



**WIN-D  
Win-DD  
Series**

**ENVIRONMENTAL  
D-SUBMINIATURE, IMPROVED  
UNIBODY DESIGN**

**WIN-D  
Win-DD  
Series**



**\*\* One piece unibody housing eliminates need for sealants \*\***

**\*\* Standard and high density options \*\***

**\*\* Improved temperature range \*\***

**\*\* Increased performance \*\***

**\*\* Higher reliability \*\***

**\*\* Lower cost \*\***

WIN-D and WIN-DD series D-subminiature connectors have been a popular choice in applications with environmental considerations. WIN-D and WIN-DD environmental D-subminiature connectors achieve water and dust ingress protection to IP67.

Positronic now offers a new "unibody" design. The unibody design eliminates the need to add sealants as a secondary operation. This allows more rapid manufacturing of the connector, which reduces cost. In addition, concern over differences in coefficients of expansion of dissimilar materials is minimized. This allows for improved performance and a wider operating temperature range.

For extremely harsh environments, or where "**Corrosion Resistance**" is required, the contacts are supplied with extra gold plating thickness, and the

connector shells and jackscrews are supplied in stainless steel. For applications where "**Corrosion Protection**" is adequate, contact surfaces are plated with gold flash over nickel. Shells and accessories are zinc plated with dichromate seal.

The unibody design is offered in 9 contact position male and female variants, 25 contact female variant, and a 26 position female high density variant. A variety of solder terminated contacts and "cul-de-sac" accessories are available to meet specific application requirements. WIN-D and WIN-DD Series connectors conform to IEC 807-2 Performance Level 2 mechanical and dimensional requirements and conform to EIA RS232 and RS449 and CCITT X.24 interface standards.



**Positronic Industries**

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Catalog C-006-1 Rev. nc

**ENVIRONMENTAL CHARACTERISTICS:**

**WIN-D and WIN-DD series connectors mounted on IEC 529 or NEMA 250-1991 enclosures for electrical equipment.**

**WIN-D and WIN-DD Connector Panel mount sealing plates**, when mounted on the walls of enclosures, maintain the dust and water ingress protection rating of IEC 529 or NEMA 250 enclosure on which they are mounted.

WIN-D and WIN-DD connector enclosure assemblies provide dust and water ingress protection to IP67, which allows temporary immersion in water to a depth of 1.0 meter for 30 minutes without ingress of water or dust to the enclosure.

**ENVIRONMENTAL TEST SPECIFICATIONS**

**Applicable IEC Moisture Tests**

IP65 IEC 529 Test 14.2.5 – Spray nozzle 6.3 mm diameter, delivery rate 12.5 liters per minute, 1 minute duration of connector exposure to spray. When conducting this test on Portable Enclosure Connectors, the protective cover must be securely fastened over the face of the connector.

**Requirements**

No water to have penetrated enclosure through connector.

**Applicable IEC Moisture Tests**

IP67 IEC 529 Test 14.2.7 – Temporary immersion, 1.0 meter for 30 minutes.

**Requirements**

No water to have penetrated enclosure through connector.

**Applicable IEC Connector Tests After Moisture Exposure Tests Have Been Performed**

IEC 512-2, Test 3a – Insulation Resistance

IEC 512-2, Test 4a – Voltage proof

Limited water immersion testing was performed on virgin connectors before leaving our factory. We recommend that our environmental connectors be retested by our customers after a suitable period of time/temperature conditioning has taken place to determine the suitability of the connector for the application. We cannot predict service life of our connectors for all applications.

**Requirements**

Portable enclosure. 1 G ohm minimum insulation resistance after connector face and contacts are dried. Voltage proof 1,000 V rms.

Products described within this catalog may be protected by one or more of the following US. patents:

#4,721,472 #4,900,261 #5,255,580  
#5,329,697 #6,260,268

Patented in Canada, 1992

Unless otherwise specified, dimensional tolerances are:

- 1)  $\pm 0.001$  inches [0.03 mm] for male contact mating diameters.
- 2)  $\pm 0.003$  inches [0.08 mm] for contact termination diameters.
- 3)  $\pm 0.005$  inches [0.13 mm] for all other diameters.
- 4)  $\pm 0.015$  inches [0.38 mm] for all other dimensions.

Positronic Industries believes the data contained herein to be reliable. Since the technical information is given free of charge, the User employs such information at his own discretion and risk. Positronic Industries assumes no responsibility for results obtained or damages incurred from use of such information in whole or in part.

