



## Specifications

- Seal material: AISI 316L / 1.4404
- Diaphragm material: AISI 316L / 1.4435
- Instrument connection: 1/2" BSP
- Process connection: 1/4", 1/2", 3/4" 1", BSP / NPT, M/F
- Max Pressures:  
170 bar at 20°C, 150 bar at 200°C, 100 bar at 400°C

## Special features

- Diaphragm protected against rupture with backup convolution

## Available certification

- 2.1 Certificate of conformity
- 3.1 Material certificate
- Others on request

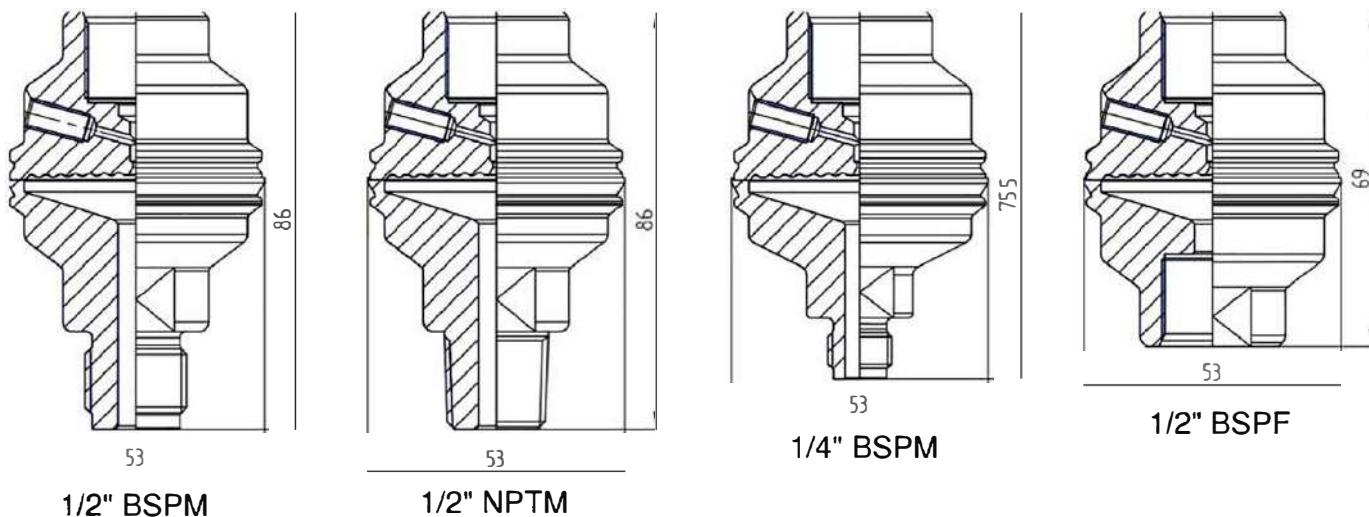
## How to order

Please specify: model, process connection, certificates  
Example: 2W, 1/2" BSP MALE

## Introduction

Compact fully welded construction chemical seal with threaded process connection and internal diaphragm.

Suitable for applications with medium pressure and reduced space.





## Introduction

The Slip On Flanged diaphragm seals model TETROSEAL SF can be used when special flange grades are required. The main disc part is manufactured from the same exotic material as the diaphragm foil. This is a more economical method than having the whole flange made in exotic material.

It is often used for RTJ flanged seals that require exotic metal diaphragms. This ensures the full wetted parts are also made from the same material.

## Special features

- Flush welded diaphragm (free of dead space)
- Diaphragm protected against rupture with backup convolution
- Helium leak tested to ensure integrity of diaphragm
- All wetted parts including sealing face are made from same material

## Diaphragm seal specifications

- Flange type: ASME B16.5 Ring Type Joint (RTJ)
- Flange material: AISI 316L
- Wetted parts and diaphragm material: Hastelloy C276
- Instrument connection: 1/2"BSP female

## Measuring range

- Max. dependant on flange rating

## Options for diaphragm seal

- Slip
- Other instrument connection: 1/2"BSP female or without connection (12 mm dia x 5 mm hole)
  - Diaphragm and wetted part material: Duplex, Inconel, Monel, Titanium
  - Capillary length: custom length between 1 m to 15 m
  - Other flange and diaphragm materials on request
  - Other flange types and sealing face on request
  - Diaphragm extension 50 mm to 200 mm

Diaphragm	Process temperature limit
Duplex 2205	300 °C
Hastelloy C276	400 °C
Inconel 600	400 °C
Monel 400	400 °C
Titanium	150 °C

## Available certification

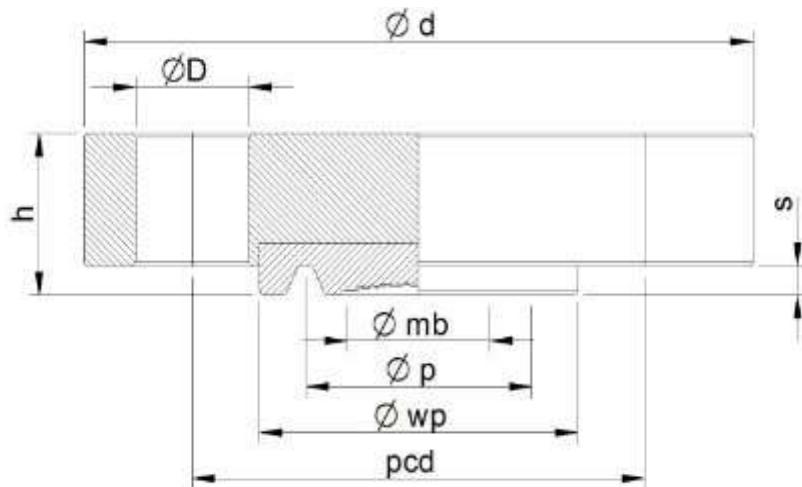
- 2.1 Certificate of conformity
- 3.1 Material certificate
- 3.1 Material certificate with NACE conformity MR-01-75
- PMI Positive Material Identification
- Others on request

## How to order

Please specify: model, instrument connection, size, rating, sealing face, diaphragm and wetted parts material, options, certificates

Example: TETROSEAL SF, capillary socket, 2" ANSI, 150#, RTJ, Hastelloy C276, 3.1 material certificate





Flange connection according to ASME / ANSI B 16.5 RTJ, (Ring Type Joint)											
Size	Class rating	mb	d	h	Dimensions in mm	D (inch)	pcd	wp	s	p	Drill holes
1"	150	32	110	19	Dimensions in mm	5/8"	79	64	6	47.63	4
	300	32	125	22		3/4"	89	70	6	50.80	4
	400-600	32	125	24		3/4"	89	70	6	50.80	4
	900-1500	32	150	35		1"	102	72	6	50.80	4
	2500	32	160	41		1"	108	83	6	60.33	4
1 1/2"	150	44	125	22	Dimensions in mm	5/8"	98	83	6	65.07	4
	300	44	155	26		7/8"	114	91	6	68.28	4
	400-600	44	155	29		7/8"	114	91	6	68.28	4
	900-1500	44	180	38		1 1/8"	124	92	6	68.28	4
	2500	44	205	53		1 1/4"	146	114	8	82.55	4
2"	150	57	150	24	Dimensions in mm	3/4"	121	102	6	82.55	4
	300	57	165	29		3/4"	127	108	8	82.55	8
	400-600	57	165	33		3/4"	127	108	8	82.55	8
	900-1500	57	215	46		1"	165	124	8	95.25	8
	2500	57	235	59		1 1/8"	171	133	8	101.60	8
3"	150	81	190	29	Dimensions in mm	3/4"	152	133	6	114.30	4
	300	81	210	35		7/8"	168	146	8	123.83	8
	400-600	81	210	40		7/8"	168	146	8	123.83	8
	900	81	240	46		1"	191	156	8	123.83	8
	1500	81	265	56		1 1/4"	203	168	8	136.53	8
	2500	81	305	76		1 3/8"	229	168	10	127.00	8
4"	150	81	230	29	Dimensions in mm	3/4"	191	171	6	149.23	8
	300	81	255	38		7/8"	200	175	8	149.23	8
	400	81	255	43		1"	200	175	8	149.23	8
	600	81	275	46		1"	216	175	8	149.23	8
	900	81	290	52		1 1/4"	235	181	8	149.23	8
	1500	81	310	62		1 3/8"	241	194	8	161.93	8
	2500	81	355	87		1 5/8"	273	203	11	157.18	8





Diaphragm and wetted parts	Process temperature limit
Stainless Steel 316/316L	400 °C
Duplex 2205	300 °C
Hastelloy C276	400 °C
Inconel 600	400 °C

## Options for diaphragm seal

- Other instrument connection: capillary socket or without connection (12 mm hole)
- Flange material: Duplex, Hastelloy,
- Diaphragm and wetted part material: Duplex, Hastelloy, Inconel
- Capillary length: custom length between 1 m to 15 m
- Other flange and diaphragm materials on request
- Other flange types and sealing face on request
- Flushing ring to suit (see Flushing Ring datasheet)

## Available certification

- 2.1 Certificate of conformity
- 3.1 Material certificate
- 3.1 Material certificate with NACE conformity MR-01-75
- PMI Positive Material Identification
- Others on request

## How to order

Please specify: model, process connection, diaphragm and wetted parts material, options, certificates  
Example: TETROSEAL RD, 1" ANSI, SS316

## Introduction

Flanged diaphragm seal model TETROSEAL RD has a larger internal diaphragm allowing for the measurement of smaller pressures than the standard flushed faced version.

