

Model 600A

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

Process Connection Sizes

1/4" NPTF through 2" NPTF

Maximum Working Pressure

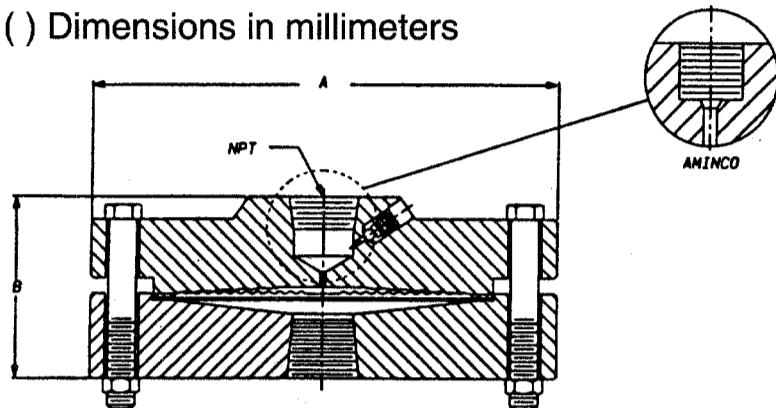
750, 1500 PSIG (5.18, 10.35 MPa) @ 100°F (38°C) (See Notes 1, 2, 3 and 10)

Dimensional Data

Process Connection Sizes

	1/8" - 1-1/2" Process
A	5.50 (140)
B	2.12 (54)

() Dimensions in millimeters



Standard Features and Options

This threaded connection, off-line seal has a diaphragm welded to the upper housing. This design allows for the use of diaphragm materials that are of a weldable grade. The displacement capability of this series of diaphragm seal is 0.25 cubic inches utilizing a 4.0" (101.60mm) diameter diaphragm.

Designed for sealed systems requiring low sensitivity to thermal expansion and contraction of fill fluid. This seal provides greater accuracy when higher volumetric displacements are required.

The standard pressure rating is 1500 PSIG (10.35 MPa) when Stainless Steel bolting is not required (See Note 2). The Seal-Off feature is standard and flushing ports are optional.

Standard instrument connections are 1/4" NPTF and 1/2" NPTF with the 1/4" Aminco as an option. The 1/4" Aminco is a straight thread and cone seat style instrument connection that reduces the amount of fill fluid in the body cavity reducing the amount of error caused by thermal expansion and contraction of fill fluid. The 1/4" Aminco instrument connection was originally called the 840A Series Seal.

Offerings

Lower Materials: All metallic

Upper Materials: Carbon Steel or 316 Stainless Steel

Optional Materials are Carpenter 20, Titanium and Monel - Refer to Control Engineering Data for details.

Diaphragm Materials: All metallic

Bolting: Carbon Steel or 300 Stainless Steel (See Notes 1, 2, 3 and 10)

CONTROL ENGINEERING DATA

H1S6 4 X 4 D S C 0 C 0 0 N

(15) **FILL LIQUID**
N = (Standard)

(14) **PLATING OPTIONS**
0 = None (Standard)
G = Gold Plating Diaphragm Only (See Note 12)

(13) **TEFLON COATINGS (See Note 13)**
0 = None (Standard)
A = Teflon Coated Diaphragm Only
B = Teflon Coated Diaphragm and Lower Housing

(12) **BOLTING**
0 = None
C = Carbon Steel, Grade 5 (See Note 1)
S = 300 Series Stainless Steel (See Note 2)
H = 300 Series Stainless Steel Hi-Strength (See Note 3)

(11) **FLUSH CONNECTION (Not Shown)**
0 = None (Standard)
1 = 1/8" NPTF
2 = 1/4" NPTF
3 = 1/4" NPTF- DUAL

(10) **UPPER HOUSING MATERIAL**
B = Carbon Steel - N.A.C.E. (No Weld Ring)
F = 316 Stainless Steel - N.A.C.E. (No Weld Ring)
N = Monel - N.A.C.E. (No Weld Ring)
C = Carbon Steel (Standard)
S = 316 Stainless Steel
M = Monel (See Note 4)
2 = Carpenter 20 CB-3 (See Notes 4 and 7)
T = Titanium (See Notes 4 and 7)

(9) **SEAL GASKET MATERIAL**
0 = None
B = Buna "N"
G = Grafoil
T = Teflon (See note 5)
V = Viton
S = CGR 2750 (Standard)

