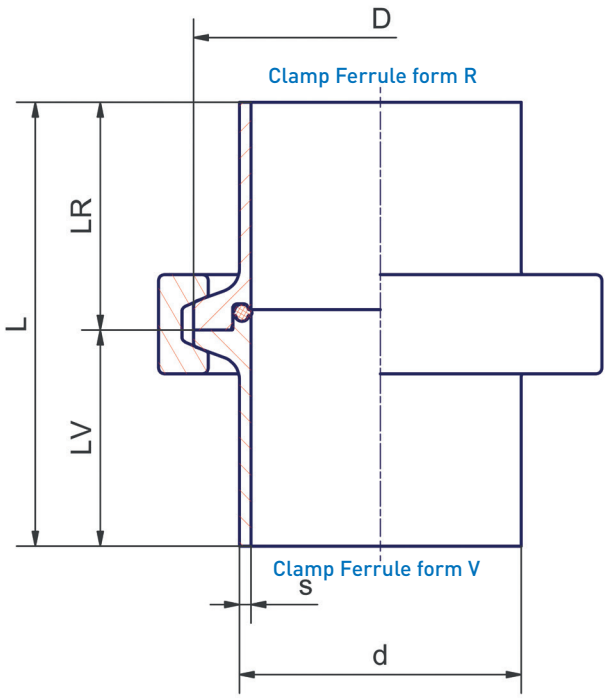


Blind Ferrule form R

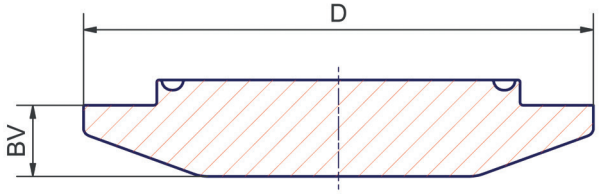
Technical Data	
Material*	1.4435 / 316L
Surface finish (product contacted area)*	Ra < 0,8 µm precision turned
Sealing*	EPDM (FDA + USP Class VI)
Max. permissible pressure	PN16 (up to DN50 / 2") PN10 (from DN65 / 21/2")
Max. operating temperature	-10°C / +150°C (200°C with O-ring PTFE)
Delta ferrite content (raw material)*	< 1%
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)
Approvals	TÜV-component testing EHEDG

* alternative materials (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.), alternative seal materials (such as Viton, Viton / FEP-encapsulated, PTFE, CleanLip, etc.), higher pressure resistances as well as different connections, surface qualities and delta ferrite values are available on request.

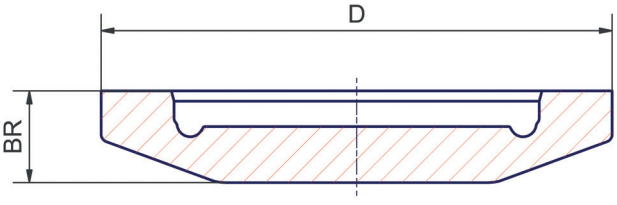




Blind Ferrule form V



Blind Ferrule form R



BioConnect® Clamp Connection and Blind Ferrules, tube dimensions in accordance with DIN11866 line A								
DN	d	s	D	L	LR	BR	LV	BV
6	8	1	25	68	35	7,5	33	5,5
8	10	1	25	68	35	7,5	33	5,5
10	13	1,5	25	68	35	7,5	33	5,5
15	19	1,5	25	68	35	7,5	33	5,5
20	23	1,5	50,5	68	35	9	33	7
25	29	1,5	50,5	76	39	9	37	7
32	35	1,5	50,5	76	39	9	37	7
40	41	1,5	64	76	39	9	37	7
50	53	1,5	77,5	76	39	9	37	7
65	70	2	91	96	49	9	47	7
80	85	2	106	96	49	11	47	9
100	104	2	119	96	49	11	47	9

BioConnect® Clamp Connection and Blind Ferrules, tube dimensions in accordance with DIN11866 line B								
DN	d	s	D	L	LR	BR	LV	BV
6	10,2	1,6	25	68	35	7,5	33	5,5
8	13,5	1,6	25	68	35	7,5	33	5,5
10	17,2	1,6	25	68	35	7,5	33	5,5
15	21,3	1,6	50,5	68	35	9	33	7
20	26,9	1,6	50,5	68	35	9	33	7
25	33,7	2	50,5	76	39	9	37	7
32	42,4	2	50,5	76	39	9	37	7
40	48,3	2	64	76	39	9	37	7
50	60,3	2	77,5	76	39	9	37	7
65	76,1	2	91	96	49	9	47	7
80	88,9	2,3	106	96	49	11	47	9
100	114,3	2,3	130	96	49	11	47	9

BioConnect® Clamp Connection and Blind Ferrules, tube dimensions in accordance with DIN11866 line C								
DN	d	s	D	L	LR	BR	LV	BV
3/8"	9,53	0,89	25	68	35	7,5	33	5,5
1/2"	12,7	1,65	25	68	35	7,5	33	5,5
3/4"	19,05	1,65	25	68	35	7,5	33	5,5
1"	25,4	1,65	50,5	68	35	9	33	7
1 1/2"	38,1	1,65	50,5	76	39	9	37	7
2"	50,8	1,65	64	76	39	9	37	7
2 1/2"	63,5	1,65	77,5	76	39	9	37	7
3"	76,2	1,65	91	96	49	9	47	7
4"	101,6	2,11	119	96	49	11	47	9





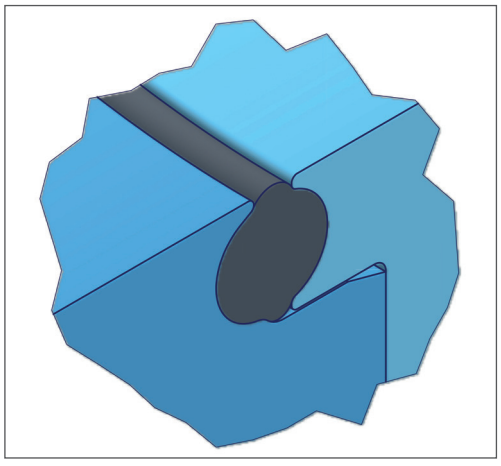
Blind Part form R

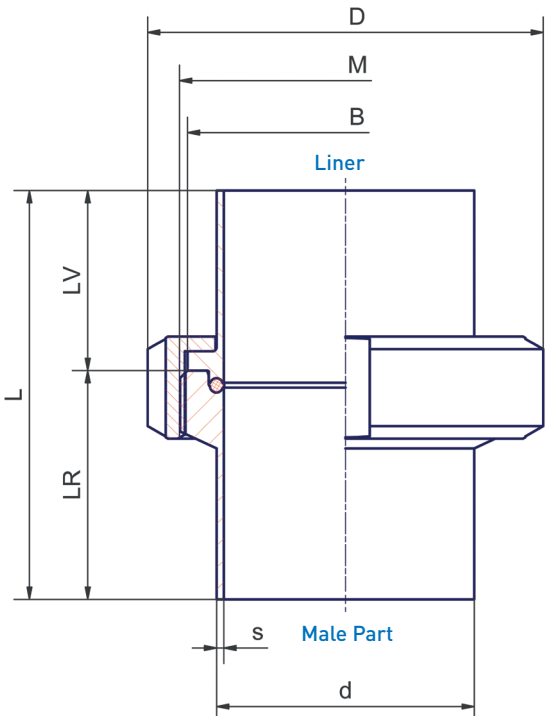


Blind Part form V

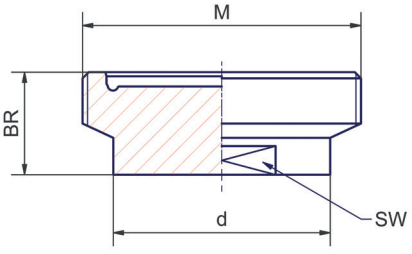
Technical Data	
Material*	1.4435 / 316L
Surface finish (product contacted area)*	Ra < 0,8 µm precision turned
Sealing*	EPDM (FDA + USP Class VI)
Max. permissible pressure	PN16
Max. operating temperature	-10°C / +150°C (200°C with O-ring PTFE)
Delta ferrite content (raw material)*	< 1%
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)
Approvals	TÜV-component testing EHEDG

* Alternative materials (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.), alternative seal materials (such as Viton, Viton / FEP-encapsulated, PTFE, CleanLip, etc.), higher pressure resistances as well as different connections, surface qualities and delta ferrite values are available on request.

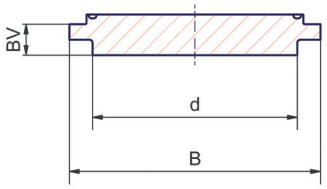




Blind Part form R



Blind Part form V



BioConnect® Screwed Connection, Blind Part form R and Blind Part form V, tube dimensions in accordance with DIN11866 line A											
DN	d	s	SW	D	B	M	L	LR	BR	LV	BV
6	8	1	7	6kt-SW19	13	M16 x 1,5	67	36	17	31	7
8	10	1	9	6kt-SW22	15	M18 x 1,5	67	36	17	31	7
10	13	1,5	10	6kt-SW27	19	M22 x 1,5	68	37	18	31	7
15	19	1,5	17	42	27	M30 x 1,5	68	37	19	31	7
20	23	1,5	19	48	33	M36 x 2	70	39	21	31	7
25	29	1,5	24	55	39	M42 x 2	81	44	21	37	8
32	35	1,5	30	65	49	M52 x 2	82	45	23	37	8
40	41	1,5	36	70	53	M56 x 2	83	46	24	37	8
50	53	1,5	46	82	65	M68 x 2	84	47	25	37	8
65	70	2	60	105	85	M90 x 3	112	64	32	48	9
80	85	2	70	115	95	M100 x 3	112	64	30	48	9
100	104	2	90	145	124	M130 x 4	114	66	34	48	9

BioConnect® Screwed Connection, Blind Part form R and Blind Part form V, tube dimensions in accordance with DIN11866 line B											
DN	d	s	SW	D	B	M	L	LR	BR	LV	BV
6	10,2	1,6	-	6kt-SW 22	15	M18 x 1,5	67	36	17	31	7
8	13,5	1,6	10	6kt-SW 27	19	M22 x 1,5	68	37	17	31	7
10	17,2	1,6	15	6kt-SW 30	23	M26 x 1,5	68	37	18	31	7
15	21,3	1,6	17	42	27	M30 x 1,5	68	37	19	31	7
20	26,9	1,6	24	48	33	M36 x 2	70	39	21	31	7
25	33,7	2	27	55	39	M42 x 2	81	44	21	37	8
32	42,4	2	36	65	49	M52 x 2	82	45	23	37	8
40	48,3	2	41	70	53	M56 x 2	83	46	24	37	8
50	60,3	2	50	82	65	M68 x 2	84	47	25	37	8
65	76,1	2	65	105	85	M90 x 3	112	64	32	48	9
80	88,9	2,3	75	115	95	M100 x 3	112	64	30	48	9
100	114,3	2,3	95	145	124	M130 x 4	114	66	34	48	9

BioConnect® Screwed Connection, Blind Part form R and Blind Part form V, tube dimensions in accordance with DIN11866 line C											
DN	d	s	SW	D	B	M	L	LR	BR	LV	BV
3/8"	9,53	0,89	-	6kt-SW 22	15	M18 x 1,5	67	36	17	31	7
1/2"	12,7	1,65	10	6kt-SW 27	19	M22 x 1,5	68	37	17	31	7
3/4"	19,05	1,65	17	42	27	M30 x 1,5	68	37	19	31	7
1"	25,4	1,65	24	48	33	M36 x 2	70	39	21	31	7
1 1/2"	38,1	1,65	32	65	49	M52 x 2	82	45	23	37	8
2"	50,8	1,65	46	82	65	M68 x 2	84	47	25	37	8
2 1/2"	63,5	1,65	55	105	85	M90 x 3	112	64	32	48	9
3"	76,2	1,65	65	105	85	M90 x 3	112	64	32	48	9
4"	101,6	2,11	85	145	124	M130 x 4	114	66	34	48	9


EN 837-1
316L
bar
CL 1.0
WIKA
GAS SYSTEM
+/- 1°
°C

NEUMO BioControl®

Modular concept with almost unlimited adaptation opportunities

Advantages NEUMO BioControl®

Constructive Benefits

- one technology, 2 housing types (inline- and angle housing)
- block flanges for vessel installation
- high flexibility due to standardised modular concept
- more than 40 producers of measuring and analysis instruments offer their devices with NEUMO BioControl® connections
- innovative, elastomer-free solution available (BioControl® CS)
- cGMP compliant design
- no dome, virtually no dead space

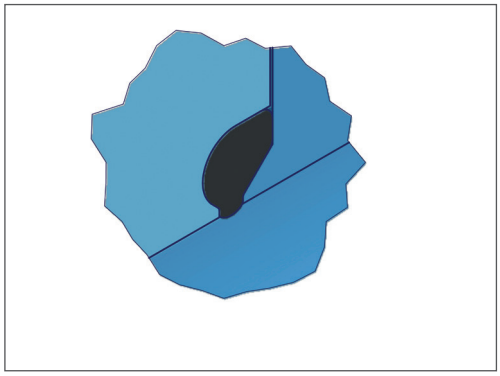


Technical Benefits

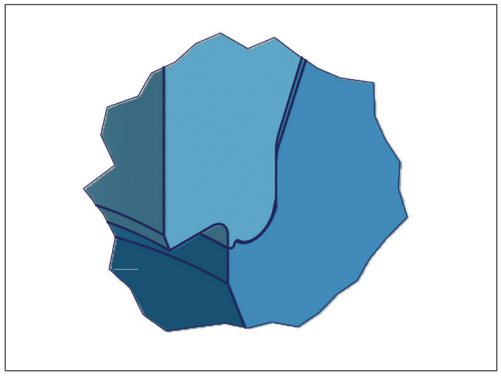
- standardised connections allows maximum flexibility, for sight glass installation as well as adaptation of instruments
- minimum exposure of the medium to the elastomer
- no dome like for example with tee-pieces for instruments or Ingold connections
- optimal cleanbility (CIP / SIP)
- controlled elastomer pressing
- no elastomer return

Economic Benefits

- reduces maintenance costs and downtimes
- can reduce several conventional interfaces
- high potential in view of total cost of ownership
- minimises the risks of process disturbances



BioControl®



BioControl® CS



BioControl® – Inline Housing G25

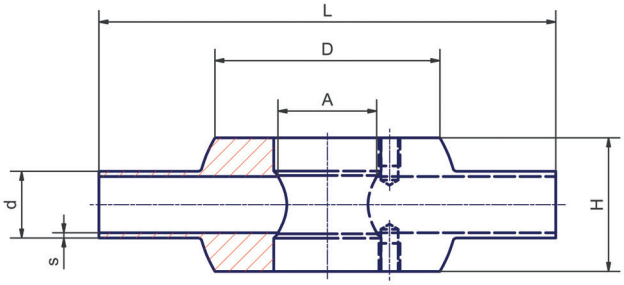


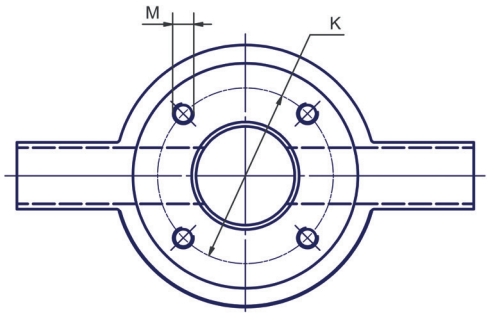
BioControl® – Inline Housing G50 – G65

Technical Data	
Material*	1.4435 / 316L
Surface finish (product contacted area)*	Ra < 0,8 µm electropolished
Max. permissible pressure	PN16
Max. operating temperature	-10°C / +200°C
Delta ferrite content (raw material)*	< 1%
Process connection	G25, G50 and G65
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)
Approvals	TÜV-component testing

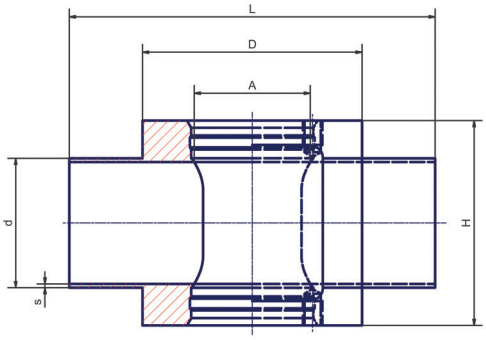
* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.) as well as different connections, surface qualities and delta ferrite values are available on request.

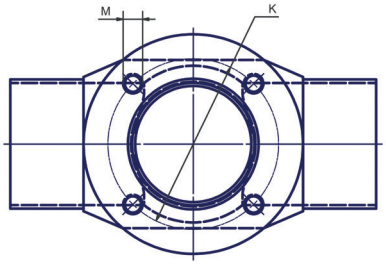
BioControl® – Inline Housing G25

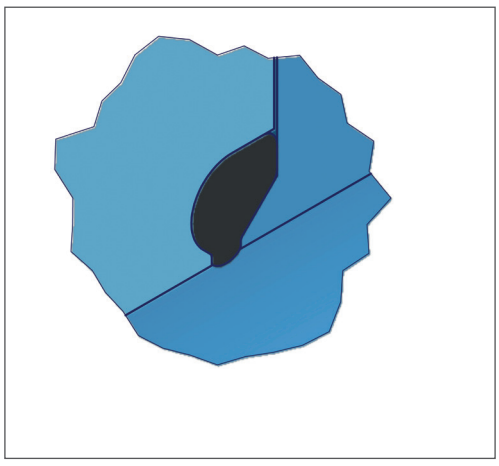




BioControl® – Inline Housing G50 - G65







Elastomer-free solution also available (BioControl® CS) - please contact us!

BioControl® Inline Housing G25 / G50 / G65, tube dimensions in accordance with DIN11866 line A									
Process Connection	DN	d	s	A	D	L	H	K	M
G25	4	6	1	28,1	64	130	26	50	M6
G25	6	8	1	28,1	64	130	28	50	M6
G25	8	10	1	28,1	64	130	30	50	M6
G25	10	13	1,5	28,1	64	130	32	50	M6
G25	15	19	1,5	28,1	64	130	38	50	M6
G25	20	23	1,5	28,1	64	130	42	50	M6
G50	25	29	1,5	47,6	90	150	60	70	M8
G50	32	35	1,5	47,6	90	150	66	70	M8
G50	40	41	1,5	47,6	90	150	72	70	M8
G50	50	53	1,5	47,6	90	150	84	70	M8
G50	65	70	2	47,6	90	170	100	70	M8
G50	80	85	2	47,6	90	170	115	70	M8
G50	100	104	2	47,6	90	170	134	70	M8
G65	40	41	1,5	65,6	120	180	72	95	M10
G65	50	53	1,5	65,6	120	180	84	95	M10
G65	65	70	2	65,6	120	200	100	95	M10
G65	80	85	2	65,6	120	200	115	95	M10
G65	100	104	2	65,6	120	200	134	95	M10

BioControl® Inline Housing G25 / G50 / G65, tube dimensions in accordance with DIN11866 line B									
Process Connection	DN	d	s	A	D	L	H	K	M
G25	6	10,2	1,6	28,1	64	130	26	50	M6
G25	8	13,5	1,6	28,1	64	130	32,3	50	M6
G25	10	17,2	1,6	28,1	64	130	36	50	M6
G25	15	21,3	1,6	28,1	64	130	40,1	50	M6
G25	20	26,9	1,6	28,1	64	130	45,7	50	M6
G50	25	33,7	2	47,6	90	150	63,7	70	M8
G50	32	42,4	2	47,6	90	150	72,4	70	M8
G50	40	48,3	2	47,6	90	150	78,3	70	M8
G50	50	60,3	2	47,6	90	150	90,3	70	M8
G50	65	76,1	2	47,6	90	170	106,1	70	M8
G50	80	88,9	2,3	47,6	90	170	118,3	70	M8
G50	100	114,3	2,3	47,6	90	170	143,7	70	M8
G65	40	48,3	2	65,6	120	180	78,3	95	M10
G65	50	60,3	2	65,6	120	180	90,3	95	M10
G65	65	76,1	2	65,6	120	200	106,1	95	M10
G65	80	88,9	2,3	65,6	120	200	118,3	95	M10
G65	100	114,3	2,3	65,6	120	200	143,7	95	M10

BioControl® Inline Housing G25 / G50 / G65, tube dimensions in accordance with DIN11866 line C									
Process Connection	DN	d	s	A	D	L	H	K	M
G25	1/4"	6,35	0,89	28,1	64	130	26,75	50	M6
G25	3/8"	9,53	0,89	28,1	64	130	29,75	50	M6
G25	1/2"	12,7	1,65	28,1	64	130	31,4	50	M6
G25	3/4"	19,05	1,65	28,1	64	130	37,75	50	M6
G25	1"	25,4	1,65	28,1	64	130	44,1	50	M6
G50	1"	25,4	1,65	47,6	90	150	56,1	70	M8
G50	1 1/2"	38,1	1,65	47,6	90	150	68,8	70	M8
G50	2"	50,8	1,65	47,6	90	150	81,5	70	M8
G50	2 1/2"	63,5	1,65	47,6	90	170	94,2	70	M8
G50	3"	76,2	1,65	47,6	90	170	106,9	70	M8
G50	4"	101,6	2,11	47,6	90	170	131,38	70	M8
G65	1 1/2"	38,1	1,65	65,6	120	180	68,8	95	M10
G65	2"	50,8	1,65	65,6	120	180	81,5	95	M10
G65	2 1/2"	63,5	1,65	65,6	120	200	94,2	95	M10
G65	3"	76,2	1,65	65,6	120	200	106,9	95	M10
G65	4"	101,6	2,11	65,6	120	200	131,38	95	M10

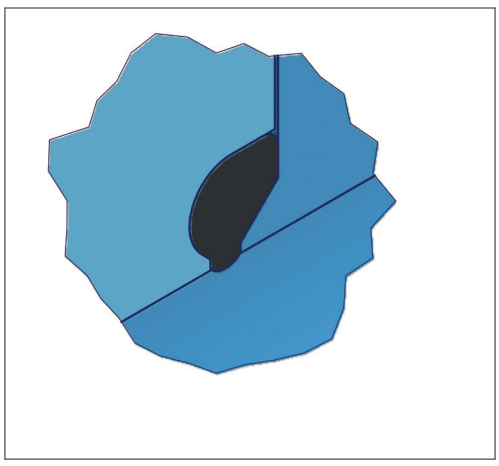


BioControl® – Angle Housing U25



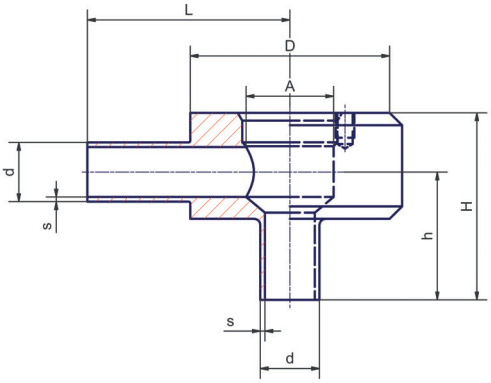
BioControl® – Angle Housing U50 – U65

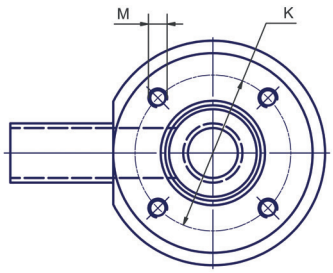
Technical Data	
Material*	1.4435 / 316L
Surface finish (product contacted area)*	Ra < 0,8 µm electropolished
Max. permissible pressure	PN16
Max.operating temperature	-10°C / +200°C
Delta ferrite content (raw material)*	< 1%
Process connection	U25, U50 and U65
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)
Approvals	TÜV-component testing
* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.) as well as different connections, surface qualities and delta ferrite values are available on request.	



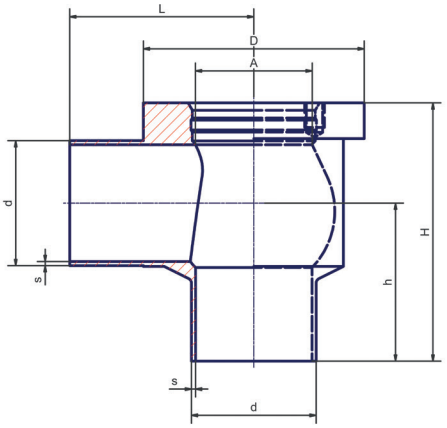
Elastomer-free solution also available (BioControl® CS) - please contact us!

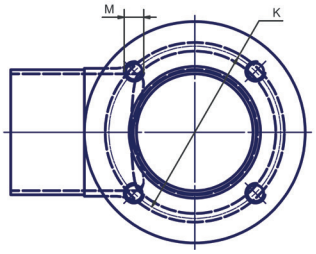
BioControl® – Angle Housing U25





BioControl® – Angle Housing U50 – U65





BioControl® – Angle Housing U25 / U50 / U65, tube dimensions in accordance with DIN11866 line A										
Process Connection	DN	d	s	A	D	L	H	h	K	M
U25	4	6	1	28,1	64	65	46	33	50	M6
U25	6	8	1	28,1	64	65	48	34	50	M6
U25	8	10	1	28,1	64	65	50	35	50	M6
U25	10	13	1,5	28,1	64	65	51	35	50	M6
U25	15	19	1,5	28,1	64	65	60	41	50	M6
U25	20	23	1,5	28,1	64	65	65	44	50	M6
U50	25	29	1,5	47,6	90	75	90	60	70	M8
U50	32	35	1,5	47,6	90	75	95	62	70	M8
U50	40	41	1,5	47,6	90	75	95	59	70	M8
U50	50	53	1,5	47,6	90	75	105	63	70	M8
U50	65	70	2	47,6	90	85	130	80	70	M8
U50	80	85	2	47,6	90	90	145	87,5	70	M8
U50	100	104	2	47,6	90	100	165	98	70	M8
U65	40	41	1,5	65,6	120	90	105	69	95	M10
U65	50	53	1,5	65,6	120	90	112	70	95	M10
U65	65	70	2	65,6	120	100	130	80	95	M10
U65	80	85	2	65,6	120	100	145	87,5	95	M10
U65	100	104	2	65,6	120	100	165	98	95	M10

BioControl® – Angle Housing U25 / U50 / U65, tube dimensions in accordance with DIN11866 line B										
Process Connection	DN	d	s	A	D	L	H	h	K	M
U25	6	10,2	1,6	28,1	64	65	48	33,5	50	M6
U25	8	13,5	1,6	28,1	64	65	53	36,85	50	M6
U25	10	17,2	1,6	28,1	64	65	57	39	50	M6
U25	15	21,3	1,6	28,1	64	65	61	40,95	50	M6
U25	20	26,9	1,6	28,1	64	65	66	43,15	50	M6
U50	25	33,7	2	47,6	90	75	95	63,15	70	M8
U50	32	42,4	2	47,6	90	75	95	58,8	70	M8
U50	40	48,3	2	47,6	90	75	100	60,85	70	M8
U50	50	60,3	2	47,6	90	75	110	64,85	70	M8
U50	65	76,1	2	47,6	90	85	135	81,95	70	M8
U50	80	88,9	2,3	47,6	90	90	150	90,85	70	M8
U50	100	114,3	2,3	47,6	90	100	175	103,15	70	M8
U65	40	48,3	2	65,6	120	90	107	67,85	95	M10
U65	50	60,3	2	65,6	120	90	115	69,85	95	M10
U65	65	76,1	2	65,6	120	100	135	81,95	95	M10
U65	80	88,9	2,3	65,6	120	100	155	95,85	95	M10
U65	100	114,3	2,3	65,6	120	100	175	103,15	95	M10

BioControl® – Angle Housing U25 / U50 / U65, tube dimensions in accordance with DIN11866 line C										
Process Connection	DN	d	s	A	D	L	H	h	K	M
U25	1/4"	6,35	0,89	28,1	64	65	46	32,72	50	M6
U25	3/8"	9,53	0,89	28,1	64	65	49	34,13	50	M6
U25	1/2"	12,7	1,65	28,1	64	65	52	36,3	50	M6
U25	3/4"	19,05	1,65	28,1	64	65	58	37,75	50	M6
U25	1"	25,4	1,65	28,1	64	65	65	42,95	50	M6
U50	1"	25,4	1,65	47,6	90	75	80	51,95	70	M8
U50	1 1/2"	38,1	1,65	47,6	90	75	95	60,6	70	M8
U50	2"	50,8	1,65	47,6	90	75	105	64,25	70	M8
U50	2 1/2"	63,5	1,65	47,6	90	75	115	67,9	70	M8
U50	3"	76,2	1,65	47,6	90	85	135	81,55	70	M8
U50	4"	101,6	2,11	47,6	90	100	165	99,31	70	M8
U65	1 1/2"	38,1	1,65	65,6	120	90	100	65,96	95	M10
U65	2"	50,8	1,65	65,6	120	90	110	69,25	95	M10
U65	2 1/2"	63,5	1,65	65,6	120	90	120	72,9	95	M10
U65	3"	76,2	1,65	65,6	120	100	140	86,55	95	M10
U65	4"	101,6	2,11	65,6	120	100	165	99,31	95	M10



BioControl® – Block Flange standard



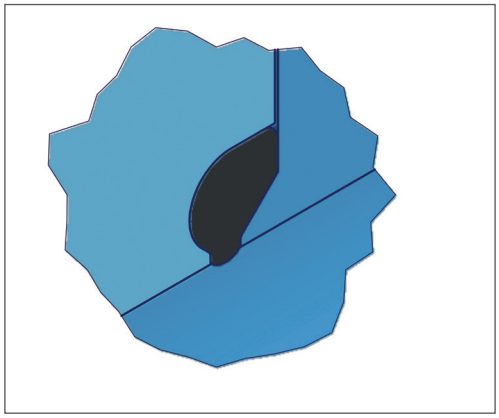
BioControl® – Block Flange high version



BioControl® – Block Flange with welding neck

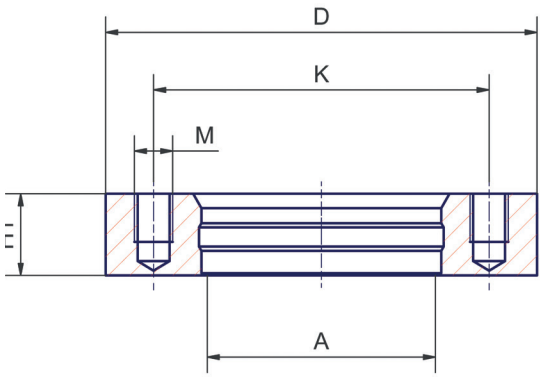
Technical Data	
Material*	1.4435 / 316L
Surface finish (product contacted area)*	Ra < 0,8 µm electropolished
Max. permissible pressure	PN16
Max. operating temperature	-10°C / +200°C
Delta ferrite content (raw material)*	< 1%
Process connection	B25, B50, B65 and B80
Sealing*	EPDM (FDA + USP Class VI)
Block flange standard	Vessel wall thickness < 4mm
Block flange high version*	Vessel wall thickness > 4mm
Block flange with welding neck*	Vessel wall thickness up to 12mm
Approvals	TÜV-component testing
Notification	Please refer to our home-page for processing instructions

* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.) as well as different designs (such as costumised heights, turned radii, etc.), surface qualities and delta ferrite values are available on request.

