

Type 200 Series Welded or Bonded Diaphragm Seal



Welded
or Bonded
Capsule



TYPE 200 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
- Replacement of process dead leg
- Ease of cleaning between batches

FEATURES

- A metal diaphragm is welded to the top housing. Elastomeric diaphragms are bonded to the top housing. Either provides a double positive seal.
- 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 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 200, 201, 202, 203, 204, 205, 206, 207, 208

Process Connection Size: See Table A

Instrument Connection Size: 1/4", 1/2" NPT

Diaphragm Material: See Table B

Bottom Housing Materials: See Table C

Filling Fluid: See Table E

OPTIONS

316 stainless steel top housing

Stainless steel clamp rings and flanged ring – includes 300 stainless steel clamping bolts (1500 psi max)

300 series stainless steel clamping bolts (max pres is 1500 psi)

Pipe plugs for flushing connections – pipe plugs are available in the same materials as bottom housings per Table C

5000 psi pressure rating Threaded inlet and metal diaphragm only

Welded instrument to diaphragm seal

Dual flushing connections (1/2" NPT) (Limited to 2" thru 3" flanged seals)

Ring joint (Flanged seal only)

Flat face (Flanged seal only)

Clean for gaseous oxygen or strong oxidizing agent applications.

Code

YT

SE

SB

PU

HP

DU

DB

RJ

FF

6B

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-10-200)
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., 1/4" NPT-code 02T)
5. From Table E...select FILLING FLUID, if diaphragm seal will be attached to instrument. (e.g., Glycerin-code CG)

Typical Code: 10-200SS-02T-CG

Type 200 Series Welded or Bonded Diaphragm Seal

TYPE 200 SERIES WELDED OR BONDED SEAL TYPES

Type 200 – Threaded

¼, ½, ¾, 1 NPT



Type 201 – Threaded with flushing connection

¼, ½, ¾, 1 NPT



Type 202 – Raised Face Flanged

½, ¾, 1, 1½, 2, 3"



Type 203 – Raised Face Flanged with flushing connection

½, ¾, 1, 1½, 2, 3" (raised face only)
1 piece with flushing connection



Type 204 – In-line Threaded

¼, ½, ¾, 1 NPT



Type 205 – Saddle

3, 4" pipe only



Type 206 – In-line Flanged

½, ¾, 1, 1½, 2, 3, 4, 6, 8"



Type 207 – In-line Socket Weld

½, ¾, 1, 1½, 2"



Type 208 – 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 Code	¼	½	¾	1	1½	2	3	4	6	8	Capsule
Threaded—female NPT	25	50	75	10	15	20	30	40	60	80		200
Threaded—female NPT (with flushing conn.)		*	*	*	*	*						201
Flanged ⁽¹⁾		*	*	*	*	*	*					202
Flanged (with flushing conn.)		*	*	*	*	*	*					203
In-line—threaded NPT		*	*	*	*	*	*					204
Saddle								*	AND LARGER			205
In-line—butt weld		*	*	*	*	*	*					208
In-line—flanged ⁽²⁾		*	*	*	*	*	*	*	*	*	*	206
In-line—socket weld		*	*	*	*	*	*					207

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
304 stainless steel	C
Monel 400	P
Nickel	N
Carpenter 20	D
Tantalum	U
Hastelloy B	G
Hastelloy C 22 ⁽⁶⁾	J
Hastelloy C 276 ⁽⁶⁾	H
Teflon ⁽⁴⁾	T
Viton ⁽⁵⁾	Y
Kalrez ⁽¹²⁾	K
Titanium ⁽¹⁴⁾	TI

Table C – Housing Materials

Material	Code
Steel	B
304L stainless steel	C
316L stainless steel	S
Hastelloy B	G
Hastelloy C 22 ⁽⁶⁾	J
Hastelloy C 276 ⁽⁶⁾	H
Carpenter 20	D
Monel "400"	M
Inconel "600"	W
Nickel	N
PVC ⁽⁷⁾⁽¹⁵⁾	V
Tantalum clad SS ⁽⁶⁾	SU
Halar coated SS ⁽⁹⁾	BH
Teflon flanged steel ⁽¹⁰⁾	T
Kynar ⁽¹³⁾⁽¹⁵⁾	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	-40/600	CK
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:

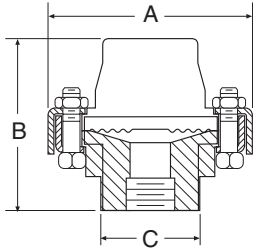
- (1) 150, 300, 600, 900, 1500 & 2500 class flanges.
- (2) 1" 150 thru 8" 300 class flanges only.
- (3) Metal diaphragms welded; Teflon, Kalrez & Viton diaphragms bonded.
- (4) Temp limits: -40/400°F.
- (5) Max. pressure: 500 psi, Temp. limits: -40/350°F.
- (6) Use on applications where NACE standard MR-01-75 2003 is standard.
- (7) Maximum press./temp. Threaded: 200 psi/74°F, 125 psi/125°F, 80 psi/150°F. Flanged: 75 psi/100°F.
- (8) Type 202 only.
- (9) Temp. Limits: -40/300°F.
- (10) Only available in 1", 1½", & 2" 150 class, Types 202 max. press./temp. - 270 psi and 150°F. Consult factory for conditions beyond these limits.
- (11) Max. pressure: 500 psi, Temp. limits: 30/212°F.
- (12) Maximum pressure/temp.: 200 psi and 180°F.
- (13) Type 200: ¼ or ½ NPT only. Larger sizes offered with solvent weld joint. N/A in 201 or 203 design.
- (14) Includes Titanium top housing.
- (15) Type 200 only available in 1/4 NPT or 1/2 NPT. 3/4" & 1" size available as solvent welded joint only.

Type 200 Series Welded or Bonded Diaphragm Seal

DIMENSIONS

Type 200 – Threaded

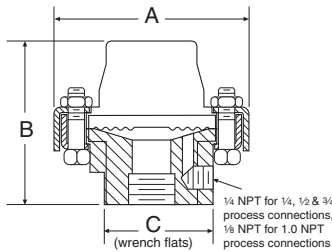
¼, ½, ¾, 1 NPT



A		B		C	
in	mm	in	mm	in	mm
¾	(95)	2½	(73)	1 13/16	(46)

Type 201 – Threaded

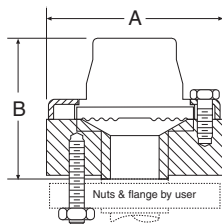
¼, ½, ¾, 1 NPT (with flushing connection)



A		B		C	
in	mm	in	mm	in	mm
¾	(95)	2½	(73)	1 13/16	(46)

Type 202 – Flanged

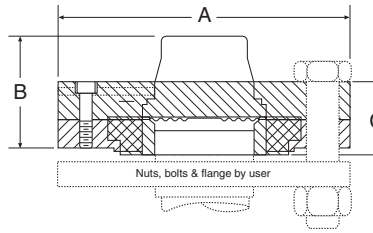
½, ¾, 1"



Flange Size	Rating #	A		B	
		in	mm	in	mm
150		3½	(89)	2 15/16	(75)
½"	300 or 600	3¾	(95)	3	(76)
900 or 1500		4¾	(121)	3¾	(81)
150		3¾	(98)	2 13/16	(71)
¾"	300 or 600	4½	(117)	3	(76)
900 or 1500		5½	(130)	3¾	(81)

Type 202 – Flanged 1" (raised face only)

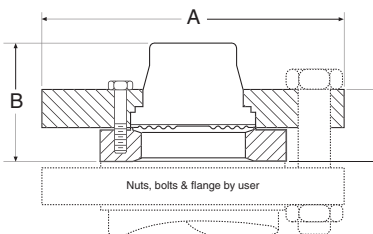
two piece bottom housing, 1½, 2, 3" - PVC, Teflon and Kynar



Flange Size	Rating #	A		B		C	
		in	mm	in	mm	in	mm
1½"	150	5	(127)	2 5/16	(59)	1 13/32	(39)
2"	150	6	(152)	2 1/8	(54)	1 9/16	(40)