(8) **SEAL DIAPHRAGM MATERIAL**
C = Carpenter 20 CB-3 (See Notes 4 and 7)
H = Hastelloy B3
D = Hastelloy C-276
I = Inconel 600
M = Monel 400 (See Note 4)
N = Nickel 200
J = 316L Stainless Steel (See Note 6)
T = Tantalum
E = Titanium - Grade 2 (See Notes 4 and 7)

(7) **SEAL INSTRUMENT CONNECTION**
1 = 1/4" NPTF w/Bleed
2 = 1/2" NPTF w/Bleed
4 = 1/4" AMINCO with bleed (Formerly 840A Series)

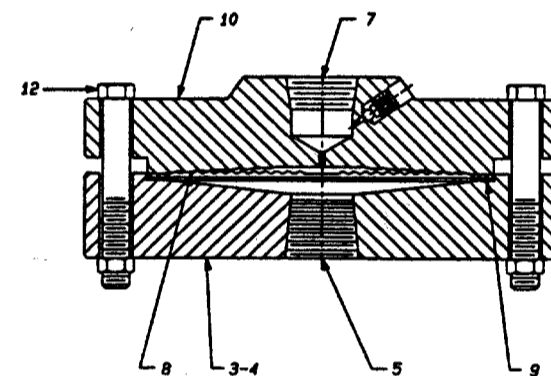
(6) **SEAL PRESSURE RATING @ 100°F (38°C)**
H = 750 PSIG (5.18 MPa) (See Note 2)
X = 1500 PSIG (10.35 MPa) (See Notes 1 and 3)

(5) **SEAL PROCESS CONNECTION (See Note 11)**
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
9 = 2" NPTF
D = 1/4" Aminco
0 = No Lower Housing Required (Upper Housing Only)

(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 11)
S4 = 304 Stainless Steel
S6 = 316 Stainless Steel
SF = 304L Stainless Steel
SL = 316L Stainless Steel
TI = Titanium - Grade 4 (See Note 11)
TP = Tantalum Plate (Wetted Surfaces Only) (See Note 8)
00 = No Lower Housing Required (Upper Housing Only)

(1-2) **DIAPHRAGM SEAL DESIGN**
H1 = 600A- Threaded Off-Line

CATALOG NUMBERS AS RECEIVED FOR THE 600A SERIES MUST CONTAIN FIFTEEN (15) CHARACTERS



Notes:

- Using Grade 5 bolts and Grade 5 nuts will maintain the standard 1500 PSIG (10.35 MPa) pressure rating chosen in Option 6.
- When using 300 Series Stainless Steel bolts and nuts, the standard 1500 PSIG (10.35 MPa) pressure rating will be reduced by 50% to 750 PSIG (5.18 MPa), refer to Option 6.
- To maintain the pressure rating chosen in Option 6 when 300 Series Stainless Steel bolts and nuts are required, then stainless steel high-strength bolts and nuts will be necessary.
- When a Monel, Carpenter 20 or Titanium diaphragm is chosen then an equivalent upper housing is required.
- Teflon Gasket is standard for seals with lower housings manufactured of C2, TI and TP.
- Standard diaphragm material is 316L Stainless Steel for seals with lower housing manufactured of CS, S4, S6, SF and SL.
- Standard diaphragm material is tantalum for seals with lower housing manufactured of C2, TP and TI. When customer requires a Carpenter 20, Monel or Titanium diaphragm, refer to Position 10 for proper upper housing material.
- 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. - Welded diaphragm seals with Hastelloy C-276 or Monel wetted materials of construction will meet the requirements of N.A.C.E. International Document MR-0175-1995. 316 Stainless Steel construction will NOT BE offered in a welded design as meeting N.A.C.E. MR-0175-1995 requirements as the weld area of the diaphragm seal will not meet the maximum hardness specifications within this document.
- Refer to Miscellaneous Data Section for Pressure-Temperature Rating Guide.
- Maximum working pressure limited to 750 PSIG (5.18 MPa) @ 100°F (38°C) for all lower housings with pipe threads larger than 1" NPTF that are constructed of Nickel 200 or Titanium Grade 4 due to connection thread strength limitations.
- Tantalum and Titanium materials cannot be gold plated.
- Teflon-S® Coating (FEP Grade).

