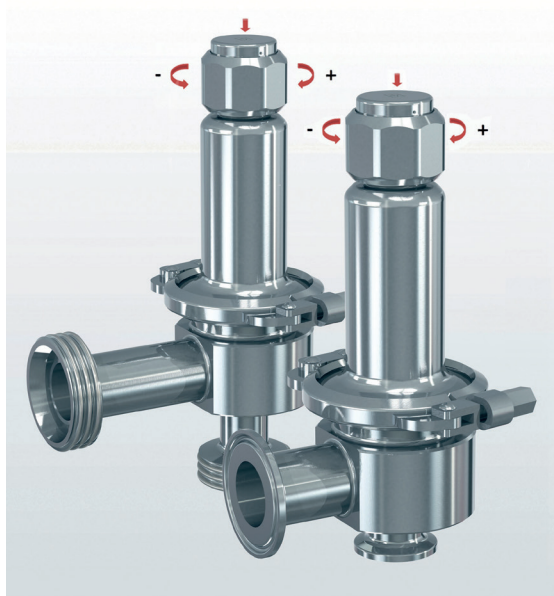


→ Series Hygienic 400.5

Hygienic 400.5

Overflow / Pressure control
valve made of stainless steel,
angle type
- External adjustment -



■ MATERIAL



■ SPECIFICATION



DN 20 – DN 50



–40°C to +200°C
depending on version



0,4 – 16 bar
depending on valve pres-
sure range and operating
temperature

■ SUITABLE FOR

Liquids	neutral and non-neutral	
Air, gases and vapours	neutral and non-neutral	
Steam		

■ EXAMPLES OF USE

For the protection of:

- Pumps against overloading in closed circuits for neutral / non-neutral liquids

For the control of:

- processes, plants and containers in the food and pharmaceutical industry for air, neutral and non-neutral vapours and gases, steam and liquids

- Food industry
- Breweries and beverage industry
- Pharmaceutical industry
- Cosmetic industry
- Medical technology
- Clean Service applications

■ FEATURES

- Smooth and faultless surface finish optimized for cleaning process
- Minimal dead space in inlet area and no gaps in the valve
- Exposed and rinsed o-ring seals
- Shape of valve body avoids forming of puddles in the valve
- Adjustable and setttable during operation
- Possible to carry-out CIP/SIP by lifting the disc from the seat
- Gap-free installation of seals
- Surface roughness in the primary area Ra < 0.75µm
- Optional: electropolished and/or mechanically polished
- Moulded diaphragm for separating the product space from the springhousing
- Dead space ratio L/D ~ 1,5

For explanation see chapter 1.1 General information on the hygienic valves.
Definition of surface quality and options according to Chapter 1.1 Table V-301.

■ APPROVALS

TR ZU 032/2013 - TR ZU 010/2011

Requirements

DGR 2014/68/EU

Additional hygienic requirements

EG No. 852/2004
DIN EN 1672-2

9. GPSGV
GS-NG 2 and 5

Klassifizierungsgesellschaften

Russian Maritime Register of Shipping
DNV
Registro Italiano Navale

RS
DNV
RINA

■ MATERIALS

Component	Material	DIN EN	ASME
Body	Stainless steel	1.4435	316 L
Inner parts, wetted	Stainless steel	1.4435	316 L
Upper section, other inner parts	Stainless steel	1.4404	316 L
Spring	Stainless steel	1.4310	302
Bellows	Stainless steel	1.4571	316 Ti



b	Standard with bellows	for neutral and non-neutral media and/or counter pressure up to 4 bar. Spring, moving parts and the environment are protected from being affected by the medium.
Parts which are difficult to clean in the guide, the spring housing and the spindle / disc combination are protected against soiling by stainless steel bellows		
Valves can be delivered unset within a pressure range or set and sealed at the factory (Option code: FE). Can be adjusted by hand wheel under operating conditions without medium escaping into the environment.		

