

Model 100A

Diaphragm Seals for Threaded Off-Line Process Connections Standard Pressure Rating with Metal Lower Housing

Process Connection Sizes

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

Maximum Working Pressure

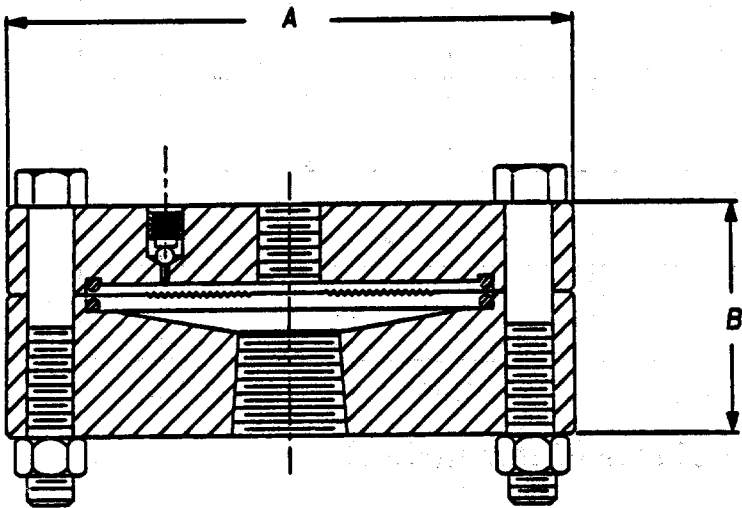
1000, 2000 PSIG (6.90, 13.80 MPa) @ 100°F (38°C) (See Note 2, 3, 4, and 7)

Dimensional Data

Process Connection Size

1/4"		3/8" - 1"		1-1/4" - 1-1/2"	
A	B	A	B	A	B
4.0	1.19	4.0	1.63	4.0	1.88
(102)	(30)	(102)	(41)	(102)	(48)

() Dimensions in millimeters



Standard Features and Options

This threaded connection, off-line seal has a replaceable diaphragm clamped between o-rings. The 100A Series Seals are designed to utilize a diaphragm that is field repairable. This design allows for the use of metal as well as elastomer diaphragm materials. 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

A1 SL3 Q 1 T A B C 3 S B N

(15) FILL LIQUID

N = (Standard)

(14) TEFLON COATINGS (See Note 9)

0 = None (Standard)

A = Teflon Coating Diaphragm Only

B = Teflon Coating 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

0 = None (Standard) (Not Shown)

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 @ 100F (38°C) (See Note 7)

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 8)

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)

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 8)

S4 = 304 Stainless Steel

S6 = 316 Stainless Steel

SF = 304L Stainless Steel

SL = 316L Stainless Steel

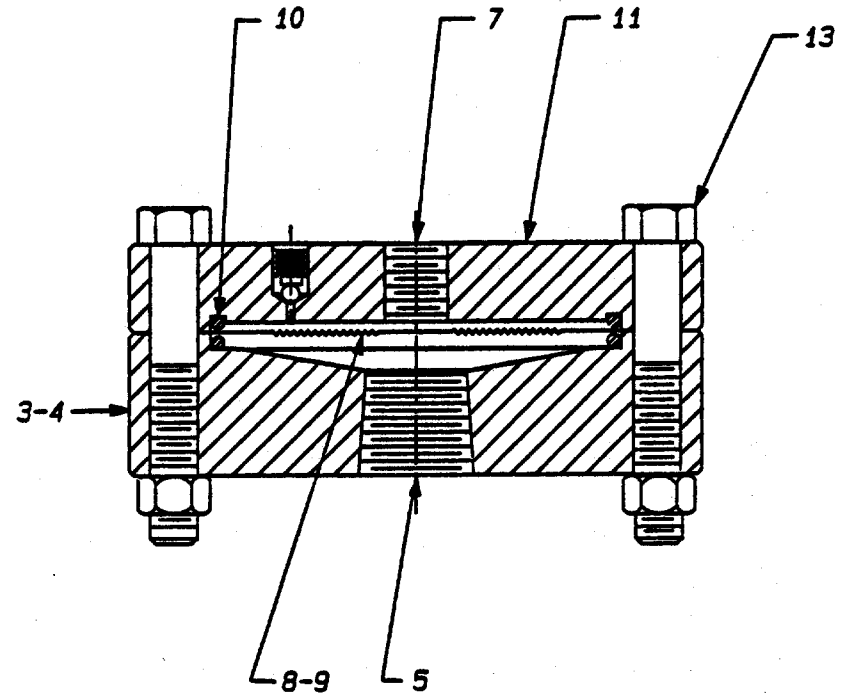
TI = Titanium - Grade 4 (See Note 8)