## Special features

- A larger internal / recessed diaphragm positioned behind the sealing face
- Diaphragm safeguarded from accidental damage during installation
- Larger diaphragm diameter reduces deviations in instrument measurements caused by temperature changes
- All welded construction
- Diaphragm protected against rupture with backup convolution
- Helium leak tested to ensure integrity of diaphragm

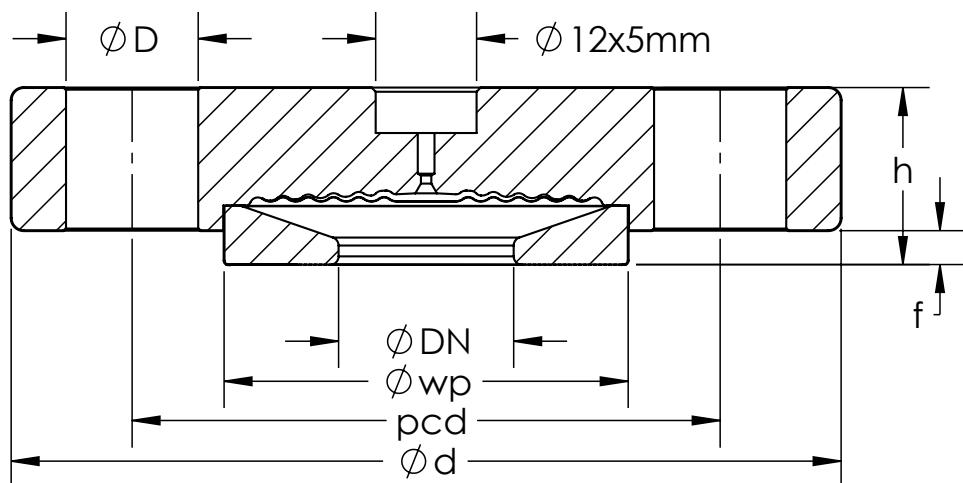
## Diaphragm seal specifications

- Flange type: ASME B16.5 Raised Face (RF), EN 1092-1 Form B1,
- Flange body material: AISI 316L
- Wetted parts and diaphragm material: AISI 316L
- Instrument connection: 1/2"BSP female

## Measuring range

- Max. dependant on flange rating





Size	Class rating	Flange connection according to ASME / ANSI B 16.5, RF (Raised Face)							
		mb	d	h	D	pcd	wp	f	Drill holes
$\frac{1}{2}$ "	150	32	90	19	16	60.3	35	4	4
	300	32	95	22	16	66.7	35	4	4
$\frac{3}{4}$ "	150	46	100	21	16	69.9	43	4	4
	300	46	115	23	19	82.6	43	4	4
1"	150	57	110	22	16	79.4	51	4	4
	300	57	125	22	19	88.9	51	4	4
1.5"	150	57	125	24	16	98.4	73	4	4
	300	57	155	24	22	114.3	73	4	4

DN in mm	PN in bar	Flange connection according to EN 1092-1, Form B1							
		mb	d	h	D	pcd	wp	f	Drill holes
15	10/40	44	95	22	14	65	45	4	4
20	10/40	57	105	24	14	75	58	4	4
25	10/40	66	115	24	14	85	68	4	4



### Introduction

The TETROSEAL FSE flanged diaphragm seals with a flush welded extended diaphragm are used for contaminated, solidifying, hot or highly viscous media. They are suitable for thick-walled or isolated tanks and pipelines.

### Special features

- Flush welded diaphragm (free of dead space)
- Diaphragm protected against rupture with backup convolution
- Helium leak tested to ensure integrity of diaphragm
- When exotic metal diaphragm or coating is required, all wetted parts including sealing face are made from same material

### Diaphragm seal specifications

- Flange type: ANSI B16.5 Raised Face (RF) or Ring Type Joint (RTJ), EN 1092-1 Form B1
- Flange body material: AISI 316L
- Wetted parts and diaphragm material: AISI 316L
- Instrument connection: capillary socket

### Capillary extension

- Armoured capillary AISI 316L: 1 m, 1.5 m, 2 m, 4 m, 5 m, 6 m, 7 m, 8 m

### Diaphragm extension

- 50 mm, 100 mm, 150 mm or 200 mm

### Options for diaphragm seal

- Other instrument connection: 1/2"BSP female or without connection (12 mm dia x 5 mm hole)
- Flange material: Hastelloy, Monel, Titanium
- Diaphragm and wetted part material: Hastelloy, Inconel, Monel, Tantalum, Titanium, Zirconium
- Coatings: Gold, Rhodium, PFA and PTFE
- Diaphragm extension: custom length
- Capillary length: custom length between 1 m to 15 m
- Other flange and diaphragm materials on request
- Other flange types and sealing face

Diaphragm	Process temperature limit
316L	400 °C
Duplex 2205	300 °C
Hastelloy C276	400 °C
Inconel 600	400 °C
Monel 400	400 °C
Tantalum	300 °C
Titanium	150 °C
Gold plating	400 °C
Rhodium plating	400 °C
PFA coating	260 °C

### Available certification

- 2.1 Certificate of conformity
- 3.1 Material certificate
- 3.1 Material certificate with NACE conformity MR-01-75
- Others on request

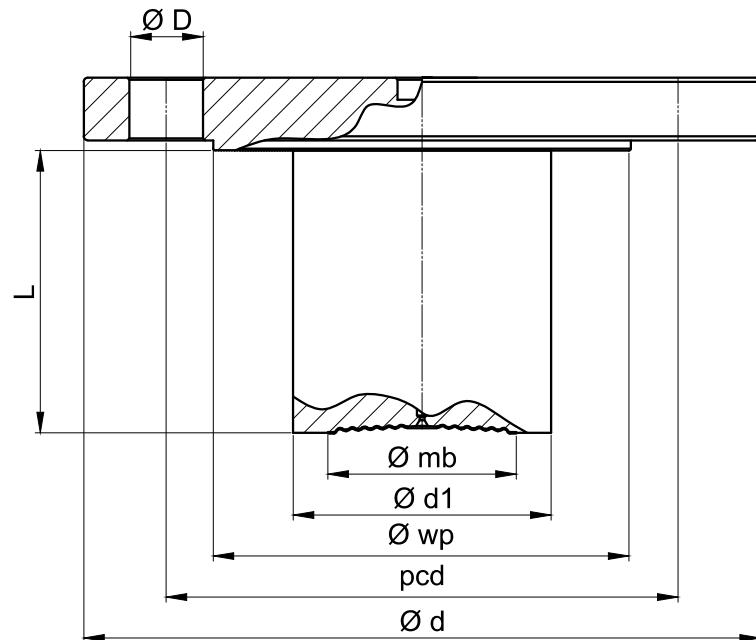
### How to order

Please specify: model, instrument connection, size, rating, extension length, sealing face, diaphragm and wetted parts material, options, certificates

Example: TETROSEAL FSE, capillary socket, 2" ANSI, 150#, 100 mm, RF, AISI 316L, 3.1 material certificate



L = Diaphragm extension measurement as required



Flange connection according to ASME / ANSI B 16.5, RF (Raised Face)								
Size	Class rating	Dimensions in mm						Drill holes
		mb	d	d1	D	pcd	wp	
1 1/2"	150	34	125	38	16	98.4	73	4
	300	34	155	38	22	114.3	73	4
2"	150	48	150	48	19	120.7	92	4
	300	48	165	48	19	127	92	8
3"	150	76	190	76	19	153.4	127	4
	300	76	210	76	22	168.3	127	8
4"	150	89	230	95	19	190.5	158	8
	300	89	255	95	22	200	158	8

Flange connection according to EN 1092-1, Form B1								
DN in mm	PN in bar	Dimensions in mm						Drill holes
		mb	d	d1	D	pcd	wp	
40	10/40	34	150	38	18	110	88	4
50	10/40	48	165	48	18	125	102	4
80	10/16	76	200	76	18	160	138	8
	25/40	76	200	76	18	160	138	8
100	10/16	89	220	95	18	180	158	8
	25/40	89	235	95	22	190	162	8





## Introduction

Flanged diaphragm seals model TETROSEAL with a flush welded diaphragm are used for contaminated, solidifying, hot or highly viscous media and when flange connections are required.