■ MEDIUM

GF	gaseous and liquid	Air, vapours, gases, liquids and - depending on safety valve version and seal - also for steam
----	--------------------	---

■ TYPE OF LIFTING MECHANISM

K	Standard with twist-type lifting mechanism	
---	--	--

■ AVAILABLE NOMINAL DIAMETERS AND CONNECTION SIZES

Nominal diameter DN					20					
Connection type		DIN				ISO			ASME	
Inlet DN (NPS)		DN 20	DN 25	DN 32	DN 40	DN 15	DN 20	DN 25	1"	1½"
Outlet DN (NPS)	25	■	■			■	■	■		
	32	■	■	■			■	■		
	40 (1½")			■	■			■	■	■
	50 (2")			■	■					■



■ TYPE OF CONNECTION INLET / OUTLET

KLSDIN / KLSDIN	Standard	Clamp connection / Clamp connection	DIN 32676 -A/ DIN 32676-A	Pipe Standard DIN 11850-2 / 11866-A
GS1 / GS1		Threaded ferrule connection / Threaded ferrule connection	DIN 11851 / DIN 11851	Pipe Standard DIN 11850-2 / 11866-A
KS1 / KS1		Taper nipple / Taper nipple	DIN 11851 / DIN 11851	Pipe Standard DIN 11850-2 / 11866-A
A-BKS1 / A-BKS1		Aseptic collar clamp connection / Aseptic collar clamp connection	DIN 11864-3 / DIN 11864-3 DIN 11853-3 / DIN 11853-3	Pipe Standard DIN 11850-2 / 11866-A
A-GS1 / A-GS1		Aseptic threaded ferrule connection A/ Aseptic threaded ferrule connection A	DIN 11864-1 / DIN 11864-1 DIN 11853-1 / DIN 11853-1	Pipe Standard DIN 11850 / 11866
A-BF1 / A-BF1		Aseptic flanged connection / Aseptic flanged connection	DIN 11864-2 / DIN 11864-2 DIN 11853-2 / DIN 11853-2	Pipe Standard DIN 11850-2 / 11866-A

■ SEALS

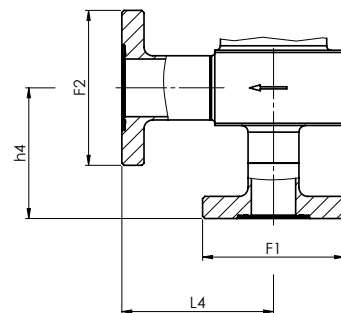
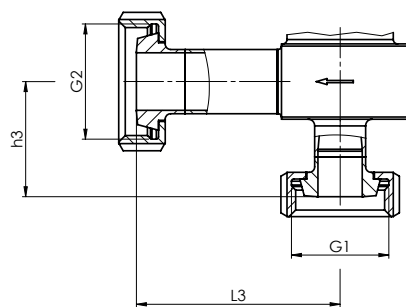
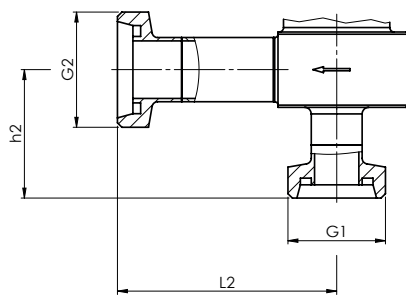
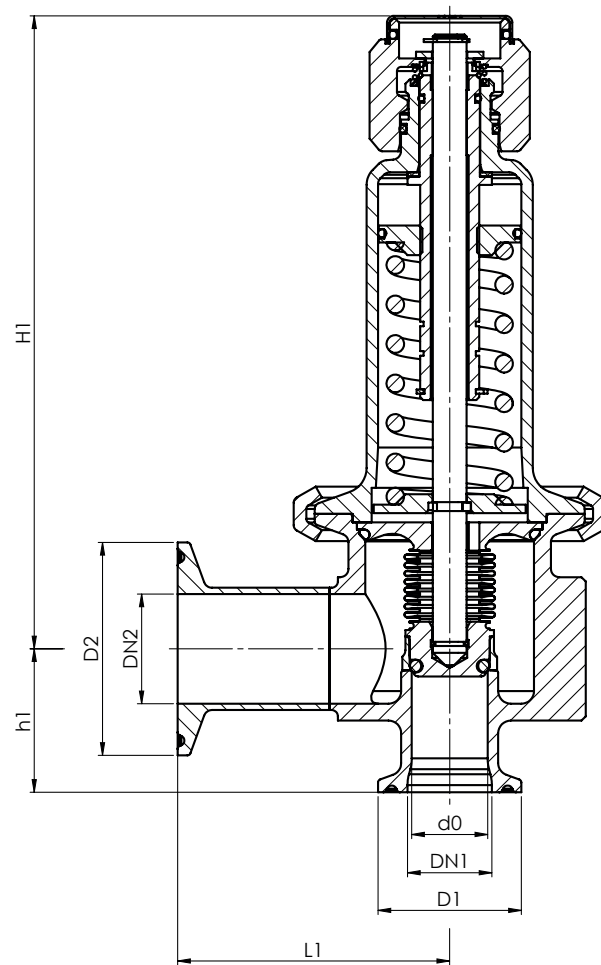
FKM	Fluorcarbon	Elastomere moulded seal	FDA, USP, 3-A, ADI-free	-20°C to +200°C
EPDM	Ethylene propylene diene	Elastomere moulded seal	FDA	-40°C to +170°C

