

## Type 100 Series Threaded Capsule Diaphragm Seal



Threaded Capsule Design



TYPE 100 SHOWN

*When isolation of the process from an instrument is required, Ashcroft® offers a comprehensive line of diaphragm seals. Seal types include threaded, flanged, in-line threaded, in-line flanged, in-line socket weld, in-line butt weld, saddle and sanitary seals. Also available is a complete offering of isolation or iso-rings and isolation or iso-spools.*

### APPLICATIONS

- Elevated process temperatures
- Corrosive service
- Isolation of the process for safety
- Suspended solids in the process
- Sanitary connections
- Minimize process dead leg
- Ease of cleaning between batches

### FEATURES

- The top housing and diaphragm capsule are interchangeable with all Ashcroft bottom housings.
- A fill/bleed connection is standard, which permits filling the seal and instrument simultaneously after evacuation and allows the fill to flow into the completed unit.
- A Viton O-ring, compatible with all standard fill fluids, and a Teflon back-up ring provide a seal between the diaphragm capsule and the top housing.
- A thin Teflon PTFE gasket between the diaphragm and bottom housing ensures a leak-tight corrosion resistant seal even at high pressure.
- Top housing and pressure instrument are removable.
- Continuous-duty design will prevent loss of process fluid if pressure instrument is removed or fails.

### SPECIFICATIONS

**Model Number:** Type 100, 101, 102, 103, 104, 105, 106, 107, 108

**Process Connection Size:** See Table A (Pg. 2)

**Instrument Connection Size:** ¼, ½ NPT

**Diaphragm Material:** See Table B (Pg. 2)

**Bottom Housing Materials:** See Table C (Pg. 2)

**Filling Fluid:** Glycerin, Halocarbon, Silicone, Stytherm

### OPTIONS

	<b>Code</b>
316 stainless steel top housing	<b>YT</b>
Stainless steel clamp rings and flanged ring – includes 300 stainless steel clamping bolts (1500 psi max)	<b>SE</b>
300 series stainless steel clamping bolts (max pres is 1500 psi)	<b>SB</b>
Pipe plugs for flushing connections – pipe plugs are available in the same materials as bottom housings per Table C (Pg. 2)	<b>PU</b>
5000 psi pressure rating Threaded inlet and metal diaphragm only	<b>HP</b>
Welded instrument to diaphragm seal	<b>DU</b>
Dual flushing connections (½ NPT) (Limited to 2" thru 3" flanged seals)	<b>DB</b>
Ring joint (Flanged seal only)	<b>RJ</b>
Flat face (Flanged seal only)	<b>FF</b>
Clean for gaseous oxygen or strong oxidizing agent applications	<b>6B</b>

# Type 100 Series Threaded Capsule Diaphragm Seal

## TYPE 100 SERIES THREADED CAPSULE SEAL TYPES

**Type 100 – Threaded**  
¼, ½, ¾, 1 NPT



**Type 101 – Threaded**  
with flushing connection  
¼, ½, ¾, 1 NPT



**Type 102 – Raised Face Flanged**  
½, ¾, 1, 1½, 2, 3"



**Type 103 – Raised Face Flanged**  
½, ¾, 1, 1½, 2, 3  
with flushing connection



**Type 104 – In-line Threaded**  
¼, ½, ¾, 1 NPT



**Type 105 – Saddle**  
3, 4" pipe only



**Type 106 – In-line Flanged**  
½, ¾, 1, 1½, 2, 3, 4, 6, 8"



**Type 107 – In-line Socket Weld**  
½, ¾, 1, 1½, 2"



**Type 108 – In-line Butt Weld**  
¼, ½, ¾, 1, 1½, 2"



**Table A – Process Connection/Type Number**

Process Connection	Process Connection Size/Code—Inches											Type Number
	Size	¼	½	¾	1	1½	2	3	4	6	8	
Threaded—female NPT	Code	25	50	75	10	15	20	30	40	60	80	100
Threaded—female NPT (with flushing conn.)		•	•	•	•	•						101
Flanged <sup>(1)</sup>			•	•	•	•	•					102
Flanged (with flushing conn.)			•	•	•	•	•					103
In-line—threaded NPT		•	•	•	•							104
Saddle								•	AND LARGER			105
In-line—butt weld		•	•	•	•	•	•					108
In-line—flanged <sup>(2)</sup>			•	•	•	•	•	•	•	•	•	106
In-line—socket weld		•	•	•	•	•	•					107