Model 600A

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

Process Connection Sizes

1/4" NPTF through 2" NPTF

Pressure Ratings

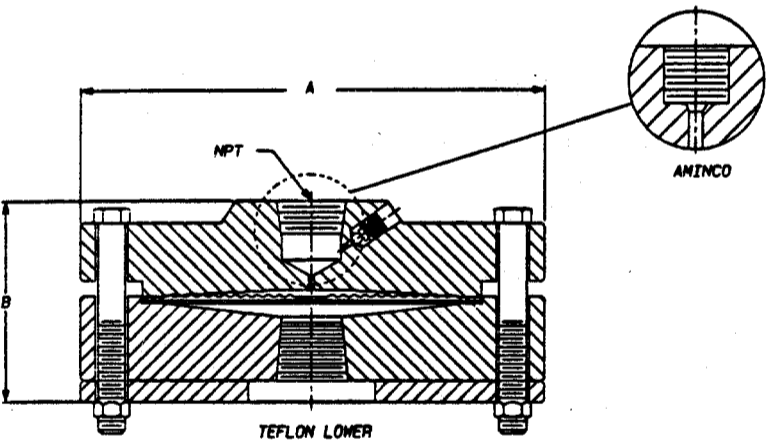
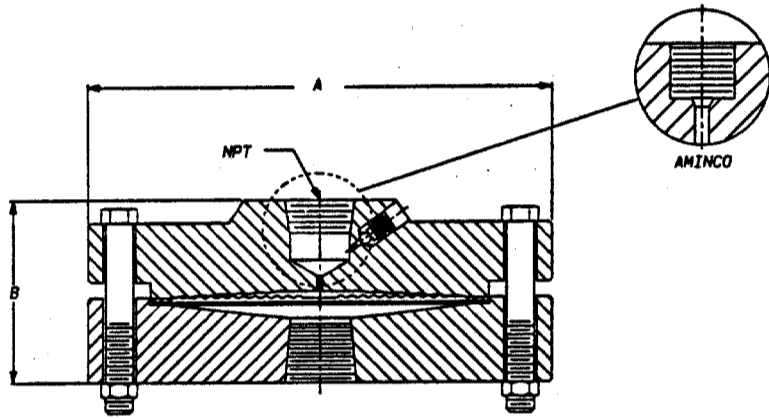
200 PSIG (1.38 MPa) at 140°F (60°C)
maximum temperature rating (See Note 4)

Dimensional Data

Process Connection Size

	PVC - KYNAR - POLYPROPYLENE 1/4" - 1-1/2"
A	5.50 (140)
B	2.12 (54)
	TEFLON -GLASS - CARBON 1/4" - 1-1/2"
A	5.50 (140)
B	2.25 (57)

() Dimensions in millimeters



TEFLON LOWER HOUSING

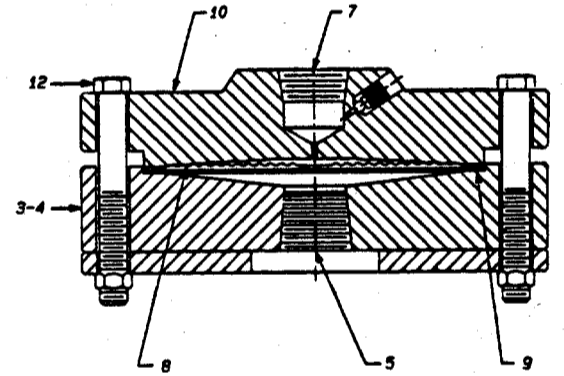
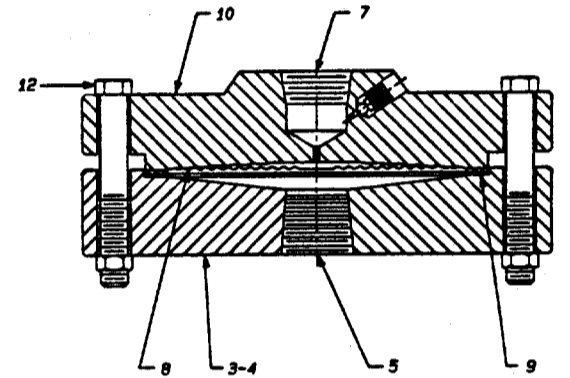
CONTROL ENGINEERING DATA