Positronic Industries' FEDERAL SUPPLY CODE (Cage Code) FOR MANUFACTURERS is 28198

**MATERIALS AND FINISHES:**

<b>Insulator:</b>	<b>Nylon resin, UL 94V-0 black color.</b>
<b>Contacts:</b>	Male contacts – precision machined brass alloy or phosphor bronze.  Female contacts – precision machined high tensile phosphor bronze.
<b>Contact Plating:</b>	“ <b>Corrosion Protection</b> ”: gold flash over nickel plate.  “ <b>Corrosion Resistant</b> ”: gold plate 0.000030 inch (0.8 micron) over nickel plate.
<b>Shells and Jackscrew Systems and Cul-de-Sac Mounting Accessories:</b>	“ <b>Corrosion Protection</b> ”: steel, zinc plated with dichromate seal. “ <b>Corrosion Resistant</b> ”: stainless steel passivated.
<b>Push-on Fasteners:</b>	Phosphor bronze with tin plate.
<b>Angle Brackets:</b>	Brass, zinc plate with dichromate seal.
<b>Interfacial Seal:</b>	Elastomer or TPE.
<b>Panel Mount Sealing Plate Assembly:</b>	Glass filled thermoplastic with elastomer O-ring.
<b>Protective cover over connector shell:</b>	Conductive polyethylene or conductive polyester.

**ELECTRICAL CHARACTERISTICS:**

<b>Contact Current Rating:</b>	<b>7.5 amperes nominal, size 20 contacts</b> <b>5 amperes nominal, size 22 contacts</b>
<b>Initial Contact Resistance:</b>	<b>0.010 ohms maximum.</b>
<b>Insulator Resistance:</b>	<b>5 G ohms.</b>
<b>Clearance and Creepage Distance Minimum:</b>	<b>0.039 inch (1mm).</b>
<b>Proof Voltage:</b>	<b>1000 V r.m.s.</b>
<b>Working Voltage:</b>	<b>300 V r.m.s.</b>

**MECHANICAL CHARACTERISTICS:**

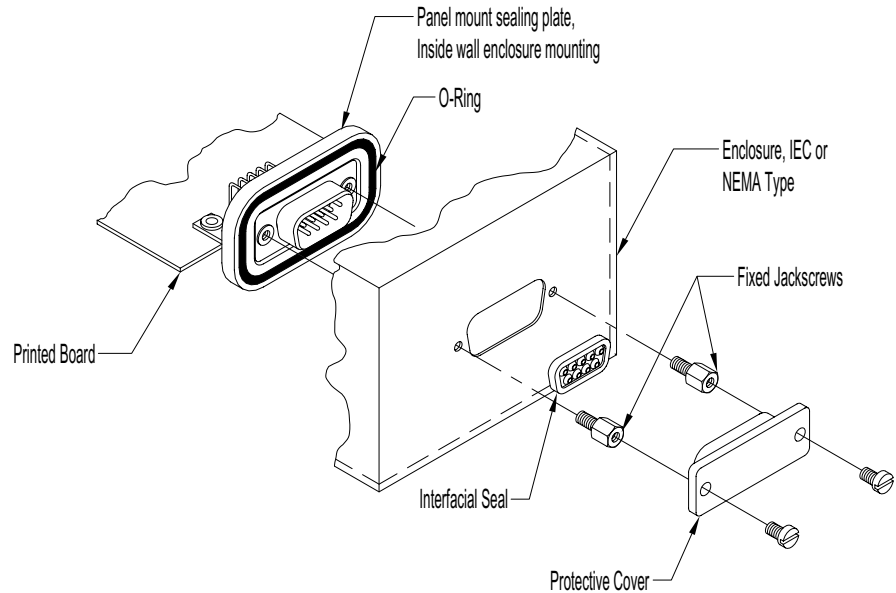
<b>Fixed Contacts:</b>	<b>WIN-D</b> Size 20 contact, male contact – 0.040 inch (1.02 mm) diameter. Female contact – rugged open entry design.  <b>WIN-DD</b> Size 22 contact, male contact – 0.030 inch (0.76 mm) diameter. Female contact – rugged open entry design.
<b>Contact Retention in Insulator:</b>	6 lbs. (27N)
<b>Resistance to Solder Iron Heat:</b>	500°F (260°C) for 10 seconds duration per IEC 512-6.
<b>Contact Terminations:</b>	<b>WIN-D</b> Solder cup contacts – 0.042 inch (1.06 mm) minimum hole diameter for 20 AWG (0.5 mm <sup>2</sup> ) wire maximum. Straight printed board mount – 0.028 inch (0.71 mm) diameter. 90° printed board mount – 0.028 inch (0.71 mm) diameter for all printed board contact footprints.  <b>WIN-D</b> Solder cup contacts – 0.035 inch (0.89 mm) minimum hole diameter for 22 AWG (0.3 mm <sup>2</sup> ) wire maximum. Straight printed board mount – 0.020 inch (0.5 mm) diameter. 90° printed board mount contact terminations 0.030 inch (0.76 mm) diameter.
<b>Polarization:</b>	Trapezoidally shaped shells.
<b>Enclosure Mounting Accessories:</b>	Cul-de-sac blind hole fasteners, angle brackets and push-on fasteners.
<b>Inside Wall Enclosure Mount:</b>	Minimum thickness 0.040 inch (1.02 mm). Maximum thickness 0.080 inch (2.03 mm).
<b>Locking Systems:</b>	Jackscrews.
<b>Mechanical Operations:</b>	500 operations minimum per IEC 512-5.
<b>Required Sealing Plate Mounting Torque:</b>	1.75 in-lb. (0.20 Nm) minimum.  8.00 in-lb. (0.90 Nm) maximum.

