→ Series 631

631

Overflow and pressure control valves made of gunmetal, straightway form with flange connections –external adjustment–

SUITABLE FOR

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

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 air, neutral / non-neutral gases and vapours

- industrial plants
- power plant technology
- pump stations
- mechanical engineering

APPROVALS

European Pressure Equipment Directive

TR ZU 032/2013 - TR ZU 010/2011

Requirements

PED 2014/68/EU

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

MATERIAL

SPECIFICATION

DN 15 to DN 100 – 20°C to + 120°C 0,5 – 10 bar

MATERIALS

Component	Material	DIN EN	ASME
Inlet body	Gunmetal	CC499K	CC499K
Outlet body	Gunmetal	CC499K	CC499K
Internal parts	Gunmetal	CC499K	CC499K
	Brass	CW617N	CW617N
	Stainless steel	1.4404	316 L
Valve seat	Stainless steel	1.4404	316 L
Spring	Spring steel with anti-rust protection	1.1200	ASTM A228

Series 631 ■ VALVE VERSION

m	with diaphragm	High-quality, heat-resistant moulded elastomere, fabric-reinforced diaphragm. Valves in straightway form, closed version. Can be adjusted under operating conditions without medium escaping into the atmosphere. Adjustment can be directly read-off an optional pressure gauge (accessory). Optimal control response and large flow volumes even in cases of small pressure differences due to diaphragm operating principle.

Complete valve cartridge available as replacement part (order code: 431 cartridge-DN..-seal) can be exchanged without removing the valve.

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

■ MEDIUM

GF	gaseous and liquid	for water, neutral and non-sticking liquids, compressed air and neutral gases; optionally with FPM elastomere seals for non-neutral media i.e. oils, fuels, oil-laden compressed air, etc.

■ TYPE OF LIFTING MECHANISM

0	without lifting device

■ AVAILABLE NOMINAL DIAMETERS AND CONNECTION SIZES

Nominal diameter DN	**15**	**20**	**25**	**32**	**40**	**50**	**65**	**80**	**100**
Inlet / Outlet	15/15	20/20	25/25	32/32	40/40	50/50	65/65	80/80	100/100
	■	■	■	■	■	■	■	■	■

■ TYPE OF CONNECTION INLET / OUTLET FLANGE CONNECTIONS

FCD2A / FCD2A	Flange connection DIN EN 1092-3 PN16 sealing strip form B / Flange connection DIN EN 1092-3 PN16 sealing strip form B
FCD4A / FCD4A	Flange connection DIN EN 1092-3 PN40 sealing strip form B / Flange connection DIN EN 1092-2 PN40 sealing strip form B

■ SEALS

EPDM	Ethylene propylene diene	Elastomere moulded diaphragm and seals approvals according to drinking water directive	–20°C to +120°C (up to 6 bar outlet pressure) –20°C to +95°C (from 6 bar outlet pressure)
FKM	Fluorocarbon	Elastomere moulded diaphragm and seals	–10°C to +120°C (up to 6 bar outlet pressure) –10°C to +95°C (from 6 bar outlet pressure)

