# SMA Hermetic Seal Launchers

AEP SMA hermetic seal launchers are designed to fit hermetic seals with .012" to .036" pin diameters. Connectors for use with .012—.018" pins feature an internal body structure that compensates electrically for the stepdown in diameter from the connector interface to the seal outer diameter, as shown in the illustration. These units also incorporate a conductive-elastomer EMI gasket to prevent RF leakage at the interface between the connector flange and the MIC package.
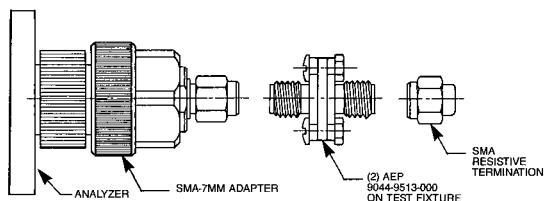
Connectors for seals with .020" or .036" pin diameters have straight-though body geometry, and do not use EMI gaskets.

Passivated stainless steel body finish is standard for this series; gold-plated bodies are available as an option.

Connector / seal design—connectors for use with .012–.018" diameter pins
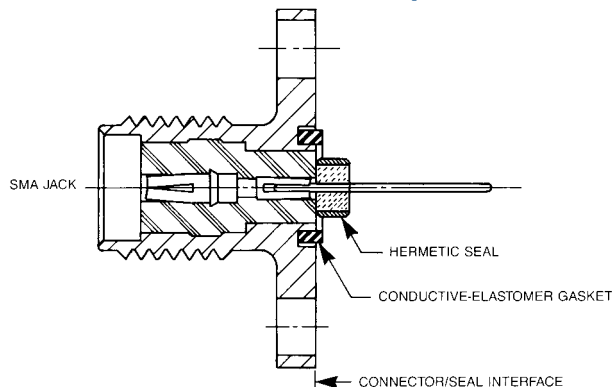

Electrical Performance Data

Test setup: Two connectors (P/N 9044-9513-000) mounted back-to-back on fixture incorporating hermetic seal (P/N 920-55). Precision SMA plug termination used as load.

The VSWR plot below is for the connector/fixture combination; data for a single connector can be extrapolated by taking the square root of the reading at a given frequency. Insertion loss readings should be divided by two to obtain performance for a single connector.

Electrical performance in actual use may vary based on the characteristics of the pin-to-line transition.
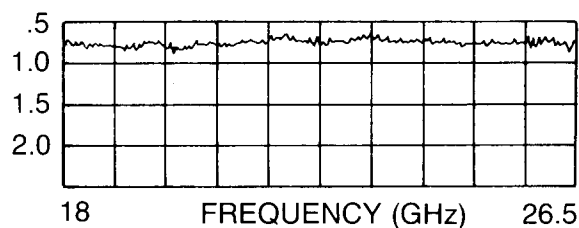
VSWR

HP 8510
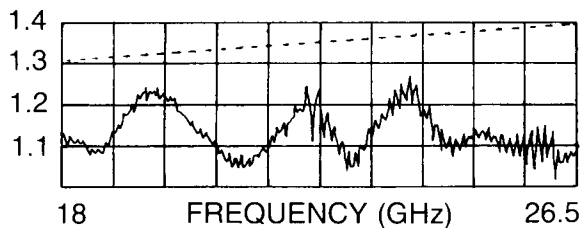
Dotted line = VSWR $(1.05 + .005F \text{ [GHz]})^2$
Max. VSWR DC-18 GHz: 1.23: 1 @ 13.93 GHz
Max. VSWR DC-26.5 GHz: 1.28: 1 @ 23.74 GHz

Insertion loss (dB)

HP 8510

See next page for hermetic seal specifications and mounting dimensions.

Hermetic Seal Specifications

Materials:

All metal parts: Kovar.

Glass: Corning glass as noted:

P/N	Glass type
920-55	7052
920-56	7070
920-69	7052
920-82	7070
920-92	7052

Finish:

All metal parts: Gold plated per MIL-G-45204 type II, grade C, class 1, over nickel per MIL-C-26074, class 1, over copper per MIL-C-14550.

Hermeticity:

Greater than 1×10^{-8} cc/second @ 1 atmosphere.

Solderability:

Per MIL-Std-202, Method 209.

Meniscus:

.005" max.

Pin concentricity:

.003" T.I.R.

Temperature range:

-65–250° C.

Impedance:

50 ±1Ω.

Frequency range:

DC-26 GHz.

Insertion loss:

.1 dB max. to 12.4 GHz;
.2 dB max. to 18 GHz;
.25 dB max. to 26 GHz.

VSWR:

Dependent on application.

Voltage rating:

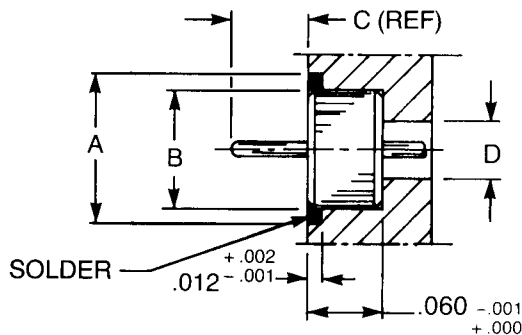335 VRMS max. @ sea level.

Current:

500 mA.

Dielectric Withstanding Voltage:

1000 VRMS @ sea level.

Insulation resistance:

100K megohms (@25° C)

Mounting Dimensions

P/N	A(±.001)	B(±.001)	C
920-55	.127	.102	.070
920-56	.140	.115	.070
920-69	.188	.163	.060
920-82	.127	.102	.070
920-92	.188	.163	.075

Notes:

1) Front of seal and solder should be flush to .005" above mounting surface.

2) Diameters ("D") in chart are for 50Ω impedance; Teflon dielectric diameters are for applications which use a support insulator for the hermetic seal pin (user option).