Pressure Ratings—All 2500 psi except flanged seals are per ASME B 16.5, temperature limit determined by diaphragm, bottom housing and/or filling fluid.

**Table B – Diaphragm Material**

Material	Code
316L stainless steel	S
304L stainless steel	C
Monel 400	P
Nickel	N
Carpenter 20	D
Tantalum	U
Hastelloy B	G
Hastelloy C 22 <sup>(3)</sup>	J
Hastelloy C 276 <sup>(3)</sup>	H
Halar Coated Monel	R
Gold Plated 304 SS	W

**Table C – Housing Materials**

Bottom	Code
Steel	B
304L SS	C
316L SS	S
Hastelloy B	G
Hastelloy C 22 <sup>(3)</sup>	J
Hastelloy C 276 <sup>(3)</sup>	H
Carpenter 20	D
Monel "400"	M
Inconel "600"	W
Nickel	N
PVC <sup>(4)(9)</sup>	V
Tantalum clad SS <sup>(5)</sup>	SU
Halar coated SS <sup>(6)</sup>	BH
Teflon flanged steel <sup>(7)</sup>	T
Kynar <sup>(8)(9)</sup>	KY
Titanium	TI

**Table D – Instrument Connection**

Size – NPT	Code
¼	O2T
½	O4T

**Table E – Filling Fluid**

Filling	Service	Connection to Instrument	Temperature Range °F	Code
Glycerin	Pressure	Direct Only	0/400	CG
Silicone	Pressure/Vacuum	Direct or Flexible Line	-40/500	CK, DJ
Halocarbon	Pressure/Vacuum in presence of strong oxidizing agent	Direct or Flexible Line	-70/300	CF
Syltherm	Pressure/Vacuum	Direct or Flexible Line	-40/750	HA

### Notes:

- (1) 150, 300, 600, 900, 1500 & 2500 class flanges.
- (2) 1" 150 thru 8" 300 class flanges only.
- (3) Use on applications where NACE standard MR-01-75/ISO 1516 w/Sept. 2005 corrigendums.
- (4) Maximum Press./Temp.  
Threaded: 200 psi/74°F, 125 psi/125°F, 80 psi/150°F.  
Flanged: 75 psi/100°F.
- (5) Type 102 only.
- (6) Type 102 only – Temp. Limits: -40/300°F.
- (7) Only available in 1", 1½", & 2" 150 class, Types 102.  
Max. Press./Temp. – 270 psi and 150°F. Consult factory for conditions beyond these limits.
- (8) Maximum Pressure/Temp.: 200 psi and 180°F.
- (9) Type 100: ¼ or ½ NPT only. Larger sizes offered with solvent weld joint. N/A in 101 or 103 design.

Monel is a registered trademark of Huntington Alloys, Inc.  
Hastelloy is a registered trademark of Cabot Corp.  
Halocarbon is a registered trademark of Halocarbon Products  
GYLON 3510 is a registered trademark of Garlock Inc.

