

# Model 100AC

## Diaphragm Seals for Threaded Off-Line Process Connections Standard Pressure Rating with Metal Lower Housing Complete with Clean-out Option

### Process Connection Sizes

1/4" NPTF through 1-1/2" NPTF

### Maximum Working Pressure

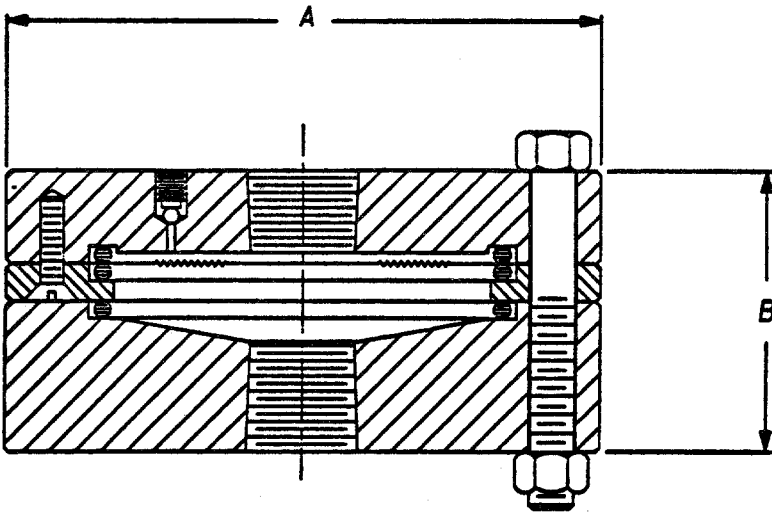
10000, 20000 PSIG (6.90, 13.80 MPa)  
@ 100°F (38°C) (See Notes 2, 3, 4 and 7)

### Dimensional Data

#### Process Connection Size

1/8" - 1/4"		3/8" - 1-1/2"	
A	B	A	B
4.0	1.44	4.0	1.88
(102)	(37)	(102)	(48)

( ) Dimensions in millimeters



### Standard Features and Options

This threaded connection, off-line seal has a replaceable diaphragm clamped between o-rings. The 100AC Series Seals are designed to utilize a diaphragm that is field replaceable. This configuration allows for the use of metal as well as elastomer diaphragm materials. The "Clean-out" feature is a separate diaphragm clamping ring which permits removal of the lower housing for inspection and cleaning of the diaphragm without loss of fill fluid. The displacement capability of this series of diaphragm seal is 0.09 cubic inches. The standard pressure rating is 2000 PSIG (13.80 MPa) when Stainless Steel bolting is not required (See Note 3). Also available are flushing ports and Seal-off feature.

### Offerings

**Lower Materials:** All metallic

**Upper Materials:** Carbon Steel or 316 Stainless Steel

**Diaphragm Materials:** All metallic and elastomers

**O-Rings:** Buna-N, Teflon, Viton

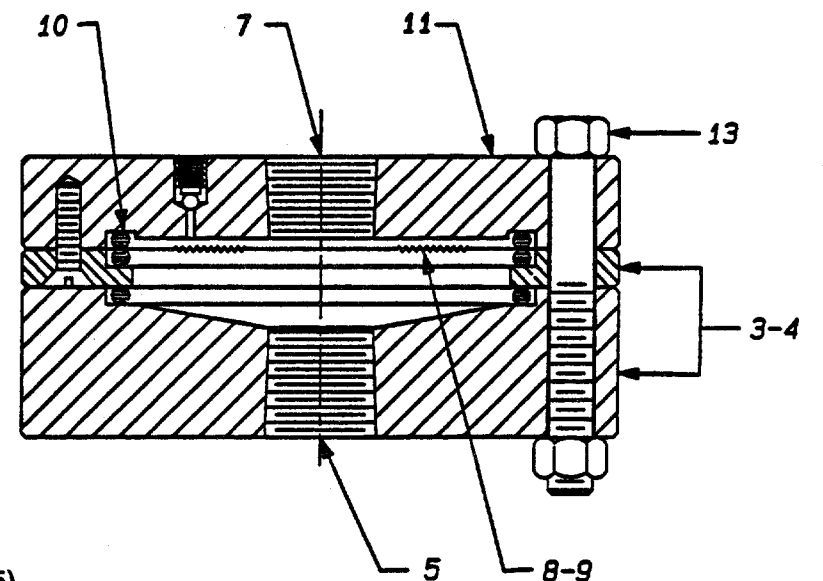
**Bolting:** Carbon Steel or 300 Stainless Steel (See Notes 2, 3, 4 and 7))