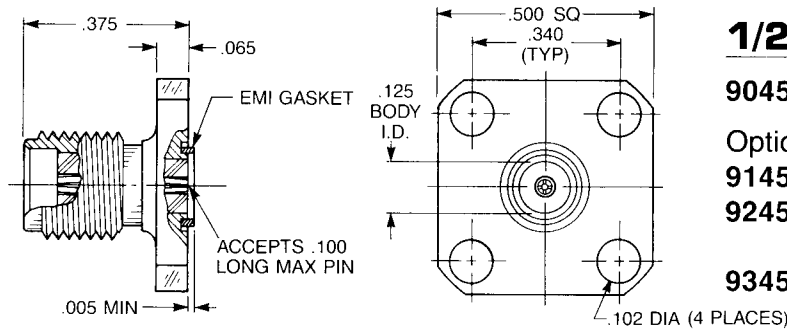| Pin Diameter	"D" (Air dielectric)	"D" (Teflon dielectric)
.012	.028	.040
.015	.035	.050
.018	.041	.059
.020	.046	.066

SMA Hermetic Seal Launchers
For hermetic seals with .012" diameter pins

1/2" Square Flange
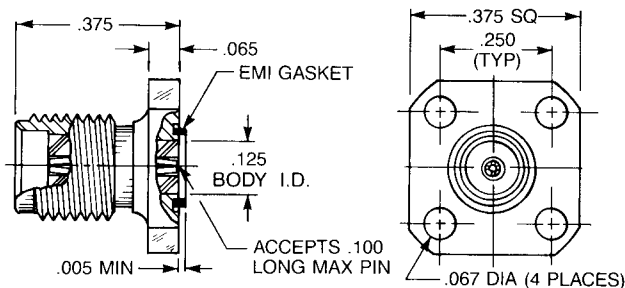
9045-9513-000

Optional packaging:
9145-9513-000   (Includes 920-55)
9245-9513-000   (Includes 920-55
                     and 907-111-1)
9345-9513-000   (Includes 907-111-1)
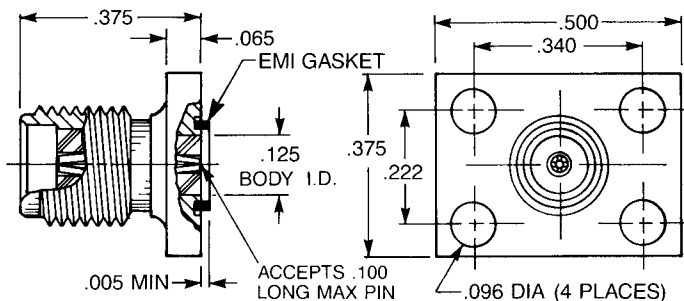

3/8" Square Flange

9079-9513-000
Optional packaging:
9179-9513-000   (Includes 920-55)
9279-9513-000   (Includes 920-55
                     and 907-111-1)
9379-9513-000   (Includes 907-111-1)

Rectangular Flange

9062-9513-000

Optional packaging:
9162-9513-000   (Includes 920-55)
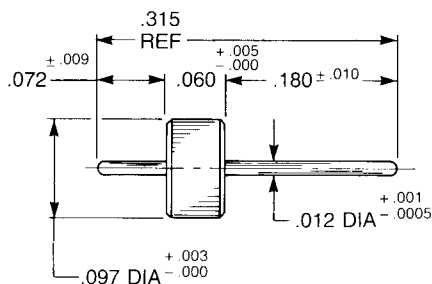**9262-9513-000**   (Includes 920-55
                     and 907-111-1)
9362-9513-000   (Includes 907-111-1)

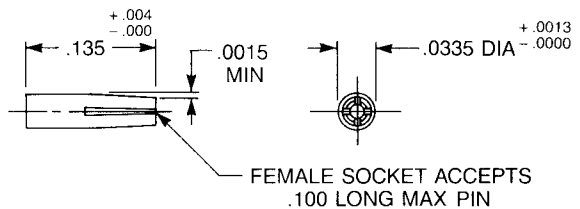**These units accept hermetic seal pin diameters .011–.015"**

Solder-In Hermetic Seal
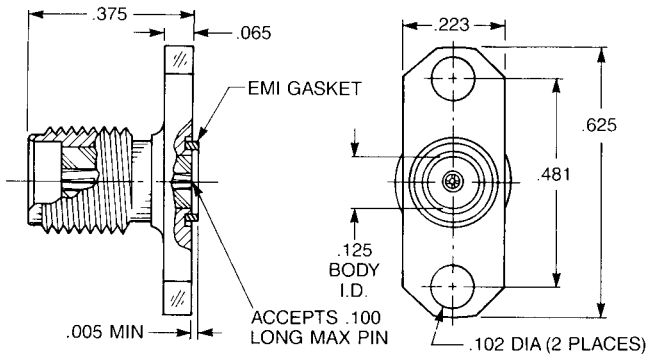P/N 920-55

Accessory Contact
P/N 907-111-1

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class I,
grade C, over .0001 copper per MIL-C-14550

SMA Hermetic Seal Launchers
For hermetic seals with .012" diameter pins

2-Hole Flange

9044-9513-000
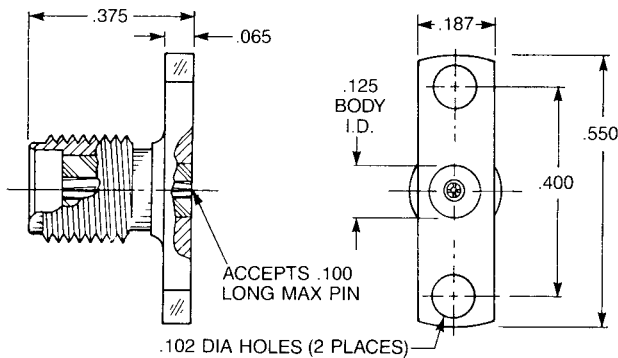
Optional packaging:
9144-9513-000 (Includes 920-55)
9244-9513-000 (Includes 920-55
and 907-111-1)
9344-9513-000 (Includes 907-111-1)

Narrow 2-Hole Flange

No EMI gasket
9080-9513-000
Optional packaging:
9180-9513-000 (Includes 920-55)
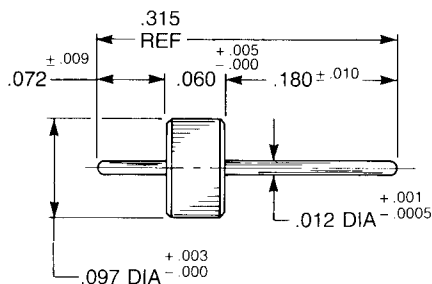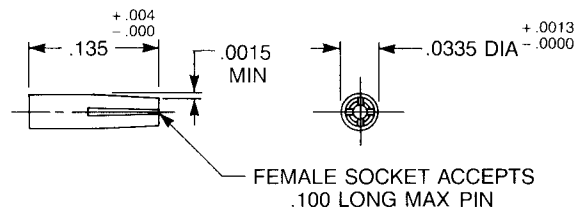**9280-9513-000** (Includes 920-55
and 907-111-1)
9380-9513-000 (Includes 907-111-1)

These units accept hermetic seal pin diameters .011–.015"

Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-55

Accessory Contact
P/N 907-111-1

FEMALE SOCKET ACCEPTS
.100 LONG MAX PIN

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class I,
grade C, over .0001 copper per MIL-C-14550

