

TYPE 16681

# Pressure reducing valve

GUNMETAL

WITH THREADED CONNECTIONS



## SUITABLE FOR

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

## EXAMPLES OF USE

For the protection of:

- domestic water supply systems
- commercial and industrial plants

against too high supply pressure.

Pressure reducers are used, if within a piping system despite of varying pressures on the inlet side a certain pressure must not be exceeded on the outlet side.

- potable water supply according to DIN 1988
- process water supply in industrial-and building technology
- snow-making equipment
- fire-fighting equipment and sprinkler systems
- shipbuilding industry and offshore plants

## APPROVALS

DIN-DVGW type examination	
Type approval ACS	
Type approval WRAS	
Type approval SINTEF	
TR ZU 032/2013 - TR ZU 010/2011	
<b>Requirements</b>	
DIN DVGW guidelines	DIN EN ISO 3822
DIN EN 1567	PED 2014/68/EU
DIN 1988	

<b>Classification society</b>	
Germanischer Lloyd	GL
Lloyd's Register EMEA	LR EMEA
American Bureau of Shipping	ABS
Bureau Veritas	BV
Russian Maritime Register of Shipping	RS



## MATERIAL



## SPECIFICATION



1/2" – 2"



– 10°C to + 95°C



**Inlet pressure:**  
up to 40 bar  
**Outlet pressure:**  
0,5 to 15 bar  
depending on version

#### ■ MATERIALS

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

#### ■ VALVE VERSION

m	with diaphragm	High-quality, heat-resistant moulded elastomere, fabric-reinforced diaphragm. Adjustment by means of non-rising spindle. Insert with balanced single seat valve made of gunmetal.
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**Complete valve insert SP/HP (order code: 681 Insert-DN..-seal) available as replacement part** can be exchanged without removing the valve.

**Complete valve insert LP (order code: 681 LP Insert-DN..-seal) available as replacement part** can be exchanged without removing the valve.

Built-in dirt trap made of stainless steel.

Mesh size:	DN 15 to DN 32	0,60 mm
	DN 40 and DN 50	0,75 mm

#### ■ 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.
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#### ■ TYPE OF LIFTING MECHANISM

0	without lifting device
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#### ■ OUTLET PRESSURE RANGES

SP	Standard version	Inlet pressure: up to 40 bar	Outlet pressure: from 1 to 8 bar
HP	High-pressure version	Inlet pressure: up to 40 bar	Outlet pressure: from 5 to 15 bar
LP	Low-pressure version	Inlet pressure: up to 25 bar	Outlet pressure: from 0,5 to 2 bar

**Fixed setting at a required outlet pressure against surcharge.**

#### ■ 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	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

BSP-Tm / BSP-Tm	Standard threaded connections	Male thread BSP-T / Male thread BSP-T	DIN EN 10226, ISO 7-1 / DIN EN 10226, ISO 7-1
f/f	Version with female thread available in sizes DN15, DN20 and DN25	Female thread BSP-P / Female thread BSP-P	DIN EN ISO 228-1 / DIN EN ISO 228-1

■ SEALS

<b>EPDM</b>	Ethylene propylene diene	Elastomere moulded diaphragm and seals approvals according to drinking water directive	-10°C to +95°C
<b>Against surcharge</b>			
<b>FKM</b>	Fluorocarbon	Elastomere moulded diaphragm and seals	-10°C to +95°C

■ OPTIONS

<b>Against surcharge</b>	
Pressure gauges 36, 39 or 40	Chapter Accessories
Valve insert SP/HP completely made of stainless steel	Order code: 481 Insert-DN...seal
Valve insert LP completely made of stainless steel	Order code: 481 LP Insert-DN...seal

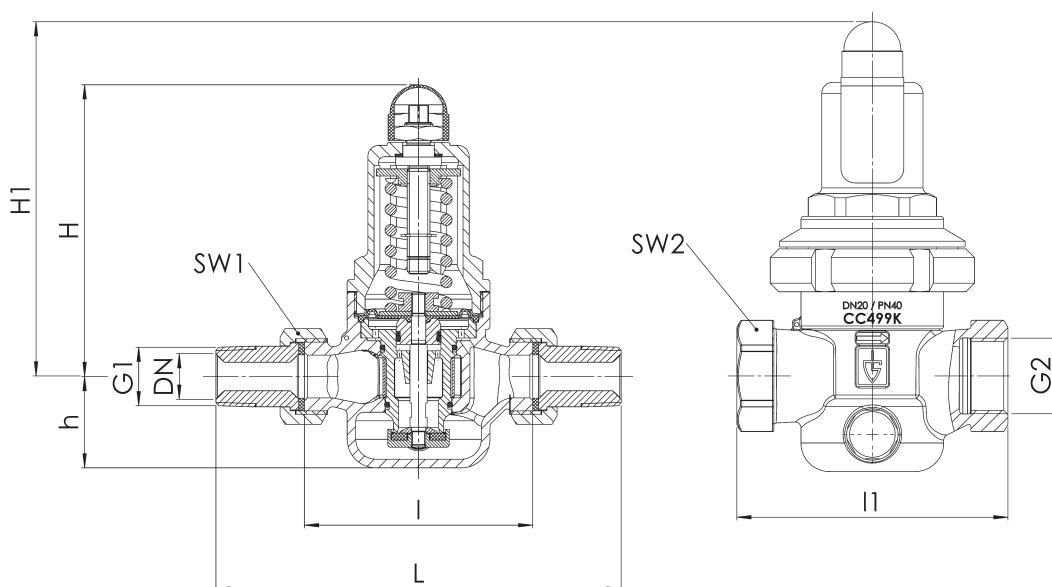
■ NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