### CONTROL ENGINEERING DATA

A2S62 V 1 SL B C 0 H 0 N

- (15) FILL LIQUID  
N = (Standard)
- (14) TEFLON COATINGS (See Note 10)  
0 = None (Standard)  
A = Teflon Coated Diaphragm Only  
B = Teflon Coated Diaphragm and Lower Housing
- (13) BOLTING  
C = Carbon Steel Grade 5 (See Note 2)  
S = 300 Series Stainless Steel (See Note 3)  
H = 300 Series Stainless Steel (Hi-Strength) (See Note 4)
- (12) FLUSH CONNECTION (Not Shown)  
0 = None (Standard)  
1 = 1/8" NPTF  
2 = 1/4" NPTF  
3 = 1/4" NPTF-DUAL
- (11) UPPER HOUSING MATERIAL  
C = Carbon Steel (Standard)  
S = 316 Stainless Steel
- (10) O-RING MATERIAL  
B = Buna "N" (Standard)  
T = Teflon Virgin  
V = Viton
- (8-9) SEAL DIAPHRAGM MATERIAL  
BN = Buna "N"  
C2 = Carpenter 20 CB-3  
HB = Hastelloy B3  
HC = Hastelloy C-276  
I6 = Inconel 600  
KF = Kel-F  
M5 = Monel 400  
N2 = Nickel 200  
SL = 316L Stainless Steel (See Note 1)  
TA = Tantalum  
TI = Titanium - Grade 2  
TF = Teflon-Virgin  
VI = Viton
- (7) SEAL INSTRUMENT CONNECTION  
1 = 1/4" NPTF with bleed  
2 = 1/2" NPTF with bleed
- (6) SEAL PRESSURE RATING @ 100°F (38°C) (See Note 8)  
Q = 1000 PSIG (6.90 MPa) (See Note 3)  
V = 2000 PSIG (13.80 MPa) (See Notes 2 and 4)
- (5) SEAL PROCESS CONNECTION (See Note 9)  
2 = 1/4" NPTF  
3 = 3/8" NPTF  
4 = 1/2" NPTF  
5 = 3/4" NPTF  
6 = 1" NPTF  
7 = 1-1/4" NPTF  
8 = 1-1/2" NPTF
- (3-4) LOWER HOUSING MATERIAL (WETTED)(See Note 5)  
C2 = Carpenter 20 CB-3  
CS = Carbon Steel  
HB = Hastelloy B3  
HC = Hastelloy C-276  
I6 = Inconel 600  
M4 = Monel 400  
N2 = Nickel 200 (See Note 9)  
S4 = 304 Stainless Steel  
S6 = 316 Stainless Steel  
SF = 304L Stainless Steel  
SL = 316L Stainless Steel  
TI = Titanium - Grade 4 (See Note 9)  
TP = Tantalum Plate (Wetted Surface Only)(See Note 6)
- (1-2) DIAPHRAGM SEAL DESIGN  
A2 = 100AC Threaded Off-Line with Cleanout Ring

