

Type test approved safety valves angle-type  
 for industrial applications

3.3




→ **Series 460**

**460**

Safety valves made of  
 stainless steel, angle-type  
 with threaded connections



■ SUITABLE FOR

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

■ EXAMPLES OF USE

For the protection of:

- pressure tanks and -systems for neutral / non-neutral vapours, gases and liquids
- steam boilers and steam plants

Please observe plant-specific regulations and use of appropriate valve version and sealing material.

- chemical plants, biogas plants
- desalination plants
- process equipment construction and medical technology
- shipbuilding industry and marine equipment
- secondary areas in the food-, beverage-, pharmaceutical- and cosmetics- industries
- offshore- applications

**Safety valves are set and sealed at the factory.**



■ MATERIAL



■ SPECIFICATION



■ APPROVALS

TÜV-Type test approval 2067	D/G, F
EC type examination	S/G, L
TSG ZF001-2006	D/G (S/G), F (L)
KGS	G
TR ZU 032/2013 - TR ZU 010/2011	D/G (S/G), F (L)

**Requirements**

AD 2000 Data sheet A2 TRD 421 DIN EN ISO 4126-1	PED 2014/68/EU KGS AA 319
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**Classification society**

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

■ MATERIALS

Component	Material	DIN EN	ASME
Inlet body	Stainless steel	1.4408	CF8M
Outlet body	Stainless steel	1.4408	CF8M
Internal parts	Stainless steel	1.4404	316
Spring	Stainless steel	1.4310	304

Series 460 ■ 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.
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■ MEDIUM

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

<b>L</b>	Lifting lever
<b>0</b>	without lifting device

■ AVAILABLE NOMINAL DIAMETERS AND CONNECTION SIZES

Nominal diameter DN		10	15	20	25
Outlet	Inlet	3/8" (10)	1/2" (15)	3/4" (20)	1" (25)
	3/8" (10)	■			
	1/2" (15)		■		
	3/4" (20)			■	
	1" (25)				■

■ TYPE OF CONNECTION INLET / OUTLET THREADED CONNECTIONS

<b>m / f</b>	Standard	Male thread BSP-P / Female thread BSP-P	DIN EN ISO 228-1 / DIN EN ISO 228-1
<b>BSP-Tm / f</b>		Male thread BSP-T / Female thread BSP-P	DIN EN 10226, ISO 7-1 / DIN EN ISO 228-1
<b>NPT-m / f</b>		Male thread NPT / Female thread BSP-P	ASME B1.20.1 / DIN EN ISO 228-1

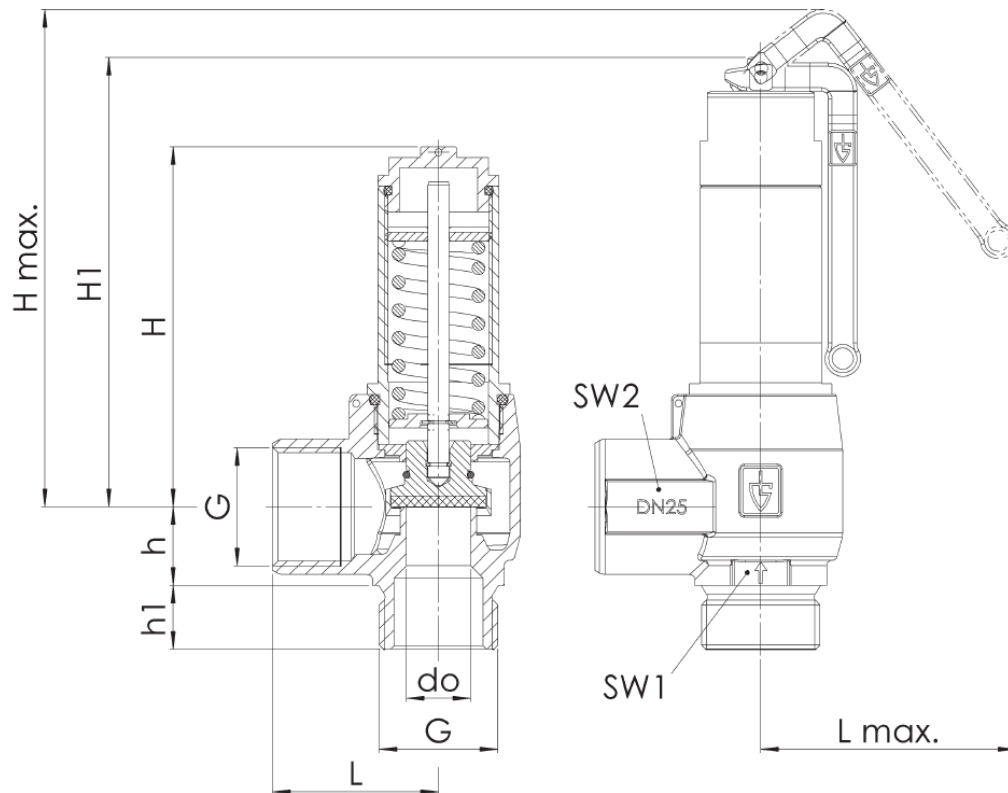
■ SEALS

<b>NBR</b>	Nitrile rubber	Elastomere flat seal	-30°C to +130°C
<b>EPDM</b>	Ethylene propylene diene	Elastomere flat seal	-50°C to +150°C
<b>FKM</b>	Fluorcarbon	Elastomere flat seal	-20°C to +200°C
<b>PTFE</b>	Polytetrafluoroethylene	Flat seal from 0,5 bar	-60°C to +225°C

