

Diaphragm Seal, Threepart

Male thread or flange connection, PN 40 or PN 100

MDM
7210v...

Information on applications, features, metrological influences such as temperature, level difference, floating time, etc., can be found in model overview 7000. Furthermore, you will find information on other chemical seal versions.

Construction

The three-part design (attachment flange, upper part and lower part) provides the possibility to combine different materials and to select various process connections (male thread or flange connections), so that a wider range of applications is given. The membrane is welded to the upper part.

Bourdon tube pressure gauges, pressure switches, pressure transmitters, pressure transducers and other pressure measuring instruments can be equipped with diaphragm seals of this type series.

Model 7210vd8 has an orifice d8 as instrument connection for welding to a pressure gauge with process connection d8x5, e.g. RCh 100 – 3vDW, a cooling element or a capillary line. Leakage cannot occur at the welded connection of pressure gauge / upper part and the filling port that is not accessible externally. The parts can be easily cleaned externally.

Model 7210vG½ (option) has a gauge adapter with female thread for direct mounting to measuring instruments with male thread. The screwed connections pressure gauge / diaphragm seal and the filling port must not be loosened or opened as otherwise filling fluid leaks and the pressure measuring unit loses its functional capability.



Nominal Pressure

PN 40 or
PN 100

Attachment Flange and Screws with Nut

Stainless steel 316

PN 40 6x A2 screws and nuts M8
PN 100 12x A2 screws and nuts M8

Minimum Span Pressure Gauges

0 – 0.6 bar for Bourdon tube pressure gauges NCS 100 and smaller
For other pressure measuring instruments upon request

t_K-Value (mbar / 10 K) (Temperature Coefficient of the Chemical Seal)

0.13 mbar / 10 K (for silicone oil FA1)

Options

See page 4

Special Versions Upon Request

- Other instrument connections, whereas we do not recommend NPT female threads
- Other screws and nuts (e.g. A4)

Accessory

Capillary line, cooling elements see data sheets 7.7002 and 7.7003

Other accessory available upon request

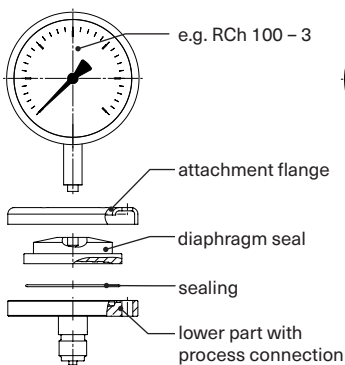
Mounting / Filling / Certificates

Information concerning mounting, filling and on certificates are available upon request.

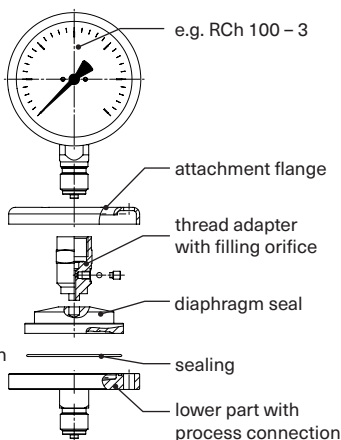
Ordering Information Chemical Seals

See page 4

model 7210vd8



model 7210vG½ (option)



Standard Versions

Upper Part

Stainless steel 316L

Instrument Connection

7210vd8 orifice d8

Diaphragm

High-Soft Membrane stainless steel 316L (1.4435) welded with the upper part, He-leak detection up to 10⁻⁹ mbar l/s
Effective diaphragm diameter dM = 60 mm (2.36")

Lower Part with Process Connection

Stainless steel 316L

Connection male thread G½ B

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7210

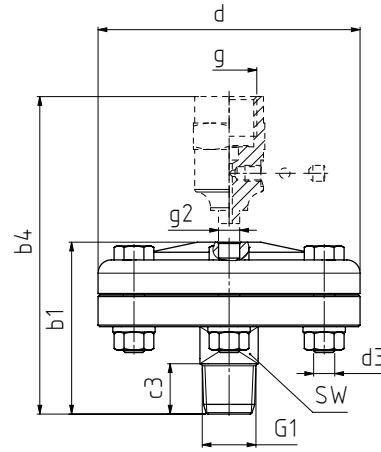
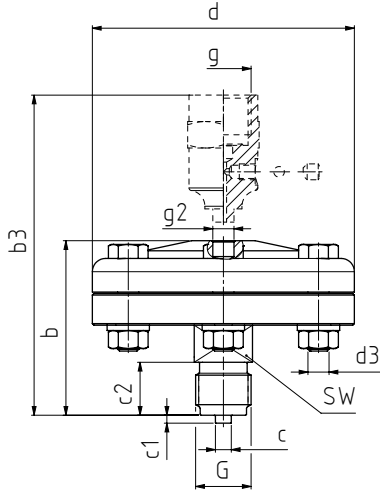
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Connection, Dimensional Data (mm / inch) and Weight (kg / lb)