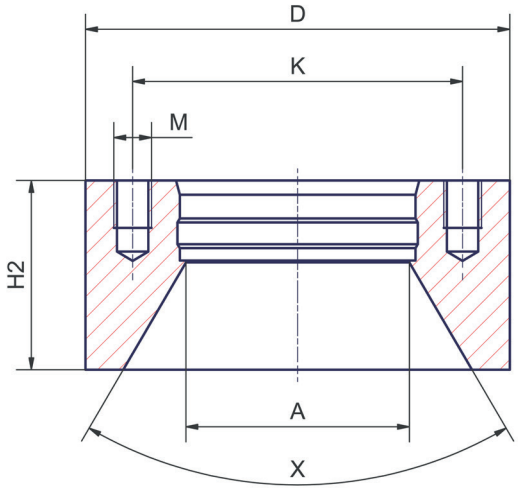


Elastomer-free solution also available (BioControl® CS) - please contact us!

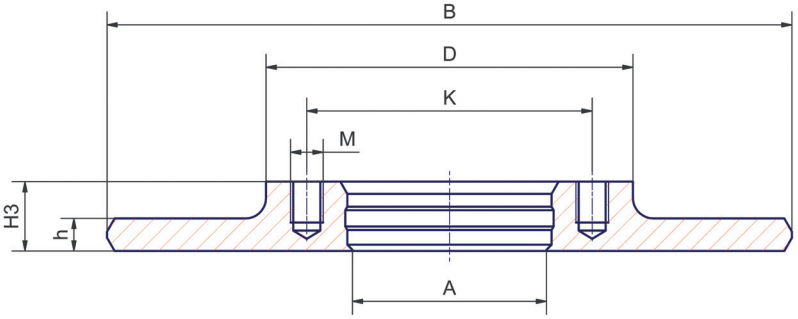
BioControl® – Block Flange standard



BioControl® – Block Flange high version

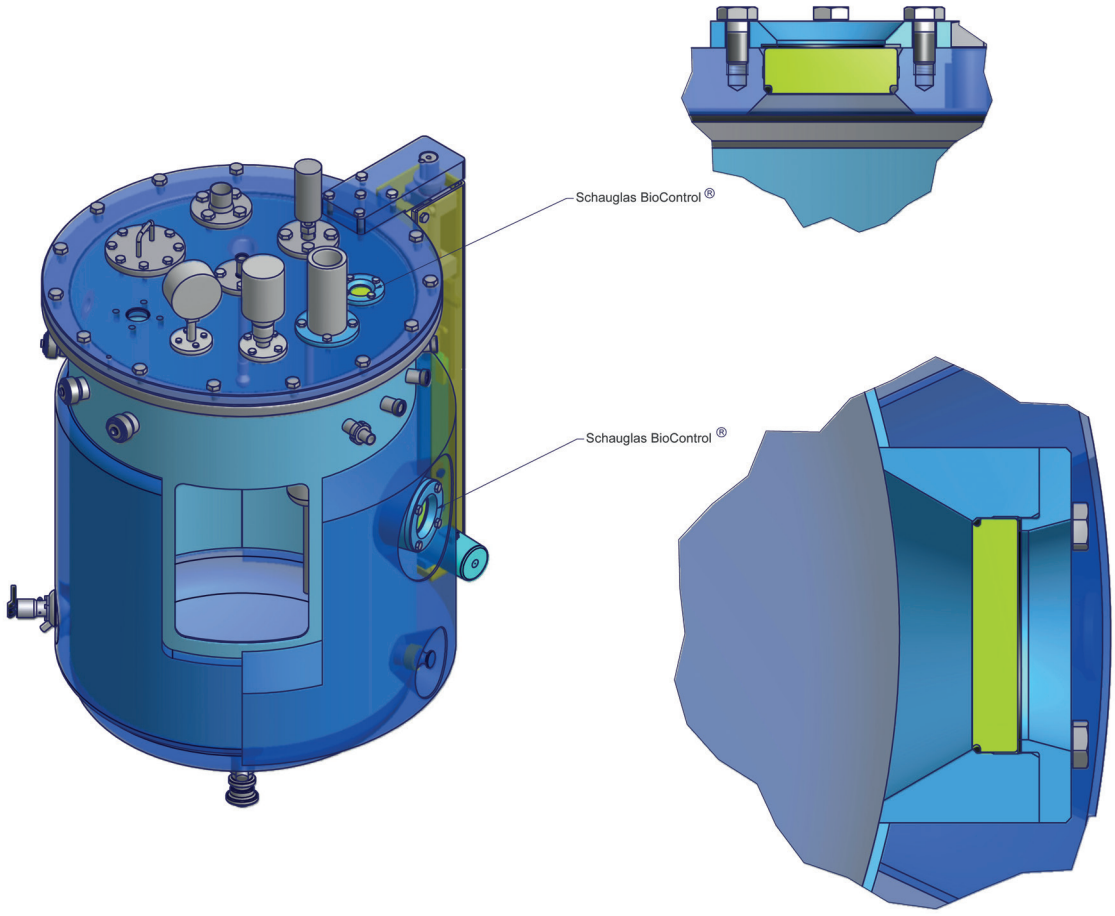


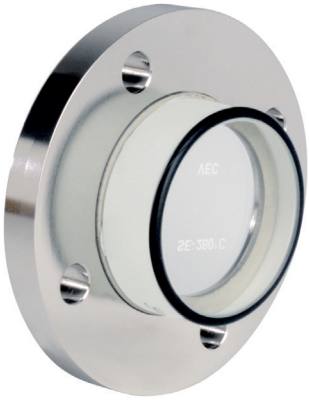
BioControl® – Block Flange with welding neck



BioControl® – Block Flanges B25 / B50 / B65 / B80										
Size	A	D	H1	H2	B	H3	h	K	M	X
B25	28,1	64	11	25	144	11	8	50	4x M6	90°
B50	47,6	90	17	40	170	17	10	70	4x M8	60°
B65	65,6	120	17	50	200	17	10	95	4x M10	60°
B80	85,1	140	25	65	220	25	10	115	4x M10	60°

Application Examples





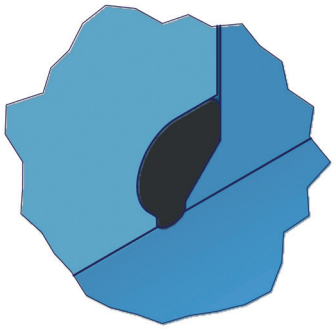
BioControl® – Sight Glass Set



BioControl® – Blind Flange Set

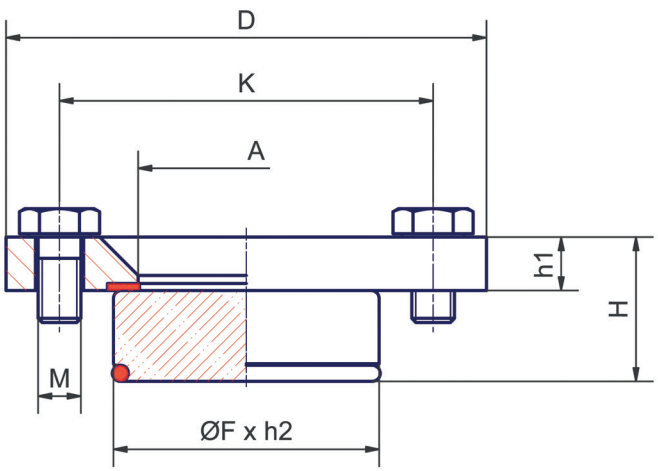
Technical Data	
Materials Blind Flange Set*	Blind Flange: 1.4435 / 316L O-Ring: EPDM (FDA)
Materials Sight Glass Set*	Flange: 1.4435 / 316L Glass: ESG borosilicate O-Ring: EPDM (FDA + USP class VI) Flat Seal: Klinger Top Chem 2000
Surface finish (product contacted area)	Ra < 0,8 µm electropolished
Max. permissible pressure	PN16
Delta ferrite content (raw material)*	< 1%
Process connection	25, 50, 65 and 80
Approvals	TÜV-component testing

* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.), alternative seal materials (such as Viton, Viton / FEP-encapsulated, PTFE, etc.) as well as different surface qualities and delta ferrite values are available on request.

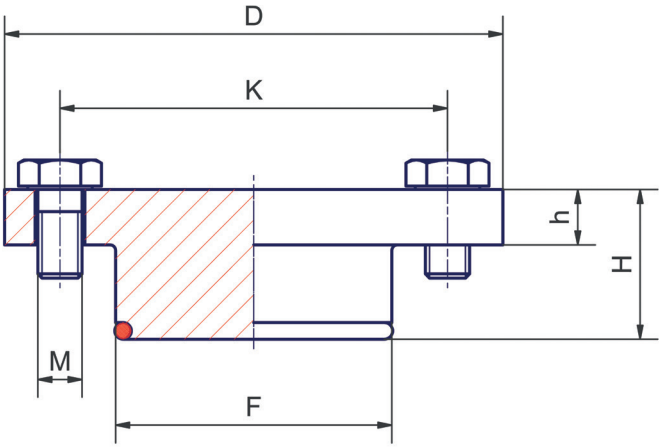


Elastomer-free solution also available (BioControl® CS) - please contact us!

BioControl® – Sight Glass Set



BioControl® – Blind Flange Set



BioControl® – Adaptations

BioControl® – Sight Glass Set S25 – S80							
Size	D	H	h1	K	A	øF x h2	M
S25	64	20	9	50	25	30,3 x 13	M6 x 16
S50	90	27	10	70	40,5	49,8 x 17	M8 x 16
S65	120	27	10	95	58,5	67,8 x 17	M10 x 18
S80	140	37	12	115	78	87,3 x 17	M10 x 25

BioControl® – Blind Flange Set DS25 – DS80						
Size	D	H	h	K	F	M
DS25	64	20	9	50	30,4	M6 x 16
DS50	90	27	10	70	49,9	M8 x 16
DS65	120	27	10	95	67,9	M10 x 18
DS80	140	37	12	115	87,4	M10 x 25

BioControl® – a system with almost unlimited possibilities of adaptation

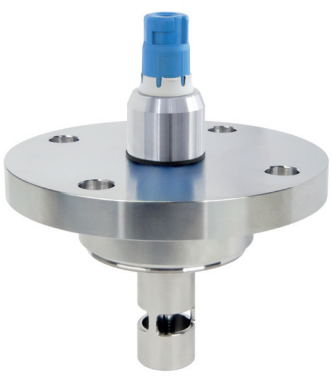
Measuring and analysis instruments as well as sampling valves with BioControl®-connection are available from more than 40 international partners, such as: Gebr. Rieger, WIKA, Labom, Endress + Hauser, Negele, Siemens and many more.

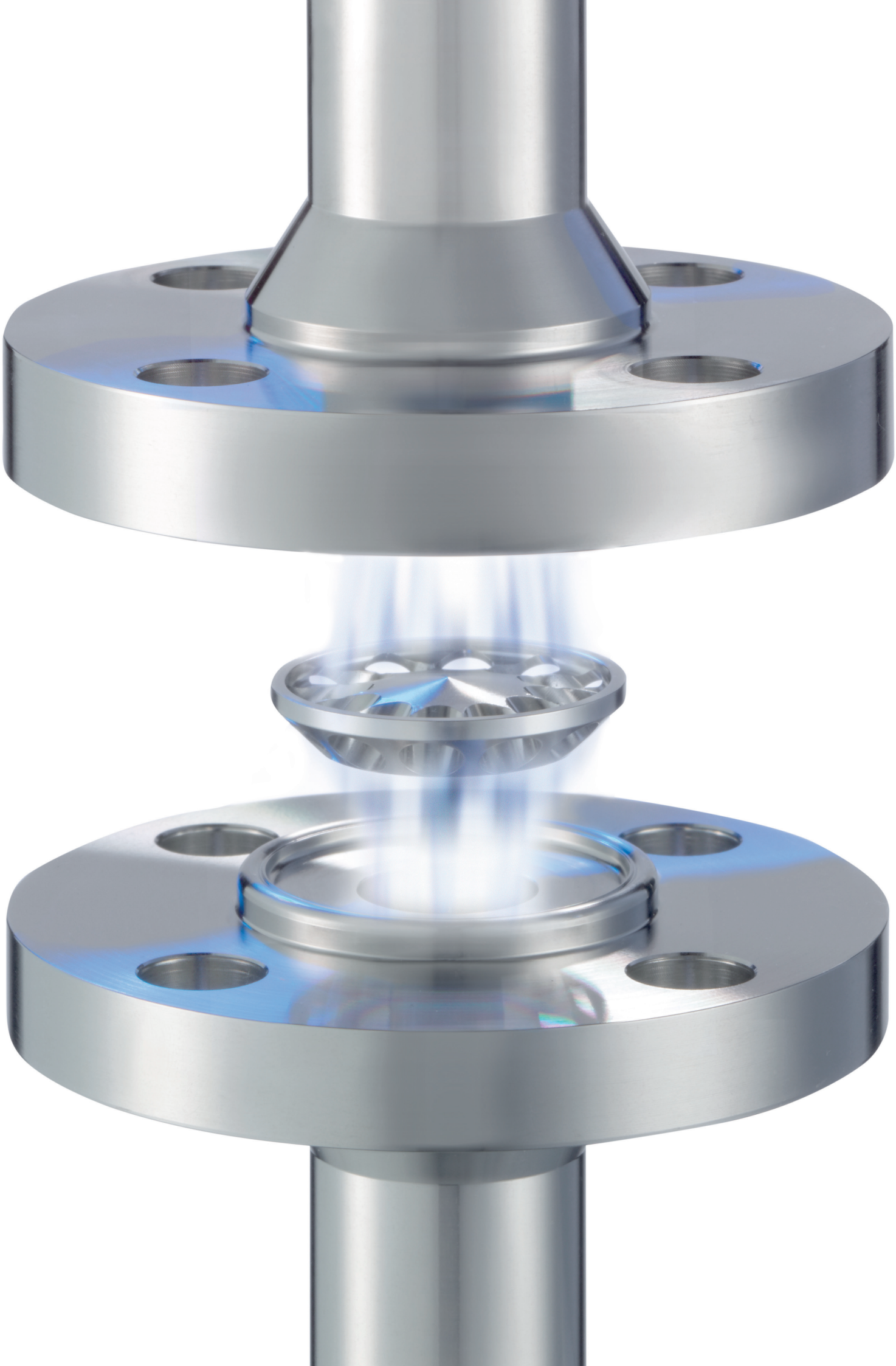








BioFlow

cGMP Check Valves for Pharmaceutical and Aseptic Applications

NEUMO BioFlow check valves and their unique shut-off element FLOWstop provide optimal results when being used:

- to prevent reflow of condensate
- in ultra-pure steam, ultra-pure water and WFI systems
- to protect sensitive sterile pumps and instruments from surges in presure
- in sampling systems for supplying WFI and ultra-pure water
- in compressed air flushing and pressure flushing in sterile areas

Check Valves fulfil the following fundamental technical requirements:

- pressure- resp. flow- dependent on-off function
- self-acting, without external actuator
- outlet in one flow direction only
- flow is blocked in the opposite direction
- quick reaction times
- reflow prevention
- protects pumps and instruments from water hammer

In compliance with cGMP (Current Good Manufacturing Practice) regulations, the following requirements come along when the valves are being used in the pharmaceutical industry and sterile areas:

- avoidance of contamination and cross contamination
- no fouling
- optimum cleaning capability
- low differential pressure

Benefits of the NEUMO BioFlow check valves with FLOWstop:

Constructive Benefits (type VC / HVC)

- cGMP-compliant design and construction
- excellent anti-fouling characteristics
- virtually no dead space
- pharmaceutical grade surface finish
- uniform flow profile
- optimal cleanability

Technical Benefits

- **no springs or membranes**
- sophisticated state of the art design
- ingenuously simple structure with one movable part
- axial guidance of the FLOWstop due to housing shape

Economic Benefits

- maintenance costs and downtime of pharmaceutical facilities are reduced
- no need for orifice plates or expensive sensors to monitor flow rates
- minimising the risks of process disturbances



Check Valve BioFlow HVC

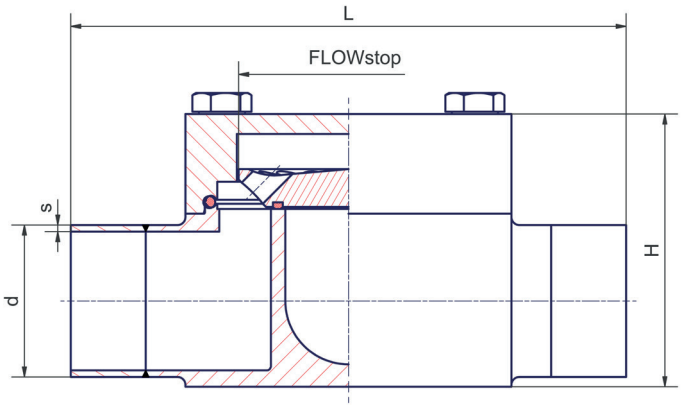


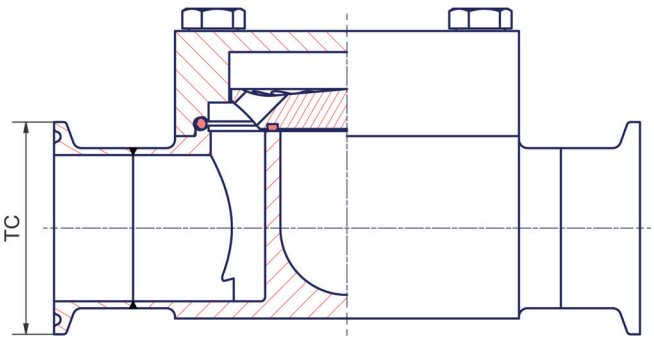
FLOWstop

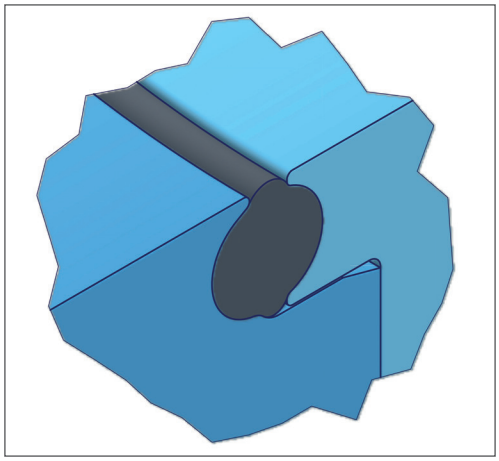
Technical Data	
Installation	Horizontal
Housing material*	1.4435 / 316L
FLOWstop material*	1.4435 / 316L with vulcanised seal EPDM (FDA + USP Class VI) PTFE (FDA + USP Class VI)
Delta ferrite content (raw material)*	< 1%
Surface finish (product contacted area)*	Ra < 0,8 µm electropolished
Body seal	O-Ring EPDM (FDA + USP Class VI), BioConnect® CleanLip (stainless steel sealing element)
Max. permissible pressure	PN16 (20°C)
Opening pressure	0,02 bar
Max. operating temperature	-10°C / +150°C
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), Reihe B (ISO), line C (ASME-BPE)
Approvals	TÜV-component testing (housing) EHEDG (housing)

* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, etc.), alternative sealing materials for body seal (such as Viton, Viton / FEP-encapsulated, PTFE, CleanLip®, etc.) as well as different connections, surface qualities and delta ferrite values are available on request.

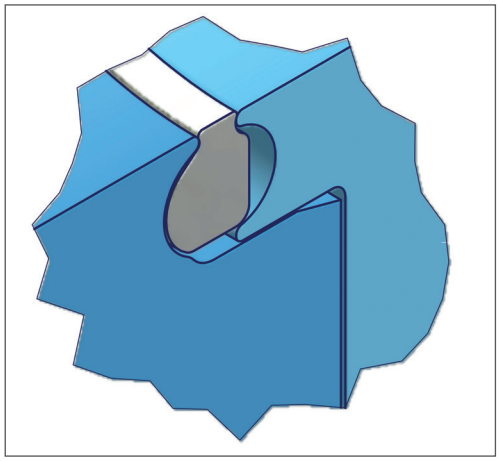
Check Valve BioFlow VC



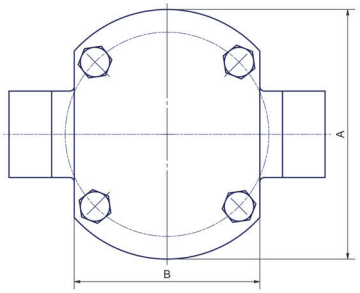




BioConnect®



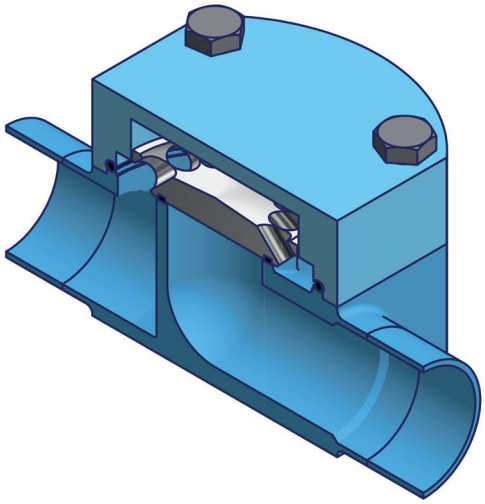
BioConnect® CleanLip



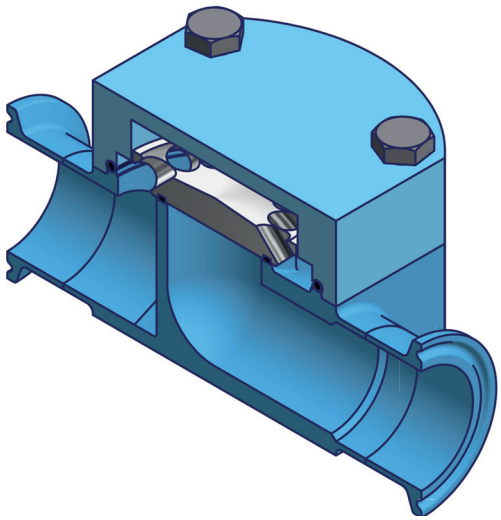
Check Valve BioFlow HVC, Body Seal BioConnect®, tube dimensions in accordance with DIN11866 line A									
DN	d	s	L	A	H	B	M	FLOWstop	KV [m³/h] max.
10	13	1,5	101,6	80	38,7	61	4x M8x30	37	-
15	19	1,5	101,6	80	43,1	61	4x M8x30	37	5,50
20	23	1,5	101,6	80	47	61	4x M8x30	37	8,00
25	29	1,5	101,6	80	54,5	61	4x M8x30	37	8,00
32	35	1,5	139,7	110	65,5	82	4x M8x40	55	-
40	41	1,5	139,7	110	71,5	82	4x M8x40	55	19,80
50	53	1,5	160,2	120	85,1	93	4x M10x55	65	29,30
65	70	2	185	150	118,9	115	4x M10x55	99	-
80	85	2	244	218	161,3	170	6x M12x80	146,5	-
100	104	2	244	218	183,3	170	6x M12x80	146,5	-

Check Valve BioFlow HVC, Body Seal BioConnect®, tube dimensions in accordance with DIN11866 line B									
DN	d	s	L	A	H	B	M	FLOWstop	KV [m³/h] max.
8	13,5	1,6	101,6	80	38,7	61	4x M8x30	37	-
10	17,2	1,6	101,6	80	41,2	61	4x M8x30	37	-
15	21,3	1,6	101,6	80	47,5	61	4x M8x30	37	-
20	26,9	1,6	101,6	80	51,5	61	4x M8x30	37	-
25	33,7	2	139,7	110	64,5	82	4x M8x40	55	-
32	42,4	2	139,7	110	74	82	4x M8x40	55	-
40	48,3	2	160,2	120	80,1	93	4x M10x55	65	-
50	60,3	2	185	150	118,9	115	4x M10x55	99	-
65	76,1	2	185	150	128,3	115	4x M10x55	99	53,2
80	88,9	2,3	244	218	161,3	170	6x M12x80	146,5	98,1
100	114,3	2,3	244	218	183,3	170	6x M12x80	146,5	131

Check Valve BioFlow HVC, Body Seal BioConnect®, tube dimensions in accordance with DIN11866 line C										
DN	d	s	L	A	H	B	TC	M	FLOWstop	KV [m³/h] max.
1/2"	12,7	1,65	101,6	80	38,7	61	25	4x M8x30	37	2,60
3/4"	19,05	1,65	101,6	80	41,2	61	25	4x M8x30	37	5,60
1"	25,4	1,65	101,6	80	47,5	61	50,5	4x M8x30	37	7,40
1 1/2"	38,1	1,65	139,7	110	64,5	82	50,5	4x M8x40	55	20,2
2"	50,8	1,65	160,2	120	80,1	93	64	4x M10x55	65	28,7
2 1/2"	63,5	1,65	185	150	118,9	115	77,5	4x M10x55	99	53,2
3"	76,2	1,65	185	150	118,9	115	91	4x M10x55	99	52,9
4"	101,6	2,11	244	218	178,3	170	119	6x M12x80	146,5	-



Check Valve BioFlow HVC BioConnect®



KV value subject to technical changes



Check Valve BioFlow VC

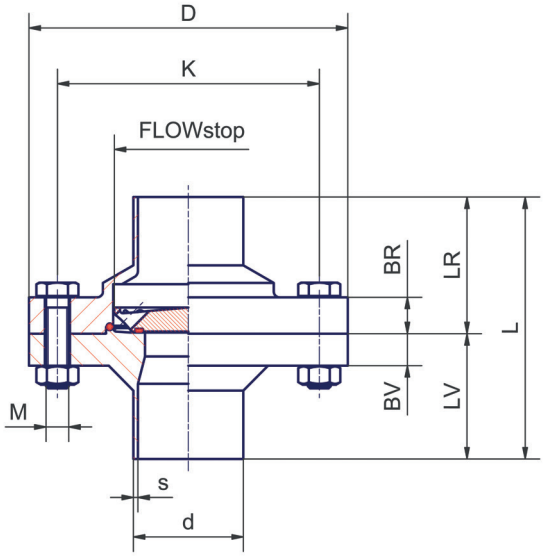


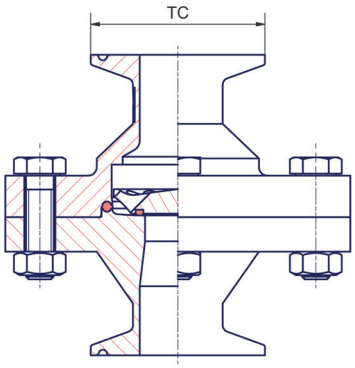
FLOWstop

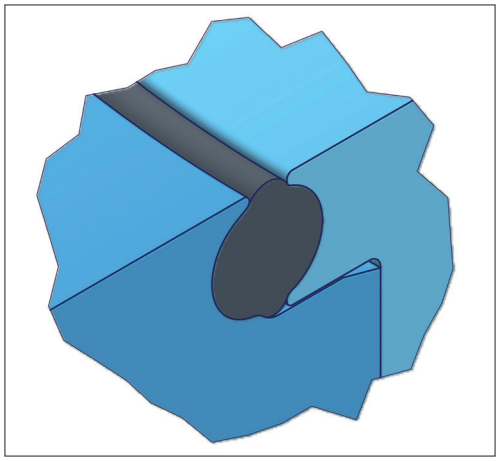
Technical Data	
Installation	Vertical
Housing material*	1.4435 / 316L
FLOWstop material*	1.4435 / 316L with vulcanised seal EPDM (FDA + USP Class VI) PTFE (FDA + USP Class VI)
Delta ferrite content (raw material)*	< 1%
Surface finish (product contacted area)*	Ra < 0,8 µm electropolished
Body seal	O-Ring EPDM (FDA + USP Class VI), BioConnect® CleanLip (stainless steel sealing element)
Max. permissible pressure	PN16 (20°C)
Opening pressure	0,02 bar
Max. operating temperature	-10°C / +150°C
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), Reihe B (ISO), line C (ASME-BPE)
Approvals	TÜV-component testing (housing) EHEDG (housing)

* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, etc.), alternative sealing materials for body seal (such as Viton, Viton / FEP-encapsulated, PTFE, CleanLip®, etc.) as well as different connections, surface qualities and delta ferrite values are available on request.