**CLIMATIC CHARACTERISTICS:**

<b>Temperature Range:</b>	-40°C to +125°C
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### FIXED ENCLOSURE MOUNTED CONNECTOR

The connector is mounted on the portable enclosure. Interfacial seal supplied if a male connector. The mating connector is in a remote location and is non-environmental.



The system consists of an input/output connector mechanically mounted and sealed to a portable enclosure containing electrical equipment. The connector and enclosure together provide a degree of protection from dust and moisture in accordance with IEC or NEMA ingress protection requirements. The enclosure and connector may be exposed to dust, splashing water, intermittent rain, or limited water immersion during its

outdoor use. When **“Corrosion Resistance”** is a requirement, the connector should be equipped with stainless steel shells and jackscrews, and contacts plated 0.000030 inch (0.8 microns) gold over nickel.

The portable enclosure will be connected (down loaded) periodically to a non-environmental performance connector positioned in a dry and controlled atmosphere environment.

### CONNECTOR-ENCLOSURE UNIT ENVIRONMENTAL RATINGS

#### IEC 529 Classification Designations Rated to IP67 Degree of Protection

##### IP67, **“Corrosion Protected”**

Dust tight and limited effects of water immersion, 1.0 meter for 30 minutes. Corrosion protected with zinc plated dichromate sealed shells and jackscrews. Contacts plated gold flash over nickel.

##### IP67, **“Corrosion Resistance”**

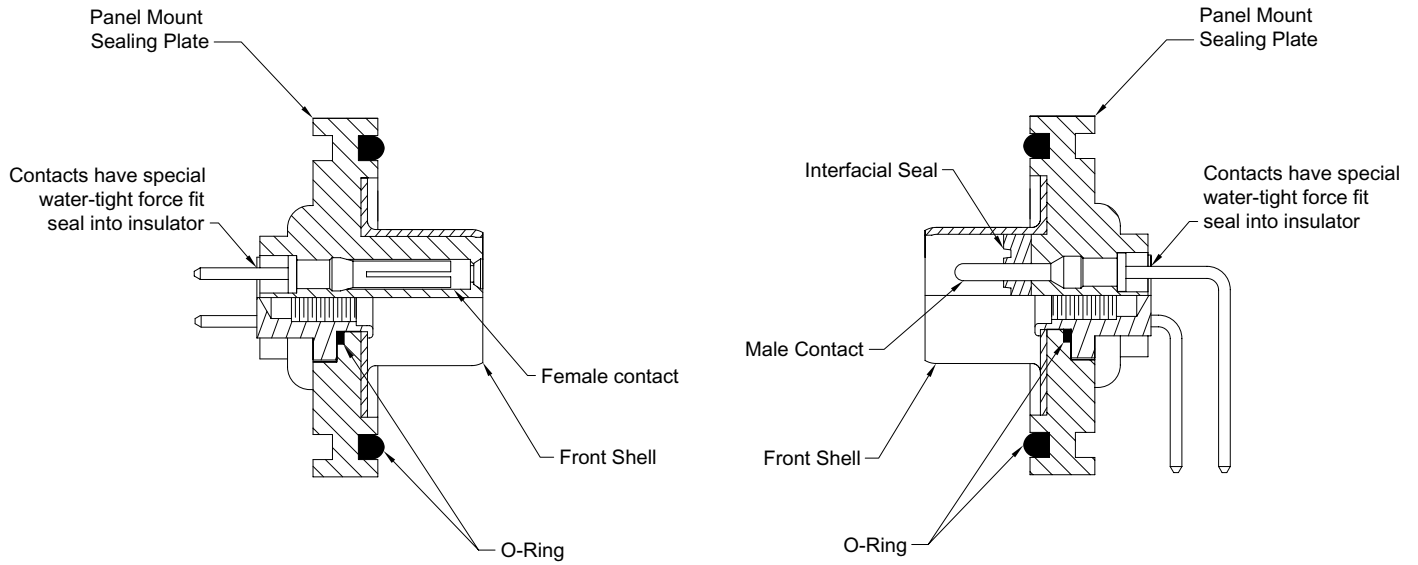
Dust tight and limited effects of water immersion 1.0 meter for 30 minutes. Corrosion resistant with stainless steel shells and jackscrews. Contacts plated 0.000030 inch (0.8 microns) gold over nickel.

