

Diaphragm Seals threepart

Male Thread or Flange Connection, PN 40, optional PN 100

MDM

7210v...

Standard Version

Information on applications, features, metrological influences as temperature, level difference, floating time and others can be found in model overview 7000. Furthermore there are information on other chemical seal versions.

Construction

The threepart construction (attachment flange, upper- and lower part) allows a combination of different materials and a selection of various process connections (male thread or flange connections), so that a wide range of application is given. The membrane is welded to the upper part.

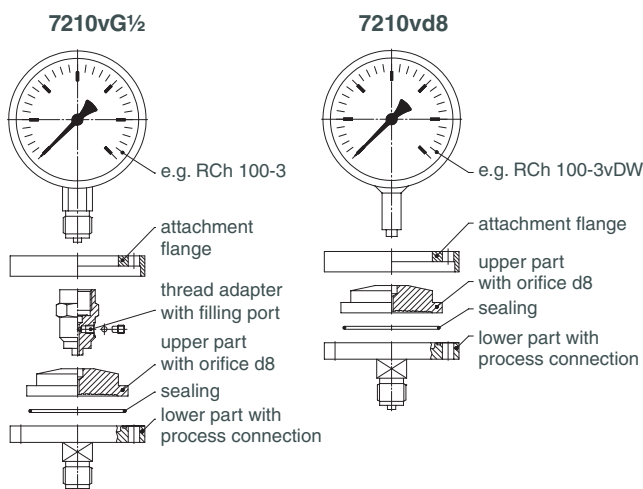
Bourdon tube pressure gauges, pressure switches, pressure transmitters, pressure transducers and other pressure measuring instruments can be provided with diaphragm seals of this type series.

Model 7210vG½ has a measuring instrument adapter with female thread for direct mounting to measuring instruments with male thread.

The screwed connections pressure gauge / adapter and the filling port must not be loosened respectively opened, as otherwise filling fluid leaks and the measuring unit loses its efficiency.

Model 7210vd8 has an orifice d8 for welding to a pressure gauge with process connection d8x5 as instrument connection, e.g. RCh 100-3vDW, cooling element or capillary line.

Leakage can not occur at the welded connection of pressure gauge / upper part and the filling port which is not accessible externally. The parts can be cleaned externally.



Upper Part

1.4435 (316 L stainless steel)

Instrument Connection

7210vG½: G ½ female (½" BSP)
7210vd8: orifice d8

Membrane

High-Soft Membrane 1.4435 (316L stainless steel) welded with the upper part,
He-leak detection up to 10^{-9} mbar l/s
effective membrane diameter $d_M = 60$ mm (2.36")

Lower Part with Process Connection

316L (stainless steel), connection male thread G ½ B (½" BSP) material- and connection-options, see page 2



RK 100-3
with MDM 7210vG½

RCh 100-3vDW
with MDM 7210vd8

PTMvDW
with MDM 7210vd8

Nominal Pressure

PN 40
optional PN 100

Attachment Flange and Screws with Nuts

Made of galvanised steel, 6 screws and nuts M8;
optional PN 100, 12 screws and nuts M8

Minimum Span Pressure Gauges:

0.6 bar (10 psi) for bourdon tube pressure gauges NCS 100 and below
for other measuring instruments: upon request

t_k -value (mbar/10K) (temperature coefficient of the chemical seal):

0.13 mbar / 10K (for silicone oil FA1)

Special Versions among others

- Other instrument connections upon request, whereas we do not recommend NPT-female thread
- Other material combinations (process connection, membrane) than on page 2 upon request
- Calculation of temperature-related additional error for the whole measuring unit

Accessory:

Capillary line, cooling elements: see data sheet 7002
Other accessory: available upon request

Mounting / Filling / Certificates:

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



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7210

05/10

Further Options regarding Ordering Information

Basic Models:		Diaphragm seals as threepart construction type PN 40, optional PN 100				MDM 7210v
Instrument Connection:	G ½ female					7210vG ½
	option: G ¼ female					7210vG ¼
	orifice d8 for direct welding with measuring instrument, with cooling element or with capillary line					7210vd8
Chemical Seal:		Lower Part with process connection	Sealing	Membrane		
		Standard				
	Upper part: 1.4435 (316L stainless steel)	316 L stainl. steel	316L stainless steel	FPM (Viton®) (-20 °C to +200 °C / -4 °F to +392 °F)	1.4435 (316L stainless steel)	316L stainless steel, PN 40
		Options				
	Attachment flange and screws with nuts: steel galvanised (max. 200 °C / 392 °F)	Steel galvanised	steel galvanised	NBR (Perbunan) (-30 °C to +100 °C / -22 °F to +212 °F)	1.4435 (316L stainless steel)	Steel galvanised, PN 40
		Steel / PTFE	steel PTFE- lining	-	1.4435 (316L stainless steel) PTFE protection foil ¹⁾	Steel / PTFE, PN 40
		316 L stainless steel / PTFE	stainless steel 316L PTFE- lining			316L Stainl. steel / PTFE, PN 40
		Monel	Monel 400 2.4360	PTFE (-40 °C to +260 °C / -40 °F to +500 °F)	Monel 400 2.4360 Hastelloy C276 2.4819	Monel, PN 40
	Hastelloy	Hastelloy C4 2.4610	Hastelloy, PN 40			
		Further options				
	PN 100					
	316 L stainl. steel basic model 7210v for medium temperatures > 260 °C (500 °F), upper- and lower part welded	316L stainless steel	-	1.4435 (316L stainless steel)	e.g. 316L stainl. steel, PN 100 e.g. 7210vd8vA stainl. steel 316L, PN 40 <small>(vA= welded version / drawing see page 3)</small>	
	Titan	Titan 3.7035	PTFE (-40 °C to +260 °C / -40 °F to +500 °F)	Titan 3.7035	Titan <small>(drawing see page 3)</small>	
Process Connection	Male Thread:	standard thread	G ½ B (½" BSP)			G ½ B (½" BSP)
		options:	½" NPT (for PTFE-lining not recommended) M 20x1.5			½" NPT M 20x1.5
	Flange:	DN	PN	NPS	Class	
		15	40	NPS ½"	Class 150	DN15 PN40
		20		NPS ¾"		
		25		NPS 1"		
50	NPS 2"					
15	63/100	NPS ½"	Class 300	NPS1" Class 300		
25		NPS ¾"				
50		NPS 1"				
50		NPS 2"				
	sealing face acc. to DIN EN 1092-1		sealing face acc. to ASME B 16.5			
	PN 40	Form B1				
	PN 63/100	Form B2				
Further Options:	membrane made of	1.4571	Stainless steel			<i>(order at the moment still as cleartext)</i>
		1.4539	Uranus B6			
		1.4462	Duplex			
		2.4610	Hastelloy C4			
		2.4819	Hastelloy C276			
		2.4856	Inconel 625			
		2.4360	Monel 400			
		2.4068	Nickel			
		-	Tantal (≤ 250 °C / 482 °F)			
		3.7035	Titan ³⁾			
		others	upon request			
		other sealings, e. g: up to -60 °C (-76 °F)	upon request			
		protection foil for	fine silver ¹⁾			
			PTFE ¹⁾			
		orifice Ø 10 mm (0.4")	for thread connection (standard for PTFE-lining ²⁾)			
	attachment flange and screws with nuts (max. 400 °C / +752 °F)	stainless steel	PN 40			
			PN 100			
	flanges	for DIN EN 1092-1	nut or elastic element various forms			
			male- and female face various forms			
		for ASME B16.5	Class 600 upon request			
			UNC-thread upon request			
			RJF-circular groove			
			according to other standards upon request			
	stud screws M 12 x 35 for open flanges according to DIN EN, DN 15, 20 or 25					
Examples:	MDM 7210vG ½, steel galvanised, PN 40, G ½ B / MDM 7210vd8, 316L stainl. steel, PN 100, DN 50 PN 63					

¹⁾ Temperature resistance max 260°C (500 °F), max. 100 bar, for use under vacuum up to 100 °C (212 °F)

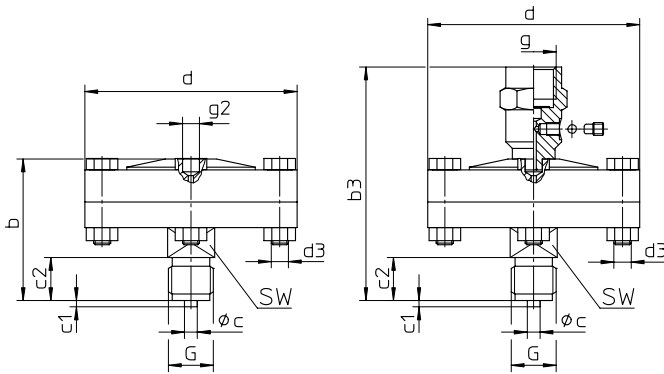
²⁾ Orifice Ø 10 mm (0.4") outside of lining, with lining approx. Ø 7 mm (0.28")