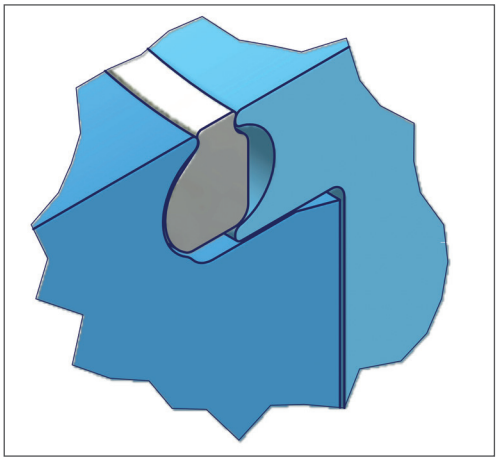
Check Valve BioFlow VC







BioConnect®

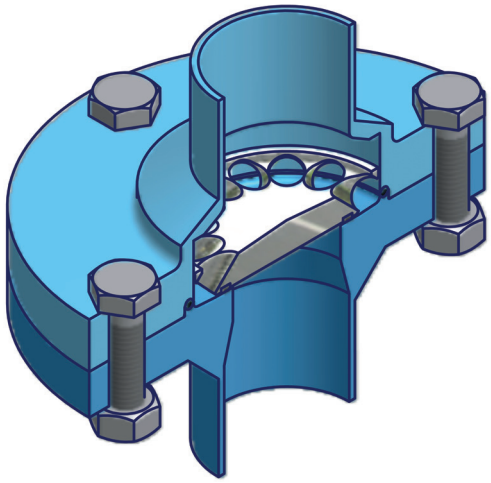


BioConnect® CleanLip

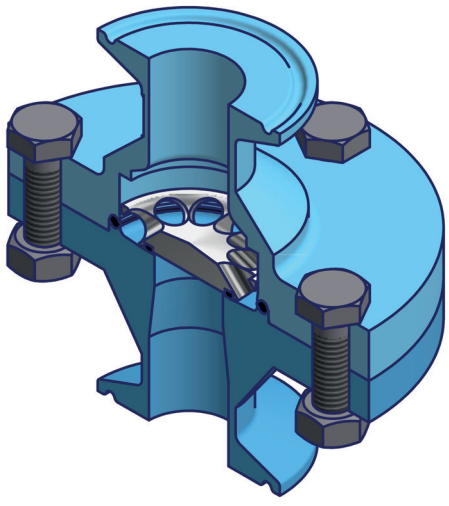
Check Valve BioFlow VC, Body Seal BioConnect®, tube dimensions in accordance with DIN11866 line A												
DN	d	s	D	K	L	LV	BV	LR	BR	M	FLOWstop	KV [m³/h] max.
8	10	1	100	80	100	45	10	55	12	4x M8x30	37	-
10	13	1,5	100	80	100	45	10	55	12	4x M8x30	37	-
15	19	1,5	100	80	102	50	10	52	12	4x M8x30	37	6,50
20	23	1,5	100	80	102	50	10	52	12	4x M8x30	37	-
25	29	1,5	100	80	112	55	10	57	12	4x M8x30	37	9,50
32	35	1,5	110	90	115	55	12	60	14	4x M8x35	55	-
40	41	1,5	110	90	112	55	12	57	14	4x M8x35	55	23,30
50	53	1,5	140	115	114	55	14	59	16	4x M10x40	65	34,40
65	70	2	175	150	155	70	16	85	18	8x M10x45	99	86,00
80	85	2	175	150	155	70	16	85	18	8x M10x45	99	86,00
100	104	2	215	190	188	88	16	100	18	8x M12x50	146,5	-

Check Valve BioFlow VC, Body Seal BioConnect®, tube dimensions in accordance with DIN11866 line B												
DN	d	s	D	K	L	LV	BV	LR	BR	M	FLOWstop	KV [m³/h] max
8	13,5	1,6	100	80	100	45	10	55	12	4x M8x30	37	-
10	17,2	1,6	100	80	102	50	10	52	12	4x M8x30	37	5,20
15	21,3	1,6	100	80	102	50	10	52	12	4x M8x30	37	-
20	26,9	1,6	100	80	112	55	10	57	12	4x M8x30	37	9,70
25	33,7	2	110	90	115	55	12	60	14	4x M8x40	55	20,70
32	42,4	2	110	90	115	55	12	60	14	4x M8x40	55	-
40	48,3	2	140	115	115	55	14	60	16	4x M10x55	65	34,40
50	60,3	2	175	150	160	70	16	90	18	4x M10x55	99	74,80
65	76,1	2	175	150	155	70	16	85	18	4x M10x55	99	86,0
80	88,9	2,3	175	150	155	70	16	85	18	6x M12x80	99	86,0
100	114,3	2,3	215	190	188	88	16	100	18	6x M12x80	146,5	-

Check Valve BioFlow VC, Body Seal BioConnect®, tube dimensions in accordance with DIN11866 line C													
DN	d	s	D	K	L	LV	BV	LR	BR	TC	M	FLOWstop	KV [m³/h] max.
1/2"	12,7	1,65	100	80	100	45	10	55	12	25	4x M 8x30	37	3,10
3/4"	19,05	1,65	100	80	100	45	10	55	12	25	4x M 8x30	37	7,50
1"	25,4	1,65	100	80	112	55	10	57	12	50,5	4x M 8x30	37	8,40
1 1/2"	38,1	1,65	110	90	115	55	12	60	14	50,5	4x M 8x35	55	20,1
2"	50,8	1,65	110	90	115	55	12	60	14	64	4x M 8x35	55	18,3
2 1/2"	63,5	1,65	175	150	155	70	16	85	18	77,5	8x M 10x45	99	-
3"	76,2	1,65	175	150	155	70	16	85	18	91	8x M 10x45	99	-
4"	101,6	2,11	215	190	188	88	16	100	18	119	8x M 12x50	146,5	-



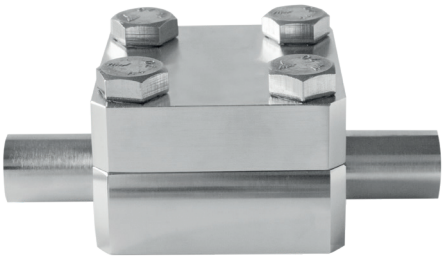
Check Valve BioFlow VC BioConnect®



KV value subject to technical changes



Check Valve BioFlow VC



Check Valve BioFlow HVC

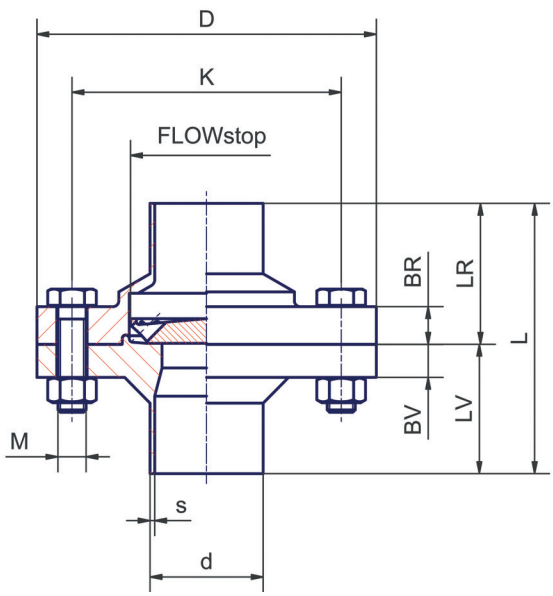


FLOWstop

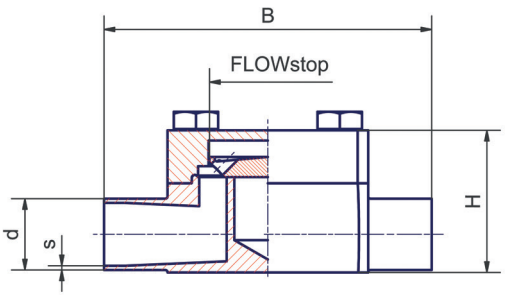
Technical Data	
Installation	BioFlow VC: vertical BioFlow HVC: horizontal
Housing material*	1.4435 / 316L
FLOWstop material*	1.4435 / 316L with vulcanised seal EPDM (FDA + USP Class VI) PTFE (FDA + USP Class VI) 1.4435/316L elastomer-free
Delta ferrite content (raw material)*	< 1%
Surface finish (product contacted area)*	Ra < 0,8 µm electropolished
Body seal*	Elastomer-free, NEUMO ConnectS®
Max. permissible pressure	with FLOWstop Ø 37 + 55 PN16 (20°C) with FLOWstop Ø 65 + 99 PN10)20°C)
Opening pressure	0,02 bar
Max. operating temperature	-10°C / +200°C
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)
Approvals	TÜV-component testing (housing) EHEDG (housing) TA-air (housing)

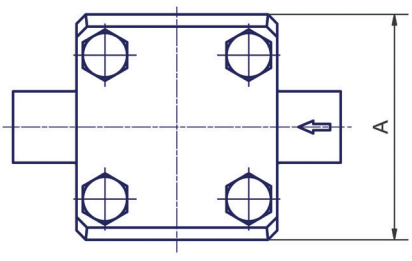
* Alternative material grades (such as 1.4539, 6Mo / UNS N08367, etc.), larger dimensions,
different connections, surface qualities and delta ferrite values are available on request.

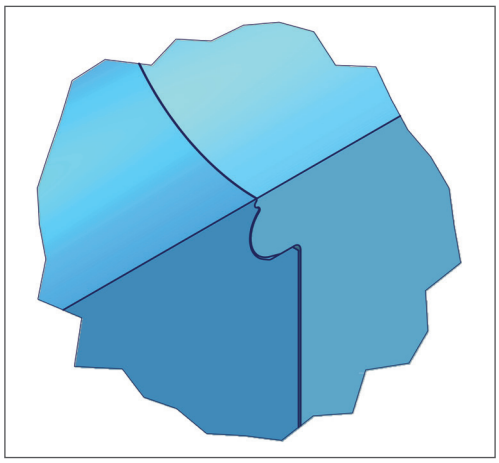
Check Valve BioFlow VC



Check Valve BioFlow HVC





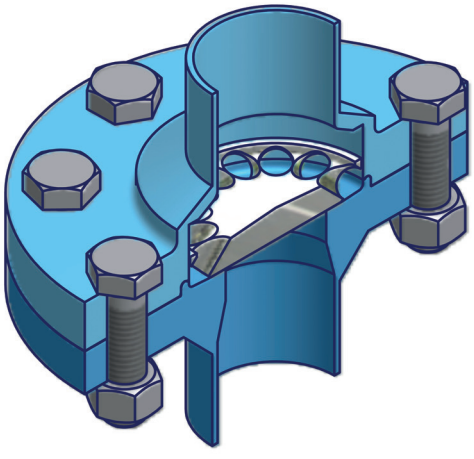


ConnectS®

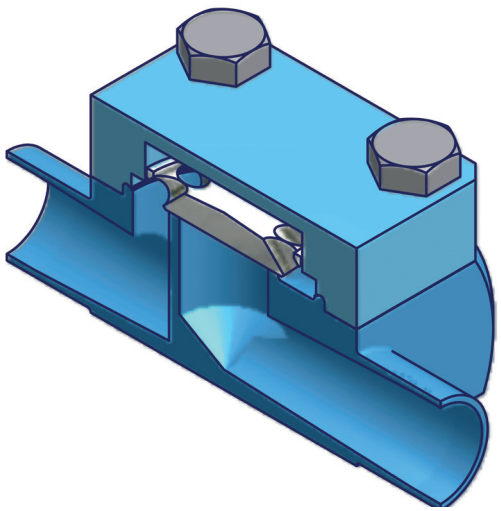
DN	d	s	D	K	L	LV	BV	LR	BR	M	A	B	H	FLOWstop VC	FLOWstop HVC
8	10	1	115	85	106	52	12	54	14	4x M 14x40	73,5	122	35	37	37
10	13	1,5	115	85	106	52	12	54	14	4x M 14x40	74,5	122	38,5	37	37
15	19	1,5	115	85	106	52	12	54	14	4x M 14x40	76	122	44	37	37
20	23	1,5	115	85	112	55	12	57	14	4x M 14x40	77	132	47,5	37	37
25	29	1,5	115	85	112	55	12	57	14	4x M 14x40	79,5	132	53,5	37	37
32	35	1,5	125	95	115	55	12	60	14	4x M 14x40	103	155	64,5	55	55
40	41	1,5	125	95	115	55	12	60	14	4x M 14x40	105,5	155	70,5	55	55
50	53	1,5	145	115	125	60	14	65	16	8x M 12x45	118	165	85,5	65	65

DN	d	s	D	K	L	LV	BV	LR	BR	M	A	B	H	FLOWstop VC	FLOWstop HVC
8	13,5	1,6	115	85	106	52	12	54	14	4x M 14x40	74,5	122	38,5	37	37
10	17,2	1,6	115	85	106	52	12	54	14	4x M 14x40	75,5	130	42	37	37
15	21,3	1,6	115	85	106	52	12	54	14	4x M 14x40	76,5	140	45,5	37	37
20	26,9	1,6	115	85	106	52	12	54	14	4x M 14x40	78,5	140	51	37	37
25	33,7	2	125	95	115	55	12	60	14	4x M 14x40	102,5	155	63	55	55
32	42,4	2	125	95	115	55	12	60	14	4x M 14x40	106	155	72	55	55
40	48,3	2	145	115	115	55	14	60	16	8x M 12x45	115,5	165	81	65	65
50	60,3	2	180	150	160	70	16	90	18	8x M 12x50	122	165	93	99	65

DN	d	s	D	K	L	LV	BV	LR	BR	M	A	B	H	FLOWstop VC	FLOWstop HVC
1/2"	12,7	1,65	115	85	106	52	12	54	14	4x M 14x40	74	122	37	37	37
3/4"	19,05	1,65	115	85	106	52	12	54	14	4x M 14x40	75,5	132	43	37	37
1"	25,4	1,65	115	85	112	55	12	57	14	4x M 14x40	78	132	50	37	37
1 1/2"	38,1	1,65	125	95	115	55	12	60	14	4x M 14x40	104	155	67,5	55	55
2"	50,8	1,65	145	115	125	60	14	65	16	8x M 12x45	117	165	83,5	65	65



Check Valve BioFlow VC ConnectS®



Check Valve BioFlow HVC ConnectS®



Check Valve BioFlow TCVC

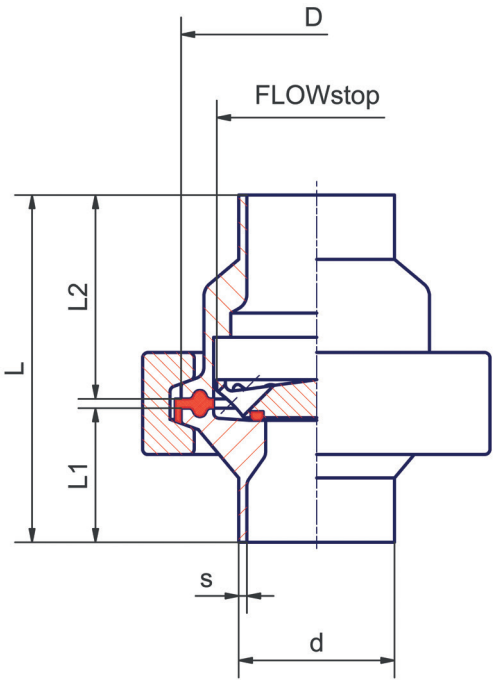


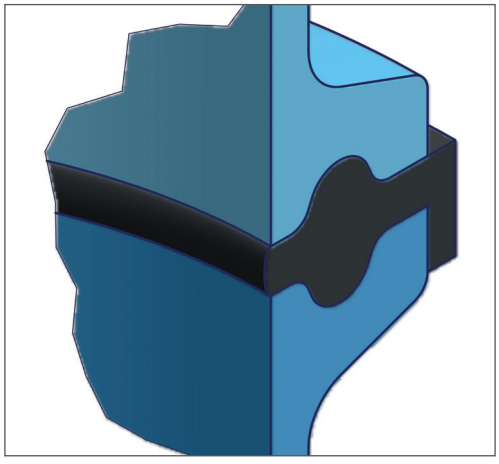
FLOWstop

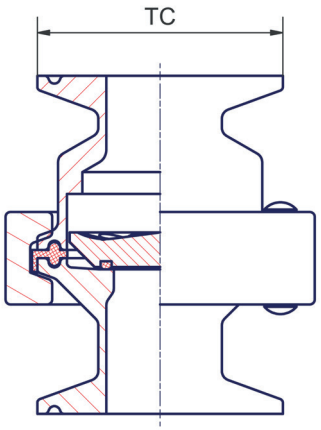
Technical Data	
Installation	Vertical
Housing material*	1.4435 / 316L
FLOWstop material*	1.4435 / 316L with vulcanised seal EPDM (FDA + USP Class VI) PTFE (FDA + USP Class VI)
Delta ferrite content (raw material)*	< 1%
Surface finish (product contacted area)*	Ra < 0,8 µm precision turned
Body seal*	Clamp seal EPDM (FDA + USP Class VI), DIN32676 / ASME-BPE
Max. permissible pressure	PN10 (20°C)
Opening pressure	0,02 bar
Max. operating temperature	-10°C / +150°C (up to 200°C if PTFE is used for FLOWstop and housing seal)
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)

* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium etc.), alternative sealing materials such as Viton, Viton / FEP-encapsulated, PTFE, etc.) as well as different connections, surface qualities and delta ferrite values are available on request.

Check Valve BioFlow TCVC



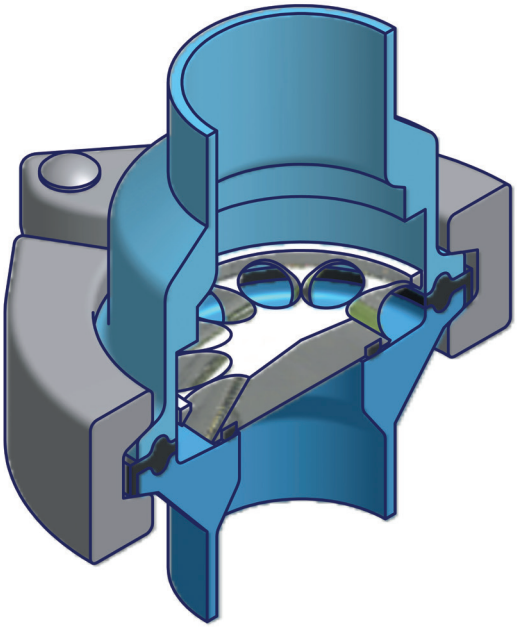


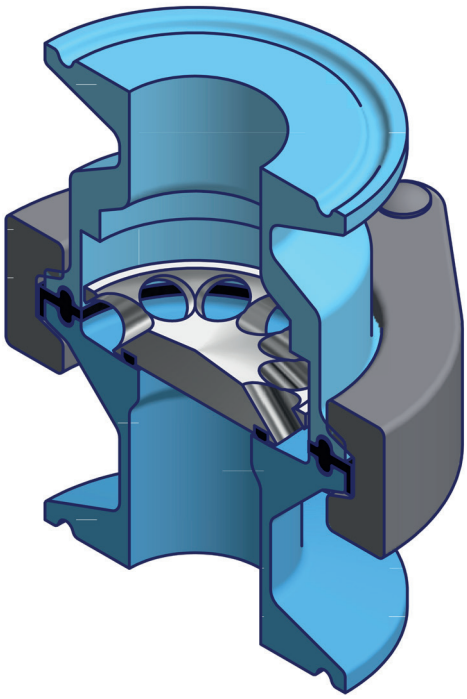


Check Valve BioFlow TCVC, tube dimensions in accordance with DIN11866 line A							
DN	d	s	D	ca. L	L1	L2	FLOWstop
8	10	1	50,5	65	25	38	37
10	13	1,5	50,5	65	25	38	37
15	19	1,5	50,5	65	25	38	37
20	23	1,5	50,5	65	25	38	37
25	29	1,5	50,5	65	25	38	37
32	35	1,5	50,5	65	25	38	37
40	41	1,5	77,5	75	30	43	55
50	53	1,5	91	75	30	43	65

Check Valve BioFlow TCVC, tube dimensions in accordance with DIN11866 line B							
DN	d	s	D	ca. L	L1	L2	FLOWstop
8	13,5	1,6	50,5	65	25	38	37
10	17,2	1,6	50,5	65	25	38	37
15	21,3	1,6	50,5	65	25	38	37
20	26,9	1,6	50,5	65	25	38	37
25	33,7	2	50,5	65	25	38	37
32	42,4	2	77,5	75	30	43	55
40	48,3	2	77,5	75	30	43	55
50	60,3	2	130	112	45	65	99

Check Valve BioFlow TCVC, tube dimensions in accordance with DIN11866 line C								
DN	d	s	D	ca. L	L1	L2	TC	FLOWstop
1/2"	12,7	1,65	50,5	67,8	37,8	30	50,5	37
3/4"	19,05	1,65	50,5	67,8	37,8	30	50,5	37
1"	25,4	1,65	50,5	67,8	35,8	32	50,5	37
1 1/2"	38,1	1,65	77,5	75,4	40,4	35	77,5	55
2"	50,8	1,65	77,5	83,1	48,1	35	77,5	55
2 1/2"	63,5	1,65	130	127,76	65	62,76	130	99
3"	76,2	1,65	130	127,76	65	62,76	130	99

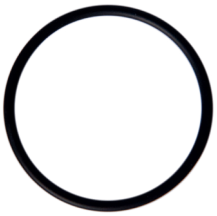




Check Valve BioFlow TCVC



CleanLip
(for BioConnect®)



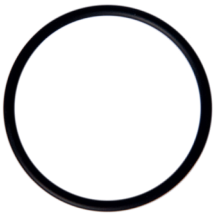
EPDM



Viton /
FEP-encapsulated



PTFE

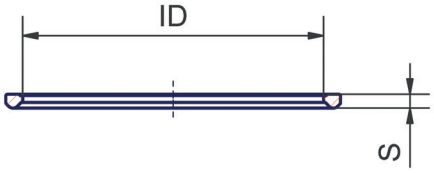


Viton

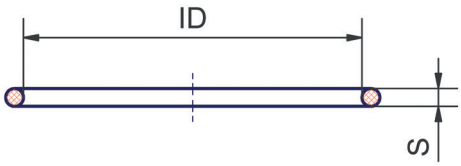
NEUMO
INNOVATION

Technical Data	
Material O-Rings* (standard of stock)	EPDM Viton / FEP-encapsulated Teflon (PTFE) Viton (FKM)
Material CleanLip	1.4435 / 316 L (with 3.1 certificate)
Approval O-Rings	FDA + USP Class VI
Notification	Due to very narrowly defined tolerances, optimum functionality of the sealing can be guaranteed only if original O-Rings are utilised. We like to point out that for this reason O-Rings for BioConnect® and BioControl® should be exclusively purchased from NEUMO or our authorised representatives.
* Alternative material grades (such as EPDM / FEP-encapsulated, etc.) and different dimensions are available on request.	

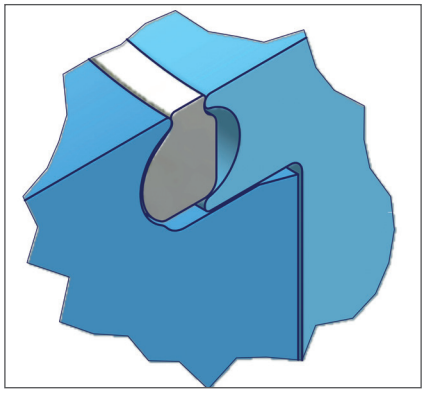
CleanLip



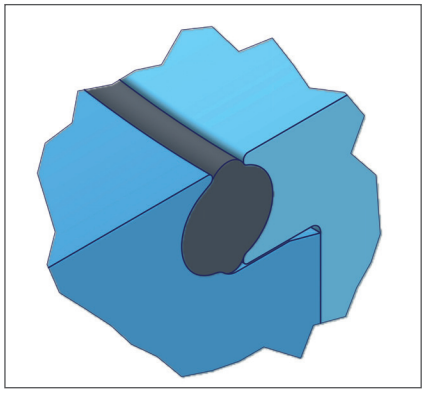
O-Ring
BioConnect®/BioControl®



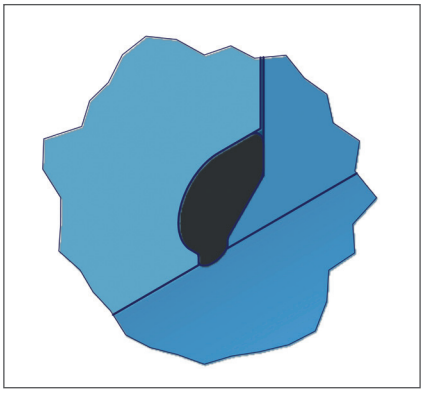
CleanLip



BioConnect®



BioControl®



For BioConnect®-flange connection
test report: EHEDG 01 cleanability test

BioConnect® O-Ring, tube dimensions in accordance with DIN11866 line A		
DN	ID	S
6	6	2
8	8	2
10	11	2
15	17	2,5
20	21	2,5
25	27	3
32	33	3
40	39	3
50	51	3
65	67	3
80	82	3
100	101	3
125	125	4
150	150	4
200	200	4

BioConnect® O-Ring, tube dimensions in accordance with DIN11866 line B		
DN	ID	S
6	7	2
8	11	2
10	15	2,5
15	19	2,5
20	24	2,5
25	30	3
32	39	3
40	45	3
50	57	3
65	72,5	3
80	85	3
100	109,5	3
125	134	4
150	163	4
200	214	4

BioConnect® O-Ring, tube dimensions in accordance with DIN11866 line C		
DN	ID	S
3/8"	8	2
1/2"	10	2
3/4"	16,3	2,5
1"	23	2,5
1 1/2"	35,5	3
2"	48	3
2 1/2"	62	3
3"	74	3
4"	98	3
6"	148	4

CleanLip Sealing Element, tube dimensions in accordance with DIN11866 line A		
DN	ID	S
8	8	1,6
10	10	1,6
15	16	1,9
20	20	1,9
25	26	2,3
32	32	2,3
40	37	2,3
50	50	2,3
65	66	2,3
80	81	2,3
100	100	2,3

CleanLip Sealing Element, tube dimensions in accordance with DIN11866 line B		
DN	ID	S
8	10,3	1,6
10	14	1,9
15	18,1	1,9
20	23,7	1,9
25	29,7	2,3
32	38,4	2,3
40	44,3	2,3
50	56,3	2,3
65	72,1	2,3
80	84,3	2,3
100	109,7	2,3

CleanLip Sealing Element, tube dimensions in accordance with DIN11866 line C		
DN	ID	S
1/2"	9,4	1,6
3/4"	15,75	1,9
1"	22,1	1,9
1 1/2"	34,8	2,3
2"	47,5	2,3
2 1/2"	60,2	2,3
3"	72,9	2,3
4"	97,38	2,3

BioControl® O-Ring, process connection G/U 25 - 80		
Size G/U	ID	S
25	23,5	3
50	42	3
65	60	3
80	78	3



DIN11865

Fittings for Aseptic, Chemical and Pharmaceutical Industry



Hygienic Classes DIN11865				
Hygienic class		Ra internal surface	Ra longitudinal seam area / internal forming area	External surface
H1	HE1[b]	<1,60µm	<3,20µm	As produced, without specification re. finish quality or polished / precision turned Ra<1,0µm[a]
H2	HE2[b]	<0,80µm	<1,60µm	
H3	HE3[b]	<0,80µm	<0,80µm	
H4	HE4[b]	<0,40µm	<0,40µm	
H5	HE5[b]	<0,25µm	<0,25µm	

a Fittings of an external surface Ra<1,0µm are marked with an additional "o", for example H3o. The surface quality with regard to roughness does not apply for the marking area.
b Electropolished in compliance with a defined procedure with a mimimum surface removal of 20µm.



Elbow 45°, form BL

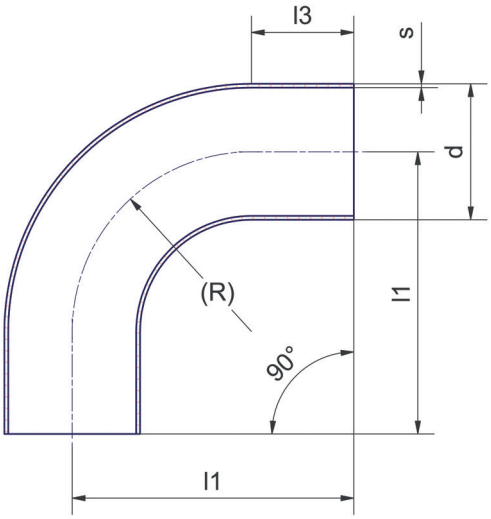


Elbow 90°, form BL

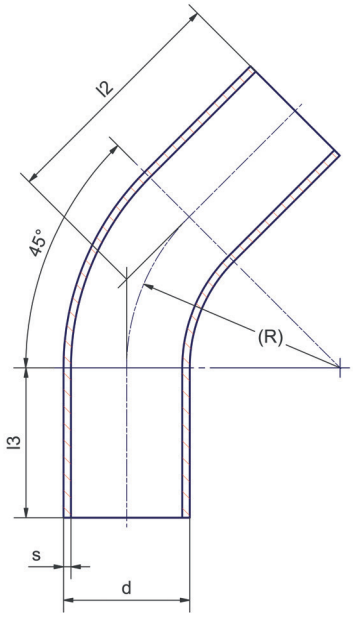
Technical Data	
Material*	1.4435
Norm	DIN11865 (actual version)
Design	BL
Surface finish (standard of stock)*	H3o HE3 H4o HE4
DF-class*	3 (<0,5%)
Connections*	Orbital welding ends in accordance with DIN11865 line A (DIN), line B (ISO), line C (ASME-BPE)

* Alternative material grades (such as 1.4539, 2.4602, 2.4605, etc.), different surface qualities and connections as well as customised elbows (88°, 92°, 30°, 60°, etc.), also with special radii, are available on request.

Elbow DIN11865, form BL-90



Elbow DIN11865, form BL-45



Elbow DIN11865, form BL-90 and BL-45, tube dimensions in accordance with DIN11866 line A						
DN	d	s	R	l1	l2	l3
6	8	1	20	45	33,3	25
8	10	1	25	50	35,4	25
10	13	1,5	26	51	35,8	25
15	19	1,5	35	60	39,5	25
20	23	1,5	40	65	41,6	25
25	29	1,5	50	90	60,7	40
32	35	1,5	55	95	62,8	40
40	41	1,5	60	100	64,9	40
50	53	1,5	70	110	69,0	40
65	70	2	80	120	73,1	40
80	85	2	90	145	92,3	55
100	104	2	100	155	96,4	55
125	129	2	187,5	270	160,2	82,5
150	154	2	225	325	193,2	100
200	204	2	300	400	224,3	100

Elbow DIN11865, form BL-90 and BL-45, tube dimensions in accordance with DIN11866 line B						
DN	d	s	R	l1	l2	l3
6	10,2	1,6	20	45	33,3	25
8	13,5	1,6	20	45	33,3	25
10	17,2	1,6	28	53	36,6	25
15	21,3	1,6	30	55	37,4	25
20	26,9	1,6	28,5	68,5	51,8	40
25	33,7	2	38	78	55,7	40
32	42,4	2	47,5	87,5	59,7	40
40	48,3	2	57	97	63,6	40
50	60,3	2	76	116	71,5	40
65	76,1	2	95	150	94,4	55
80	88,9	2,3	114,5	169,5	102,4	55
100	114,3	2,3	152,5	207,5	118,2	55
125	139,7	2,6	190,5	245,5	133,9	55
150	168,3	2,6	228,5	283,5	149,7	55
200	219,1	2,6	305	385	206,3	80

Elbow DIN11865, form BL-90 and BL-45, tube dimensions in accordance with DIN11866 line C							
DN	d	s	R	l1	l2	l3 / 90°	l3 / 45°
1/4"	6,35	0,89	14,3	66,7	50,8	52,4	44,9
3/8"	9,53	0,89	28,6	66,7	50,8	38,1	39
1/2"	12,7	1,65	28,6	76,2	57,2	47,6	45,4
3/4"	19,05	1,65	28,6	76,2	57,2	47,6	45,4
1"	25,4	1,65	38,1	76,2	57,2	38,1	41,4
1 1/2"	38,1	1,65	57,2	95,3	63,5	38,1	39,8
2"	50,8	1,65	76,2	120,7	76,2	44,5	44,6
2 1/2"	63,5	1,65	95,3	139,7	85,7	44,4	46,2
3"	76,2	1,65	114,3	158,8	92,1	44,5	44,8
4"	101,6	2,11	152,4	203,2	114,3	50,8	51,2
6"	152,4	2,77	228,6	292,1	158,8	63,5	64,1



Tee-Piece
form T



Tee-Piece
form TK



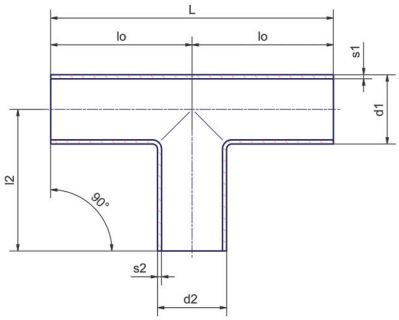
Reduced Tee-Piece
form T



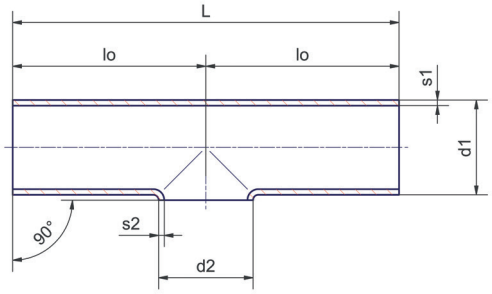
Reduced Tee-Piece
form TK

Technical Data	
Material*	1.4435
Norm	DIN11865 (actual version)
Design	T short outlet TK long outlet
Surface finish (standard of stock)*	H3o HE3
Connections*	Orbital welding ends in accordance with DIN11865 line A (DIN), line B (ISO), line C (ASME-BPE)

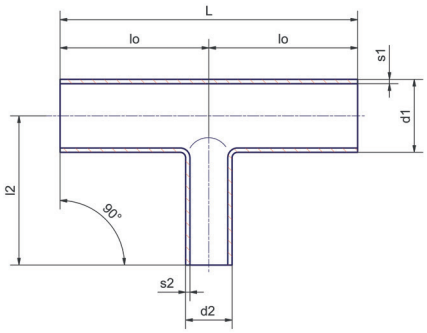
* Alternative material grades (such as 1.4539, 2.4602, 2.4605, etc.), different surface qualities and connections as well as customised components (exit 45°, etc.) are available on request.