#### NEMA Enclosure Types Approximate Equivalents of IP67 Degree of Protection

NEMA Types 3, 3R, 4 and 6

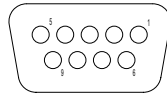
NEMA Type 4X

ENCLOSURE MOUNTED CONNECTORS



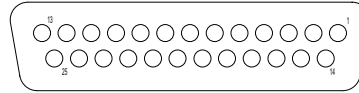
**CONTACT VARIANTS**

**FACE VIEW OF FEMALE CONNECTOR**



**WD9**

Available with male or female contacts

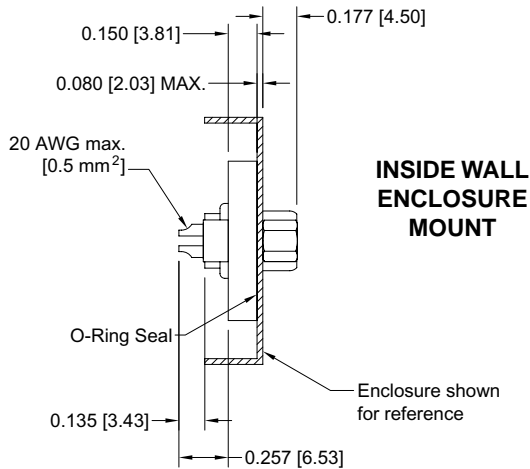


**WD25**

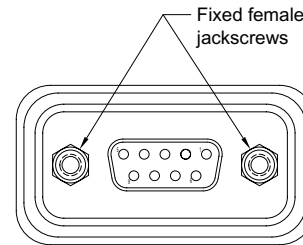
Available with female contacts

Positronic is ready to support requirements for other D-subminiature connector variants. Consult Technical Sales.

**SOLDER CUP CONNECTOR  
WITH ENCLOSURE WALL MOUNT SEALING PLATE  
ORDERING CODE 2**

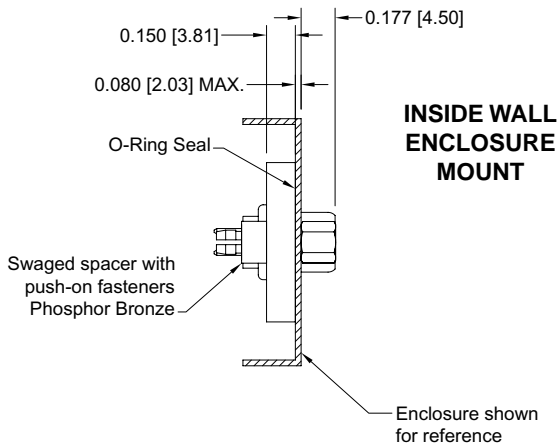


**INSIDE WALL  
ENCLOSURE  
MOUNT**

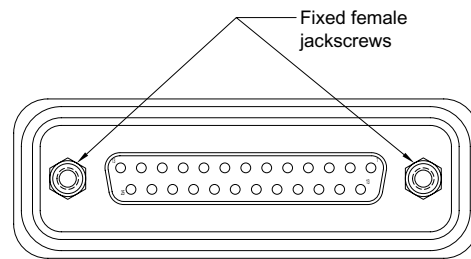


**Example Part Number:  
WD9F2C5AT7U**

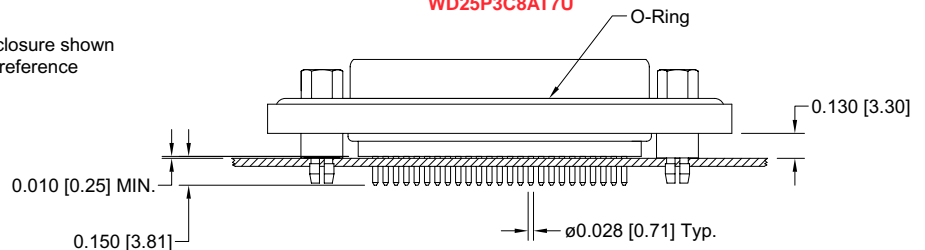
**STRAIGHT PRINTED BOARD  
MOUNT CONNECTOR  
WITH ENCLOSURE WALL MOUNT SEALING PLATE  
ORDERING CODE 3, 0.150 (3.81) CONTACT EXTENSION**



