# Phoenix SMP Connectors

*-Ruggedized for environmental use*

## Product Description

**Phoenix's SMP series subminiature connectors offer superior electrical performance from DC to 26.5 GHz. Blindmate feature allows for board-to-board, cable mount, and pcb mount. In-series adapters provide solutions for rack and panel applications.**

**All products manufactured to Mil-Std-348.**

## Features

- **Subminiature size for high-density applications.**
- **Snap feature for quick mating and reduced assembly time.**
- **Axial alignment reduces stress from multiple blindmate interconnects.**
- **Gang mating possible. Compensates for up to .020" radial and axial misalignment (when used with an adapter).**
- **Center-to-Center spacing of .170".**

## Applications

- **Blindmate telecommunications.**
- **Active antennas.**
- **Phased arrays.**
- **Airborne platforms.**
- **Ship and ground radar.**
- **Satellite communications.**
- **Military.**

## Connector Types (Full Detent, Limited Detent, And Smooth Bore)

- **PCB: Subminiature vertical and right angle plugs.**
- **Jack-to-Jack: jack-to-jack adapter.**
- **Cabled: Right angle cable and subminiature straight jack cable.**
- **Edge Mount: Subminiature edge mount plug.**
- **Surface Mount: Subminiature vertical surface mount plug.**

**The Phoenix Company of Chicago, Inc. • 555 Pond Drive, Wood Dale, IL 60191 USA**

**Tel: (630) 595-2300 • Fax: (630) 595-6579**

**www.phoenixofchicago.com**

RoHS COMPLIANT

**The Phoenix Company of Chicago and its affiliates have manufacturing facilities in the United States, Mexico, and China.**

# Phoenix SMP Connectors

*-Ruggedized for environmental use*

## Materials

Shroud Bodies- Stainless Steel Per QQ-S-763.
Female Bodies- Beryllium Copper Per ASTM-B-196.
Other Bodies- Brass Per ASTM-B-16.
Insulators- Teflon (PTFE) Per ASTM-D-1710.
Contacts- Beryllium Copper Per ASTM-B-196.

Plating:
Gold Per Mil-G-45204.
Copper Per Mil-C-14550.
Nickel Per QQ-N-290.
Passivate Per ASTM-A-380.

## Finishes (Add Letter To End Of Part Number)

"A": Body- .000050 Min. Gold Over .000050 Nickel.
"P": Body- Passivated.
Contact- .000050 Min. Gold Over Nickel.
Other Metal Parts: Gold Plated Or Passivated To Meet The Environmental Requirements.

## Mating Characteristics

| Engagement & Separation Forces | Full Detent | Limited Detent | Smooth Bore |
|---|---|---|---|
| Maximum | 15 LBS. | 10 LBS. | 2 LBS. |
| Minimum | 5 LBS. | 2 LBS. | 0.5LBS. |
| Endurance | 100 | 500 | 1,000 |

Radial Misalignment: +-.010
Axial Misalignment: .000/.010

Conforms To DSCC 94007, 94008 Standard.

## Electrical

Impedance: 50 Ohms.
Frequency Range: DC To 26.5 GHz. (Max. Frequency Depends Upon Cable And Component Selection).
Voltage Rating: 335 Volts RMS @ Sea Level, 65 Volts RMS @ 70,000 Feet.
Insulation Resistance: 5,000 Megohms Min.
Temperature Rating: -65˚C To +165˚C.
DWV: 500 Volts RMS.
RF High Potential: 600 Volts RMS Min. @ 5 MHz.
Contact Resistance: Center Contact: 6.0 Milliohms. Outer Contact: 2.0 Milliohms.
VSWR: 1.20 Max. @ DC To 18 GHz.
1.35 Max. @ 18 To 26.5 GHz.
Corona Level: 70,000 Ft. – 190 Volts.
Insertion Loss: $.12\sqrt{F*(GHz)}$ dB.
RF Leakage: -80dB To 3 GHz, -65 dB From 3 To 26.5 GHz.

