→ Series 481

Pressure reducing valves made of stainless steel with threaded connections

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.

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

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

Requirements

DIN DVGW guidelines	DIN EN ISO 3822
DIN EN 1567	DGR 2014/68/EU
DIN 1988	UK PESR 2016 No. 1105

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

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

Version 2023 / 06

Series 481 ■ VALVE VERSION

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	0,60 mm
	DN 40 and DN 50	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.

■ TYPE OF LIFTING MECHANISM

0	without lifting device

■ 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

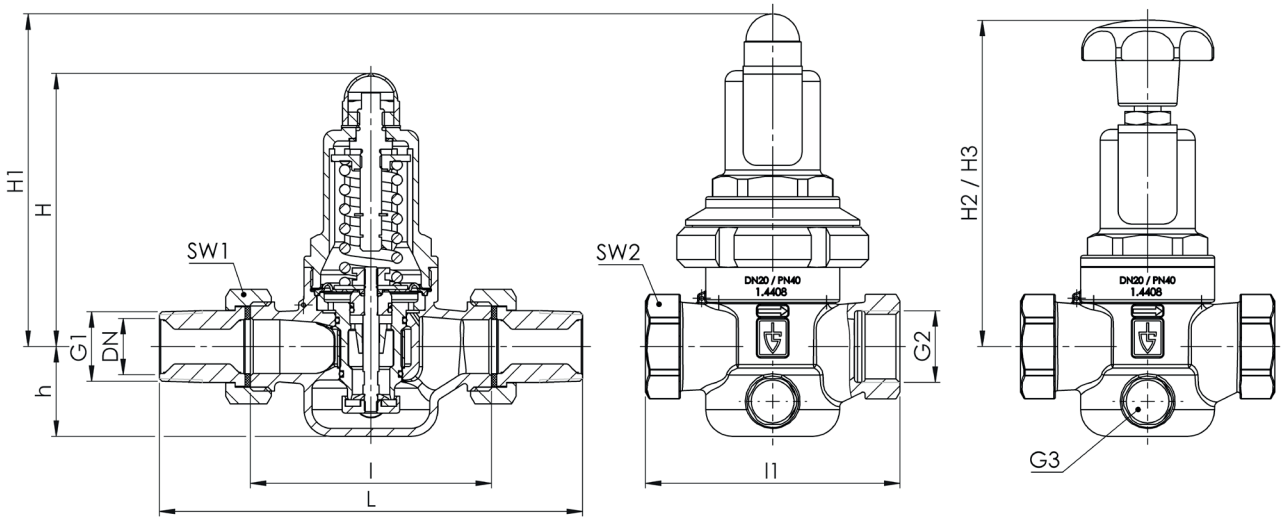
EPDM	Ethylene propylene diene	Elastomere moulded diaphragm and seals approvals according to drinking water directive	–20°C to +120°C (up to 8 bar outlet pressure) –20°C to +95°C (from 8 bar outlet pressure)
FKM	Fluorocarbon	Elastomere moulded diaphragm and seals	–10°C to +120°C (up to 8 bar outlet pressure) –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 1 - 8 5 - 15	0,5 - 2 1 - 8 5 - 15	0,5 - 2 1 - 8 5 - 15	0,5 - 2 1 - 8 5 - 15	0,5 - 2 1 - 8 5 - 15	0,5 - 2 1 - 8 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[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 Outlet pressure	**G3**	1/4“ axial	1/4“ axial	1/4“ axial	1/4“ axial	1/4“ axial	1/4“ axial
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

[1]for type 481mGFO-LP
[2]for type 481mGFO-LP S15
[3]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 2.

