D600

Diaphragm seal with extended process flange

Main Features

- Pressure range from 160 mbar to 160 bar
- Temperature -60 °C … 200 °C
- Class 150 to 900
- NPS 1/2" to 2"1/2
- PN10 to PN160
- DN10 to DN65

Applications

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

Technical Data

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

The design of the extended process flange allows direct mounting on standardized flange connections of pipes or tanks. The process flange has through holes.

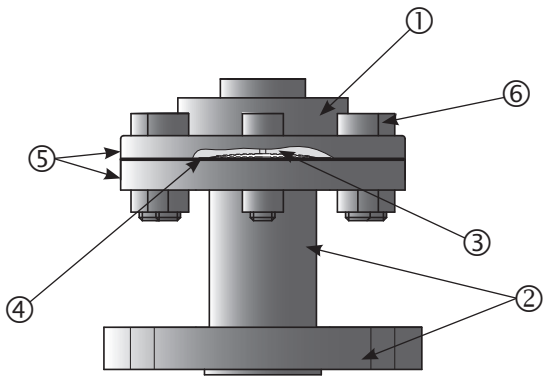
Different diaphragm materials can be selected to adapt the seal to various applications and process fluids.

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, especially for low pressure ranges.

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

Min.pressure ranges	See table on page 2
Temperature	-60 °C ... +200 °C
Filling liquids	LRS1: -15 °C ... +150 °C LRS9: -40 °C ... +200 °C high temperature oil Other liquids on request
Mounting	Direct
Process flange	Stainless steel 1.4404 (AISI 316L) (1) with extension
Flange types	**ASME B16.5 / EN1759-1:** class 150 to 900, NPS 1/2" to 2"1/2 **EN1092-1:** PN 10 to 160, DN 10 to 65. Available flange faces see table on page 4. Other flange types on request.
Diaphragm	Stainless steel 1.4435 (AISI 316L) Option: Hastelloy, Uranus, Tantalum and Monel 400 (see ordering details on page 5)
Maximum pressure	According to the PN or the class of the flange and its standardized pressure temperature relation

Materials



	N°	D611	D621	D631
Upper part	①	Stainless steel 1.4404		
Process flange with extension	②	Stainless steel 1.4404 (1)		
Diaphragm	③	Stainless steel 1.4435 (1)		
Gasket	④	PTFE		
Fixing flanges (3)	⑤	Stainless steel 1.4301 (2)		_ (4)
Screws / nuts	⑥	Stainless steel 1.4301 (2)		

(1) Others materials see ordering details on page 5
(2) 1.4404 (316L) with option 1999
(3) Stamped parts for D611 and D621
(4) The upper part of the D631 is a flange directly mounted on the process flange

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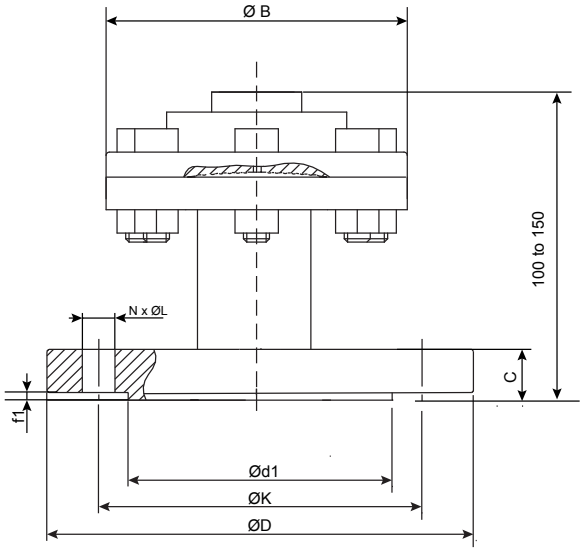
Dimensions (mm)



Pressure limitations and dimensions of the upper part

Type	Min. pressure ranges (1)			
	Gauge	Compound	P_{max} (2)	Ø B
D611	0 ... 10 bar	-1 ... 9 bar	160 bar	85
D621	0 ... 1 bar	-1 ... 3 bar	40 bar	85
D631	0 ... 0.16 bar	-1 ... 0 bar	25 bar	120

(1) Fluid temperature -20 ... 100 °C, ambiant temperature -10 ... 50 °C for pressure gauges DN100/150/160, others on request.

(2) The maximum pressure is also limited by the process flange.