CATALOG NUMBERS AS RECEIVED FOR THE 100AC SERIES MUST CONTAIN FIFTEEN (15) CHARACTERS



### Notes:

- Standard diaphragm material is 316L Stainless Steel for seals with lower housing manufactured of CS, S4, S6, SL and SF.
- Using Grade 5 bolts and Grade 8 nuts will maintain the standard 2000 PSIG (13.80 MPa) pressure rating chosen in Option 6.
- When using 300 Series Stainless Steel bolts and nuts, the standard 2000 PSIG (13.80 MPa) pressure rating will be reduced by 50% to 1000 PSIG (6.90 MPa).
- To maintain the standard 2000 PSIG (13.80 MPa) pressure rating chosen in Option 6 when 300 Series Stainless Steel bolts and nuts are required, then high-strength stainless steel bolts and nuts will be necessary.
- The clean-out ring is the same material as the lower housing.
- Adequate plating coverage of threaded connections cannot be guaranteed due to limitations and nature of the plating/coating process. Tantalum plated lowers cannot be supplied with flush connections.
- N.A.C.E. - Non-welded diaphragm seals with 316 Stainless Steel, Hastelloy C-276 or Monel wetted materials of construction will meet the requirements of N.A.C.E. International Document MR-0175-1995.
- Refer to Miscellaneous Data Section for Pressure-Temperature Rating Guide.
- Maximum working pressure is limited to 1000 PSIG (6.90 MPa) at 100°F (38°C) for lower ring housings with 1-1/4" and 1-1/2" NPTF connections that are constructed of Nickel 200 and Titanium Grade 4 due to connection thread strength limitations.
- Teflon-S® Coating (FEP Grade)

# Model 100AC

## Diaphragm Seals for Threaded Off-Line Process Connections Reduced Pressure Rating for Non-Metallic Lower Housings Complete with Clean-out Option

### Process Connection Sizes

1/4" NPTF through 1-1/2" NPT

### Maximum Working Pressure

200 PSIG (1.38 MPa) at 140°F (60°C)

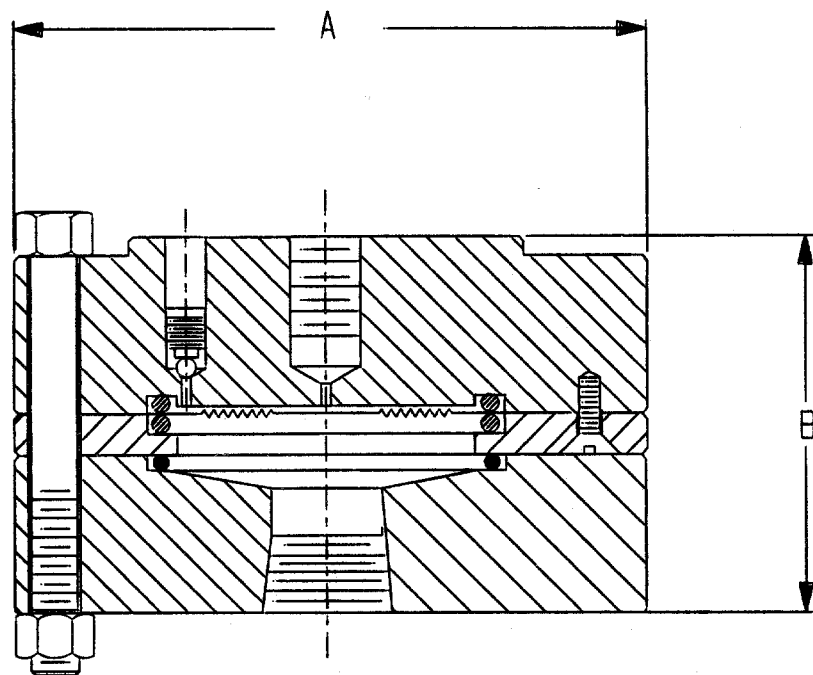
maximum temperature rating (See Note 3)

### Dimensional Data

#### Process Connection Size

MATERIAL	1/4" - 1-1/2"	
	A	B
TEFLON VIRGIN	4.0	2.25
TEFLON GLASS	(102)	(57)
TEFLON CARBON		
PVC	4.0	2.13
KYNAR	(102)	(54)
POLYPROPYLENE		