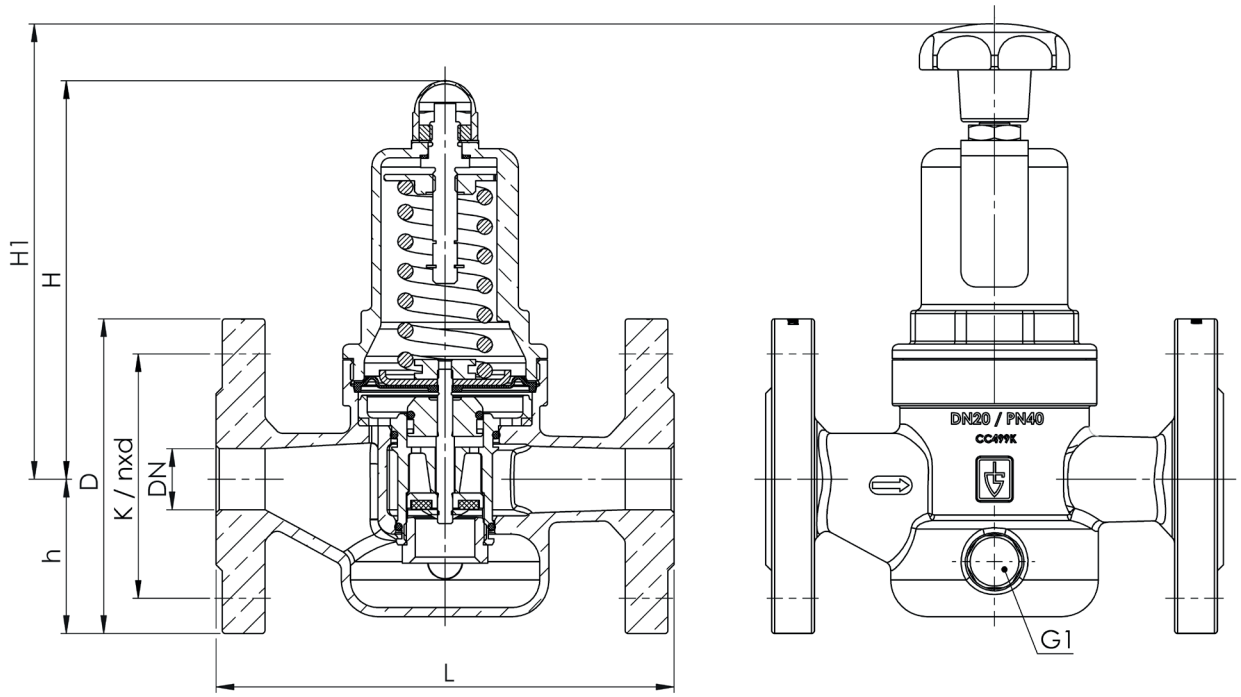
NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

Series 631: Connection, installation dimensions, ranges of adjustment

Nominal diameter	DN / PN	15/40	20 / 40	25 / 40	32 / 40	40 / 40	50 / 40	65 / 16	65 / 40	80 / 40	100 / 16
Inlet DIN EN 1092	DN	15	20	25	32	40	50	65	65	80	100
Outlet DIN EN 1092	DN	15	20	25	32	40	50	65	65	80	100
Installation dimensions in mm	L	130	150	160	180	200	230	290	290	310	350
	D	95	105	115	140	150	165	185	185	200	220
	H	102	130	130	130	166	166	245	245	245	320
	H1	124	161	161	161	198	198				
	h	46	50	55	68	73	80	89	89	97	112
	K / nxd	65 / 4xM12	75 / 4xM12	85 / 4xM12	100 / 4xM16	110 / 4xM16	125 / 4xM16	145 / 4xM16	145 / 8xM16	160 / 8xM16	180 / 8xM16
Pressure gauge connection	G1	1/4" axial	1/4" axial	1/4" axial	1/4" axial	1/4" axial	1/4" axial	1/4" radial	1/4" radial	1/4" radial	1/4" axial
Weight	kg	2,8	4,2	4,7	5,9	8,6	10,5	20	20	22	40
Set pressure	bar	0,5-10	0,5-10	0,5-10	0,5-10	0,5-10	0,5-10	1-6	1-6	1-6	1 - 5,5
Range of adjustment	bar	0,5-2 1,5-6 5,5-10	0,5-2 1,5-6 5,5-10	0,5-2 1,5-6 5,5-10	0,5-2 1,5-6 5,5-10	0,5-2 1,5-6 5,5-10	0,5-2 1,5-6 5,5-10	1-6	1-6	1-6	1 - 5,5
Coefficient of flow K_{VS}	m³/h	2,1	4,7	5,1	5,5	10,5	11,5	20,5	20,5	21,5	43,8

The K_{VS} value was determined according to DIN EN 60534-2-3. Instructions on how to determine size and capacity are to be found under section 1.