## HOW TO ORDER:

1. From Table A...select TYPE NUMBER based on process connection, process connection size and diaphragm type/construction. (e.g., Threaded/1"capsule-code-10-100)
2. From Table B...select DIAPHRAGM MATERIAL. (e.g., 316L stainless steel-code S)
3. From Table C...select BOTTOM HOUSING MATERIAL. (e.g., 316 stainless steel-code S)
4. From Table D...select INSTRUMENT CONNECTION size. (e.g., ¼ NPT-code O2T)
5. From Table E...select FILLING FLUID, if diaphragm seal will be attached to instrument. (e.g., Glycerin-code CG)

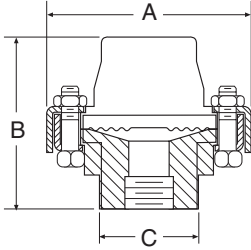
Typical code: 10-100SS-O2T-CG

## Type 100 Series Threaded Capsule Diaphragm Seal

### DIMENSIONS

#### Type 100 – Threaded

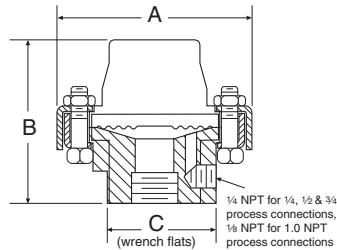
¼, ½, ¾, 1 NPT



A		B		C	
in	mm	in	mm	in	mm
¾	(95)	2⅞	(73)	1⅞	(46)

#### Type 101 – Threaded

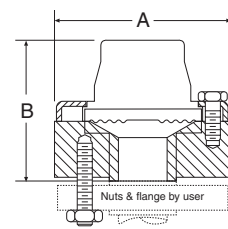
¼, ½, ¾, 1 NPT (with flushing connection)



A		B		C	
in	mm	in	mm	in	mm
¾	(95)	2⅞	(73)	1⅞	(46)

#### Type 102 – Flanged

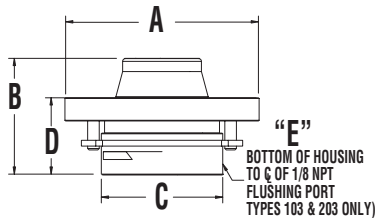
½, 1, 2, 3"



Flange Size	Rating #	A		B	
		in	mm	in	mm
150	3½	(89)	2⅞	(75)	
½"	300 or 600	3¾	(95)	3	(76)
	900 or 1500	4¾	(121)	3⅞	(81)
150	3¾	(98)	2⅞	(71)	
	300 or 600	4¾	(117)	3	(76)
900 or 1500	5½	(130)	3⅞	(81)	

#### Type 102 – Flanged 1" (raised face only)

one piece bottom housing, with and without flushing connection

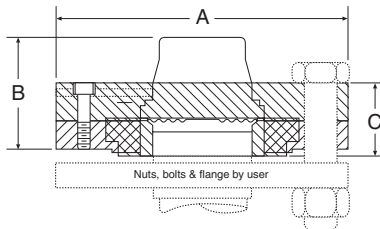


Flange Size	Rating #	A		B		C	
		in	mm	in	mm	in	mm
1	150 300 or 600	4-1/4	(100)	2-9/16	(65)	1-23/32	(69)
		5	(127)				

Flange		103 & 203 only	
Size	Rating #	D	E
		in	mm
1	150 300 or 600	1-5/8	(41)
		3/8	(9)

#### Type 102 – Flanged 1" (raised face only)

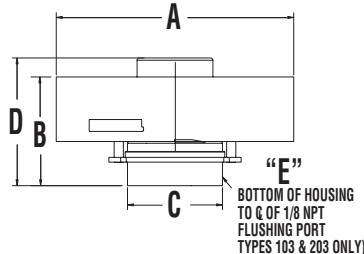
two piece bottom housing, 1½, 2, 3" - PVC, Teflon and Kynar



Flange Size	Rating #	A		B		C	
		in	mm	in	mm	in	mm
1½"	150	5	(127)	2⅞	(59)	1⅞	(39)
2"	150	6	(152)	2½	(54)	1⅞	(40)