Male Thread

G 1/2 B

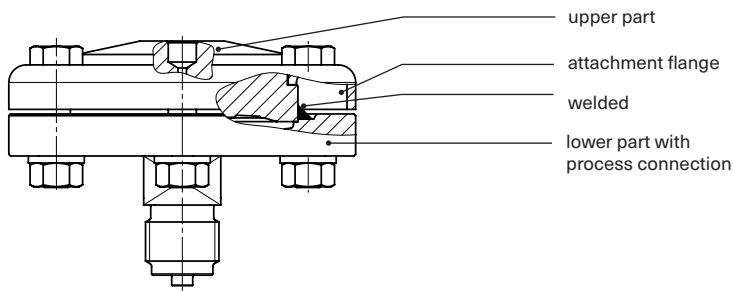
1/2" NPT



PN	b ⁺²	b1 ⁺²	b3 ⁺²	b4 ⁺²	c	c1	c2	c3	d	d3	dM	g	g2	G	G1	SW	approx. weight	
																	vd8	vG 1/2
40	66	65	109	108	6	3	20	19	99	6x M8	60	G 1/2	Ø 8 x 6	G 1/2 B	1/2" NPT	22	1.38	1.51
	2.6	2.56	4.29	4.25	0.24	0.12	0.79	0.75	3.9		2.36		Ø 0.31 x 0.24			0.87	3.04	3.33
100	66	65	109	108	6	3	20	19	99	12x M8	60	G 1/2	Ø 8 x 6	G 1/2 B	1/2" NPT	22	1.70	1.83
	2.6	2.56	4.29	4.25	0.24	0.12	0.79	0.75	3.9		2.36		Ø 0.31 x 0.24			0.87	3.75	4.03

7210vd8vA

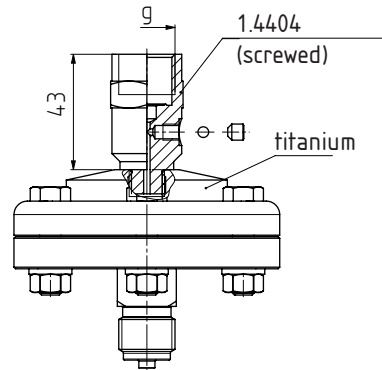
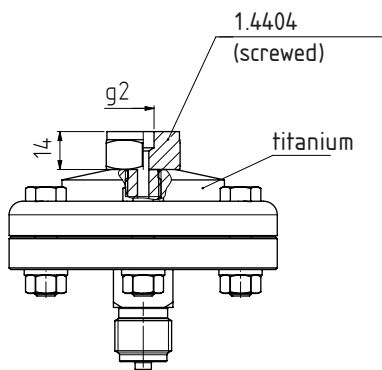
for temperatures > 260 °C (> 500 °F)



Titanium

vd8

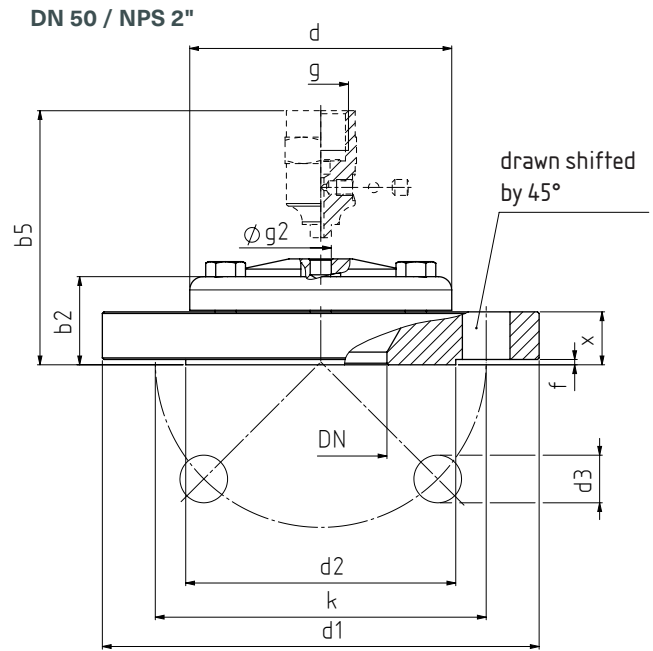
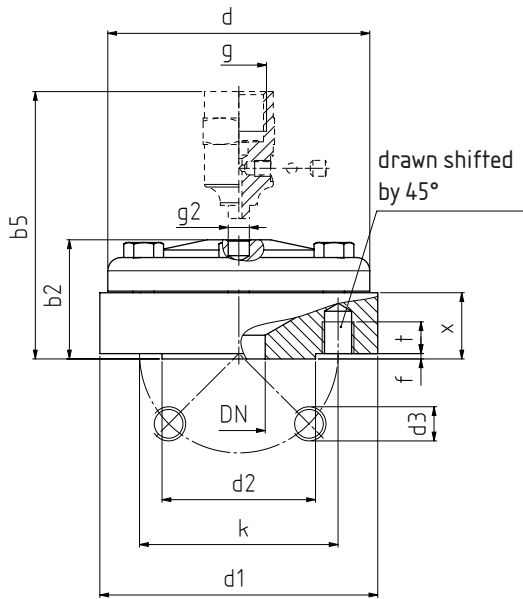
G 1/2