TP = Tantalum Plate (Wetted Surface Only) (See Note 5)

(1-2) DIAPHRAGM SEAL DESIGN

A1 = 100A- Threaded Off-Line

CATALOG NUMBERS AS RECEIVED
FOR THE 100A 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 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.
- 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 (13.80 MPa) at 100°F (38°C) for lower housings with 1-1/4" and 1-1/2" NPTF connections that are constructed of Nickel 200 or Titanium Grade 4 due to connection thread strength limitations.
- Teflon-S@ Coating (FEP Grade)

Model 100A

Diaphragm Seals for Threaded Off-Line Process Connections Reduced Pressure Rating for Non-Metallic Lower Housings

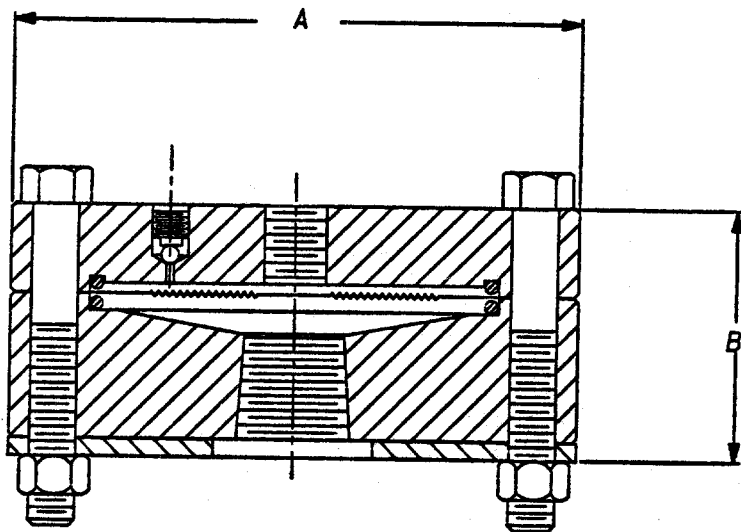
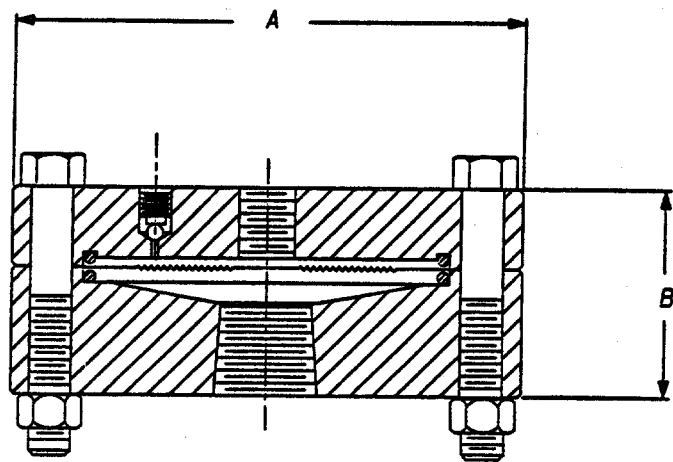
Process Connection Sizes

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

Maximum Working Pressure

200 PSIG (1.38 MPa) at 140°F (60°C)

maximum temperature rating (See Note 1)



Teflon Lower Housing

Dimensional Data

Process Connection Size

MATERIAL	1/4" - 1-1/2"	
	A	B
TEFLON VIRGIN	4.0	1.75
TEFLON GLASS	(102)	(44)
TEFLON CARBON		
PVC	4.0	1.63
KYNAR	(102)	(41)
POLYPROPYLENE		

Standard Features and Options

This threaded connection, off-line seal has a replaceable diaphragm clamped between o-rings. The 100A Series Seals are designed to utilize a diaphragm that is field replaceable. This design allows for the use of metal as well as elastomer diaphragm materials. 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 Series Stainless Steel