**INSIDE WALL  
ENCLOSURE  
MOUNT**



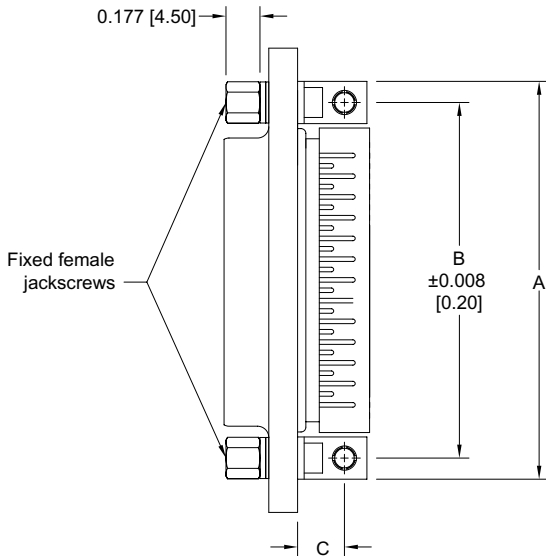
**Example Part Number:  
WD25P3C8AT7U**



**DIMENSIONS ARE IN INCHES (MILLIMETERS).  
ALL DIMENSIONS ARE SUBJECT TO CHANGE.**

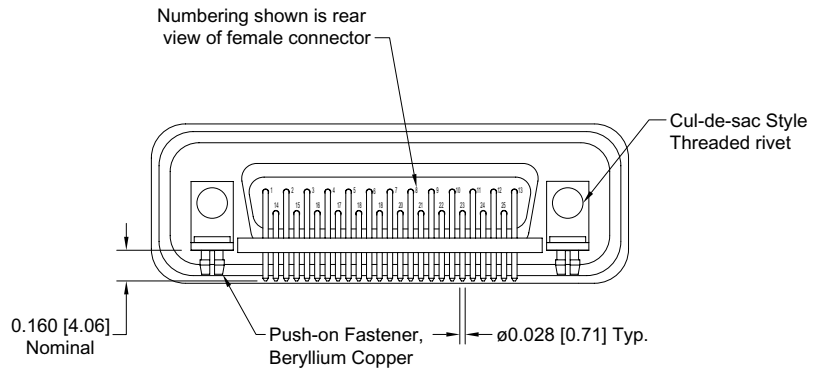
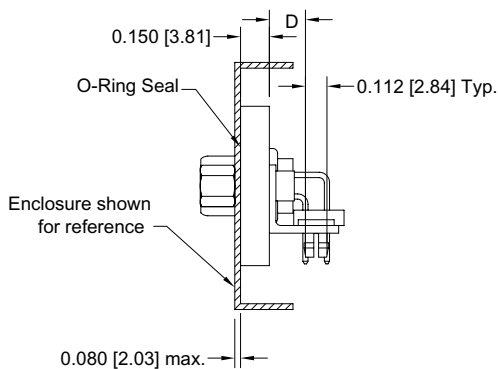
**90° PRINTED BOARD MOUNT CONNECTOR  
WITH ENCLOSURE MOUNT SEALING PLATE  
ORDERING CODE 5, 0.188 (4.78) CONTACT EXTENSION**

**INSIDE WALL  
ENCLOSURE  
MOUNT**



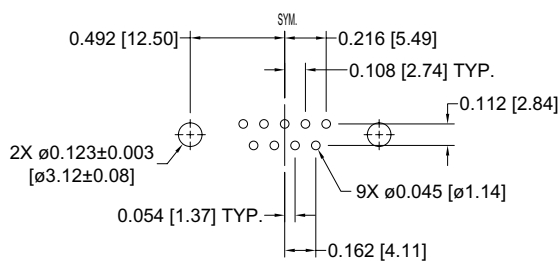
WD005C700U 0.188 (4.78) CONTACT EXTENSION				
PART NUMBER	A	B	C	D
WD905C700U	1.204 (30.58)	0.984 (24.99)	0.244 (6.20)	0.188 (4.78)
WD2505C700U	2.072 (52.63)	1.852 (47.04)	0.244 (6.20)	0.188 (4.78)

**Example Part Number:  
WD25P5C7AT7U**

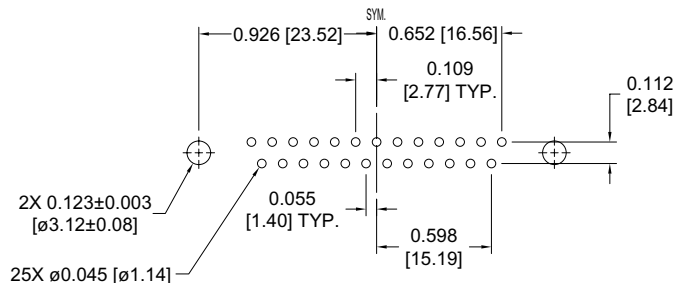


**90° AND STRAIGHT PRINTED BOARD  
CONTACT HOLE PATTERN**

Hole identification shown for male connector, use mirror image for female connector.  
Mount connector with mating face positioned to follow direction of arrows.



**WD9**



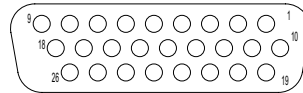
**WD25**

Suggest 0.045 (1.14) Ø hole for contact termination positions  
Suggest 0.123 ±0.003 (3.12 ±0.08) Ø hole for mounting connector with push-on fasteners

**DIMENSIONS ARE IN INCHES (MILLIMETERS).  
ALL DIMENSIONS ARE SUBJECT TO CHANGE.**

**CONTACT VARIANTS**

**FACE VIEW OF FEMALE CONNECTOR**



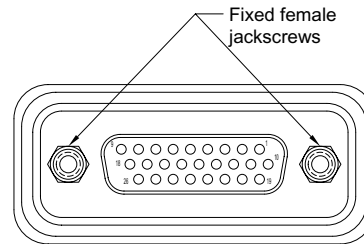
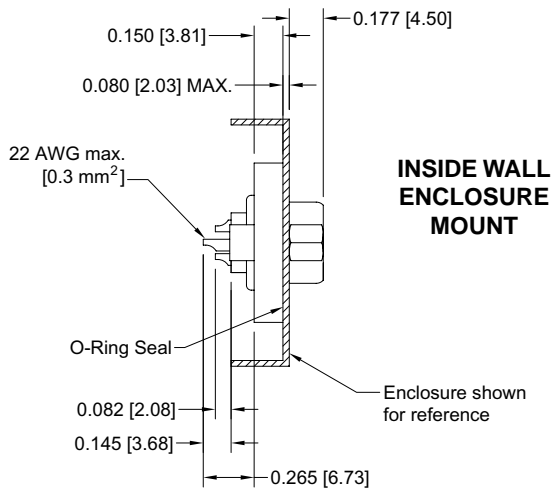
Available with female contacts

**WDD26F**

Positronic is ready to support requirements for other D-subminiature connector variants. Consult Technical Sales.