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 (2)	Weight in kg (1)		
						C (2)	f1 (2)	C (2)	f1 (2)		D611	D621	D631
1/2"	150	89	60.3	15.9	4	11.1	1.6	13.2	2	35.1	–	1.6	1.9
	300	95	66.7	15.9	4	14.3	1.6	14.7	2	35.1	1.9	–	–
	600	95	66.7	15.9	4	20.7	6.4	21.3	7	35.1	2.1	–	–
	900	121	82.6	22.2	4	28.6	6.4	29.3	7	35.1	3	–	–
3/4"	150	99	69.8	15.8	4	12.7	1.6	14.7	2	42.9	–	1.8	2.1
	300	117	82.6	19	4	15.9	1.6	16.3	2	42.9	2.4	–	–
	600	117	82.6	19	4	22.3	6.4	22.9	7	42.9	2.6	–	–
	900	130	88.9	22.2	4	31.8	6.4	32.4	7	42.9	2.7	–	–
1"	150	108	79.4	15.9	4	14.3	1.6	16.3	2	50.8	–	2.1	1.4
	300	124	88.9	19	4	17.5	1.6	17.9	2	50.8	2.7	–	–
	600	124	88.9	19	4	23.9	6.4	24.5	7	50.8	2.9	–	–
	900	149	101.6	25.4	4	35	6.4	35.6	7	50.8	4.9	–	–
1"1/4	150	117	88.9	15.9	4	15.9	1.6	17.9	2	63.5	–	2.4	2.7
1"1/2	150	127	98.4	15.9	4	17.5	1.6	19.5	2	73.2	–	2.7	3
2"	150	152	120.6	19	4	19	1.6	21.1	2	91.9	–	–	3.9
2"1/2	150	178	139.7	19	4	22.2	1.6	24.3	2	104.6	–	–	5.5

(1) Versions with "-" are not available.
(2) For raised faces, codes G, R.

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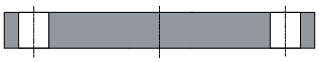
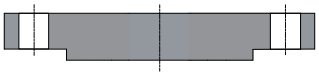
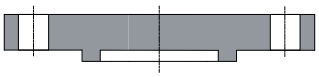
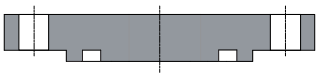
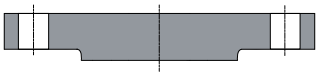
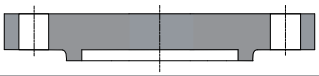
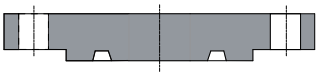
Flange dimensions (mm) EN 1092-1

DN	PN	Ø D	Ø K	Ø L	N	C [2]	f1 [2]	Ø d1 [2]	Weight in kg [1]		
									D611	D621	D631
10	10	90	60	14	4	16	2	40	–	1.9	2.2
	16	90	60	14	4	16	2	40	–	1.9	2.2
	25	90	60	14	4	16	2	40	–	1.9	2.2
	40	90	60	14	4	16	2	40	–	1.9	–
15	10	95	65	14	4	16	2	45	–	2	2.3
	16	95	65	14	4	16	2	45	–	2	2.3
	25	95	65	14	4	16	2	45	–	2	2.3
	40	95	65	14	4	16	2	45	–	2	–
	63	105	75	14	4	20	2	45	2.5	–	–
	100	105	75	14	4	20	2	45	2.5	–	–
	160	105	75	14	4	20	2	45	3.5	–	–
20	10	105	75	14	4	18	2	58	–	2.3	2.6
	16	105	75	14	4	18	2	58	–	2.3	2.6
	25	105	75	14	4	18	2	58	–	2.3	2.6
	40	105	75	14	4	18	2	58	–	2.3	–
	63	130	90	18	4	22	2	58	3.3	–	–
	100	130	90	18	4	22	2	58	3.3	–	–
25	10	115	85	14	4	18	2	68	–	2.6	2.9
	16	115	85	14	4	18	2	68	–	2.6	2.9
	25	115	85	14	4	18	2	68	–	2.6	2.9
	40	115	85	14	4	18	2	68	–	2.6	–
	63	140	85	18	4	24	2	68	3.8	–	–
	100	140	100	18	4	24	2	68	3.8	–	–
	160	140	100	18	4	24	2	68	4	–	–
32	10	140	100	18	4	18	2	78	–	3.2	3.5
	16	140	100	18	4	18	2	78	–	3.2	3.5
	25	140	100	18	4	18	2	78	–	3.2	3.5
	40	140	100	18	4	18	2	78	–	3.2	–
40	10	150	110	18	4	18	3	88	–	3.6	3.9
	16	150	110	18	4	18	3	88	–	3.6	3.9
	25	150	110	18	4	18	3	88	–	3.6	3.9
	40	150	110	18	4	18	3	88	–	3.6	–
50	10	165	125	18	4	18	3	102	–	–	4.4
	16	165	125	18	4	18	3	102	–	–	4.4
	25	185	135	18	4	20	3	102	–	–	4.7
65	10	185	145	18	8	18	3	122	–	–	5
	16	185	145	18	8	18	3	122	–	–	5
	25	185	145	18	8	22	3	122	–	–	5.8