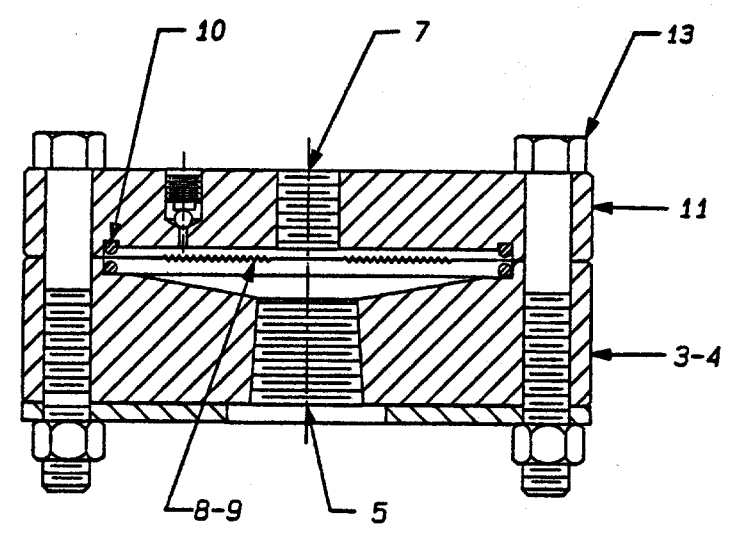
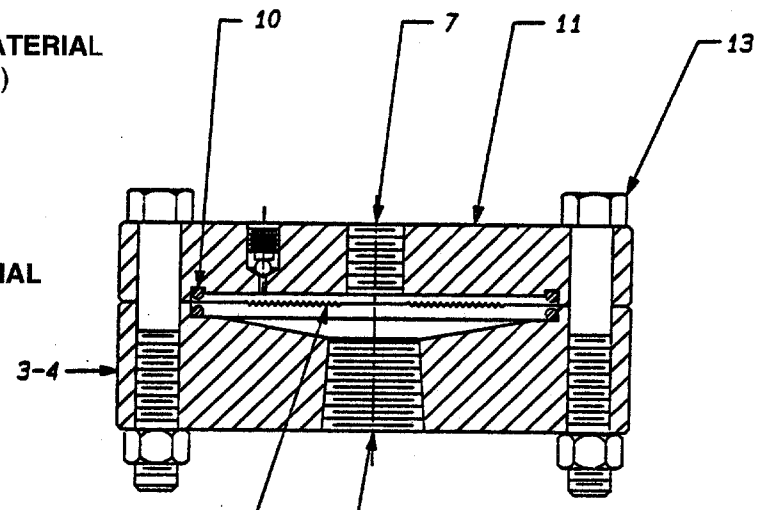
Note: The use of 300 Series Stainless Steel bolts and nuts will not affect the maximum pressure rating.

CONTROL ENGINEERING DATA

A1 PP3 G 1KF V S O C A N

- (15) FILL LIQUID
N = (Standard)
- (14) TEFLON COATINGS (See Note 3)
0 = None (Standard)
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
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 2)
- (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)
KN= Kynar
PP= Polypropylene
PV= PVC
TC= Teflon-Carbon Filled
TG= Teflon-Glass Filled
- (1-2) DIAPHRAGM SEAL DESIGN
A1 = 100A - Threaded Off-Line

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



Teflon Lower Housing

Notes:

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

Model 100A

Diaphragm Seals for Threaded Off-Line Process Connections Elevated Pressure Rating with Metal Lower Housings

Process Connection Sizes

1/4" NPTF through 1/2" NPTF

Maximum Working Pressure

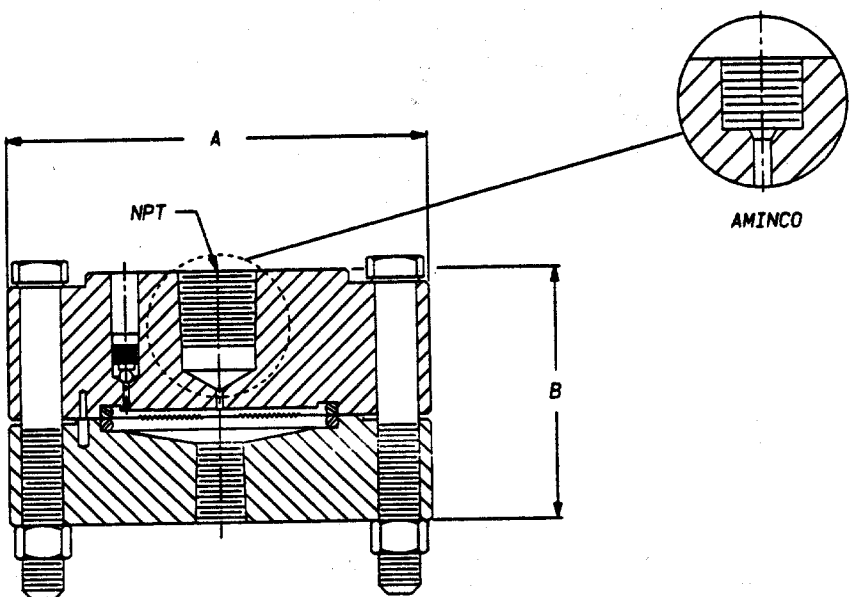
5000, 10000, 20000 PSIG (34.50, 69.00, 138.00 MPa) @ 100°F (38°C) (See Notes 3, 4, 5, 8 and 9)

