Diaphragm Seals threepart

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

MDM 7210v...

Standard Version

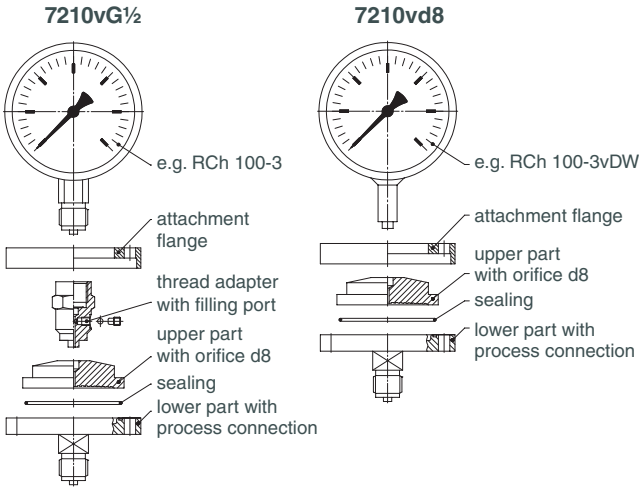
Information on applications, features, metrological influences as temperature, level difference, floating time and others can be found in model overview 7000. Furthermore you will also find advice on other chemical seal versions.

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 as instrument connection for welding to a pressure gauge with process connection d8x5, 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 ist not accessible externally. The parts can be cleaned externally.

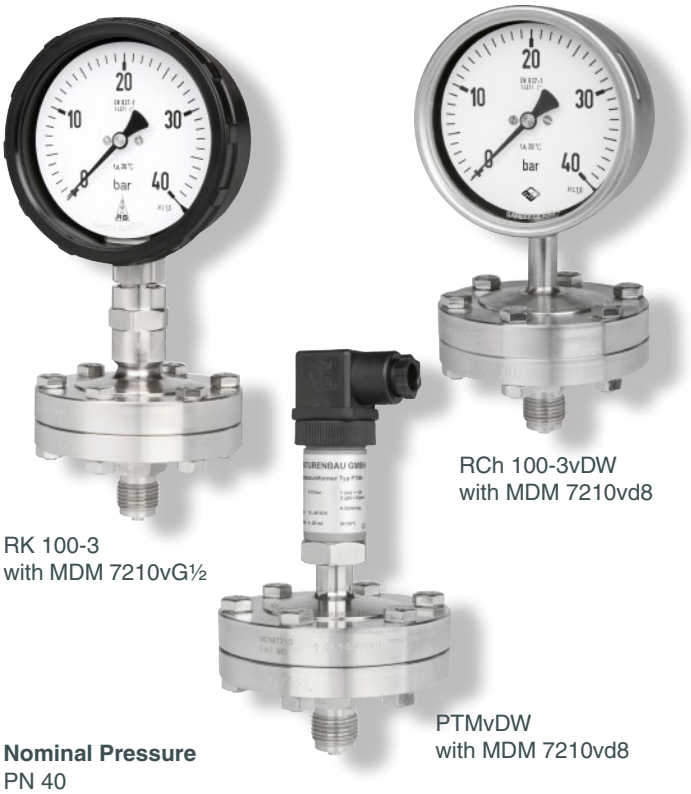


Upper Part
1.4435 (316 L stainless steel)

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

Diaphragm
High-Soft Membrane 1.4435 (316L stainless steel) 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
316L (stainless steel), connection male thread G ½ B (½" BSP)
material- and connection-options, see page 4



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 4 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.

Ordering Information Chemical Seals:

See page 4.
The reference temperature is +20 °C.
Please specify, if a +20°C deviating working temperature (tA) is required (dial inscription tA...).

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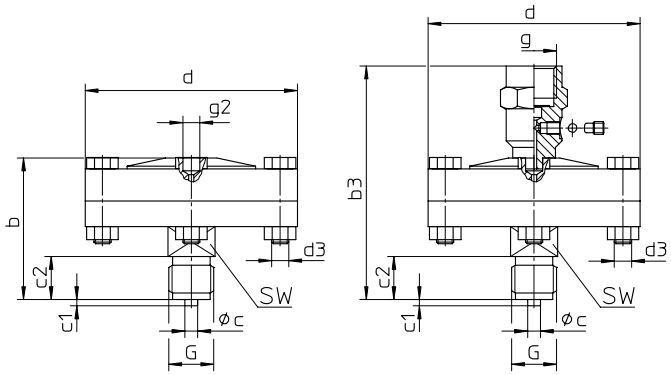
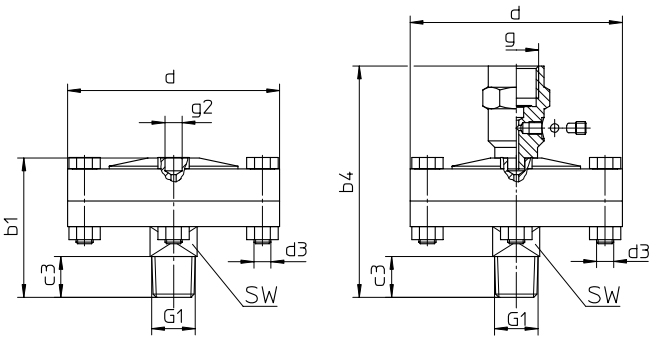
Dimensional Data and Weights