**SOLDER CUP CONNECTOR**

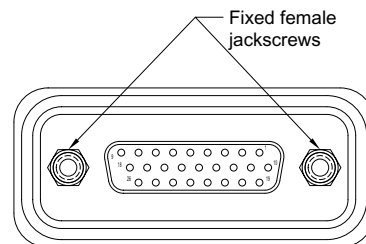
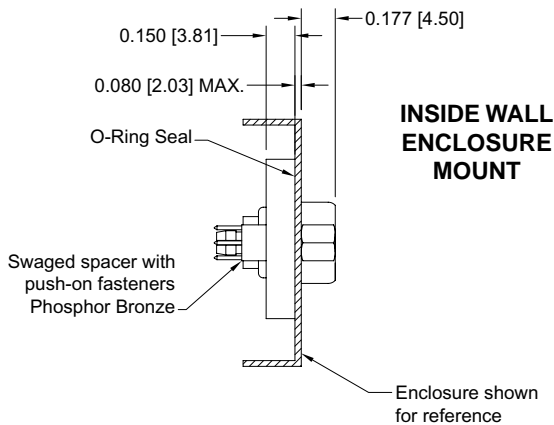
**WITH ENCLOSURE WALL MOUNT SEALING PLATE  
ORDERING CODE 2**



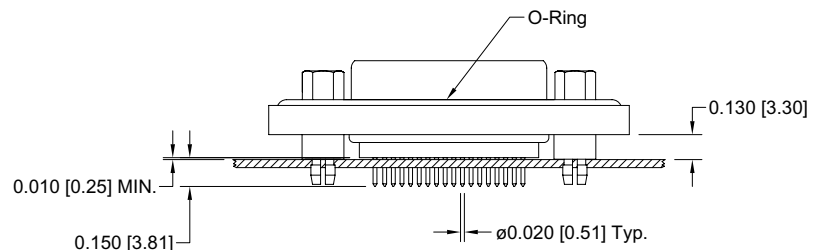
Example Part Number:  
**WDD26F2C5AT7U**

**STRAIGHT PRINTED BOARD MOUNT CONNECTOR**

**WITH ENCLOSURE WALL MOUNT SEALING PLATE  
ORDERING CODE 3, 0.150 (3.81) CONTACT EXTENSION**



Example Part Number:  
**WDD26F3C8AT7U**

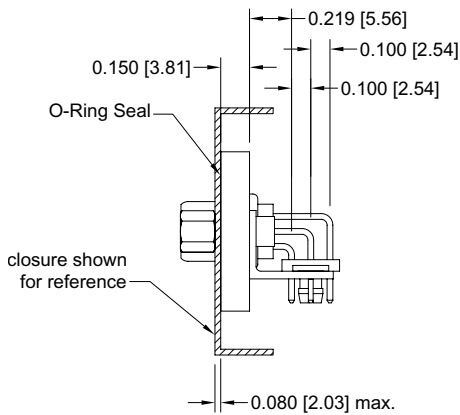
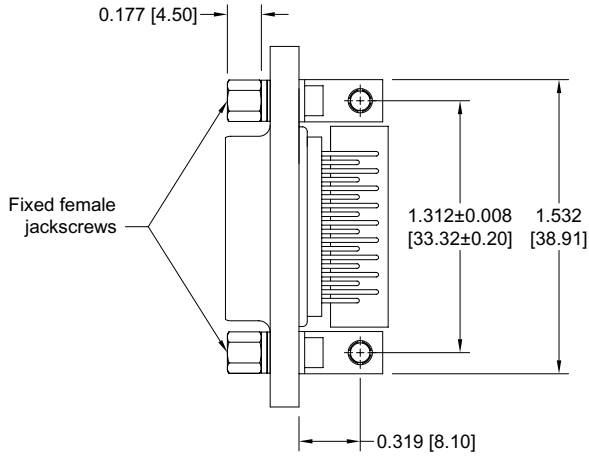


DIMENSIONS ARE IN INCHES (MILLIMETERS).  
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

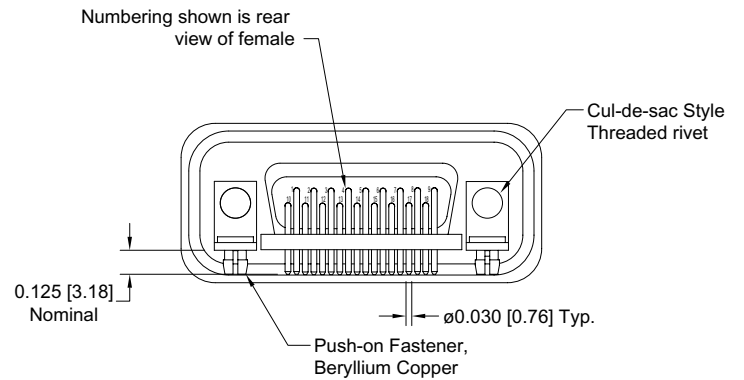


**90° PRINTED BOARD MOUNT CONNECTOR  
WITH ENCLOSURE MOUNT SEALING PLATE  
ORDERING CODE 4, 0.219 (5.56) CONTACT EXTENSION**