SMA Hermetic Seal Launchers
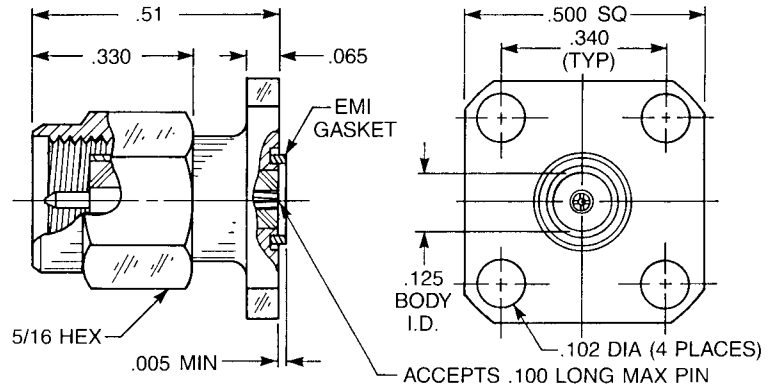## For hermetic seals with .012" diameter pins

1/2" Square Flange

9047-9513-000

Optional packaging:
9147-9513-000 (Includes 920-55)
9247-9513-000 (Includes 920-55 and 907-111-1)
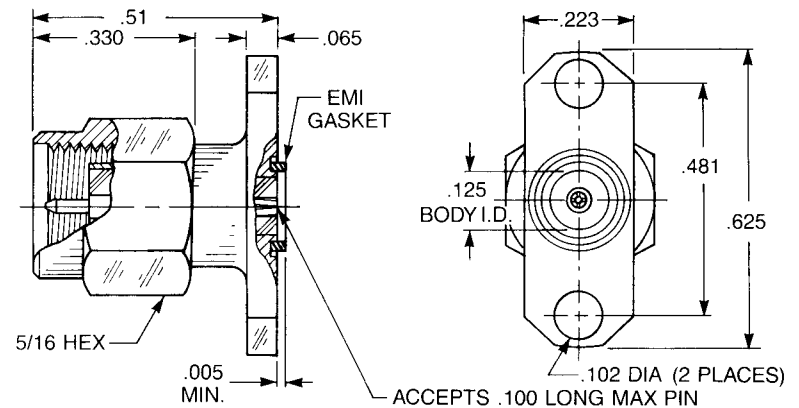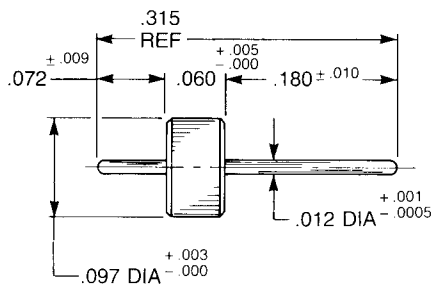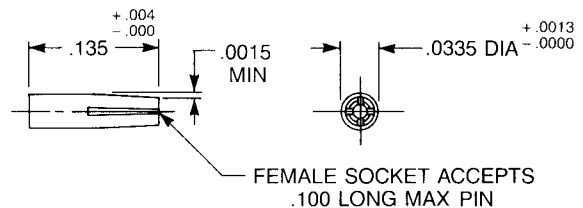**9347-9513-000** (Includes 907-111-1)

.51
.330
.065
EMI GASKET
5/16 HEX
.005 MIN
.500 SQ
.340 (TYP)
.125 BODY I.D.
.102 DIA (4 PLACES)
ACCEPTS .100 LONG MAX PIN

2-Hole Flange

9046-9513-000

Optional packaging:
9146-9513-000 (Includes 920-55)
9246-9513-000 (Includes 920-55 and 907-111-1)
9346-9513-000 (Includes 907-111-11)

.51
.330
.065
EMI GASKET
5/16 HEX
.005 MIN.
.223
.125 BODY I.D.
.481
.625
.102 DIA (2 PLACES)
ACCEPTS .100 LONG MAX PIN

These units accept hermetic seal pin diameters .011–.015"

Solder-In Hermetic Seal
P/N 920-55

.315 REF
.072
±.009
$.060 ^{+.005}_{-.000}$
$.180 ±.010$
$.012 DIA ^{+.001}_{-.0005}$
$.097 DIA ^{+.003}_{-.000}$

Accessory Contact
P/N 907-111-1

$.135 ^{+.004}_{-.000}$
.0015 MIN
$.0335 DIA ^{+.0013}_{-.0000}$
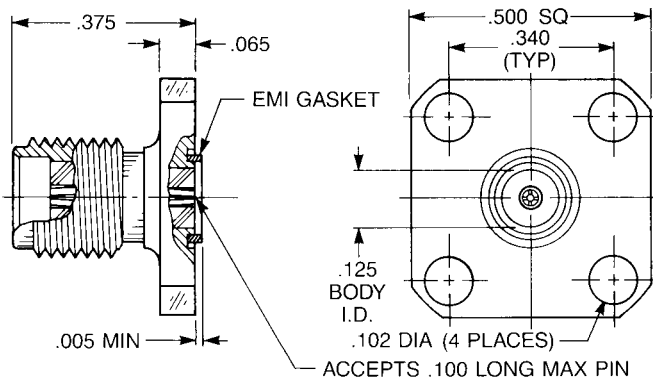FEMALE SOCKET ACCEPTS .100 LONG MAX PIN

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class I, grade C, over .0001 copper per MIL-C-14550

SMA Hermetic Seal Launchers
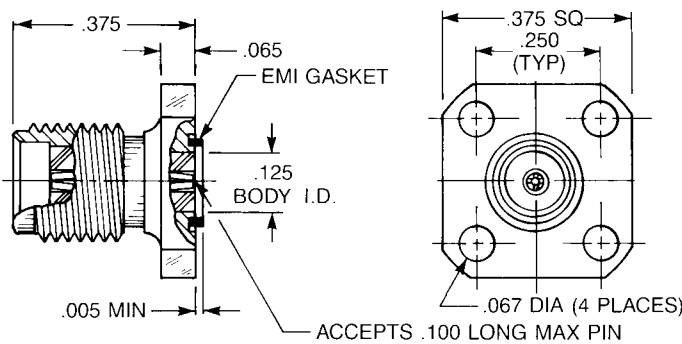## For hermetic seals with .015" diameter pins

1/2" Square Flange

9045-9513-001

Optional packaging:
9145-9513-001   (Includes 920-82)
9245-9513-001   (Includes 920-82
                       and 907-111-5)
9345-9513-001   (Includes 907-111-5)

3/8" Square Flange

9079-9513-001

Optional packaging:
9179-9513-001   (Includes 920-82)
9279-9513-001   (Includes 920-82
                       and 907-111-5)
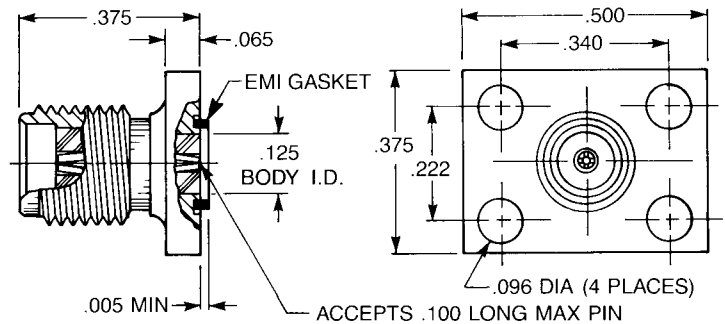**9379-9513-001**   (Includes 907-111-5)