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| INTERFACE DESIGN STANDARD | |
|---|---|
| IDS-32 | |
| PAGE 1 OF 3 | DATE: 06/03/04 |
| DRAWN: ALS | APPROVED: JEM |

PALCO CONNECTOR
22 GREAT HILL ROAD, NAUGATUCK, CT. 06770
PHONE: (203) 729-9090 FAX: (203) 723-1794

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| B | PER ECN 7826 | 05/24/05 | JEM |
| C | PRELIMINARY | 06/22/05 | JEM |
| D | PER ECN 9619 | 11/11/08 | JEM |
| E | PER ECN 9715 | 12/15/08 | JEM |

# DESCRIPTION: 32 SERIES, SMP

## MECHANICAL

MATERIALS
SHROUD BODIES- STAINLESS STEEL PER QQ-S-763.
FEMALE BODIES- BERYLLIUM COPPER PER ASTM-B196.
OTHER BODIES- BRASS PER ASTM-B16.
INSULATORS - TEFLON (PTFE) PER ASTM-D1710.
CONTACTS - BERYLLIUM COPPER PER ASTM-B196.

PLATING:
GOLD PER MIL-G-45204.
COPPER PER MIL-C-14550.
NICKEL PER QQ-N-290.
PASSIVATE PER ASTM-A380.

## FINISHES (ADD LETTER TO END OF PART NUMBER)

"A": BODY - .000050 MIN. GOLD OVER .000050 NICKEL
"P": BODY - .PASSIVATED
CONTACT - .000050 MIN. GOLD OVER NICKEL
OTHER METAL PARTS:
GOLD PLATED OR PASSIVATED TO MEET THE ENVIRONMENTAL REQUIREMENTS.

## MATING CHARACTERISTICS

| ENGAGEMENT & SEPARATION FORCES | FULL DETENT | LIMITED DETENT | SMOOTH BORE |
|---|---|---|---|
| MAXIMUM | 15 LBS. | 10 LBS. | 2 LBS. |
| MINIMUM | 5 LBS. | 2 LBS. | .5 LBS. |
| | | | |
| ENDURANCE: | 100 | 500 | 1000 |

RADIAL MISALIGNMENT: ±.010 CONFORMS TO DSCC 94007, 94008 STANDARD.
AXIAL MISALIGNMENT: .000/.010
COMPONENT MOUNTING: SEE DRAWING ON PAGE 3.

## ELECTRICALS

IMPEDANCE: 50 OHMS.
FREQUENCY RANGE: DC TO 26.5 GHz. (MAX. FREQUENCY DEPENDS UPON CABLE AND COMPONENT SELECTION).
VOLTAGE RATING: 335 VOLTS RMS @ SEA LEVEL, 65 VOLTS RMS @ 70,000 FEET.
INSULATION RESISTANCE: 5000 MEGOHMS MIN.
TEMPERATURE RATING: -65°C TO +165°C
DWV: 500 VOLTS RMS.
RF HIGH POTENTIAL: 600 VOLTS RMS MIN. @ 5 MHz.
CONTACT RESISTANCE: CENTER CONTACT: 6.0 MILLIOHMS.
OUTER CONTACT: 2.0 MILLIOHMS.
VSWR: 1.20 MAX. @ DC TO 18 GHz.
1.35 MAX. @ 18 TO 26.5 GHz.
CORONA LEVEL: 70,000 FT. - 190 VOLTS
INSERTION LOSS: $.12\sqrt{F * (GHz)}$ dB.
RF LEAKAGE: -80dB TO 3 GHz, -65 dB FROM 3 TO 26.5 GHz.

## ENVIRONMENTAL

VIBRATION: MIL-STD-202, METHOD 204, TEST CONDITION D.
SHOCK: MIL-STD-202, METHOD 213, TEST CONDITION A.
THERMAL SHOCK: MIL-STD-202, METHOD 107, TEST CONDITION B, HIGH TEMPERATURE 165°C.
CORROSION: MIL-STD-202, METHOD 101, TEST CONDITION B.
MOISTURE RESISTANCE: MIL-STD-202, METHOD 106, OMIT STEP 7B.