Series Hygienic 400.5: Connection, installation dimensions, ranges of adjustment										
Nominal diameter	DN				20					
Connection ¹⁾	Clamp connection DIN 32676-A				Threaded ferrule connection DIN 11851-SC					
Connection inlet	DN1	20	25, 32, 40	40	20	20	25	32	40	40
	D1	34	50,5	50,5	-	-	-	-	-	-
	G1	-	-	-	Rd 44 x 1/6	Rd 44 x 1/6	Rd 52 x 1/6	Rd 58 x 1/6	Rd 65 x 1/6	Rd 65 x 1/6
	F1	-	-	-	-	-	-	-	-	-
Connection outlet	DN2	25, 32	25, 32, 40	50	25	32	25	32	40	50
	D2	50,5	50,5	64	-	-	-	-	-	-
	G2	-	-	-	Rd 52 x 1/6	Rd 58 x 1/6	Rd 52 x 1/6	Rd 58 x 1/6	Rd 65 x 1/6	Rd 78 x 1/6
	F2	-	-	-	-	-	-	-	-	-
Installation dimensions in mm	L1	64	64	58	-	-	-	-	-	-
	L2	-	-	-	99	102	99	102	103	105
	L3	-	-	-	-	-	-	-	-	-
	L4	-	-	-	-	-	-	-	-	-
	h1	34	34	34	-	-	-	-	-	-
	h2	-	-	-	58	58	63	66	67	67
	h3	-	-	-	-	-	-	-	-	-
	h4	-	-	-	-	-	-	-	-	-
	H1	150	150	150	150	150	150	150	150	150
	do	18	18	18	18	18	18	18	18	18
Weight	kg	1,8	1,8	2,0	1,9	1,9	2,0	2,0	2,2	2,3
Set pressure	bar	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16
Pressure range	bar	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5
		1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5
		4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7
		7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10
		10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14
		14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16

¹⁾ Other connection types / sizes possible, dimensioning according to separate dimensional drawing.