( ) Dimensions in millimeters



### Standard Features and Options

This threaded connection, off-line seal has a replaceable diaphragm clamped between o-rings. The 100AC Series Seals are designed to utilize a diaphragm that is field replaceable. This configuration allows for the use of metal as well as elastomer diaphragm materials. The "Clean-out" feature is a separate diaphragm clamping ring which permits removal of the lower housing for inspection and cleaning of the diaphragm without loss of fill fluid. The displacement capability of this series of diaphragm seal is 0.09 cubic inches. The standard pressure rating is limited to 200 PSIG (1.38 MPa) with a maximum temperature of 140°F (60°C). Because of the strength of the material flushing ports are not available. Teflon glass filled, Teflon carbon filled and Teflon-Virgin lowers will be supplied with a 316 Stainless Steel lower metal support plate to distribute bolt load and to minimize cold flow. A Seal-off feature is optional.

### Offerings

**Lower Materials:** All non-metallic

**Upper Materials:** Carbon Steel or 300 Stainless Steel

**Diaphragm Materials:** All metallic and elastomers

**O-Rings:** Buna-N, Teflon, Viton

**Bolting:** Carbon Steel or 300 Stainless Steel

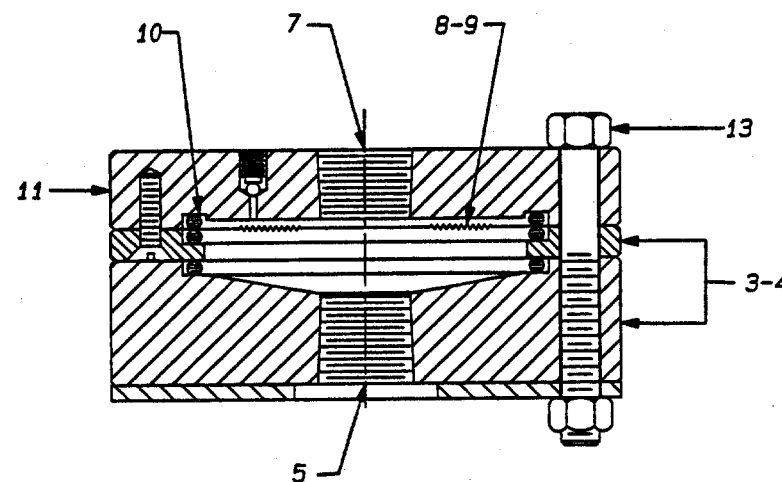
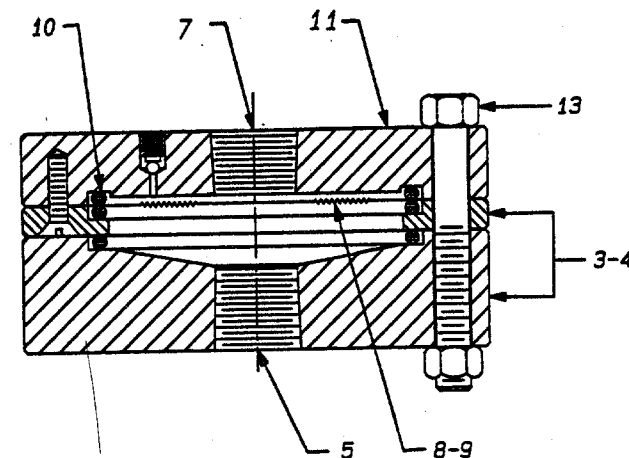
**Note:** The use of 300 Series Stainless Steel bolts and nuts will not affect the maximum pressure rating.