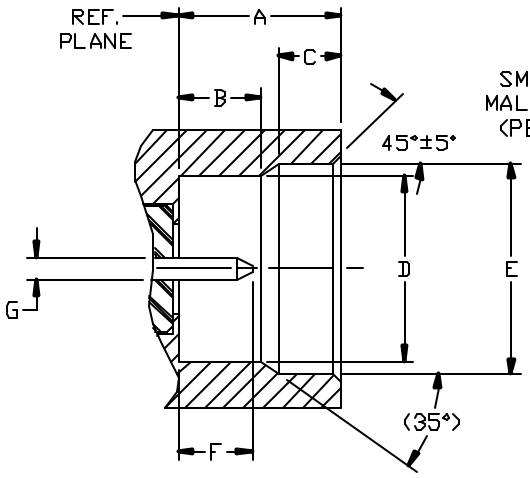
| INTERFACE DESIGN STANDARD | |
|---|---|
| IDS-32 | |
| PAGE 2 OF 3 | DATE: 06/03/04 |
| DRAWN: ALS | APPROVED: JEM |

PALCO CONNECTOR
22 GREAT HILL ROAD, NAUGATUCK, CT. 06770
PHONE: (203) 729-9090 FAX: (203) 723-1794

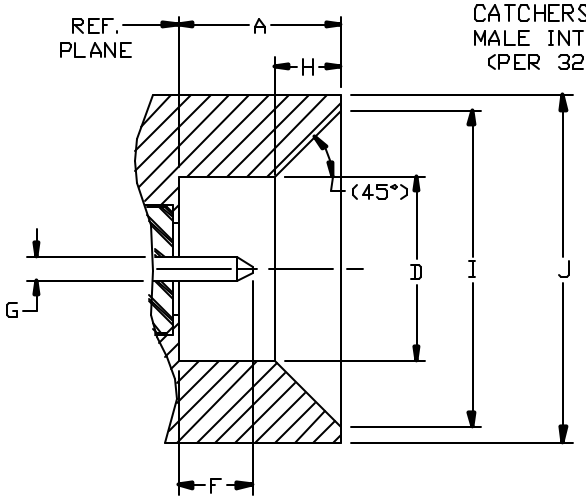
| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| A | PER ECN 7761 | 12/20/04 | JEM |
| B | PER ECN 7826 | 05/24/05 | JEM |
| C | PRELIMINARY | 06/22/05 | JEM |
| D | PER ECN 9619 | 11/11/08 | JEM |

# DESCRIPTION: 32 SERIES, SMP

DIMENSIONS ARE TO MIL-STD-348A (326-4 & 326-5).



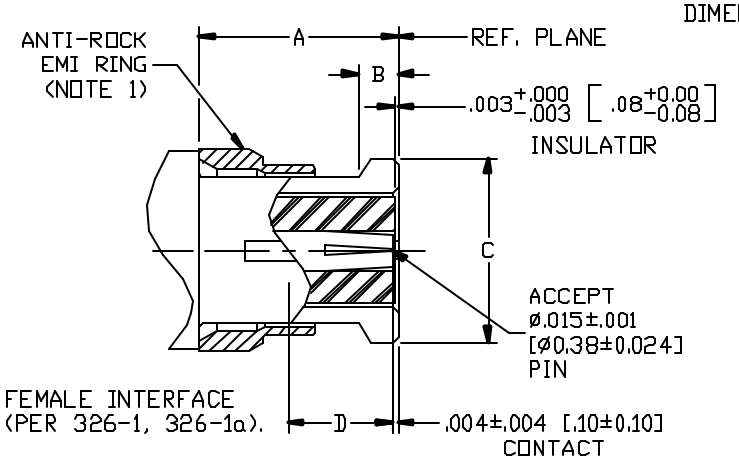

SMOOTH BORE MALE INTERFACE (PER 326-4)