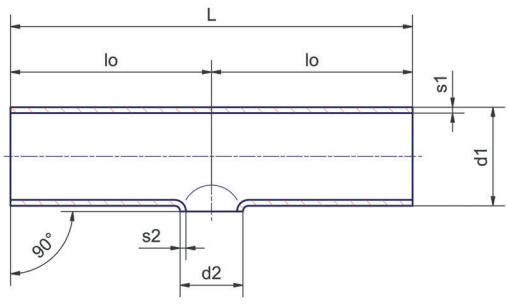
Tee-Piece
form T



Tee-Piece
form TK



Reduced Tee-Piece
form T

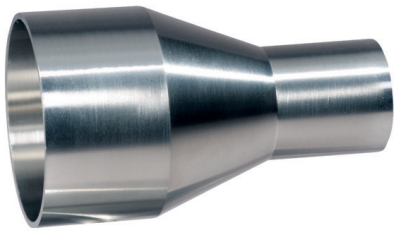


Reduced Tee-Piece
form TK

Tee-Piece equal / reduced DIN11865, form T and TK, tube dimensions in accordance with DIN11866 line A							
DN	d1	s1	d2	s2	L	lo	l2
6	8	1	8	1	60	30	30
8 / 6	10	1	8	1	60	30	30
8	10	1	10	1	60	30	30
10 / 6	13	1,5	8	1	60	30	30
10 / 8	13	1,5	10	1	60	30	30
10	13	1,5	13	1,5	70	35	35
15 / 8	19	1,5	10	1	70	35	35
15 / 10	19	1,5	13	1,5	70	35	35
15	19	1,5	19	1,5	70	35	35
20 / 10	23	1,5	13	1,5	80	40	40
20 / 15	23	1,5	19	1,5	80	40	40
20	23	1,5	23	1,5	80	40	40
25 / 15	29	1,5	19	1,5	100	50	50
25 / 20	29	1,5	23	1,5	100	50	50
25	29	1,5	29	1,5	100	50	50
32 / 15	35	1,5	19	1,5	110	55	55
32 / 20	35	1,5	23	1,5	110	55	55
32 / 25	35	1,5	29	1,5	110	55	55
32	35	1,5	35	1,5	110	55	55
40 / 20	41	1,5	23	1,5	120	60	60
40 / 25	41	1,5	29	1,5	120	60	60
40 / 32	41	1,5	35	1,5	120	60	60
40	41	1,5	41	1,5	120	60	60
50 / 25	53	1,5	29	1,5	160	80	80
50 / 32	53	1,5	35	1,5	160	80	80
50 / 40	53	1,5	41	1,5	160	80	80
50	53	1,5	53	1,5	160	80	80
65 / 32	70	2	35	1,5	210	105	80
65 / 40	70	2	41	1,5	210	105	80
60 / 50	70	2	53	1,5	210	105	80
65	70	2	70	2	210	105	105
80 / 40	85	2	41	1,5	260	130	105
80 / 50	85	2	53	1,5	260	130	105
80 / 65	85	2	70	2	260	130	105
80	85	2	85	2	260	130	130
100 / 50	104	2	53	1,5	310	155	130
100 / 65	104	2	70	2	310	155	130
100 / 80	104	2	85	2	310	155	130
100	104	2	104	2	310	155	155
125 / 65	129	2	70	2	375	187,5	155
125 / 80	129	2	85	2	375	187,5	155
125 / 100	129	2	104	2	375	187,5	155
125	129	2	129	2	375	187,5	187,5
150 / 80	154	2	85	2	450	225	187,5
150 / 100	154	2	104	2	450	225	187,5
150 / 125	154	2	129	2	450	225	187,5
150	154	2	154	2	450	225	225
200 / 100	204	2	104	2	600	300	225
200 / 125	204	2	129	2	600	300	225
200 / 150	204	2	154	2	600	300	225
200	204	2	204	2	600	300	300

Tee-Piece equal / reduced DIN11865, form T and TK, tube dimensions in accordance with DIN11866 line B								
DN	d1	s1	d2	s2	L	lo	l2	l3
6	10,2	1,6	10,2	1,6	60	30	30	-
8 / 6	13,5	1,6	10,2	1,6	64	32	32	-
8	13,5	1,6	13,5	1,6	64	32	32	-
10 / 6	17,2	1,6	10,2	1,6	68	34	34	-
10 / 8	17,2	1,6	13,5	1,6	68	34	34	-
10	17,2	1,6	17,2	1,6	68	34	34	-
15 / 6	21,3	1,6	10,2	1,6	72	36	36	-
15 / 8	21,3	1,6	13,5	1,6	72	36	36	-
15 / 10	21,3	1,6	17,2	1,6	72	36	36	-
15	21,3	1,6	21,3	1,6	72	36	36	-
20 / 8	26,9	1,6	13,5	1,6	110	55	55	-
20 / 10	26,9	1,6	17,2	1,6	110	55	55	-
20 / 15	26,9	1,6	21,3	1,6	110	55	55	-
20	26,9	1,6	26,9	1,6	110	55	55	-
25 / 10	33,7	2	17,2	1,6	120	60	60	-
25 / 15	33,7	2	21,3	1,6	120	60	60	-
25 / 20	33,7	2	26,9	1,6	120	60	60	-
25	33,7	2	33,7	2	120	60	60	38
32 / 15	42,4	2	21,3	1,6	130	65	65	-
32 / 20	42,4	2	26,9	1,6	130	65	65	-
32 / 25	42,4	2	33,7	2	130	65	65	43
32	42,4	2	42,4	2	130	65	65	44
40 / 20	48,3	2	26,9	1,6	130	65	65	-
40 / 25	48,3	2	33,7	2	130	65	65	46
40 / 32	48,3	2	42,4	2	130	65	65	47
40	48,3	2	48,3	2	130	65	65	-
50 / 25	60,3	2	33,7	2	180	90	90	25
50 / 32	60,3	2	42,4	2	180	90	90	53
50 / 40	60,3	2	48,3	2	180	90	90	71
50	60,3	2	60,3	2	180	90	90	-
65 / 32	76,1	2	42,4	2	220	110	90	61
65 / 40	76,1	2	48,3	2	220	110	90	78
65 / 50	76,1	2	60,3	2	220	110	90	-
65	76,1	2	76,1	2	220	110	110	-
80 / 40	88,9	2,3	48,3	2	260	130	110	85
80 / 50	88,9	2,3	60,3	2	260	130	110	-
80 / 65	88,9	2,3	76,1	2	260	130	110	-
80	88,9	2,3	88,9	2,3	260	130	130	-
100 / 50	114,3	2,3	60,3	2	320	160	130	125
100 / 65	114,3	2,3	76,1	2	320	160	130	-
100 / 80	114,3	2,3	88,9	2,3	320	160	130	-
100	114,3	2,3	114,3	2,3	320	160	160	-
125 / 65	139,7	2,6	76,1	2	400	200	160	155
125 / 80	139,7	2,6	88,9	2,3	400	200	160	-
125 / 100	139,7	2,6	114,3	2,3	400	200	160	-
125	139,7	2,6	139,7	2,6	400	200	200	-
150 / 80	168,3	2,6	88,9	2,3	500	250	200	-
150 / 100	168,3	2,6	114,3	2,3	500	250	200	-
150 / 125	168,3	2,6	139,7	2,6	500	250	200	-
150	168,3	2,6	168,3	2,6	500	250	250	-
200 / 100	219,1	2,6	114,3	2,3	600	300	250	-
200 / 125	219,1	2,6	139,7	2,6	600	300	250	-
200 / 150	219,1	2,6	168,3	2,6	600	300	250	-
200	219,1	2,6	219,1	2,6	600	300	300	-

Tee-Piece equal / reduced DIN11865, form T and TK, tube dimensions in accordance with DIN11866 line C							
DN	d1	s1	d2	s2	L	lo	l2
1/4"	6,35	0,89	6,35	0,89	89	44,5	44,5
3/8" / 1/4"	9,53	0,89	6,35	0,89	89	44,5	44,5
3/8"	9,53	0,89	9,53	0,89	89	44,5	44,5
1/2" / 1/4"	12,7	1,65	6,35	0,89	95,2	47,6	47,6
1/2" / 3/8"	12,7	1,65	9,53	0,89	95,2	47,6	47,6
1/2"	12,7	1,65	12,7	1,65	95,2	47,6	47,6
3/4" / 3/8"	19,05	1,65	9,53	0,89	101,6	50,8	50,8
3/4" / 1/2"	19,05	1,65	12,7	1,65	101,6	50,8	50,8
3/4"	19,05	1,65	19,05	1,65	101,6	50,8	50,8
1" /1/2"	25,4	1,65	12,7	1,65	108	54	54
1" / 3/4"	25,4	1,65	19,05	1,65	108	54	54
1"	25,4	1,65	25,4	1,65	108	54	54
1 1/2" / 3/4"	38,1	1,65	19,05	1,65	120,6	60,3	60,3
1 1/2" / 1"	38,1	1,65	25,4	1,65	120,6	60,3	60,3
1 1/2"	38,1	1,65	38,1	1,65	120,6	60,3	60,3
2" / 1"	50,8	1,65	25,4	1,65	146	73	66,7
2" / 1 1/2"	50,8	1,65	38,1	1,65	146	73	66,7
2"	50,8	1,65	50,8	1,65	146	73	73
2 1/2" / 1 1/2"	63,5	1,65	38,1	1,65	158,8	79,4	73
2 1/2" / 2"	63,5	1,65	50,8	1,65	158,8	79,4	73
2 1/2"	63,5	1,65	63,5	1,65	158,8	79,4	79,4
3" / 1 1/2"	76,2	1,65	38,1	1,65	171,4	85,7	79,4
3" / 2"	76,2	1,65	50,8	1,65	171,4	85,7	79,4
3" / 2 1/2"	76,2	1,65	63,5	1,65	171,4	85,7	79,4
3"	76,2	1,65	76,2	1,65	171,4	85,7	85,7
4" / 2"	101,6	2,11	50,8	1,65	209,6	104,8	98,4
4" / 2 1/2"	101,6	2,11	63,5	1,65	209,6	104,8	98,4
4" / 3"	101,6	2,11	76,2	1,65	209,6	104,8	98,4
4"	101,6	2,11	101,6	2,11	209,6	104,8	104,8
6" / 3"	152,4	2,77	76,2	1,65	285,8	142,9	123,8
6" / 4"	152,4	2,77	101,6	2,11	285,8	142,9	130,2
6"	152,4	2,77	152,4	2,77	285,8	142,9	142,9



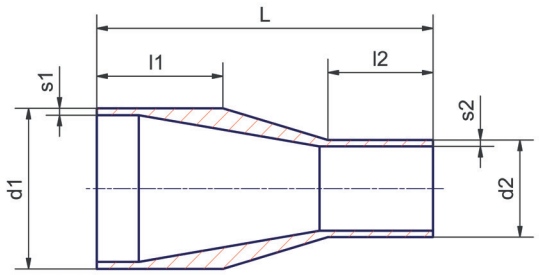
Reducer concentric
form RK



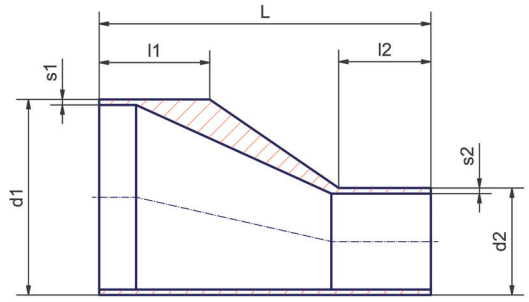
Reducer eccentric
form RE

Technical Data	
Material*	1.4435
Norm	DIN11865 (actual version)
Design	RK concentric RE eccentric
Surface finish (standard of stock)*	H3
DF-class*	DF3 (<0,5%)
Connections*	Orbital welding ends in accordance with DIN11865 line A (DIN), line B (ISO), line C (ASME-BPE)
* Alternative material grades (such as 1.4539, 2.4602, 2.4605, etc.), different surface qualities and connections as well as customised components (adaptors etc.) are available on request.	

Reducer concentric
form RK



Reducer eccentric
form RE



Reducers DIN11865, form RK and RE, tube dimensions in accordance with DIN11866 line A							
DN	d1	s1	d2	s2	L	l1	l2
8 / 6	10	1	8	1	38	19	19
10 / 6	13	1,5	8	1	38	19	19
10 / 8	13	1,5	10	1	38	19	19
15 / 8	19	1,5	10	1	60	25	25
15 / 10	19	1,5	13	1,5	60	25	25
20 / 10	23	1,5	13	1,5	60	25	25
20 / 15	23	1,5	19	1,5	60	25	25
25 / 15	29	1,5	19	1,5	70	25	25
25 / 20	29	1,5	23	1,5	70	25	25
32 / 20	35	1,5	23	1,5	80	30	25
32 / 25	35	1,5	29	1,5	80	30	25
40 / 20	41	1,5	23	1,5	90	30	25
40 / 25	41	1,5	29	1,5	90	30	25
40 / 32	41	1,5	35	1,5	90	30	30
50 / 25	53	1,5	29	1,5	90	30	25
50 / 32	53	1,5	35	1,5	90	30	30
50 / 40	53	1,5	41	1,5	90	30	30
65 / 40	70	2	41	1,5	110	40	30
65 / 50	70	2	53	1,5	110	40	30
80 / 50	85	2	53	1,5	110	40	30
80 / 65	85	2	70	2	110	40	40
100 / 65	104	2	70	2	135	40	40
100 / 80	104	2	85	2	135	40	40
125 / 80	129	2	85	2	150	55	40
125 / 100	129	2	104	2	150	55	40
150 / 100	154	2	104	2	170	55	40
150 / 125	154	2	129	2	170	55	55
200 / 125	204	2	129	2	230	55	55
200 / 150	204	2	154	2	230	55	55

Reducers DIN11865, form RK and RE, tube dimensions in accordance with DIN11866 line B							
DN	d1	s1	d2	s2	L	l1	l2
8 / 6	13,5	1,6	10,2	1,6	38	19	19
10 / 6	17,2	1,6	10,2	1,6	60	25	25
10 / 8	17,2	1,6	13,5	1,6	60	25	25
15 / 8	21,3	1,6	13,5	1,6	60	25	25
15 / 10	21,3	1,6	17,2	1,6	60	25	25
20 / 10	26,9	1,6	17,2	1,6	60	25	25
20 / 15	26,9	1,6	21,3	1,6	60	25	25
25 / 15	33,7	2	21,3	1,6	70	30	25
25 / 20	33,7	2	26,9	1,6	70	30	25
32 / 20	42,4	2	26,9	1,6	80	30	25
32 / 25	42,4	2	33,7	2	80	30	30
40 / 20	48,3	2	26,9	1,6	90	30	25
40 / 25	48,3	2	33,7	2	90	30	30
40 / 32	48,3	2	42,4	2	90	30	30
50 / 25	60,3	2	33,7	2	100	30	30
50 / 32	60,3	2	42,4	2	100	30	30
50 / 40	60,3	2	48,3	2	100	30	30
65 / 40	76,1	2	48,3	2	110	40	30
65 / 50	76,1	2	60,3	2	110	40	30
80 / 50	88,9	2,3	60,3	2	110	40	30
80 / 65	88,9	2,3	76,1	2	110	40	40
100 / 65	114,3	2,3	76,1	2	135	40	40
100 / 80	114,3	2,3	88,9	2,3	135	40	40
125 / 80	139,7	2,6	88,9	2,3	150	55	40
125 / 100	139,7	2,6	114,3	2,3	150	55	40
150 / 100	168,3	2,6	114,3	2,3	170	55	55
150 / 125	168,3	2,6	139,7	2,6	170	55	55
200 / 125	219,1	2,6	139,7	2,6	230	55	55
200 / 150	219,1	2,6	168,3	2,6	230	55	55

Reducers DIN11865, Form RK and RE, tube dimensions in accordance with DIN11866 line C							
DN	d1	s1	d2	s2	L	l1	l2
3/8" / 1/4"	9,53	0,89	6,35	0,89	41,28	19,05	19,05
1/2" / 1/4"	12,7	1,65	6,35	0,89	47,63	25,4	19,05
1/2" / 3/8"	12,7	1,65	9,53	0,89	47,63	25,4	19,05
3/4" / 3/8"	19,05	1,65	9,53	0,89	50,8	25,4	19,05
3/4" / 1/2"	19,05	1,65	12,7	1,65	53,98	25,4	25,4
1" / 1/2"	25,4	1,65	12,7	1,65	63,5	25,4	25,4
1" / 3/4"	25,4	1,65	19,05	1,65	53,98	25,4	25,4
1 1/2" / 3/4"	38,1	1,65	19,05	1,65	76,2	25,4	25,4
1 1/2" / 1"	38,1	1,65	25,4	1,65	63,5	25,4	25,4
2" / 1"	50,8	1,65	25,4	1,65	85,73	25,4	25,4
2" / 1 1/2"	50,8	1,65	38,1	1,65	63,5	25,4	25,4
2 1/2" / 1 1/2"	63,5	1,65	38,1	1,65	85,73	25,4	25,4
2 1/2" / 2"	63,5	1,65	50,8	1,65	63,5	25,4	25,4
3" / 1 1/2"	76,2	1,65	38,1	1,65	107,95	38,1	25,4
3" / 2"	76,2	1,65	50,8	1,65	85,73	38,1	25,4
3" / 2 1/2"	76,2	1,65	63,5	1,65	66,68	38,1	25,4
4" / 2"	101,6	2,11	50,8	1,65	130,18	38,1	25,4
4" / 2 1/2"	101,6	2,11	63,5	1,65	107,95	38,1	25,4
4" / 3"	101,6	2,11	76,2	1,65	98,43	38,1	38,1
6" / 3"	152,4	2,77	76,2	1,65	184,15	50,8	38,1
6" / 4"	152,4	2,77	101,6	2,11	142,88	50,8	38,1





NEUMO Pharmatube

Stainless Steel and Special Alloy Tubes for Pharmaceutical, Chemical and Biotechnological Industry

NEUMO's activities are focussing on tubing for Pharmaceutical, Chemical and Biotechnological use as well as for other critical applications. Today, NEUMO keeps one of the largest and most wide-ranging warehouses throughout the world.
Furthermore, an optimum availability is guaranteed by means of many additional warehouses throughout Europe, Switzerland, China, Vietnam, Israel and the U.S, including customised designs and special materials.
We cooperate with the leading tube mills throughout Europe and the U.S. producing our tubes in accordance with our specifications. They are marketed under the following brand names:

For many years, our engineers and technicians have been playing an active role in all important German, European and Amercian standardisation committees, such as DIN or ASME-BPE. Therefore, NEUMO is centrally involved in the standardisation of pharmaceutical tubing.

- **NEUMO Pharmatube ECO**
- **NEUMO Pharmatube S**
- **NEUMO Pharmatube XS**
- **NEUMO Pharmatube BPE**
- **NEUMO Pharmatube MaxCore 904 L**
- **NEUMO Pharmatube MaxCore 6 MO**
- **NEUMO Pharmatube MaxCore Alloy22**

Working exclusively with just a few selected, certified tube mills audited by renowned pharmaceutical enterprises enables us to safeguard the highest standards of quality assurance.

NEUMO Pharmatube XS

Norm:	DIN11866
Design:	Welded (small diameters partly seamless)
Material:	1.4435 / 316L
Hygienic classes:	H4o (interior Ra<0,4µm)
	optional: HE4o
Delta ferrite content:	Max. 0,5% (DF3)
External surface:	Mechanical polished, seamless design
	bright annealed / shiny metallic
Regulation:	AD2000-W2

NEUMO Pharmatube S

Norm:	DIN11866
Design:	Welded (small diameters partly seamless)
Material:	1.4435 / 316L
	1.4404 / 316L
Hygienic classes:	H3o (internal Ra<0,8µm)
	Optional: HE3o
Delta ferrite content:	Max. 0,5% (DF3)
External surface:	Mechanical polished
Regulation:	AD2000-W2

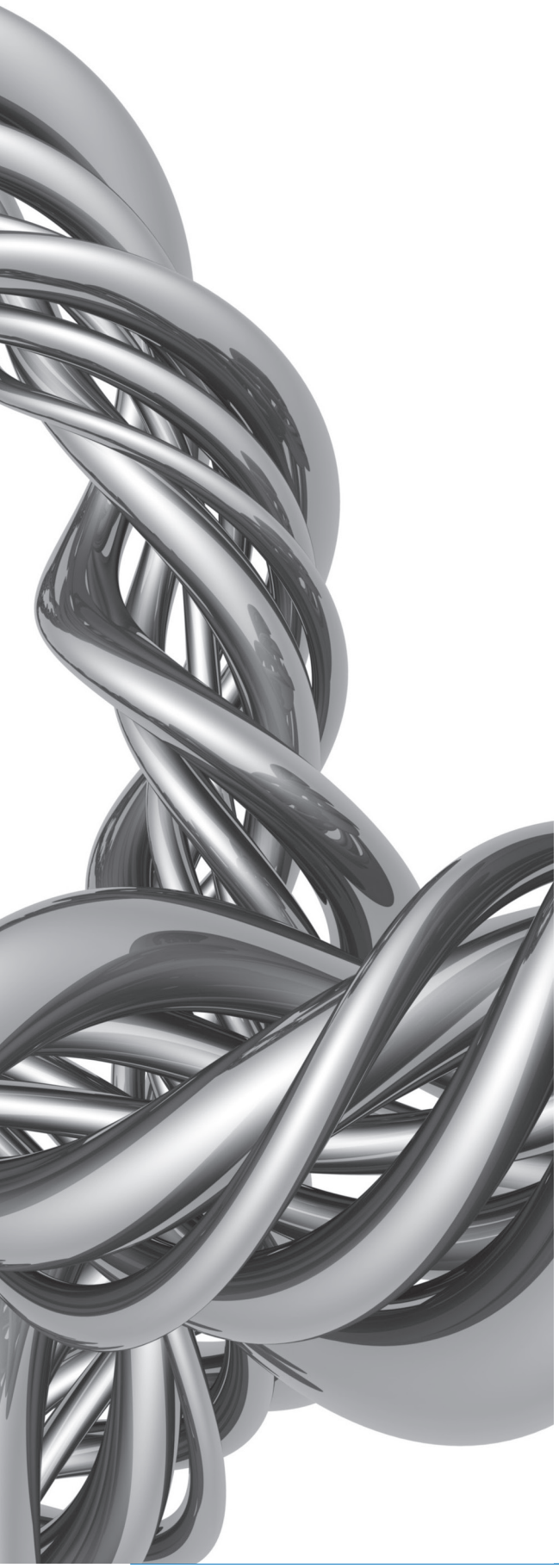
NEUMO Pharmatube ECO

Norm:	DIN11866
Design:	Welded (small diameters partly seamless)
Material:	1.4404 / 316L
Hygienic classes:	H2 (internal Ra<0,8µm, near welding seam:
	Ra<1,6µm)
	Optional: H2o, HE2, HE2o
External surface:	Pickled or bright annealed
Regulation:	AD2000-W2

NEUMO Pharmatube BPE

Norm:	ASME-BPE
Design:	Welded (1/4 "- 3/4" also as seamless design)
Material:	316L
Hygienic classes:	SF1 (internal Ra<0,51µm mechanical polished)
	SF4 (internal Ra<0,38µm electropolished),
External surface:	Mechanical polished, seamless design pickled
	Optional: bright annealed / shiny metallic
Regulation:	ASTM A249/269/270/S2





NEUMO Pharmatube MaxCore 904L

Norm:	DIN11866 Line B
	ASME-BPE
Design:	welded (small diameters mainly seamless)
Material:	1.4539 – UNS N08904 (904L)
Hygienic classes:	DIN11866 Reihe B:
	H3 (internal Ra<0,8µm)
	HE3 (internal Ra<0,8µm electropolished)
	further surface classes on request
	ASME-BPE:
	SF1 (internal Ra<0,51µm)
	SF5 (internal Ra<0,51µm electropolished)
	further surface classes on request
External surface:	Pickled or bright annealed / shiny metallic
	Optional: mechanical polished

NEUMO Pharmatube MaxCore 6Mo

Norm:	ASME-BPE
Design:	welded (small diameters partly seamless)
Material:	6Mo – UNS N08367 (1.4529 / AL-6XN®)
Hygienic classes:	SF1 (innen Ra<0,51µm)
	SF5 (innen Ra<0,51µm electropolished)
	further surface classes on request
External surface:	Pickled or bright annealed / shiny metallic
	Optional: mechanical polished

NEUMO Pharmatube MaxCore Alloy22

Norm:	ASME-BPE
Design:	welded (small diameters partly seamless)
Material:	Alloy 22 – UNS N06022 (2.4602, Hastelloy C-22)
Hygienic classes:	SF1 (innen Ra<0,51µm)
	SF5 (innen Ra<0,51µm elektropoliert)
	further surface classes on request
External surface:	Pickled or bright annealed / shiny metallic
	Optional: mechanical polished

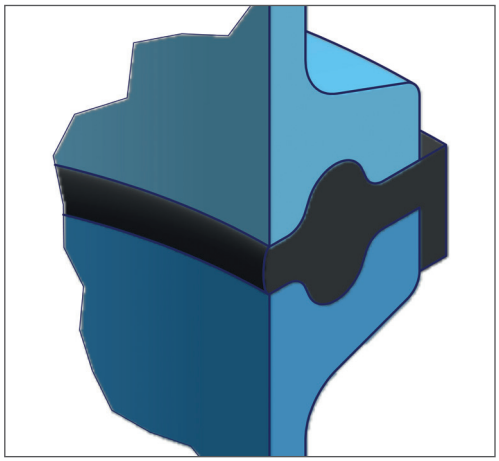
We are pleased to offer you a huge number of further dimensions, materials (such as SMO 254, C-276, titanium and many more) and surface qualities on request, be it an external diameter of 3mm, 1219mm or larger, no internal Ra-requirements or Ra<0,1µm electropolished - just contact us.



DIN32676

Clamp Connections for Food processing, Chemical and Pharmaceutical Industry





Hygienic Classes DIN32676			
Hygienic class		Surface qualities	
		Ra internal surface	Ra external surface
H1	HE1[b]	<1,60µm	<3,20µm
H2	HE2[b]	-	
H3[a]	HE3[b]	<0,80µm	<1,60µm
H4	HE4[b]	<0,40µm	<0,80µm
H5	HE5[b]	<0,25µm	<0,80µm

a Standard hygienic class
b Electropolished with a removal of at least 20µm



Type KK



Type NEUMO (KN)

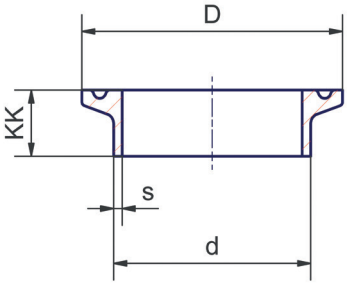


Type KL

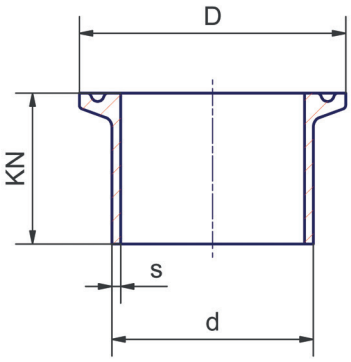
Technical Data	
Material*	1.4435 (type NEUMO) 1.4404 (type KK / KL)
Norm	DIN32676 (actual version)
Lengths*	KK NEUMO (L=28,6mm) KL
Surface finish (standard of stock)*	H3 HE3 H4 HE4
Connections*	welding ends and clamp connections in accordance with DIN32676 line A (DIN), line B (ISO), line C (ASME-BPE)

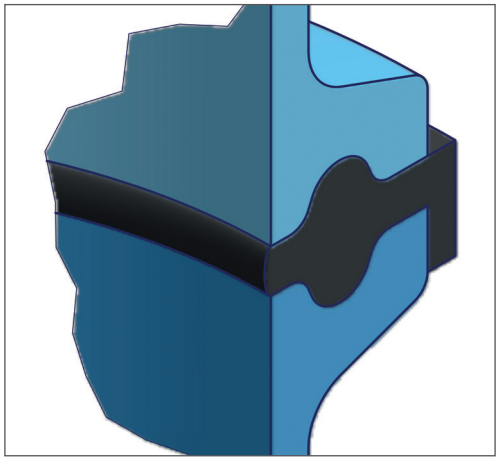
* Alternative material grades (such as 1.4539, 2.4602, 2.4605, etc.), different surface qualities and connections as well as customised components (adaptors etc.) are available on request.

