

Type test approved safety valves angle-type for industrial applications

645

Safety valves made of gunmetal, angle-type with threaded or flange connections

→ Series 645



■ SUITABLE FOR

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

■ EXAMPLES OF USE

For the protection of:

- Pressure-vessels/-systems for neutral / non-neutral vapours, gases and liquids
- Steam boilers and steam plants

taking into account the plant-specific regulations and making use of the suitable valve versions and sealing materials.

- Mechanical engineering
- pump protection
- Pressure booster systems water- / air-side
- cooling-/chilling-systems
- Steam- and industrial-boiler systems

Safety valves are set and sealed at the factory.



■ MATERIAL



■ SPECIFICATION



1/2" – 2 1/2"



– 50°C to + 205°C
depending on version



0,5 – 16 bar



DN 25 – DN 65

■ APPROVALS

EC type examination	S/G, L
Type approval WRAS	
Type approval ACS	
TR ZU 032/2013 - TR ZU 010/2011	S/G, L
Requirements	
DIN EN ISO 4126-1	
PED 2014/68/EU	
TRD 421	

Classification society

DNVGL	DNVGL
Bureau Veritas	BV
Lloyd's Register EMEA	LR EMEA
Russian Maritime Register of Shipping	RS
American Bureau of Shipping	ABS

■ MATERIALS

Component	Material	DIN EN	ASME
Inlet body	Gunmetal	CC499K	CC499K
Outlet body	Gunmetal	CC499K	CC499K
Internal parts	Brass	CW617N	CW617N
Internal wetted parts	Dezincification resistant brass	CW602N	CW602N
Spring	Stainless steel	1.4310	302

m	Standard with diaphragm	The diaphragm prevents the medium entering into the spring housing and protects moving parts from being affected by the medium.
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■ MEDIUM

GF	gaseous and liquid	Air, vapours, gases, liquids and - depending on seal - also for steam
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■ TYPE OF LIFTING MECHANISM

L	Lifting lever
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■ AVAILABLE NOMINAL DIAMETERS AND CONNECTION SIZES

Nominal diameter DN	15	20	25	32	40	50
Inlet	1/2" (15)	3/4" (20)	1" (25)	1 1/4" (32)	1 1/2" (40)	2" (50)
Outlet	3/4" (20)					
	1" (25)					
	1 1/4" (32)					
	1 1/2" (40)					
	2" (50)					
	2 1/2" (65)					

■ TYPE OF CONNECTION INLET / OUTLET

f / f	Standard	Female thread BSP-P / Female thread BSP-P	DIN EN ISO 228-1 / DIN EN ISO 228-1
FLDIN / f		Flange connection (from DN 25) / Female thread BSP-P	DIN EN ISO 228-1 / DIN EN ISO 228-1