CATCHERS MITT MALE INTERFACE (PER 326-5)

| | INCH | [mm] | SUFFIX |
|---|---|---|---|
| A | .112<br>.108 | [2.84]<br>[2.74] | |
| B | .065<br>.059 | [1.65]<br>[1.50] | |
| C | .037<br>.033 | [0.94]<br>[0.84] | |
| D | ø.127<br>ø.123 | [ø3.23]<br>[ø3.12] | |
| E | ø.145<br>ø.139 | [ø3.68]<br>[ø3.53] | |
| F | .055<br>.045 | [1.40]<br>[1.14] | |
| G | ø.016<br>ø.014 | [ø0.41]<br>[ø0.36] | |
| H | .047<br>.043 | [1.19]<br>[1.09] | |
| I | ø.220<br>ø.210 | [ø5.59]<br>[ø5.33] | |
| J | ø.240<br>ø.230 | [ø6.10]<br>[ø5.84] | |

DIMENSIONS ARE TO MIL-STD-348A (326-1, 326-1a).




| | INCH | [mm] | SUFFIX |
|---|---|---|---|
| A1 | .112 | [2.84] | MIN. (ADAPTOR) |
| A2 | .132 | [3.35] | MIN. (CABLED) |
| B1 | .025<br>.018 | [0.64]<br>[0.46] | ADAPTOR |
| B2 | .035<br>.025 | [0.89]<br>[0.64] | CABLED |
| C | ø.135 | [ø3.43] | MAX. |
| D | .070 | [1.78] | MIN. (HOLE DEPTH) |

NOTE 1:

EMI SHIELD CONFIGURATION OPTIONAL:
EMI SHALL NOT PREVENT PROPER ENGAGEMENT OF DETENT REQUIRED. TO MEET MECHANICAL AND ELECTRICAL REQUIREMENT OF DSCC 94008.

| INTERFACE DESIGN STANDARD | |
|---|---|
| IDS-32 | |
| PAGE 3 OF 3 | DATE: 06/03/04 |
| DRAWN: ALS | APPROVED: JEM |

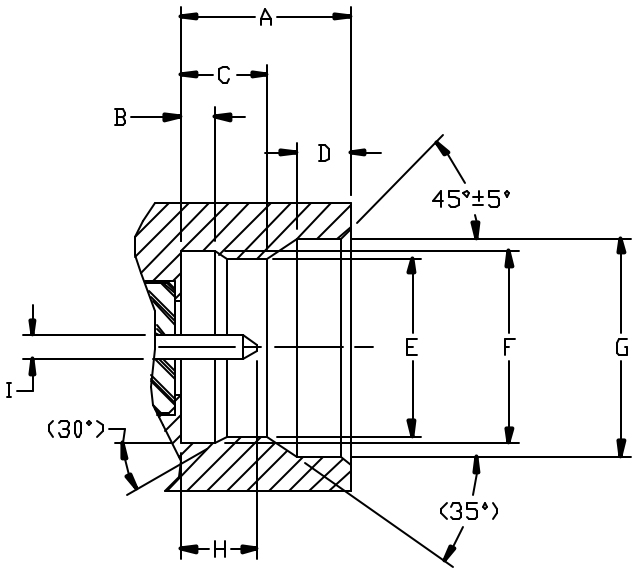
PALCO CONNECTOR
22 GREAT HILL ROAD, NAUGATUCK, CT. 06770
PHONE: (203) 729-9090 FAX: (203) 723-1794

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| A | PER ECN 7761 | 12/21/04 | JEM |
| B | PER ECN 7826 | 05/24/05 | JEM |
| C | PRELIMINARY | 06/22/05 | JEM |
| D | PER ECN 9619 | 11/11/08 | JEM |

