

# ENVIRONMENTAL-D

D-subminiature Connectors



## POSITRONIC®

GLOBAL *Connector* SOLUTIONS



**WATER & DUST  
INGRESS PROTECTION  
NEMA 250-1991  
MIL-STD 1344  
IEC 60529**



Catalog C-006 Rev A

[www.connectpositronic.com](http://www.connectpositronic.com)

# Connector Excellence®

**Positronic Provides Complete Capability**

## Mission Statement

*"To utilize product flexibility and application assistance to present quality interconnect solutions which represent value to customers worldwide."*

## Experience

- Founded in **1966**
- **Involvement** in the development of international connector specifications through EIA®, IEC and ISO as well as PICMG® and VITA.
- Introduction of new and **unique connector products** to the electronics industry.
- Patent holder for many **unique connector features and manufacturing techniques**.
- **Vertically integrated** manufacturing – raw materials to finished connectors.

## Technology

- **Expertise** with solid machined contacts provides a variety of high reliability connectors including high current density power connectors.
- Quality Assurance lab is **capable of testing** to IEC, EIA, UL, CUL, military and customer-specified requirements.
- **In-house design and development** of connectors based on market need or individual customer requirements.
- **Internal manufacturing capabilities** include automatic precision contact machining, injection molding, stamping, plating operations and connector assembly.
- **Manufacturing locations** in southwest Missouri, U.S.A. (headquarters); Puerto Rico, France, China, Singapore, and India. Total square footage: 369,000.

## Support

- **Quality Systems:** Select locations qualified to ISO9001:2000, ISO14001, AS9100, MIL-STD-790 and customer "dock to stock" programs. Applicable products qualified to MIL-DTL-24308, SAE AS39029, DSCC 85039, MIL-DTL-28748, Space D32, GSFC S-311-P-4 and GSFC S-311-P-10.
- Compliance to a variety of international and customer specific **environmental requirements**.
- Large **in-house inventory** of finished connectors. Customer specific **stocking programs**.
- Factory direct **technical sales support** in major cities worldwide.
- **One-on-one customer support** from worldwide factory locations.
- World class **web site**.
- **Value-added solutions** and willingness to **develop custom products** with reasonable price and delivery.



## Regional Headquarters

Springfield, MO



Auch, France



Singapore



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

#4,900,261 #5,255,580 #5,329,697  
#6,260,268 #6,835,079 #7,115,002

Patented in Canada, 1992 Other Patents Pending

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

Unless otherwise specified, **dimensional tolerances** are:

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

POSITRONIC® IS AN ITAR REGISTERED COM-

Information in this catalog is proprietary to Positronic and its subsidiaries. Positronic 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®, Positronic Industries, Inc.®, P+ logo, Positronic Global Connector Solutions®, Connector Excellence® and their logo designs are registered trademarks of Positronic Industries, Inc.



## WIN-D STANDARD DENSITY SEALED D-SUBMINIATURE, IMPROVED UNIBODY DESIGN



The WD Unibody design provides a one piece connector body providing superior sealing performance. Solder cup, straight and right angle (90°) printed board mount terminations. Five connector variants, 9-50 contacts. Size 20 contacts, professional level performance, IP67.



## WIN-DD HIGH DENSITY SEALED D-SUBMINIATURE, IMPROVED UNIBODY DESIGN



The WDD Unibody design provides a one piece connector body providing superior sealing performance. Solder cup, straight and right angle (90°) printed board mount terminations. Three connector variants, 15, 26 and 44 contacts, with more variants being tooled. Size 22 contacts, professional level performance, IP67.



## WIN-D STANDARD DENSITY SEALED D-SUBMINIATURE, LEGACY DESIGN

The WD legacy design uses high quality material and manufacturing techniques to provide sealing. Solder cup, straight and right angle (90°) printed board mount terminations. Two connector variants: 25 (male) and 50 (male) contacts. All other standard density connector variants are supplied as Unibody, see description above. Size 20 contacts, professional level performance, IP67.



## WIN-DD HIGH DENSITY SEALED D-SUBMINIATURE, LEGACY DESIGN

The WDD legacy design uses high quality material and manufacturing techniques to provide sealing. Solder cup, straight and right angle (90°) printed board mount terminations. Three connector variants: 44 (male), 62 and 78 contacts. All other high density connector variants are supplied as Unibody, see description above. Size 22 contacts, professional level performance, IP67.



## WIN-D AND WIN-DD PRE-WIRED, SEALED FREE CABLE, D-SUBMINIATURE

WD and WDD series connectors can be supplied pre-wired to provide a sealed, free cable connector option. Ten connector variants - standard density 9, 15, 25, 37, and 50; high density 15, 26, 44, 62 and 78. Can be used as a cable to cable or cable to fixed connector system.

## ENVIRO-D, STANDARD DENSITY SEALED, CABLE CONNECTOR, REMOVABLE CRIMP CONTACTS, D-SUBMINIATURE

The EVD series utilizes rear connector grommets to provide a sealed connector for use with removable crimp contacts. Five connector variants, 9 through 50. Size 20 contacts; standard and thermocouple crimp contacts. Immersion per MIL-STD 810. Performance conforms to IP67, and applicable requirements of MIL-DTL-24308 and SAE AS39029.



RoHS Compliant  
options available!

DIMENSIONS ARE IN INCHES [MILLIMETERS].  
ALL DIMENSIONS ARE SUBJECT TO CHANGE.



## G E N E R A L I N F O R M A T I O N

Ingress Protection Connection Systems 1, 2 and 3 .....	1-5
Unibody and Legacy Design Environmental Sealing Features .....	6
Connector Sealing Plate .....	7
Information Relative to Coupling of WD, WDD and EVD Series Connectors.....	8

## W D S E R I E S - I M P R O V E D U N I B O D Y D E S I G N

Technical Characteristics .....	9-10
Contact Variants .....	11
Code 2 Solder Cup .....	11
Code 3 Straight Printed Board Mount Terminations .....	11
Code 5 Right Angle (90°) Printed Board Mount Termination .....	12
Right Angle (90°) and Straight Printed Board Mount Contact Hole Pattern.....	12
Ordering Information.....	13



## W D D S E R I E S - I M P R O V E D U N I B O D Y D E S I G N

Technical Characteristics .....	14-15
Contact Variants .....	16
Code 2 Solder Cup .....	16
Code 3 Straight Printed Board Mount Terminations .....	16
Code 4 Right Angle (90°) Printed Board Mount Termination .....	17
Right Angle (90°) and Straight Printed Board Mount Contact Hole Pattern .....	17
Ordering Information.....	18



## W D S E R I E S

Technical Characteristics .....	19-20
Contact Variants .....	21
Code 2 Solder Cup .....	21
Code 3 Straight Printed Board Mount Terminations .....	21
Code 5 Right Angle (90°) Printed Board Mount Termination .....	22
Right Angle (90°) and Straight Printed Board Mount Contact Hole Pattern .....	22
Ordering Information.....	23

## W D D S E R I E S

Technical Characteristics .....	24-25
Contact Variants .....	26
Code 2 Solder Cup .....	26
Code 3 Straight Printed Board Mount Terminations .....	26
Code 4 Right Angle (90°) Printed Board Mount Termination .....	27
Right Angle (90°) and Straight Printed Board Mount Contact Hole Pattern .....	27
Ordering Information.....	28



**P R E - W I R E D W D / W D D S E R I E S**

Technical Characteristics .....	29-30
Standard Density Contact Variants; Code 22 Solder Cup Termination Free Connector with Flying Leads and Code 23 Solder Cup Termination Panel Mounted Connector with Flying Leads .....	31
High Density Contact Variants; Code 22 Solder Cup Termination Free Connector with Flying Leads and Code 23 Solder Cup Termination Panel Mounted Connector with Flying Leads .....	32
Ordering Information .....	33
Special Options - Ordering Information .....	34



**E V D S E R I E S**

Technical Characteristics .....	35-36
Contact Variants .....	36
Standard Shell Assembly .....	37
EVD Series Design Environmental Sealing Features .....	38
Sealing Plug .....	38
Interfacial Seals and Rear Grommets .....	38
Removable Crimp Contacts .....	39-40
Contact Reels For Automatic Pneumatic Crimp Tools .....	40
Ordering Information .....	41

**A C C E S S O R I E S**

Cul-de-sac Mounting Accessories .....	42
Enclosure Wall Mount Sealing Plate .....	42
Interfacial Seal .....	42
Composite Hoods .....	43
Molded Cable Assembly .....	43
Enclosure Wall Cutout .....	44
Protective Cover .....	44



**U N I Q U E F E A T U R E S**

Introduction .....	45
Other Sealed D-subminiature Connectors Options .....	45
Machined Aluminum Mounting Plate with Conductive O-ring .....	46
Outside Wall Enclosure Mount .....	46
Lightweight Aluminum Hood .....	46
Other Environmental Connector Offerings .....	47



**A P P L I C A T I O N T O O L S**

Introduction .....	47
Application Tool Cross Reference List .....	48



**A P P E N D I X**

Explanation of Ingress Protection (IP) System for Enclosures .....	49
Description of NEMA Enclosure Types .....	50
Comparison between NEMA Enclosure Type Numbers and IEC Enclosure Classification Designations .....	51

# POSITRONIC CABLIZED CONNECTORS

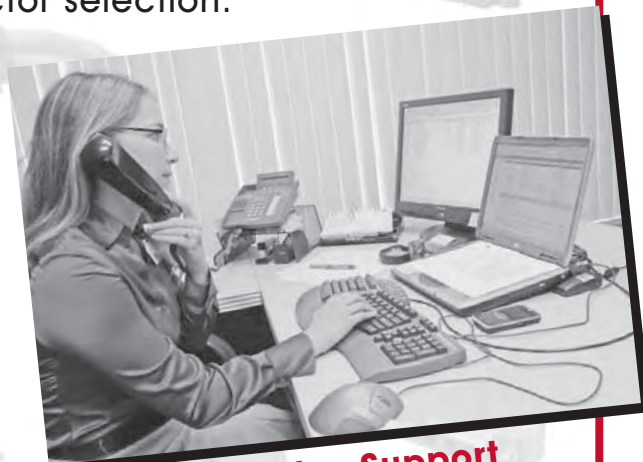
## SAVE TIME AND MONEY!

Let Positronic support you by cablizing your  
**WD / WDD / EVD** connector selection.

### Cable Assembly Design Support

We work closely with customers to:

1. Design assemblies in accordance with customer specifications.
2. Prepare cablized connector configuration and performance specifications.
3. Design each system in accordance with applicable customer, domestic, and international standards.
4. Define and conduct performance and verification testing.