MAIN DIMENSIONS, INSTALLATION DIMENSIONS



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Series 631 ■ 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				
631	m	GF	O	*20*	*FCD4A*	*FCD4A*	*20*	*20*	*EPDM*	*S71*	*5,0*	*4*
631	m	GF	O	*65*	*FCD2A*	*FCD2A*	*65*	*65*	*FKM*	*P01*	*1 - 6*	*1*
631	m	GF	O									
631	m	GF	O									

■ TECHNICAL FINISHES, VARIANTS, ACCESSORIES

S15	Hand wheel (plastic) for tool-free setting of setpressure[1]	☐		☐
S17	Supply with manometers suitable for the valve finish	☐		☐
S71	Preliminary setup for protection against manipulation of the preset pressure (seal)	☐		☐

[1]For nominal diameters DN15 to DN50 for the pressure ranges 0,5-2 and 1,5-6,0 bar

■ PROPERTIES

GOX	Especially for gaseous O2 applications by employment of specific materials including oil- and grease free production process	☐	**P03**	Galvanically nickel-plated finish ☐
P01	Oil- and grease-free production	☐	**P04**	Chrome-plated finish ☐
P02	Chemically nickel-plated finish	☐	**FE**	Setting and sealing ☐

■ 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	☐	**C10**	Certificate of oil- and grease free production ☐
C03	Material test certificate acc. DIN EN 10204 3.1 (MPZ 3.1) (pressure retaining part)	☐	**C11**	Certification of the production process especially for gaseous oxygen applications by employment of specific materials ☐
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 631: Kv values at 1 bar overpressure

Nominal diameter DN	15			20			25			32			40			50			65	80	100
	Air [Nm³/h]																				
Pressure range bar	0,5-2		5,5-10		1,5-6		0,5-2		5,5-10		1,5-6		0,5-2		5,5-10		1,5-6			1-6	
Set pressure bar		1,5-6		0,5-2		5,5-10		1,5-6		0,5-2		5,5-10		1,5-6		0,5-2		5,5-10	1-6		1 -5,5
0,5	73			175			189			193			417			445					
1	89			208			231			239			498			537			945	1010	1230
1,5	102	103		247	175		264	185		273	196		587	370		624	408		1020	1115	1350
2	117	119		285	214		303	226		314	238		636	429		683	472		1255	1315	1510
3		146			245			282			291			506			557		1480	1620	1820
4		170			292			330			338			543			615		1810	1890	2090
5		187			329			367			379			625			684		1895	2060	2320
5,5		195	139		354	173		386	183		394	186		653	375		719	417	1930	2150	2450
6		203	147		375	186		405	194		418	202		708	395		760	443	1965	2230	
7			162			210			223			229			400			502			
8			179			249			259			264			407			517			
9			218			273			285			289			432			564			
10			255			294			303			314			465			601			

Kv values at 1 bar overpressure

Nominal diameter DN	15			20			25			32			40			50			65	80	100
	Water [m³/h]																				
Pressure range bar	0,5-2		5,5-10		1,5-6		0,5-2		5,5-10		1,5-6		0,5-2		5,5-10		1,5-6			1-6	
Set pressure bar		1,5-6		0,5-2		5,5-10		1,5-6		0,5-2		5,5-10		1,5-6		0,5-2		5,5-10	1-6		1 -5,5
0,5	2,7			5,1			5,5			6,2			12,4			12,9					
1	2,9			5,4			6,1			6,9			12,9			13,8			23,0	26,0	31,0
1,5	3,4	3,1		5,9	5,2		6,6	5,6		7,5	6,4		13,2	9,0		14,4	9,4		24,0	26,0	31,7
2	3,6	3,2		6,3	5,2		6,9	5,7		7,8	6,4		13,5	9,1		14,9	9,4		25,0	27,0	33,0
3		3,3			5,3			5,9			6,5			9,3			9,5		26,0	29,0	34,5
4		3,4			5,3			6,1			7,2			9,5			9,9		28,0	30,0	36,0
5		3,3			5,4			6,2			7,5			9,7			10,2		28,0	31,0	38,7
5,5		3,0	2,3		5,2	2,9		5,8	3,2		6,9	4,1		10,1	7,2		10,5	7,7	28,0	32,0	40,0
6		2,9	2,4		5,1	3,0		5,4	3,3		6,7	4,2		10,4	7,3		10,9	8,0	29,0	32,0	
7			2,4			3,3			3,9			4,5			7,5			8,1			
8			2,4			3,2			3,8			4,4			7,3			7,8			
9			2,3			3,1			3,7			4,2			6,9			7,4			
10			2,2			3,1			3,6			4,0			6,5			7,1			