[1] Versions with "-" are not available.
[2] For raised faces, code B.

Ordering codes for flange faces

Face Type	Drawing	ANSI B16-5	Codes	EN 1759-1	Codes	EN 1092-1	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) [2] Raised face (7) [3] Ra = 3.2...6.3 µm	G R	Type B (1.6) [2] Type B (6.4) [3] Ra = 3.2...6.3 µm	G R	Type B1 Ra = 3.2...12.5 µm	B
Male tongue		Male tongue large [1] Male tongue small [1] Ra = 0.8...3.2 µm	H I	Type CL [1] Type CS [1] 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 Ra = 3.2...6.3 µm	M	Type E Ra = 3.2...6.3 µm	M	Type E Ra = 3.2...12.5 µm	E
Female Spigot		Female spigot large Ra = 3.2...6.3 µm	O	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	

[1] Not applicable for 1"1/4 and 1"1/2
[2] Class 150 and 300
[3] Class 600 and 900

D600

Diaphragm seal with extended process flange

Ordering details D600

	D6xx	–				.				.			
Model													
High pressure type	D611												
Medium pressure type	D621												
Low pressure type	D631												
		–											
Upper part													
St. steel 1.4404 (316L)			2										
Instrument connection													
G1/2 female				L									
G1/4 female				H									
1/2 NPT female				N									
1/4 NPT female				8									
Diaphragm material													
St. steel 316L (1.4435)					2								
Uranus B6 (1.4539)					3								
Hastelloy B2 (2.4617)					5								
Hastelloy C276 (2.4819)					6								
Tantalum					7								
Monel 400					9								
						.							
Diaphragm coating [2]													
Without							0						
PTFE 0.02 mm							1						
HALAR 0.2 mm							4						
Adhesive PTFE lining 0.25 mm [3]							2						
Gold 15 µm							7						
Process flange standard													
ANSI B16-5								2					
EN 1092-1								4					
EN 1759-1								6					
PN/Class													
ANSI B16-5 / EN 1759-1													
Class 150									1				
Class 300									2				
Class 600									3				
Class 900									4				
EN 1092-1													
PN10									C				
PN16									D				
PN25									F				
PN40									G				
PN63									N				
PN100									J				
PN160									P				

			Process flange coating [1]
		0	No coating
		1	PTFE 0.02 mm
		3	PTFE 2 mm [4]
		4	HALAR 0.2 mm
			Process flange material
	1		Steel
	2		St. steel 1.4404 (316L)
	3		Uranus B6 (1.4539)
	5		Hastelloy B6 (2.4617)
	6		Hastelloy C276 (2.4819)
	9		Monel 400 (2.4360)
	C		PVC [5] max.10 bar/40 °C
	D		PVDF [5] max.10 bar/80 °C or 16 bar / 40 °C
	E		PPH [5] max.10 bar/60 °C
	F		PTFE [5] max. 6 bar/80 °C
			Flange face type
x			See table page 4 (codes)
.			
			DN
			ANSI B16-5 / EN 1759-1
2			1/2"
3			3/4"
4			1"
5			1"1/4
6			1"1/2
7			2"
8			2"1/2
			EN 1092-1
A			10
C			15
D			20
E			25
F			32
G			40
H			50
J			65

[1] No coating for flange facing types with groove, codes H, I, K, L, O, P, Q, C, D, F.
[2] No diaphragm coatings on Tantalum diaphragms available.
[3] Not for vacuum and compound pressure ranges.
[4] Not for D611, max. 10 bar, max. 100 °C, only flange face A, B, G and R, DN ≤ 40 (1"1/2).
[5] Only for D621 and D631.