

# → Series 417

Overflow and pressure control valves made of stainless steel, angled type or straight-through type with threaded connections  
–externally adjustable–



■ 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, non-sticking liquids

For the control of:

- systems under pressure for neutral/ non-neutral gases and vapours and – depending on the sealing material – also for steam

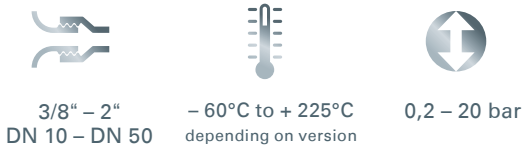
- chemical plants, biogas plants
- desalination plants
- mechanical engineering and process equipment construction
- shipbuilding industry and marine equipment
- industrial applications
- secondary areas in the food-, beverage-, pharmaceutical- and cosmetics-industries



■ MATERIAL



■ SPECIFICATION



■ APPROVALS

European Pressure Equipment Directive	
TR ZU 032/2013 - TR ZU 010/2011	
Requirements	
PED 2014/68/EU	UK PESR 2016 No. 1105
Classification society	
DNV	DNV
Lloyd's Register EMEA	LR EMEA
American Bureau of Shipping	ABS
Bureau Veritas	BV
Russian Maritime Register of Shipping	RS
Registro Italiano Navale	RINA

■ MATERIALS

Component	Material	DIN EN	ASME
Inlet body	Stainless steel	1.4404 / 1.4408*	316 L / CF8M
Outlet body	Stainless steel	1.4404 / 1.4408	316 L / CF8M
Internal parts	Stainless steel	1.4404	316 L
Spring	Stainless steel	1.4310	302

\* With version yt.

## Series 417 ■ VALVE VERSION

<b>t</b>	gastight version of spring housing	for neutral and non-neutral media, not counter pressure compensated. The environment is protected from being affected by the medium. Adjustable under operating conditions without medium escaping into the atmosphere.
<b>yt</b>	gastight version of spring housing straight-through type	for neutral and non-neutral media, not counter pressure compensated. The environment is protected from being affected by the medium. Adjustable under operating conditions without medium escaping into the atmosphere. Only available in DN 10 to DN 25.

Valves can be delivered unset within a pressure range or set and sealed at the factory.

## ■ MEDIUM

<b>GF</b>	gaseous and liquid	Air, vapours, gases, liquids and - depending on safety valve version and seal - also for steam
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## ■ TYPE OF LIFTING MECHANISM

<b>0</b>	without lifting device
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## ■ AVAILABLE NOMINAL DIAMETERS AND CONNECTION SIZES

Nominal diameter DN		10		15		20		25		32	40	50
Inlet		3/8" (10)		1/2" (15)		3/4" (20)		1" (25)		1 1/4" (32)	1 1/2" (40)	2" (50)
		t	yt	t	yt	t	yt	t	yt	t	t	t
Outlet	3/8" (10)	■	■									
	1/2" (15)			■	■							
	3/4" (20)					■	■					
	1" (25)							■	■			
	1 1/4" (32)									■		
	1 1/2" (40)										■	
	2" (50)											■

## ■ TYPE OF CONNECTION INLET / OUTLET THREADED CONNECTIONS

<b>f / f</b>	Standard	Female thread BSP-P / Female thread BSP-P	DIN EN ISO 228-1 / DIN EN ISO 228-1
<b>m / f*</b>		Male thread BSP-P / Female thread BSP-P	DIN EN ISO 228-1 / DIN EN ISO 228-1
<b>KLS DIN / KLS DIN*</b>		Clamp connection DIN / clamp connection DIN	DIN 32676-A / DIN 32676-A

\* Not with version yt.

## ■ SEALS

<b>NBR</b>	Nitrile rubber (standard)	Elastomere flat seal 0,2 – 12 bar	-30°C to +130°C
<b>FKM</b>	Fluorocarbon	Elastomere flat seal 0,2 – 12 bar	-20°C to +200°C
<b>EPDM</b>	Ethylene propylene diene	Elastomere flat seal 0,2 – 12 bar	-50°C to +150°C
<b>PTFE</b>	Polytetrafluoroethylene	Flat seal 0,5 – 20 bar	-60°C to +225°C

Version t: If the seat seal is made of PTFE the O-rings of the body and setting spindle seal are made of FPM.