Male Thread Connections

G ½ B (½"BSP)



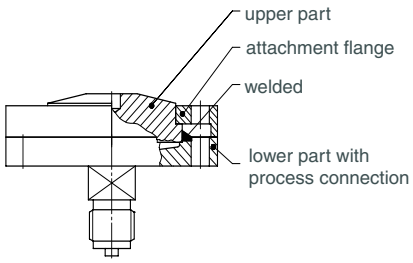
½ NPT



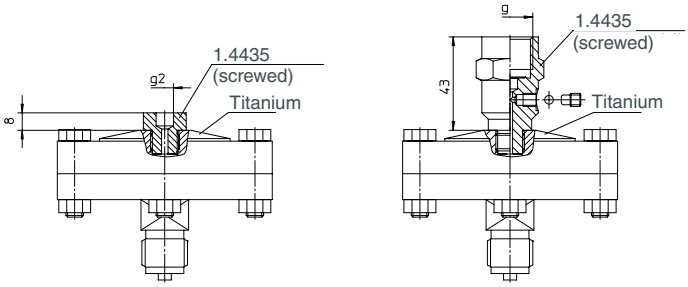
Dimensional data (mm / **inches**) **and weights** (kg / **lb**)

PN	b±2	b1±2	b3±2	b4±2	c	c1	c2	c3	d	d3	dM	g	g2	G	G1	SW	(approx.) weight vd8	vG ½
40	66 **2.6**	65 **2.56**	109 **4.29**	108 **4.25**	6 **.24**	3 **.12**	20 **.79**	19 **.75**	99 **3.9**	6 x M8	60 **2.36**	G ½ **½" BSP**	Ø 8 x 6 **Ø 8 x .24**	G ½ B **½" BSP**	½" NPT	22 **.87**	1.58 **3.48**	1.71 **3.77**
100	66 **2.6**	65 **2.56**	109 **4.29**	108 **4.25**	6 **.24**	3 **.12**	20 **.79**	19 **.75**	99 **3.9**	12 x M8	60 **2.36**	G ½ **½" BSP**	Ø 8 x 6 **Ø 8 x .24**	G ½ B **½" BSP**	½" NPT	22 **.87**	1.70 **3.75**	1.83 **4.03**

7210vd8vA



Titanium



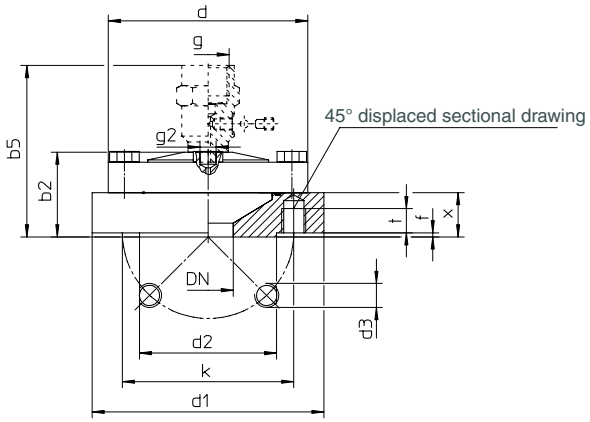
Please use our "Check list for pressure measuring instruments with chemical seal" for ordering, to avoid disregarding important information (see PDF-Download area on our website). If desired, we will send you the check lists upon request.