**Technical Sales Support**



**Engineering Support**



**Puerto Rico Cable Assembly**



**Quality Assurance**

FOR MORE DETAILS CONTACT **TECHNICAL SALES**  
OR VISIT OUR **WEB SITE** AT:  
**[HTTP://WWW.CONNECTPOSITRONIC.COM/  
PRODUCTS/47/CABLEASSEMBLIES](http://www.connectpositronic.com/products/47/cableassemblies)**

## INGRESS PROTECTION CONNECTION SYSTEMS

Electronic equipment is frequently used for outdoor or other applications requiring environmental protection. To answer industry's demand for affordable connection systems compatible with environmental protection to IEC 60529 and NEMA 250-1991 performance requirements for electrical enclosures, Positronic Industries has introduced three dust and water ingress protection connection systems.

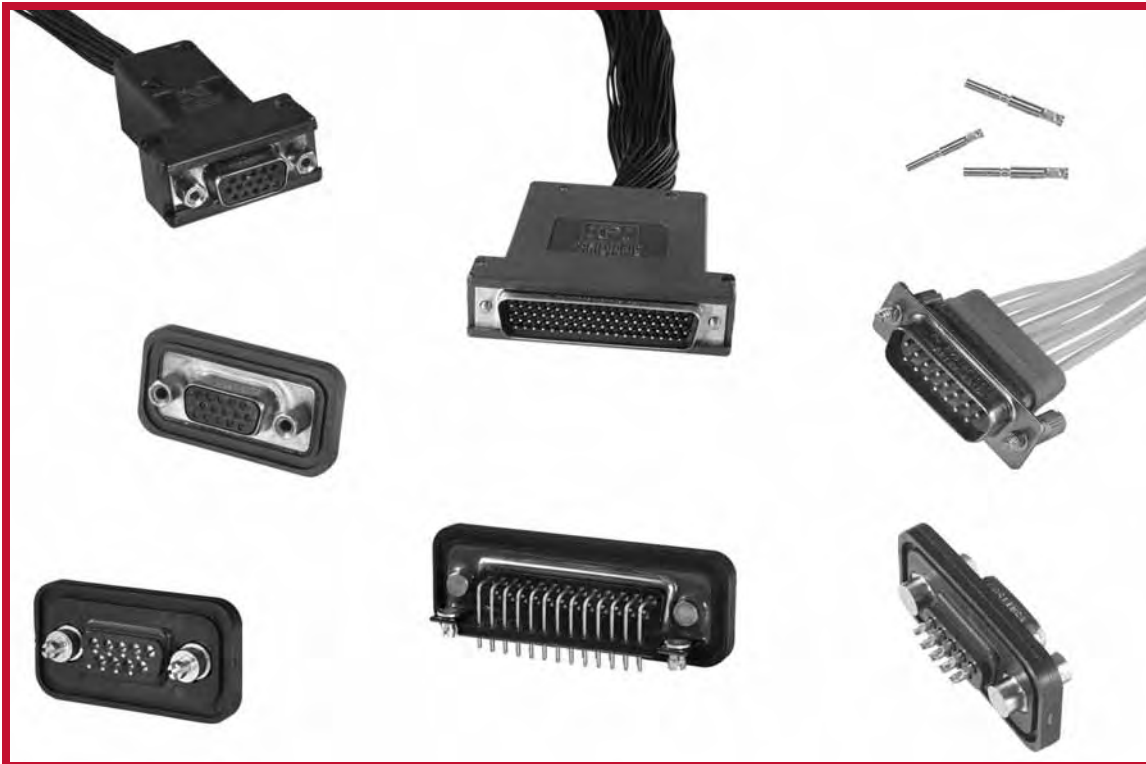
**SYSTEM 1** is an enclosure mounted connector assembly. The connection system is designed for periodic electrical operation after being exposed to a variety of environmental conditions.

**SYSTEM 2** is an enclosure mounted connector assembly, which is coupled to a compatible free cable connector. The connection system is designed for continuous electrical operation while being subjected to varying environmental conditions.

**SYSTEM 3** is a cable to cable connection system designed for continuous electrical operation while subjected to varying environmental conditions.

An explanation of the dust and water ingress protection requirements as defined by IEC 60529 Degrees of Protection Provided by Enclosures, and NEMA 250-1991 Enclosures for Electrical Equipment, may be found in the Appendix section of this catalog. (See section beginning on page 49)

It is recommended that readers familiarize themselves with the technical information and ingress protection rating systems contained in the Appendix so that a better understanding of dust and water ingress protection connection systems can be achieved.





Positronic Industries  
connectpositronic.com

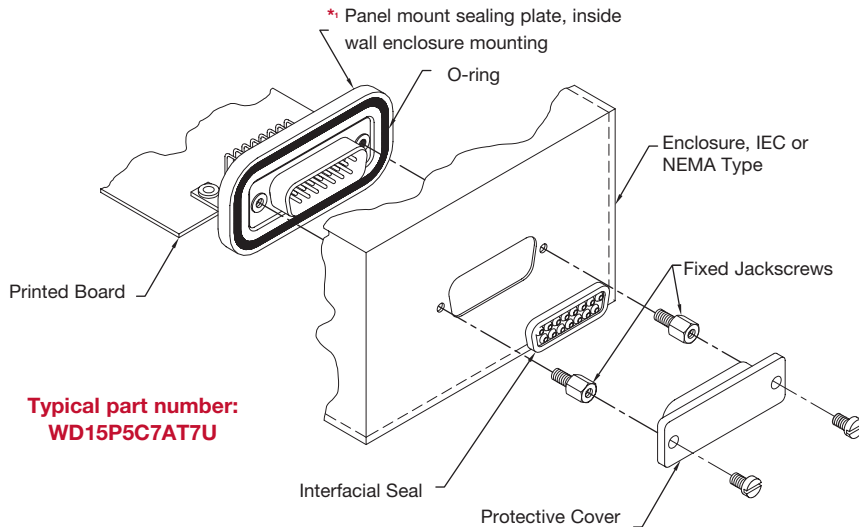
## GENERAL INFORMATION

Environmental  
D-Sub

### CONNECTION SYSTEM 1

#### FIXED ENCLOSURE MOUNTED CONNECTOR

*Provides ingress protection in an unmated condition.*



**Typical part number:**  
**WD15P5C7AT7U**

**This type of ingress protection can be achieved by selecting:**

WD Series (page 13)

**OR**

WDD Series (page 18)

**Note:**

\* Outside enclosure wall panel mount sealing plate also available. See Unique Features section, page 46.

### SYSTEM 1

System 1 consists of an input/output connector mechanically mounted and sealed to an enclosure. 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, rain, or limited water immersion during its use.

“Corrosion Protection” option is standard. When “Corrosion Resistance” is a requirement, the connector is equipped with stainless steel shells and jackscrews, and contacts plated 0.000030 inch [0.76 μ] gold over nickel.

## CONNECTOR/ENCLOSURE ENVIRONMENTAL RATINGS

**IEC 60529 Classification**  
**Designations Rated to**  
**IP67 Degree of Protection**  
*(See Appendix for detail)*

**IP67, “Corrosion Protected”**

Dust tight and limited effects of water immersion, 0.5 meters for 30 minutes. Corrosion protected with zinc plated chromate sealed shells and jackscrews. Contacts plated gold flash over nickel.

**IP67, “Corrosion Resistance”**

Dust tight and limited effects of water immersion 0.5 meters for 30 minutes. Corrosion resistant with stainless steel shells and jackscrews. Contacts plated 0.000030 inch [0.76 μ] gold over nickel.

**NEMA Enclosure Types**  
**Approximate Equivalents of**  
**IP67 Degree of Protection**  
*(See Appendix page 49 for details)*

**NEMA Types 3, 3R, 4 and 6**

**NEMA Type 4X**

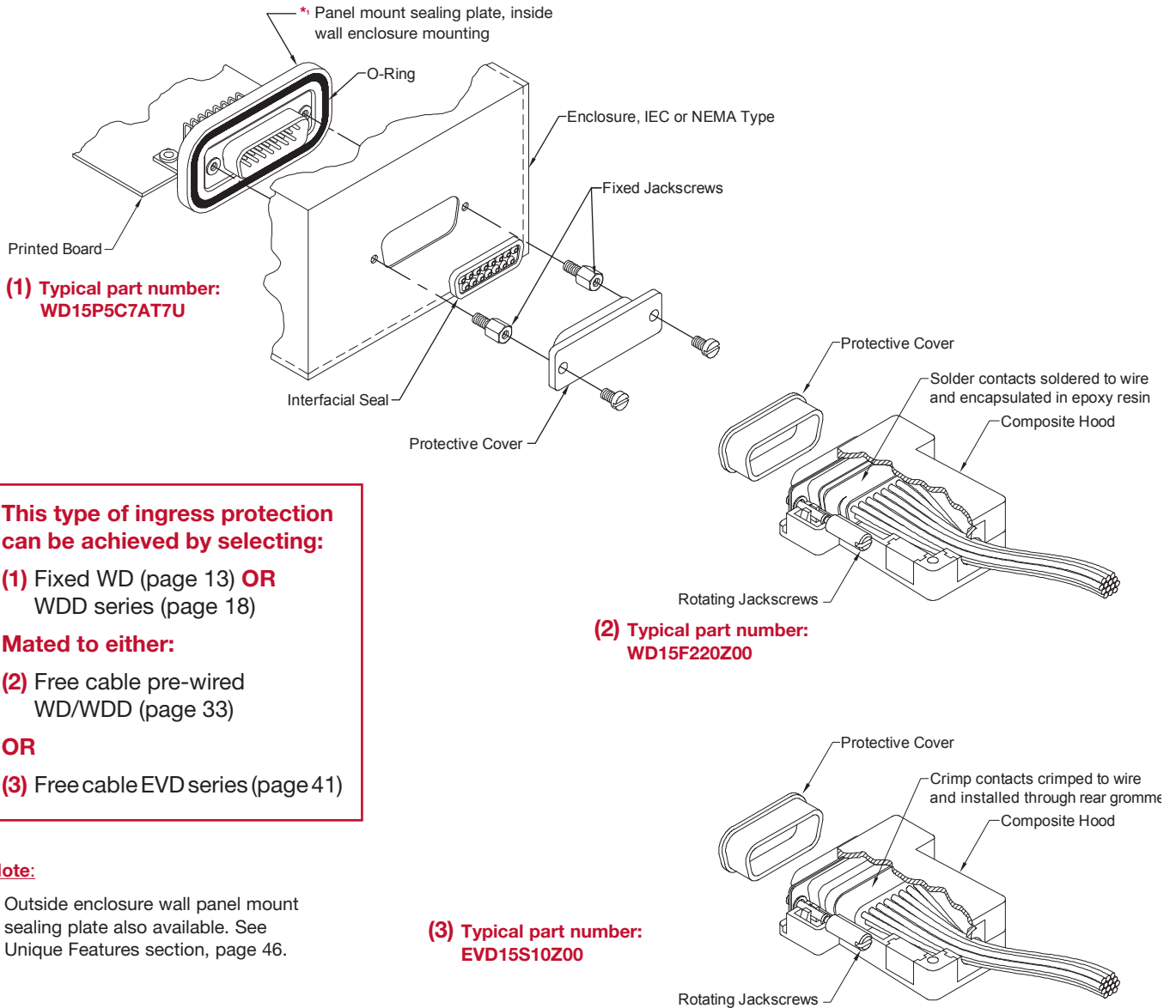
*For information regarding IEC 60529 and NEMA 250-1991, see Appendix, page 49.*



CONNECTION SYSTEM 2

**FIXED ENCLOSURE MOUNTED CONNECTOR MATED TO FREE CABLE CONNECTOR**

*Provides ingress protection of connector system for continuous electrical operation.*



**This type of ingress protection can be achieved by selecting:**

**(1) Fixed WD (page 13) OR WDD series (page 18)**

**Mated to either:**

**(2) Free cable pre-wired WD/WDD (page 33)**

**OR**

**(3) Free cable EVD series (page 41)**

**Note:**

\* Outside enclosure wall panel mount sealing plate also available. See Unique Features section, page 46.