## Special features

- Flush welded diaphragm (free of dead space)
- Diaphragm protected against rupture with backup convolution
- Helium leak tested to ensure integrity of diaphragm
- When exotic metal diaphragm or coating is required, all wetted parts including sealing face are made from same material

## Diaphragm seal specifications

- Flange type: ASMEB16.5 Raised Face (RF) or Ring Type Joint (RTJ), EN 1092-1 Form B1, JIS B2220
- Flange body material: AISI 316L
- Wetted parts and diaphragm material: AISI 316L
- Instrument connection: 1/2"BSP female

## Measuring range

- Max. dependant on flange rating

## Options for diaphragm seal

- Other instrument connection: capillary socket or without connection (12 mm hole)
- Flange material: Duplex, Hastelloy, Monel, Titanium
- Diaphragm and wetted part material: Duplex, Hastelloy, Inconel, Monel, Tantalum, Titanium, Zirconium
- Coatings: Gold, Rhodium, PFA and PTFE
- Capillary length: custom length between 1m to 15m
- Other flange and diaphragm materials on request
- Other flange types and sealing face on request
- Sealing face not covered by exotic material
- Flushing ring to suit (see Flushing Ring datasheet)

Diaphragm and wetted parts	Process temperature limit
Stainless Steel 316/316L	400 °C
Stainless Steel 321	400 °C
Duplex 2205	300 °C
Hastelloy C276	400 °C
Incoloy 825	400 °C
Inconel 625	400 °C
Inconel 600	400 °C
Monel 400	400 °C
Tantalum	300 °C
Titanium G1	150 °C
Zirconium 702	TBC
Gold plating	400 °C
Rhodium plating	400 °C
PFA coating	260 °C
PTFE foil	260 °C

## Available certification

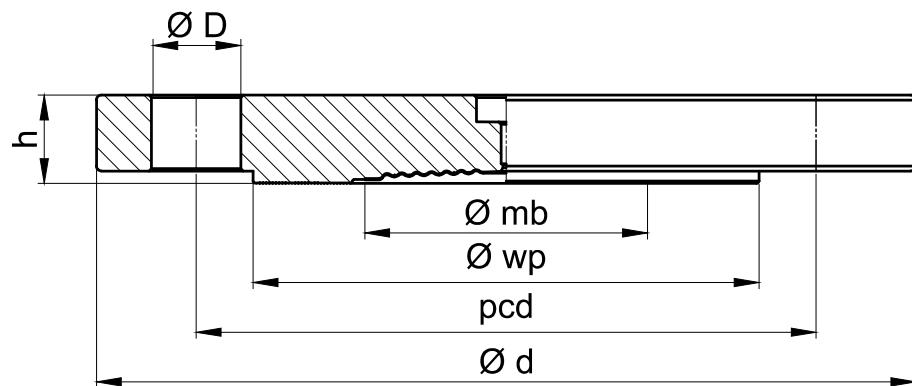
- 2.1 Certificate of conformity
- 3.1 Material certificate
- 3.1 Material certificate with NACE conformity MR-01-75
- PMI Positive Material Identification
- Others on request

## How to order

Please specify: model, instrument connection, size, rating, sealing face, diaphragm and wetted parts material, options, certificates

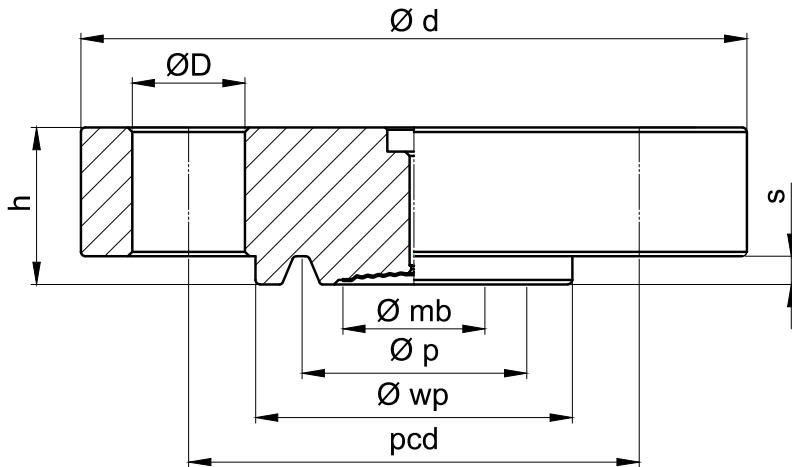
Example: TETROSEAL, 1/2" BSPF, 2" ANSI, 150#, RF, AISI 316L, 3.1 material certificate





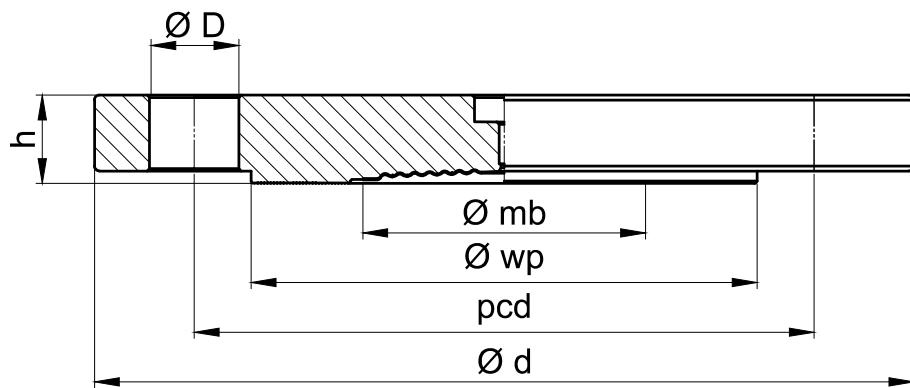
Flange connection according to ASME / ANSI B 16.5, RF (Raised Face)								
Size	Class rating	Dimensions in mm						Drill holes
		mb	d	h	D	pcd	wp	
1"	150	32	110	14.7	16	79.4	51	4
	300	32	125	17.9	19	88.9	51	4
1 1/2"	150	46	125	17.9	16	98.4	73	4
	300	46	155	21.1	22	114.3	73	4
	600	46	155	29.3	22	114.3	73	4
	1,500	46	180	38.8	29	123.8	73	4
	2,500	46	205	51.5	32	146	73	4
2"	150	57	150	19.5	19	120.7	92	4
	300	57	165	22.7	19	127	92	8
	600	57	165	32.4	19	127	92	8
	1,500	57	215	45.1	26	165.1	92	8
	2,500	57	235	57.9	29	171.4	92	8
3"	150	88	190	24.3	19	153.4	127	4
	300	88	210	29	22	168.3	127	8
	600	88	210	38.8	22	168.3	127	8
	900	88	240	45.1	26	190.5	127	8
	1,500	88	265	54.7	32	203.2	127	8
	2,500	88	305	73.7	35	228.6	127	8
4"	150	88	230	24.3	19	190.5	158	8
	300	88	255	32.2	22	200	158	8
	400	88	255	42	26	200	158	8
	600	88	275	45.1	26	215.9	158	8
	900	88	290	51.5	32	235	158	8
	1,500	88	310	61	35	241.3	158	8
	2,500	88	355	83.2	42	273	158	8





Flange connection according to ASME / ANSI B 16.5 RTJ, (Ring Type Joint)											
Size	Class rating	mb	d	h	Dimensions in mm	D (inch)	pcd	wp	s	p	Drill holes
1"	150	32	110	19	Dimensions in mm	5/8"	79	64	6	48	4
	300	32	125	22		3/4"	89	70	6	51	4
	400-600	32	125	24		3/4"	89	70	6	51	4
	900-1500	32	150	35		1"	102	72	6	51	4
	2500	32	160	41		1"	108	83	6	60	4
1 1/2"	150	44	125	22	Dimensions in mm	5/8"	98	83	6	65	4
	300	44	155	26		7/8"	114	91	6	68	4
	400-600	44	155	29		7/8"	114	91	6	68	4
	900-1500	44	180	38		1 1/8"	124	92	6	69	4
	2500	44	205	53		1 1/4"	146	114	8	83	4
2"	150	57	150	24	Dimensions in mm	3/4"	121	102	6	83	4
	300	57	165	29		3/4"	127	108	8	83	8
	400-600	57	165	33		3/4"	127	108	8	95	8
	900-1500	63	215	46		1"	165	124	8	102	8
	2500	63	235	59		1 1/8"	171	133	8	114	8
3"	150	88	190	29	Dimensions in mm	3/4"	152	133	6	124	4
	300	88	210	35		7/8"	168	146	8	124	8
	400-600	88	210	40		7/8"	168	146	8	124	8
	900	88	240	46		1"	191	156	8	137	8
	1500	88	265	56		1 1/4"	203	168	8	127	8
	2500	88	305	76		1 3/8"	229	168	10	149	8
4"	150	88	230	29	Dimensions in mm	3/4"	191	171	6	149	8
	300	88	255	38		7/8"	200	175	8	149	8
	400	88	255	43		1"	200	175	8	149	8
	600	88	275	46		1"	216	175	8	149	8
	900	88	290	52		1 1/4"	235	181	8	149	8
	1500	88	310	62		1 3/8"	241	194	8	162	8
	2500	88	355	87		1 5/8"	273	203	11	157	8