Series 681: Connection, installation dimensions, ranges of adjustment							
Connection	DN	15	20	25	32	40	50
Inlet DIN EN 10226	G1	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Outlet DIN EN 10226	G2	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Inlet pressure SP, HP up to	bar	40	40	40	40	40	40
Inlet pressure LP to	bar	25	25	25	25	25	25
Outlet pressure	bar	0,5 - 2	0,5 - 2	0,5 - 2	0,5 - 2	0,5 - 2	0,5 - 2
		1 - 8	1 - 8	1 - 8	1 - 8	1 - 8	1 - 8
		5 - 15	5 - 15	5 - 15	5 - 15	5 - 15	5 - 15
Installation dimensions in mm	L	142	158	180	193	226	252
	l	80	90	100	105	130	140
	l1	85	95	105			
	H (H1)	102 (128 <sup>1</sup> )	102 (128 <sup>1</sup> )	130 (150 <sup>1</sup> )	130 (150 <sup>1</sup> )	165 (185 <sup>1</sup> )	165 (185 <sup>1</sup> )
	h	33	33	45	45	70	70
	SW1	30	37	46	52	65	75
	SW2	28	35	43	48	57	68
Weight	kg	1,2 (1,5 <sup>1</sup> )	1,3 (1,6 <sup>1</sup> )	2,4 (2,9 <sup>1</sup> )	2,6 (3,1 <sup>1</sup> )	5,5 (6,2 <sup>1</sup> )	6,0 (6,7 <sup>1</sup> )
Coefficient of flow K <sub>vs</sub>	m <sup>3</sup> /h	3	3,5	6,7	7,6	12,5	15

<sup>1</sup>for type 681mGFO-LP

<sup>2</sup>The K<sub>vs</sub> value was determined according to DIN EN 60534-2-3. Instructions on how to determine size and capacity are to be found under section 2.

■ MAIN DIMENSIONS, INSTALLATION DIMENSIONS

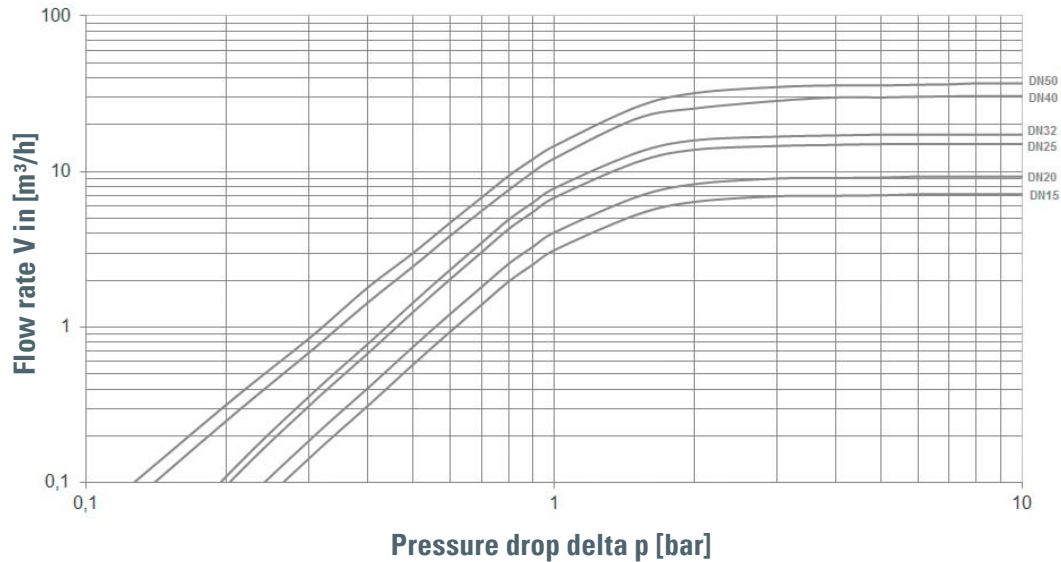


■ CAPACITY CHARTS

Series 681:

Dimensioning by pressure loss on the outlet pressure side

**Flow chart water**



Dimensioning by flow velocity

**For liquids:**

With help of the chart you can determine the nominal diameter (DN) for a given flow volume V (m³/h). According to DVGW-guidelines (DIN 1988) a flow velocity of 2 m/s in domestic water supply systems should not be exceeded.

**For compressed air and other gaseous media:**

The usual flow velocity for compressed air is 10 - 20 m/s. For gaseous media the flow volume V should always be shown in actual cubic meters/hour. If the flow volume is given in standard cubic meters, these should be converted into actual cubic meters before using the diagram.

$$V (\text{m}^3/\text{h}) = \frac{V_{\text{Norm}} (\text{Nm}^3/\text{h})}{p_{\text{absolut}} (\text{bar})} = \frac{V_{\text{Norm}}}{p_{\text{u}} + 1}$$

Actual cubic meters are based on the prevailing pressure of the medium on the outlet side of the pressure reducer.