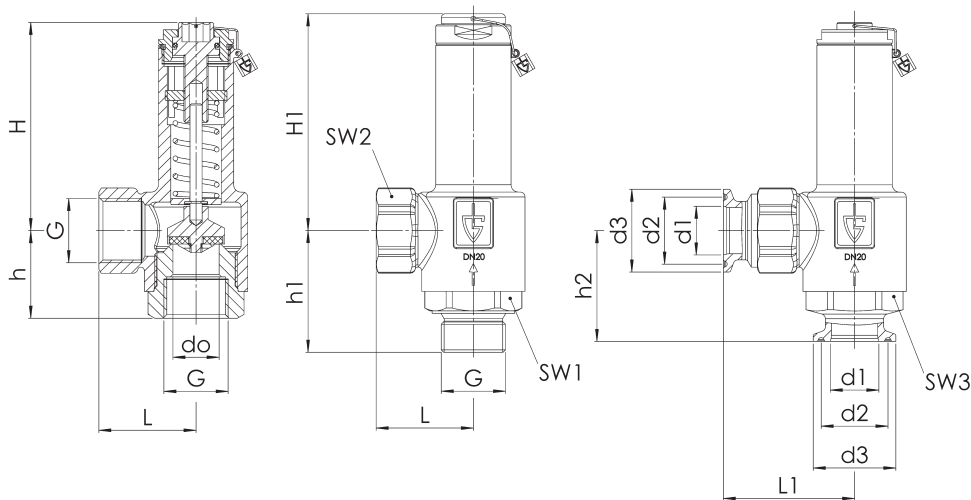
Version yt: body seal and spindle seal in PTFE.

■ NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

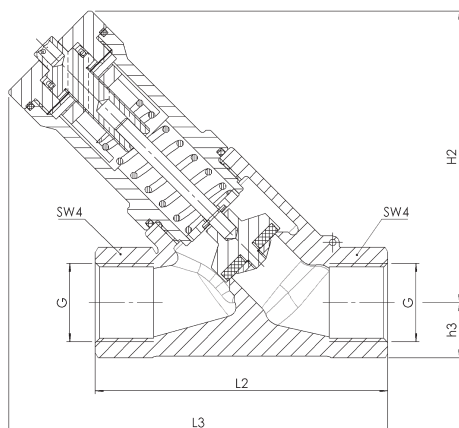
Series 417: Connection, installation dimensions, ranges of adjustment								
Nominal diameter	DN	10	15	20	25	32	40	50
Connection DIN EN ISO 228	G	3/8" (10)	1/2" (15)	3/4" (20)	1" (25)	1 1/4" (32)	1 1/2" (40)	2" (50)
Outlet DIN EN ISO 228	G	3/8" (10)	1/2" (15)	3/4" (20)	1" (25)	1 1/4" (32)	1 1/2" (40)	2" (50)
Installation dimensions in mm	L	30	34	40	46	50	61	67
	L1	41	44	54	57	61	75	82
	L2	69	72	90	95	-	-	-
	L3	85,2	87,2	116,5	131,4	-	-	-
	H	60	69	86	101	118	139	149
	H1	62,5	71	88,5	104	121	141,5	153,5
	H2	65	65	90	103,5	-	-	-
	h	29	33	36	48	52	60	66
	h1	42	49	50	67	71	85	91
	h2	41	46	46	61	63	76	80
	h3	11,8	13,8	16,5	20,8	-	-	-
	d1	10	16	20	26	32	38	50
	d2	27,5	27,5	27,5	43,5	43,5	43,5	56,5
	d3	34	34	34	50,5	50,5	50,5	64
	SW1	26	30	36	46	55	58	70
	SW2	24	27	32	41	50	65	70
	SW3	30	30	36	46	55	65	70
	SW4	22	27	31	41	-	-	-
do	10	13	19	25	30	38	50	
Weight	kg	0,3	0,4	0,7	1,2	1,9	2,5	3,8
Set pressure	bar	0,2 - 20	0,2 - 20	0,2 - 20	0,2 - 20	0,2 - 20	0,2 - 20	0,2 - 20
Range of adjustment	bar	0,2 - 0,8	0,2 - 0,8	0,2 - 0,8	0,2 - 0,8	0,2 - 0,8	0,2 - 0,8	0,2 - 0,8
		0,5-2,5	0,5-2,5	0,5-2,5	0,5-2,5	0,5-2,5	0,5-2,5	0,5-2,5
		2-8	2-8	2-8	2-8	2-8	2-8	2-8
		2-12	2-12	2-12	2-12	2-12	2-12	2-12
		12-20	12-20	12-20	12-20	12-20	12-20	12-20

■ MAIN DIMENSIONS, INSTALLATION DIMENSIONS

Version 417t



Version 417yt



Series 417 ■ INDIVIDUAL SELECTION / VALVE CONFIGURATION

Series	Valve version	Medium	Lifting device	Nominal diameter DN	Connection type		Connection size		Seal	Options	Pressure range / set pressure	Quantity
					Inlet	Outlet	Inlet	Outlet				
417	t	GF	0	20	f	f	20	20	NBR	S48	2 - 8	5
417	t	GF	0	40	KLSDIN	f	40	40	PTFE		18,0	3
417	yt	GF	0									
417	yt	GF	0									