Type KK

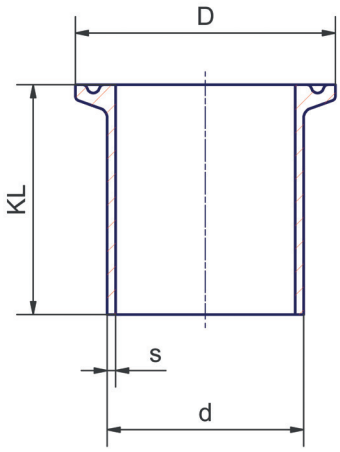


Type NEUMO (KN)





Type KL



Clamp Ferrules DIN32676, tube dimensions in accordance with DIN11866 line A						
DN	d	s	D	KK	KL	KN
6	8	1	25	12,7	28,6	28,6
8	10	1	25	12,7	28,6	28,6
10	13	1,5	34	18	28,6	28,6
15	19	1,5	34	18	28,6	28,6
20	23	1,5	34	18	28,6	28,6
25	29	1,5	50,5	21,5	36	28,6
32	35	1,5	50,5	21,5	36	28,6
40	41	1,5	50,5	21,5	36	28,6
50	53	1,5	64	21,5	36	28,6
65	70	2	91	28	48	28,6
80	85	2	106	28	48	28,6
100	104	2	119	28	48	28,6
125	129	2	155	28	66	28,6
150	154	2	183	28	66	28,6
200	204	2	233,5	28	66	28,6

Clamp Ferrules DIN32676, tube dimensions in accordance with DIN11866 line B						
DN	d	s	D	KK	KL	KN
6	10,2	1,6	25	12,7	28,6	28,6
8	13,5	1,6	25	12,7	28,6	28,6
10	17,2	1,6	25	12,7	28,6	28,6
15 / special design	21,3	1,6	34	21,5	36	28,6
15 / DIN32676	21,3	1,6	50,5	21,5	36	28,6
20	26,9	1,6	50,5	21,5	36	28,6
25	33,7	2	50,5	21,5	36	28,6
32 / special design	42,4	2	50,5	21,5	36	28,6
32 / DIN32676	42,4	2	64	21,5	36	28,6
40	48,3	2	64	21,5	36	28,6
50	60,3	2	77,5	28	36	28,6
65	76,1	2	91	28	48	28,6
80	88,9	2,3	106	28	48	28,6
100	114,3	2,3	130	28	48	28,6
125	139,7	2,6	155	28	66	28,6
150	168,3	2,6	183	28	66	28,6
200	219,1	2,6	233,5	28	66	28,6

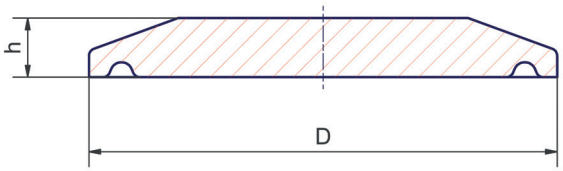
Clamp Ferrules DIN32676, tube dimensions in accordance with DIN11866 line C						
DN	d	s	D	KK	KL	KN
1/4"	6,35	0,89	25	12,7	28,6	28,6
3/8"	9,53	0,89	25	12,7	28,6	28,6
1/2"	12,7	1,65	25	12,7	28,6	28,6
3/4"	19,05	1,65	25	12,7	28,6	28,6
1"	25,4	1,65	50,5	21,5	36	28,6
1 1/2"	38,1	1,65	50,5	21,5	36	28,6
2"	50,8	1,65	64	21,5	36	28,6
2 1/2"	63,5	1,65	77,5	28	36	28,6
3"	76,2	1,65	91	28	48	28,6
4"	101,6	2,11	119	28	48	28,6
6"	152,4	2,77	167	28	66	28,6

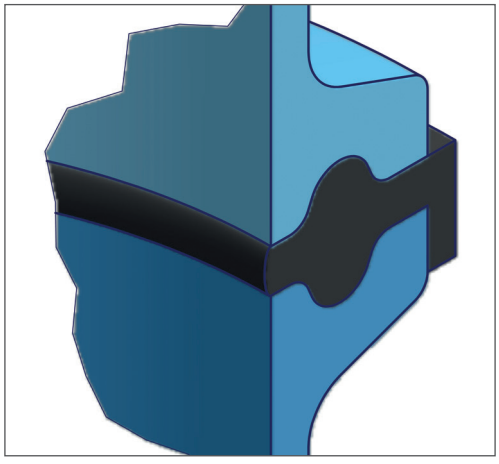


Blind Clamps

Technical Data	
Material*	1.4435 / 1.4404
Norm	DIN32676 (actual version)
Surface finish (standard of stock)*	1.4435: H4 1.4404: H3
Connection	Clamp connection in accordance with DIN32676

* Alternative materials (such as 2.4602, 1.4539, etc.) and different surface qualities are available on request.





Blind Ferrules DIN32676, tube dimensions in accordance with DIN11866 line A		
DN	D	h
6	25	4,75
8	25	4,75
10	34	6,35
15	34	6,35
20	34	6,35
25	50,5	6,35
32	50,5	6,35
40	50,5	6,35
50	64	6,35
65	91	6,35
80	106	6,35
100	119	8
125	155	8
150	183	14
200	233,5	14

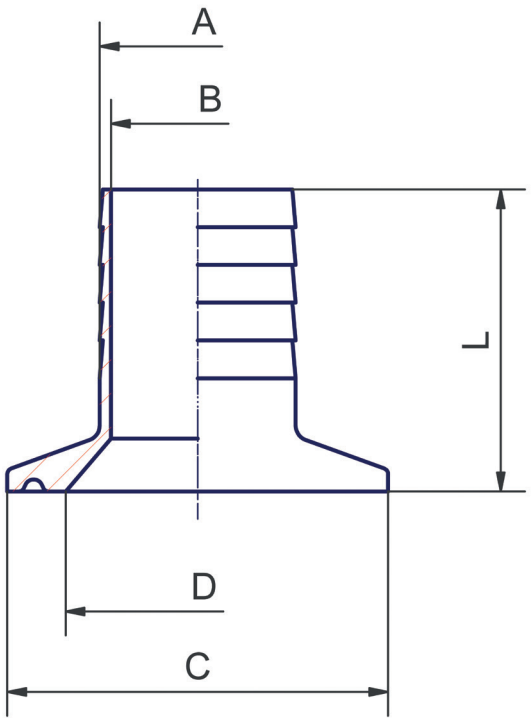
Blind Ferrules DIN32676, tube dimensions in accordance with DIN11866 line B		
DN	D	h
6	25	4,75
8	25	4,75
10	25	4,75
15 / special design	34	6,35
15 / DIN32676	50,5	6,35
20	50,5	6,35
25	50,5	6,35
32 / special design	50,5	6,35
32 / DIN32676	64	6,35
40	64	6,35
50	77,5	6,35
65	91	6,35
80	106	6,35
100	130	8
125	155	8
150	183	14
200	233,5	14

Blind Ferrules DIN32676, tube dimensions in accordance with DIN11866 line C		
DN	D	h
1/4"	25	4,75
3/8"	25	4,75
1/2"	25	4,75
3/4"	25	4,75
1"	50,5	6,35
1 1/2"	50,5	6,35
2"	64	6,35
2 1/2"	77,5	6,35
3"	91	6,35
4"	119	8
6"	167	14



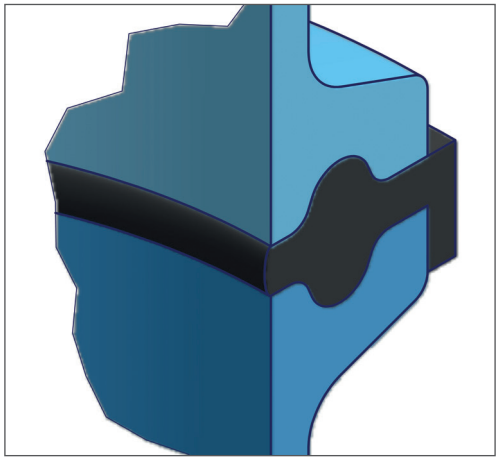
Hose Tail

Hose Tail



Technical Data	
Material*	316L / 1.4404
Surface quality (standard of stock)*	Ra<0,8µm precision turned
Connections*	Clamp connection in accordance with DIN32676 line A (DIN), line B (ISO), line C (ASME-BPE)

* Alternative materials (such as 1.4435, 1.4539, 2.4602, 2.4605, 6Mo / UNS N08367, etc.), different surface qualities and connections as well as customised components are
available on request



Hose Tails - connection in accordance with DIN32676 line A						
Clamp Connection	Hose	A	B	C	D	L
DN 10	1/4"	6,4	3,4	34	10	40
	3/8"	9,5	6,5	34	10	40
	1/2"	12,7	9,7	34	10	40
	3/4"	19	16	34	10	40
DN 15	1/4"	6,4	3,4	34	16	40
	3/8"	9,5	6,5	34	16	40
	1/2"	12,7	9,7	34	16	40
	3/4"	19	16	34	16	40
DN 20	1/4"	6,4	3,4	34	20	40
	3/8"	9,5	6,5	34	20	40
	1/2"	12,7	9,7	34	20	40
	3/4"	19	16	34	20	0

Hose Tails - connection in accordance with DIN32676 line C / ASME-BPE						
Clamp Connection	Hose	A	B	C	D	L
1/2"	1/4"	6,4	3,4	25	10	32
	8 x 5	8	5	25	10	32
	3/8"	9,5	6,5	25	10	32
	1/2"	12,7	9,7	25	10	32
	14 x 11	14	11	25	10	40
	16 x 13	16	13	25	10	40
	3/4"	19	16	25	10	32
3/4"	1/4"	6,4	3,4	25	10	32
	8 x 5	8	5	25	10	32
	3/8"	9,5	6,5	25	10	32
	1/2"	12,7	9,7	25	10	32
	14 x 11	14	11	25	10	40
	16 x 13	16	13	25	10	40
	3/4"	19	16	25	10	32
1"	1/4"	6,4	3,4	50,5	23	40
	8 x 5	8	5	50,5	23	40
	3/8"	9,5	6,5	50,5	23	40
	1/2"	12,7	9,7	50,5	23	40
	14 x 11	14	11	50,5	23	40
	16 x 13	16	13	50,5	23	40
	3/4"	19	16	50,5	23	40
	22 x 19	22	19	50,5	23	40
	1"	26	23	50,5	23	40
1 1/2"	1/4"	6,4	3,4	50,5	35	40
	8 x 5	8	5	50,5	35	40
	3/8"	9,5	6,5	50,5	35	40
	1/2"	12,7	9,7	50,5	35	40
	14 x 11	14	11	50,5	35	40
	16 x 13	16	13	50,5	35	40
	3/4"	19	16	50,5	35	40
	22 x 19	22	19	50,5	35	40
	1"	26	23	50,5	35	40
	1 1/2"	38,1	35	50,5	35	40
2"	1/2"	12,7	9,7	64	48	60
	3/4"	19	16	64	48	60
	1"	26	23	64	48	60
	1 1/2"	38,1	35	64	48	60
	2"	50,8	47	64	48	60

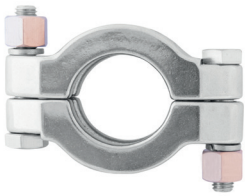
Connection in accordance with DIN32676 line B (ISO) available on request.



Type S



Type SH



Type SSH



Type 3-parts

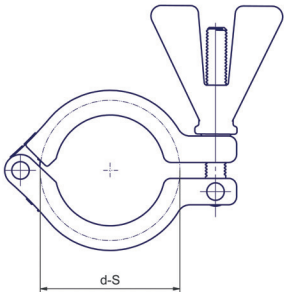


Type SAF

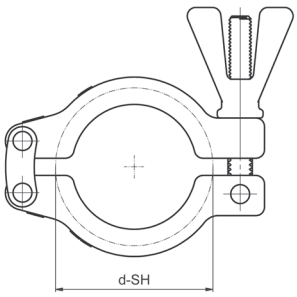
Technical Data		
Material*	Type S	304 / 1.4301
	Type SH	316 / 1.4401
	Type SAF	316 / 1.4401
	Type SSH	304 / 1.4301 (brazen nut)
	Type 3-parts	304 / 1.4301

* Different designs and clamp diameters as well as different nuts are available on request.

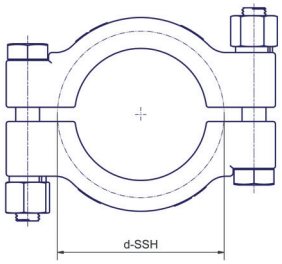
Type S



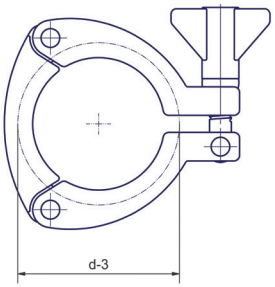
Type SH



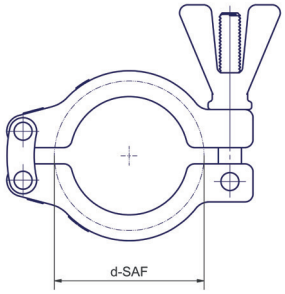
Type SSH



Type 3-parts



Type SAF



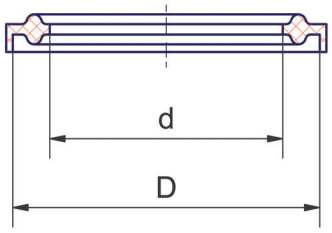
Clamps, Type S, SH, SAF, SSH and 3-parts					
DN	**d-S**	**d-SH**	**d-SAF**	**d-SSH**	**d-3**
1/2" - 3/4"	25	25	25	25	-
10 / 15 / 20	34	34	34	25	-
1" - 1 1/2"	50,5	50,5	50,5	50,5	50,5
2	64	64	64	64	64
2 1/2"	77,5	77,5	77,5	77,5	77,5
3"	91	91	91	91	91
3 1/2"	106	106	106	106	-
4"	119	119	119	119	119
4 1/2"	130	130	-	130	-
5"	-	144	-	-	-
5 1/2"	-	155	-	-	-
6"	167	167	-	167	-
6 5/8"	-	183	-	183	-
8"	-	217	-	-	-
8 5/8"	-	233	-	233	-



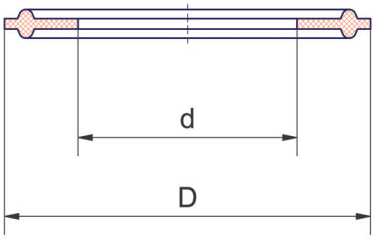
Technical Data	
Materials* (standard of stock)	EPDM
	Silicone (VMQ)
	Perbunan (NBR)
	Viton (FKM)
	Viton / FEP-encapsulated Teflon (PTFE)
Norm	DIN32676
	ASME-BPE
Approval	FDA + USP Class VI

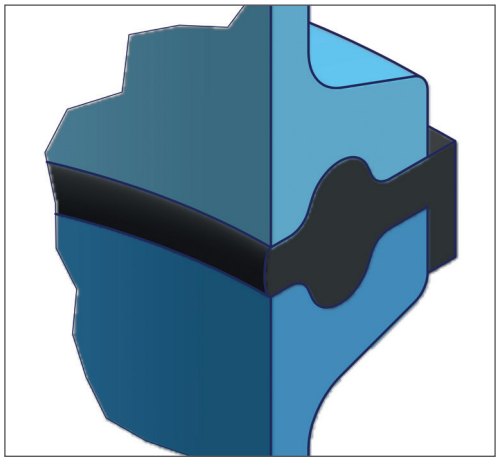
* Alternative materials (such as EPDM / FEP-encapsulated, Gylon®, etc.), different dimensions as well as customised gaskets are available on request.

Clamp Gaskets DIN32676
line A from DN10
line B from DN15

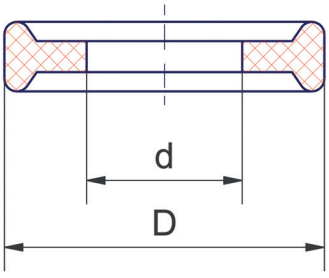


Clamp Gaskets
ASME-BPE / DIN32676 line C
1“ - 6“





Clamp Gaskets
ASME-BPE 1/4" – 3/4"
DIN32676 line A DN6-DN8
DIN32676 line B DN6-DN10



Clamp Gasket DIN32676, line A		
DN	**d**	**D**
6	6	22
8	8	22
10	10	34
15	16	34
20	20	34
25	26	50,5
32	32	50,5
40	38	50,5
50	50	64
65	66	91
80	81	106
100	100	119
125	125	155
150	150	183
200	200	233,5

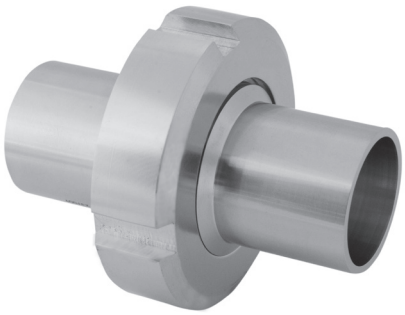
Clamp Gasket DIN32676, line B		
DN	**d**	**D**
6	7	22
8	10,3	22
10	14	22
15 / special design	18,1	34
15 / DIN32676	18,1	50,5
20	23,7	50,5
25	29,7	50,5
32 / special design	38,4	50,5
32 / DIN32676	38,4	64
40	44,3	64
50	56,3	77,5
65	72,1	91
80	84,3	106
100	109,7	130
125	134,5	155
150	163,1	183
200	213,9	233,5

Clamp Gasket ASME-BPE and DIN32676 line C		
DN	**d**	**D**
1/4"	4,57	22
3/8"	7,75	22
1/2"	9,4	22
3/4"	15,75	22
1"	22,1	50,5
1 1/2"	34,8	50,5
2"	47,5	63,5
2 1/2"	60,2	77,5
3"	72,9	91
4"	97,38	119
6"	146,86	167

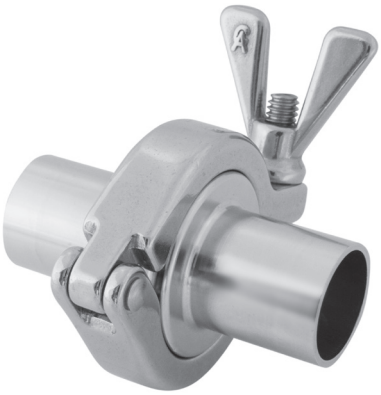


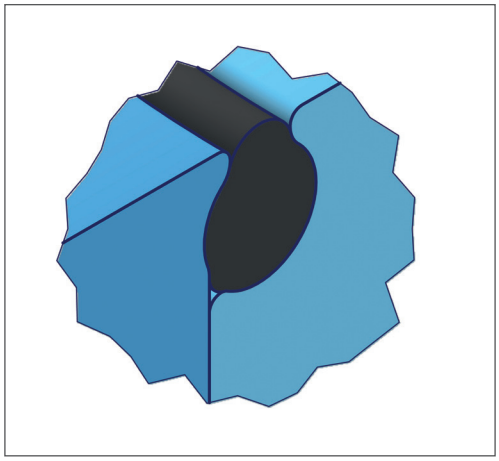
DIN11864

Asepctic Tube Connections



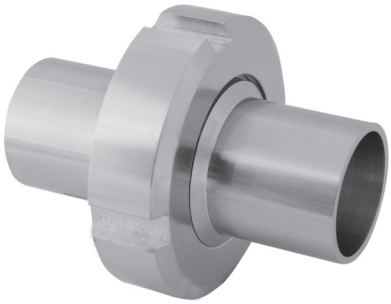






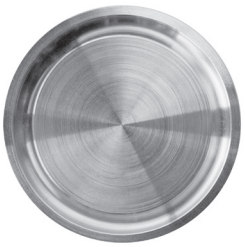
Hygienic Class DIN11864			
Hygienic class		Surface qualities[a]	
		Ra internal surface	Ra external surface
H1	HE1[b]	-	
H2	HE2[b]	-	
H3*	HE3[b]	<0,80µm	<1,60µm
H4	HE4[b]	<0,40µm	<0,80µm
H5	HE5[b]	<0,25µm	<0,80µm

a Grooves of the elastomeric gaskets: Ra = 0,80 +/-0,20 µm.
b Electropolished with a removal of at least 20µm
* Standard hygienic class





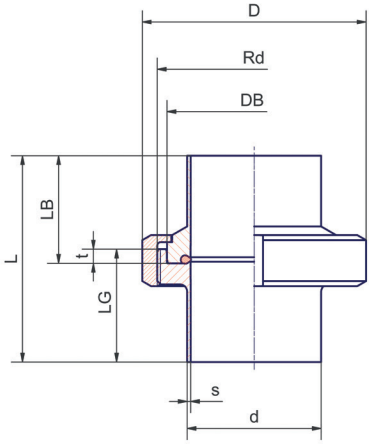
Blind Male Part



Blind Liner

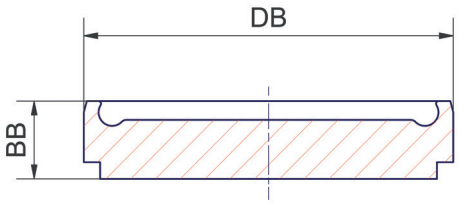
Technical Data	
Norm	DIN11864-1 (liner and male part) DIN11853-1 (blind parts)
Material*	1.4435 / 316L 1.4404 / 316L
Surface finish (product contacted area)*	Ra < 0,8 µm precision turned
Sealing*	EPDM / FDA + USP Class VI (form A)
Delta ferrite content (raw material)*	< 1% (1.4435)
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)
* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.), alternative sealings (z.B. Viton, Viton / FEP-encapsulated, PTFE, etc.) as well as different connections, surface qualities and delta ferrite values are available on request.	

Liner

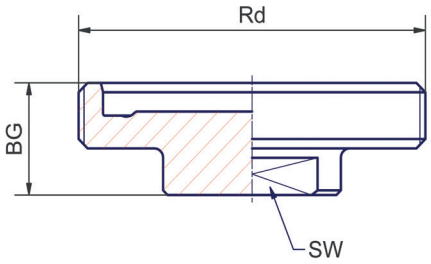


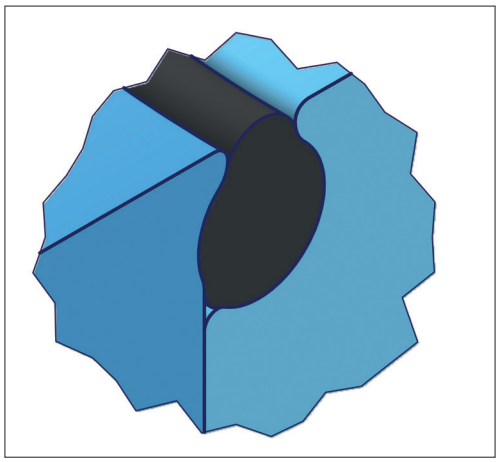
Male Part

Blind Liner

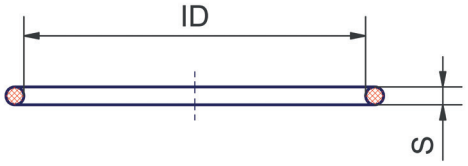


Male Part





O-Ring



Screwed Connection DIN11864-1 form A / Blind Male Part and Blind Liner DIN 11864-1, tube dimensions in accordance with DIN11866 line A													
DN	d	s	D	Rd	DB	L	LG	LB	t	BG	BB	SW	ID x S
10	13	1,5	38	Rd 28 x 1/8	21,9	76	41	39	4	24	9	17	12 x 3,5
15	19	1,5	44	Rd 34 x 1/8	27,9	76	41	39	4	24	9	17	18 x 3,5
20	23	1,5	54	Rd 44 x 1/6	35,9	76	43	38	5	24	10	17	22 x 3,5
25	29	1,5	63	Rd 52 x 1/6	42,9	77	43	40	6	24	12	27	28 x 3,5
32	35	1,5	70	Rd 58 x 1/6	48,9	88	48	47	7	24	13	27	34 x 5
40	41	1,5	78	Rd 65 x 1/6	54,9	88	48	47	7	24	13	27	40 x 5
50	53	1,5	92	Rd 78 x 1/6	66,9	89	48	48	7	24	14	27	52 x 5
65	70	2	112	Rd 95 x 1/6	84,9	113	60	61	8	28	16	32	68 x 5
80	85	2	127	Rd 110 x 1/4	98,9	117	64	61	8	28	16	32	83 x 5
100	104	2	148	Rd 130 x 1/4	118,9	120	64	66	10	30	20	32	102 x 5

Screwed Connection DIN11864-1 form A / Blind Male Part and Blind Liner DIN11864-1, tube dimensions in accordance with DIN11866 line B													
DN	d	s	D	Rd	DB	L	LG	LB	t	BG	BB	SW	ID x S
8	13,5	1,6	38	Rd 28 x 1/8	21,9	76	41	39	4	24	9	17	12 x 3,5
10	17,2	1,6	44	Rd 34 x 1/8	27,9	76	41	39	4	24	9	17	16 x 3,5
15	21,3	1,6	54	Rd 44 x 1/6	35,9	78	43	40	5	24	10	17	20 x 3,5
20	26,9	1,6	63	Rd 52 x 1/6	42,9	78	43	41	6	24	12	27	26 x 3,5
25	33,7	2	70	Rd 58 x 1/6	48,9	88	48	47	7	24	13	27	32 x 5
32	42,4	2	78	Rd 65 x 1/6	54,9	88	48	47	7	24	13	27	40,5 x 5
40	48,3	2	92	Rd 78 x 1/6	66,9	90	49	48	7	24	14	27	46,5 x 5
50	60,3	2	112	Rd 95 x 1/6	84,9	114	60	62	8	28	16	32	58,5 x 5
65	76,1	2	127	Rd 110 x 1/4	98,9	117	64	61	8	28	16	32	73,5 x 5
80	88,9	2,3	148	Rd 130 x 1/4	118,9	122	64	68	10	30	20	32	86,5 x 5

Screwed Connection DIN11864-1 form A / Blind Male Part and Blind Liner DIN11864-1, tube dimensions in accordance with DIN11866 line C													
DN	d	s	D	Rd	DB	L	LG	LB	t	BG	BB	SW	ID x S
1/2"	12,7	1,65	38	Rd 28 x 1/8	21,9	76	41	39	4	24	9	17	12 x 3,5
3/4"	19,05	1,65	44	Rd 34 x 1/8	27,9	76	41	39	4	24	9	17	18 x 3,5
1"	25,4	1,65	63	Rd 52 x 1/6	42,9	77	43	40	6	24	12	27	24 x 3,5
1 1/2"	38,1	1,65	78	Rd 65 x 1/6	54,9	88	48,5	46,5	7	24	13	27	37 x 5
2"	50,8	1,65	92	Rd 78 x 1/6	66,9	89	48,5	47,5	7	24	14	27	50 x 5
2 1/2"	63,5	1,65	112	Rd 95 x 1/6	84,9	115	60	63	8	28	16	32	62 x 5
3"	76,2	1,65	127	Rd 110 x 1/4	98,9	117	64	61	8	28	16	32	75 x 5
4"	101,6	2,11	148	Rd 130 x 1/4	118,9	119	64	65	10	30	20	32	100 x 5





Blind Male Flange

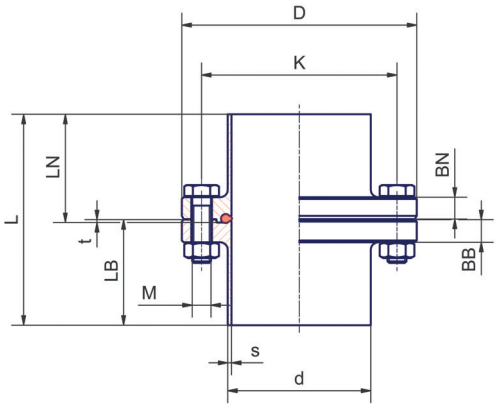


Blind Female Flange

Technical Data	
Norm	DIN11864-2 (welding neck flanges) DIN11853-2 (blind flanges)
Material*	1.4435 / 316L 1.4404 / 316L
Surface finish (product contacted area)*	Ra < 0,8 µm precision turned
Sealing*	EPDM / FDA + USP Class VI (Form A)
Delta ferrite content (raw material)*	< 1% (1.4435)
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)

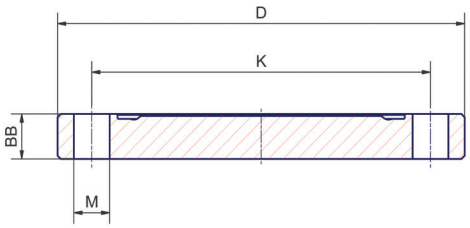
* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.), alternative sealings (such as Viton, Viton / FEP-encapsulated, PTFE, etc.) as well as different connections, surface qualities and delta ferrite values are available on request.