Rectangular Flange

9062-9513-001

Optional packaging:
9162-9513-001   (Includes 920-82)
9262-9513-001   (Includes 920-82
                       and 907-111-5)
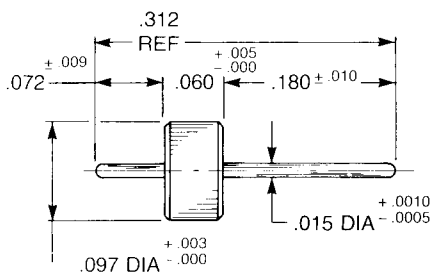**9362-9513-001**   (Includes 907-111-5)

These units accept hermetic seal pin diameters .014–.016"
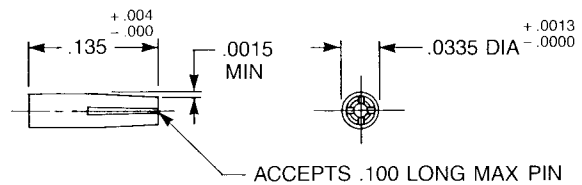
Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-82
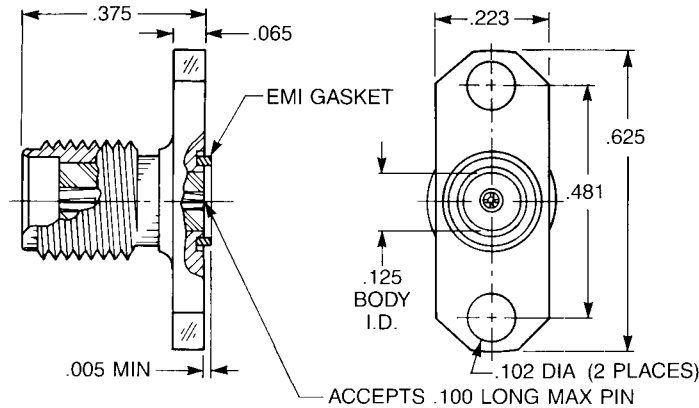

Accessory Contact
P/N 907-111-5

Material: Beryllium copper.
Finish: Gold per MIL-G-45204, type II, class 1,
grade C, over .0001 copper per MIL-C-14450.

SMA Hermetic Seal Launchers
For hermetic seals with .015" diameter pins

.375
.065
EMI GASKET
.625
.481
.125
BODY
I.D.
.005 MIN
.102 DIA (2 PLACES)
ACCEPTS .100 LONG MAX PIN
.223

2-Hole Flange
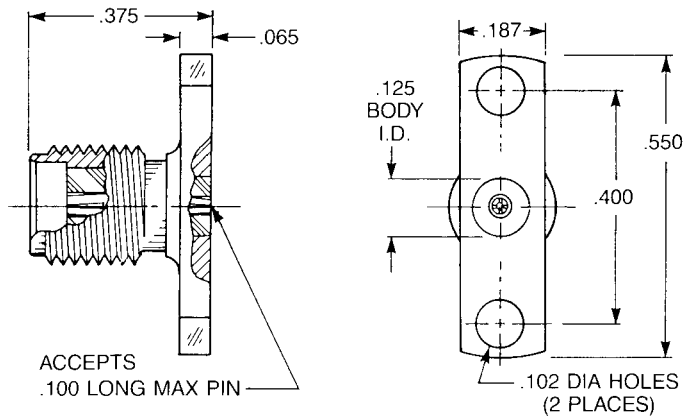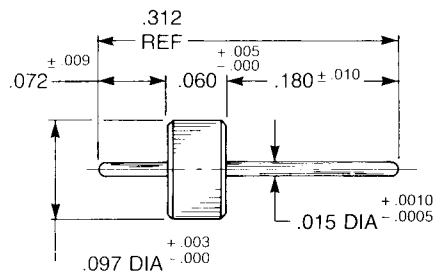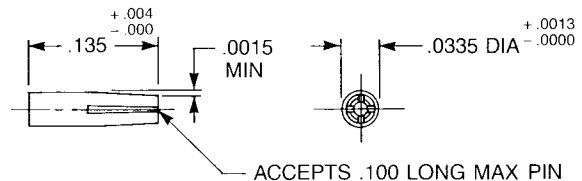
9044-9513-001

Optional packaging:
9144-9513-001   (Includes 920-82)
9244-9513-001   (Includes 920-82
                     and 907-111-5)
9344-9513-001   (Includes 907-111-5)

.375
.065
.125
BODY
I.D.
.187
.550
.400
ACCEPTS
.100 LONG MAX PIN
.102 DIA HOLES
(2 PLACES)

Narrow 2-Hole Flange
No EMI gasket
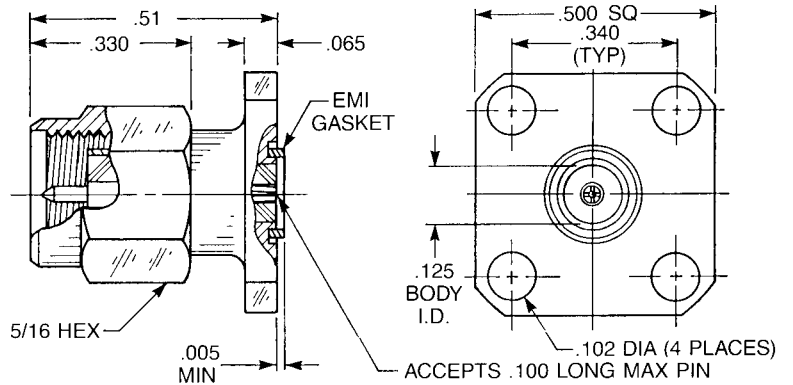**9080-9513-001**

Optional packaging:
9180-9513-001   (Includes 920-82)
9280-9513-001   (Includes 920-82
                     and 907-111-5)
9380-9513-001   (Includes 907-111-5)

These units accept hermetic seal pin diameters .014–.016"

Solder-In Hermetic Seal
P/N 920-82

.312
REF
$.072 \pm .009$
$.060 \, {}^{+.005}_{-.000}$
$.180 \pm .010$
$.015 \, \text{DIA} \, {}^{+.0010}_{-.0005}$
$.097 \, \text{DIA} \, {}^{+.003}_{-.000}$

Accessory Contact
P/N 907-111-5

$.135 \, {}^{+.004}_{-.000}$
.0015
MIN
$.0335 \, \text{DIA} \, {}^{+.0013}_{-.0000}$
ACCEPTS .100 LONG MAX PIN

Material: Beryllium copper.
Finish: Gold per MIL-G-45204, type II, class 1,
grade C, over .0001 copper per MIL-C-14450.