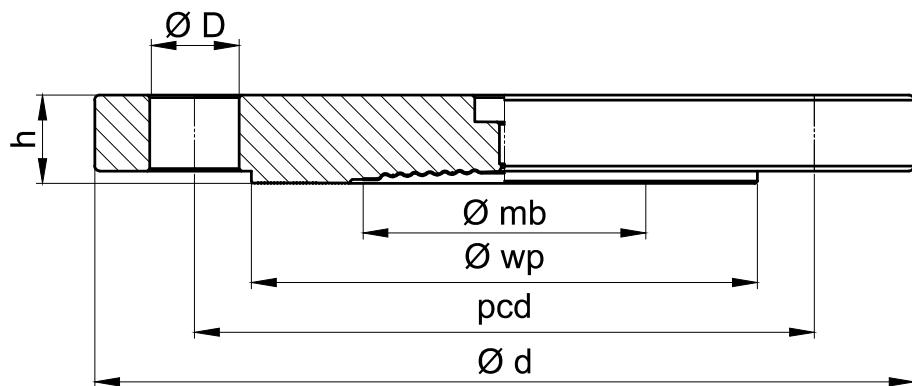




Flange connection according to EN 1092-1, Form B1

DN in mm	PN in bar	Dimensions in mm							Drill holes
		mb	d	h	D	pcd	wp		
25	10/40	32	115	18	14	85	68	4	
	63/100	32	140	24	18	100	68	4	
40	10/40	46	150	18	18	110	88	4	
	63/100	46	170	26	22	125	88	4	
	160	46	170	28	22	125	88	4	
	250	46	185	34	26	135	88	4	
50	10/40	57	165	20	18	125	102	4	
	63	57	180	26	22	135	102	4	
	100	57	195	28	26	145	102	4	
	160	57	195	30	26	145	102	4	
	250	57	200	38	26	150	102	8	
80	10/16	88	200	20	18	160	138	8	
	25/40	88	200	24	18	160	138	8	
	63	88	215	28	22	170	138	8	
	100	88	230	32	26	180	138	8	
	160	88	230	36	26	180	138	8	
	250	88	255	46	30	200	138	8	
100	10/16	88	220	20	18	180	158	8	
	25/40	88	235	24	22	190	162	8	
	63	88	250	30	26	200	162	8	
	100	88	265	36	30	210	162	8	
	160	88	265	40	30	210	162	8	
	250	88	300	54	33	235	162	8	





Flange connection according to JIS B2220, RF (Raised Face)								
Size	Class rating	Dimensions in mm						Drill holes
		mb	d	h	D	pcd	wp	
50A	10K	57	155	18	19	120	96	4
	16K	57	155	18	19	120	96	8
	20K	57	155	20	19	120	96	8
80A	10K	88	185	20	19	150	126	8
	16K	88	200	22	23	160	132	8
	20K	88	200	24	23	160	132	8
100A	10K	88	210	20	19	175	151	8
	16K	88	225	24	23	185	160	8
	20K	88	225	26	23	185	160	8





Join the Tetro-Insert  
with your flange.

## Introduction

The insert diaphragm seal TETRO-INSERT was designed for companies that produce diaphragm seal systems. The TETRO-INSERT's smaller size and weight saves on overall transportation costs. The insert can be combined with a locally sourced backing flange making it a more economical option.

The insert can be welded to the flange or kept separate allowing the flange to swivel. The reduced size also saves space and making inventory management more convenient.

## Special features

- Compact and lightweight reduces shipping costs
- More economical purchase
- Simplified inventory management
- Helium leak tested to ensure integrity of diaphragm

## Diaphragm seal specifications

- Flange type: ASME B16.5 Raised Face (RF) or Ring Type Joint (RTJ), EN 1092-1 Form B1, JIS B2220
- Flange body material: AISI 316L

## Options for diaphragm seal

- Body material: Duplex, Hastelloy, Monel, Titanium
- Diaphragm and sealing face material: Duplex, Hastelloy, Inconel, Incoloy, Monel, Tantalum, Titanium, Zirconium
- Coatings: Gold, Rhodium
- Other flange and diaphragm materials on request
- Other flange types and sealing face on request

## Available certification

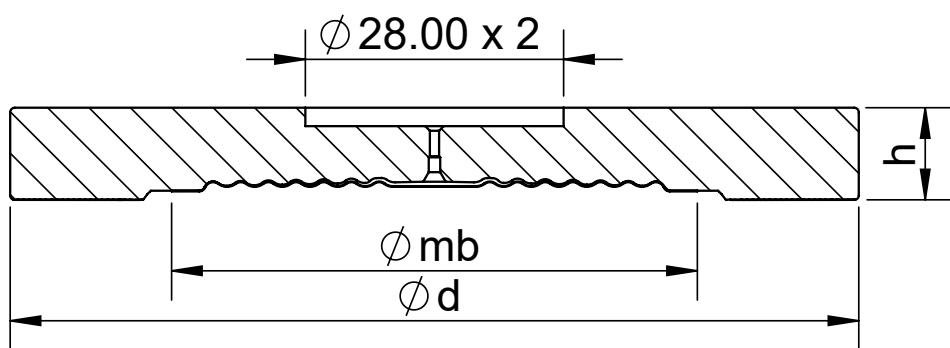
- 2.1 Certificate of conformity
- 3.1 Material certificate
- 3.1 Material certificate with NACE conformity MR-01-75
- PMI Positive Material Identification
- Others on request

## How to order

Please specify: model, process connection, sealing face, diaphragm and wetted parts material, options, certificates  
Example: TETRO-INSERT, 2" ANSI, RF, Hastelloy C276, 3.1 material certificate

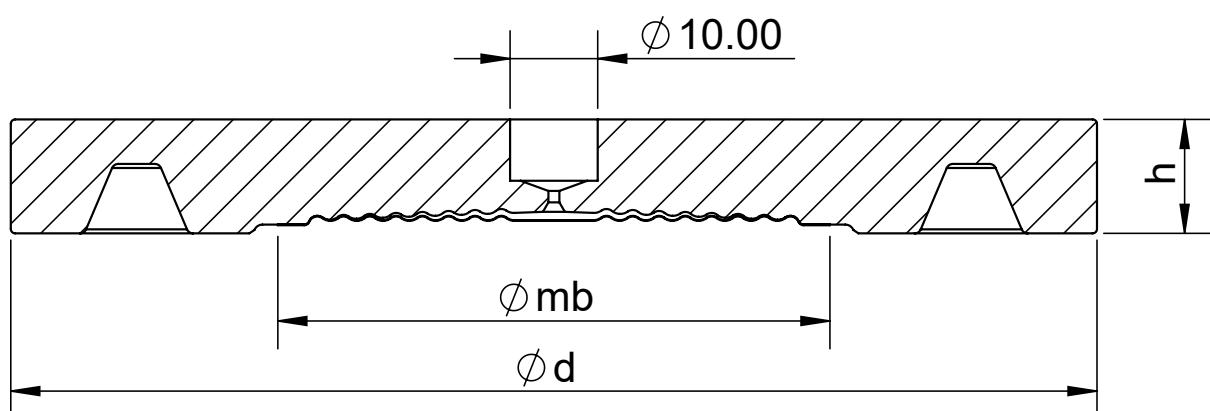
Diaphragm and wetted parts	Process temperature limit
Stainless Steel 316L	400 °C
Duplex 2205	300 °C
Hastelloy C276	400 °C
Inconel 600	400 °C
Inconel 625	400 °C
Incoloy 825	400 °C
Monel 400	400 °C
Tantalum	300 °C
Titanium G1	150 °C
Zirconium	TBC
Gold plating	400 °C
Rhodium plating	400 °C





EN 1092-1, Form B1				
DN	PN	Dimensions (mm)		
		mb	d	h
25	10...100	32	68	10
40	10...250	46	88	10
50	10...250	57	102	10
80	10...40	88	138	10
100	10...16	88	157	10

ANSI B 16.5, RF (Raised Face)				
Size	Class	Dimensions (mm)		
		mb	d	h
1"	150...2500	32	51	10
1.1/2"	150...2500	46	73	10
2"	150...2500	57	92	10
3"	150...2500	88	127	10
4"	150...2500	88	157	10



ANSI B 16.5, RTJ (Ring Type Joint)				
Size	Class	Dimensions (mm)		
		mb	d	h
1"	150...2500	32	51	13
1.1/2"	150...2500	46	73	13
2"	150...2500	57	92	13
3"	150...2500	88	127	13
4"	150...2500	88	157	13



**Specifications**

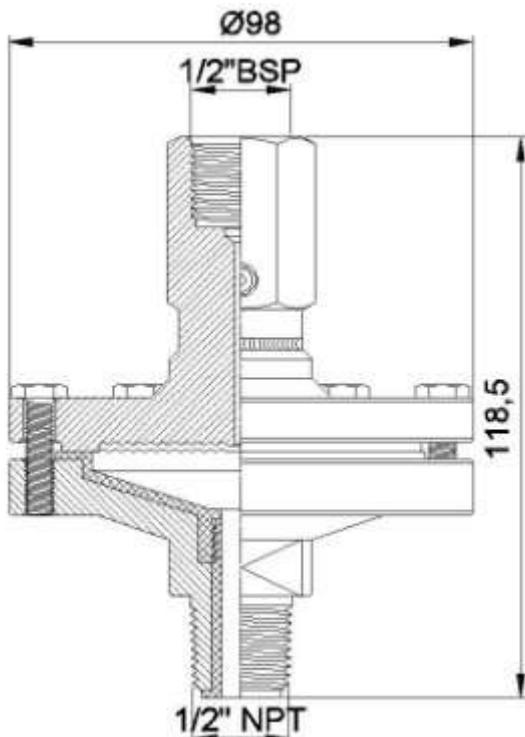
- Upper housing material: AISI 316L / 1.4404
- Lower housing material: AISI 316L / 1.4404 with PTFE
- Diaphragm material: AISI 316L / 1.4435 with PTFE foil
- Sealing ring: Viton (max 250 °C)
- Ranges: 0/60 bar
- Instrument connection: 1/2" BSP
- Process connection: 1/2" BSP / NPT male

**Available certification**

- 2.1 Certificate of conformity
- 3.1 Material certificate
- Others on request

**How to order**

Please specify: model, process connection, certificates  
Example: TE1000P, 1/2" NPT male

**Introduction**

A bolted chemical seal with solid PTFE lower lining and diaphragm. Suitable for dismounting to wash the internal parts of the chemical seal.