Type 202 – Flanged (raised face only)

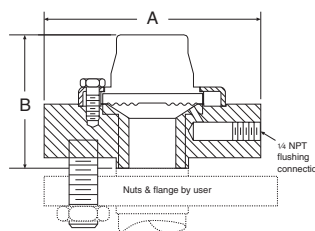
1½, 2, 3" one piece bottom housing - all materials except PVC, Teflon and Kynar



Flange Size	Rating #	A		B		C	
		in	mm	in	mm	in	mm
1½"	150	5	(127)	1½	(38)	1½	(38)
	300 or 600	6¼	(159)	2¾	(61)	1½	(38)
	900 or 1500	7	(178)	1½	(38)	1½	(38)
2"	150	6	(152)	1¾	(35)	1½	(38)
	300 or 600	6½	(165)	1 15/16	(49)	1½	(38)
	900 or 1500	8½	(216)	2½	(54)	1½	(38)
3"	150	7½	(191)	2	(51)	1¾	(41)
	300 or 600	8¼	(206)	2 1/8	(52)	1¾	(47)
	900 or 1500	10½	(267)	2 11/16	(68)	3¼	(82)

Type 203 – Flanged

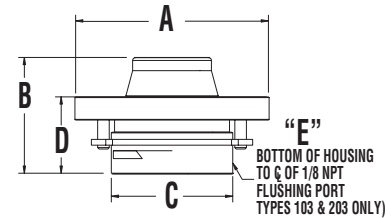
½, ¾" (with flushing connection)



Flange Size	Rating #	A		B	
		in	mm	in	mm
150		3½	(89)	2 15/16	(75)
½"	300 or 600	3¾	(95)	3	(76)
900 or 1500		4¾	(121)	3¾	(81)
150		3¾	(98)	2 13/16	(71)
¾"	300 or 600	4½	(117)	3	(76)

Type 202/203 – Flanged 1" (raised face only)

one piece bottom housing, with and without flushing connection. Class 150, 300, 600

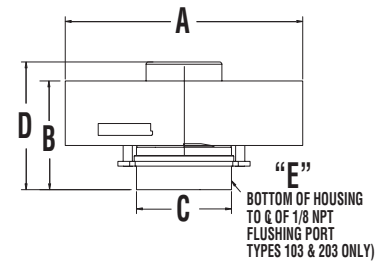


Flange Size	Rating #	A		B		C	
		in	mm	in	mm	in	mm
1	150	4-1/4	(100)	2-9/16	(65)	1-23/32	(69)
	300 or 600	5	(127)				

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

Type 202/203 – Flanged 1" (raised face only)

one piece bottom housing, with and without flushing connection. Class 900, 1500, 2000



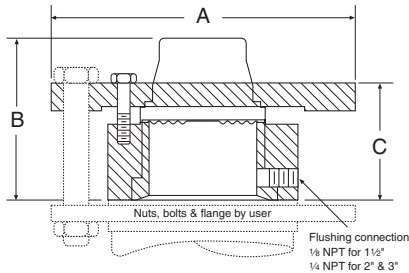
Flange Size	Rating #	A		B		C	
		in.	mm	in.	mm	in.	mm
1	900 or 1500	5-7/8	(149)	2-7/8	(73)	2-1/4	(57)
	2500	6-1/4	(159)				

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

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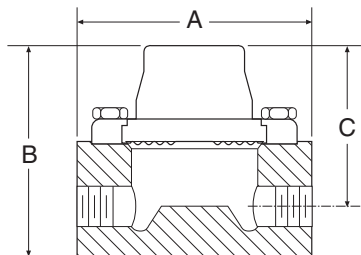
DIMENSIONS

Type 203 – Flanged 1½," 2," 3" (raised face only)
 one piece bottom housing with flushing connection