**SYSTEM 2**

System 2 consists of a fixed input/output connector and a compatible free cable connector. The system is normally in operation and may be exposed to dust, splashing water, rain, limited water immersion or hose directed water.

The fixed connector is selected from the connectors offered in System 1. The mating (free or cable) connector must be electrically, mechanically, and chemically compatible with

the fixed connector. This requirement enables System 2 to provide the desired **“Corrosion Resistance”** or **“Corrosion Protection”** and maintain the degree of ingress protection IP67 as specified in IEC 60529.

The male connector of System 2 is always equipped with an interfacial seal.



Positronic Industries  
connectpositronic.com

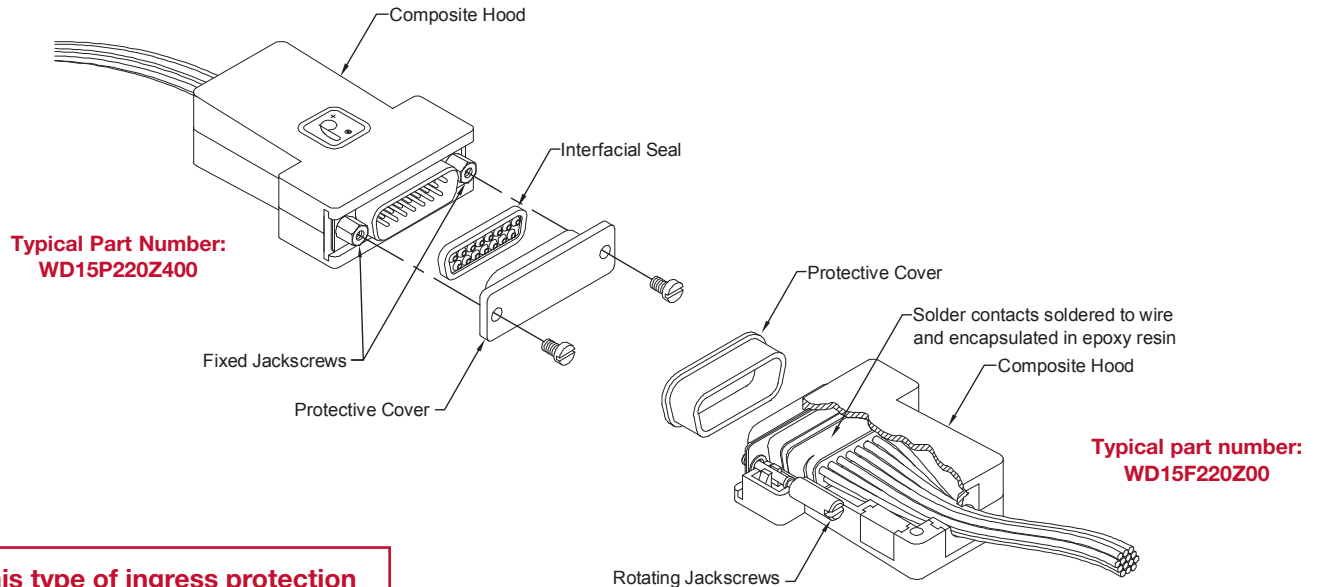
## GENERAL INFORMATION

Environmental  
D-Sub

### CONNECTION SYSTEM 3

#### FREE CABLE-TO-CABLE PRE-WIRED CONNECTORS

*Provides ingress protection of connector system for continuous electrical operation.*



**This type of ingress protection can be achieved by selecting:**

Free cable pre-wired  
WD/WDD (page 33)

**Note:**

Shell sizes 3, 4 & 5 only: heat shrink is provided in cable clamp area over wiring bundle.

### SYSTEM 3

System 3 is a cable-to-cable interconnection system consisting of two free cable connectors. The system is normally in operation and may be exposed to dust, splashing water, rain, limited water immersion or hose directed water.

The connectors must be electrically, mechanically, and chemically compatible with each other. This requirement

enables System 3 to provide the desired level of **“Corrosion Resistance”** or **“Corrosion Protection”** and maintain the degree of ingress protection IP67 as specified in IEC 60529.

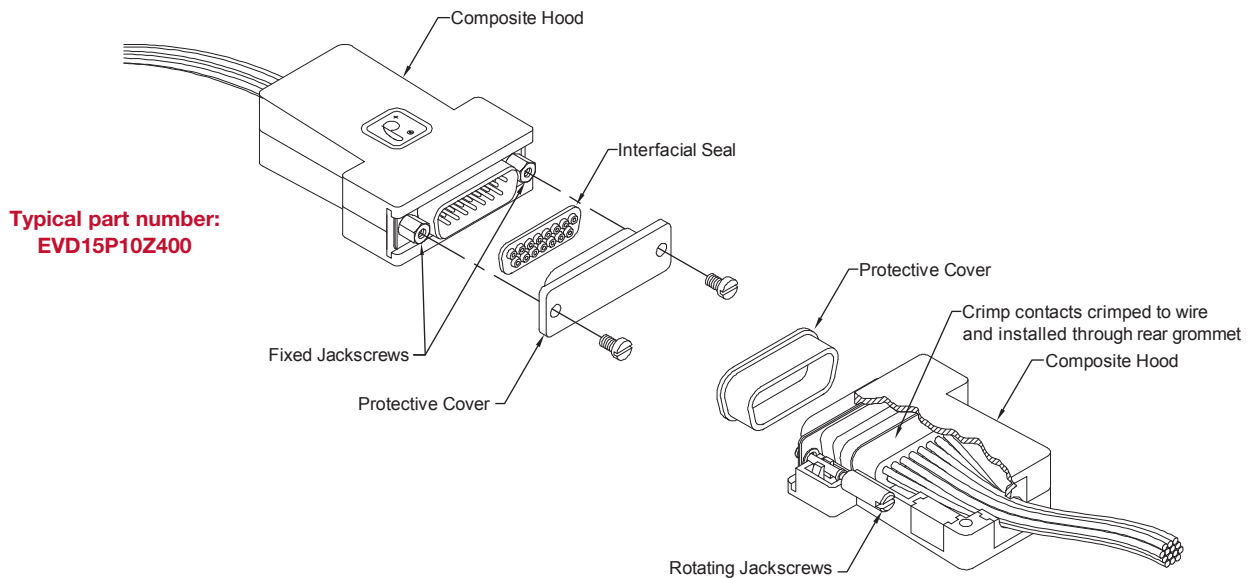
The male connector of System 3 is always equipped with an interfacial seal.

*For information regarding IEC 60529 and NEMA 250-1991, see Appendix, page 49.*

## CONNECTION SYSTEM 3

### FREE CABLE-TO-CABLE CONNECTORS WITH CRIMP REMOVABLE CONTACTS

*Provides ingress protection of connector system for continuous electrical operation.*



Typical part number:  
EVD15P10Z400

Typical part number:  
EVD15S10Z00

**This type of ingress protection can be achieved by selecting:**  
Free cable EVD series (page 41)

## SYSTEM 3

System 3 is a cable-to-cable interconnection system consisting of two free cable connectors. The system is normally in operation and may be exposed to dust, splashing water, rain, limited water immersion or hose directed water.

The connectors must be electrically, mechanically, and chemically compatible with each other. This requirement

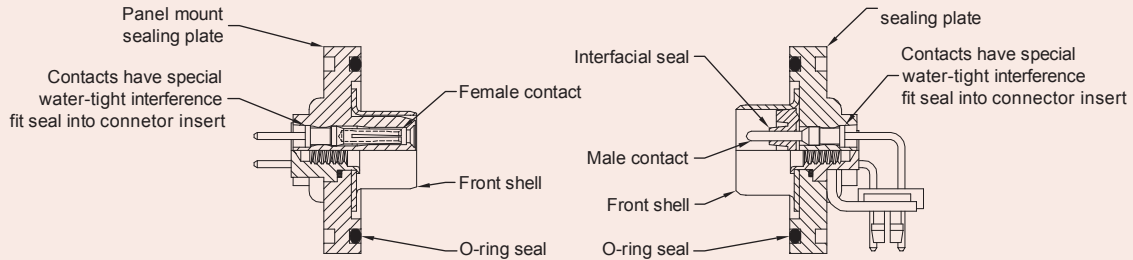
enables System 3 to provide the desired level of **“Corrosion Resistance”** or **“Corrosion Protection”** and maintain the degree of ingress protection IP67 as specified in IEC 60529.

The male connector of System 3 is always equipped with an interfacial seal.