Connection, Dimensional Data (mm / inch) and Weight (kg / lb)

Flange

DIN flanges sealing face DIN EN 1092-1 / ASME flanges sealing face ASME B16.5



Flanges According to DIN EN 1092-1

DN	PN	b2 ^{±2}	b5 ^{±2}	d	d1	d2	d3	f	g	g2	k	t	x	approx. weight	
														vd8	vG½
15	40	1.77	3.46	3.9	3.9	1.77	4x M12	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	65	12	25	1.79	1.92
	63	2.36	4.06	3.9	4.13	1.77	4x M12	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	75	18	40	3.19	3.32
	100	2.36	4.06	3.9	4.13	1.77	4x M12	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	75	18	40	3.19	3.32
20	40	1.77	3.46	3.9	4.13	2.28	4x M12	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	75	12	25	1.93	2.06
	63	2.64	4.33	3.9	5.12	2.28	4x M16	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	90	18	47	5.1	5.23
	100	2.64	4.33	3.9	5.12	2.28	4x M16	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	90	18	47	5.1	5.23
25	40	1.65	3.35	3.9	4.53	2.68	4x M12	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	85	12	22	2.06	2.19
	63	2.36	4.06	3.9	5.51	2.68	4x M16	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	100	18	40	5.1	5.23
	100	2.36	4.06	3.9	5.51	2.68	4x M16	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	100	18	40	5.1	5.23
50	40	1.57	3.27	3.9	6.5	4.02	4x Ø 18 4x Ø 0.71	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	125	-	20	3.25	3.38
	63	1.46	3.5	3.9	7.09	4.02	4x Ø 22 4x Ø 0.87	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	135	-	26	5	5.13
	100	1.89	3.58	3.9	7.68	4.02	4x Ø 26 4x Ø 1.02	3	G½	Ø 8 x 6 Ø 0.31 x 0.24	145	-	28	6.12	6.25

Flanges According to ASME B16.5

NPS	Class	b2 ^{±2}	b5 ^{±2}	d	d1	d2	d3	f	g	g2	k	t	x	approx. weight	
														vd8	vG½
½"	150	2.36	4.06	3.9	3.9	1.38	4 x ½" - 20 UNF-2B	1.6	G½	Ø 8 x 6 Ø 0.31 x 0.24	60.5	19	40	2.58	2.71
	300	2.36	4.06	3.9	3.9	1.38	4 x ½" - 20 UNF-2B	0.06	G½	Ø 8 x 6 Ø 0.31 x 0.24	66.5	19	40	2.58	2.71
	600	2.56	4.25	3.9	3.9	1.38	4 x ½" - 20 UNF-2B	0.25	G½	Ø 8 x 6 Ø 0.31 x 0.24	66.5	19	45	2.82	2.95
¾"	150	2.36	4.06	3.9	3.94	1.69	4 x ½" - 20 UNF-2B	2	G½	Ø 8 x 6 Ø 0.31 x 0.24	69.9	19	40	2.5	2.93
	300	2.44	4.13	3.9	3.94	1.69	4 x 5/8" - 18 UNF-2B	0.08	G½	Ø 8 x 6 Ø 0.31 x 0.24	82.6	19	42	3.1	3.53
	600	2.64	4.33	3.9	3.94	1.69	4 x 5/8" - 18 UNF-2B	0.08	G½	Ø 8 x 6 Ø 0.31 x 0.24	82.6	19	47	3.2	3.63
1"	150	2.36	4.06	3.9	4.25	2	4 x ½" - 20 UNF-2B	1.6	G½	Ø 8 x 6 Ø 0.31 x 0.24	79.2	19	40	3.03	3.43
	300	2.36	4.06	3.9	4.88	2	4 x 5/8" - 18 UNF-2B	0.06	G½	Ø 8 x 6 Ø 0.31 x 0.24	88.9	19	40	4.03	4.16
	600	2.56	4.25	3.9	4.88	2	4 x 5/8" - 18 UNF-2B	0.25	G½	Ø 8 x 6 Ø 0.31 x 0.24	88.9	19	45	4.12	4.25
2"	150	1.54	3.23	3.9	6	3.62	4 x 5/8" - 18 UNF-2B	1.6	G½	Ø 8 x 6 Ø 0.31 x 0.24	120.7	-	19.1	2.78	2.91
	300	1.67	3.36	3.9	6.5	3.62	8x Ø 0.75 8x Ø 0.75	0.06	G½	Ø 8 x 6 Ø 0.31 x 0.24	127	-	22.4	3.63	3.76
	600	2.04	3.73	3.9	6.5	3.62	8x Ø 0.75 8x Ø 0.75	0.25	G½	Ø 8 x 6 Ø 0.31 x 0.24	127	-	31.8	4.41	4.54