H1TG 2 G 1 T T S 0 S 0 0 N

- (15) FILL LIQUID
N = (Standard)
- (14) Plating Options
0 = None (Standard)
G = Gold Plating Diaphragm Only (See Note 5)
- (13) TEFLON COATINGS (See Note 6)
0 = None (Standard)
A = Teflon Coated Diaphragm Only
B = Teflon Coated Diaphragm and Lower Housing
- (12) BOLTING
0 = None
C = Carbon Steel, Grade 5
S = 300 Series Stainless Steel
- (11) FUTURE OPTIONS
0 = Not Applicable
- (10) UPPER HOUSING MATERIAL
B = Carbon Steel - N.A.C.E. (No Weld Ring)
F = 316 Stainless Steel - N.A.C.E. (No Weld Ring)
N = Monel - N.A.C.E. (No Weld Ring)
C = Carbon Steel (Standard)
S = 316 Stainless Steel
M = Monel (See Note 1)
2 = Carpenter 20 CB-3 (See Notes 1 and 3)
T = Titanium (See Notes 1 and 3)
- (9) SEAL GASKET MATERIAL
0 = None
B = Buna "N"
G = Grafoil
T = Teflon (See Note 2)
V = Viton
S = CGR 2750
- (8) SEAL DIAPHRAGM MATERIAL
C = Carpenter 20 CB-3 (See Notes 1 and 3)
H = Hastelloy B3
D = Hastelloy C-276
I = Inconel 600
M = Monel 400 (See Note 1)
N = Nickel 200
J = 316L Stainless Steel
T = Tantalum (See Note 3)
E = Titanium - Grade 2 (See Notes 1 and 3)
- (7) SEAL INSTRUMENT CONNECTION
1 = 1/4" NPTF w/Bleed
2 = 1/2" NPTF w/Bleed
4 = 1/4" AMINCO with bleed (Formerly 840A Series)
- (6) SEAL PRESSURE RATING @ 140°F (60°C)
G = 200 PSIG (1.38 MPa)
- (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
9 = 2" NPTF
0 = No Lower Housing Required (Upper Housing Only)
- (3-4) LOWER HOUSING MATERIAL (WETTED)
KN = Kynar
PP = Polypropylene
PV = PVC
TC = Teflon-Carbon Filled
TG = Teflon-Glass Filled
00 = No Lower Housing Required (Upper Housing Only)
- (1-2) DIAPHRAGM SEAL DESIGN

H1 = 600A- Threaded Off-Line

CATALOG NUMBERS AS RECEIVED
FOR THE 600A SERIES MUST CONTAIN
FIFTEEN (15) CHARACTERS



TEFLON LOWER HOUSING

Notes:

1. When a Monel, Carpenter 20 or Titanium diaphragm is chosen in Position 8, then an equivalent upper housing is required.
2. Teflon is standard for seals with lower housings manufactured of KN, PP, PV, TC and TG.
3. Standard diaphragm material is Tantalum for seals with lower housings manufactured of KN, PV, PP, TC and TG. When customer requires a Carpenter 20, Monel or Titanium diaphragm, refer to Position 10 for proper upper housing material.
4. Refer to Miscellaneous Data Section for Pressure-Temperature Rating Guide.
5. Tantalum and Titanium materials cannot be gold plated.
6. Teflon-S® Coating (FEP Grade).

Standard Features and Options

This threaded connection, off-line seal has a diaphragm welded to the upper housing. This design allows for the use of diaphragm materials that are of a weldable grade. The displacement capability of this series of diaphragm seal is 0.25 cubic inches utilizing a 4.0" (101.60mm) diameter diaphragm.

Designed for sealed systems requiring low sensitivity to thermal expansion and contraction of fill fluid. This seal provides greater accuracy when higher volumetric displacements are required.

The standard pressure rating is 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 lowers will be supplied with a 316 Stainless Steel lower metal support plate to distribute bolt load and minimize cold flow. A Seal-off feature is standard.

Standard instrument connections are 1/4" NPTF and 1/2" NPTF with the 1/4" Aminco as an option. The 1/4" Aminco is a straight thread and cone seat style instrument connection that reduces the amount of fill fluid in the body cavity reducing the amount of error caused by thermal expansion and contraction of fill fluid.

Offerings

Lower Materials: All non-metallic

Upper Materials: Carbon Steel or 316 Stainless Steel

Optional Materials are Carpenter 20, Titanium and Monel - Refer to Control Engineering Data for details.

Diaphragm Materials: All metallic

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.