**INSIDE WALL  
ENCLOSURE MOUNT**

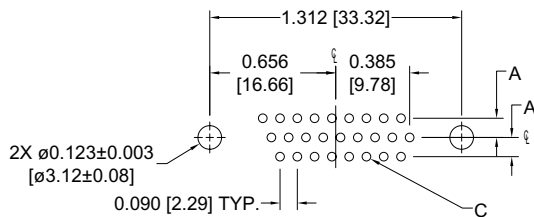


**Example Part Number:  
WDD26F4C7AT7U**



**90° AND STRAIGHT PRINTED BOARD  
CONTACT HOLE PATTERN**

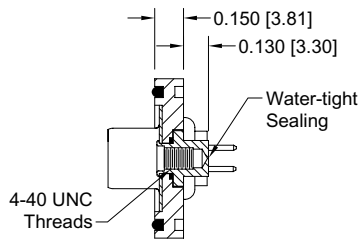
Mount connector with mating face positioned to follow direction of arrows.



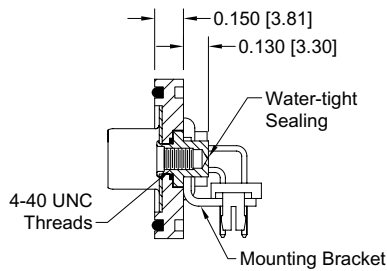
CODE NUMBER	A	C
4	0.100 (2.54)	0.045 (1.14)
3	0.078 (1.98)	0.035 (0.89)

CUL-DE-SAC STYLE MOUNTING ACCESSORIES

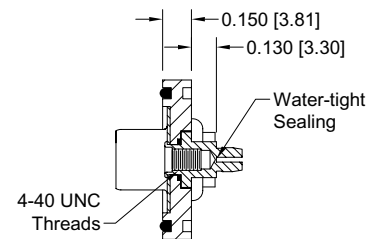
INSIDE WALL ENCLOSURE MOUNT



**C5**  
STEEL, ZINC PLATE  
WITH DICHROMATE SEAL OR  
STAINLESS STEEL, PASSIVATED



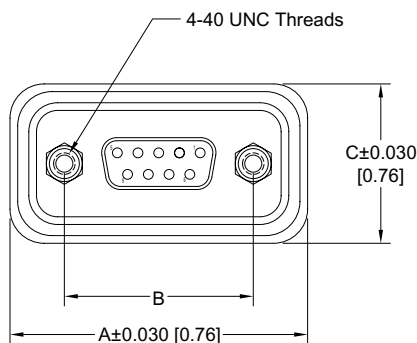
**C7**  
STEEL, ZINC PLATE  
WITH DICHROMATE SEAL, OR  
STAINLESS STEEL, PASSIVATED



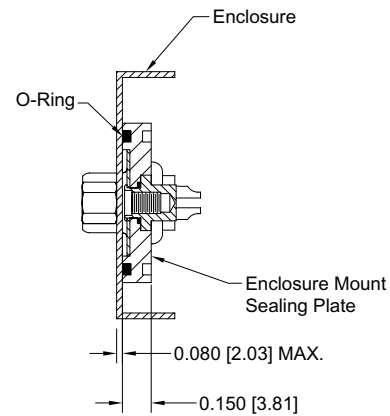
**C8**  
PHOSPHOR BRONZE,  
TIN PLATE

CONNECTOR TO ENCLOSURE WALL MOUNT SEALING PLATE

INSIDE WALL ENCLOSURE MOUNT



CONNECTOR VARIANT	A	B	C
WD9	1.550 (39.37)	0.984 (24.99)	0.830 (21.08)
WDD26	1.878 (47.70)	1.312 (33.32)	0.830 (21.08)
WD25	2.418 (61.42)	1.852 (47.04)	0.830 (21.08)



SEALING PLATE MATERIAL: GLASS FILLED THERMOPLASTIC

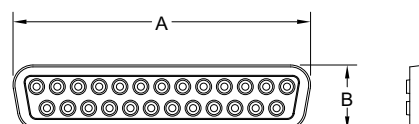
SEALING PLATE IS MOUNTED TO ENCLOSURE WALL WITH JACKSCREWS TORQUED TO A VALUE OF 1.75 in-lb (0.20 Nm) MINIMUM, 8.00 in-lb (0.90 Nm) MAXIMUM

INTERFACIAL SEAL

FURNISHED ON ALL MALE CONNECTORS

CONNECTOR VARIANT	A	B
9	0.670 (17.02)	0.340 (8.64)