■ TECHNICAL FINISHES, VARIANTS, ACCESSORIES

S3	Auxiliary seals made of FFKM	<input type="checkbox"/>	<input type="checkbox"/>
S24	Auxiliary seals made of EPDM	<input type="checkbox"/>	<input type="checkbox"/>
S48	Set-pressure tamper-proof by means of a sealing cap	<input type="checkbox"/>	<input type="checkbox"/>

■ PROPERTIES

GOX	Especially for gaseous O2 applications by employment of specific materials including oil- and grease free production process	<input type="checkbox"/>	<input type="checkbox"/>
P01	Oil- and grease-free production	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

■ CERTIFICATES / APPROVALS

C01	Factory certificate acc. DIN EN 10204 2.2 (WKZ 2.2)	<input type="checkbox"/>	C06	ATEX evaluation acc. to 2014/34/EU	<input type="checkbox"/>
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	<input type="checkbox"/>	C10	Certificate of oil- and grease free production	<input type="checkbox"/>
C03	Material test certificate acc. DIN EN 10204 3.1 (MPZ 3.1) (pressure retaining part)	<input type="checkbox"/>	C11	Certification of the production process especially for gaseous oxygen applications by employment of specific materials	<input type="checkbox"/>
C05	Sealing material Manufacturer certification (FDA, USP 3, 3-A,...), Please indicate description of certificate: .....	<input type="checkbox"/>			<input type="checkbox"/>

■ ADMISSIONS / ACCREDITATIONS

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

■ CAPACITY TABLE

Series 417: Kv values at 1 bar overpressure

Nominal diameter DN	10			15			20			25			32			40			50				
	Air [Nm³/h]			Air [Nm³/h]			Air [Nm³/h]			Air [Nm³/h]			Air [Nm³/h]			Air [Nm³/h]			Air [Nm³/h]				
	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20	0,2-0,8	2-8	12-20		
Set pressure bar	0,5-2,5	2-12	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20			
0,2	24			53			177			200			600			930			1500				
0,5	28	83		61	147		200	209		220	375		680	717		970	847		1620	1376			
0,8	32	90		67	153		220	220		245	384		700	771		1050	878		1740	1478			
1		95			158			228			390			808			899			1546			
1,5		101			173			257			433			901			1033			1734			
2		111	62	48	180	126	86	287	180	159	462	335	302	977	353	233	1104	552	426	1904	1001	788	
2,5		119	68	50	202	132	89	306	197	168	495	351	311	1031	361	257	1205	564	447	1953	1082	802	
3			75	51		143	95		226	188		376	322		369	272		577	481		1170	821	
4			83	62		166	101		239	213		423	341		417	311		601	527		1339	878	
5			95	80		169	105		233	242		466	361		459	352		726	566		1508	942	
6			101	90		173	111		269	250		402	380		502	397		893	597		1846	994	
7			106	96		150	118		303	257		398	391		549	437		994	764		2224	1050	
8			112	114		139	117		324	314		391	347		606	492		1113	910		2666	1123	
9				115			123			324			301		546			949			1187		
10				122			133			331			288		600			1023			1280		
11				121			138			339			274		569			1070			1358		
12				126	96		138	112		354	221		261	305		538	594		1095	682		1480	1237
13					109		103			206			291			625			758			1277	
14					116		94			166			282			656			834			1388	
15					120		85			140			269			687			911			1499	
16					122		76			132			257			716			987			1609	
17					124		57			115			245			737			954			1821	
18					129		56			84			233			758			922			2033	
19					134		44			50			220			779			889			2245	
20					140		36			45			208			801			851			2357	