*For information regarding IEC 60529 and NEMA 250-1991, see Appendix, page 49.*

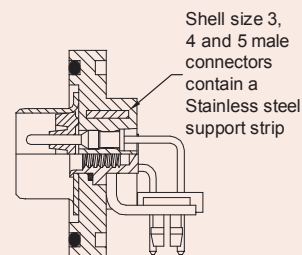


**WD SERIES UNIBODY DESIGN**  
**ENVIRONMENTAL SEALING FEATURES**



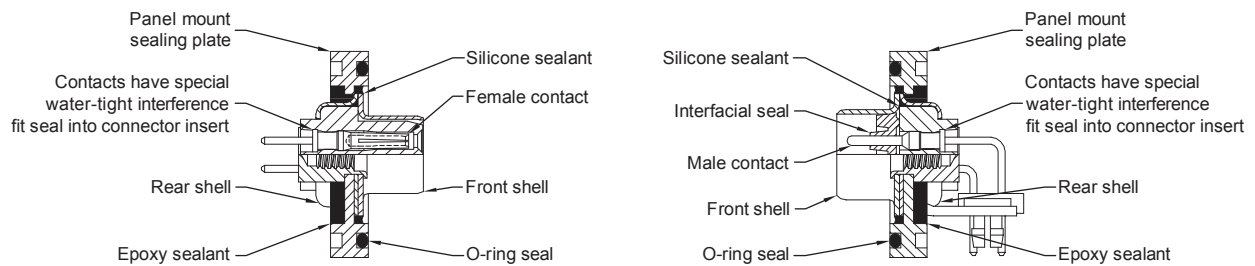
**FEATURES:**

- Popular, economical option for applications requiring **sealed** connectors.
- One piece **Unibody** connector insert eliminates need for secondary sealing processes.
- Improved temperature range, increased performance, and lower cost.

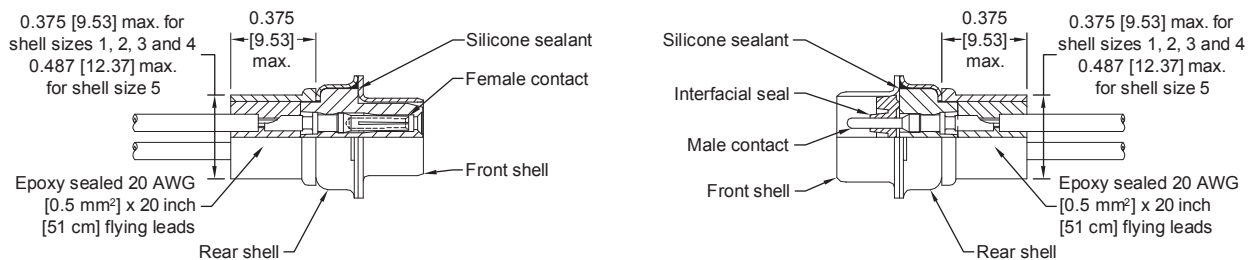


**WD SERIES LEGACY DESIGN**  
**ENVIRONMENTAL SEALING FEATURES**

**ENCLOSURE MOUNTED CONNECTORS**  
**SYSTEMS 1 AND 2**

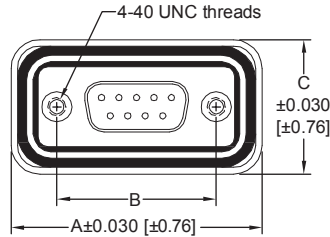


**PRE-WIRED CABLE CONNECTORS**  
**SYSTEMS 2 AND 3**



Information regarding the **SEALING DESIGN FEATURES** of the EVD series on page 38.

CONNECTOR SEALING PLATE



SHELL SIZE	CONNECTOR VARIANT		A	B	C
	WD SERIES STANDARD DENSITY	WDD SERIES HIGH DENSITY			
1	9	15	1.550 [39.37]	0.984 [24.99]	0.830 [21.08]
2	15	26	1.878 [47.70]	1.312 [33.32]	0.830 [21.08]
3	25	44	2.418 [61.42]	1.852 [47.04]	0.830 [21.08]
4	37	62	3.066 [77.88]	2.500 [63.50]	0.830 [21.08]
5	50	78	2.972 [75.49]	2.406 [61.11]	0.941 [23.90]
6	--	104	Contact Technical Sales For Availability		

# Connectors Designed To Customer Specifications

*Positronic WD / WDD / EVD connectors can be modified to customers specifications.*

*Examples: select loading of contacts for cost savings or to gain creepage and clearance distances;  
longer printed circuit board terminations; customer specified hardware.*

**Contact Technical Sales with your particular requirements.**



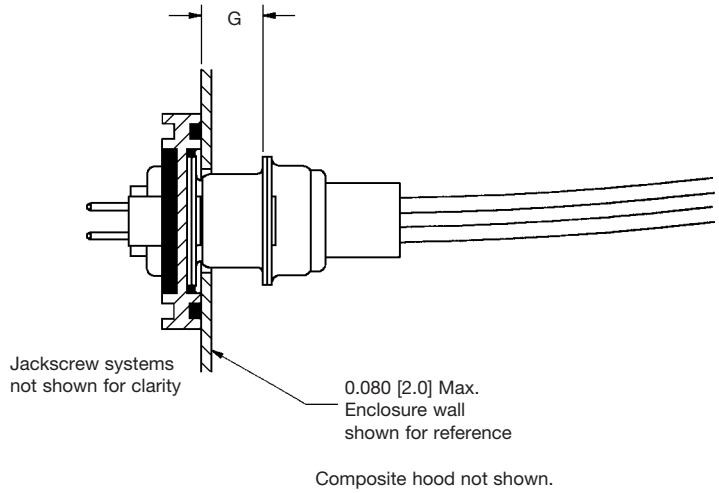
Positronic Industries  
connectpositronic.com

# GENERAL INFORMATION

Environmental  
**D-Sub**

## INFORMATION RELATIVE TO COUPLING OF WD, WDD AND EVD SERIES CONNECTORS RECOMMENDED COUPLING DIMENSION TO ENSURE WATER AND DUST INGRESS PROTECTION

SHELL SIZE	SERIES		G	
	WD, EVD	WDD	MIN.	MAX.
1	9	15	0.230 [5.84]	0.260 [6.60]
2	15	26	0.230 [5.84]	0.260 [6.60]
3	25	44	0.221 [5.61]	0.251 [6.38]
4	37	62	0.221 [5.61]	0.251 [6.38]
5	50	78	0.221 [5.61]	0.251 [6.38]



**WD25P5C7AT7S**

**WDD15F220Z40**



# WD UNIBODY SERIES

IMPROVED UNIBODY DESIGN  
PROFESSIONAL QUALITY  
STANDARD DENSITY FIXED CONTACTS



- ✓ Popular, economical option for applications requiring **sealed** connectors.
- ✓ One piece **Unibody** connector insert eliminates need for secondary sealing processes.  
*See page 6 for details.*
- ✓ Improved temperature range, increased performance, and lower cost.
- ✓ **Fixed**, size 20 contacts
- ✓ Terminations include solder cup, straight and right angle (90°) printed board mount.  
*See pre-wired ordering information (page 33) for free/cable connectors.*
- ✓ Five connector variants with 9, 15, 25, 37, and 50.
- ✓ Corrosion protected and corrosion resistant options.
- ✓ A wide variety of options and accessories.



For RoHS options  
see page 13.

## Connectors Conforms to:

- IP 67 per IEC 60529
- IEC 60807-2, Performance Level 2
- UL File # E49351
- CSA File # LR 54219

## Telecommunication:

- UL File # E140980

## TECHNICAL CHARACTERISTICS

### ENVIRONMENTAL CHARACTERISTICS:

WIN-D series connectors mounted on IEC 60529 or NEMA 250-1991 enclosures.

WIN-D Connector Panel mount sealing plates, when mounted on the walls of enclosures, maintain the dust and water ingress protection rating of IEC 60529 or NEMA 250 enclosure on which they are mounted. WIN-D connector enclosure assemblies provide dust and water ingress protection to IP67. Refer to Appendix A for details of IP 67 ratings and NEMA enclosure types 6 and 4X, as well as other IEC and NEMA enclosures having less stringent environmental requirements.

### ENVIRONMENTAL TEST SPECIFICATIONS:

Applicable IEC Moisture Tests:

**IP65 IEC 60529 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.

*continued on next page. . . .*



Positronic Industries  
connectpositronic.com



# WD UNIBODY SERIES

IMPROVED UNIBODY DESIGN  
PROFESSIONAL QUALITY  
STANDARD DENSITY FIXED CONTACTS

Environmental  
D-Sub

## TECHNICAL CHARACTERISTICS, *continued*

*continued from previous page. . . .*

**IP67 IEC 60529, 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 Conditioning Has Been Performed:**

**IEC 60512-2, Test 3a:** Insulation Resistance  
**IEC 60512-2, Test 4a:** Voltage proof  
**Requirements:** Portable enclosure. 1 G ohm minimum insulation resistance after connector face and contacts are dried. Voltage proof 1,000 V rms.

- It is recommended that connectors be tested in the specific application.
- Service life of connectors cannot be predicted for all applications.

**MATERIALS AND FINISHES:**

**Connector Insert:** Nylon resin, UL 94V-0 black color.  
**Contacts:** Precision machined copper alloy.  
**Contact Plating:**  
**Corrosion Protection:** Gold flash over nickel plate.  
**Corrosion Resistant:** Gold plate 0.000030 inch [0.76 μ] over nickel plate.

**Shells, Jackscrew Systems and**

**Cul-de-sac Mounting Accessories:**

**Corrosion Protection:** Steel, zinc plated with chromate seal.  
**Corrosion Resistant:** Stainless steel passivated.

**Push-on Fasteners:** Phosphor bronze with tin plate.  
**Angle Brackets:** Brass, zinc plate with chromate seal.  
**Interfacial Seal:** Thermoplastic Elastomer (TPE), Santoprene™ or equivalent.

**Panel Mount Sealing**

**Plate Assembly:** Glass filled thermoplastic with elastomer O-ring. Shell size 3, 4, and 5 male connectors contain stainless steel support strip.

**Protective Cover Over Connector Shell:** Conductive polyethylene or conductive polyester.

**MECHANICAL CHARACTERISTICS:**

**Size 20 Fixed Contacts:** Male contact - 0.040 inch [1.02 mm] mating diameter. Female contact – rugged open entry design.

**Contact Retention in Insulator:** 6 lbs. [27N]

**Contact Terminations:** 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] termination diameter.

Right angle (90°) printed board mount – 0.028 inch [0.71 mm] termination diameter for all printed board contact footprints.

**Coding (keying):** Trapezoidally shaped shells.

**Enclosure Mounting Accessories:**

Cul-de-sac blind hole fasteners, angle brackets and push-on fasteners.

**Inside Wall Enclosure Mount:**

Minimum thickness 0.040 inch [1.02 mm]. Maximum thickness 0.080 inch [2.03 mm].

**Locking Systems:**

Jackscrews.

**Mechanical Operations:** 500 operations minimum per IEC 60512-5.

**Required Sealing**

**Plate Mounting Torque:**

1.75 in-lb. [0.20 Nm] minimum.  
2.25 in-lb. [0.25 Nm] maximum.