**Introduction**

The PVC seal is without bolts and nuts so possible corrosion is prevented and is suitable for chemical, galvanic and water treatments plants.

**Specifications**

- Instrument connection: 1/2", 1/4" BSPF
- Process connection: 1/2" BSPF
- Upper Body material: PPG, PVC,
- Lower Body material: PVC-U, PP, PVDF
- Diaphragm material: EPDM coated with PTFE
- Pressure limit: 10 bar at 20°C as a maximum
- Temperature limits (for the liquid in process):  
PVC-U: 0 ... + 60 °C  
PP +10 ... + 80 °C  
PVDF -30 ... +100 °C

**Available certification**

- 2.1 Certificate of conformity
- Others on request

**How to order**

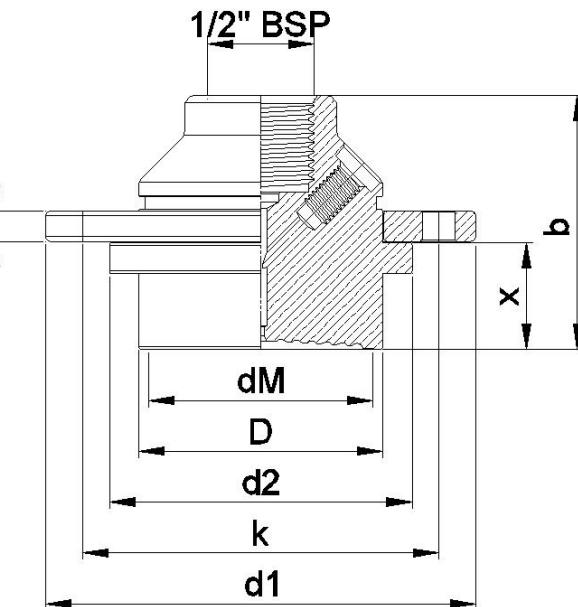
Please specify: model, upper body material, lower body material, instrument connection, process connection,  
Example: PLASTO, PPG, PVC, 1/2", 1/2"





## Introduction

External chemical seal with welded diaphragm designed to suit the DN48 Pulp and Paper Industry connection.



DN	PN bar	Tube	b	d1	d2	dM	g	k	x	x1	x2
48	40	15	66	85	59	38	6xØ7	70	21	6	6





### Specifications

- Seal material: AISI 316L / 1.4404
- Diaphragm material: AISI 316L / 1.4435
- Max Pressure: 400 bar
- Instrument connection: 1/2" BSP female (others on request)
- Process connection size: See table

### Special features

- Flush welded diaphragm (free of dead space)
- Diaphragm protected against rupture with backup convolution

### Available certification

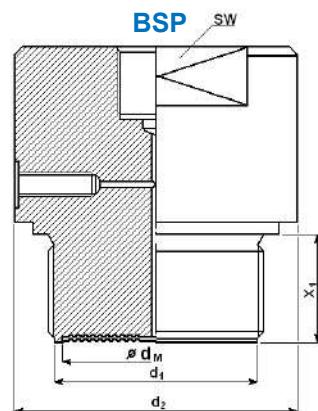
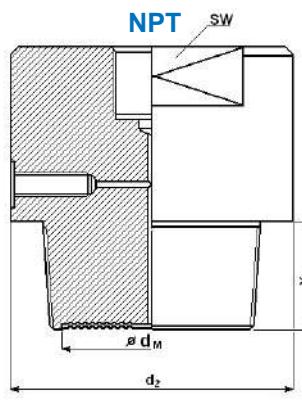
- 2.1 Certificate of conformity
- 3.1 Material certificate
- Others on request

### How to order

Please specify: model,, process thread, certificates  
Example: P2, 1" NPT male

### Introduction

Compact chemical seal with a threaded process connection and flush diaphragm suitable for applications with high pressure and reduced space.



Size / Thread	dm	d1	d2	X1	SW	Weight
1/2" NPT	18	18	28	20	28	0.18
3/4" NPT	22	22	30	22	30	0.22
1" NPT	29	29	45	24	41	0.53
1 1/2" NPT	40	44	58	30	45	0.98
2" NPT	46	56	78	30	60	1.53
1/2" BSP	18	18	28	20	28	0.18
3/4" BSP	22	22	30	22	30	0.22
1" BSP	29	29	45	21	35	0.53
1 1/2" BSP	41	44	58	30	41	0.98
2" BSP	46	55	71	30	60	1.53
Dimensions in mm						Kg


**OPTIMUS**

**OPTIMUS XL**

**OPTIMUS TD**

## Introduction

The OPTIMUS series offers a solution to measuring low pressures on a smaller flange connection. By welding an internal diaphragm, a substantial increase in diaphragm diameter can be achieved without a parallel increase in flange size. Displacement is increased accordingly which in turn improves accuracy at low pressures.

The OPTIMUS / OPTIMUS XL can be fitted with a number of ANSI B16.5 and EN 1092-1 standard flanges, making it a versatile seal for use in a wide variety of situations. It is also available with a threaded connection. The upper part can be dismounted for washing the internal part of the chemical seal.

## Specifications

- Max Pressure: 100 bar
- Top housing: AISI 316L
- Diaphragm: AISI 316L
- Gasket: PTFE for max. 260 °C
- Bolting: 8 x M6 AISI 316 cap screws
- Flange type: ANSI B16.5, EN 1092-1
- Flange facing: ANSI Raised Face (RF), ANSI Ring Type Joint (RTJ), EN Form B1
- Flange sizes:  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1", 1.1/2", 2", DN15, DN20, DN25, DN40, DN50
- Wetted parts and diaphragm material: AISI 316L
- Instrument connection: without connection (12 mm hole)

## Additional specifications - OPTIMUS / OPTIMUS TD

- Diaphragm size: 54 mm (effective)
- Minimum spans: Pressure gauge: 0.6 bar  
GP & AP transmitter: 600 mbar  
DP transmitter: 100 mbar
- Process connection: 1/2" BSP / NPT male or female (OPTIMUS TD model only)

## Additional specifications - OPTIMUS XL

- Diaphragm size: 82 mm (effective)
- Minimum spans: Pressure gauge: 0.6 bar  
GP & AP transmitter: 80 mbar  
DP transmitter: 10 mbar

### Diaphragm and wetted parts

316L	Zirconium
Hastelloy C276	Gold plating
Inconel 625	Rhodium plating
Monel 400	PFA coating (diaphragm only)
Tantalum (diaphragm only)	PTFE foil and lining
Titanium	



### Options

- Other instrument connection: 1/2" BSP female or capillary socket
- Capillary length: custom length between 1m to 15m
- Diaphragm and wetted part material: Hastelloy, Inconel, Monel, Tantalum, Titanium, Zirconium, PTFE
- Other flange and diaphragm materials on request
- Other flange types and sealing face on request
- Flushing port (not in combination with lining)
- Flushing ring to suit (see Flushing Ring datasheet)

### Available certification

- 2.1 certificate of conformity
- 3.1 material certificate
- 3.1 material certificate with NACE conformity MR-01-75
- Others on request



Optimus seal internal view

### How to order OPTIMUS and OPTIMUS XL

Please specify: model, instrument connection, size, rating, sealing face, diaphragm and wetted parts material, options, certificates  
Example: OPTIMUS, 1/2" BSPF, 1" ANSI, 150#, RF, AISI 316L, 3.1 material certificate

### How to order OPTIMUS TD

Please specify: model, instrument connection, diaphragm and wetted parts material, process connection, options, certificates  
Example: OPTIMUS TD, 1/2" BSPF, AISI 316L, 1/2" NPTM, 3.1 material certificate