Male Flange

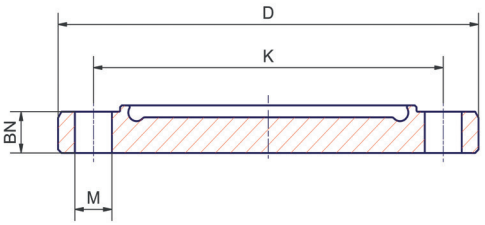


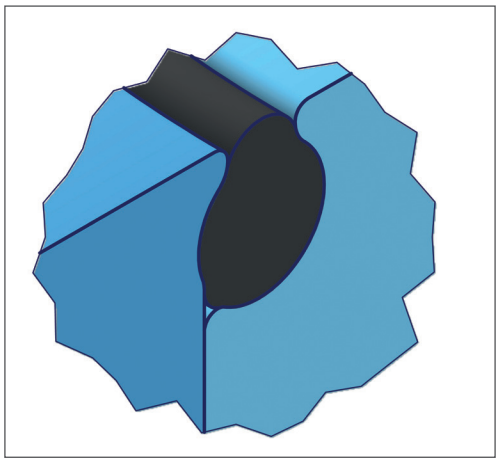
Female Flange

Blind-Female Flange



Blind Male Flange





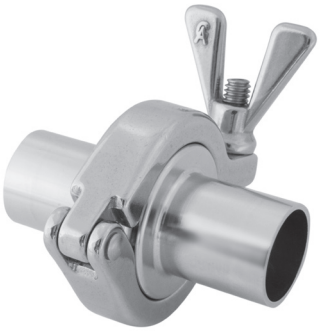
O-Ring



Flange Connection DIN11864-2 form A / Blind Flanges DIN11864-2, tube dimensions in accordance with DIN11866 line A												
DN	d	s	D	K	L	LB	LN	t	BB	BN	M	ID x S
10	13	1,5	54	37	80	40	41,5	1,5	10	9,7	4x M 8x30	12 x 3,5
15	19	1,5	59	42	80	40	41,5	1,5	10	9,7	4x M 8x30	18 x 3,5
20	23	1,5	64	47	80	40	41,5	1,5	10	9,7	4x M 8x30	22 x 3,5
25	29	1,5	70	53	80	40	41,5	1,5	10	9,7	4x M 8x30	28 x 3,5
32	35	1,5	76	59	90	45	46,5	1,5	10	9,7	4x M 8x30	34 x 5
40	41	1,5	82	65	90	45	46,5	1,5	10	9,7	4x M 8x30	40 x 5
50	53	1,5	94	77	90	45	46,5	1,5	10	9,7	4x M 8x30	52 x 5
65	70	2	113	95	108	54	55,5	1,5	10	9,7	8x M 8x30	68 x 5
80	85	2	133	112	116	58	59,5	1,5	12	11,7	8x M 10x35	83 x 5
100	104	2	159	137	116	58	59,5	1,5	14	13,7	8x M 10x40	102 x 5
125	129	2	183	161	120	60	61,5	1,5	14	13,7	8x M 10x40	127 x 5
150	154	2	213	188	120	60	61,5	1,5	16	15,7	8x M 12x50	152 x 5

Flange Connection DIN11864-2 form A / Blind Flanges DIN11864-2, tube dimensions in accordance with DIN11866 line B												
DN	d	s	D	K	L	LB	LN	t	BB	BN	M	ID x S
8	13,5	1,6	54	37	80	40	41,5	1,5	10	9,7	4x M 8x30	12 x 3,5
10	17,2	1,6	59	42	80	40	41,5	1,5	10	9,7	4x M 8x30	16 x 3,5
15	21,3	1,6	62	45	80	40	41,5	1,5	10	9,7	4x M 8x30	20 x 3,5
20	26,9	1,6	69	52	80	40	41,5	1,5	10	9,7	4x M 8x30	26 x 3,5
25	33,7	2	74	57	90	45	46,5	1,5	10	9,7	4x M 8x30	32 x 5
32	42,4	2	82	65	90	45	46,5	1,5	10	9,7	4x M 8x30	40,5 x 5
40	48,3	2	88	71	90	45	46,5	1,5	10	9,7	4x M 8x30	46,5 x 5
50	60,3	2	103	85	108	54	55,5	1,5	10	9,7	4x M 8x30	58,5 x 5
65	76,1	2	125	104	112	56	57,5	1,5	12	11,7	8x M 10x35	73,5 x 5
80	88,9	2,3	137	116	116	58	59,5	1,5	12	11,7	8x M 10x35	86,5 x 5
100	114,3	2,3	168	146	116	58	59,5	1,5	14	13,7	8x M 10x40	111 x 5

Flange Connection DIN11864-2 form A / Blind Flanges DIN11864-2, tube dimensions in accordance with DIN11866 line C												
DN	d	s	D	K	L	LB	LN	t	BB	BN	M	ID x S
1/2"	12,7	1,65	54	37	80	40	41,5	1,5	10	9,7	4x M 8x30	12 x 3,5
3/4"	19,05	1,65	59	42	80	40	41,5	1,5	10	9,7	4x M 8x30	18 x 3,5
1"	25,4	1,65	66	49	80	40	41,5	1,5	10	9,7	4x M 8x30	24 x 3,5
1 1/2"	38,1	1,65	79	62	90	45	46,5	1,5	10	9,7	4x M 8x30	37 x 5
2"	50,8	1,65	92	75	90	45	46,5	1,5	10	9,7	4x M 8x30	50 x 5
2 1/2"	63,5	1,65	107	89	108	54	55,5	1,5	10	9,7	8x M 8x30	62 x 5
3"	76,2	1,65	125	104	112	56	57,5	1,5	12	11,7	8x M 10x35	75 x 5
4"	101,6	2,11	157	135	116	58	59,5	1,5	14	13,7	8x M 10x40	100 x 5





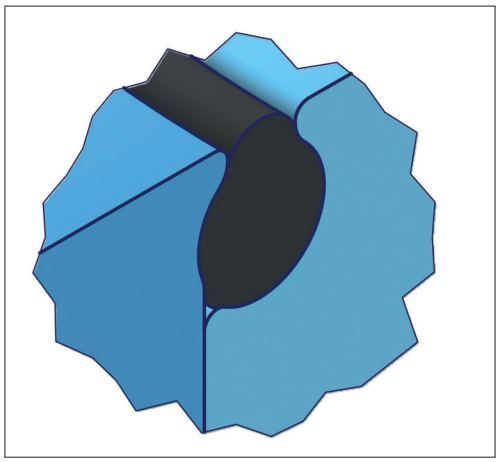
Blind Male Ferrule



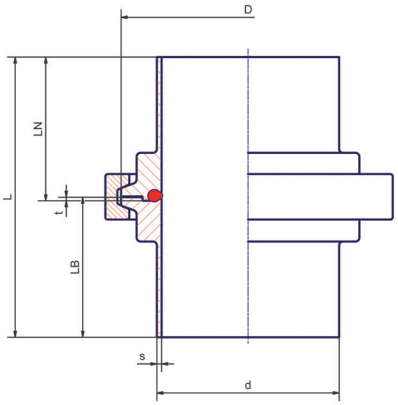
Blind Female Ferrule

Technical Data	
Norm	DIN11864-3 (clamp ferrules) DIN11853-3 (blind ferrules)
Material*	1.4435 / 316L 1.4404 / 316L
Surface finish (product contacted areas)	Ra < 0,8 µm precision turned
Sealing*	EPDM / FDA + USP Class VI (Form A)
Delta ferrite content (raw material)*	< 1% (1.4435)
Connections*	Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE)

* Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.), alternative sealings, (such as Viton, Viton / FEP-encapsulated, PTFE, etc.) as well as different connections, surface qualities and delta ferrite values are available on request

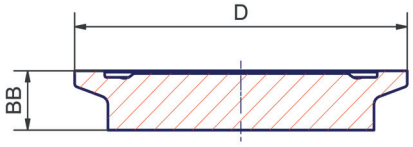


Male Clamp Ferrule

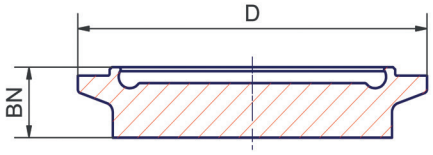


Female Clamp Ferrule

Blind Female Ferrule



Blind Male Ferrule



O-Ring



Clamp Connection DIN11864-3 form A / Blind Ferrules DIN11864-3, tube dimensions in accordance with DIN11866 line A										
DN	d	s	D	L	LB	LN	t	BB	BN	ID x S
10	13	1,5	34	76	38	39,5	1,5	11,5	13	12 x 3,5
15	19	1,5	34	76	38	39,5	1,5	11,5	13	18 x 3,5
20	23	1,5	50,5	76	38	39,5	1,5	11,5	13	22 x 3,5
25	29	1,5	50,5	77	38,5	40	1,5	11,5	13	28 x 3,5
32	35	1,5	50,5	88	44	45,5	1,5	11,5	13	34 x 5
40	41	1,5	64	88	44	45,5	1,5	11,5	13	40 x 5
50	53	1,5	77,5	89	44,5	46	1,5	13,5	15	52 x 5
65	70	2	91	113	56,5	58	1,5	13,5	15	68 x 5
80	85	2	106	117	58,5	60	1,5	13,5	15	83 x 5
100	104	2	130	120	60	61,5	1,5	13,5	15	102 x 5

Clamp Connection DIN11864-3 form A / Blind Ferrules DIN11864-3, tube dimensions in accordance with DIN11866 line B										
DN	d	s	D	L	LB	LN	t	BB	BN	ID x S
8	13,5	1,6	34	76	38	39,5	1,5	11,5	13	12 x 3,5
10	17,2	1,6	34	76	38	39,5	1,5	11,5	13	16 x 3,5
15	21,3	1,6	34	78	39	40,5	1,5	11,5	13	20 x 3,5
20	26,9	1,6	50,5	78	39	40,5	1,5	11,5	13	26 x 3,5
25	33,7	2	50,5	88	44	45,5	1,5	11,5	13	32 x 5
32	42,4	2	64	88	44	45,5	1,5	11,5	13	40,5 x 5
40	48,3	2	64	90	45	46,5	1,5	11,5	13	46,5 x 5
50	60,3	2	91	114	57	58,5	1,5	13,5	15	58,5 x 5
65	76,1	2	106	117	58,5	60	1,5	13,5	15	73,5 x 5
80	88,9	2,3	119	122	61	62,5	1,5	13,5	15	86,5 x 5

Clamp Connection DIN11864-3 form A / Blind Ferrules DIN11864-3, tube dimensions in accordance with DIN11866 line C										
DN	d	s	D	L	LB	LN	t	BB	BN	ID x S
1/2"	12,7	1,65	34	76	38	39,5	1,5	11,5	13	12 x 3,5
3/4"	19,05	1,65	34	76	38	39,5	1,5	11,5	13	18 x 3,5
1"	25,4	1,65	50,5	77	38,5	40	1,5	11,5	13	24 x 3,5
1 1/2"	38,1	1,65	64	88	44	45,5	1,5	11,5	13	37 x 5
2"	50,8	1,65	77,5	89	44,5	46	1,5	13,5	15	50 x 5
2 1/2"	63,5	1,65	91	115	57,5	59	1,5	13,5	15	62 x 5
3"	76,2	1,65	106	117	58,5	60	1,5	13,5	15	75 x 5
4"	101,6	2,11	130	119	59,5	61	1,5	13,5	15	100 x 5



MaxPure – ASME-BPE Fittings – MaxCore

Since its foundation, the NEUMO Ehrenberg Group has been an active member of the ASME-BPE committee (ASME-BPE= **American Society of Mechanical Engineers – Bio Processing Equipment)** and plays an active role in the norm's further development.

In 2013, EGMO, an enterprise of the NEUMO Ehrenberg Group, was the first producer of fittings throughout the world to be certified successfully in compliance with ASME-BPE.
The certificate was issued under number BPE-102.

ASME-BPE Surface Qualities

NEUMO	ASME-BPE	Internal surface		External surface	
code	classification	Ra	finish	Ra	finish
PC	SF1	<0,51µm	mechanical polished	-	no requirement
PL*	SF1	<0,51µm	mechanical polished	<0,79µm	polished / precision turned
-	SF2	<0,64µm	mechanichal polished	<0,79µm	polished / precision turned
-	SF3	<0,76µm	mechanical polished	<0,79µm	polished / precision turned
PR	-	<0,25µm	electropolished	<0,79µm	polished / precision turned
PD	SF4	<0,38µm	electropolished	-	no requirement
PM*	SF4	<0,38µm	electropolished	<0,79µm	polished / precision turned
-	SF5	<0,51µm	electropolished	<0,79µm	polished / precision turned
-	SF6	<0,64µm	electropolished	<0,79µm	polished / precision turned

*standard of stock

ASME BPE-102



TE2S

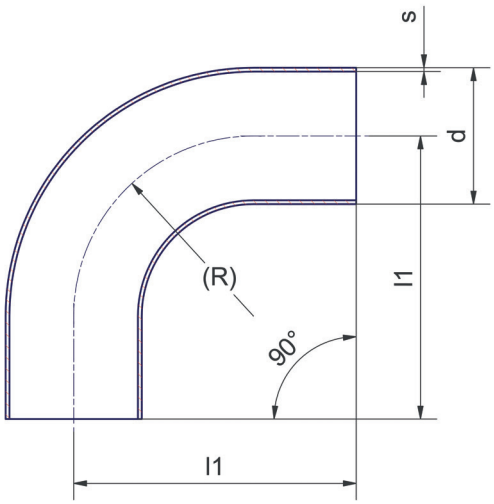


TE2KS

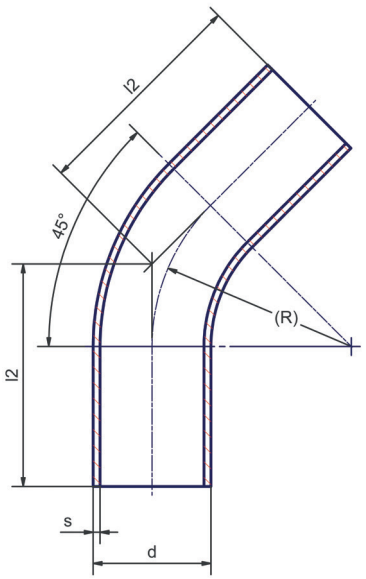
Technical Data	
Material*	316L
Norm	ASME-BPE (actual version)
BPE table	90°: DT-4.1.1-1 45°: DT-4.1.1-4
Material code	90°: TE2S 45°: TE2KS
Surface finish (standard of stock)*	SF1 SF4
Connections	Orbital welding ends in accordance with ASME-BPE

* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.), different surface qualities as well as special elbows (88°, 92°, 30°, 60°, etc.) are available on request.

TE2S



TE2KS



Elbow ASME-BPE 90° / 45°, orbital welding ends on both sides					
DN	d	s	R	l1	l2
1/4"	6,35	0,89	14,3	66,7	50,8
3/8"	9,53	0,89	28,58	66,7	50,8
1/2"	12,7	1,65	28,58	76,2	57,2
3/4"	19,05	1,65	28,58	76,2	57,2
1"	25,4	1,65	38,1	76,2	57,2
1 1/2"	38,1	1,65	57,15	95,3	63,5
2"	50,8	1,65	76,2	120,7	76,2
2 1/2"	63,5	1,65	95,25	139,7	85,7
3"	76,2	1,65	114,3	158,8	92,1
4"	101,6	2,11	152,4	203,2	114,3
6"	152,4	2,77	228,6	292,1	158,8



TE2C

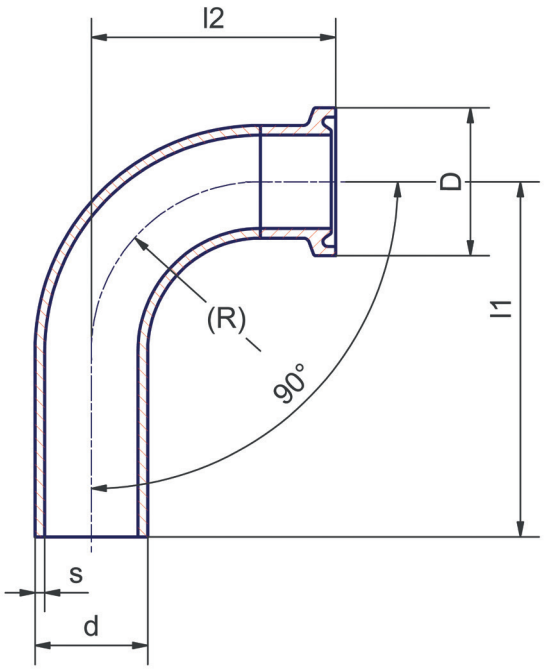


TE2KC

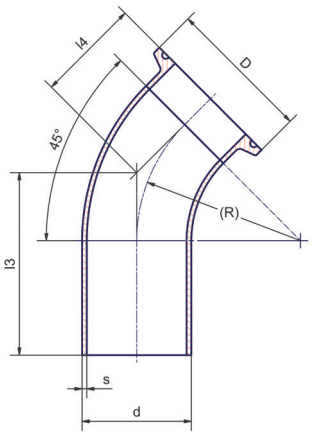
Technical Data	
Material*	316L
Norm	ASME-BPE (actual version)
BPE table	90°: DT-4.1.1-2 45°: DT-4.1.1-5
Material code	90°: TE2C 45°: TE2KC
Surface finish (standard of stock)*	SF1 SF4
Connection 1	Orbital welding end in accordance with ASME-BPE
Connection 2	Clamp connection in accordance with ASME-BPE

* Alternative material grades such as 2.4602, 6Mo / UNS N08367, etc.), different surface qualities as well as special elbows (88°, 92°, 30°, 60°, etc.) are available on request

TE2C



TE2KC



Elbow ASME-BPE 90° and 45°, clamp connection / orbital welding end								
DN	d	s	R	l1	l2	l3	l4	D
1/4"	6,35	0,89	14,3	66,7	41,3	50,8	25,4	25
3/8"	9,53	0,89	28,58	66,7	41,3	50,8	25,4	25
1/2"	12,7	1,65	28,58	76,2	41,3	57,2	25,4	25
3/4"	19,05	1,65	28,58	76,2	41,3	57,2	25,4	25
1"	25,4	1,65	38,1	76,2	50,8	57,2	28,6	50,4
1 1/2"	38,1	1,65	57,15	95,3	69,9	63,5	36,5	50,4
2"	50,8	1,65	76,2	120,7	88,9	76,2	44,5	64
2 1/2"	63,5	1,65	95,25	139,7	108	85,7	52,4	77,4
3"	76,2	1,65	114,3	158,8	127	92,1	60,3	91
4"	101,6	2,11	152,4	203,2	168,3	114,3	79,4	119
6"	152,4	2,77	228,6	292,1	266,7	158,8	133,4	167



TEG2C

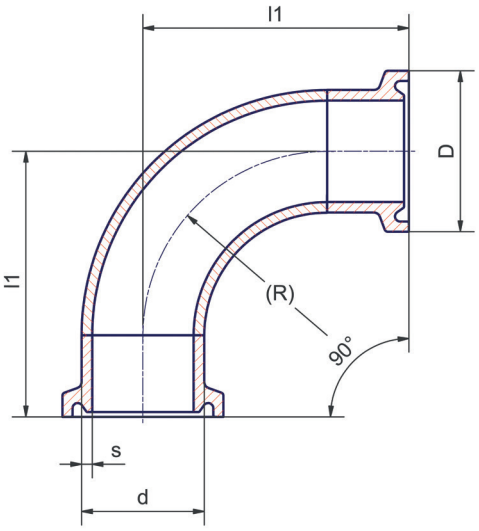


TEG2K

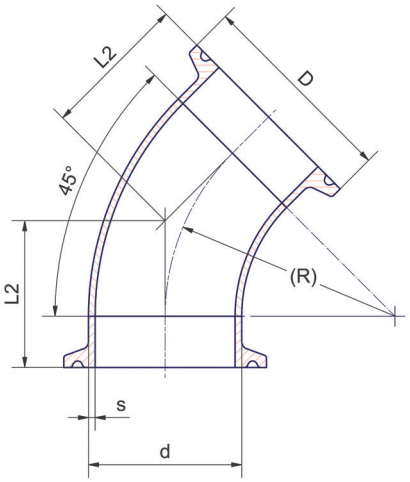
Technical Data	
Material	316L
Norm	ASME-BPE (actual version)
BPE table	90°: DT-4.1.1-3 45°: DT-4.1.1-6
Material code	90°: TEG2C 45°: TEG2K
Surface finish (standard of stock)	SF1 SF4
Connections	Clamp connection on both ends in accordance with ASME-BPE

* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.), different surface qualities as well as special elbows (88°, 92°, 30°, 60°, etc.) are available on request.

TEG2C



TEG2K



Elbow ASME-BPE 90° and 45°, clamp connection on both ends						
DN	d	s	R	l1	l2	D
1/4"	6,35	0,89	14,3	41,3	25,4	25
3/8"	9,53	0,89	28,58	41,3	25,4	25
1/2"	12,7	1,65	28,58	41,3	25,4	25
3/4"	19,05	1,65	28,58	41,3	25,4	25
1"	25,4	1,65	38,1	50,8	28,6	50,4
1 1/2"	38,1	1,65	57,15	69,9	36,5	50,4
2"	50,8	1,65	76,2	88,9	44,5	64
2 1/2"	63,5	1,65	95,25	108	52,4	77,4
3"	76,2	1,65	114,3	127	60,3	91
4"	101,6	2,11	152,4	168,3	79,4	119
6"	152,4	2,77	228,6	266,7	133,4	167



TE7WWW

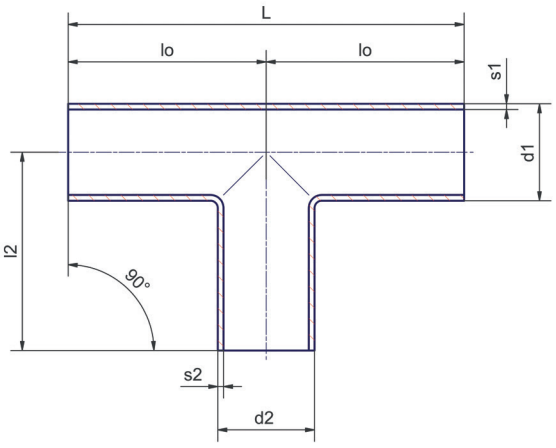


TE7RWWW

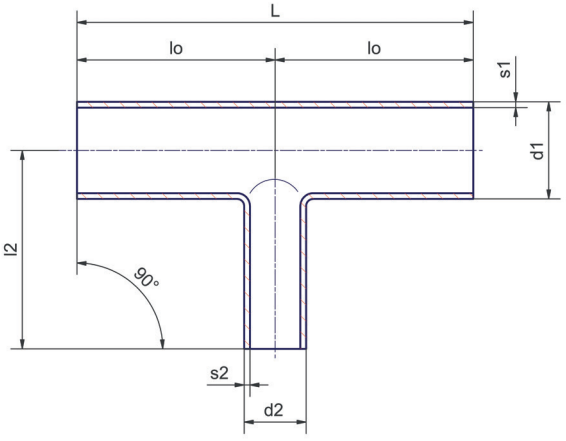
Technical Data	
Material	316L
Norm	ASME-BPE (actual version)
BPE table	Tee-Piece: DT-4.1.2-1 Red.-Tee-Piece: DT-4.1.2-6
Material code	Tee-Piece: TE7WWW Red.-Tee-Piece: TE7RWWW
Surface finish (standard of stock)*	SF1 SF4
Connections	Orbital welding ends in accordance with ASME-BPE

* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.) and different surface qualities are available on request.

TE7WWW



TE7RWWW



Tee-Piece long equal / reduced ASME-BPE, orbital welding ends on all sides							
DN	d1	s1	d2	s2	L	lo	l2
1/4"	6,35	0,89	6,35	0,89	89	44,5	44,5
3/8" / 1/4"	9,53	0,89	6,35	0,89	89	44,5	44,5
3/8"	9,53	0,89	9,53	0,89	89	44,5	44,5
1/2" / 1/4"	12,7	1,65	6,35	0,89	95,2	47,6	47,6
1/2" / 3/8"	12,7	1,65	9,53	0,89	95,2	47,6	47,6
1/2"	12,7	1,65	12,7	1,65	95,2	47,6	47,6
3/4" / 1/4"	19,05	1,65	6,35	0,89	101,6	50,8	50,8
3/4" / 3/8"	19,05	1,65	9,53	0,89	101,6	50,8	50,8
3/4" / 1/2"	19,05	1,65	12,7	1,65	101,6	50,8	50,8
3/4"	19,05	1,65	19,05	1,65	101,6	50,8	50,8
1" / 1/4"	25,4	1,65	6,35	0,89	108	54	54
1" / 3/8"	25,4	1,65	9,53	0,89	108	54	54
1" / 1/2"	25,4	1,65	12,7	1,65	108	54	54
1" / 3/4"	25,4	1,65	19,05	1,65	108	54	54
1"	25,4	1,65	25,4	1,65	108	54	54
1 1/2" / 1/2"	38,1	1,65	12,7	1,65	120,6	60,3	60,3
1 1/2" / 3/4"	38,1	1,65	19,05	1,65	120,6	60,3	60,3
1 1/2" / 1"	38,1	1,65	25,4	1,65	120,6	60,3	60,3
1 1/2"	38,1	1,65	38,1	1,65	120,6	60,3	60,3
2" / 1/2"	50,8	1,65	12,7	1,65	146	73	66,7
2" / 3/4"	50,8	1,65	19,05	1,65	146	73	66,7
2" / 1"	50,8	1,65	25,4	1,65	146	73	66,7
2" / 1 1/2"	50,8	1,65	38,1	1,65	146	73	66,7
2"	50,8	1,65	50,8	1,65	146	73	73
2 1/2" / 1/2"	63,5	1,65	12,7	1,65	158,8	79,4	73
2 1/2" /3/4"	63,5	1,65	19,05	1,65	158,8	79,4	73
2 1/2" / 1"	63,5	1,65	25,4	1,65	158,8	79,4	73
2 1/2" / 1 1/2"	63,5	1,65	38,1	1,65	158,8	79,4	73
2 1/2" / 2"	63,5	1,65	50,8	1,65	158,8	79,4	73
2 1/2"	63,5	1,65	63,5	1,65	158,8	79,4	79,4
3" / 1/2"	76,2	1,65	12,7	1,65	171,4	85,7	79,4
3" / 3/4"	76,2	1,65	19,05	1,65	171,4	85,7	79,4
3" / 1"	76,2	1,65	25,4	1,65	171,4	85,7	79,4
3" / 1 1/2"	76,2	1,65	38,1	1,65	171,4	85,7	79,4
3" / 2"	76,2	1,65	50,8	1,65	171,4	85,7	79,4
3" / 2 1/2"	76,2	1,65	63,5	1,65	171,4	85,7	79,4
3"	76,2	1,65	76,2	1,65	171,4	85,7	85,7
4" / 1/2"	101,6	2,11	12,7	1,65	209,6	104,8	92,1
4" / 3/4"	101,6	2,11	19,05	1,65	209,6	104,8	92,1
4" / 1"	101,6	2,11	25,4	1,65	209,6	104,8	92,1
4" / 1 1/2"	101,6	2,11	38,1	1,65	209,6	104,8	92,1
4" / 2"	101,6	2,11	50,8	1,65	209,6	104,8	98,4
4" / 2 1/2"	101,6	2,11	63,5	1,65	209,6	104,8	98,4
4" / 3"	101,6	2,11	76,2	1,65	209,6	104,8	98,4
4"	101,6	2,11	101,6	2,11	209,6	104,8	104,8
6" / 3"	152,4	2,77	76,2	1,65	285,8	142,9	123,8
6" / 4"	152,4	2,77	101,6	2,11	285,8	142,9	130,2
6"	152,4	2,77	152,4	2,77	285,8	142,9	142,9



TE7WCSW



TE7IWWCS

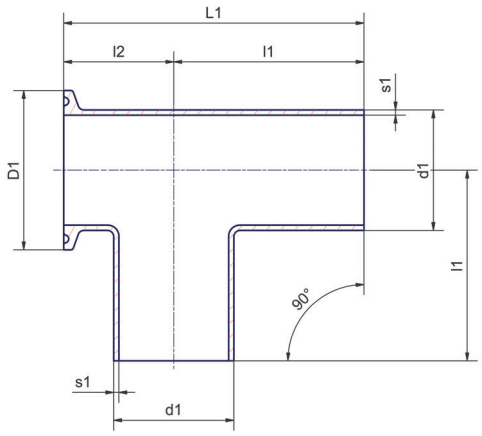


TEG7IS

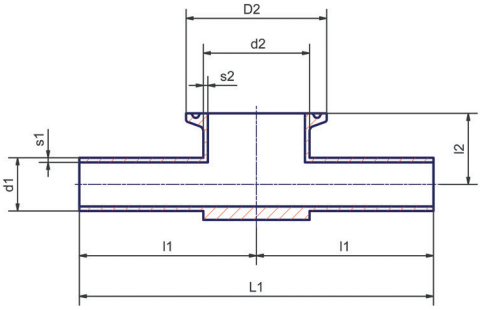
Technical Data	
Material*	316L
Norm	ASME-BPE (actual version)
BPE table	RUN-Tee-Piece short: DT-4.1.2-3
	Tee-Piece for instruments WWC: DT-4.1.2-10
	Tee-Piece for instruments CCC: DT-4.1.2-11
Material code	RUN-Tee-Piece short: TE7WCSW
	Tee-Piece for instruments WWC:TE7IWWCS
	Tee-Piece for instruments CCC: TEG7IS
Surface finish (standard of stock)	SF1
	SF4

* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.), as well as different surface qualities are available on request.

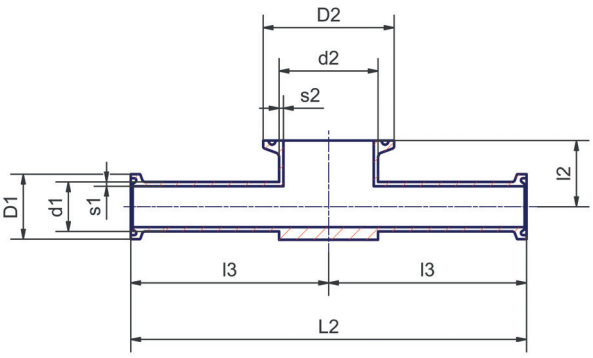
TE7WCSW



TE7IWWCS



TEG7IS



RUN-Tee-Piece short ASME-BPE - TE7WCSW						
DN	d1	s1	D1	L1	l1	l2
1/4"	6,35	0,89	25	66,7	44,5	22,2
3/8"	9,53	0,89	25	66,7	44,5	22,2
1/2"	12,7	1,65	25	69,8	47,6	22,2
3/4"	19,05	1,65	25	76,2	50,8	25,4
1"	25,4	1,65	50,5	82,6	54	28,6
1 1/2"	38,1	1,65	50,5	95,2	60,3	34,9
2"	50,8	1,65	64	114,3	73	41,3
2 1/2"	63,5	1,65	77,5	127	79,4	47,6
3"	76,2	1,65	91	139,7	85,7	54
4"	101,6	2,11	119	174,7	104,8	69,9
6"	152,4	2,77	167	260,5	142,9	117,5

Tee-Piece for Instruments ASME-BPE - TE7IWWCS								
DN	d1	s1	d2	s2	D2	L1	l1	l2
1/2" / 1 1/2"	12,7	1,65	38,1	1,65	50,4	127	63,5	22,2
1/2" / 2"	12,7	1,65	50,8	1,65	63,9	139,8	69,9	25,4
3/4" / 1 1/2"	19,05	1,65	38,1	1,65	50,4	127	63,5	25,4
3/4" / 2"	19,05	1,65	50,8	1,65	63,9	139,8	69,9	28,6
1" / 1 1/2"	25,4	1,65	38,1	1,65	50,4	127	63,5	28,6
1" / 2"	25,4	1,65	50,8	1,65	63,9	139,8	69,9	31,8
1 1/2" / 2"	38,1	1,65	50,8	1,65	63,9	139,8	69,9	38,1

Tee-Piece for Instruments ASME-BPE - TEG7IS									
DN	d1	s1	d2	s2	D1	D2	L2	l2	l3
1/2" / 1 1/2"	12,7	1,65	38,1	1,65	25	50,5	152,4	22,2	76,2
1/2" / 2"	12,7	1,65	50,8	1,65	25	64	165,2	25,4	82,6
3/4" / 1 1/2"	19,05	1,65	38,1	1,65	25	50,5	152,4	25,4	76,2
3/4" / 2"	19,05	1,65	50,8	1,65	25	64	165,2	28,6	82,6
1" / 1 1/2"	25,4	1,65	38,1	1,65	50,5	50,5	152,4	28,6	76,2
1" / 2"	25,4	1,65	50,8	1,65	50,5	64	165,2	31,8	82,6
1 1/2" / 2"	38,1	1,65	50,8	1,65	50,5	64	165,4	38,1	82,6



TEG7R



TEG7RS



TEG7

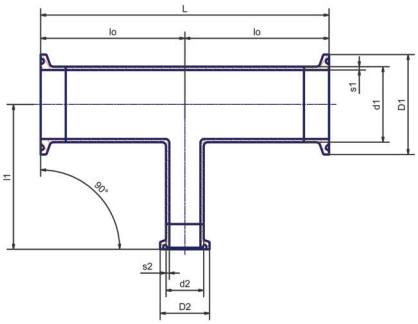


TEG7S

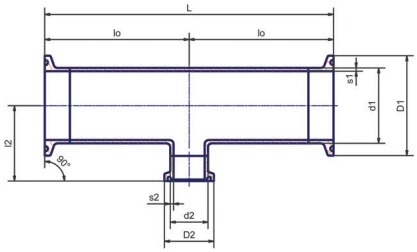
Technical Data		
Material*	316L	
Norm	ASME-BPE (actual version)	
BPE table	Red.-Tee-Piece long	DT-4.1.2-8
	Red.-Tee-Piece short	DT-4.1.2-9
	Tee-Piece long	DT-4.1.2-4
	Tee-Piece short	DT-4.1.2-5
Material code	Red.-T-Piece long	TEG7R
	Red.-Tee-Piece short	TEG7RS
	Tee-Piece long	TEG7
	Tee-Piece short	TEG7S
Surface finish (standard of stock)*	SF1 SF4	
Connection straight passage	Clamp connection in accordance with ASME-BPE	
Connection outlet	Clamp connection in accordance with ASME-BPE	

* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.) as well as different surface qualities are available on request.