### CONTROL ENGINEERING DATA

A2 PP7 G 2HC T S 0 C 0 N

- (15) FILL LIQUID  
N = (Standard)
- (14) TEFLON COATINGS (See Note 4)  
A = Teflon Coated Diaphragm Only  
B = Teflon Coated Diaphragm and Lower Housing
- (13) BOLTING  
C = Carbon Steel Grade 5  
S = 300 Series Stainless Steel
- (12) FUTURE OPTIONS  
0 = Not Applicable
- (11) UPPER HOUSING MATERIAL  
C = Carbon Steel (Standard)  
S = 316 Stainless Steel
- (10) O-RING MATERIAL  
B = Buna "N" (Standard)  
T = Teflon Virgin (Standard)  
V = Viton
- (8-9) SEAL DIAPHRAGM MATERIAL  
BN = Buna "N"  
C2 = Carpenter 20 CB-3  
HB = Hastelloy B3  
HC = Hastelloy C-276  
I6 = Inconel 600  
KF = Kel-F  
M5 = Monel 400  
N2 = Nickel 200  
SL = 316L Stainless Steel  
TA = Tantalum  
TI = Titanium Grade 2  
TF = Teflon-Virgin (See Note 1)  
VI = Viton
- (7) SEAL INSTRUMENT CONNECTION  
1 = 1/4" NPTF with bleed  
2 = 1/2" NPTF with bleed
- (6) SEAL PRESSURE RATING @ 140°F (60°C)  
G = 200 PSIG (1.38 MPa) (See Note 3)
- (5) SEAL PROCESS CONNECTION  
2 = 1/4" NPTF  
3 = 3/8" NPTF  
4 = 1/2" NPTF  
5 = 3/4" NPTF  
6 = 1" NPTF  
7 = 1-1/4" NPTF  
8 = 1-1/2" NPTF
- (3-4) LOWER HOUSING MATERIAL (WETTED)(See Note 2)  
KN = Kynar  
PP = Polypropylene  
PV = PVC  
TC = Teflon-Carbon Filled  
TG = Teflon-Glass Filled
- (1-2) DIAPHRAGM SEAL DESIGN  
A2 = 100AC Threaded Off-Line with Clean-out Ring

CATALOG NUMBERS AS RECEIVED FOR THE 100AC SERIES MUST CONTAIN FIFTEEN (15) CHARACTERS



Teflon Lower Housing

### Note.

1. Standard diaphragm material is Teflon for seals with lower housings manufactured of KN, PP, PV, TC and TG.
2. The clean-out ring is the same material as the lower housing.
3. Refer to Miscellaneous Data Section for Pressure-Temperature Rating Guide.
4. Teflon-S® Coating (FEP Grade)

# Model 100AC

Diaphragm Seals for Threaded Off-Line Process Connections  
Elevated Pressure Rating with Metal Lower Housing  
Complete with Clean-out Option

## Process Connection Sizes

1/4" NPTF through 1/2" NPTF

## Maximum Pressure Rating

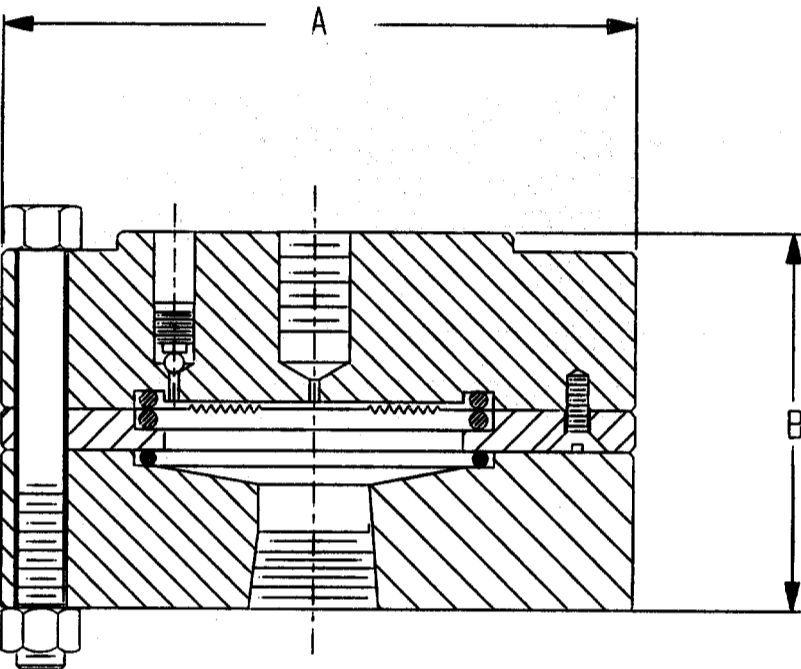
5000, 10000, 20000 PSIG (34.50, 69.00, 138.00 MPa) @ 100°F (38°C) (See Notes 3, 4, 5, 9 and 10)