Dimensional Data

Process Connection Size

Pressure Rating	1/4"		3/8" - 1/2"	
	A	B	A	B
5000	4.0 (102)	2.13 (54)	4.0 (102)	2.13 (54)
10000	4.0 (107)	2.13 (54)	4.0 (102)	2.13 (54)
20000	5.0 (127)	2.69 (68)	----	----

() Dimensions in millimeters



Standard Features and Options

This threaded connection, off-line seal has a replaceable diaphragm clamped between o-rings. The 100A 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. Pressure ratings of 5000, 10000 and 20000 PSIG (34.50, 69.00 and 138 MPa) are offered when 300 Series 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

Diaphragms Materials: All metallic

O-Rings: Buna-N, Viton

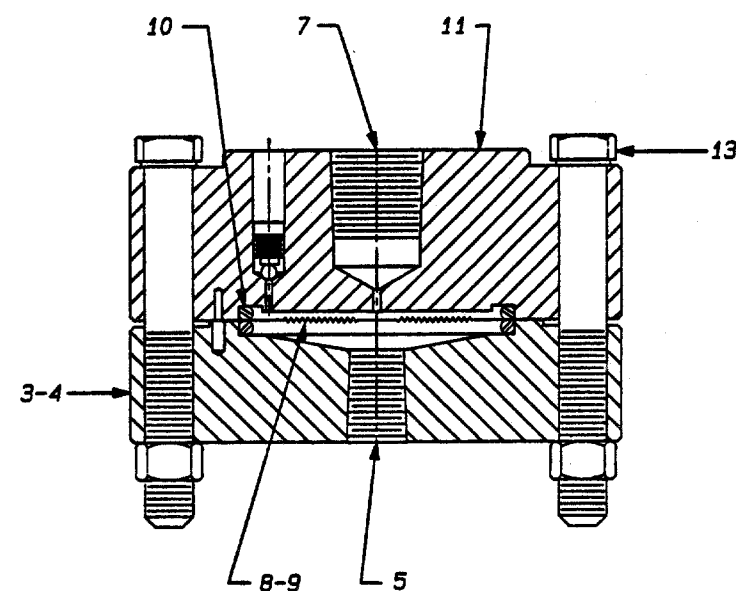
Bolting: Carbon Steel or 300 Stainless Steel (See Notes 3, 4, 5, and 8.)

CONTROL ENGINEERING DATA

A1HB 2 W 2 TA V S 2 H A 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 3)
S = 300 Series Stainless Steel (See Note 4)
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
4 = 1/4" Aminco
- (6) SEAL PRESSURE RATING @ 100°F (38°C)
(See Notes 3, 4, 4A, 5, 8 and 9)
V = 2500 PSIG (17.25 MPa)
W = 5000 PSIG (34.50 MPa)
Y = 10000 PSIG (60.00 MPa)
Z = 20000 PSIG (138.00 MPa)
- (5) SEAL PROCESS CONNECTION (See Note 9)
2 = 1/4" NPTF
3 = 3/8" NPTF
4 = 1/2" NPTF
- (3-4) LOWER HOUSING MATERIAL (WETTED)
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 6)
- (1-2) DIAPHRAGM SEAL DESIGN
A1 = 100A- Threaded Off-Line

CATALOG NUMBERS AS RECEIVED FOR THE 100A 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 8 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. 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.
7. 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.
8. Refer to Miscellaneous Data Section for Pressure - Temperature Rating Guide.
9. Maximum working pressures listed 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.
10. Teflon-S® Coating (FEP Grade)