# DESCRIPTION: 32 SERIES, SMP

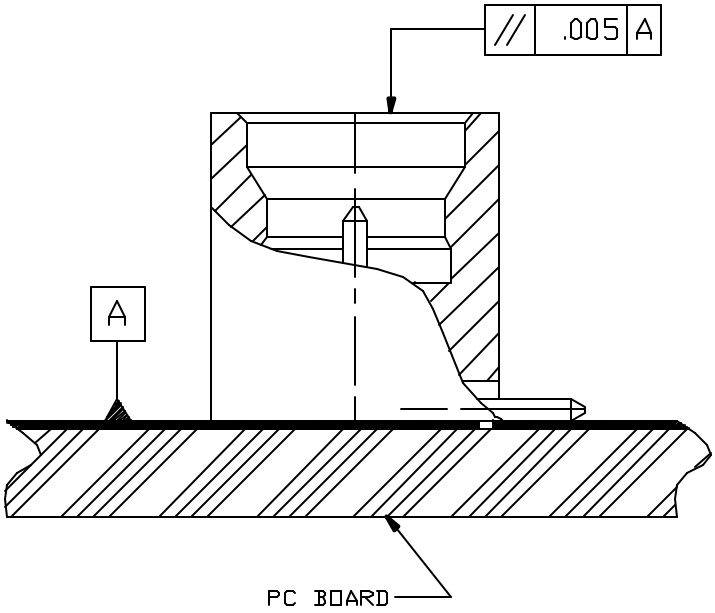
DIMENSIONS ARE TO MIL-STD-348A (326.2 & 326.3).

FULL DETENT & LIMITED DETENT
MALE INTERFACE
(326.2 & 326.3)




| | INCH | [mm] | SUFFIX |
|---|---|---|---|
| A | .112<br>.108 | [2.84]<br>[2.74] | |
| B | .0235<br>.0205 | [0.60]<br>[0.52] | |
| C1 | .057<br>.051 | [1.45]<br>[1.30] | FULL DETENT |
| C2 | .060<br>.054 | [1.52]<br>[1.37] | LIMITED DETENT |
| D | .037<br>.033 | [0.94]<br>[0.84] | |
| E1 | Ø.118<br>Ø.114 | [Ø3.00]<br>[Ø2.90] | FULL DETENT |
| E2 | Ø.122<br>Ø.118 | [Ø3.10]<br>[Ø3.00] | LIMITED DETENT |
| F | Ø.126<br>Ø.124 | [Ø3.20]<br>[Ø3.15] | |
| G | Ø.145<br>Ø.139 | [Ø3.68]<br>[Ø3.53] | |
| H | .055<br>.045 | [1.40]<br>[1.14] | |
| I | Ø.016<br>Ø.014 | [Ø0.41]<br>[Ø0.36] | |

COMPONENT MOUNTING REQUIREMENT FOR SURFACE MOUNT CONNECTORS



| INTERFACE DESIGN STANDARD | |
|---|---|
| IDS-32 | |
| PAGE 1 OF 3 | DATE: 06/03/04 |
| DRAWN: ALS | APPROVED: JEM |

PALCO CONNECTOR
22 GREAT HILL ROAD, NAUGATUCK, CT. 06770
PHONE: (203) 729-9090 FAX: (203) 723-1794

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| B | PER ECN 7826 | 05/24/05 | JEM |
| C | PRELIMINARY | 06/22/05 | JEM |
| D | PER ECN 9619 | 11/11/08 | JEM |
| E | PER ECN 9715 | 12/15/08 | JEM |

# DESCRIPTION: 32 SERIES, SMP

## MECHANICAL

MATERIALS
SHROUD BODIES- STAINLESS STEEL PER QQ-S-763.
FEMALE BODIES- BERYLLIUM COPPER PER ASTM-B196.
OTHER BODIES- BRASS PER ASTM-B16.
INSULATORS - TEFLON (PTFE) PER ASTM-D1710.
CONTACTS - BERYLLIUM COPPER PER ASTM-B196.

PLATING:
GOLD PER MIL-G-45204.
COPPER PER MIL-C-14550.
NICKEL PER QQ-N-290.
PASSIVATE PER ASTM-A380.