SMA Hermetic Seal Launchers
For hermetic seals with .015" diameter pins

1/2" Square Flange

9047-9513-001

Optional packaging:
9147-9513-001   (Includes 920-82)
9247-9513-001   (Includes 920-82
                        and 907-111-5)
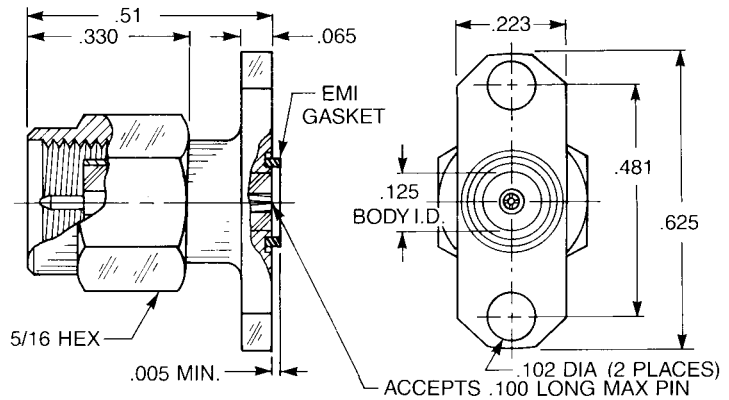**9347-9513-001**   (Includes 907-111-5)

2-Hole Flange

9046-9513-001

Optional packaging:
9146-9513-001   (Includes 920-82)
9246-9513-001   (Includes 920-82
                        and 907-111-5)
9346-9513-001   (Includes 907-111-5)
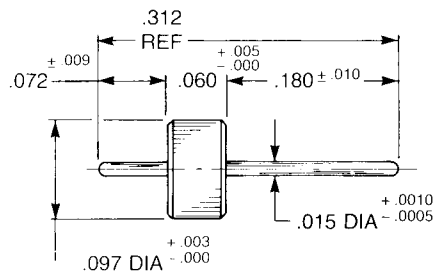

These units accept hermetic seal pin diameters .014–.016"

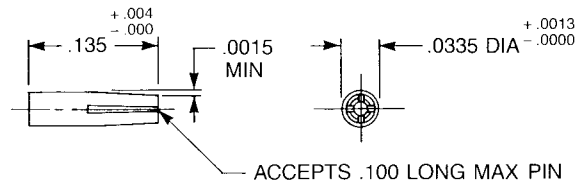## Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-82

Accessory Contact
P/N 907-111-5

Material: Beryllium copper.
Finish: Gold per MIL-G-45204, type II, class 1, grade C, over .0001 copper per MIL-C-14450.

SMA Hermetic Seal Launchers
For hermetic seals with .018" diameter pins
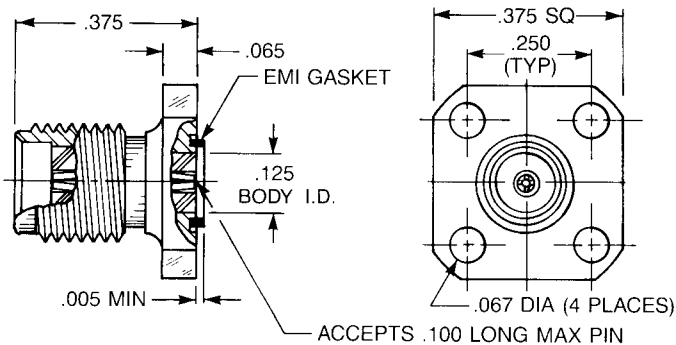
1/2" Square Flange

9049-9513-000

Optional packaging:
9149-9513-000 (Includes 920-56)
9249-9513-000 (Includes 920-56 and 907-111-2)
9349-9513-000 (Includes 907-111-2)

3/8" Square Flange

9074-9513-000

Optional packaging:
9174-9513-000 (Includes 920-56)
9274-9513-000 (Includes 920-56 and 907-111-2)
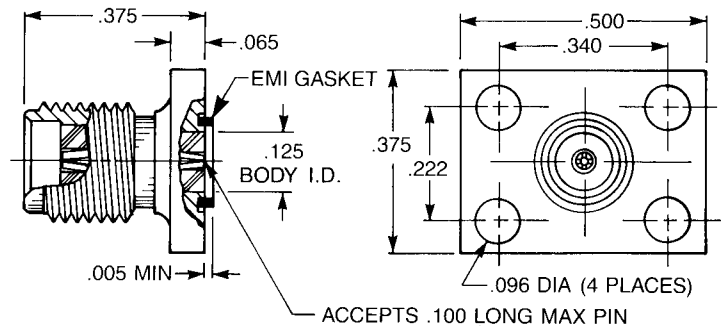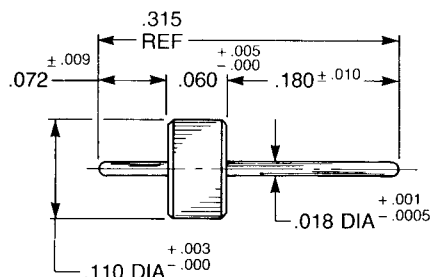**9374-9513-000** (Includes 907-111-2)

Rectangular Flange

9068-9513-000

Optional packaging:
9168-9513-000 (Includes 920-56)
9268-9513-000 (Includes 920-56 and 907-111-2)
9368-9513-000 (Includes 907-111-2)

These units accept hermetic seal pin diameters .016–.020"
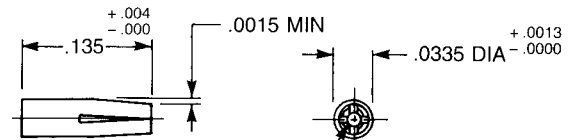
Solder-In Hermetic Seal
P/N 920-56

Accessory Contact
P/N 907-111-2

ACCEPTS .100 LONG MAX PIN

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class 1, grade C over .0001 copper per MIL-C-14450
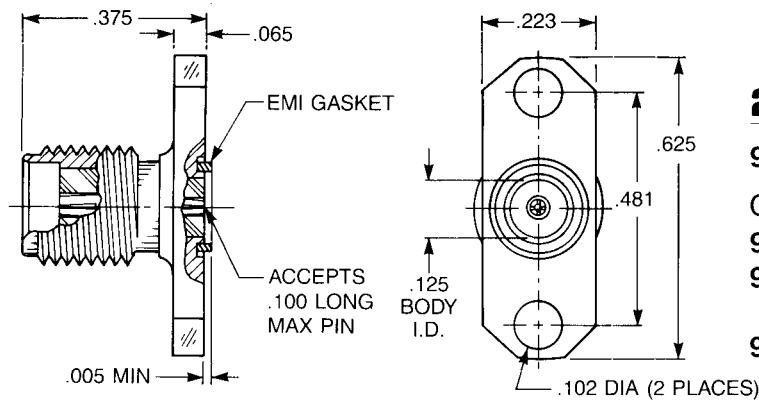
APPLIED ENGINEERING PRODUCTS
(203) 776-2813 • FAX (203) 776-8294   www.aepconnectors.com • aepsales@aepconnectors.com