Optimus seal with  
PTFE lining



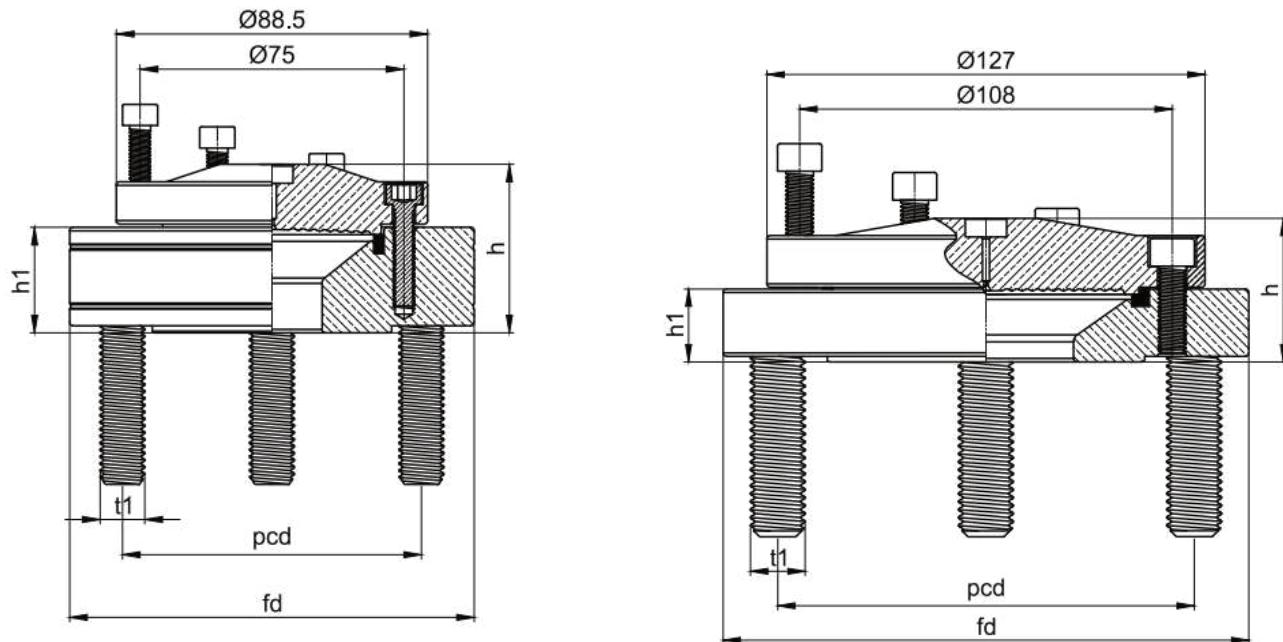
Optimus seal with  
flushing port



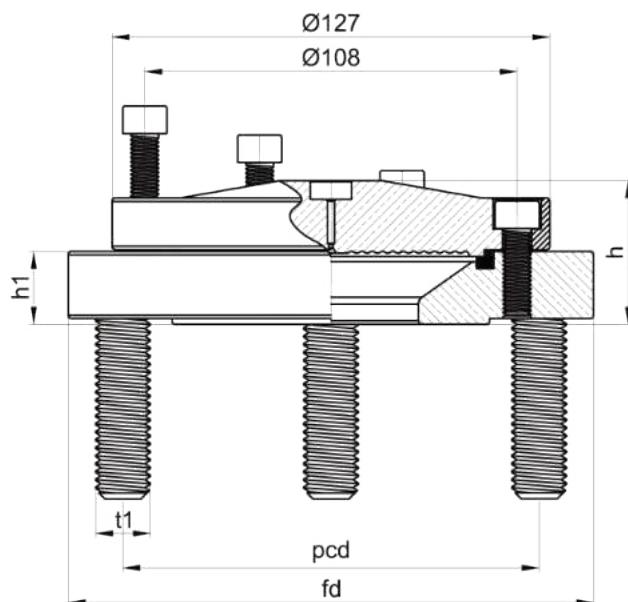
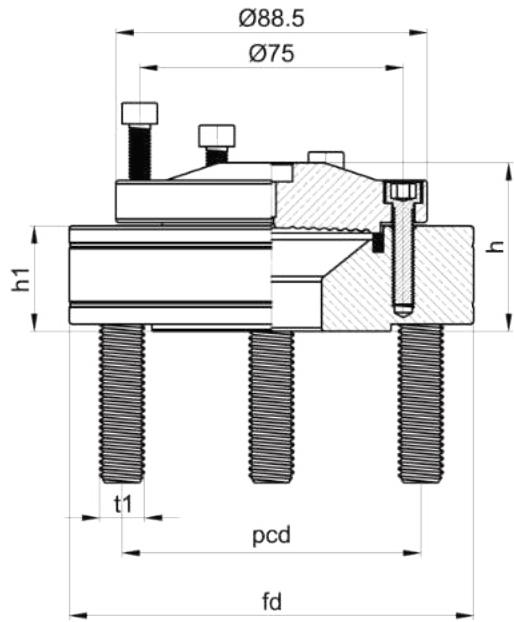
Optimus seal TD  
(threaded connection)



shridhan.com



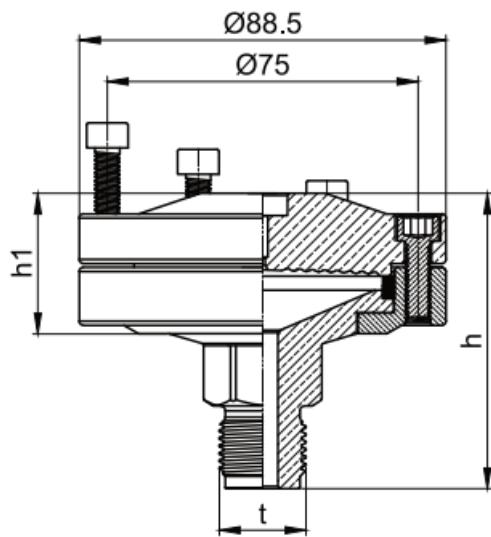
Flange connection according to ASME / ANSI B 16.5, RF (Raised Face)						
Size	Class rating	fd	Dimensions in mm			t1 / p5cs
1/2"	150	89	h1	30	47	60.45
	300	95	h1	30	47	66.55
	600	95	h1	30	47	66.55
3/4"	150	98	h1	30	47	69.85
	300	117	h1	30	47	82.50
	600	117	h1	30	47	82.60
1"	150	110	h1	30	47	79.25
	300	125	h1	30	47	88.90
	600	125	h1	30	47	88.90
1 1/2"	150	125	h1	30	47	98.60
	300	155	h1	30	47	114.3
	600	155	h1	30	47	114.3
2"	150	150	h1	30	47	120.7
	300	165	h1	30	47	127
	600	165	h1	30	47	127



Flange connection according to EN 1092-1, Form B1

DN in mm	PN in bar	fd	Dimensions in mm				t1 / pcs
			h1	h	pcd		
15	10/40	95	30	47	65	M12 / x4	
	63	95	30	47	65	M12 / x4	
	100	95	30	47	75	M12 / x4	
20	10/40	105	30	47	75	M12 / x4	
	63	105	30	47	75	M12 / x4	
	100	105	30	47	75	M12 / x4	
25	10/40	110	30	47	85	M12 / x4	
	63	125	30	47	100	M16 / x4	
	100	125	30	47	100	M16 / x4	
40	10/40	125	30	47	110	M16 / x4	
	63	155	30	47	125	M20 / x4	
	100	155	30	47	125	M20 / x4	
50	10/40	150	30	47	125	M16 / x4	
	63	165	30	47	135	M20 / x4	
	100	165	30	47	145	M24 / x4	





**OPTIMUS TD**  
Dimensions in mm

**h1**

33

**h**

70mm (1/2" BSPM and NPTM)



Connector  
1/2" BSPF



Connector  
Capillary





### Introduction

PCI's HYGEIA range of hygienic diaphragm seals are manufactured to the highest possible standard in the United Kingdom. Designed for use in the food process and pharmaceutical industry.

A diaphragm seal's main purpose is to protect the pressure instrument from the process medium. Diaphragm seals are normally connected directly to the instrument but connection may be made by a capillary. The air space behind the diaphragm membrane and inside the instrument is filled with a fill fluid which acts as a hydraulic medium. When pressure is applied to the diaphragm membrane it is hydraulically transmitted to the instrument's sensing element by the displaced fill fluid. This allows the instrument to measure the process pressure without making direct contact with the process.

### Special features

- Flush welded diaphragm (free of dead space)
- Low fill fluid capacity helps to prevent measurement errors caused by high fluctuating temperatures
- Diaphragm protected against rupture with backup convolution
- Helium leak tested to ensure integrity of diaphragm
- Suitable for CIP and SIP processes

### Diaphragm seal specifications

Body Material: AISI 316L

Nut Material: AISI 304

Wetted Part and Diaphragm Material: AISI 316L

Surface roughness of wetted parts:  $R_a \leq 0.76 \mu\text{m}$  (except weld seam)

### Nominal pressures

See tables on page 2 and 3

### Options for diaphragm seal

- Diaphragm with surface roughness  $R_a < 0.38 \mu\text{m}$  for high cleanability in CIP process
- Other instrument connections on request
- Other construction materials on request

### Available certification

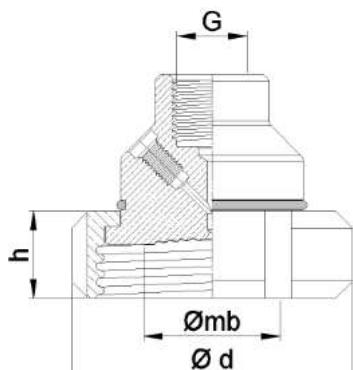
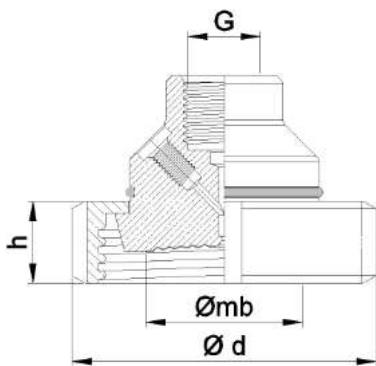
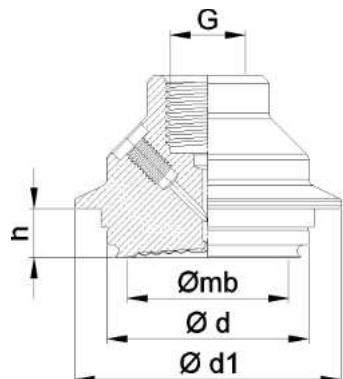
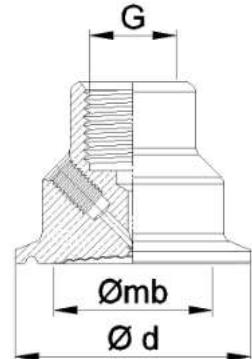
- 2.1 Certificate of conformity
- 3.1 Material certificate
- Others on request