## FINISHES (ADD LETTER TO END OF PART NUMBER)

"A": BODY - .000050 MIN. GOLD OVER .000050 NICKEL
"P": BODY - .PASSIVATED
CONTACT - .000050 MIN. GOLD OVER NICKEL
OTHER METAL PARTS:
GOLD PLATED OR PASSIVATED TO MEET THE ENVIRONMENTAL REQUIREMENTS.

## MATING CHARACTERISTICS

| ENGAGEMENT & SEPARATION FORCES | FULL DETENT | LIMITED DETENT | SMOOTH BORE |
|---|---|---|---|
| MAXIMUM | 15 LBS. | 10 LBS. | 2 LBS. |
| MINIMUM | 5 LBS. | 2 LBS. | .5 LBS. |
| | | | |
| ENDURANCE: | 100 | 500 | 1000 |

RADIAL MISALIGNMENT: ±.010 CONFORMS TO DSCC 94007, 94008 STANDARD.
AXIAL MISALIGNMENT: .000/.010
COMPONENT MOUNTING: SEE DRAWING ON PAGE 3.

## ELECTRICALS

IMPEDANCE: 50 OHMS.
FREQUENCY RANGE: DC TO 26.5 GHz. (MAX. FREQUENCY DEPENDS UPON CABLE AND COMPONENT SELECTION).
VOLTAGE RATING: 335 VOLTS RMS @ SEA LEVEL, 65 VOLTS RMS @ 70,000 FEET.
INSULATION RESISTANCE: 5000 MEGOHMS MIN.
TEMPERATURE RATING: -65°C TO +165°C
DWV: 500 VOLTS RMS.
RF HIGH POTENTIAL: 600 VOLTS RMS MIN. @ 5 MHz.
CONTACT RESISTANCE: CENTER CONTACT: 6.0 MILLIOHMS.
OUTER CONTACT: 2.0 MILLIOHMS.
VSWR: 1.20 MAX. @ DC TO 18 GHz.
1.35 MAX. @ 18 TO 26.5 GHz.
CORONA LEVEL: 70,000 FT. - 190 VOLTS
INSERTION LOSS: $.12\sqrt{F * (GHz)}$ dB.
RF LEAKAGE: -80dB TO 3 GHz, -65 dB FROM 3 TO 26.5 GHz.

## ENVIRONMENTAL

VIBRATION: MIL-STD-202, METHOD 204, TEST CONDITION D.
SHOCK: MIL-STD-202, METHOD 213, TEST CONDITION A.
THERMAL SHOCK: MIL-STD-202, METHOD 107, TEST CONDITION B, HIGH TEMPERATURE 165°C.
CORROSION: MIL-STD-202, METHOD 101, TEST CONDITION B.
MOISTURE RESISTANCE: MIL-STD-202, METHOD 106, OMIT STEP 7B.

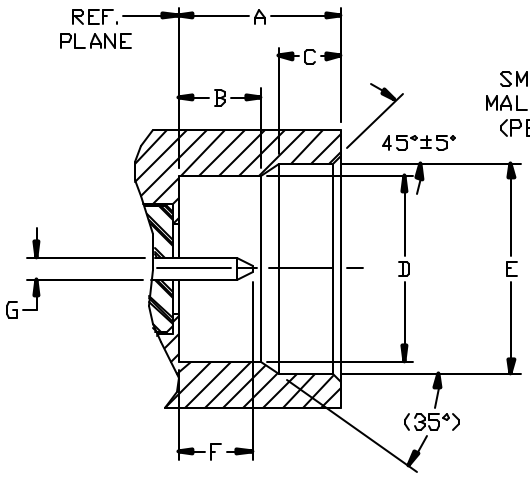
| INTERFACE DESIGN STANDARD | |
|---|---|
| IDS-32 | |
| PAGE 2 OF 3 | DATE: 06/03/04 |
| DRAWN: ALS | APPROVED: JEM |