■ **NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS**

Series 460: Connection, installation dimensions, ranges of adjustment					
Nominal diameter	DN	10	15	20	25
Connection DIN EN ISO 228	G	3/8" (10)	1/2" (15)	3/4" (20)	1" (25)
Outlet DIN EN ISO 228	G	3/8" (10)	1/2" (15)	3/4" (20)	1" (25)
Installation dimensions in mm	L	30	36	43	47
	Lmax	72	72	72	72
	H	77,5	82	90,5	101
	H1	98	107	117	127
	h	17	19	20	22
	h1	12	15	16	18
	SW1	24	27	34	38
	SW2	22	26	32	38
	do	9	13	15	18
	Weight	kg	0,3	0,4	0,6
Range of adjustment	bar	0,2-25	0,2-25	0,2-25	0,2-25

■ **MAIN DIMENSIONS, INSTALLATION DIMENSIONS**



■ CAPACITY TABLE ACC. TO ISO 4126-1 / AD2000 A2

Series 460: Blowing-off rates at 10% above set pressure													
Nominal diameter DN		10			15			20			25		
Set pressure bar		I	II	III	I	II	III	I	II	III	I	II	III
Air I	0,2	18	14	0,6	41	33	1,3	58	46	1,8	77	61	2,6
	0,5	25	20	0,8	62	50	1,9	81	65	2,5	111	89	3,7
	Nm <sup>3</sup> /h	0,8	34	27	1,0	82	65	2,3	107	85	3,1	145	115
Steam II	1	39	31	1,1	95	75	2,6	124	97	3,4	167	132	5,2
	1,5	53	41	1,4	127	99	3,3	169	132	4,2	243	191	6,3
	kg/h	2	65	51	1,6	159	124	3,8	212	165	4,8	310	243
Water III	2,5	80	62	1,8	190	147	4,3	257	200	5,4	370	288	7,7
	3	91	71	2,0	217	169	4,7	295	229	5,9	439	341	8,5
	m <sup>3</sup> /h	3,5	105	81	2,2	250	193	5,1	338	262	6,4	512	396
	4	119	92	2,3	278	214	5,5	383	296	7,0	570	440	9,8
	4,5	134	103	2,5	306	236	5,8	429	331	7,4	628	485	10,4
	5	146	113	2,7	340	263	6,1	469	362	7,8	687	530	10,9
	5,5	159	122	2,8	369	285	6,4	509	392	8,2	745	574	11,5
	6	174	135	2,9	398	307	6,7	557	430	8,6	804	620	12,0
	6,5	187	144	3,0	442	341	7,0	598	461	8,9	864	666	12,5
	7	200	154	3,1	471	364	7,2	638	492	9,7	934	721	12,9
	7,5	216	167	3,3	510	393	7,5	678	523	10,1	993	766	13,4
	8	246	190	3,4	549	423	7,7	719	555	10,4	1052	812	13,8
	8,5	260	200	3,6	580	447	8,0	759	586	10,7	1111	857	14,3
	9	274	211	3,7	610	471	8,2	799	617	11,0	1170	903	14,7
	9,5	287	222	3,8	641	495	8,4	840	648	11,3	1229	948	15,1
	10	301	232	3,9	672	518	8,6	880	679	11,6	1288	994	15,5
	11	329	254	4,1	734	566	9,1	961	741	12,2	1406	1085	16,2
	12	357	275	4,2	795	613	9,5	1042	803	12,7	1524	1176	16,9
	13	384	296	4,4	857	661	9,8	1122	866	13,3	1643	1267	17,6
	14	412	318	4,6	918	708	10,2	1203	928	13,8	1761	1358	18,3
	15	439	339	4,7	980	756	10,6	1284	990	14,3	1879	1449	18,9
	16	467	360	4,9	1042	803	10,9	1364	1052	14,7	1997	1540	19,6
	17	495	382	5,0	1103	851	11,3	1445	1115	15,2	2115	1632	20,2
	18	522	403	5,2	1165	899	11,6	1526	1177	15,6	2233	1723	20,8
	19	550	424	5,3	1226	946	11,9	1606	1239	16,0	2351	1814	21,3
	20	577	446	5,5	1288	994	12,2	1687	1301	16,5	2469	1905	21,9
	21	605	467	5,6	1350	1041	12,5	1768	1364	16,9	2587	1996	22,4
	22	633	488	5,7	1411	1089	12,8	1848	1426	17,3	2705	2087	22,9
	23	660	509	5,9	1473	1136	13,1	1929	1488	17,6	2823	2178	23,5
	24	688	531	6,0	1534	1184	13,4	2010	1550	18,0	2942	2269	24,0
	25	716	552	6,1	1596	1231	13,6	2090	1613	18,4	3060	2360	24,5