## Dimensional Data

### Process Connection Size

Pressure Rating	1/8" - 1/4"		3/8" - 1/2"	
	A	B	A	B
5000	4.0 (102)	2.37 (60)	4.0 (102)	2.37 (60)
10000	4.0 (102)	2.37 (60)	4.0 (102)	2.37 (60)
20000	5.0 (127)	2.94 (75)	-----	-----

( ) Dimensions in millimeters



## Standard Features and Options

This threaded connection, off-line seal has a replaceable diaphragm clamped between o-rings. The 100AC Series Seals are designed to utilize a diaphragm that is field replaceable. The displacement capability of this series of diaphragm seal is 0.05 cubic inches utilizing a 2.5" (63.50mm) diameter diaphragm. The "Clean-out" feature is a separate diaphragm clamping ring which permits removal of the lower housing for inspection and cleaning of the diaphragm without loss of fill fluid. Pressure ratings of 5000, 10000, 20000 PSIG (34.50, 69.00, and 138 MPa) are offered when 300 Stainless Steel bolting is not required (See Note 4). The Seal-off feature is standard for these pressure ratings. Also available are flushing ports for the 5000 PSIG (34.50 MPa) rating only.

## Offerings

**Lower Materials:** All metallic

**Upper Materials:** Carbon Steel or 316 Stainless Steel

**Diaphragm Materials:** All metallic

**O-Rings:** Buna-N, Viton

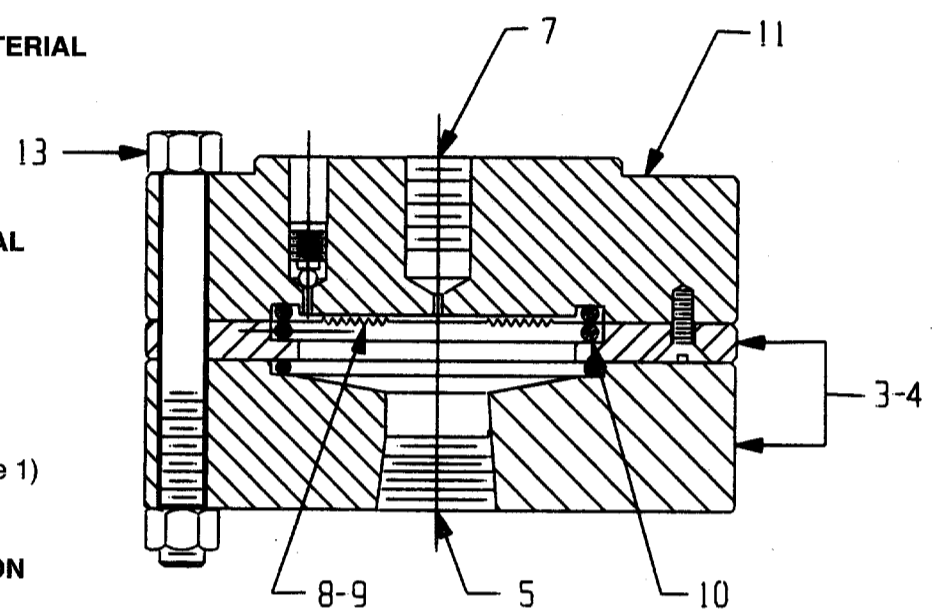
**Bolting:** Carbon Steel or 300 Series Stainless Steel (See Notes 3, 4, 4A, 5 and 9)

