

→ Series 481

481

Pressure reducing valves
made of stainless steel with
threaded connections



■ MATERIAL



■ SPECIFICATION



1/2" – 2"



–20°C to +120°C



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

■ SUITABLE FOR

Liquids	neutral and non-neutral	
Air, gases and vapours	neutral and non-neutral	
Potable water cold	up to 40°C	
Potable water hot	up to 95°C	

■ 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
- secondary areas in the food-, pharmaceutical- and cosmetics- industries.

■ APPROVALS

DIN-DVGW type examination (up to 80°C)

Type approval ACS

Type approval WRAS (up to 85°C)

Type approval PZH

TR ZU 032/2013 - TR ZU 010/2011

Type approval ÜA (R-15.2.4-21-17231 Land Salzburg)

Requirements

DIN DVGW guidelines
DIN EN 1567
DIN 1988

DIN EN ISO 3822
DGR 2014/68/EU

Classification society

DNV
Lloyd's Register EMEA
American Bureau of Shipping
Bureau Veritas
Russian Maritime Register of Shipping
Registro Italiano Navale

DNV
LR EMEA
ABS
BV
RMRS
RINA

■ MATERIALS

Component	Material	DIN EN	ASME
Inlet body	Stainless steel	1.4408	CF8M
Outlet body	Stainless steel	1.4408	CF8M
Internal parts	Stainless steel	1.4408	CF8M
	Stainless steel	1.4404	316 L
Spring	Spring steel with anti-rust protection	1.1200	ASTM A228
Strainer	Stainless steel	1.4404	316 L

m	with diaphragm	High-quality, heat-resistant moulded elastomere, fabric-reinforced diaphragm. Pressure adjustment by means of non-rising spindle. Valve insert with balanced single seat valve completely made of stainless steel.
Complete valve insert SP/HP (order code: 481 Insert-DN..-seal) available as replacement part can be exchanged without removing the valve.		
Complete valve insert LP (order code: 481 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 DN 40 and DN 50	0,60 mm 0,75 mm

■ MEDIUM

GF	gaseous and liquid	for water and distilled 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. Not suitable with steam.
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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

■ 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
NPT-f / NPT-f	Version with female thread available in sizes DN15, DN20 and DN25	Female thread NPT-f / Female thread NPT-f	ANSI B1.20.1 / ANSI B1.20.1

■ SEALS

EPDM	Ethylene propylene diene	Elastomere moulded diaphragm and seals approvals according to drinking water directive	-20°C to +120°C (up to 8 bar outlet pressure) -20°C to +95°C (from 8 bar outlet pressure)
FKM	Fluorocarbon	Elastomere moulded diaphragm and seals	-10°C to +120°C (up to 8 bar outlet pressure) -10°C to +95°C (from 8 bar outlet pressure)

■ NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

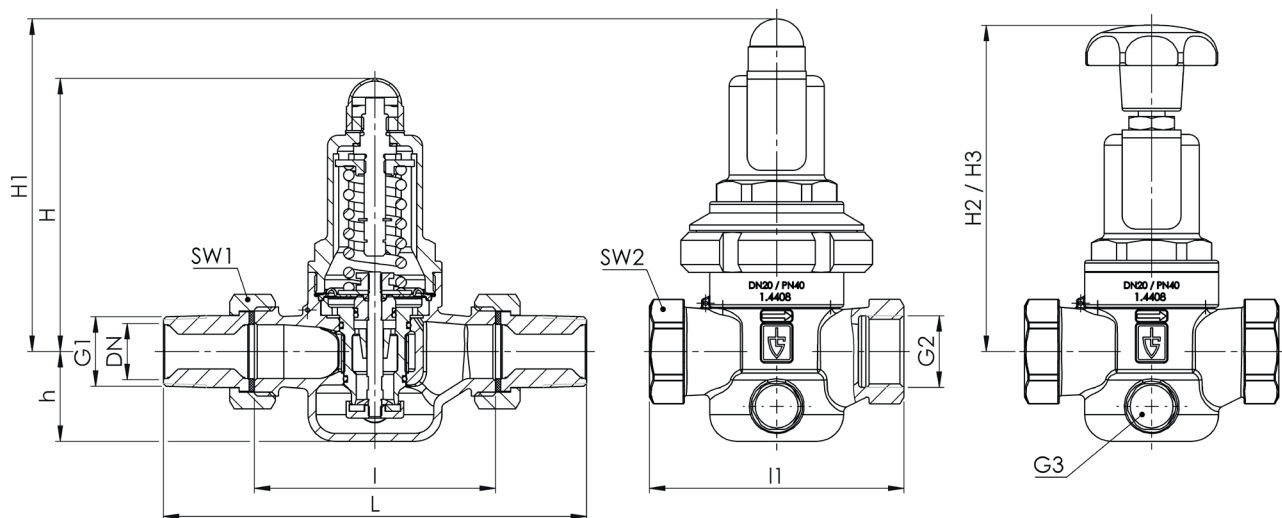
Series 481: Connection, installation dimensions, ranges of adjustment							
Connection	DN	15	20	25	32	40	50
Inlet DIN EN 10226	G1	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Outlet DIN EN 10226	G2	1/2"	3/4"	1"			
Inlet pressure SP, HP up to	bar	40	40	40	40	40	40
Inlet pressure LP up to	bar	25	25	25	25	25	25
Outlet 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
	I	80	90	100	105	130	140
	I1	85	95	105			
	H (H1)	102 (128 ¹)	102 (128 ¹)	130 (150 ¹)	130 (150 ¹)	165 (185 ¹)	165 (185 ¹)
	H2 (H3)	124 (150 ²)	124 (150 ²)	161 (181 ²)	161 (181 ²)	198 (218 ²)	198 (218 ²)
	h	33	33	45	45	70	70
	SW1	30	37	46	52	65	75
	SW2	28	35	43	48	57	68
Pressure gauge connection	G3	1/4" axial	1/4" axial	1/4" axial	1/4" axial	1/4" axial	1/4" axial
Outlet pressure							
Weight	kg	1,2 (1,5 ¹)	1,3 (1,6 ¹)	2,3 (2,8 ¹)	2,5 (3,0 ¹)	5,2 (5,9 ¹)	5,7 (6,4 ¹)
Coefficient of flow K _{vs} ³	m³/h	3	3,5	6,7	7,6	12,5	15

¹for type 481mGFO-LP

²for type 481mGFO-LP S15

³The 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 2.

■ MAIN DIMENSIONS, INSTALLATION DIMENSIONS



Series	Valve version	Medium	Lifting device	Outlet pressure	Nominal diameter DN	Connection type		Connection size		Seal	Options	Optional: fixed setting	Quantity
						Inlet	Outlet	Inlet	Outlet				
481	m	GF	0	SP	25	BSP-T m	BSP-T m	25	25	EPDM	Manometer 41		5
481	m	GF	0	SP	15	f	f	15	15	EPDM			4
481	m	GF	0										
481	m	GF	0										

■ PROPERTIES

S15	Hand wheel (plastic) for tool-free setting of setpressure ¹	<input type="checkbox"/>		<input type="checkbox"/>
S17	Supply with manometers suitable for the valve finish	<input type="checkbox"/>		<input type="checkbox"/>
S71	Preliminary setup for protection against manipulation of the preset pressure (seal)	<input type="checkbox"/>		<input type="checkbox"/>

¹For nominal diameters DN15 to DN50 outlet pressure ranges LP and SP

■ OPTIONS

G0X	Especially for gaseous O2 applications by employment of specific materials including oil- and grease free production process Inlet pressure max. 30 bar, temperature max. 60°C	<input type="checkbox"/>		<input type="checkbox"/>
P01	Oil- and grease-free production	<input type="checkbox"/>		<input type="checkbox"/>
FE	Setting and sealing	<input type="checkbox"/>		<input type="checkbox"/>