#### Type 102 – Flanged 1" (raised face only)

one piece bottom housing, with and without flushing connection

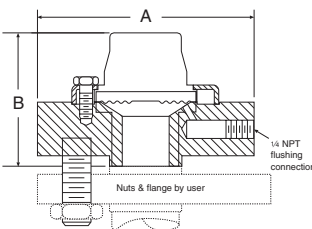


Flange Size	Rating #	A		B		C	
		in	mm	in	mm	in	mm
1	900 or 1500 2500	5-7/8	(149)	2-7/8	(73)	2-1/4	(57)
		6-1/4	(159)				

Flange		103 & 203 only	
Size	Rating #	D	E
		in	mm
1	900 or 1500 2500	3-3/8	(86)
		3/8	(9)

#### Type 103 – Flanged

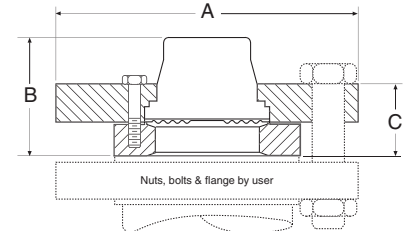
½, ¾" (with flushing connection)



Flange Size	Rating #	A		B	
		in	mm	in	mm
150	3½	(89)	2⅞	(75)	
½"	300 or 600	3¾	(95)	3	(76)
	900 or 1500	4¾	(121)	3⅞	(81)
150	3¾	(98)	2⅞	(71)	
	300 or 600	4¾	(117)	3	(76)

#### Type 102 – Flanged (raised face only)

1½, 2, 3" one piece bottom housing - all materials except PVC, Teflon and Kynar

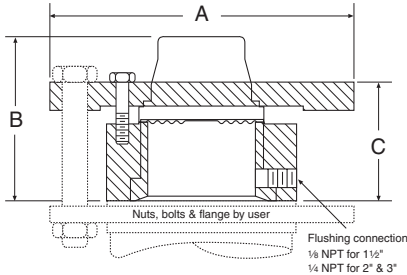


Flange Size	Rating #	A		B		C	
		in	mm	in	mm	in	mm
150	5	(127)	1½	(38)			
1½"	300 or 600	6¼	(159)	2⅞	(61)	1½	(38)
	900 or 1500	7	(178)			1½	(38)
150	6	(152)	1¾	(35)			
2"	300 or 600	6½	(165)	1⅞	(49)	1½	(38)
	900 or 1500	8½	(216)			2½	(54)
150	7½	(191)	2	(51)	1¾	(41)	
	300 or 600	8¼	(206)	2⅞	(52)	1⅞	(47)
900 or 1500	10½	(267)	2⅞	(68)	3¼	(82)	

# Type 100 Series Threaded Capsule Diaphragm Seal

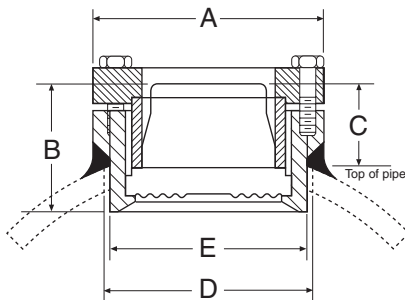
## DIMENSIONS

**Type 103 – Flanged 1½", 2", 3"** (raised face only)  
one piece bottom housing with flushing connection



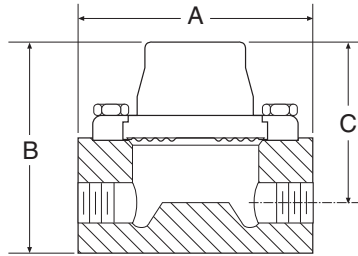
Flange Size	Rating #	A in	A mm	B in	B mm	C in	C mm
150		5	(127)				
1½"	300 or 600	6¼	(159)	3	(76)	2½	(64)
	900 or 1500	7	(178)				
2"	150	6	(152)				
	300 or 600	6½	(165)	3½	(89)	2¾	(71)
	900 or 1500	8½	(215)				
3"	150	7½	(191)	3¾	(94)	2¾	(71)
	300 or 600	8¼	(210)	3¾	(94)	2¾	(71)
	900	9½	(241)				
	1500	10½	(267)	3¾	(94)	2¾	(71)