Series Hygienic 400.5: Connection, installation dimensions, ranges of adjustment													
Nominal diameter	DN						20						
Connection ¹⁾	Taper nipple DIN 11851-SD						Aseptic flanged connection DIN 11864-BF						
Connection inlet	DN1	20	20	25	32	40	40	20	20	25	32	40	40
	D1	-	-	-	-	-	-	-	-	-	-	-	-
	G1	Rd 44 x 1/6	Rd 44 x 1/6	Rd 52 x 1/6	Rd 58 x 1/6	Rd 65 x 1/6	Rd 65 x 1/6	-	-	-	-	-	-
	F1	-	-	-	-	-	-	64	64	70	76	82	82
Connection outlet	DN2	25	32	25	32	40	50	25	32	25	32	40	50
	D2	-	-	-	-	-	-	-	-	-	-	-	-
	G2	Rd 52 x 1/6	Rd 58 x 1/6	Rd 52 x 1/6	Rd 58 x 1/6	Rd 65 x 1/6	Rd 78 x 1/6	-	-	-	-	-	-
	F2	-	-	-	-	-	-	70	76	70	76	82	94
Installation dimensions in mm	L1	-	-	-	-	-	-	-	-	-	-	-	-
	L2	-	-	-	-	-	-	-	-	-	-	-	-
	L3	92	95	92	95	96	98	-	-	-	-	-	-
	L4	-	-	-	-	-	-	68	95	68	95	95	95
	h1	-	-	-	-	-	-	-	-	-	-	-	-
	h2	-	-	-	-	-	-	-	-	-	-	-	-
	h3	52	52	56	59	60	60	-	-	-	-	-	-
	h4	-	-	-	-	-	-	59	59	58	59	59	59
	H1	150	150	150	150	150	150	150	150	150	150	150	150
	do	18	18	18	18	18	18	18	18	18	18	18	18
Weight	kg	2,0	2,0	2,1	2,3	2,4	2,6	2,2	2,3	2,3	2,4	2,5	2,6
Set pressure	bar	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16	0,4 - 16
Pressure range	bar	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5	0,4 - 1,5
		1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5	1,5 - 4,5
		4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7	4,5 - 7
		7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10
		10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14	10 - 14
		14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16

¹⁾ Other connection types / sizes possible, dimensioning according to separate dimensional drawing.



Series	Valve version	Medium	Lifting device	Nominal diameter DN	Connection type		Connection type		Seal	Options	Set pressure	Quantity
					Inlet	Outlet	Inlet	Outlet				
400.5	b	GF	K	20	GS1	GS1	25	25	FKM	P09	1,5–4,5	2
400.5	b	GF	K	20	KLSDIN	KLSDIN	25	25	EPDM	FE	3,5	1
400.5	b	GF	K	20								
400.5	b	GF	K	20								
400.5	b	GF	K	20								

■ PROPERTIES
DEFINITION OF SURFACE QUALITY AND OPTIONS ACCORDING TO CHAPTER 1.1 TABLE V-301

P01	Oil- and grease-free production	☐	FE	Fixed setting and sealing	☐
P05	Quality of surfaces in contact with media in inlet Ra <= 0,375	☐			☐
P07	Electropolished surfaces	☐			☐
P09	Surfaces mechanically and electropolished	☐			☐

■ CERTIFICATES / APPROVALS

C01	Factory certificate acc. DIN EN 10204 2.2 (WKZ 2.2)	☐	C06	ATEX evaluation acc. to 2014/34/EU	☐
C02-1	Test certificate acc. DIN EN 10204 3.1 (WPZ 3.1) for non TÜV-CE valves marking of individual serial number is required	☐	C07	SIL evaluation relating to IEC 61508-2	☐
C03	Material test certificate acc. DIN EN 10204 3.1 (MPZ 3.1) (pressure retaining part)	☐	C09	Seat tightness test with helium, leak detection method under vacuum incl. Factory Inspection Certificate 3.1 acc. to DIN EN 10204	☐
C04	TÜV/DEKRA individual inspection acc. EN 10204 3.2 (TÜV/DEKRA-APZ)	☐	C10	Certificate of oil- and grease free production	☐
C05	Sealing material Manufacturer certification (FDA, USP 3, 3-A,...), Please indicate description of certificate:	☐			☐