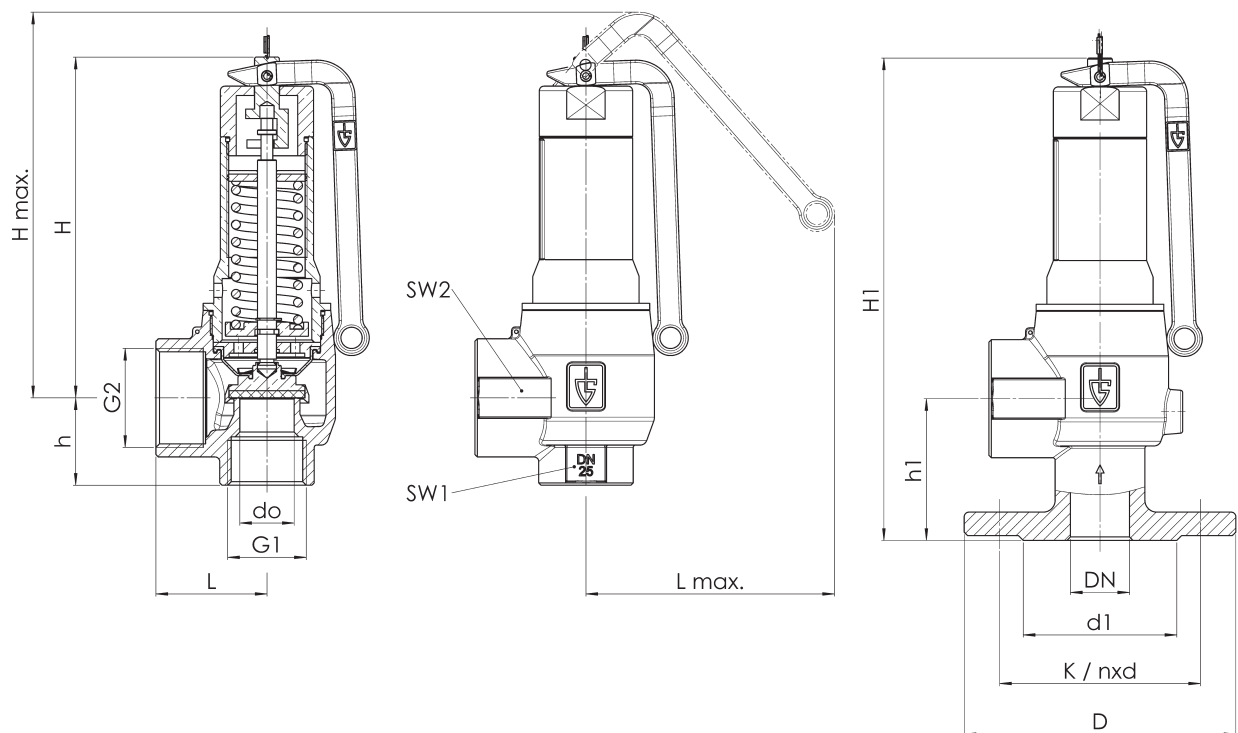
■ SEAT SEALS / DIAPHRAGMS

PTFE / EPDM	Polytetrafluorethylen / Ethylen-Propylene-Diene (Standard)	Flat seal and moulded diaphragm	-50°C to +205°C
EPDM / EPDM	Ethylen-Propylene-Diene / Ethylen-Propylene-Diene	Flat seal and moulded diaphragm	-50°C bis +150°C
PTFE / FKM	Polytetrafluorethylen / Fluorcarbon	Flat seal and moulded diaphragm	-30°C to +200°C
FKM / FKM	Fluorcarbon / Fluorcarbon	Elastomere seals and moulded diaphragm	-20°C to +200°C

■ NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

Series 645: Connection, installation dimensions, ranges of adjustment							
Nominal diameter	DN	15	20	25	32	40	50
Connection DIN EN ISO 228	G1	1/2" (15)	3/4" (20)	1" (25)	1 1/4" (32)	1 1/2" (40)	2" (50)
Connection DIN EN 1092-3	DN / PN			25 / 16	32 / 16	40 / 16	50 / 16
Connection ANSI B 16.24	NPS / CLASS			1" / 150	1 1/4" / 150	1 1/2" / 150	2" / 150
Outlet DIN EN ISO 228	G2	3/4" (20)	1" (25)	1 1/4" (32)	1 1/2" (40)	2" (50)	2 1/2" (65)
Installation dimensions in mm	L	36	43	47	58	68	80
	Lmax	63	78	100	140	150	155
	H	90	115	146	192	229	275
	H1 DIN / ANSI			206 / 206	258 / 258	302 / 302	358 / 358
	Hmax	102	133	148	210	252	298
	h	30	35	37	45	55	65
	h1 DIN / ANSI			60 / 60	66 / 66	73 / 73	83 / 83
	D DIN / ANSI			115 / 110	140 / 115	150 / 125	165 / 150
	d1 DIN / ANSI			65 / 50,8	76 / 63,5	84 / 73	99 / 92,1
	SW1	27	34	41	55	65	80
	SW2	34	41	50	60	70	90
	do	13	18	23	30	39	48
	K / nxd (DIN)			85 / 4x14	100 / 4x18	110 / 4x18	125 / 4x18
K / nxd (ANSI)			79,4 / 4x15,9	88,9 / 4x15,9	98,4 / 4x15,9	120,7 / 4x19,1	
Weight	kg	0,5	0,9	1,6	3,3	5,8	8,9
Weight	kg FLDIN / FLANSI			2,6 / 2,4	4,8 / 4,3	7,5 / 6,9	11,3 / 10,8
Range of adjustment	bar	0,5 - 16	0,5 - 16	0,5 - 16	0,5 - 16	0,5 - 16	0,5 - 16

■ MAIN DIMENSIONS, INSTALLATION DIMENSIONS



Series	Valve version	Medium	Lifting device	Nominal diameter DN	Connection type		Connection size		Seal	Options	Set pressure	Quantity
					Inlet	Outlet	Inlet	Outlet				
645	m	GF	L	15	f	f	15	15	PTFE / EPDM		6	2
645	m	GF	0	25	m	f	25	25	FKM / FKM		2	4
645	m	GF				f						
645	m	GF				f						

■ TECHNICAL FINISHES, VARIANTS, ACCESSORIES

A02	Connection for condensate in the outlet body	<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

■ PROPERTIES

P01	Oil- and grease-free production	<input type="checkbox"/>	P03	Galvanically nickel-plated finish	<input type="checkbox"/>
P02	Chemically nickel-plated finish	<input type="checkbox"/>	P04	Chrome-plated finish	<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	Test certificate acc. DIN EN 10204 3.1 (WPZ 3.1)	<input type="checkbox"/>	C07	SIL evaluation relating to IEC 61508-2	<input type="checkbox"/>
C03	Material test certificate acc. DIN EN 10204 3.1 (MPZ 3.1) (pressure retaining part)	<input type="checkbox"/>	C09	Seat tightness test with helium, leak detection method under vacuum incl. Factory Inspection Certificate 3.1 acc. to DIN EN 10204	<input type="checkbox"/>
C04	TÜV/DEKRA individual inspection acc. EN 10204 3.2 (TÜV/DEKRA-APZ)	<input type="checkbox"/>	C10	Certificate of oil- and grease free production	<input type="checkbox"/>
C05	Sealing material Manufacturer certification (FDA, USP 3, 3-A, ...), Please indicate description of certificate: _____	<input type="checkbox"/>	C11	Certification of the production process especially for gaseous oxygen applications by employment of specific materials	<input type="checkbox"/>