³⁾ Upper part und diaphragm Titan

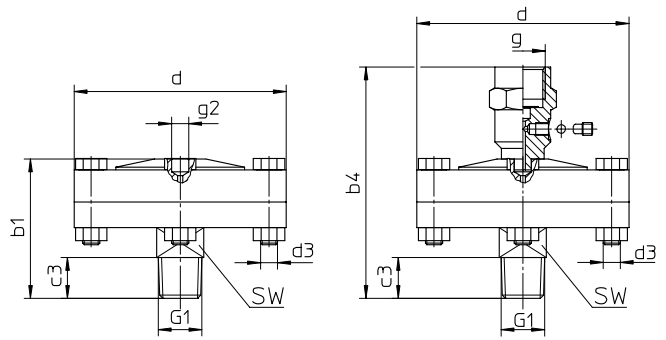
Dimensional Data and Weights

Male Thread Connections

G 1/2 B (1/2" BSP)



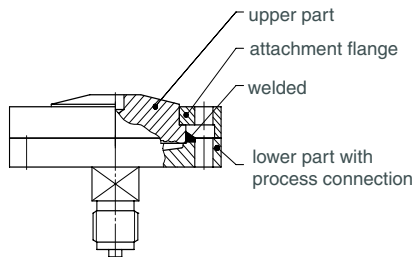
1/2 NPT



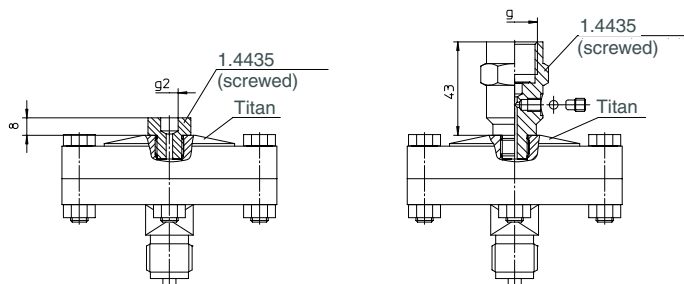
Dimensional data (mm / inches) and weights (kg / lb)

PN	b ^{±2}	b1 ^{±2}	b3 ^{±2}	b4 ^{±2}	c	c1	c2	c3	d	d3	dM	g	g2	G	G1	SW	(approx.) weight	
																	vG 1/2	vd8 x 5
40	66	65	109	108	6	3	20	19	99	6 x M8	60	G 1/2	Ø 8 x 6	G 1/2 B	1/2" NPT	22	1.58	1.71
	2.6	2.56	4.29	4.25	.24	.12	.79	.75	3.9		2.36	1/2" BSP	Ø 8 x .24	1/2" BSP		.87	3.48	3.77
100	66	65	109	108	6	3	20	19	99	12 x 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	.24	.12	.79	.75	3.9		2.36	1/2" BSP	Ø 8 x .24	1/2" BSP		.87	3.75	4.03

7210 vd8vA



Titan



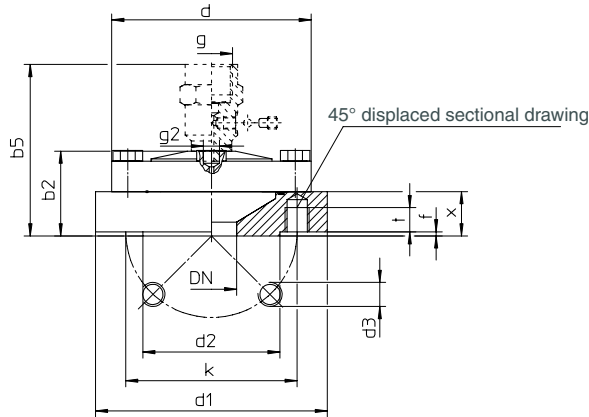
Please use our "Check list for pressure measuring instruments with chemical seal" for ordering, to avoid disregarding important information (see PDF-Download area on our website). If desired, we will send you the check lists upon request.