■ ADMISSIONS / ACCREDITATIONS

AA1	EC Type examination acc. to Directive 2014/68/EU	☐	AK1	Det Norske Veritas (DNV) type approval	☐
AA4	EAC - certificate/declaration with passport for the valve and laser marking of the valve	☐	AK2	Lloyd's Register (LR) type approval	☐
		☐	AK3	American Bureau of Shipping (ABS) type approval	☐
		☐	AK4	Bureau Veritas (BV) type approval	☐
		☐	AK5	Russian Maritime Register of Shipping (RMRS) type approval	☐
		☐	AK6	Registro Italiano Navale (RINA) type approval	☐
		☐	AL	Individual inspection by notified body inspector – (body to be indicated):	☐

■ CAPACITY TABLE

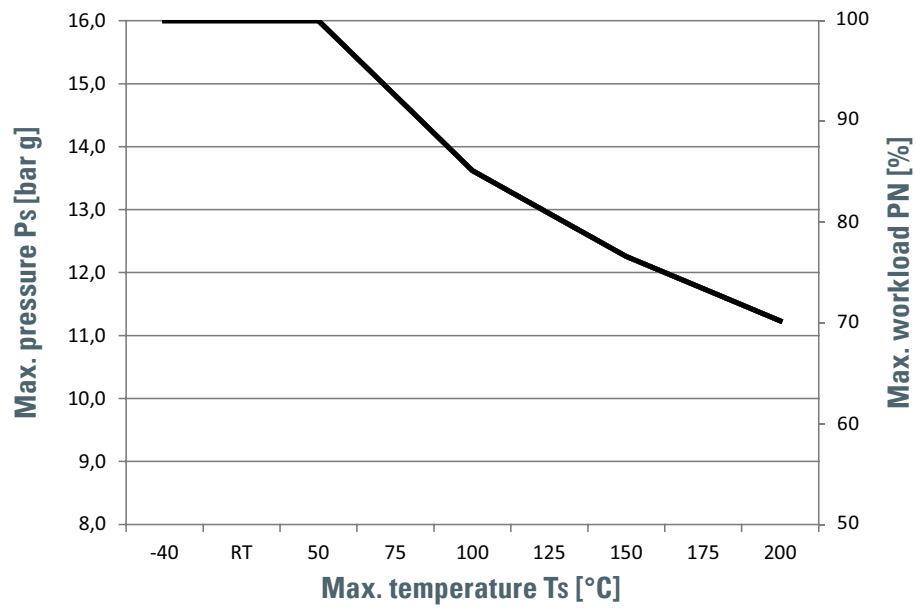
Series Hygienic 400.5: Kv values at 1 bar overpressure							
Nominal diameter	DN	20 Air [Nm³/h]					
Pressure range bar		0,4 - 1,5	1,5 - 4,5	4,5 - 7	7 - 10	10 - 14	14 - 16
Set pressure bar							
	0,4	215					
	1,0	278					
	1,5	318	330				
	3,0		455				
	4,5		596	398			
	5,7			428			
	7,0			482	424		
	8,5				435		
	10,0				444	442	
	12,0					531	
	14,0					619	415
	15,0						433
	16,0						510

Kv values at 1 bar overpressure							
Nominal diameter	DN	20 Water [m³/h]					
Pressure range bar		0,4 - 1,5	1,5 - 4,5	4,5 - 7	7 - 10	10 - 14	14 - 16
Set pressure bar							
	0,4	7					
	1,0	7,5					
	1,5	8,1	6,7				
	3,0		8,2				
	4,5		9,9	7,0			
	5,7			8,1			
	7,0			9	7,5		
	8,5				8,5		
	10,0				9,1	6,9	
	12,0					7,4	
	14,0					8,8	4,9
	15,0						6,0
	16,0						6,3