Kv values at 1 bar overpressure

Nominal diameter DN	10			15			20			25			32			40			50				
	Water [m³/h]			Water [m³/h]			Water [m³/h]			Water [m³/h]			Water [m³/h]			Water [m³/h]			Water [m³/h]				
	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20	0,2-0,8	2-8	12-20		
Set pressure bar	0,5-2,5	2-12	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20	0,2-0,8	2-8	12-20	0,5-2,5	2-12	12-20			
0,2	2,7			4,4			5,6			6,0			18,3			29,0			41,0				
0,5	2,9	2,7		4,6	4,3		5,6	6,1		6,4	10,8		19,5	16,0		29,0	21,7		44,4	31,6			
0,8	2,9	2,8		4,9	4,5		5,6	6,3		7,1	11,5		20,0	16,4		29,0	22,6		47,0	34,0			
1		3,0			4,6			6,5			11,9			16,7			23,3			35,6			
1,5		3,2			4,8			6,7			12,6			17,5			24,0			37,7			
2		3,4	1,9	1,6	5,0	2,2	1,8	6,9	4,5	3,7	13,0	8,5	4,2	18,1	7,6	6,2	25,2	10,9	8,8	40,6	24,3	17,9	
2,5		3,7	2,2	1,7	5,2	2,1	1,8	7,3	4,8	3,8	13,7	8,9	4,3	18,9	7,5	6,2	26,1	11,3	9,1	43,0	26,2	19,4	
3			2,3	1,9		1,9	1,8		5,2	4,1		9,3	4,3		7,4	6,1		11,8	9,3		28,2	21,1	
4			2,7	2,2		1,6	1,7		5,7	4,6		10,0	4,5		7,3	6,1		12,2	9,7		31,3	24,7	
5			2,9	2,5		1,4	1,6		6,5	5,1		10,4	4,6		7,2	6,0		12,5	10,3		34,7	28,9	
6			3,4	2,8		1,3	1,5		7,1	6,1		11,0	4,7		7,0	5,9		12,8	10,6		36,3	30,1	
7			3,6	2,9		1,1	1,5		7,9	6,5		11,2	5,0		6,7	5,8		13,7	11,9		41,1	31,7	
8			3,9	3,1		1,0	1,4		8,5	7,1		11,3	5,1		6,5	5,6		15,1	13,1		47,4	34,2	
9				3,2			1,4			7,3			5,3		5,5			14,3			37,4		
10				3,4			1,4			8,3			5,5		5,3			15,7			39,3		
11				3,5			1,4			9,1			5,8		5,2			17,2			42,4		
12				3,7	1,7		1,3	0,4		9,3	2,8		5,9	2,2		5,0	6,8		17,6	10,1		43,9	18,9
13					1,4			0,4			2,4			2,2			6,5			10,3		21,2	
14					1,3			0,5			2,2			1,9			6,3			10,5		24,1	
15					1,1			0,5			1,7			1,6			6,1			10,6		25,7	
16					0,8			0,5			1,4			1,3			6,0			10,9		27,6	
17					0,6			0,5			1,1			1,1			5,8			11,0		29,3	
18					0,4			0,6			0,9			1,0			5,6			11,3		31,8	
19					0,2			0,6			0,7			0,8			5,1			11,4		34,6	
20					0,2			0,6			0,7			0,7			5,0			11,5		36,6	

■ CAPACITY TABLE

Series 417: Kv values at 1 bar overpressure

Nominal diameter DN	10			15			20			25			32			40			50				
	Steam [kg/h]			Steam [kg/h]			Steam [kg/h]			Steam [kg/h]			Steam [kg/h]			Steam [kg/h]			Steam [kg/h]				
Pressure range bar	0,2-0,8	2-8	12-20	0,5-2,5	2-12		0,2-0,8	2-8	12-20	0,5-2,5	2-12		0,2-0,8	2-8	12-20	0,5-2,5	2-12		0,2-0,8	2-8	12-20		
Set pressure bar	0,5-2,5	2-12		0,2-0,8	2-8	12-20	0,5-2,5	2-12		0,2-0,8	2-8	12-20	0,5-2,5	2-12		0,2-0,8	2-8	12-20	0,5-2,5	2-12			
0,2	18			41			138			156			468			726			1172				
0,5	22	65		47	113		156	163		172	295		531	509		757	665		1265	1100			
0,8	25	70		52	120		172	173		191	305		547	541		820	700		1359	1173			
1		74			125			181			313			553			724			1222			
1,5		81			135			200			345			615			798			1345			
2		86	53	40	143	98	73	221	144	126	373	280	218	642	283	194	862	455	311	1451			
2,5		93	60	45	157	104	79	235	161	141	384	302	244	619	301	218	940	510	349	1535	787	663	
3			66	43		111	80		171	156		309	258		297	223		506	387		884	698	
4			79	53		129	79		187	160		339	308		333	244		499	428		876	670	
5			77	66		135	82		186	176		412	322		361	283		579	455		987	740	
6			78	75		132	88		212	200		388	326		441	323		707	518		1145	859	
7			84	81		118	93		225	198		275	298		429	363		740	635		1224	816	
8			89	89		123	96		249	190		254	279		475	402		821	645		1284	916	
9				89			98			193			250			441			707			1015	
10				97			106			192			273			480			770			1002	
11				94			106			189			262			472			833			1090	
12				101	79		105	78		204	183		282	247		406	457		814	570		1179	987
13					84			68			174			189			489			610			1056
14					90			57			162			201			521			650			1125
15					95			54			123			213			552			590			1022
16					94			51			130			180			584			728			1261
17					99			46			110			142			615			768			1140
18					96			32			87			150			576			693			1399
19					101			28			61			105			604			606			1678
20					105			21			32			165			632			634			1537