■ ADMISSIONS / ACCREDITATIONS

AA1	EC Type examination acc. to Directive 2014/68/EU	<input type="checkbox"/>	AK1	DNV-GL (DNVGL) type approval	<input type="checkbox"/>
AA2	TÜV component test acc. to VdTÜV specification sheet SV 100	<input type="checkbox"/>	AK2	Lloyd's Register (LR) type approval	<input type="checkbox"/>
AA4	EAC - certificate/declaration with passport for the valve and laser marking of the valve	<input type="checkbox"/>	AK3	American Bureau of Shipping (ABS) type approval	<input type="checkbox"/>
AB2	Water regulations and advisory scheme WRAS type approval	<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"/>

■ ENQUIRY

Copy and send to: order@goetze-armaturen.de.

Order form easily to be found online under the section for each series.

■ CAPACITY TABLE

Series 645: Blowing-off rates at 10% above set pressure													
Nominal diameter DN		15				20				25			
Set pressure bar		I	II	III	IV	I	II	III	IV	I	II	III	IV
Air I Nm ³ /h	0,5	77	58	2,3	37	141	106	4,3	68	208	157	6,6	101
	1	114	91	3,0	57	222	177	5,8	112	315	251	8,9	158
	2	188	148	4,3	91	366	288	8,3	177	525	413	12,6	254
Steam II kg/h	3	256	200	5,3	121	499	390	10,1	235	729	570	15,4	344
	4	327	253	6,1	151	626	486	11,7	290	916	710	17,7	423
	5	393	303	6,8	178	754	582	13,1	342	1103	851	19,8	500
Water III m ³ /h	6	460	354	7,5	206	882	678	14,3	394	1289	992	21,7	576
	7	526	403	8,1	232	1009	773	15,5	445	1476	1130	23,5	650
	8	593	453	8,6	258	1137	868	16,5	495	1662	1269	25,1	724
Heating IV kW	9	660	502	9,1	283	1265	963	17,5	543	1849	1408	26,6	795
	10	726	551	9,6	309	1392	1057	18,5	592	2036	1546	28,1	865
	11	793	601	10,1	335	1520	1151	19,4	642	2222	1683	29,4	938
	12	859	649	10,6	359	1647	1245	20,2	689	2409	1820	30,7	1008
	13	926	698	11,0	385	1775	1339	21,1	737	2595	1958	32,0	1078
	14	992	748	11,4	408	1903	1434	21,9	783	2782	2097	33,2	1145
	15	1059	797	11,8	433	2030	1528	22,6	830	2969	2234	34,4	1213
	16	1126	846	12,2	457	2158	1622	23,4	877	3155	2372	35,5	1282

Series 645: Blowing-off rates at 10% above set pressure													
Nominal diameter DN		32				40				50			
Set pressure bar		I	II	III	IV	I	II	III	IV	I	II	III	IV
Air I Nm ³ /h	0,5	346	261	10,3	167	559	421	16,5	264	867	653	25,7	409
	1	505	403	13,9	254	802	641	22,4	403	1241	991	34,8	624
	2	816	643	19,7	394	1301	1025	31,7	629	2049	1615	49,2	991
Steam II kg/h	3	1117	873	24,1	526	1783	1393	38,8	840	2806	2194	60,3	1323
	4	1429	1108	27,9	660	2283	1770	44,8	1055	3591	2785	69,6	1660
	5	1720	1327	31,1	780	2747	2120	50,1	1246	4322	3334	77,8	1960
Water III m ³ /h	6	2011	1547	34,1	899	3212	2472	54,8	1436	5053	3888	85,2	2260
	7	2302	1762	36,9	1014	3677	2815	59,2	1621	5785	4428	92,0	2549
	8	2593	1979	39,4	1129	4142	3162	63,3	1804	6516	4975	98,4	2838
Heating IV kW	9	2884	2196	41,8	1239	4607	3508	67,2	1980	7248	5519	104,4	3115
	10	3175	2411	44,0	1350	5072	3852	70,8	2156	7979	6060	110,0	3392
	11	3466	2625	46,2	1463	5537	4195	74,3	2338	8710	6598	115,4	3678
	12	3757	2838	48,2	1571	6002	4535	77,6	2511	9442	7134	120,5	3949
	13	4048	3054	50,2	1681	6467	4879	80,7	2687	10173	7675	125,4	4226
	14	4339	3270	52,1	1785	6932	5224	83,8	2852	10905	8218	130,2	4487
	15	4630	3484	53,9	1892	7397	5566	86,7	3022	11636	8756	134,7	4754
	16	4921	3699	55,9	1999	7862	5910	89,3	3194	12367	9297	139,1	5024