9

SMA Hermetic Seal Launchers
For hermetic seals with .018" diameter pins

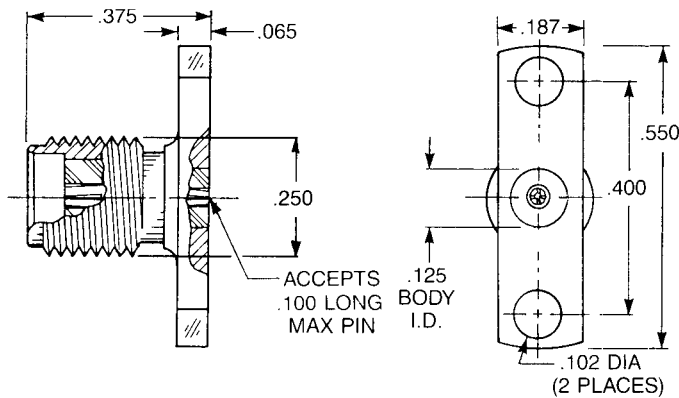### 2-Hole Flange

9048-9513-000

Optional packaging:
9148-9513-000 (Includes 920-56)
9248-9513-000 (Includes 920-56 and 907-111-2)
9348-9513-000 (Includes 907-111-2)

Narrow 2-Hole Flange
No EMI gasket
9081-9513-000

Optional packaging:
9181-9513-000 (Includes 920-56)
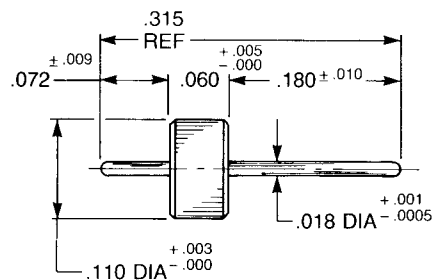**9281-9513-000** (Includes 920-56 and 907-111-2)
9381-9513-000 (Includes 907-111-2)

These units accept hermetic seal pin diameters .016–.020"
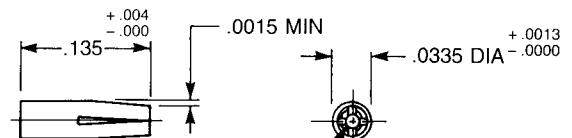
Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-56

Accessory Contact
P/N 907-111-2

ACCEPTS .100 LONG MAX PIN

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class 1, grade C over .0001 copper per MIL-C-14450

SMA Hermetic Seal Launchers
For hermetic seals with .018" diameter pins

1/2" Square Flange

9051-9513-000
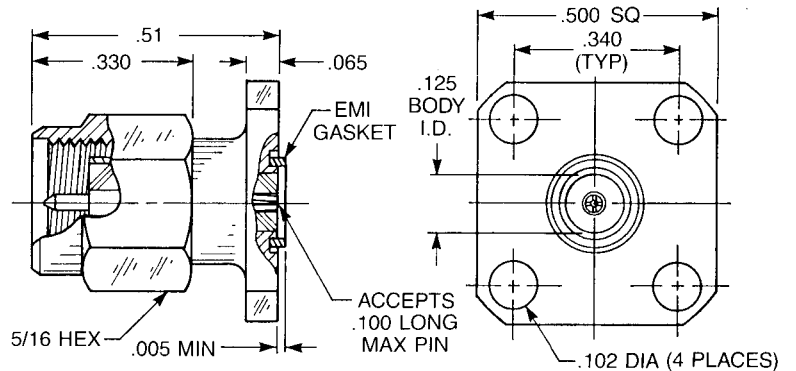
Optional packaging:
9151-9513-000   (Includes 920-56)
9251-9513-000   (Includes 920-56 and 907-111-2)
9351-9513-000   (Includes 907-111-2)
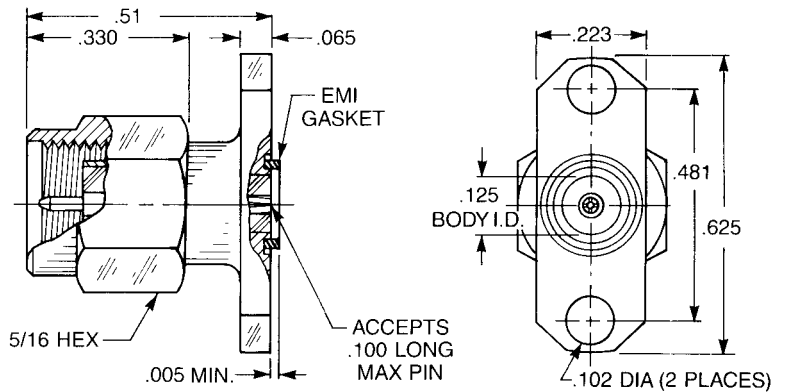

2-Hole Flange

9050-9513-000

Optional packaging:
9150-9513-000   (Includes 920-56)
9250-9513-000   (Includes 920-56 and 907-111-2)
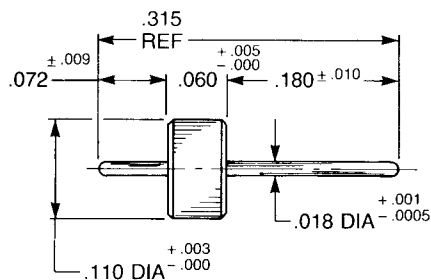**9350-9513-000**   (Includes 907-111-2)

These units accept hermetic seal pin diameters .016–.020"
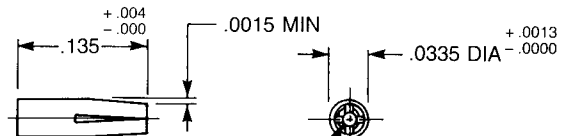

Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
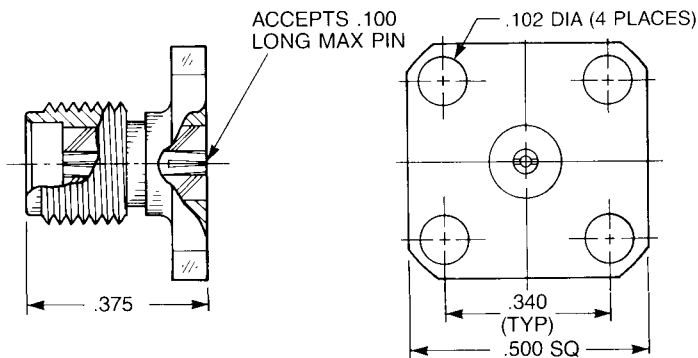P/N 920-56

Accessory Contact
P/N 907-111-2

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class 1, grade C over .0001 copper per MIL-C-14450
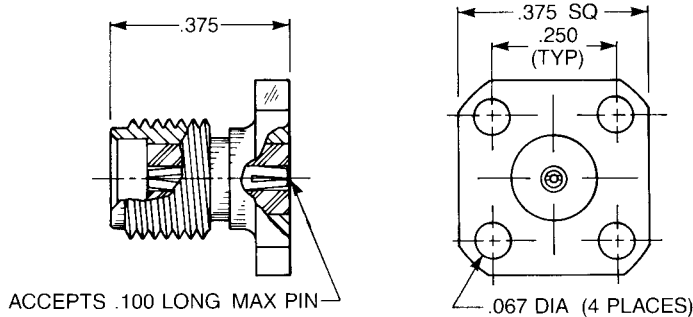
SMA Hermetic Seal Launchers
For hermetic seals with .020" diameter pins

Straight Jacks

ACCEPTS .100 LONG MAX PIN

.102 DIA (4 PLACES)

.375

.340 (TYP)

.500 SQ

Straight Jack
1/2" Square Flange

9504-9113-031
9504-9113-034   (Includes 920-69)

.375

.375 SQ
.250 (TYP)

Straight Jack
3/8" Square Flange

9576-9113-001
9576-9113-002   (Includes 920-69)

ACCEPTS .100 LONG MAX PIN

.067 DIA (4 PLACES)

Straight Jack
Rectangular Flange

9507-9113-003
9507-9113-004   (Includes 920-69)
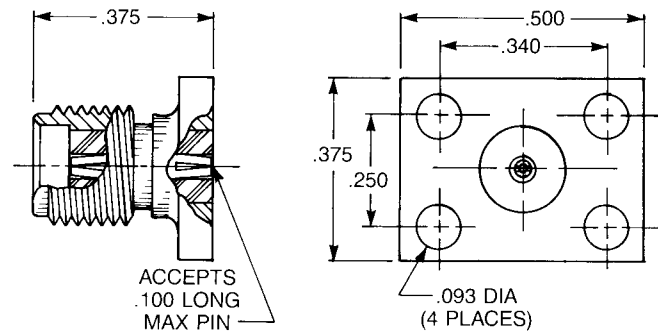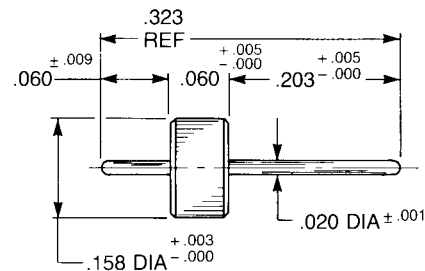
.375

ACCEPTS .100 LONG MAX PIN

.500

.340

.375

.250

.093 DIA (4 PLACES)

Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-69

.323 REF

.060 ± .009

.060 $+ .005 / - .000$

.203 $- .005 / .000$

.020 DIA ± .001

.158 DIA $+ .003 / - .000$

SMA Hermetic Seal Launchers
For hermetic seals with .020" diameter pins

Straight Jacks

ACCEPTS .100
LONG MAX PIN

.102 DIA
(2 PLACES)

.625

.481

.375

.223
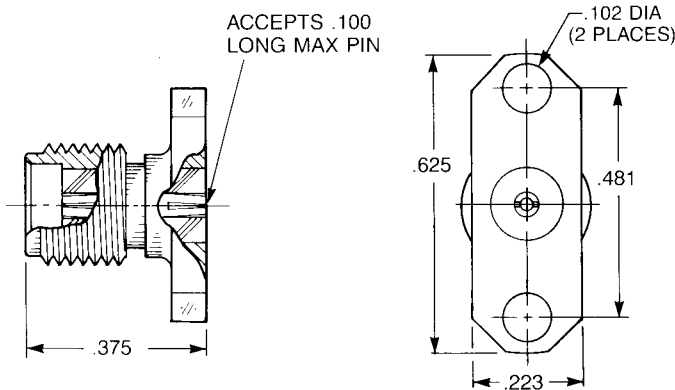
Straight Jack
2-Hole Flange

9508-9113-002
9508-9113-003   (Includes 920-69)

Straight Jack
Screw-In Mounting

9513-9113-009
9513-9113-012   (Includes 920-69)

These connectors require a minimum package wall
thickness of .250″ for proper retention

.500

.030

ACCEPTS
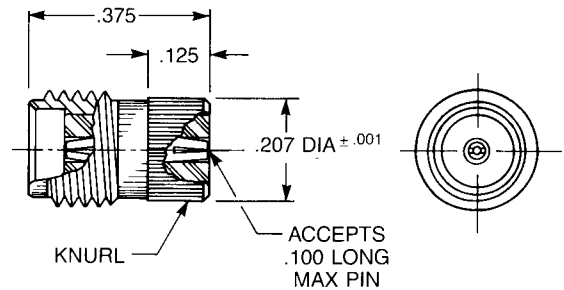.100 LONG
MAX PIN
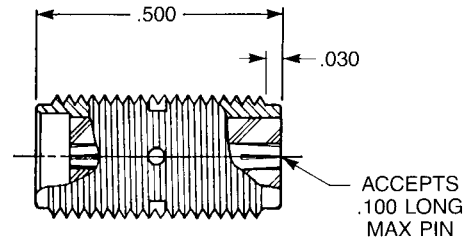
Straight Jack
Knurl Mount

9533-9113-003
9533-9113-002   (Includes 920-69)

These connectors require a minimum package wall
thickness of .235″ for proper retention

.375

.125

.207 DIA ± .001

KNURL

ACCEPTS
.100 LONG
MAX PIN

Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-69

.323
REF

.060 ± .009

.060 +.005 -.000

.203 +.005 -.000

.020 DIA ± .001

.158 DIA +.003 -.000

SMA Hermetic Seal Launchers
For hermetic seals with .036" diameter pins

ACCEPTS .100 LONG MAX PIN

.102 DIA
(4 PLACES)

.375

.340 (TYP)