**ELECTRICAL CHARACTERISTICS:**

**Contact Current Rating:** 7.5 amperes nominal,

**Initial Contact Resistance:** 0.008 ohms maximum.

**Insulator Resistance:** 5 G ohms.

**Clearance and Creepage**

**Distance Minimum:** 0.039 inch [1.0mm].

**Proof Voltage:** 1000 V r.m.s.

**Working Voltage:** 300 V r.m.s.

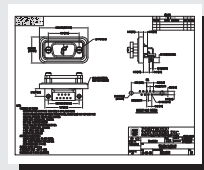
**CLIMATIC CHARACTERISTICS:**

**Temperature Range:** -40°C to +125°C

*Visit our web site for the latest catalog updates and supplements at <http://www.connectpositronic.com/products/61/EnvironmentallySealed/catalogs/>*

## Do you need 2-D drawings or 3-D models?

Once you have made a connector selection, contact Technical Sales if you would like a 2-D drawing or 3-D model. If we do not have your specific part number on file, we can create one for you. Or, please visit [www.connectpositronic.com](http://www.connectpositronic.com) and use the search function.

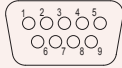






**CONTACT VARIANTS \***

FACE VIEW OF MALE OR REAR VIEW OF FEMALE



**WD 9**

Available with male and female contacts



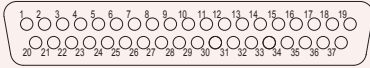
**WD 15**

Available with male and female contacts



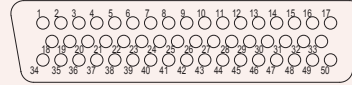
**WD 25**

Currently available with female contacts.  
For male contact variants, see page 21.



**WD 37**

Available with male and female contacts



**WD 50**

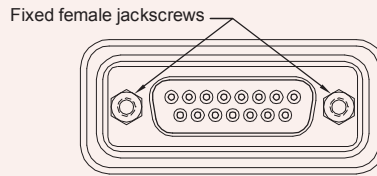
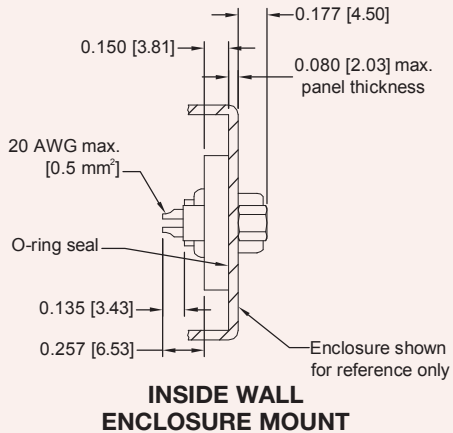
Currently available with female contacts.  
For male contact variants, see page 21.

\* If a variant is not listed above, consult Technical Sales, as Positronic is ready to support requirements for other D-subminiature variants and is tooling additional variants. For information on existing design variants, see page 21.  
For sealing plate dimensions see page 7.

**SOLDER CUP TERMINATION**

WITH ENCLOSURE WALL MOUNT SEALING PLATE

**CODE 2**



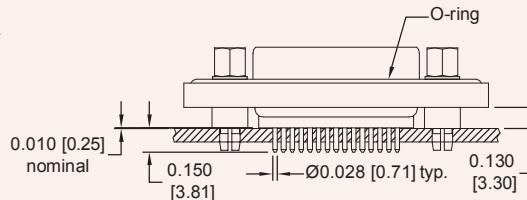
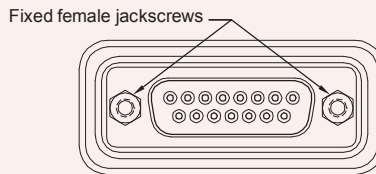
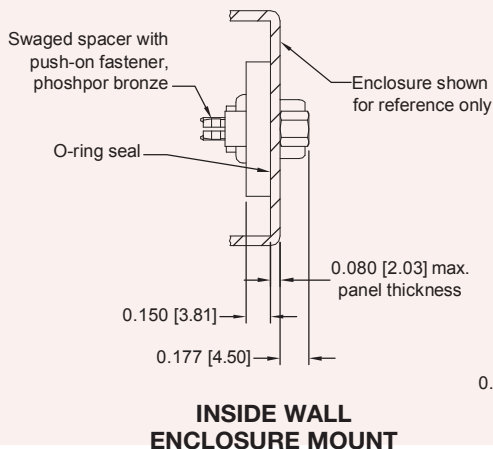
Typical part number:  
**WD15F2C5AT7U**

**OUTSIDE WALL ENCLOSURE MOUNT**  
Not available in Unibody design.  
See Unique Feature section, page 46.

**STRAIGHT SOLDER PRINTED BOARD MOUNT TERMINATION**

WITH ENCLOSURE WALL MOUNT SEALING PLATE

**CODE 3, 0.150 [3.81] CONTACT EXTENSION**



**OUTSIDE WALL ENCLOSURE MOUNT**  
Not available in Unibody design.  
See Unique Feature section, page 46.

Typical part number:  
**WD15F3C8AT7U**



Positronic Industries  
connectpositronic.com



# WD UNIBODY SERIES

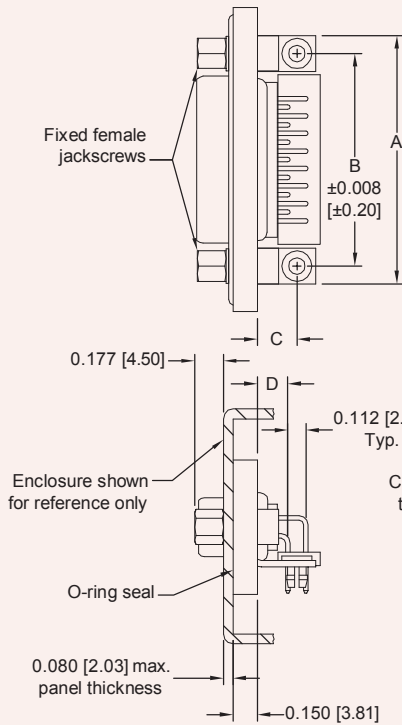
IMPROVED UNIBODY DESIGN  
PROFESSIONAL QUALITY  
STANDARD DENSITY FIXED CONTACTS

Environmental  
**D-S<sub>ub</sub>**

## RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION

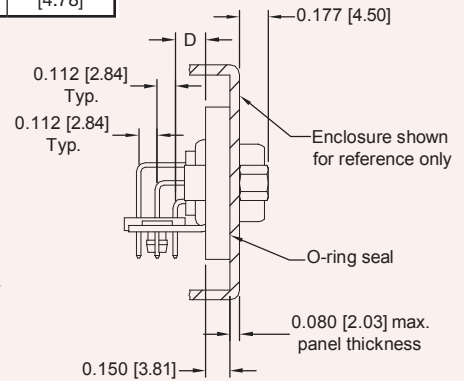
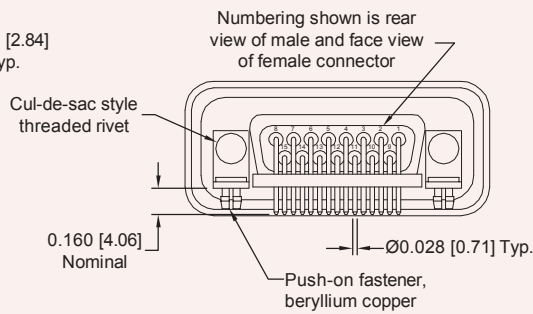
WITH ENCLOSURE MOUNT SEALING PLATE  
CODE 5, 0.188 [4.78] CONTACT EXTENSION

### INSIDE WALL ENCLOSURE MOUNT



Typical Part Number:  
**WD15P5C7AT7U**

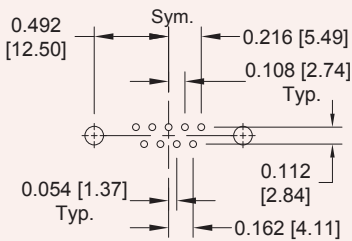
WD**5***U 0.188 [4.78] CONTACT EXTENSION				
PART NUMBER	A	B	C	D
WD9*5***U	1.204 [30.58]	0.984 [24.99]	0.244 [6.20]	0.188 [4.78]
WD15*5***U	1.532 [38.91]	1.312 [33.32]	0.244 [6.20]	0.188 [4.78]
WD25F5***U	2.072 [52.63]	1.852 [47.04]	0.244 [6.20]	0.188 [4.78]
WD37*5***U	2.720 [69.09]	2.500 [63.50]	0.244 [6.20]	0.188 [4.78]
WD50F5***U	2.626 [66.70]	2.406 [61.11]	0.300 [7.62]	0.188 [4.78]



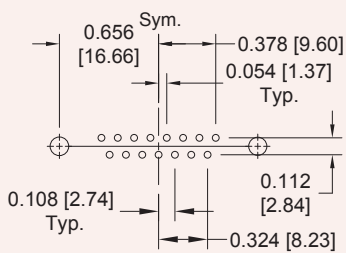
Typical Part Number:  
**WD50F5C7AT7U**

## RIGHT ANGLE (90°) AND STRAIGHT PRINTED BOARD CONTACT HOLE PATTERN

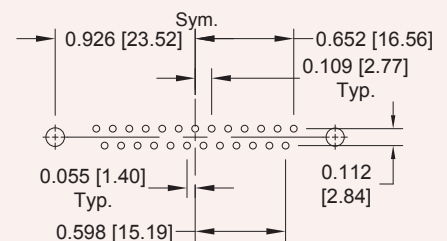
MOUNT CONNECTOR WITH MATING FACE POSITIONED TO FOLLOW DIRECTION OF ARROWS.



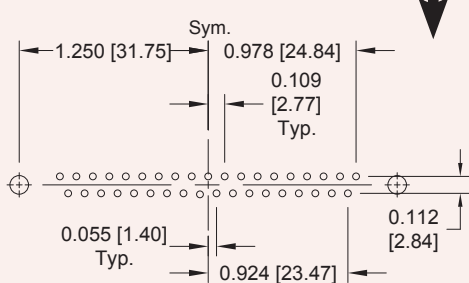
**WD 9**



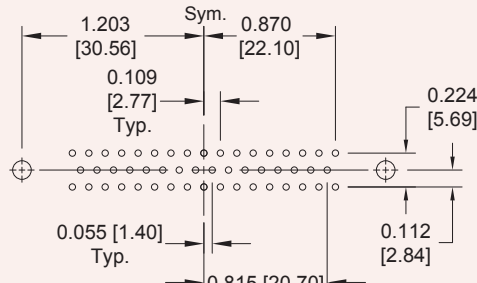
**WD 15**



**WD 25**



**WD 37**



**WD 50**

### SUGGESTED PRINTED BOARD HOLE SIZES:

Suggest 0.123 ±0.003 [3.12] Ø holes for mounting connector with push-on fasteners.