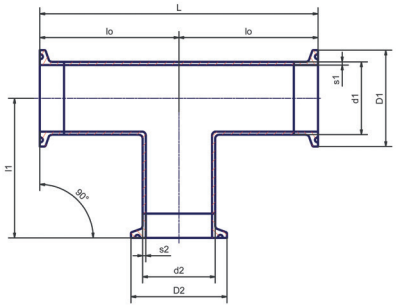
TEG7R



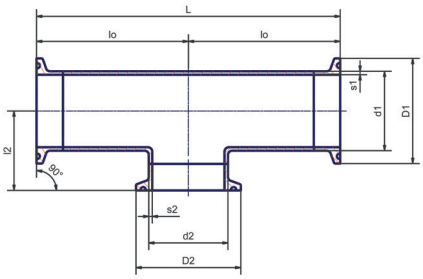
TEG7RS



TEG7



TEG7S



Tee-Piece equal / reduced ASME-BPE, clamp connections on all ends										
DN	d1	s1	d2	s2	D1	D2	L	lo	l1	l2
1/4"	6,35	0,89	6,35	0,89	25	25	114,4	57,2	57,2	25,4
3/8" / 1/4"	9,53	0,89	6,35	0,89	25	25	114,4	57,2	57,2	25,4
3/8"	9,53	0,89	9,53	0,89	25	25	114,4	57,2	57,2	25,4
1/2" / 1/4"	12,7	1,65	6,35	0,89	25	25	120,6	60,3	60,3	25,4
1/2" / 3/8"	12,7	1,65	9,53	0,89	25	25	120,6	60,3	60,3	25,4
1/2"	12,7	1,65	12,7	1,65	25	25	114,4	57,2	57,2	25,4
3/4" / 1/4"	19,05	1,65	6,35	0,89	25	25	127	63,5	63,5	25,4
3/4" / 3/8"	19,05	1,65	9,53	0,89	25	25	127	63,5	63,5	25,4
3/4" / 1/2"	19,05	1,65	12,7	1,65	25	25	127	63,5	63,5	25,4
3/4"	19,05	1,65	19,05	1,65	25	25	120,6	60,3	60,3	28,6
1" / 1/4"	25,4	1,65	6,35	0,89	50,5	25	133,4	66,7	66,7	28,6
1" / 3/8"	25,4	1,65	9,53	0,89	50,5	25	133,4	66,7	66,7	28,6
1" / 1/2"	25,4	1,65	12,7	1,65	50,5	25	133,4	66,7	66,7	28,6
1" / 3/4"	25,4	1,65	19,05	1,65	50,5	25	133,4	66,7	66,7	28,6
1"	25,4	1,65	25,4	1,65	50,5	50,5	133,4	66,7	66,7	28,6
1 1/2" / 1/2"	38,1	1,65	12,7	1,65	50,5	25	146	73	73	34,9
1 1/2" / 3/4"	38,1	1,65	19,05	1,65	50,5	25	146	73	73	34,9
1 1/2" / 1"	38,1	1,65	25,4	1,65	50,5	50,5	146	73	73	34,9
1 1/2"	38,1	1,65	38,1	1,65	50,5	50,5	146	73	73	34,9
2" / 1/2"	50,8	1,65	12,7	1,65	64	25	171,4	85,7	79,4	41,3
2" / 3/4"	50,8	1,65	19,05	1,65	64	25	171,4	85,7	79,4	41,3
2" / 1"	50,8	1,65	25,4	1,65	64	50,5	171,4	85,7	79,4	41,3
2" / 1 1/2"	50,8	1,65	38,1	1,65	64	50,5	171,4	85,7	79,4	41,3
2"	50,8	1,65	50,8	1,65	64	64	171,4	85,7	85,7	41,3
2 1/2" / 1/2"	63,5	1,65	12,7	1,65	77,5	25	184,2	92,1	85,7	47,6
2 1/2" /3/4"	63,5	1,65	19,05	1,65	77,5	25	184,2	92,1	85,7	47,6
2 1/2" / 1"	63,5	1,65	25,4	1,65	77,5	50,5	184,2	92,1	85,7	47,6
2 1/2" / 1 1/2"	63,5	1,65	38,1	1,65	77,5	50,5	184,2	92,1	85,7	47,6
2 1/2" / 2"	63,5	1,65	50,8	1,65	77,5	64	184,2	92,1	85,7	47,6
2 1/2"	63,5	1,65	63,5	1,65	77,5	77,5	184,2	92,1	92,1	47,6
3" / 1/2"	76,2	1,65	12,7	1,65	91	25	196,8	98,4	92,1	54
3" / 3/4"	76,2	1,65	19,05	1,65	91	25	196,8	98,4	92,1	54
3" / 1"	76,2	1,65	25,4	1,65	91	50,5	196,8	98,4	92,1	54
3" / 1 1/2"	76,2	1,65	38,1	1,65	91	50,5	196,8	98,4	92,1	54
3" / 2"	76,2	1,65	50,8	1,65	91	64	196,8	98,4	92,1	54
3" / 2 1/2"	76,2	1,65	63,5	1,65	91	77,5	196,8	98,4	92,1	54
3"	76,2	1,65	76,2	1,65	91	91	196,8	98,4	98,4	54
4" / 1/2"	101,6	2,11	12,7	1,65	119	25	241,4	120,7	104,8	66,7
4" / 3/4"	101,6	2,11	19,05	1,65	119	25	241,4	120,7	104,8	66,7
4" / 1"	101,6	2,11	25,4	1,65	119	50,5	241,4	120,7	104,8	66,7
4" / 1 1/2"	101,6	2,11	38,1	1,65	119	50,5	241,4	120,7	104,8	66,7
4" / 2"	101,6	2,11	50,8	1,65	119	64	241,4	120,7	111,1	66,7
4" / 2 1/2"	101,6	2,11	63,5	1,65	119	77,5	241,4	120,7	111,1	66,7
4" / 3"	101,6	2,11	76,2	1,65	119	91	241,4	120,7	111,1	66,7
4"	101,6	2,11	101,6	2,11	119	119	241,4	120,7	120,7	69,9
6" / 1/2"	152,4	2,77	12,7	1,65	167	25	362	181	-	92,1
6" / 3/4"	152,4	2,77	19,05	1,65	167	25	362	181	-	92,1
6" / 1"	152,4	2,77	25,4	1,65	167	50,5	362	181	-	92,1
6" / 1 1/2"	152,4	2,77	38,1	1,65	167	50,5	362	181	-	92,1
6" / 2"	152,4	2,77	50,8	1,65	167	64	362	181	-	92,1
6" / 2 1/2"	152,4	2,77	63,5	1,65	167	77,5	362	181	-	92,1
6" / 3"	152,4	2,77	76,2	1,65	167	91	362	181	136,5	92,1
6" / 4"	152,4	2,77	101,6	2,11	167	119	362	181	146,1	95,3
6"	152,4	2,77	152,4	2,77	167	167	362	181	181	117,5



TE7RWWC



TE7RWWCS



TE7WWC

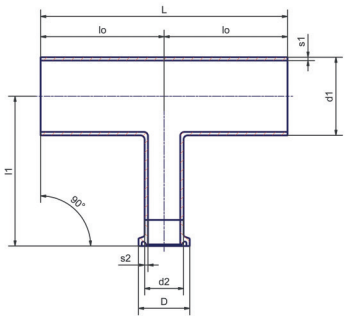


TE7WWCS

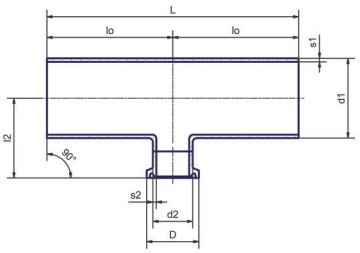
Technical Data		
Material*	316L	
Norm	ASME-BPE (actual version)	
BPE table	Red.-Tee-Piece long:	not included
	Red.-Tee-Piece short:	DT-4.1.2-7
	Tee-Piece long:	not included
	Tee-Piece short:	DT-4.1.2-2
Material code	Red.-Tee-Piece long	TE7RWWC
	Red.-Tee-Piece short	TE7RWWCS
	Tee-Piece long	TE7WWC
	Tee-Piece short	TE7WWCS
Surface finish (standard of stock)*	SF1	
	SF4	
Connection straight passage	Orbital welding ends in accordance with ASME-BPE	
Connection outlet	Clamp connection in accordance with ASME-BPE	

* Alternative materials (such as 2.4602, 6Mo / UNS N08367, etc.) as well as different surface qualities are available on request.

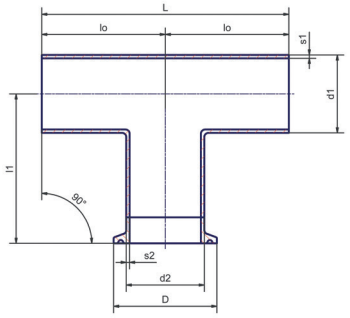
TE7RWWC



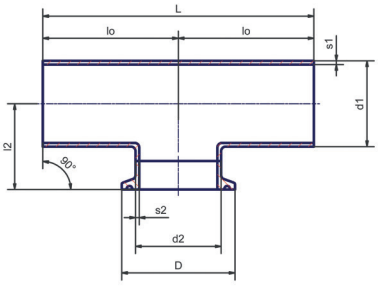
TE7RWWCS



TE7WWC



TE7WWCS



Tee-Piece equal / reduced ASME-BPE, outlet clamp connection									
DN	d1	s1	d2	s2	D	L	lo	l1	l2
1/4"	6,35	0,89	6,35	0,89	25	89	44,5	-	25,4
3/8" / 1/4"	9,53	0,89	6,35	0,89	25	89	44,5	-	25,4
3/8"	9,53	0,89	9,53	0,89	25	89	44,5	-	25,4
1/2" / 1/4"	12,7	1,65	6,35	0,89	25	95,2	47,6	-	25,4
1/2" / 3/8"	12,7	1,65	9,53	0,89	25	95,2	47,6	-	25,4
1/2"	12,7	1,65	12,7	1,65	25	95,2	47,6	57,2	25,4
3/4" / 1/4"	19,05	1,65	6,35	0,89	25	101,6	50,8	-	25,4
3/4" / 3/8"	19,05	1,65	9,53	0,89	25	101,6	50,8	-	25,4
3/4" / 1/2"	19,05	1,65	12,7	1,65	25	101,6	50,8	63,5	25,4
3/4"	19,05	1,65	19,05	1,65	25	101,6	50,8	60,3	28,6
1" / 1/4"	25,4	1,65	6,35	0,89	25	108	54	-	28,6
1" / 3/8"	25,4	1,65	9,53	0,89	25	108	54	-	28,6
1" / 1/2"	25,4	1,65	12,7	1,65	25	108	54	66,7	28,6
1" / 3/4"	25,4	1,65	19,05	1,65	25	108	54	66,7	28,6
1"	25,4	1,65	25,4	1,65	50,5	108	54	66,7	28,6
1 1/2" / 1/2"	38,1	1,65	12,7	1,65	25	120,6	60,3	73	34,9
1 1/2" / 3/4"	38,1	1,65	19,05	1,65	25	120,6	60,3	73	34,9
1 1/2" / 1"	38,1	1,65	25,4	1,65	50,5	120,6	60,3	73	34,9
1 1/2"	38,1	1,65	38,1	1,65	50,5	120,6	60,3	73	34,9
2" / 1/2"	50,8	1,65	12,7	1,65	25	146	73	79,4	41,3
2" / 3/4"	50,8	1,65	19,05	1,65	25	146	73	79,4	41,3
2" / 1"	50,8	1,65	25,4	1,65	50,5	146	73	79,4	41,3
2" / 1 1/2"	50,8	1,65	38,1	1,65	50,5	146	73	79,4	41,3
2"	50,8	1,65	50,8	1,65	64	146	73	85,7	41,3
2 1/2" / 1/2"	63,5	1,65	12,7	1,65	25	158,8	79,4	85,7	47,6
2 1/2" /3/4"	63,5	1,65	19,05	1,65	25	158,8	79,4	-	47,6
2 1/2" / 1"	63,5	1,65	25,4	1,65	50,5	158,8	79,4	-	47,6
2 1/2"/1 1/2"	63,5	1,65	38,1	1,65	50,5	158,8	79,4	85,7	47,6
2 1/2" / 2"	63,5	1,65	50,8	1,65	64	158,8	79,4	85,7	47,6
2 1/2"	63,5	1,65	63,5	1,65	77,5	158,8	79,4	92,1	47,6
3" / 1/2"	76,2	1,65	12,7	1,65	25	171,4	85,7	-	54
3" / 3/4"	76,2	1,65	19,05	1,65	25	171,4	85,7	-	54
3" / 1"	76,2	1,65	25,4	1,65	50,5	171,4	85,7	92,1	54
3" / 1 1/2"	76,2	1,65	38,1	1,65	50,5	171,4	85,7	92,1	54
3" / 2"	76,2	1,65	50,8	1,65	64	171,4	85,7	92,1	54
3" / 2 1/2"	76,2	1,65	63,5	1,65	77,5	171,4	85,7	92,1	54
3"	76,2	1,65	76,2	1,65	91	171,4	85,7	98,43	54
4" / 1/2"	101,6	2,11	12,7	1,65	25	209,6	104,8	-	66,7
4" / 3/4"	101,6	2,11	19,05	1,65	25	209,6	104,8	-	66,7
4" / 1"	101,6	2,11	25,4	1,65	50,5	209,6	104,8	104,8	66,7
4" / 1 1/2"	101,6	2,11	38,1	1,65	50,5	209,6	104,8	104,8	66,7
4" / 2"	101,6	2,11	50,8	1,65	64	209,6	104,8	111,1	66,7
4" / 2 1/2"	101,6	2,11	63,5	1,65	77,5	209,6	104,8	111,1	66,7
4" / 3"	101,6	2,11	76,2	1,65	91	209,6	104,8	111,1	66,7
4"	101,6	2,11	101,6	2,11	119	209,6	104,8	120,65	69,9
6" / 1/2"	152,4	2,77	12,7	1,65	25	285,8	142,9	-	92,1
6" / 3/4"	152,4	2,77	19,05	1,65	25	285,8	142,9	-	92,1
6" / 1"	152,4	2,77	25,4	1,65	50,5	285,8	142,9	-	92,1
6" / 1 1/2"	152,4	2,77	38,1	1,65	50,5	285,8	142,9	-	92,1
6" / 2"	152,4	2,77	50,8	1,65	64	285,8	142,9	-	92,1
6" / 2 1/2"	152,4	2,77	63,5	1,65	77,5	285,8	142,9	-	92,1
6" / 3"	152,4	2,77	76,2	1,65	91	285,8	142,9	136,5	92,1
6" / 4"	152,4	2,77	101,6	2,11	119	285,8	142,9	146,1	95,3
6"	152,4	2,77	152,4	2,77	167	285,8	142,9	181	117,5



TEG9

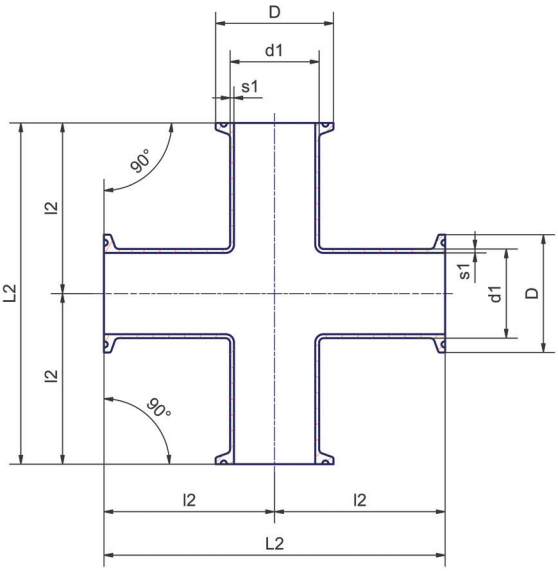


TE9WWWW

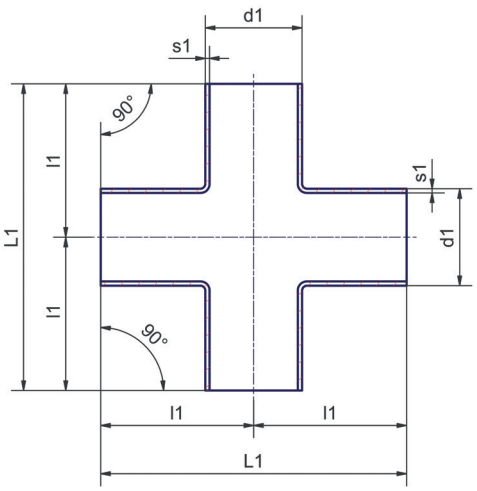
Technical Data		
Material*	316L	
Norm	ASME-BPE (actual version)	
BPE table	Cross CCCC	DT-4.1.2-4
	Cross WWWW	DT-4.1.2-1
Material code	Cross CCCC	TEG9
	Cross WWWW	TE9WWWW
Surface finish (standard of stock)*	SF1 SF4	
Connections	Orbital welding ends or clamp connections in accordance with ASME-BPE	

* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.), different surface qualities as well as reduced crosses are available on request.

TEG9



TE9WWWW



Cross ASME-BPE, Type WWWW and CCCC							
DN	d1	s1	D	L1	l1	L2	l2
1/4"	6,35	0,89	25	89	44,5	114,4	57,2
3/8"	9,53	0,89	25	89	44,5	114,4	57,2
1/2"	12,7	1,65	25	95,2	47,6	114,4	60,3
3/4"	19,05	1,65	25	101,6	50,8	120,6	63,5
1"	25,4	1,65	50,5	108	54	133,4	66,7
1 1/2"	38,1	1,65	50,5	120,6	60,3	146	73
2"	50,8	1,65	64	146	73	171,4	85,7
2 1/2"	63,5	1,65	77,5	158,8	79,4	184,2	92,1
3"	76,2	1,65	91	171,4	85,7	196,8	98,4
4"	101,6	2,11	119	209,6	104,8	241,4	120,7
6"	152,4	2,77	167	285,8	142,9	362	181



TE31SWW



TEG31SCC

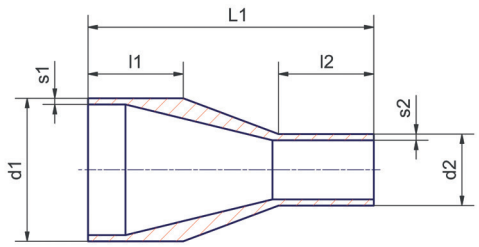


TE31SCW

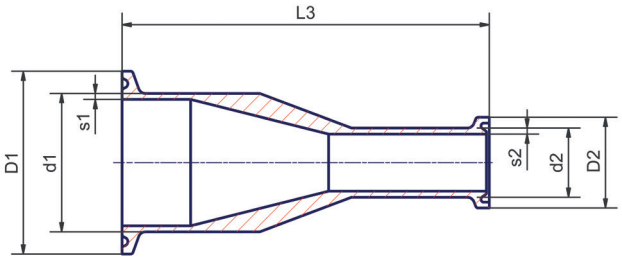
Technical Data	
Material*	316L
Norm	ASME-BPE (actual version)
BPE table	WW DT-4.1.3-1 CC DT-4.1.3-3 CW DT-4.1.3-2
Material code	WW TE31SWW CC TEG31SCC CW TE31SCW
Surface finish (standard of stock)*	SF1 SF4

* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.) as well as different surface qualities are available on request.

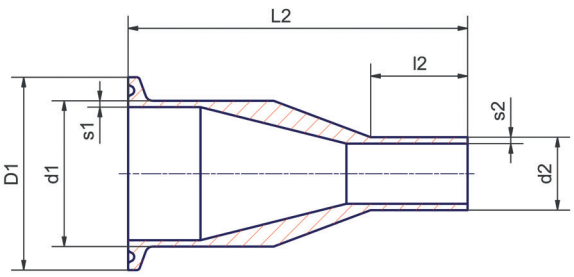
TE31SWW



TEG31SCC



TE31SCW



Concentric Reducers ASME-BPE, Type WW, CW and CC											
DN	d1	s1	D1	d2	s2	D2	L1	l1	l2	L2	L3
3/8" / 1/4"	9,53	0,89	25	6,35	0,89	25	41,28	19,05	19,05	53,78	66,68
1/2" / 1/4"	12,7	1,65	25	6,35	0,89	25	47,63	25,4	19,05	60,33	73,03
1/2" / 3/8"	12,7	1,65	25	9,53	0,89	25	47,63	25,4	19,05	60,33	73,03
3/4" / 3/8"	19,05	1,65	25	9,53	0,89	25	50,8	25,4	19,05	63,5	76,2
3/4" / 1/2"	19,05	1,65	25	12,7	1,65	25	53,98	25,4	25,4	66,68	79,38
1" / 1/2"	25,4	1,65	50,5	12,7	1,65	25	63,5	25,4	25,4	76,2	88,9
1" / 3/4"	25,4	1,65	50,5	19,05	1,65	25	53,98	25,4	25,4	66,68	79,38
1 1/2" / 3/4"	38,1	1,65	50,5	19,05	1,65	25	76,2	25,4	25,4	88,9	101,6
1 1/2" / 1"	38,1	1,65	50,5	25,4	1,65	50,5	63,5	25,4	25,4	76,2	88,9
2" / 1"	50,8	1,65	64	25,4	1,65	50,5	85,73	25,4	25,4	98,43	111,13
2" / 1 1/2"	50,8	1,65	64	38,1	1,65	50,5	63,5	25,4	25,4	76,2	88,9
2 1/2" / 1 1/2"	63,5	1,65	77,5	38,1	1,65	50,5	85,73	25,4	25,4	98,43	111,13
2 1/2" / 2"	63,5	1,65	77,5	50,8	1,65	64	63,5	25,4	25,4	76,2	88,9
3" / 1 1/2"	76,2	1,65	91	38,1	1,65	50,5	107,95	38,1	25,4	120,65	133,35
3" / 2"	76,2	1,65	91	50,8	1,65	64	85,73	38,1	25,4	98,43	111,13
3" / 2 1/2"	76,2	1,65	91	63,5	1,65	77,5	66,68	38,1	25,4	79,38	92,08
4" / 2"	101,6	2,11	119	50,8	1,65	64	130,18	38,1	25,4	146,05	158,75
4" / 2 1/2"	101,6	2,11	119	63,5	1,65	77,5	107,95	38,1	25,4	123,83	136,53
4" / 3"	101,6	2,11	119	76,2	1,65	91	98,43	38,1	38,1	114,3	127
6" / 3"	152,4	2,77	167	76,2	1,65	91	184,15	50,8	38,1	203,2	215,9
6" / 4"	152,4	2,77	167	101,6	2,11	119	142,88	50,8	38,1	161,93	177,8



TE32SWW



TEG32SCC

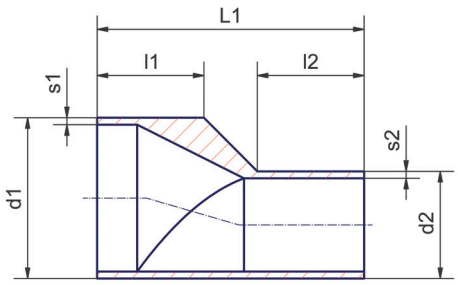


TE32SCW

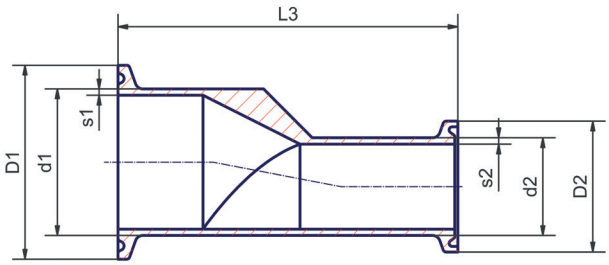
Technical Data	
Material*	316L
Norm	ASME-BPE (actual version)
BPE table	WW DT-4.1.3-1 CC DT-4.1.3-3 CW DT-4.1.3-2
Material code	WW TE32SWW CC TE32SCC CW TE32SCW
Surface finish (standard of stock)*	SF1 SF4

* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.) as well as different surface qualities are available on request.

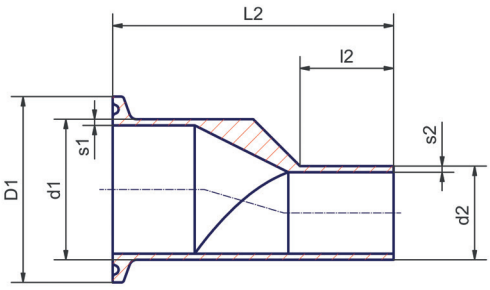
TE32SWW



TEG32SCC



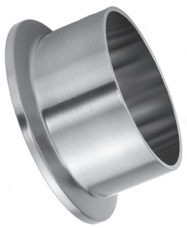
TE32SCW



Eccentric Reducers ASME-BPE, Type WW, CW and CC											
DN	d1	s1	D1	d2	s2	D2	L1	l1	l2	L2	L3
3/8" / 1/4"	9,53	0,89	25	6,35	0,89	25	41,28	19,05	19,05	53,78	66,68
1/2" / 1/4"	12,7	1,65	25	6,35	0,89	25	47,63	25,4	19,05	60,33	73,03
1/2" / 3/8"	12,7	1,65	25	9,53	0,89	25	47,63	25,4	19,05	60,33	73,03
3/4" / 3/8"	19,05	1,65	25	9,53	0,89	25	50,8	25,4	19,05	63,5	76,2
3/4" / 1/2"	19,05	1,65	25	12,7	1,65	25	53,98	25,4	25,4	66,68	79,38
1" / 1/2"	25,4	1,65	50,5	12,7	1,65	25	63,5	25,4	25,4	76,2	88,9
1" / 3/4"	25,4	1,65	50,5	19,05	1,65	25	53,98	25,4	25,4	66,68	79,38
1 1/2" / 3/4"	38,1	1,65	50,5	19,05	1,65	25	76,2	25,4	25,4	88,9	101,6
1 1/2" / 1"	38,1	1,65	50,5	25,4	1,65	50,5	63,5	25,4	25,4	76,2	88,9
2" / 1"	50,8	1,65	64	25,4	1,65	50,5	85,73	25,4	25,4	98,43	111,13
2" / 1 1/2"	50,8	1,65	64	38,1	1,65	50,5	63,5	25,4	25,4	76,2	88,9
2 1/2" / 1 1/2"	63,5	1,65	77,5	38,1	1,65	50,5	85,73	25,4	25,4	98,43	111,13
2 1/2" / 2"	63,5	1,65	77,5	50,8	1,65	64	63,5	25,4	25,4	76,2	88,9
3" / 1 1/2"	76,2	1,65	91	38,1	1,65	50,5	107,95	38,1	25,4	120,65	133,35
3" / 2"	76,2	1,65	91	50,8	1,65	64	85,73	38,1	25,4	98,43	111,13
3" / 2 1/2"	76,2	1,65	91	63,5	1,65	77,5	66,68	38,1	25,4	79,38	92,08
4" / 2"	101,6	2,11	119	50,8	1,65	64	130,18	38,1	25,4	146,05	158,75
4" / 2 1/2"	101,6	2,11	119	63,5	1,65	77,5	107,95	38,1	25,4	123,83	136,53
4" / 3"	101,6	2,11	119	76,2	1,65	91	98,43	38,1	38,1	114,3	127
6" / 3"	152,4	2,77	167	76,2	1,65	91	184,15	50,8	38,1	203,2	215,9
6" / 4"	152,4	2,77	167	101,6	2,11	119	142,88	50,8	38,1	161,93	177,8



TEG14AM7
type A



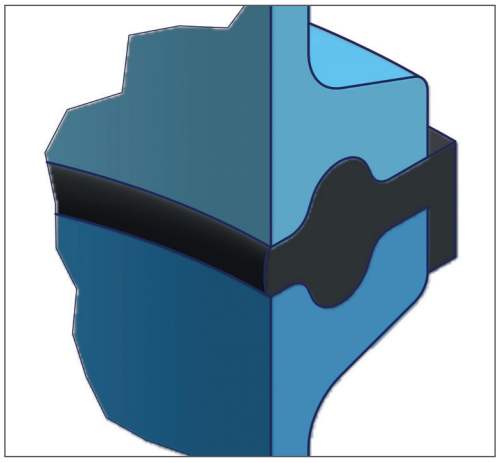
TEG14BM7
type B



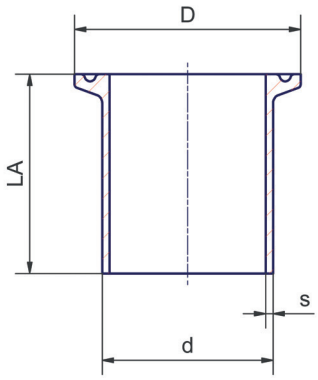
TEG2CS
type C

Technical Data	
Material*	316L
Norm	ASME-BPE (actual version)
BPE table	DT-4.1.4-1
Material code	Type A: TEG14AM7
	Type B: TEG14BM7
	Type C: TEG2CS
Surface finish standard of stock)*	SF1
	SF4

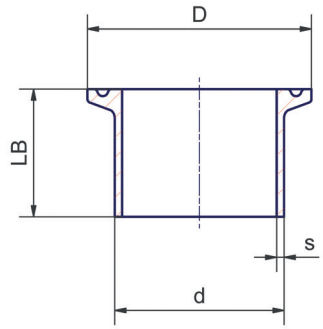
* Alternative material grades such as 2.4602, 6Mo / UNS N08367, etc.), different surface qualities, connections as well as customised components (thick walled welding sockets for tanks, etc.) are available on request.



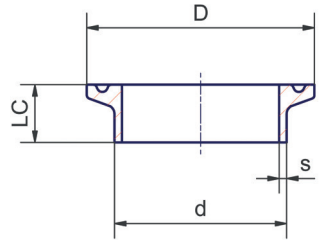
TEG14AM7
type A



TEG14BM7
type B



TEG2CS
typeC



Clamp Ferrules ASME-BPE						
DN	d	s	D	LA	LB	LC
1/4"	6,35	0,89	25	44,5	28,6	12,7
3/8"	9,53	0,89	25	44,5	28,6	12,7
1/2"	12,7	1,65	25	44,5	28,6	12,7
3/4"	19,05	1,65	25	44,5	28,6	12,7
1"	25,4	1,65	50,5	44,5	28,6	12,7
1 1/2"	38,1	1,65	50,5	44,5	28,6	12,7
2"	50,8	1,65	64	57,2	28,6	12,7
2 1/2"	63,5	1,65	77,5	57,2	28,6	12,7
3"	76,2	1,65	91	57,2	28,6	12,7
4"	101,6	2,11	119	57,2	28,6	15,9
6"	152,4	2,77	167	76,2	38,1	19,1

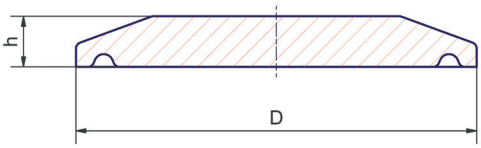


TEG16A

Technical Data	
Material*	316L
Norm	ASME-BPE (actual version)
BPE table	DT-4.1.5-2
Material code	TEG16A
Surface finish (standard of stock)*	SF1
	SF4
Connection	Clamp connection in accordance with ASME-BPE

* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.) and different surface qualities are available on request.