■ CERTIFICATES / APPROVALS

C01	Factory certificate acc. DIN EN 10204 2.2 (WKZ 2.2)	<input type="checkbox"/>	C05	Sealing material Manufacturer certification (FDA, USP 3, 3-A,...), Please indicate description of certificate:	<input type="checkbox"/>
C02	Test certificate acc. DIN EN 10204 3.1 (WPZ 3.1)	<input type="checkbox"/>	C06	ATEX evaluation acc. to 2014/34/EU	<input type="checkbox"/>
C03	Material test certificate acc. DIN EN 10204 3.1 (MPZ 3.1) (pressure retaining part)	<input type="checkbox"/>	C10	Certificate of oil- and grease free production	<input type="checkbox"/>
C04	TÜV/DEKRA individual inspection acc. EN 10204 3.2 (TÜV/DEKRA-APZ)	<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 checked="" 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"/>
AA11	UK Type examination acc. to Directive UK PESR 2016 No. 1105	<input type="checkbox"/>	AK3	American Bureau of Shipping (ABS) type approval	<input type="checkbox"/>
AB1	Deutscher Verein des Gas- und Wasserfaches, DVGW type approval	<input type="checkbox"/>	AK4	Bureau Veritas (BV) type approval	<input type="checkbox"/>
AB2	Water regulations and advisory scheme WRAS type approval	<input type="checkbox"/>	AK5	Russian Maritime Register of Shipping (RMRS) type approval	<input type="checkbox"/>
AB3	Attestation de Conformité Sanitaire, ACS type approval	<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"/>
		<input type="checkbox"/>			<input type="checkbox"/>

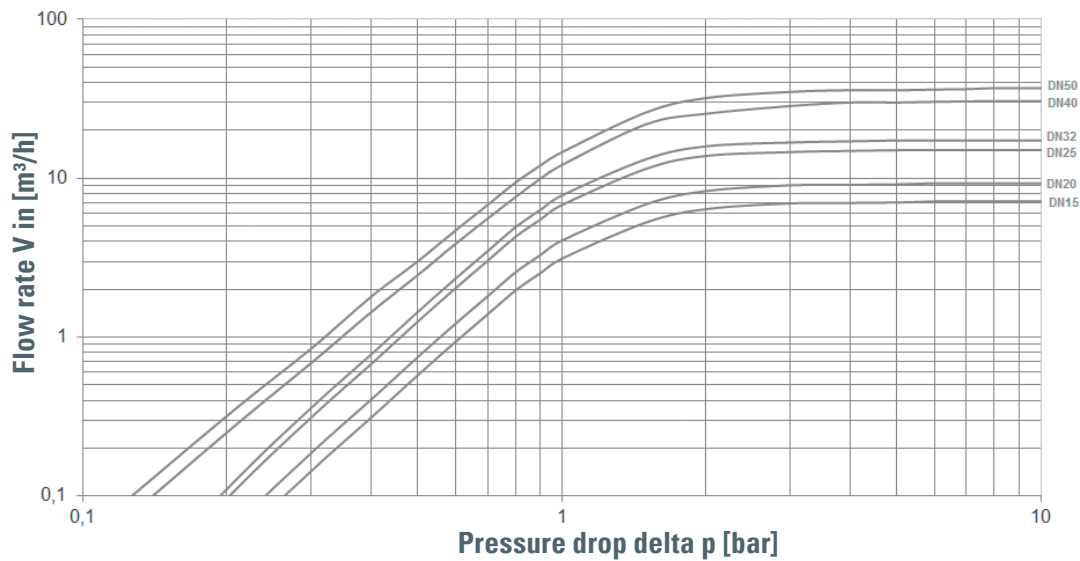
■ ENQUIRY

Copy and send to: order@goetze.de.

Series 481:

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 (m^3/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.

$$V(\text{m}^3/\text{h}) = \frac{V_{\text{Norm}}(\text{Nm}^3/\text{h})}{p_{\text{absolut}}(\text{bar})} = \frac{V_{\text{Norm}}}{p_0 + 1}$$

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

