

**BOURDON**  
The Original by Baumer

### Main Features

- Pressure range from 160 mbar to 400 bar
- Flush diaphragm
- Temperature -40 °C ... 400 °C
- Class 150 to 2500
- NPS 1"1/4 to 4"
- PN10 to PN100
- DN25 to DN100

### Applications

- Oil & Gas / Chemical
- Water / Waste water
- Energy
- Process technic

### Technical Data

This diaphragm seals with flanged process connection and flush diaphragm are used to protect pressure gauges from high temperatures, aggressive or corrosive fluids.

The flush diaphragm allows direct mounting on standardized flange connections of pipes or tanks. With the flush diaphragm these seals are used especially for fluids with high viscosity or a tendency to crystallize.

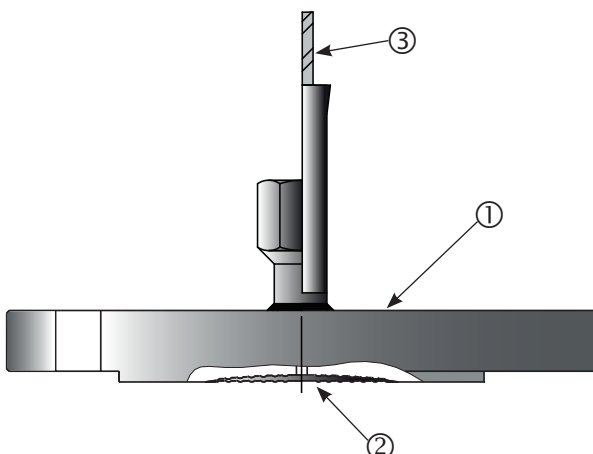
Different diaphragm materials can be selected to adapt the seal to various applications and process fluids.

The diaphragm seals can be mounted to pressure gauges or pressure switches directly or with a flexible capillary. For use with electronic transmitters for pressure and differential pressure the product series D9xx is recommended.

The filling fluid of the measuring system has to be chosen compatible to the application.

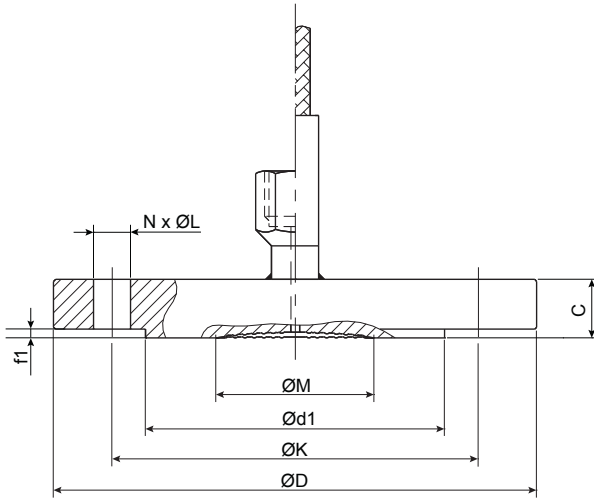
Min.pressure ranges	See table on page 2
Temperature	-40 °C ... +400 °C
Filling liquids	LRS1: -15 °C ... +150 °C LRS9: -40 °C ... +400 °C high temperature oil Other liquids on request
Mounting	Direct or remote from 1.5 to 12 meters
Flange material	Stainless steel 1.4404 (AISI 316L)
Flange types	<b>ASME B16.5 / EN1759-1:</b> class 150 to 2500, NPS 1 1/4" to 4". <b>EN1092-1:</b> PN 10 to 100, DN 25 to 100. Available flange faces see table on page 3. Other flange types on request.
Diaphragm	Stainless steel 1.4435 (AISI 316L) Option: Hastelloy, Uranus (see ordering details on page 4)
Maximum pressure	According to the PN or the class of the flange and its standardized pressure temperature relation

### Materials



	N°	D820
Flange	①	• Stainless steel 1.4404
Diaphragm	②	• Stainless steel 1.4435 • Hastelloy B2 (2.4617) • Hastelloy C276 (2.4819) • Hastelloy C4 (2.4610) • Uranus B6 (1.4539)
Capillary (option)	③	• Stainless steel

## Dimensions (mm)



## Minimum pressure ranges depending on diaphragm diameter Ø M <sup>(1)</sup>

Ø M <sup>(2)</sup> (mm)	DN63		DN100/150/160	
	Gauge	Compound	Gauge	Compound
32	0 ... 4 bar	-1 ... 9 bar	0 ... 10 bar	-1 ... 9 bar
38	0 ... 4 bar	-1 ... 9 bar	0 ... 6 bar	-1 ... 9 bar
45	0 ... 1 bar	-1 ... 5 bar	0 ... 4 bar	-1 ... 5 bar
54	0 ... 1 bar	-1 ... 3 bar	0 ... 1 bar	-1 ... 3 bar
89	0 ... 1 bar	-1 ... 0 bar	0 ... 0.16 bar	-1 ... 0 bar
95	0 ... 1 bar	-1 ... 0 bar	0 ... 0.16 bar	-1 ... 0 bar