Dimensional Data and Weights

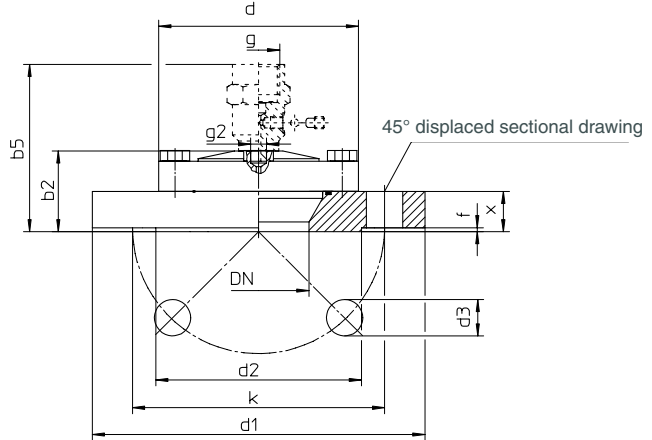
Flange Connections

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

DN 15, 20, 25
NPS ½", 1"



DN 50
NPS 2"



Flanges according to DIN EN 1092-1, dimensional data (mm / inches) and weights (kg / lb)

DN	PN	b2±2	b5±2	d	d1	d2	d3	f	g	g2	k	t	x	(approx.) weight											
														vG ½	vd8 x 5										
15	40	45 1.77	88 3.46	99 3.9	99 3.9	45 1.77		2 .08	G ½ ½" BSP	Ø 8x6 Ø 8x.24	65 2.56	12 .47	25 .98	1.99 4.38	2.12 4.67										
	63/100	60 2.36	103 4.06		105 4.13	75 2.95					18 .71	40 1.57	3.19 7.03	3.32 7.32											
20	40	45 1.77	88 3.46		58 2.28	4xM12					2 .08	G ½ ½" BSP	Ø 8x6 Ø 8x.24	12 .47	25 .98	2.13 4.7	2.26 4.98								
	63/100	67 2.63	110 4.33		130 5.12									90 3.54	18 .71	47 1.85	5.10 11.24	5.23 11.53							
25	40	42 1.65	85 3.35		68 2.68									4xØ18 4xØ.71	2 .08	G ½ ½" BSP	Ø 8x6 Ø 8x.24	85 3.35	12 .47	22 .87	2.26 4.98	2.39 5.27			
	63/100	60 2.63	103 4.06		140 5.51													100 3.94	18 .71	40 1.57	5.10 11.24	5.23 11.53			
50	40	40 1.57	83 3.27		165 6.5		102 4.02											3 .12	G ½ ½" BSP	Ø 8x6 Ø 8x.24	125 4.92	-	20 .79	3.45 7.60	3.58 12.30
	63	46 1.81	89 3.5		180 7.09																135 5.31		26 1.02	5.00 11.02	5.13 11.3
	100	48 1.89	91 3.58		195 7.68	145 5.71															28 1.10		6.12 13.5	6.25 13.78	

Flanges according to ASME, dimensional data (mm / inches) and weights (kg / lb)

NPS	Class	b2±2	b5±2	d	d1	d2	d3	f	g	g2	k	t	x	(approx.) weight							
														vG ½	vd8 x 5						
½"	150	60	103	99 3.9	99 3.9	35.1 1.38	4 x ½" -20 UNF - 2 B	1.6 .06	G ½ ½" BSP	Ø 8x6 Ø 8x.24	60.5 2.38	19 .75	40 1.57	2.78 6.13	2.91 6.42						
	300	65 2.56	108 4.25								66.5 2.62		45 1.77	2.82 6.2	2.95 6.5						
	600	65 2.56	108 4.25								79.2 3.12		40 1.57	3.23 7.12	3.36 7.40						
1"	150	60	103		108 4.25	50.8 2		4 x ⅝" -18 UNF - 2 B			1.6 .06		G ½ ½" BSP	Ø 8x6 Ø 8x.24	88.9 3.5	-	40 1.57	4.03 8.88	4.16 9.17		
	300	65 2.56	108 4.25		88.9 3.5										45 1.77		4.12 9.08	4.25 9.37			
	600	65 2.56	108 4.25		120.7 4.75										45 1.77		4.12 9.08	4.25 9.37			
2"	150	39.1 1.54	82.1 3.23		152.4 6.0	91.9 3.62	8 x Ø 19 8 x Ø.75				1.6 .06	G ½ ½" BSP			Ø 8x6 Ø 8x.24		127 5.0	-	19.1 .75	2.98 6.57	3.11 6.86
	300	42.4 1.67	85.4 3.36		165.1 6.5												22.4 .88		3.63 8.0	3.76 8.29	
	600	51.8 2.04	94.8 3.73		165.1 6.5												31.8 1.25		4.41 9.72	4.54 10.8	

Technical changes, replacement of materials and errors excepted.