### How to order diaphragm seal

Please specify: model, diaphragm seal type, size, options, certificates

Example: HYGEIA, Tri-clamp, 2", 3.1 material certificate





TRI-CLAMP – DIN 32676 Series C for pipes per ASME-BPE					
DN	d	mb	G	Weight	kg
3/4"	25	17	1/4" BSP	0.2	

**TRI-CLAMP**  
DIN 32676 Series C for pipes per ASME-BPE  
DIN 32676 Series A for pipes per EN 10357  
ISO 2852 for pipes per ISO 2037

**Compatible Standard Sizes**

DIN C	DIN A	ISO	d	mb	G	Weight	kg
1"	DN25	DN25	50.5	23	1/2" BSP	0.3	
1 1/2",	DN40	DN38	50.5	34	1/2" BSP	0.3	
2"	DN50	DN51	64	46	1/2" BSP	0.5	
2 1/2"	-	DN63.5	77.5	58	1/2" BSP	0.6	
3"	DN65	DN76.1	91	69	1/2" BSP	0.9	
4"	DN100	DN101.6	119	95	1/2" BSP	1.5	

Max pressure dependant on size and clamp type used

**VARIVENT® COMPATIBLE CONNECTION**  
(Trademark of Tuchenhagen GmbH)

**Max Working Pressure 40 bar**

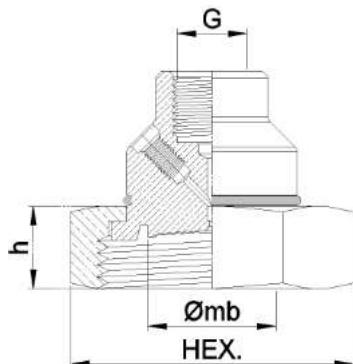
Type	d1	d	h	mb	G	Weight	kg
Form F	66	50	12.3	40	1/2" BSP	0.5	
Form N	84	68	12.3	57	1/2" BSP	1.1	

**DIN – Standard 11851 (D1)**  
**DN 25-40 Max Working Pressure 40 bar**  
**DN 50-80 Max Working Pressure 25 bar**

DN	d	mb	h	g1	Weight	kg
25	63	30	21	1/2" BSP	0.5	
32	70	36	21	1/2" BSP	0.6	
40	78	40	21	1/2" BSP	0.7	
50	92	50	22	1/2" BSP	1.1	
65	112	52	25	1/2" BSP	1.5	
80	127	72	29	1/2" BSP	2.0	

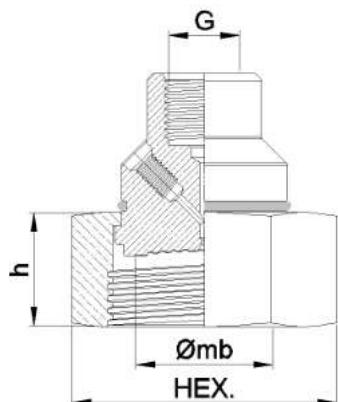
**SMS – Standard 1145**  
**DN 1"-2" Max Working Pressure 40 bar**  
**DN 2 1/2" Max Working Pressure 25 bar**

DN	d	mb	h	g1	Weight	kg
1"	51	25	19	1/2" BSP	0.3	
1 1/2"	74	36	23	1/2" BSP	0.7	
2"	84	48	24	1/2" BSP	0.9	
2 1/2"	100	52	28	1/2" BSP	1.3	
3"	114	72	31	1/2" BSP	2.0	



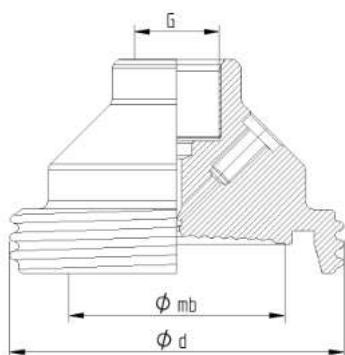
**RJT APV – Standard BS 4825**  
DN 1"-2" Max Working Pressure 40 bar  
DN 2½" Max Working Pressure 25 bar

DN	HEX	mb	h	g1	Weight kg
1"	51	21	22	½" BSP	0.4
1 ½"	65	34	22	½" BSP	0.6
2"	79	46	22	½" BSP	0.9
2 ½"	92	60	22	½" BSP	1.2
3"	105	72	22	½" BSP	1.7



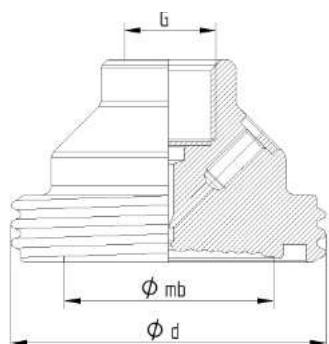
**IDF – Standard BS 4825**  
DN 1"-2" Max Working Pressure 40 bar  
DN 2½" - 3" Max Working Pressure 25 bar

DN	HEX	mb	h	g1	Weight kg
1"	46	24	30	½" BSP	0.4
1 ½"	60	34	30	½" BSP	0.7
2"	75	45	30	½" BSP	1.0
2 ½"	90	60	30	½" BSP	1.6
3"	105	72	30	½" BSP	2.0



**DIN MALE – Standard 11851 (D1)**  
DN 40 Max Working Pressure 40 bar  
DN 50 Max Working Pressure 25 bar

DN	d	mb	g1	Weight kg
40	65	38	½" BSP	0.5
50	78	50	½" BSP	0.7



**SMS MALE – Standard 1145**  
DN 1"-2" Max Working Pressure 40 bar

DN	d	mb	g1	Weight kg
1 ½"	60	34	½" BSP	0.5
2"	70	46	½" BSP	0.7





## Introduction

PCI offers homogeniser diaphragm seals to suit most brands of homogeniser pumps. A dampening device is incorporated into the seal to help protect the instrument from premature failure due to high pressure spikes. These seals can be fitted direct or via a capillary for remote mounting.

## Specifications

Ranges: from 0/160bar up to 0/1600bar (or equivalent)  
Process connection: AISI316L Diaphragm: AISI316L

## Options

- Mounting block

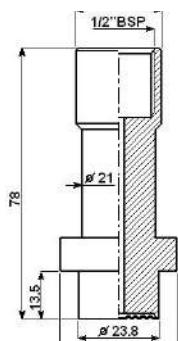
## Available certification

- 3.1 material certificate

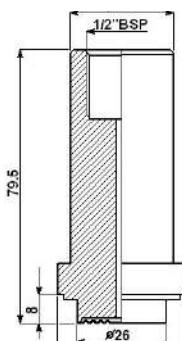
## How to order

Please specify: model, options certificates

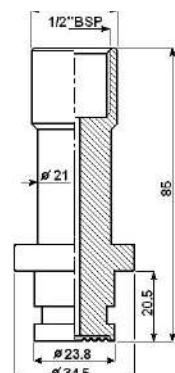
Example: C2 Niro,



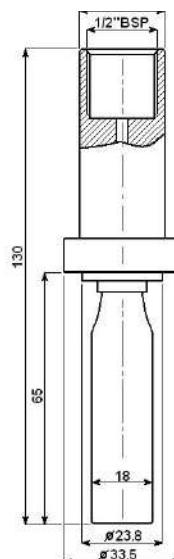
C1 - Homogeniser Seal



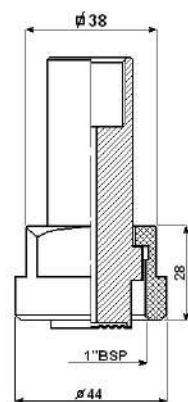
C3 - Niro Seal



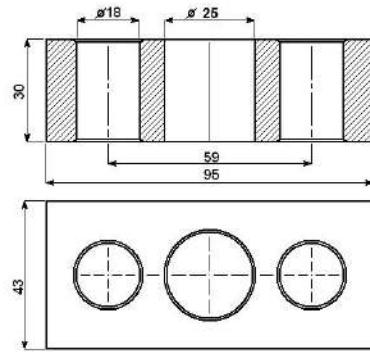
C4 - Rannie Pipe Seal



C5 - Fishtail Seal



C6 - Homogeniser Seal  
with female connection



Mounting Block

C1 = APV Gaulin / Tetrapack

C3 = Niro Swarvy

C4 = Alpha Laval / APV Rannie





Shown with back-ing flange option

## Introduction

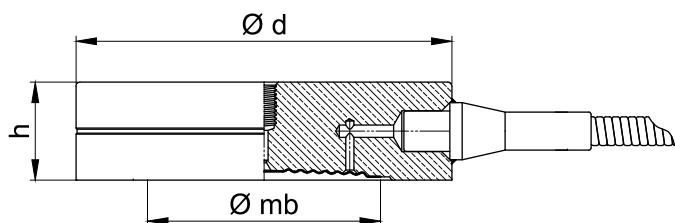
The model CELL Pancake seal with welded diaphragm is suitable for mounting between flanges and used for contaminated, solidifying, hot or highly viscous media.