TEG16A



Blind Ferrules ASME-BPE		
DN	D	h
1/4"	25	4,7
3/8"	25	4,7
1/2"	25	4,7
3/4"	25	4,7
1"	50,5	6,4
1 1/2"	50,5	6,4
2"	64	6,4
2 1/2"	77,5	6,4
3"	91	6,4
4"	119	7,9
6"	167	11,1


AUTOMATIC POWER FILLING & STOPPING M/C(HS-YS-



Male Adapter
TEG21

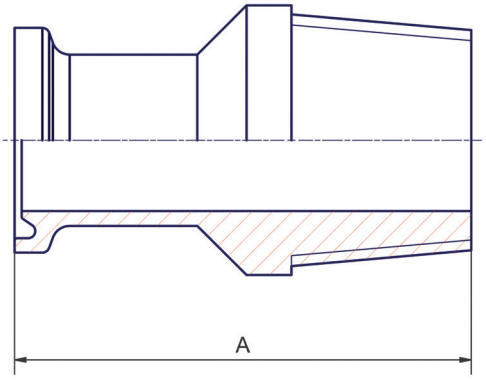


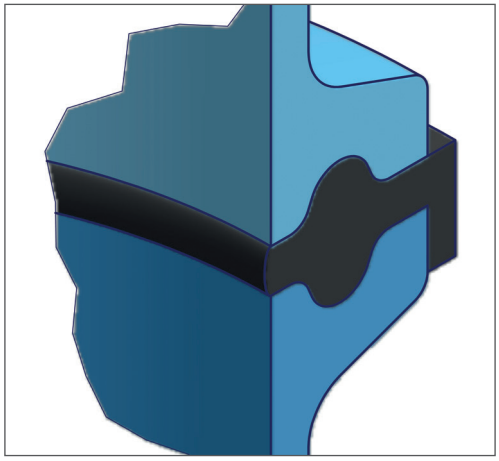
Female Adapter
TEG22

Technical Data	
Material*	316L
Material code	Male adapter (external thread): TEG21 Female adapter (internal thread): TEG22
Surface finish (standard of stock)*	SF1 SF4
Connections	Clamp connection in accordance with ASME-BPE internal / external thread NPT
Spanner flat	Depending on dimension

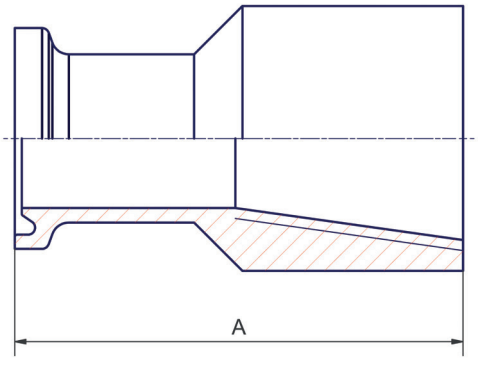
* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.) as well as different surface qualities and connections are available on request.

TEG21





TEG22



Adapter, Clamp Connection ASME-BPE / NPT Thread	
DN	A
1/2" / 1/8"	50,8
1/2" / 1/4"	50,8
1/2" / 3/8"	50,8
1/2" / 1/2"	50,8
1/2" / 3/4"	50,8
3/4" / 1/8"	50,8
3/4" / 1/4"	50,8
3/4" / 3/8"	50,8
3/4" / 1/2"	50,8
3/4" / 3/4"	50,8
1"	57,1
1 1/2"	61,9
2"	67,5
2 1/2"	83,3
3"	88,9
4"	96,7

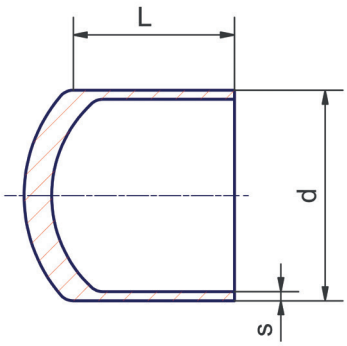


TE16W

Technical Data	
Material*	316L
Norm	ASME-BPE (actual version)
BPE table	DT-4.1.5-1
Material code	TE16W
Surface finish (standard of stock)*	SF1
	SF4
Connection	Orbital welding end in accordance with ASME-BPE

* Alternative material grades (such as 2.4602, 6Mo / UNS N08367, etc.) as well as different surface qualities and weld ends are available on request.

TE16W



Tube End Cap ASME-BPE			
DN	d	s	L
1/4"	6,35	0,89	38,1
3/8"	9,53	0,89	38,1
1/2"	12,7	1,65	38,1
3/4"	19,05	1,65	38,1
1"	25,4	1,65	38,1
1 1/2"	38,1	1,65	38,1
2"	50,8	1,65	38,1
2 1/2"	63,5	1,65	38,1
3"	76,2	1,65	44,5
4"	101,6	2,11	50,8
6"	152,4	2,77	63,5

Table of Materials

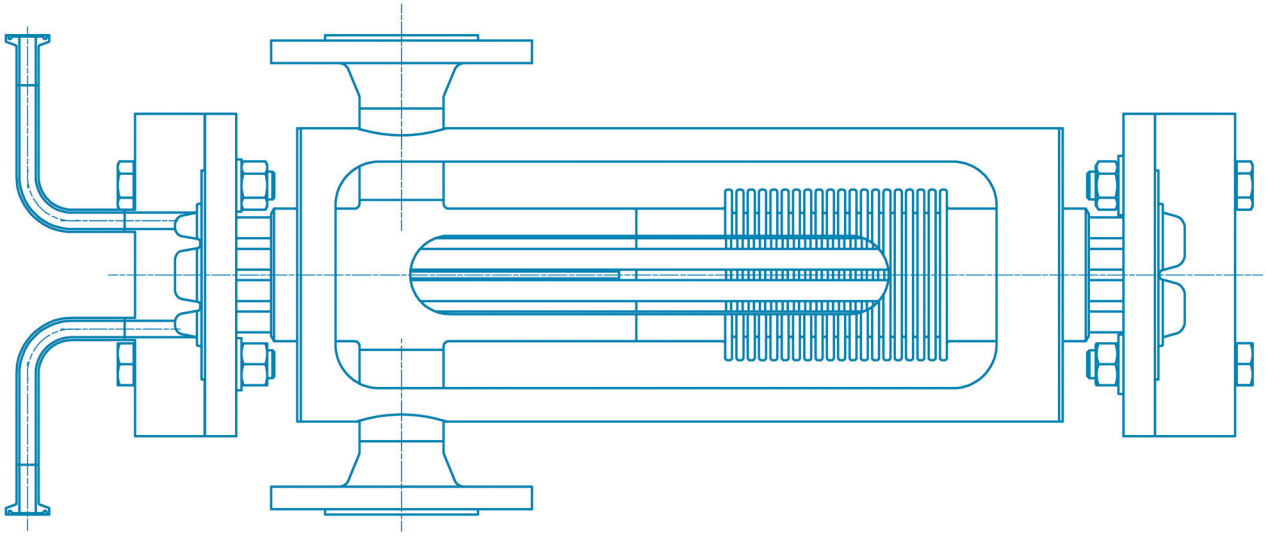
EN	Type	C ≤ %	Cr %	Ni %	Mo %	Si ≤ %	Mn ≤ %	S ≤ %	P ≤ %	other	Comparable material AISI	Comparable material SS
1.4301	austenite	0,07	17,5-19,5	8,0-10,5	-	1,0	2,0	0,015	0,045	N ≤ 0,11	304	2333
1.4306		0,03	18,0-20,0	10,0-12,0	-	1,0	2,0	0,015	0,045	N ≤ 0,11	304L	2352
1.4307		0,03	17,5-19,5	8,0-10,5	-	1,0	2,0	0,015	0,045	N ≤ 0,11	304L	-
1.4541		0,08	17,0-19,0	9,0-12,0	-	1,0	2,0	0,015	0,045	Ti (5xC)-0,70	321	2337
1.4401	austenite (acid-resistant)	0,07	16,5-18,5	10,0-13,0	2,0-2,5	1,0	2,0	0,015	0,045	N ≤ 0,11	316	2347
1.4404		0,03	16,5-18,5	10,0-13,0	2,0-2,5	1,0	2,0	0,015	0,045	N ≤ 0,11	316L	2348
1.4432		0,03	16,5-18,5	10,5-13,0	2,5-3,0	1,0	2,0	0,015	0,045	N ≤ 0,11	316L	2353
1.4435		0,03	17,0-19,0	12,5-15,0	2,5-3,0	1,0	2,0	0,015	0,045	N ≤ 0,11	316L	2353
1.4539		0,02	19,0-21,0	24,0-26,0	4,0-5,0	0,7	2,0	0,015	0,030	N ≤ 0,15; Cu 1,20-2,00	904L	2562
1.4571		0,08	16,5-18,5	10,5-13,5	2,0-2,5	1,0	2,0	0,015	0,045	Ti (5xC)-0,70	316Ti	2350
1.4529	Super-austenite (6-Moly)	0,02	20,0-21,0	24,5-25,5	6,0-6,8	0,5	1,0	0,005	0,030	N 0,18-0,2%, Cu 0,8-1,0%	AL-6XN®	-
1.4547		0,02	19,5-20,5	17,5-18,5	6,0-7,0	0,7	1,0	0,010	0,030	N 0,18-0,25%, Cu 0,5-1,0%	UNS S 31254	254 SMO
1.4462	Duplex	0,03	21,0-23,0	4,5-6,5	2,5-3,5	1,0	2,0	0,015	0,035	N 0,10-0,22	UNS S 31803	2377
1.4501	Super-duplex	0,03	24,0-26,0	6,0-8,0	3,0-4,0	1,0	1,0	0,015	0,035	N 0,20-0,30%, Cu 0,5-1,0%, W 2,5-3,5%	UNS S 32760	-
1.4410		0,03	24,0-26,0	6,0-8,0	3,5-5,0	1,0	1,0	0,015	0,035	N 0,24-0,32%	UNS S 32750	-
2.4602	nickel -base alloy	0,01	20,0-22,5	Rest (ca. 60%)	12,5-14,5	0,08	0,5	0,010	0,025	Fe 2-6%,W 2,5-3,5%, Co ≤ 2,5%	Hastelloy C-22	-
2.4605		0,01	22,0-24,0	Rest (ca. 60%)	15,0-16,0	0,1	0,5	0,015	0,025	Fe ≤ 1,5%, Cu ≤ 0,5%, Co ≤ 0,3%	Alloy 59	-
2.4610		0,009	14,5-17,5	Rest (ca. 65%)	14,0-17,0	0,05	1,0	0,010	0,020	Fe ≤ 3,0%, Ti ≤ 0,7%, Co ≤ 2,0%	Hastelloy C4	-
2.4819		0,01	14,5-16,5	Rest (ca. 58%)	15,0-17,0	0,08	1,0	0,010	0,025	Fe 4-7%,W 3,0-4,5%, Co ≤ 2,5%	Hastelloy C-276	-

All information supplied without warranty



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Calculated and designed individually - perfectly matching your process



Concerning pharmaceutical and biotechnological plants as well as ultra-pure water production, heat exchangers are one of the most critical, quality-relevant unit operations.

NEUMO tube-bundle heat exchangers with double tubesheet and orbitally welded primary pipes offer maximum process security.
In addition to the standard materials we are experts in the processing of special materials for every special application.

National and international certifications enable worldwide use of our heat exchangers.

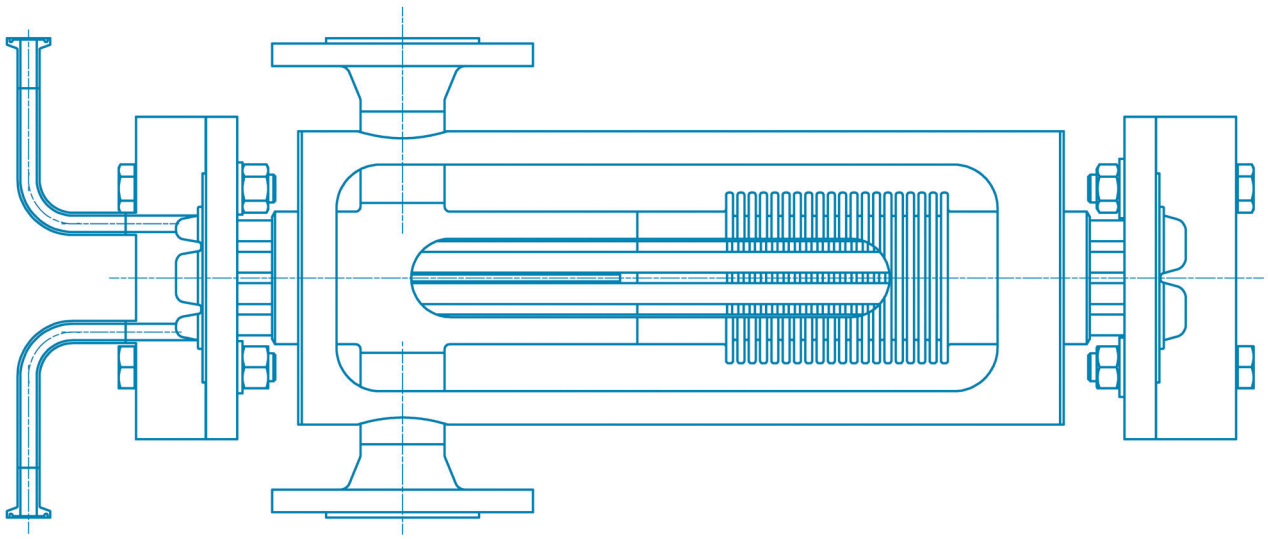
Operating principle:

The construction of aseptic heat exchangers guarantees the greatest possible separation between the primary and secondary media.
Therefore, the heat exchangers are equipped with a double tubesheet, thus preventing any possibility of mixing and contaminating the processed products with the primary media.
Via header, the sterile primary medium is led through the seamless primary pipe, thus cooled or heated by the secondary media.

Construction:

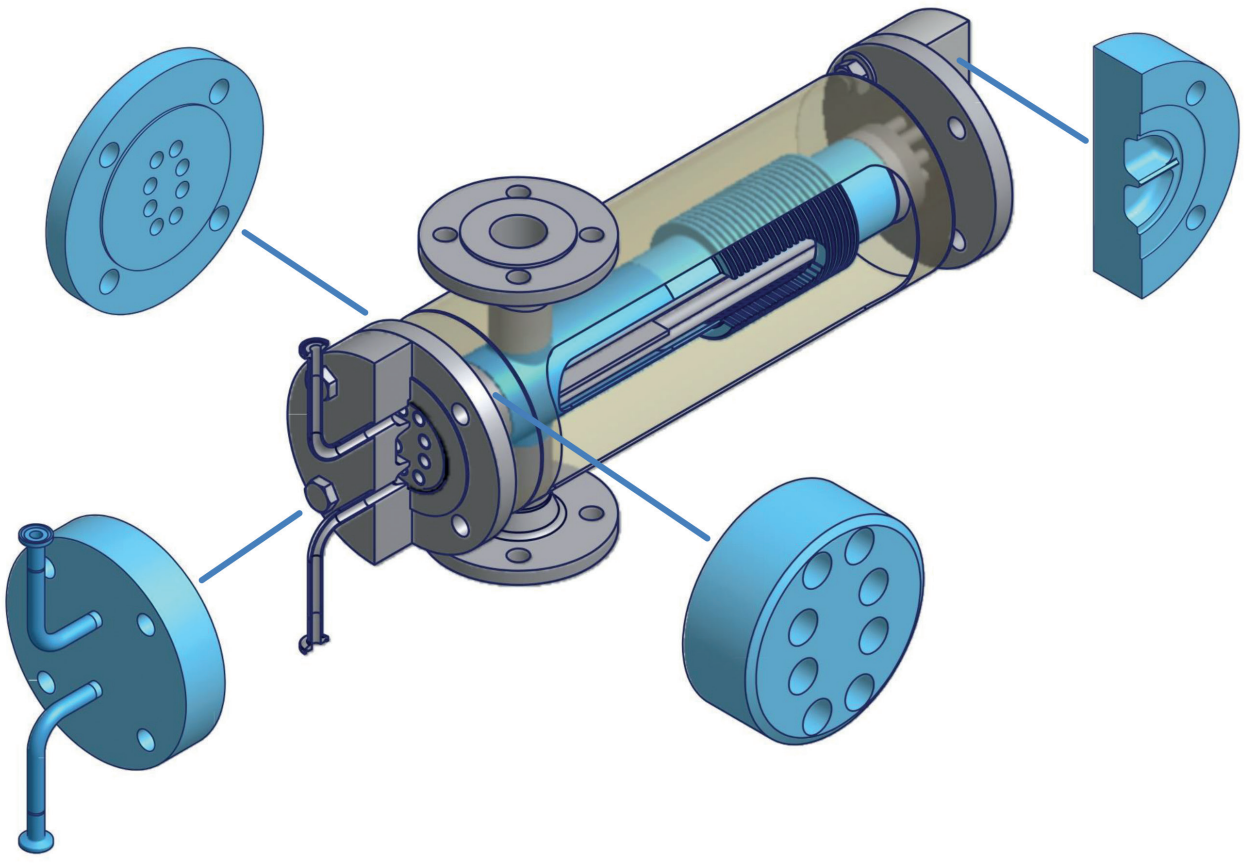
NEUMO aseptic heat exchangers are always custom and process specific, thus satisfying the most challenging demands in compliance with your process parameters.

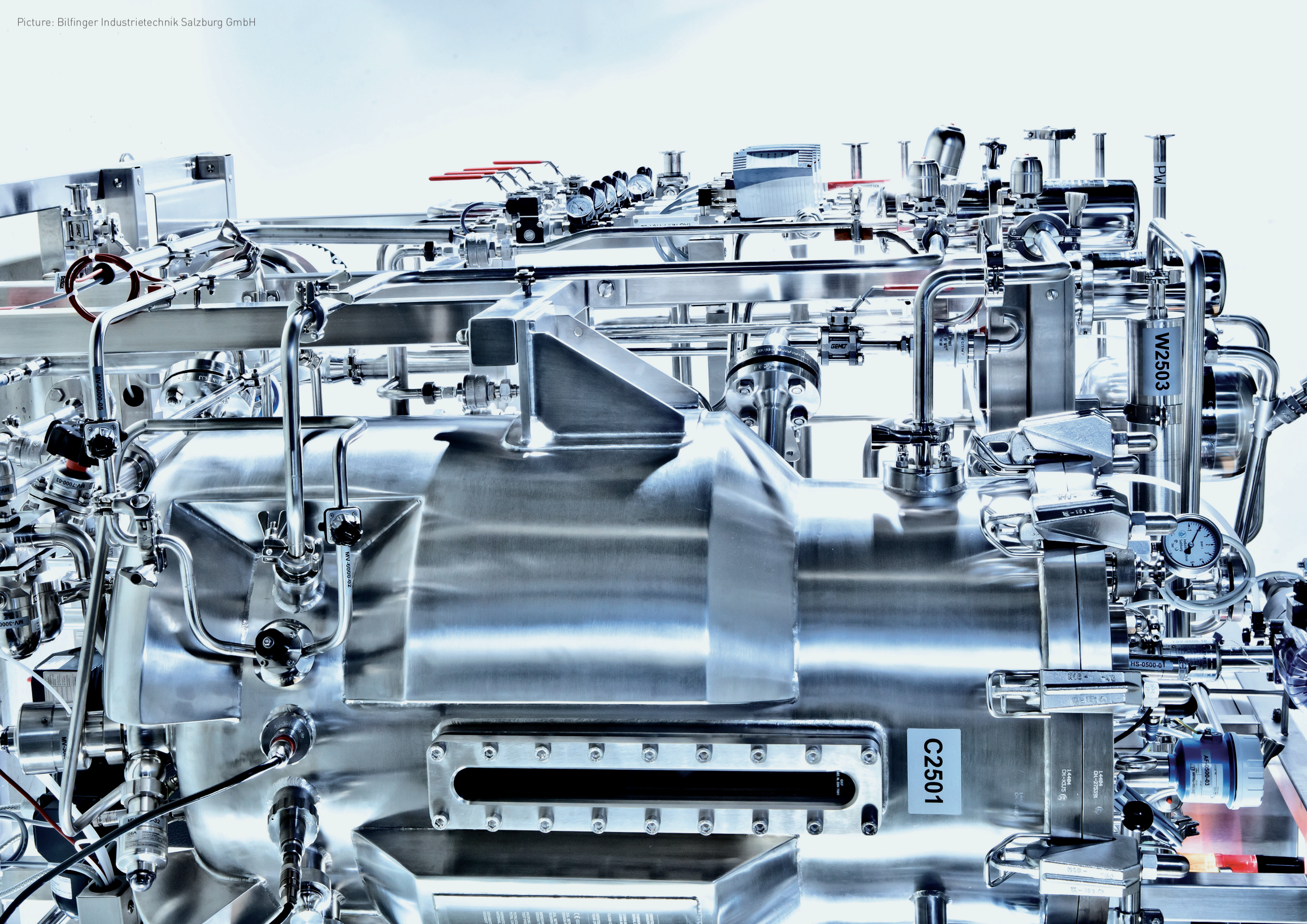
This flexible design reaches highest capacity through adjustment of tube lengths and numbers even if the flow rate is low. To avoid stress cracking caused by differential expansion rates, the outer housing of the heating/cooling chamber is fitted with a sophisticated and highly flexible stainless steel bellow section, guaranteeing operational safety and long life.



Features:

- strict separation of processing and cooling / heating media (primary and secondary chamber)
- high pressure and thermal shock resistance due to bellow expansion compensation
- less dead space
- self-emptying if correctly mounted
- optimal cleanability / sterilisability (CIP / SIP)
- defined internal surfaces up to Ra<0,4µm as well as optional electropolishing on the primary side
- quick assembly and disassembly through module production
- longstanding experience regarding efficient and customised performance design
- dual- or quad-flow construction where space is limited
- horizontal or vertical installation
- qualified sealing material for pharmaceutical areas
- sealing with NEUMO ConnectS® (elastomer-free!), NEUMO BioConnect®, DIN11864 or according to customer specifications
- standard material primary circuit: 1.4435 / 1.4404
- special design in nickel-base alloys (such as 2.4602 / 2.4610 / 2.4605)
- insolation available in special materials

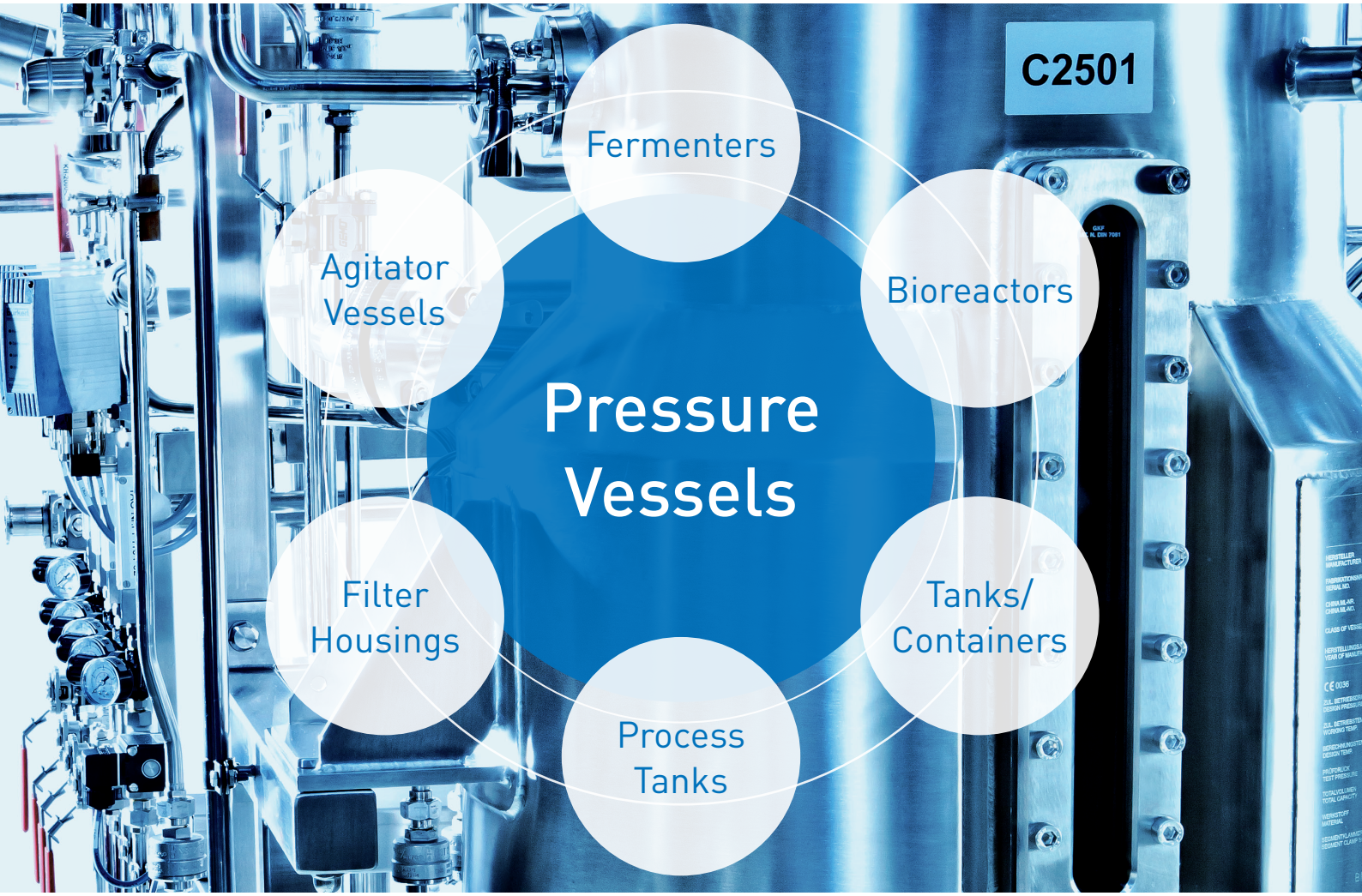




Picture: Bilfinger Industrietechnik Salzburg GmbH

Vessels and Process Equipment

for Pharmaceutical, Chemical and Biotechnological Industry



NEUMO in Knittlingen is specialised in the design and manufacturing of vessels and process equipment made of stainless steel as well as special alloys in compliance with the principles and standards of the established international certifications. Procedure and welding tests (manual and automated testing) as well as an exceptional quality awareness of our staff form the basis of our production.

Certifications:

- AD 2000 approval - according to HP 0
- ASME U-Stamp
- NB approval (The National Board of Boiler & Pressure Vessel Inspectors)
- Manufacture License of Special Equipment (P.R. China)



Application Industries:

- Pharmaceutical industry
- Biotechnology
- Chemical industry
- Food processing
- Water processing

Sizes:

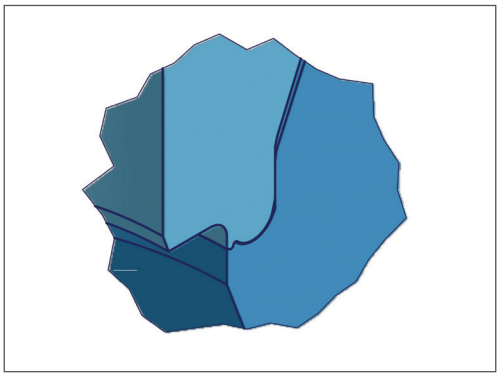
- 0,5 - 3.000 litres
- up to 20 tons unit weight
- up to 100 bar operating pressure

Material grades:

- 1.4301 / 304L
- 1.4404 / 316L
- 1.4571 / 316Ti
- 1.4435
- 1.4539 (904L)
- 1.4462 (Duplex)
- 2.4602 (Hastelloy C-22)
- 2.4605 (Alloy 59)
- 2.4610 (Hastelloy C-4)
- 2.4819 (Hastelloy C-276)
- further materials on request

Surface finishes:

- pickled / passivated
- polished (mech.) up to Ra<0,2µm
- mirror finishing (mech.)
- electropolished
- glass beaded

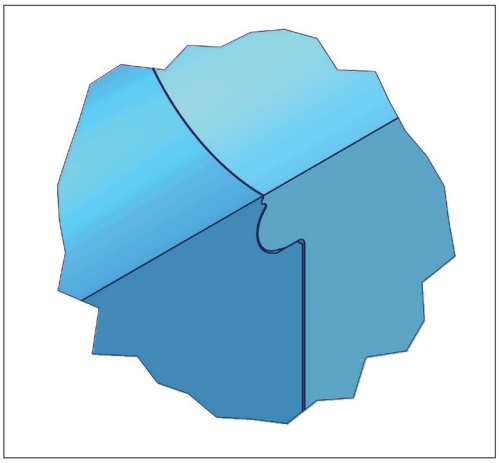


NEUMO BioControl® CS

Process Connections / Vessel Sealing:

- clamp- and flange connections according to the established norms
- NEUMO ConnectS®
  (process connections and vessel sealing without elastomer)
- NEUMO BioConnect®
- NEUMO BioControl®

With NEUMO ConnectS® and NEUMO BioControl® CS we offer an innovative completely elastomer-free alternative for the sealing and inclusion of measuring and analysing instruments. The metallic seal contour is directly turned into the cover, or a BioControl® CS block flange (see chapter BioControl®- block flanges) is welded into the vessel to include instruments.



NEUMO ConnectS®

Heating or Cooling:

- double jacket
- pillow plates
- tube coil (rectangular or oder half-piped)

Insolation and Casing:

- mineral wool
- mineral wool free of chloride
- perlite
- diffusion-proof welding, stainless steel

Design:

- freestanding (3-podal / 4-podal / 5-podal)
- height-adjustable
- horizontal on saddles
- with claws
- with lid-lifting device (electrical / mechanical / hydraulical)
- movable frame

Construction:

- with Inventor 3D
- fabricated according to required certifications



We will be pleased to advise you on the planning, dimensioning and design of your process vessel as well as on optimising the interfaces to manufacture your vessels tailored to your needs. We use Inventor 3D for the design and provide you with the 3D-model, thus facilitating your planning.



Picture: Spool DN700 for chemical industry, manufactured by NEUMO.

High-performance Materials and Custom Design



Over many years NEUMO has increasingly specialised in special materials and special design. Today we dominate the market as a competent reference and warehouse keeper for special alloys. Furthermore we are a supplier of high quality special design.

The product range includes the production of components fabricated to drawing as well as tubes and standardised fittings (for example DIN11865 and ASME-BPE) in special alloys.

In addition, we offer our patented products BioConnect®, ConnectS®, BioControl® and BioFlow check valves in special materials.

Our offered product portfolio is rounded off by our range of semi-finished products, such as sheets, bar steel and cuttings in standard or special materials.

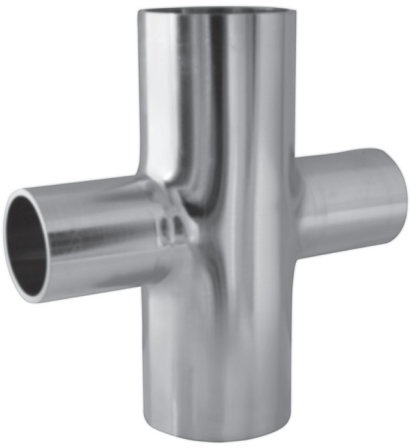


Distribution Pipes



Customised Construction

... designed and manufactured with support of your specialist engineers!



Customised Fittings



Customised Connections



Reducer Elbows

NEUMO

NEUMO Ehrenberg Group



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