Suggest 0.045 [1.14] Ø hole for contact termination positions.



## ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 8

† **Unibody is the preferred design.** If a variant is not listed in Step 2, consult Technical Sales, as Positronic is ready to support requirements for other D-subminiature variants and is tooling additional variants. For information on existing design variants, see page 21.

STEP	1	2	3	4	5	6	7	8	9	10
<b>EXAMPLE</b>	WD	9	F	2	C5	A	T7	SU	/AA	
<b>STEP 1 - BASIC SERIES</b> WD - WD Unibody series										<b>STEP 10 - SPECIAL OPTIONS</b> <b>CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS</b>
<b>† STEP 2 - CONNECTOR VARIANTS</b> 9 - Male and Female 15 - Male and Female † 25 - Female only 37 - Male and Female † 50 - Female only										<b>STEP 9 - ENVIRONMENTAL COMPLIANCE OPTIONS</b> /AA - Compliant per EU Directive 2002/95/EC (RoHS)  <b>NOTE:</b> If compliance to environmental legislation is not required, this step will not be used. Example: WD9F2C5AT7SU
<b>STEP 3 - CONNECTOR GENDER</b> P - Male with interfacial seal F - Female										 <b>STEP 8 - SHELLS AND ACCESSORY OPTIONS</b> <b>U - Corrosion Protected Unibody Design</b> Steel shells and jackscrews zinc plated with chromate seal. Contacts gold flash over nickel plate.  <b>SU - Corrosion Resistant Unibody Design</b> Stainless steel shells and jackscrews Contacts 0.000030 inch [0.76µ] gold plated over nickel.
<b>*2 STEP 4 - CONTACT TERMINATION TYPE</b> 2 - Solder cup 3 - Solder, straight printed board mount with 0.150 [3.81] tail length. 5 - Solder, right angle (90°) printed board mount, contact extension 0.188 [4.78].										
<b>*1 STEP 5 - CUL-DE-SAC STYLE MOUNTING ACCESSORIES</b> C5 - Inside wall mounting for Code 2 and 3 (step 4) only. C7 - Inside wall mounting for Code 5 (step 4), right angle (90°) printed board mount only. Consists of an assembly of angle bracket, alignment bar and push-on fastener. C8 - Inside wall mounting for Code 3 (step 4) only. Includes push-on fastener.  <b>NOTE:</b> For C9 outside wall mounting option, refer to Unique Features section, page 46.										<b>*1 STEP 7 - FEMALE FIXED JACKSCREWS</b> T7 - Always used when ordering C5, C7 and C8 (Step 5).
										<b>*1 STEP 6 - ENCLOSURE WALL MOUNT SEALING PLATE</b> A - Inside wall enclosure mounted connector.

**NOTE:**

- \*1 For additional information listed in Steps 5, 6, and 7, see the Accessories section, page 42.
- \*2 See pre-wired ordering information, page 33, for free/cable connectors.

*Do you need 2-D drawings or 3-D models?*

See page 10 for more information



Positronic Industries  
connectpositronic.com



# WDD UNIBODY SERIES

IMPROVED UNIBODY DESIGN  
PROFESSIONAL QUALITY  
HIGH DENSITY FIXED CONTACTS

Environmental  
D-Sub



Popular, economical, high density option for applications requiring **sealed** connectors.



One piece **Unibody** connector insert eliminates need for secondary sealing processes.  
*See page 6 for details.*



Improved temperature range, increased performance, and lower cost.



**Fixed**, size 22 contacts



Terminations include solder cup, straight and right angle (90°) printed board mount.  
*See pre-wired ordering information (page 33) for free/cable connectors.*



Three connector variants include 15, 26 and 44, with more being tooled.  
*See WDD section (page 26) for all other high density sizes.*



Corrosion protected and corrosion resistant options.



A wide variety of options and accessories.



For RoHS options  
see page 18.

## Connectors Conforms to:

- IP 67 per IEC 60529
- UL File # E49351
- CSA File # LR 54219

## Telecommunication:

- UL File # E140980

# TECHNICAL CHARACTERISTICS

## ENVIRONMENTAL CHARACTERISTICS:

WIN-DD series connectors mounted on IEC 60529 or NEMA 250-1991 enclosures.

WIN-DD connector panel mount sealing plates, when mounted on the walls of enclosures, maintain the dust and water ingress protection rating of IEC 60529 or NEMA 250 enclosure on which they are mounted. WIN-DD connector enclosure assemblies provide dust and water ingress protection to IP67. Refer to Appendix A for detail of IP 67 ratings and NEMA enclosure types 6 and 4X, as well as other enclosures having less stringent environmental requirements.

## ENVIRONMENTAL TEST SPECIFICATIONS:

Applicable IEC Moisture Tests:

**IP65 IEC 60529 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.

*continued on next page. . . .*



## TECHNICAL CHARACTERISTICS, *continued*

*continued from previous page. . . .*

**IP67 IEC 60529 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 Conditioning Has Been Performed:**

**IEC 60512-2, Test 3a:** Insulation Resistance  
**IEC 60512-2, Test 4a:** Voltage proof  
**Requirements:** Portable enclosure. 1 G ohm minimum insulation resistance after connector face and contacts are dried. Voltage proof 1,000 V rms.

- It is recommended that connectors be tested in the specific application.
- Service life of connectors cannot be predicted for all applications.

**MATERIALS AND FINISHES:**

**Connector Insert:** Nylon resin, UL 94V-0 black color.  
**Contacts:** Precision machined copper alloy  
**Contact Plating:**  
**Corrosion Protection:** Gold flash over nickel plate.  
**Corrosion Resistant:** Gold plate 0.000030 inch [0.76 µ] over nickel plate.

**Shell, Jackscrew Systems and Cul-de-sac Mounting Accessories:**

**Corrosion Protection:** Steel, zinc plated with chromate seal.  
**Corrosion Resistant:** Stainless steel passivated.

**Push-on Fasteners:** Phosphor bronze with tin plate.

**Angle Brackets:** Brass, zinc plate with chromate seal.

**Interfacial Seal:** Thermoplastic Elastomer (TPE), Santoprene™ or equivalent.

**Panel Mount Sealing**

**Plate Assembly:** Glass filled thermoplastic with elastomer O-ring.

**Protective Cover Over**

**Connector Shell:** Conductive polyethylene or conductive polyester.

**MECHANICAL CHARACTERISTICS:**

**Size 22 Fixed Contacts:** Male contact - 0.030 inch [0.75 mm] mating diameter. Female contact - rugged open entry design.

**Contact Retention in Connector insert:** 6 lbs. [27N]

**Contact Terminations:** 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 [0.51 mm] termination diameter.

Right angle (90°) printed board mount contact terminations 0.030 inch [0.76 mm] termination diameter.

Trapezoidally shaped shells.

**Coding (keying):**  
**Enclosure Mounting Accessories:**

Cul-de-sac blind hole fasteners, angle brackets and push-on fasteners.

**Inside Wall**

**Enclosure Mount:** Minimum thickness 0.040 inch [1.02 mm]. Maximum thickness 0.080 inch [2.03 mm].

**Locking Systems:** Jackscrews.

**Mechanical Operations: Required Sealing** 500 operations minimum per IEC 60512-5. 1.75 in-lb. [0.20 Nm] minimum.

**Plate Mounting Torque:** 2.25 in-lb. [0.25 Nm] maximum.

**ELECTRICAL CHARACTERISTICS:**

**Contact Current Rating:** 5 amperes nominal  
**Initial Contact Resistance:** 0.010 ohms maximum.

**Insulator Resistance:** 5 G ohms.

**Clearance and Creepage**

**Distance Minimum:** 0.039 inch [1.0mm].

**Proof Voltage:** 1000 V r.m.s.

**Working Voltage:** 300 V r.m.s.

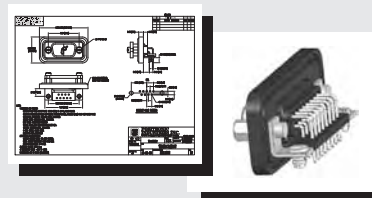
**CLIMATIC CHARACTERISTICS:**

**Temperature Range:** -40°C to +125°C

*Visit our web site for the latest catalog updates and supplements at <http://www.connectpositronic.com/products/61/EnvironmentallySealed/catalogs/>*

## Do you need 2-D drawings or 3-D models?

Once you have made a connector selection, contact Technical Sales if you would like a 2-D drawing or 3-D model. If we do not have your specific part number on file, we can create one for you. Or, please visit [www.connectpositronic.com](http://www.connectpositronic.com) and use the search function.





Positronic Industries  
connectpositronic.com



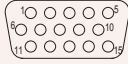
# WDD UNIBODY SERIES

IMPROVED UNIBODY DESIGN  
PROFESSIONAL QUALITY  
HIGH DENSITY FIXED CONTACTS

Environmental  
**D-Sub**

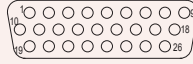
## CONTACT VARIANTS \*

FACE VIEW OF MALE OR REAR VIEW OF FEMALE



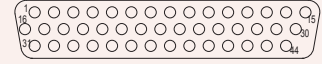
**WDD 15**

Available with male and female contacts



**WDD 26**

Available with male and female contacts



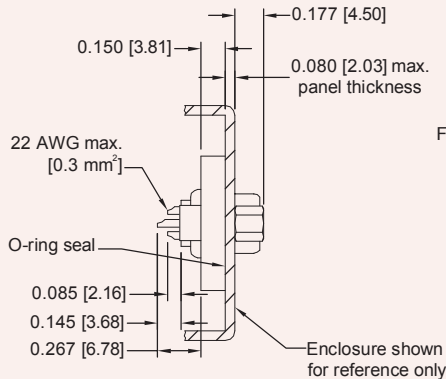
**WDD 44**

Currently available with female contacts.  
For male contact variants, see page 26.

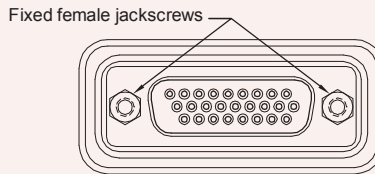
\* If a variant is not listed above, consult Technical Sales, as Positronic is ready to support requirements for other D-subminiature variants and is tooling additional variants. For information on existing design variants, see page 26.  
For sealing plate dimensions see page 7.