## Special features

- Flush welded diaphragm (free of dead space)
- Diaphragm protected against rupture with backup convolution
- Helium leak tested to ensure integrity of diaphragm
- When exotic metal diaphragm or coating is required, all wetted parts including sealing face are made from same material

## Diaphragm seal specifications

- Flange type: ANSI B16.5 Raised Face (RF) or Ring Type Joint (RTJ), EN 1092-1 Form B1
- Flange body material: AISI 316L
- Wetted parts and diaphragm material: AISI 316L
- Connection: Radial entry capillary socket, welded



## According to ASME / ANSI B 16.5, RF (Raised Face)

### Dimensions in mm

Size	Class	d	h	mb
2"	150 - 2500	92		57
3"	150 - 2500	127	30	88
4"	150 - 1500	158		88

## Measuring range

- Max. dependant on flange rating

## Options for diaphragm seal

- Other connection: Radial entry 1/4" NPT female
- Flange material: Titanium
- Diaphragm and wetted part material: Hastelloy, Inconel, Monel, Tantalum, Titanium, Zirconium
- Coatings: Gold, Rhodium, PFA and PTFE
- Capillary length: custom length between 1m to 15m
- Other flange and diaphragm materials on request
- Other flange types and sealing face
- Backing flange

Diaphragm and wetted parts	Process temperature limit
316L	400 °C
Hastelloy C276	400 °C
Inconel 625	400 °C
Monel 400	400 °C
Tantalum	300 °C
Titanium	150 °C
Zirconium	TBC
Gold plating	400 °C
Rhodium plating	400 °C
PFA coating	260 °C
PTFE foil	260 °C

## Available certification

- 2.1 Certificate of conformity
- 3.1 Material certificate
- 3.1 Material certificate with NACE conformity MR-01-75
- Others on request

## How to order diaphragm seal

Please specify: model, instrument connection, size, sealing face, diaphragm and wetted parts material, options, certificates

Example: CELL, capillary socket, 2" ANSI, RF, AISI 316L, 3.1 material certificate, options if any



**Specifications**

- Upper housing material: AISI 316L / 1.4404
- Diaphragm material: AISI 316L / 1.4435 with PTFE foil
- Ranges: 0/10 bar
- Instrument connection: 1/2" BSP
- Process connection: 1/2" BSP female

**Special features**

- Diaphragm protected against rupture with backup convolution

**Available certification**

- 2.1 Certificate of conformity
- 3.1 Material certificate
- Others on request

**Options**

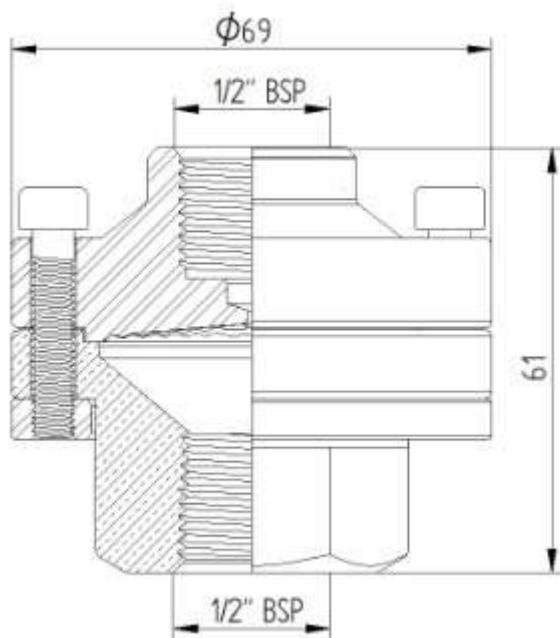
- Process connection: 1/2" BSP / NPT male
- Flushing connection: 1/8" NPT upon request

**How to order**

Please specify: model, process connection, certificates  
Example: BCS10P, 1/2" NPT male

**Introduction**

Compact bolted chemical seal with solid PTFE lower housing and PTFE lined diaphragm. Also available with male process connections.





### Specifications

- Body material: AISI 316L / 1.4404
- Diaphragm material: AISI 316L / 1.4435
- Diaphragm size: 50mm
- Bolting: A4-80, 8x M10 cap screws
- Instrument connection: 12mm socket suitable with connectors 1/2" BSPF / NPTF or others on request
- Process connection: 1/2" BSPM / NPTM

### Special features

- Diaphragm protected against rupture with backup convolution

### Available certification

- 2.1 Certificate of conformity
- 3.1 Material certificate
- Others on request

### How to order

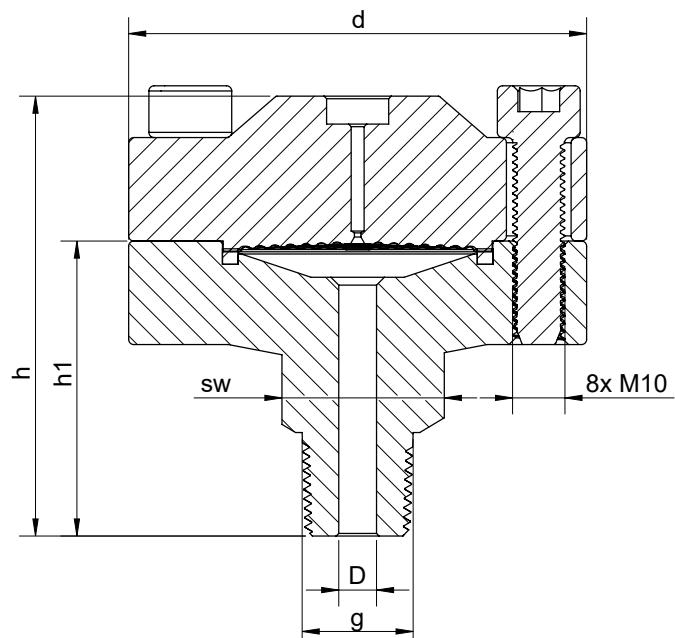
Please specify: model, process connection, certificates  
Example: BCS 600, 1/2" NPTM

### Introduction

BCS 600 is a high-pressure bolted chemical seal equipped with an internally welded diaphragm.

#### Pressure ratings:

- 0/600 bar at 20°C (PTFE Gasket)
- 0/500 bar at 250°C (PTFE Gasket)
- 0/100 bar at 400°C (Graphite Gasket)



BCS 600 Dimensions in mm						
D	h	h1	G	d	SW	Weight kg
88.5	85	57	1/2" NPTM	7.3	29	2.2



### Introduction

Compact bolted chemical seal with an internal welded diaphragm suitable for dismounting and internal washing. Also available with male process connections.

BSC150 version -1/190 bar at 20°C

BSC150 version -1/150 bar at 250°C

BCS250 version 10/250 bar at 20°C

### Specifications

- Seal material: AISI 316L / 1.4404
- Diaphragm material: AISI 316L / 1.4435
- Instrument connection: 1/2" BSPF
- Process connection:
  - Male: 3/8", 1/2", 3/4", 1", BSP / NPT / BSPT,
  - Female: 1/2" BSP / NPT

### Special features

- Diaphragm protected against rupture with backup convolution

### Available certification

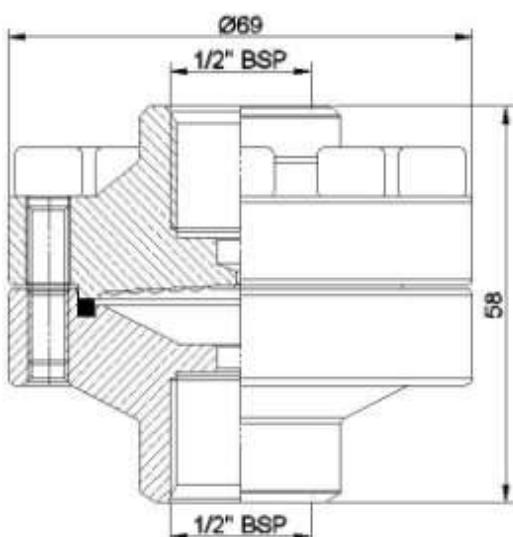
- 2.1 Certificate of conformity
- 3.1 Material certificate
- Others on request

### Options

- Diaphragm material: Monel, Hastelloy, Tantalum, SS316+PTFE
- Flushing connection: 1/8" NPT upon request

### How to order

Please specify: model, process connection, certificates  
Example: BCS150, 1" NPT male





### **HQ and Manufacturing - 1**

SHRIDHAN Automation Pvt. Ltd.  
#B-54, KSSIDC Industrial Estate,  
Kumbalgodu, Mysore Road,  
Bangalore-560074. India.  
Ph no - +91-80-2843 7847 / 7848  
Email - info@shridhan.com

### **Manufacturing - 2**

SHRIDHAN Automation Pvt. Ltd.  
#D-13 KIADB Industrial Area,  
Kumbalgodu, Mysore Road,  
Bangalore-560074. India.

### **Manufacturing - 3**

SHRIDHAN Automation Pvt. Ltd.  
#D-18, KIADB Industrial Area,  
Kumbalgodu, Mysore Road,  
Bangalore-560074. India.

### **Middle East**

ORBIT Automation FZE  
#Z3-38, II Floor, PO Box - 122828,  
SAIF Zone, Sharjah, UAE.  
A 100% Subsidiary of  
SHRIDHAN Automation Pvt. Ltd., India.  
Ph No : +971 6 5792662  
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### **Europe**

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