## CONTROL ENGINEERING DATA

A2CS 4 Z 1 HC B C 0 C 0 N

- (15) FILL LIQUID  
N = (Standard)
- (14) TEFLON COATINGS (See Note 11)  
0 = None (Standard)  
A = Teflon Coated Diaphragm Only  
B = Teflon Coated Diaphragm and Lower Housing
- (13) BOLTING  
C = Carbon Steel Grade 5 (See Note 3)  
S = 300 Series Stainless Steel (See Notes 4 and 4A)  
H = 300 Series Stainless Steel (Hi-Strength) (See Note 5)
- (12) FLUSH CONNECTION (See Note 2)(Not Shown)  
0 = None (Standard)  
1 = 1/8" NPTF  
2 = 1/4" NPTF  
3 = 1/4" NPTF-DUAL
- (11) UPPER HOUSING MATERIAL  
C = Carbon Steel (Standard)  
S = 316 Stainless Steel
- (10) O-RING MATERIAL  
B = Buna "N" (Standard)  
V = Viton
- (8-9) SEAL DIAPHRAGM MATERIAL  
C2 = Carpenter 20 CB-3  
HB = Hastelloy B3  
HC = Hastelloy C-276  
I6 = Inconel 600  
M5 = Monel 400  
N2 = Nickel 200  
SL = 316L Stainless Steel (See Note 1)  
TA = Tantalum  
TI = Titanium-Grade 2
- (7) SEAL INSTRUMENT CONNECTION  
1 = 1/4" NPTF with bleed  
2 = 1/2" NPTF with bleed
- (6) SEAL PRESSURE RATING @ 100°F (38°C) (See Notes 3, 4, 4A, 5, 9 and 10)  
V = 2500 PSIG (17.52 MPa)  
W = 5000 PSIG (34.50 MPa)  
Y = 10000 PSIG (69.00 MPa)  
Z = 20000 PSIG (138.00 MPa)
- (5) SEAL PROCESS CONNECTION  
2 = 1/4" NPTF  
3 = 3/8" NPTF  
4 = 1/2" NPTF
- (3-4) LOWER HOUSING MATERIAL (WETTED)(See Note 6)  
C2 = Carpenter 20 CB-3  
CS = Carbon Steel  
HB = Hastelloy B3  
HC = Hastelloy C-276  
I6 = Inconel 600  
M4 = Monel 400  
S4 = 304 Stainless Steel  
S6 = 316 Stainless Steel  
SF = 304L Stainless Steel  
SL = 316L Stainless Steel  
TP = Tantalum Plate (Wetted Surface Only)(See Note 7)
- (1-2) DIAPHRAGM SEAL DESIGN  
A2 = 100AC Threaded Off-Line with Cleanout Ring

CATALOG NUMBERS AS RECEIVED FOR THE 100AC SERIES MUST CONTAIN FIFTEEN (15) CHARACTERS



## Notes:

1. Standard diaphragm material is 316L Stainless Steel for seals with lower housing manufactured of CS, S4, S6, SL and SF.
2. For 5000 PSIG (34.50 MPa) rated seals only.
3. Using Grade 5 bolts and Grade 5 nuts will maintain the pressure rating chosen in Option 6.
4. When using 300 Series Stainless Steel bolts and nuts, the pressure rating will be reduced by 50%, refer to Option 6.
- 4A. When Stainless Steel bolts and nuts (NOT HIGH STRENGTH) are required, then a de-rated option is required when developing a catalog number.
5. To maintain the pressure rating chosen in Option 6 when 300 Series Stainless Steel bolts and nuts are required, then high-strength Stainless Steel bolts and nuts will be necessary.
6. The clean-out ring is the same material as the lower housing.
7. Adequate plating coverage of threaded connections cannot be guaranteed due to limitations and nature of the plating/coating process. Tantalum plated lowers cannot be supplied with flush connections.
8. N.A.C.E. - Non-welded diaphragm seals with 316 Stainless Steel, Hastelloy C-276 or Monel wetted materials of construction will meet the requirements of N.A.C.E. International Document MR-0175-1995.
9. Refer to Miscellaneous Data Section for Pressure-Temperature Rating Guide.
10. Maximum working pressures are the ratings for the diaphragm seal design NOT the process connection threads. Pipe threads are not recommended for high pressure systems experiencing dynamic loads. Refer to applicable industry codes and standards for guidelines.
11. Teflon-S® Coating (FEP Grade)