<sup>(1)</sup> Fluid temperature -20 ... 100 °C, ambient temperature -10 ... 50 °C, others on request  
<sup>(2)</sup> Ø M according to dimension tables on page 2 and 3

## Flange dimensions (mm) ANSI B16-5 / EN 1759-1

DN	Class	Ø D	Ø K	Ø L	N	EN1759-1		ANSI B16-5		Ø d1 <sup>(1)</sup>	Ø M in mm <sup>(2)</sup>	Weight in kg
						C <sup>(1)</sup>	f1 <sup>(1)</sup>	C <sup>(1)</sup>	f1 <sup>(1)</sup>			
1"1/4	150	117	88.9	15.9	4	15.9	1.6	16.3	2	63.5	38	1.2
	300	133	98.4	19	4	19	1.6	19.5	2	63.5	38	1.8
	600	133	98.4	19	4	27	6.4	27.7	7	64.5	38	2.3
	900/1500	159	111.1	25.4	4	35	6.4	35.6	7	65.5	38	4.2
	2500	184	130.2	28.6	4	44.5	6.4	45.1	7	66.5	38	7.4
1"1/2	150	127	98.4	15.9	4	17.5	1.6	17.9	2	73	45	1.6
	300	156	114.3	22.2	4	20.6	1.6	21.1	2	73	45	2.7
	600	156	114.3	22.2	4	28.6	6.4	29.3	7	73	45	3.3
	900/1500	178	123.8	28.6	4	38.2	6.4	38.8	7	73	45	5.8
	2500	203	146	31.8	4	50.8	6.4	51.5	7	73	45	10.4
2"	150	152	120.6	19	4	19	1.6	19.5	2	91.9	54	2.4
	300	165	127	19	8	22.2	1.6	22.7	2	91.9	54	3.2
	600	165	127	19	8	31.8	6.4	32.4	7	91.9	54	4.2
	900/1500	216	165.1	25.4	8	44.5	6.4	45.1	7	91.9	54	10.1
	2500	235	171.5	28.5	8	57.2	6.4	57.9	7	91.9	54	15.6
2"1/2	150	178	139.7	19	4	22.2	1.6	22.7	2	104.6	54	4
	300	190	149.2	22.2	8	25.4	1.6	25.9	2	104.6	54	4.9
	600	190	149.2	22.2	8	35	6.4	35.6	7	104.6	54	6.1
	900/1500	244	190.5	28.6	8	47.7	6.4	48.3	7	104.6	54	14
3"	150	190	152.4	19	4	23.8	1.6	24.3	2	127	89	5
	300	210	168.3	22.2	8	28.6	1.6	29	2	127	89	6.9
	600	210	168.3	22.2	8	38.2	6.4	38.8	7	127	89	8.5
	900	241	190.5	25.4	8	44.5	6.4	45.1	7	127	89	13.1
	1500	267	203.2	31.8	8	54	6.4	54.7	7	127	89	19.2
4"	150	229	190.5	19	8	23.8	1.6	24.3	2	157.2	95	7.1
	300	254	200	22.2	8	31.8	1.6	32.2	2	157.2	95	11.6
	600	273	215.9	25.4	8	44.5	6.4	45.1	7	157.2	95	17.3
	900	292	235	31.8	8	50.8	6.4	51.5	7	157.2	95	22.1

<sup>(1)</sup> For raised faces, codes G, R.  
<sup>(2)</sup> Active diameter.

**Flange dimensions (mm) EN 1092-1**

DN	PN	Ø D	C <sup>(1)</sup>	Ø K	Ø L	N	f1 <sup>(1)</sup>	Ø d1 <sup>(1)</sup>	Ø M in mm <sup>(2)</sup>	Weight in kg
25	10/40	115	18	85	14	4	2	68	32	1.4
32	10/40	140	18	100	18	4	2	78	38	2.1
	63/100	155	24	110	22	4	2	78	38	3.1
40	10/40	150	18	110	18	4	3	88	45	2.4
	63/100	170	26	125	22	4	3	88	45	4
50	10/16	165	18	125	18	4	3	102	54	2.9
	25/40	165	20	125	18	4	3	102	54	3.2
	63	180	26	135	22	4	3	102	54	4.6
	100	195	28	145	26	4	3	102	54	5.7
65	10/16	185	18	145	18	8	3	122	54	3.5
	25/40	185	22	145	18	8	3	122	54	4.3
	63	205	26	160	22	8	3	122	54	5.7
	100	220	30	170	26	8	3	122	54	7.5
80	10/16	200	20	160	18	8	3	138	89	4.6
	25/40	200	24	160	18	8	3	138	89	5.6
	63	215	28	170	22	8	3	138	89	6.9
	100	230	32	180	26	8	3	138	89	8.9
100	10/16	220	20	180	18	8	3	158	95	5.7
	25/40	235	24	190	22	8	3	162	95	7.6
	63	250	30	200	26	8	3	162	95	10
	100	265	36	210	30	8	3	162	95	13.3

<sup>(1)</sup> For raised faces, code B.