Dimensional Data and Weights

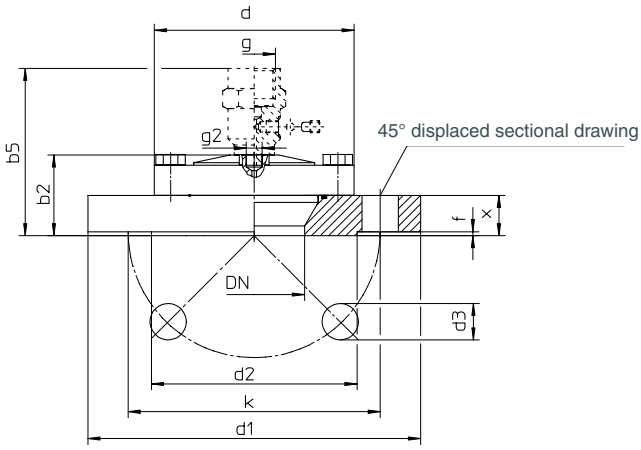
Flange Connections

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 vd8	(approx.) weight vG ½
15	40	45 **1.77**	88 **3.46**	99 **3.9**	99 **3.9**	45 **1.77**	4xM12	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**						12 **.47**	25 **.98**	2.13 **4.7**	2.26 **4.98**
	63/100	67 **2.63**	110 **4.33**		130 **5.12**		4xM16				90 **3.54**	18 **.71**	47 **1.85**	5.10 **11.24**	5.23 **11.53**
25	40	42 **1.65**	85 **3.35**		115 **4.53**	68 **2.68**	4xM12				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**		4xM16				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**	4xØ18 **4xØ.71**				125 **4.92**	–	20 **.79**	3.45 **7.60**	3.58 **12.30**
	63	46 **1.81**	89 **3.5**		180 **7.09**		4xØ22 **4xØ.87**				135 **5.31**		26 **1.02**	5.00 **11.02**	5.13 **11.3**
	100	48 **1.89**	91 **3.58**		195 **7.68**		4xØ26 **4xØ1.02**	3 **.12**			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 vd8	(approx.) weight vG ½
½"	150	60 **2.36**	103 **4.06**	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										66.5 **2.62**				
	600	65 **2.56**	108 **4.25**					6.4 **.25**					45 **1.77**	2.82 **6.2**	2.95 **6.5**
1"	150	60 **2.36**	103 **4.06**		108 **4.25**	50.8 **2**		1.6 **.06**			79.2 **3.12**		40 **1.57**	3.23 **7.12**	3.36 **7.40**
	300				124 **4.88**		4 x ⅝" -18 UNF - 2 B				88.9 **3.5**			4.03 **8.88**	4.16 **9.17**
	600	65 **2.56**	108 **4.25**					6.4 **.25**					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**		1.6 **.06**			120.7 **4.75**	–	19.1 **.75**	2.98 **6.57**	3.11 **6.86**
	300	42.4 **1.67**	85.4 **3.36**		165.1 **6.5**		8 x Ø 19 **8 x Ø.75**				127 **5.0**		22.4 **.88**	3.63 **8.0**	3.76 **8.29**
	600	51.8 **2.04**	94.8 **3.73**					6.4 **.25**					31.8 **1.25**	4.41 **9.72**	4.54 **10.8**

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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**	**Diaphragm**	
	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				
	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**
Attachment flange and screws with nuts: steel galvanised (max. 200 °C / 392 °F)	**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	**Monel, PN 40**
	Hastelloy	Hastelloy C4 2.4610		Hastelloy C276 2.4819	**Hastelloy, PN 40**
	Further options				
	PN 100				**e.g. 316L stainl. steel, 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.7210vd8vA stainl. steel 316L, PN 40** (vA= welded version / drawing see page 2)
	Titanium	Titanium 3.7035	PTFE (-40 °C to +260 °C / -40 °F to +500 °F)	Titanium 3.7035	**Titanium** (drawing see page 2)
Process Connection					
Male Thread:	standard thread	G ½ B (½" BSP)			**G ½ B (½" BSP)**
	options:	½" NPT (for PTFE-lining not recommended)			**½" NPT**
		M 20x1.5			**M 20x1.5**

Flange:

DN	PN	NPS	Class	
15 20 25 50	40	NPS ½" NPS ¾" NPS 1" NPS 2"	Class 150	**DN15 PN40**
15 25 50 50	63/100 63 100	NPS ½" NPS ¾" NPS 1" NPS 2"	Class 300	**NPS1" Class 300**
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:				
diaphragm made of	1.4571	Stainless steel		*(order at the moment still as cleartext)*
	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		
	–	Tantalum (≤ 250 °C / 482 °F)		
	3.7035	Titanium[3]		
	others	upon request		
other sealings, e. g: up to -60 °C (-76 °F)		upon request		
protection foil for diaphragm	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 Titanium