## SOLDER CUP TERMINATION

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



**INSIDE WALL ENCLOSURE MOUNT**

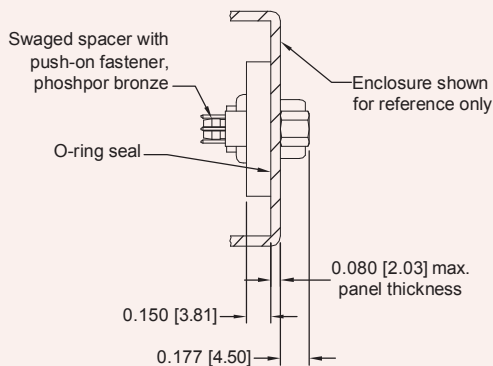


Typical part number:  
**WDD26P2C5AT7U**

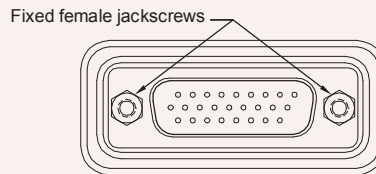
**OUTSIDE WALL ENCLOSURE MOUNT**  
Not available in Unibody design.  
See Unique Feature section, page 46.

## STRAIGHT SOLDER PRINTED BOARD MOUNT TERMINATION

WITH ENCLOSURE WALL MOUNT SEALING PLATE  
**CODE 3, 0.150 [3.81] CONTACT EXTENSION**

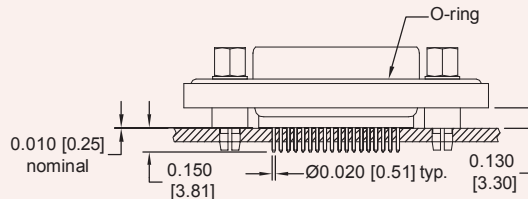


**INSIDE WALL ENCLOSURE MOUNT**



Typical part number:  
**WDD26P3C8AT7U**

**OUTSIDE WALL ENCLOSURE MOUNT**  
Not available in Unibody design.  
See Unique Feature section, page 46.



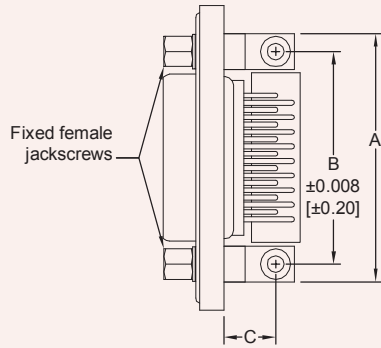
WDD UNIBODY



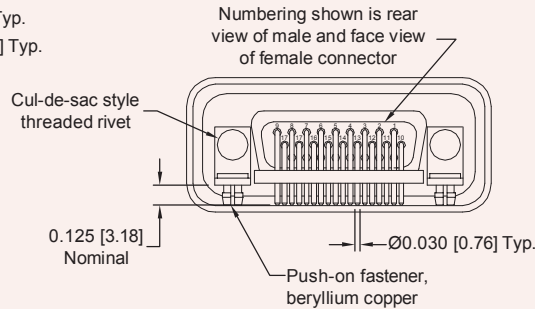
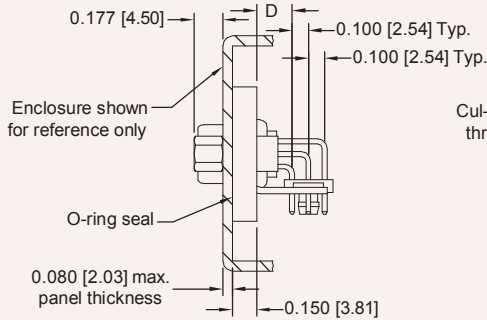
## RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION

WITH ENCLOSURE MOUNT SEALING PLATE  
CODE 4, 0.219 [5.56] CONTACT EXTENSION

### INSIDE WALL ENCLOSURE MOUNT



WDD26*4**** 0.219 [5.56] CONTACT EXTENSION				
PART NUMBER	A	B	C	D
WDD15*4****	1.204 [30.58]	0.984 [24.99]	0.319 [8.10]	0.219 [5.56]
WDD26*4****	1.532 [38.91]	1.312 [33.32]	0.319 [8.10]	0.219 [5.56]
WDD44F4****	2.072 [52.63]	1.852 [47.04]	0.319 [8.10]	0.219 [5.56]

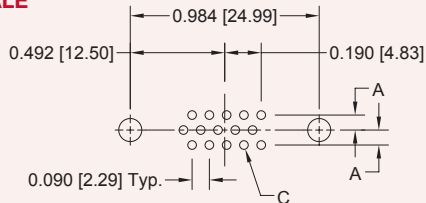


Typical part number:  
WDD26P4C7AT7U

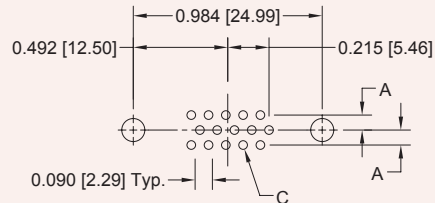
## RIGHT ANGLE (90°) AND STRAIGHT PRINTED BOARD CONTACT HOLE PATTERN

MOUNT CONNECTOR WITH MATING FACE POSITIONED TO FOLLOW DIRECTION OF ARROWS.

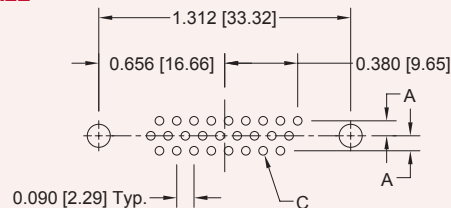
### WDD15 MALE



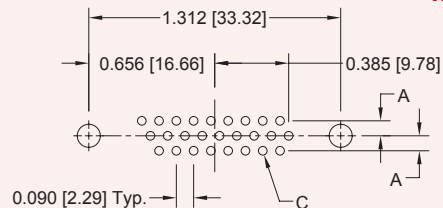
### WDD15 FEMALE



### WDD26 MALE

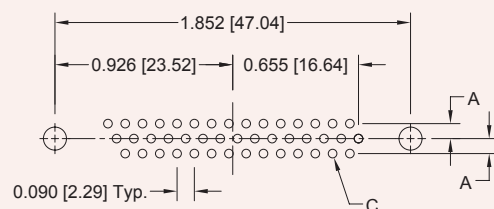


### WDD26 FEMALE



CODE NUMBER	A	C
3	0.078 [1.98]	0.035 [0.89]
4	0.100 [2.54]	0.045 [1.14]

### WDD44 FEMALE



### SUGGESTED PRINTED BOARD HOLE SIZES:

Suggest 0.123 ±0.003 [3.12] Ø holes for mounting connector with push-on fasteners

DIMENSIONS ARE IN INCHES [MILLIMETERS].  
ALL DIMENSIONS ARE SUBJECT TO CHANGE.



Positronic Industries  
connectpositronic.com



# WDD UNIBODY SERIES

IMPROVED UNIBODY DESIGN  
PROFESSIONAL QUALITY  
HIGH DENSITY FIXED CONTACTS

Environmental  
**D-Sub**

## ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 8

† **Unibody is the preferred design.** If a variant is not listed in Step 2, consult Technical Sales, as Positronic is ready to support requirements for other D-subminiature variants and is tooling additional variants. For information on existing design variants, see page 26.

STEP	1	2	3	4	5	6	7	8	9	10
<b>EXAMPLE</b>	WDD	26	F	2	C5	A	T7	SU	/AA	
<b>STEP 1 - BASIC SERIES</b> WDD - WDD Unibody series										<b>STEP 10 - SPECIAL OPTIONS</b> <b>CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS</b>
† <b>STEP 2 - CONNECTOR VARIANTS</b> 15 - Male and Female 26 - Male and Female † 44 - Female only										<b>STEP 9 - ENVIRONMENTAL COMPLIANCE OPTIONS</b> /AA - Compliant per EU Directive 2002/95/EC (RoHS) <b>NOTE:</b> If compliance to environmental legislation is not required, this step will not be used. Example: WDD26F2C5AT7SU
<b>STEP 3 - CONNECTOR GENDER</b> P - Male with interfacial seal F - Female										<b>STEP 8 - SHELLS AND ACCESSORY OPTIONS</b> <b>U - Corrosion Protected Unibody Design</b> Steel shells and jackscrews zinc plated with chromate seal. Contacts gold flash over nickel plate. <b>SU - Corrosion Resistant Unibody Design</b> Stainless steel shells and jackscrews Contacts 0.000030 inch [0.76 μ] gold plated over nickel.
*2 <b>STEP 4 - CONTACT TERMINATION TYPE</b> 2 - Solder cup. 3 - Solder, straight printed board mount with 0.150 [3.81] tail length. 4 - Solder, right angle (90°) printed board mount, contact extension 0.219 [5.56].										<b>*1 STEP 7 - FEMALE FIXED JACKSCREWS</b> T7 - Always used when ordering C5, C7 and C8 (step 5).
*1 <b>STEP 5 - CUL-DE-SAC STYLE MOUNTING ACCESSORIES</b> C5 - Inside wall mounting for Code 2 and 3 (step 4) only. C7 - Inside wall mounting for Code 4 (step 4), right angle (90°) printed board mount only. Consists of an assembly of angle bracket, alignment bar and push-on fastener. C8 - Inside wall mounting for Code 3 (step 4) only. Includes push-on fastener. <b>NOTE:</b> For C9 outside wall mounting option, refer to Unique Features section, page 46.										<b>*1 STEP 6 - ENCLOSURE WALL MOUNT SEALING PLATE</b> A - Inside wall enclosure mounted connector.
<b>NOTE:</b> *1 For additional information listed in Steps 5, 6, and 7, see the Accessories section, page 42. *2 See pre-wired section, page 33, for free/cable connectors.										



WDD UNIBODY

*Do you need 2-D drawings or 3-D models?*  
See page 10 for more information





- ✓ Popular, economical option for applications requiring **sealed** connectors.
- ✓ Precision sealing process ensures environmental performance. *See page 6 for details.*
- ✓ **Fixed**, size 20 contacts
- ✓ Terminations include solder cup, straight and right angle (90°) printed board mount. *See pre-wired ordering information (page 33) for free/cable connectors.*
- ✓ Five connector variants with 9, 15, 25, 37, and 50 contacts. *See WD Unibody section (page 11) for variants supplied in Unibody design.*
- ✓ Corrosion protected and corrosion resistant options.
- ✓ A wide variety of options and accessories.



For RoHS options  
see page 23.