<sup>(2)</sup> Active diameter.

**Ordering codes for flange faces**

Face Type	Drawing	ANSI B16-5		EN 1759-1		EN 1092-1	
			Codes		Codes		Codes
Flat face		Flat face Ra = 3.2...6.3 µm	A	Type A Ra = 3.2...6.3 µm	A	Type A Ra = 3.2...6.3 µm	A
Raised face		Raised face (2) <sup>(2)</sup> Raised face (7) <sup>(3)</sup> Ra = 3.2...6.3 µm	G R	Type B (1.6) <sup>(2)</sup> Type B (6.4) <sup>(3)</sup> Ra = 3.2...6.3 µm	G R	Type B1 Ra = 3.2...12.5 µm	B
Male tongue		Male tongue large <sup>(1)</sup> Male tongue small <sup>(1)</sup> Ra = 0.8...3.2 µm	H I	Type CL <sup>(1)</sup> Type CS <sup>(1)</sup> Ra = 0.8...3.2 µm	H I	Type C Ra = 0.8...3.2 µm	C
Female groove		Female groove large Female groove small Ra = 0.8...3.2 µm	K L	Type DL Type DS Ra = 0.8...3.2 µm	K L	Type D Ra = 0.8...3.2 µm	D
Male Spigot		Male spigot large Male spigot small Ra = 3.2...6.3 µm	M N	Type E Ra = 3.2...6.3 µm	M	Type E Ra = 3.2...12.5 µm	E
Female Spigot		Female spigot large Female spigot small Ra = 3.2...6.3 µm	O P	Type FC Ra = 3.2...6.3 µm	O	Type F Ra = 3.2...12.5 µm	F
Ring joint face		Ring joint face Ra = 0.4...1.6 µm	Q	Type J Ra = 0.4...1.6 µm	Q	N/A	

<sup>(1)</sup> Not applicable for 1"1/4 and 1"1/2

<sup>(2)</sup> Class 150 and 300

<sup>(3)</sup> Class 600, 900, 1500, 2500

**Ordering details D820**

<b>Model</b>		D820	-		.	2														
Flanged diaphragm seals with flush diaphragm		D820	-		.	2														
<b>Mounting</b>																				
Direct mounting			1																	
St. steel capillary with St. steel protection			A																	
St. steel capillary with St. steel protection and PVC sheath			B																	
St. steel capillary with reinforced St. steel protection			C																	
<b>For special capillary Ø 2.5 mm (seals mounted on MX, MZ, RP, RD)</b>																				
St. steel capillary Ø 2.5 with St. steel protection			G																	
St. steel capillary Ø 2.5 with St. steel protection and PVC sheath			H																	
St. steel capillary Ø 2.5 with reinforced St. steel protection			J																	
<b>Capillary length</b>																				
Without (direct mounting)			0																	
1.5 m			E																	
3 m			3																	
4.5 m			F																	
6 m			6																	
9 m			9																	
12 m			D																	
<b>Instrument connection</b>																				
G1/2 female			L																	
G1/4 female			H																	
1/2 NPT female			N																	
1/4 NPT female			8																	
1/4 NPT male (only with capillary)			5																	
1/2 NPT male (only with capillary)			6																	
<b>Flange standard</b>																				
ANSI B16-5			2																	
EN 1092-1			4																	
EN 1759-1			6																	
<b>Flange material</b>																				
St. steel 316L (1.4404)			2																	
<b>PN</b>																				
<b>ANSI B16-5 / EN 1759-1</b>																				
Class 150			1																	
Class 300			2																	
Class 600			3																	
Class 900			4																	
Class 1500			5																	
Class 2500			6																	
<b>EN 1092-1</b>																				
PN10			C																	
PN16			D																	
PN25			F																	
PN40			G																	
PN63			N																	
PN100			J																	
<b>Diaphragm coating <sup>(1)</sup></b>																				
			0																	
			1																	
			4																	
<b>Diaphragm material</b>																				
			2																	
			3																	
			5																	
			6																	
			A																	
<b>Flange face type</b>																				
			x																	
<b>DN</b>																				
<b>ANSI B16-5 / EN 1759-1</b>																				
			5																	
			6																	
			7																	
			8																	
			9																	
			V																	
<b>EN 1092-1</b>																				
			E																	
			F																	
			G																	
			H																	
			J																	
			K																	
			L																	

<sup>(1)</sup> No coating for flange facing types with groove, codes H, I, K, L, O, P, Q, C, D, F