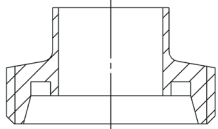
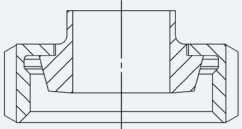
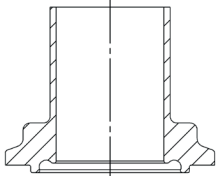
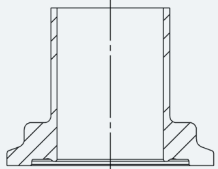
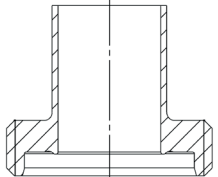
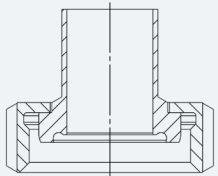
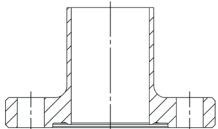
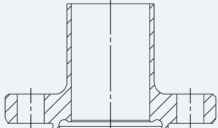
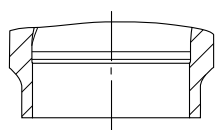
Kv values at 1 bar overpressure							
Nominal diameter	DN	20 Steam [kg/h]					
Pressure range bar		0,4 - 1,5	1,5 - 4,5	4,5 - 7	7 - 10	10 - 14	14 - 16
Set pressure bar							
	0,4	163					
	1,0	224					
	1,5	250	195				
	3,0		360				
	4,5		466	306			
	5,7			331			
	7,0			374	325		
	8,5				336		
	10,0				340	336	
	12,0					408	
	14,0					466	317
	15,0						337
	16,0						380

Pressure-/ temperature rating

PN 16 | Material: 1.4404 / 1.4435



HYGIENIC AND ASEPTIC CONNECTIONS

Connection type	Drawing	Description	Standard	Pipe standard	400	400.5	4000	4020	4040	4060
KLSDIN KLSISO KLSASME KLSIX		Clamp connection Clamp connection Clamp connection Clamp connection	DIN 32676-A DIN 32676-B DIN 32676-C ISO 2852	Pipe standard DIN 11850-2 / 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C Pipe standard ISO 2037			X		X	X
GS1		Threaded ferrule connection	DIN 11851-SC	Pipe standard DIN 11850-2 / 11866-A			X		X	X
KS1		Taper nipple with groove cap nut	DIN 11851-SD	Pipe standard DIN 11850-2 / 11866-A			X		X	X
A-NKS1 A-NKS2 A-NKS3		Aseptic groove clamp connection Aseptic groove clamp connection Aseptic groove clamp connection	DIN 11864-3-NKS DIN 11864-3-NKS DIN 11864-3-NKS	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C			X		X	X
A-BKS1 A-BKS2 A-BKS3		Aseptic collar clamp connection Aseptic collar clamp connection Aseptic collar clamp connection	DIN 11864-3-BKS DIN 11864-3-BKS DIN 11864-3-BKS	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C			X		X	X
A-GS1 A-GS2 A-GS3		Aseptic threaded ferrule connection Aseptic threaded ferrule connection Aseptic threaded ferrule connection	DIN 11864-1-GS DIN 11864-1-GS DIN 11864-1-GS	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C			X		X	X
A-KS1 A-KS2 A-KS3		Aseptic collar connection with groove cap nut Aseptic collar connection with groove cap nut Aseptic collar connection with groove cap nut	DIN 11864-1-BS DIN 11864-1-BS DIN 11864-1-BS	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C			X		X	X
A-BF1 A-BF2 A-BF3		Aseptic flanged connection Aseptic flanged connection Aseptic flanged connection	DIN 11864-2-BF DIN 11864-2-BF DIN 11864-2-BF	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C			X		X	X
A-NF1 A-NF2 A-NF3		Aseptic grooved flanged connection Aseptic grooved flanged connection Aseptic grooved flanged connection	DIN 11864-2-NF DIN 11864-2-NF DIN 11864-2-NF	Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C			X		X	X
SE4 SE5 SE6		Butt weld Butt weld Butt weld		Pipe standard DIN 11850-2 / DIN 11866-A Pipe standard DIN EN ISO 1127 / DIN 11866-B Pipe standard BS 4825-1 / DIN 11866-C					X	X
VC		Container flange at valve inlet							X	

Other connection types such as lange connection according to DIN EN 1092 / ASME B16.5, APV plain / grooved langes, NA Connect, SMS threaded / tapered connection pieces are available on request.