PALCO CONNECTOR
22 GREAT HILL ROAD, NAUGATUCK, CT. 06770
PHONE: (203) 729-9090 FAX: (203) 723-1794

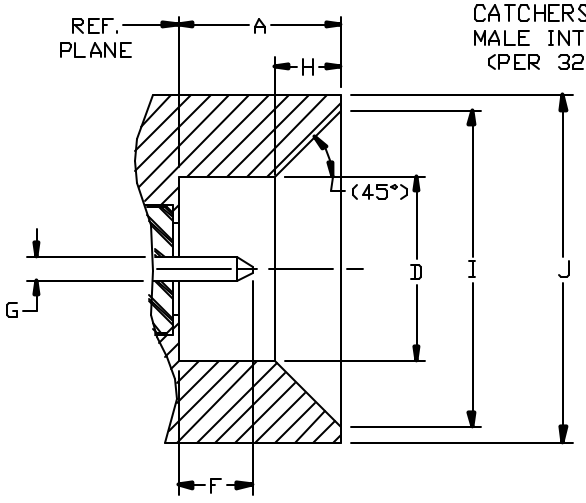
| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| A | PER ECN 7761 | 12/20/04 | JEM |
| B | PER ECN 7826 | 05/24/05 | JEM |
| C | PRELIMINARY | 06/22/05 | JEM |
| D | PER ECN 9619 | 11/11/08 | JEM |

# DESCRIPTION: 32 SERIES, SMP

DIMENSIONS ARE TO MIL-STD-348A (326-4 & 326-5).



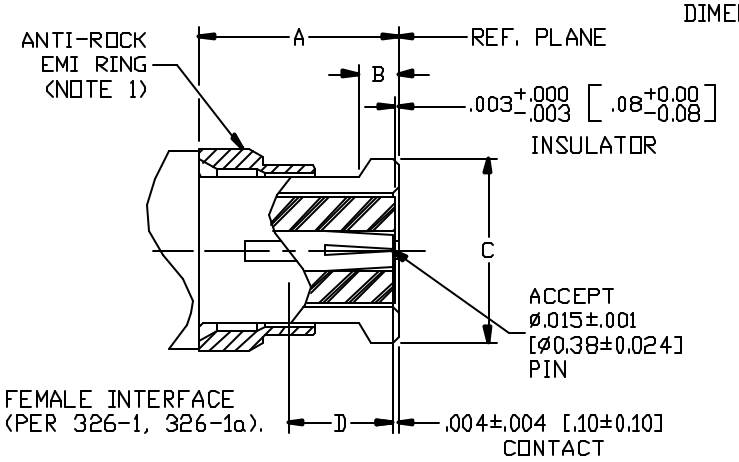

SMOOTH BORE MALE INTERFACE (PER 326-4)




CATCHERS MITT MALE INTERFACE (PER 326-5)

| | INCH | [mm] | SUFFIX |
|---|---|---|---|
| A | .112<br>.108 | [2.84]<br>[2.74] | |
| B | .065<br>.059 | [1.65]<br>[1.50] | |
| C | .037<br>.033 | [0.94]<br>[0.84] | |
| D | ø.127<br>ø.123 | [ø3.23]<br>[ø3.12] | |
| E | ø.145<br>ø.139 | [ø3.68]<br>[ø3.53] | |
| F | .055<br>.045 | [1.40]<br>[1.14] | |
| G | ø.016<br>ø.014 | [ø0.41]<br>[ø0.36] | |
| H | .047<br>.043 | [1.19]<br>[1.09] | |
| I | ø.220<br>ø.210 | [ø5.59]<br>[ø5.33] | |
| J | ø.240<br>ø.230 | [ø6.10]<br>[ø5.84] | |

DIMENSIONS ARE TO MIL-STD-348A (326-1, 326-1a).




