

**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.

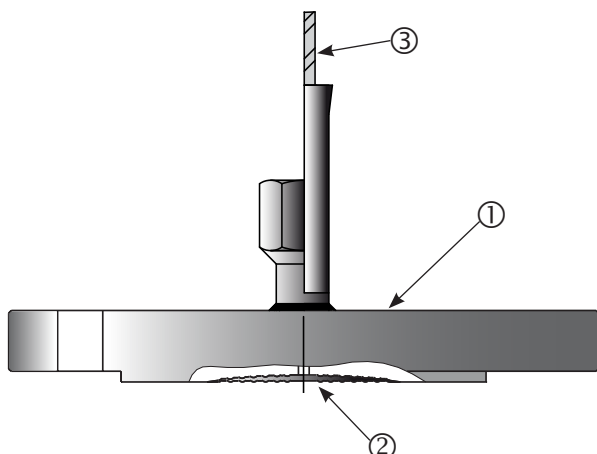
Different diaphragm materials can be selected to adapt the seal to various applications and process fluids.

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.

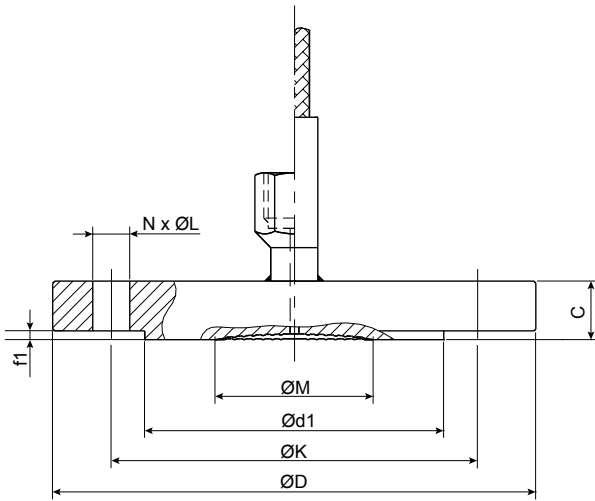
Min. pressure ranges	See table on page 2
Temperature	-40 °C ... +400 °C
Filling liquids	LRS1 : -15°C ... +150°C LRS9 : -40 °C ... +400 °C high temperature oil Other liquids on request
Mounting	Direct or remote from 1.5 to 12 meters
Flange material	Stainless steel 1.4404 (AISI 316L)
Flange types	<b>ASME 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 $\varnothing M$ <sup>1)</sup>

$\varnothing M$ <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>  $\varnothing M$  according to dimension tables on page 2 and 3

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

DN	Class	$\varnothing D$	C	$\varnothing K$	$\varnothing L$	N	f1	$\varnothing d_1$	$\varnothing M$ in mm	Weight (kg)
1"1/4	150	117	15.9	88.9	15.9	4	1.6	63.5	38	1.2
	300	133	19	98.4	19	4	1.6	63.5	38	1.8
	600	133	27	98.4	19	4	6.4	64.5	38	2.3
	900/1500	159	35	111.1	25.4	4	6.4	65.5	38	4.2
	2500	184	44.5	130.2	28.6	4	6.4	66.5	38	7.4
1"1/2	150	127	17.5	98.4	15.9	4	1.6	73	45	1.6
	300	156	20.6	114.3	22.2	4	1.6	73	45	2.7
	600	156	28.6	114.3	22.2	4	6.4	73	45	3.3
	900/1500	178	38.2	123.8	28.6	4	6.4	73	45	5.8
	2500	203	50.8	146	31.8	4	6.4	73	45	10.4
2"	150	152	19	120.6	19	4	1.6	91.9	54	2.4
	300	165	22.2	127	19	8	1.6	91.9	54	3.2
	600	165	31.8	127	19	8	6.4	91.9	54	4.2
	900/1500	216	44.5	165.1	25.4	8	6.4	91.9	54	10.1
	2500	235	57.2	171.5	28.5	8	6.4	91.9	54	15.6
2"1/2	150	178	22.2	139.7	19	4	2	104.6	54	4
	300	190	25.4	149.2	22.2	8	2	104.6	54	4.9
	600	190	35	149.2	22.2	8	2	104.6	54	6.1
	900/1500	244	47.7	190.5	28.6	8	2	104.6	54	14
3"	150	190	23.8	152.4	19	4	1.6	127	89	5
	300	210	28.6	168.3	22.2	8	1.6	127	89	6.9
	600	210	38.2	168.3	22.2	8	6.4	127	89	8.5
	900	241	44.5	190.5	25.4	8	6.4	127	89	13.1
	1500	267	54	203.2	31.8	8	6.4	127	89	19.2
4"	150	229	23.9	190.5	19	8	1.6	157.2	95	7.1
	300	254	31.8	200	22.2	8	1.6	157.2	95	11.6
	600	273	44.5	215.9	25.4	8	6.4	157.2	95	17.3
	900	292	50.8	235	31.8	8	6.4	157.2	95	22.1

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

DN	PN	Ø D	C	Ø K	Ø L	N	f1	Ø d1	Ø M in mm	Weight (kg)
25	10/40	115	16	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	20	125	18	4	3	102	54	2.9
	25/40	180	26	135	22	4	3	102	54	3.2
	63	195	28	145	26	4	3	102	54	4.6
	100	195	30	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

**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 (1.6) <sup>(3)</sup> Raised face (6.4) <sup>(4)</sup> Ra = 3.2...6.3 µm	G R	Type B (1.6) <sup>(3)</sup> Type B (6.4) <sup>(4)</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 <sup>(2)</sup> 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 <sup>(2)</sup> 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> Only applicable for 4"  
<sup>(3)</sup> Class 150 and 300  
<sup>(4)</sup> Class 600, 900, 1500, 2500

**Ordering details D820**

Model		D820	-		.	2		.				
Flanged diaphragm seals with flush diaphragm		D820	-									
<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			K									
PN100			J									
<b>Diaphragm coating <sup>(1)</sup></b>												
0			Without									
1			PTFE 0.02 mm									
4			HALAR 0.2 mm									
<b>Diaphragm material</b>												
2			St. steel 316L (1.4435)									
3			Uranus B6 (1.4539)									
5			Hastelloy B2 (2.4617)									
6			Hastelloy C276 (2.4819)									
A			Hastelloy C4 (2.4610)									
<b>Flange face type</b>												
x			See table page 3 (codes)									
<b>DN</b>												
<b>ANSI B16-5 / EN 1759-1</b>												
5			1"1/4									
6			1"1/2									
7			2"									
8			2"1/2									
9			3"									
V			4"									
<b>EN 1092-1</b>												
E			25									
F			32									
G			40									
H			50									
J			65									
K			80									
L			100									

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