MAIN DIMENSIONS, INSTALLATION DIMENSIONS



Series 481 ■ INDIVIDUAL SELECTION / VALVE CONFIGURATION

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]	☐		☐
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 outlet pressure ranges LP and SP

■ OPTIONS

GOX	Especially for gaseous O2 applications by employment of specific materials including oil- and grease free production process	☐		☐
P01	Oil- and grease-free production	☐		☐
FE	Setting and sealing	☐		☐

■ CERTIFICATES / APPROVALS

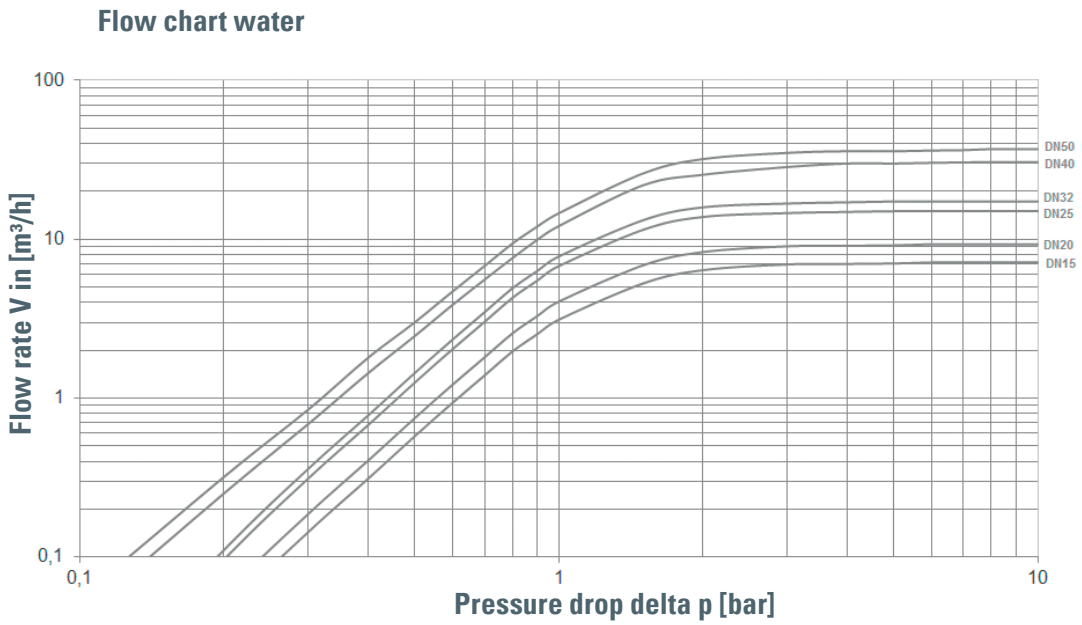
C01	Factory certificate acc. DIN EN 10204 2.2 (WKZ 2.2)	☐	**C05**	Sealing material Manufacturer certification (FDA, USP 3, 3-A,…), Please indicate description of certificate:	☐
C02	Test certificate acc. DIN EN 10204 3.1 (WPZ 3.1)	☐	**C06**	ATEX evaluation acc. to 2014/34/EU	☐
C03	Material test certificate acc. DIN EN 10204 3.1 (MPZ 3.1) (pressure retaining part)	☐	**C10**	Certificate of oil- and grease free production	☐
C04	TÜV/DEKRA individual inspection acc. EN 10204 3.2 (TÜV/DEKRA-APZ)	☐	**C11**	Certification of the production process especially for gaseous oxygen applications by employment of specific materials	☐

■ 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	☐
AA11	UK Type examination acc. to Directive UK PESR 2016 No. 1105	☐	**AK3**	American Bureau of Shipping (ABS) type approval	☐
AB1	Deutscher Verein des Gas- und Wasserfaches, DVGW type approval	☐	**AK4**	Bureau Veritas (BV) type approval	☐
AB2	Water regulations and advisory scheme WRAS type approval	☐	**AK5**	Russian Maritime Register of Shipping (RMRS) type approval	☐
AB3	Attestation de Conformité Sanitaire, ACS type approval	☐	**AK6**	Registro Italiano Navale (RINA) type approval	☐
AA11	UK Type examination acc. to Directive UK PESR 2016 No. 1105	☐	**AL**	Individual inspection by notified body inspector – (body to be indicated):	☐

Series 481:

Dimensioning by pressure loss on the outlet pressure side



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.

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

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