Ordering Information, Options

Basic Model	Diaphragm Seal, Threepart	MDM 7210v
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Please regard our detailed ordering information

- in model overview 7000
- in the checklists for pressure measuring instruments with chemical seal
- in the data sheet of the required pressure measuring instrument and add the information for the respective chemical seal.

The reference temperature is +20 °C (+68 °F). Please specify if an operating temperature (t_A) deviating from +20 °C (+68 °F) is required (dial inscription $t_{A...}$).

Instrument connection	orifice d8 for direct welding to measuring instrument (with cooling element or with capillary line)			7210vd8	
	option	G ½ female thread		7210vG ½	
Nominal pressure	PN 40	(bar)		PN 40	
	PN 100	(bar)		PN 100	
Material combinations	chemical seal upper part	chemical seal lower part (with process connection)	sealing	membrane	
	stainless steel 316L	stainless steel 316L	FKM (Viton®) -20 to +200 °C (-4 to +392 °F)	stainless steel 1.4435 (316L)	stainless steel 316L
	options				
	stainless steel 316L	Monel 400 (2.4360) Hastelloy C22 (2.4602) titanium (3.7035)	PTFE -40 to +260 °C (-40 to +500 °F)	Monel 400 (2.4360) Hastelloy C276 (2.4819) titanium (3.7035)	stainless steel 316L / Monel stainless steel 316L / Hastelloy stainless steel 316L / titanium
	stainless steel 316L PTFE	stainless steel 316L PTFE lining		stainless steel 1.4435 (316L) PTFE protection foil tantalum (≤ 250 °C)	stainless steel 316L / PTFE stainless steel 316L / PTFE / tantalum
	Monel	Monel 400 (2.4360)	PTFE	Monel 400 (2.4360)	Monel
	Hastelloy	Hastelloy C22 (2.4602)	-40 to +260 °C (-40 to +500 °F)	Hastelloy C276 (2.4819)	Hastelloy
	titanium	titanium (3.7035)		titanium (3.7035)	titanium
	stainless steel 316L (upper and lower part welded) for medium temperature > 260 °C (> 500 °F)			stainless steel 1.4435 (316L)	vA (welded version)
	other foils and coatings for chemical seals upon request, e.g. fine silver and gold, see flyer "Materials, Foils and Coatings for Chemical Seals"				
	other diaphragm materials upon request, e.g. Uranus B6 (1.4539), Duplex (1.4462) and Nickel (2.4068)				
Process connection (see pages 2 and 3)	male thread	G ½ B ½" NPT (not recommended for PTFE lining)			G ½ B ½" NPT
	options	M 20x1.5 orifice Ø 10 mm (0,39")			M 20x1.5 orifice Ø 10 mm
	flange connection	acc. to DIN EN 1092-1 sealing face B1	DN 15 DN 20 DN 25 DN 50	PN 40, 63 or 100 PN 40, 63 or 100 PN 40, 63 or 100 PN 40, 63 or 100	e.g. DN 15 PN 63
		sealing face A, B2, C, D, E and F upon request			
		acc. to ASME B16.5 sealing face RF	NPS ½" NPS ¾" NPS 1" NPS 2"	Class 150, 300 or 600 Class 150, 300 or 600 Class 150, 300 or 600 Class 150, 300 or 600	e.g. NPS ½" Class 150
		sealing face FF, RFSF and RJF upon request			

These options are to be ordered in written form. Please contact us to ensure compatibility when combining options.

Flushing connection	lower part of the chemical seal with various flushing connections, e.g. G ¼, ¼" NPT and corresponding sealing plugs
Version acc. to NACE	MR 0175 MR 0103

Calculation of the temperature-related additional error for the entire pressure measuring system

Examples	MDM 7210vd8, PN 40, stainless steel 316L, DN 15 PN 63 MDM 7210vd8, PN 100, stainless steel 316L / PTFE / tantalum, G ½ B
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