**Type 105 – Saddle**  
4" Pipe only



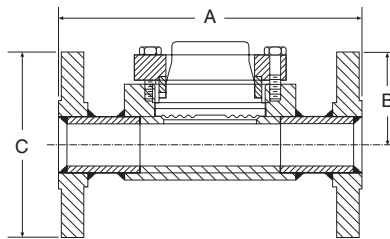
A in	A mm	B in	B mm	C in	C mm	D in	D mm	E in	E mm
3½	(89)	1½	(50)	1¾	(31)	3	(76)	2¾	(71)

**Type 104 – In-Line Threaded**  
¼, ½, ¾, 1 NPT



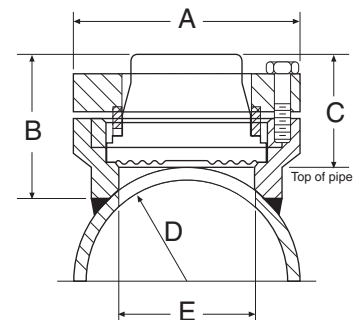
Process Connection	A in	A mm	B in	B mm	C in	C mm
¼ NPT			2½	(67)	2½	(64)
½ NPT	4	(102)	3½	(92)	2¾	(70)
¾ NPT			3¾	(98)	3	(76)
1 NPT			3¾	(98)	3	(76)

**Type 106 – In-Line Flanged**  
½", 1", 1½", 2", 3"



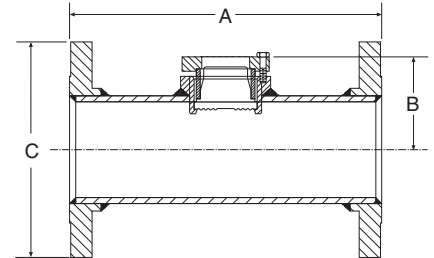
Flange Size	Rating #	A in	A mm	B in	B mm	C in	C mm
150		7	(178)				
½"	300	7	(178)	2¾	(62)	3½	(89)
						3¾	(98)
150		7	(178)				
1"	300	8	(203)	2¾	(62)	4¼	(108)
						4¾	(123)
150		8	(203)				
1½"	300	9	(229)	2½	(68)	5	(127)
						6½	(155)
150		9	(229)				
2"	300	10	(254)	2½	(68)	6	(152)
						6½	(165)
150		11	(279)				
3"	300	12	(305)	3½	(92)	7½	(229)
						8¼	(254)

**Type 105 – Saddle**  
3" Pipe only



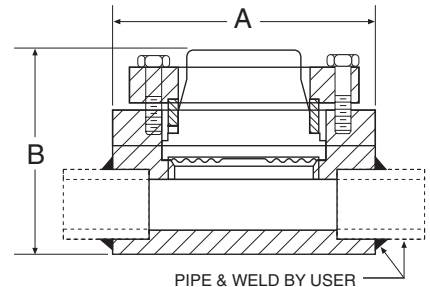
A in	A mm	B in	B mm	C in	C mm	D in	D mm	E in	E mm
3½	(89)	2¼	(57)	1¾	(48)	1¾	(44)	2½	(64)

**Type 106 – In-Line Flanged**  
4", 6", 8"



Flange Size	Rating #	A in	A mm	B in	B mm	C in	C mm
150		13	(330)				
4"	300	14	(356)	3¾	(86)	9	(229)
						10	(254)
150		16	(406)				
6"	300	17	(432)	4¾	(113)	11	(279)
						12½	(318)
150		16	(406)				
8"	300	16	(406)	5¾	(138)	13½	(343)

**Type 107 – In-Line Welded**  
¼", ½", ¾", 1", 1½", 2"



Pipe Size	A in	A mm	B in	B mm
¼"			2½	(60)
½", ¾"			2½	(60)
1"			2½	(60)
1½"	4	(102)	2¾	(69)
2"			2¾	(69)