| | INCH | [mm] | SUFFIX |
|---|---|---|---|
| A1 | .112 | [2.84] | MIN. (ADAPTOR) |
| A2 | .132 | [3.35] | MIN. (CABLED) |
| B1 | .025<br>.018 | [0.64]<br>[0.46] | ADAPTOR |
| B2 | .035<br>.025 | [0.89]<br>[0.64] | CABLED |
| C | ø.135 | [ø3.43] | MAX. |
| D | .070 | [1.78] | MIN. (HOLE DEPTH) |

NOTE 1:

EMI SHIELD CONFIGURATION OPTIONAL:
EMI SHALL NOT PREVENT PROPER ENGAGEMENT OF DETENT REQUIRED. TO MEET MECHANICAL AND ELECTRICAL REQUIREMENT OF DSCC 94008.

| INTERFACE DESIGN STANDARD | |
|---|---|
| IDS-32 | |
| PAGE 3 OF 3 | DATE: 06/03/04 |
| DRAWN: ALS | APPROVED: JEM |

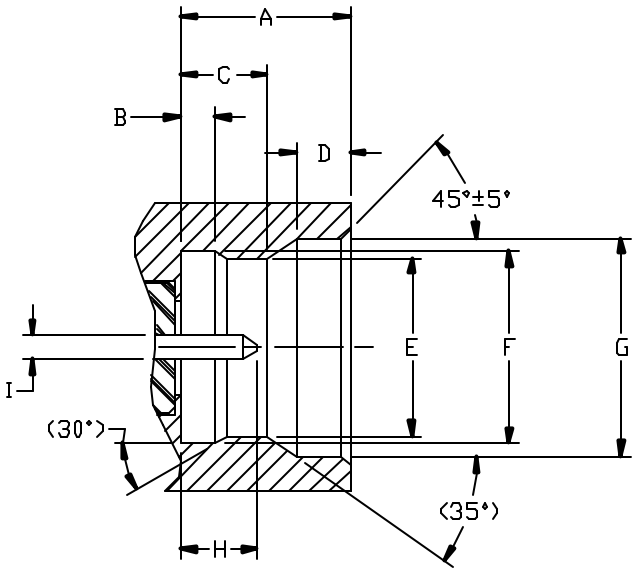
PALCO CONNECTOR
22 GREAT HILL ROAD, NAUGATUCK, CT. 06770
PHONE: (203) 729-9090 FAX: (203) 723-1794

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| A | PER ECN 7761 | 12/21/04 | JEM |
| B | PER ECN 7826 | 05/24/05 | JEM |
| C | PRELIMINARY | 06/22/05 | JEM |
| D | PER ECN 9619 | 11/11/08 | JEM |

# DESCRIPTION: 32 SERIES, SMP

DIMENSIONS ARE TO MIL-STD-348A (326.2 & 326.3).

FULL DETENT & LIMITED DETENT
MALE INTERFACE
(326.2 & 326.3)




| | INCH | [mm] | SUFFIX |
|---|---|---|---|
| A | .112<br>.108 | [2.84]<br>[2.74] | |
| B | .0235<br>.0205 | [0.60]<br>[0.52] | |
| C1 | .057<br>.051 | [1.45]<br>[1.30] | FULL DETENT |
| C2 | .060<br>.054 | [1.52]<br>[1.37] | LIMITED DETENT |
| D | .037<br>.033 | [0.94]<br>[0.84] | |
| E1 | Ø.118<br>Ø.114 | [Ø3.00]<br>[Ø2.90] | FULL DETENT |
| E2 | Ø.122<br>Ø.118 | [Ø3.10]<br>[Ø3.00] | LIMITED DETENT |
| F | Ø.126<br>Ø.124 | [Ø3.20]<br>[Ø3.15] | |
| G | Ø.145<br>Ø.139 | [Ø3.68]<br>[Ø3.53] | |
| H | .055<br>.045 | [1.40]<br>[1.14] | |
| I | Ø.016<br>Ø.014 | [Ø0.41]<br>[Ø0.36] | |

COMPONENT MOUNTING REQUIREMENT FOR SURFACE MOUNT CONNECTORS