.500 SQ
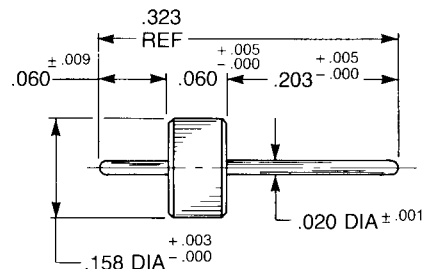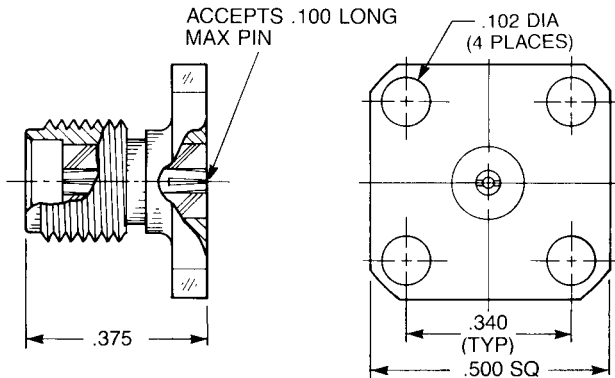
Straight Jack
1/2" Square Flange

9504-9113-009
9504-9113-035   (Includes 920-92)

.375

.375 SQ
.250 (TYP)

ACCEPTS .100 LONG MAX PIN

.067 DIA (4 PLACES)
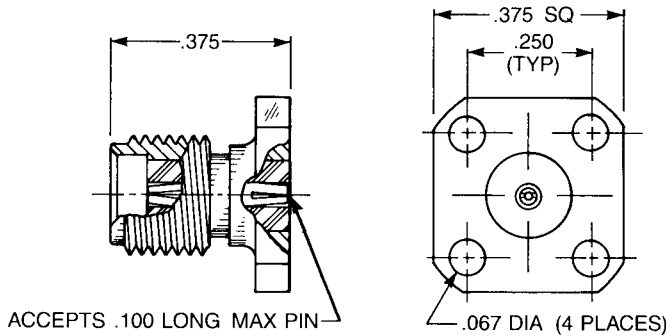
Straight Jack
3/8" Square Flange

9576-9113-003
9576-9113-004   (Includes 920-92)

Straight Jack
Rectangular Flange

9507-9113-005
9507-9113-006   (Includes 920-92)

.375

.500
.340

.375
.250

ACCEPTS .100 LONG MAX PIN

.093 DIA (4 PLACES)

Solder-In Hermetic Seal
P/N 920-92

.320 REF

$.075 ^{\pm .009}$

$.060 ^{+.005}_{-.000}$

$.185 ^{\pm .010}$

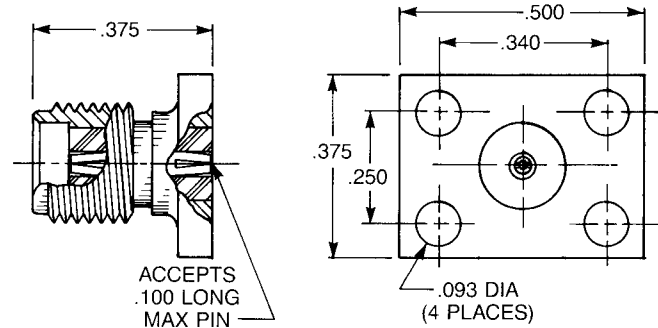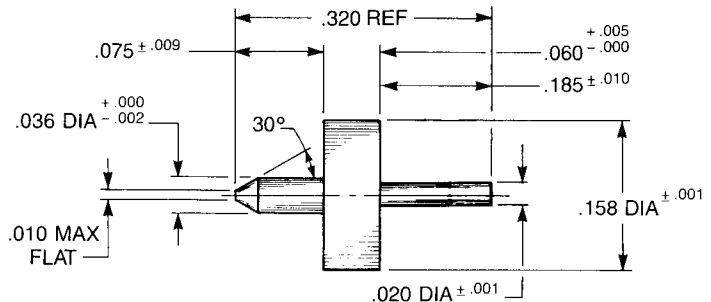$.036 \ DIA ^{+.000}_{-.002}$

30°

$.158 \ DIA ^{\pm .001}$

.010 MAX FLAT

$.020 \ DIA ^{\pm .001}$

SMA Hermetic Seal Launchers
For hermetic seals with .036" diameter pins

Straight Jacks

ACCEPTS .100 LONG MAX PIN

.102 DIA (2 PLACES)
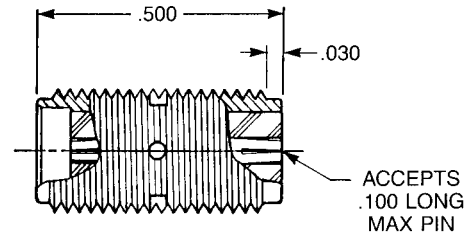
.625

.481

.375

.223
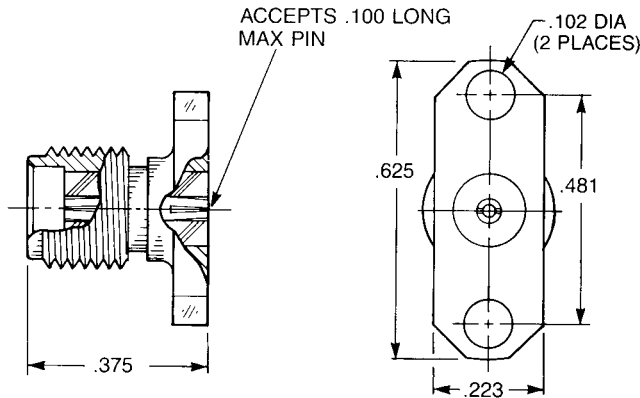
Straight Jack 2-Hole Flange

9508-9113-001
9508-9113-011 (Includes 920-92)

Straight Jack Screw-In Mounting
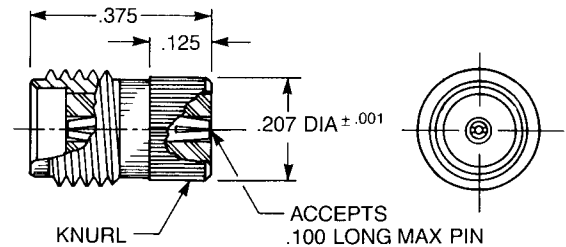
9513-9113-008
9513-9113-013 (Includes 920-92)

These connectors require a minimum package wall thickness of .250″ for proper retention

.500

.030

ACCEPTS .100 LONG MAX PIN

Straight Jack Knurl Mount

9533-9113-001
9533-9113-004 (Includes 920-92)

These connectors require a minimum package wall thickness of .235″ for proper retention.

.375

.125

.207 DIA ± .001

KNURL

ACCEPTS .100 LONG MAX PIN

Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-92

.320 REF

.075 ± .009

.060 + .005 / − .000

.185 ± .010

.036 DIA + .000 / − .002

30°

.010 MAX FLAT

.158 DIA ± .001

.020 DIA ± .001