MATERIAL: ELASTOMER OR TPE



**ORDERING INFORMATION – CODE NUMBERING SYSTEM**

For Systems 1 & 2 Enclosure Mounted Connectors

**WD and WDD Series**

STEP	1	2	3	4	5	6	7	8	9
Example Part Number	WD	9	P	2	C5	A	T7	SU	
Example Part Number	WDD	26	F	2	C5	A	T7	SU	
<b>STEP 1 - Basic Series</b> WD and WDD Series								<b>STEP 9 - Special Options</b> Consult Sales Department.	
<b>STEP 2 - Connector Variants</b> WD Series Connector Variants 9 - Male and Female* 25 - Female only*  WDD Series Connector Variants 26 - Female only*								<b>STEP 8 - Shell And Accessory Options</b> U - <b>Corrosion Protected Unibody Design</b> Steel shells and jackscrews zinc plated with dichromate seal. Contacts gold flash over nickel plate.  SU- <b>Corrosion Resistant Unibody Design</b> Stainless steel shells and jackscrews Contacts 0.000030 inch (0.8μ) gold plated over nickel.	
<b>STEP 3 - Connector Gender</b> P – Male contact with interfacial seal F – Female contact								<b>STEP 7 - Female Fixed Jackscrews</b> T7 - Mandatory for C5, C7 and C8 cul-de-sac mounting accessories.	
<b>STEP 4 - Type of Contacts</b> 2 - Solder cup, use for both WD and WDD series. 3 - Solder, straight printed board mount with 0.150 (3.81) tail length. Use for both WD and WDD series. 4 - Solder 90° printed board mount, for use with WDD series only, contact extension 0.219 (5.56). 5 - Solder 90° printed board mount, for use with WD series only, contact extension 0.188 (4.78).								<b>STEP 6 - Enclosure Wall Mount Sealing Plate</b> A - Inside wall enclosure mounted connector.	
<b>STEP 5 - CUL-DE-SAC Style Mounting Accessories</b> C5 - Inside wall mounting for Code 2 and 3 type contacts only. C7 - Inside wall mounting for Code 4 and 5, 90° type contact printed board mount only. Consists of an assembly of angle bracket, alignment bar and push-on fastener. C8 - Inside wall mounting for Code 3 type contacts only. Includes push-on fastener.									

\* Positronic is ready to support requirements for other D-subminiature connector variants. Consult Technical Sales.

### POSITRONIC PRODUCTS

**Contact Sizes:** 0, 8, 12, 16, 20 and 22  
**Current Ratings:** To 150 amperes  
**Terminations:** Crimp, wire solder, straight solder, right angle solder, straight press-fit and right angle press-fit  
**Configurations:** Multiple variants in a variety of package sizes  
**Compliance:** PICMG 2.11, PICMG 3.0, VITA 41



**FEATURES:** Hot swap capability • AC/DC operation in a single connector • Signal contacts for hardware management • Blind mating • Sequential mating • Large Surface Area Contact Mating System • Wide variety of accessories • Customer specified contact arrangements

**Contact Sizes:** 8, 20 and 22  
**Current Ratings:** To 40 amperes nominal  
**Terminations:** Crimp, wire solder, straight solder, right angle solder and straight press-fit  
**Configurations:** Multiple variants in both standard and high densities  
**Qualifications:** MIL-DTL-24308, Goddard Space Flight 311P, MIL-C-39029, IP65, IP67



**FEATURES:** Three performance levels available: professional quality, military quality and space-flight quality provide multiple performance to cost choices • Options include thermocouple contacts, filtered, environmentally sealed and dual port package including mixed density • Broad selection of accessories

**Contact Sizes:** 16, 20 and 22  
**Current Ratings:** To 13 amperes  
**Terminations:** Crimp, wire solder, straight solder and right angle solder  
**Configurations:** Multiple variants in both standard and high densities  
**Qualifications:** MIL-DTL-28748, MIL-C-39029, CCITT V.35



**FEATURES:** Two performance levels available: industrial quality and military quality provide two performance to cost choices • Large Surface Area Contact Mating System • A wide variety of accessories • Broad selection of contact variants and package sizes

**Contact Sizes:** 12, 16, 20 and 22  
**Current Ratings:** To 25 amperes nominal  
**Terminations:** Crimp, wire solder, straight solder and right angle solder  
**Configurations:** Multiple variants in two package sizes  
**Qualifications:** Environmental protection to IP67



**FEATURES:** Non-corrodible / lightweight composite construction • EMI/RFI shielded versions • Thermocouple contacts • Environmentally sealed versions • Rear insertion/ front release of removable contacts • Two level sequential mating • Overmolding available on full assemblies

All Positronic connector products can be supplied as part of cable assemblies whose technical characteristics would reflect those of the connectors being used within the assembly.



**FEATURES:** Shorten the supply chain and reduce additional costs and delays by "cablizing" • Overmolding available • Shielded and environmentally sealed versions available • Power cables and access boxes which meet the SAE J2496 specification

**Contact Sizes:** 8, 12, 16, 20 and 22  
**Current Ratings:** To 40 amperes nominal  
**Terminations:** Feed through is standard; flying leads and board mount available upon request  
**Configurations:** See D-Subminiature and Circular Configurations above  
**Qualifications:** Space-D32



**FEATURES:** Intended for use as an electrical feedthrough in high vacuum applications • Leakage rate:  $1 \times 10^{-9}$  mbar.l/s • Signal, power, coax and high voltage versions available • Connectors can be mounted on flange assembly per customer specification

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