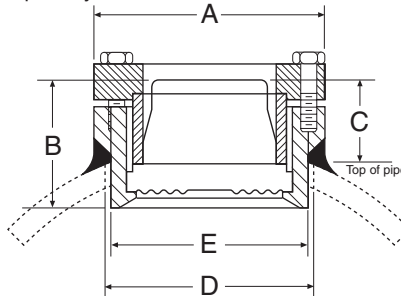
Flange Size	Rating #	A in	A mm	B in	B mm	C in	C mm
150		5	(127)				
1½"	300 or 600	6¼	(159)	3	(76)	2½	(64)
	900 or 1500	7	(178)				
2"	300 or 600	6	(152)	3½	(89)	2¾	(71)
	900 or 1500	8½	(216)				
3"	150	7½	(191)	3¾	(94)	2¾	(71)
	300 or 600	8¼	(210)	3¾	(94)	2¾	(71)
	900	9½	(241)				
	1500	10½	(267)				

Type 204 – In-Line Threaded
 ¼, ½, ¾, 1 NPT



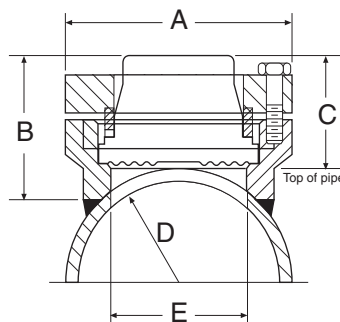
Process Connection	A in	A mm	B in	B mm	C in	C mm
¼ NPT	4	(102)	2½	(64)	2½	(64)
½ NPT			3½	(92)	2¾	(71)
¾ NPT			3¾	(98)	3	(76)
1 NPT			3¾	(98)	3	(76)

Type 205 – Saddle
 4" Pipe only



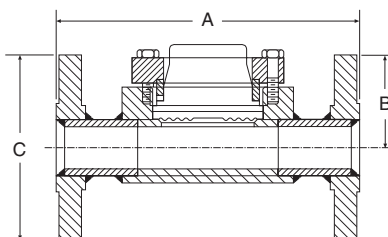
A in	A mm	B in	B mm	C in	C mm	D in	D mm	E in	E mm
3½	(89)	1½	(50)	1¾	(31)	3	(76)	2¾	(71)

Type 205 – Saddle
 3" Pipe only



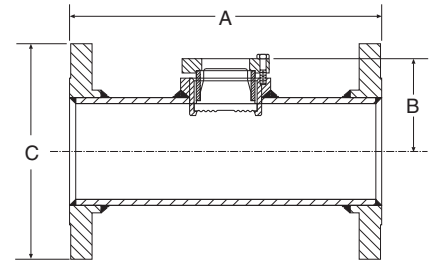
A in	A mm	B in	B mm	C in	C mm	D in	D mm	E in	E mm
3½	(89)	2¼	(57)	1¾	(48)	1¾	(44)	2½	(64)

Type 206 – In-Line Flanged
 ½, 1, 1½, 2, 3"



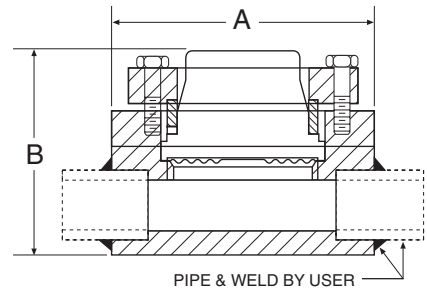
Flange Size	Rating #	A in	A mm	B in	B mm	C in	C mm
½"	150	7	(178)			3½	(89)
	300	7	(178)	2½	(62)	3¾	(98)
1"	150	7	(178)	2½	(62)	4¼	(108)
	300	8	(203)			4¾	(123)
1½"	150	8	(203)	2½	(62)	5	(127)
	300	9	(229)			6½	(165)
2"	150	9	(229)	2½	(62)	6	(152)
	300	10	(254)			6½	(165)
3"	150	11	(279)	3	(76)	7½	(191)
	300	12	(305)			8¼	(210)

Type 206 – In-Line Flanged
 4," 6," 8"



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

Type 207 – In-Line Welded
 ¼, ½, ¾, 1, 1½, 2"



Pipe Size	A in	A mm	B in	B mm
¼"	4	(102)	2½	(64)
½, ¾"			2½	(64)
1"			2½	(64)
1½"			2¾	(71)
2"			2¾	(71)