### Connectors Conforms to:

- IP 67 per IEC 60529
- IEC 60807-2, performance level 2
- UL File # E49351
- CSA File # LR 54219

### Telecommunication:

- UL File # E140980

## TECHNICAL CHARACTERISTICS

### ENVIRONMENTAL CHARACTERISTICS:

**WIN-D series connectors mounted on IEC 60529 or NEMA 250-1991 enclosures for electrical equipment.**

**WIN-D connector panel mount sealing plates**, when mounted on the walls of enclosures, maintain the dust and water ingress protection rating of IEC 60529 or NEMA 250 enclosure on which they are mounted. WIN-D connector enclosure assemblies provide dust and water ingress protection to IP67 which allows temporary immersion in water to a depth of 0.5 meters for 30 minutes without ingress of water or dust to the enclosure. Refer to Appendix A for details of IP67 ratings and NEMA enclosure types 6 and 4X, as well as other IEC and NEMA enclosures having less stringent environmental requirements.

**WIN-D series cable connector with cable support** WIN-D cable connectors meet all the requirement of IEC 60807-2 Performance Level 2, plus the ingress protection requirement of IP67 thereby maintaining the electrical integrity and the ingress protection level of the connection system.

### ENVIRONMENTAL TEST SPECIFICATIONS

#### Applicable IEC Moisture Tests

**IP65 IEC 60529 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 System 1 – 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.

**IP67 IEC 60529 Test 14.2.7** Temporary immersion, 0.5 meters for 30 minutes. **Requirements:** No water to have penetrated enclosure through connector.

*continued on next page. . . .*



Positronic Industries  
connectpositronic.com

# WD SERIES

## PROFESSIONAL QUALITY STANDARD DENSITY FIXED CONTACTS

Environmental  
D-Sub

### TECHNICAL CHARACTERISTICS

... continued from previous page.

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

IEC 60512-2, Test 3a: Insulation Resistance  
IEC 60512-2, Test 4a: Voltage proof

#### Requirements:

- System 1 –** Portable enclosure. 1 G ohm minimum insulation resistance after connector face and contacts are dried. Voltage proof 1,000 V rms.
- System 2 –** Enclosure mounted connector to cable connector. 1 G ohm minimum insulation resistance. 1,000 V rms. Voltage proof.
- System 3 –** Cable to cable connection systems. 1 G ohm minimum insulation resistance. 1,000 V rms. Voltage proof.

- It is recommended that connectors be tested in the specific application.
- Service life of connectors cannot be predicted for all applications.

#### MATERIALS AND FINISHES:

- Connector Insert:** Nylon resin, UL 94V-0 black color.
- Contacts:** Precision machined copper alloy.
- Contact Plating:**
  - Corrosion Protection:** Gold flash over nickel plate.
  - Corrosion Resistant:** Gold plate 0.000030 inch [0.76 μ] over nickel plate.
- Shells, Jackscrew Systems and Cul-de-sac Mounting Accessories:**
  - Corrosion Protection:** Steel, zinc plated with chromate seal.
  - Corrosion Resistant:** Stainless steel passivated.
- Push-on Fasteners:** Phosphor bronze with tin plate.
- Angle Brackets:** Brass, zinc plate with chromate seal.
- Hoods (Cable supports):** Composite.
- Interfacial Seal:** Thermoplastic Elastomer (TPE), Santoprene™ or equivalent.
- Panel Mount Sealing Plate Assembly:** Glass filled thermoplastic with elastomer O-ring.
- Protective Cover Over Connector Shell:** Conductive polyethylene or conductive polyester.

#### MECHANICAL CHARACTERISTICS:

- Size 20 Fixed Contacts:** Male contact – 0.040 inch [1.02 mm] mating diameter. Female contact - rugged open entry design.
- Contact Retention in Connector insert:** 6 lbs. [27N]
- Resistance to Solder Iron Heat:** 500°F (260°C) for 10 seconds duration per IEC 60512-6.
- Contact Terminations:** 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] termination diameter. Right angle (90°) printed board mount – 0.028 inch [0.71 mm] termination diameter for all printed board contact footprints. Trapezoidally shaped shells. Cul-de-sac blind hole fasteners, angle brackets and push-on fasteners.
- Coding (keying):** Minimum thickness 0.040 inch [1.0 mm].
- Enclosure Mounting Accessories:** Maximum thickness 0.080 inch [2.0 mm].
- Inside Wall Enclosure Mount:** Jackscrews.
- Locking Systems:** 250 operations minimum per IEC 60512-5 IP67 immersion rated.
- Mechanical Operations:** 500 operations minimum per IEC 60512-5 IP65 spray nozzle rated.
- Required Sealing Plate Mounting Torque:** 1.75 in-lb. [0.20 Nm] minimum. 2.25 in-lb. [0.25 Nm] maximum.
- ELECTRICAL CHARACTERISTICS:**
  - Contact Current Rating:** 7.5 amperes nominal.
  - Initial Contact Resistance:** 0.008 ohms maximum.
  - Insulator Resistance:** 5 G ohms.
  - Clearance and Creepage Distance Minimum:** 0.039 inch [1.0mm].
  - Proof Voltage:** 1000 V r.m.s.
  - Working Voltage:** 300 V r.m.s.

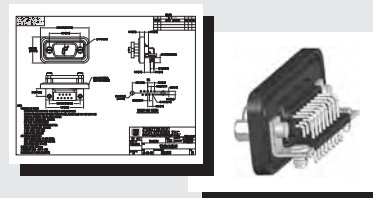
#### CLIMATIC CHARACTERISTICS:

- Temperature Range:** -25°C to +85°C

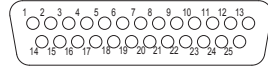
Visit our web site for the latest catalog updates and supplements at <http://www.connectpositronic.com/products/61/EnvironmentallySealed/catalogs/>

## Do you need 2-D drawings or 3-D models?

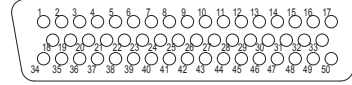
Once you have made a connector selection, contact Technical Sales if you would like a 2-D drawing or 3-D model. If we do not have your specific part number on file, we can create one for you. Or, please visit [www.connectpositronic.com](http://www.connectpositronic.com) and use the search function.



**CONTACT VARIANTS \***  
FACE VIEW OF MALE



**WD 25 \***  
Currently available with male contacts

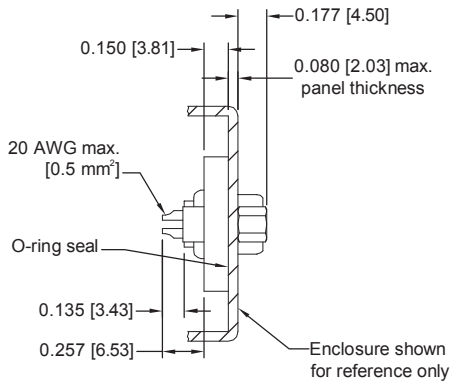


**WD 50 \***  
Currently available with male contacts

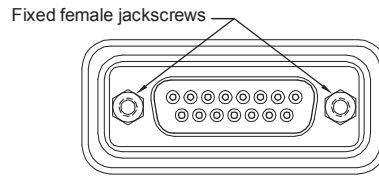
\* Contact variants for size 9, 15, 37, 25 (female) and 50 (female) are available in the **IMPROVED Unibody Design**. See page 11 for details.  
For sealing plate dimensions see page 7.

**SOLDER CUP TERMINATION**  
WITH ENCLOSURE WALL MOUNT SEALING PLATE

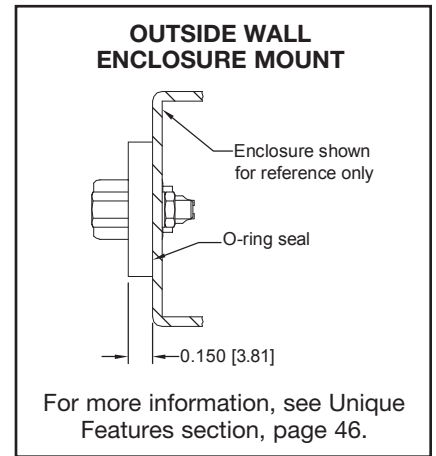
**CODE 2**



**INSIDE WALL ENCLOSURE MOUNT**

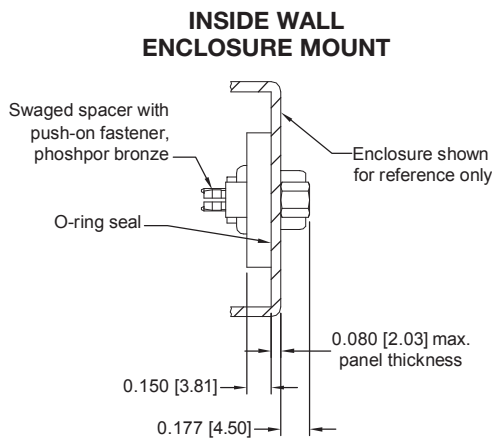


Typical part number:  
**WD9P2C5AT70**

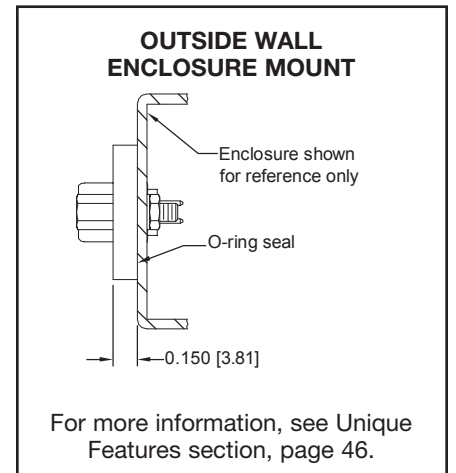
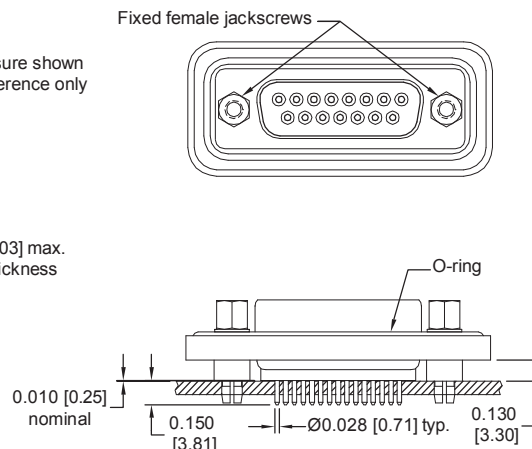


For more information, see Unique Features section, page 46.

**STRAIGHT SOLDER PRINTED BOARD MOUNT TERMINATION**  
WITH ENCLOSURE WALL MOUNT SEALING PLATE  
**CODE 3, 0.150 [3.81] CONTACT EXTENSION**



Typical part number:  
**WD15P3C8AT70**



For more information, see Unique Features section, page 46.



Positronic Industries  
connectpositronic.com

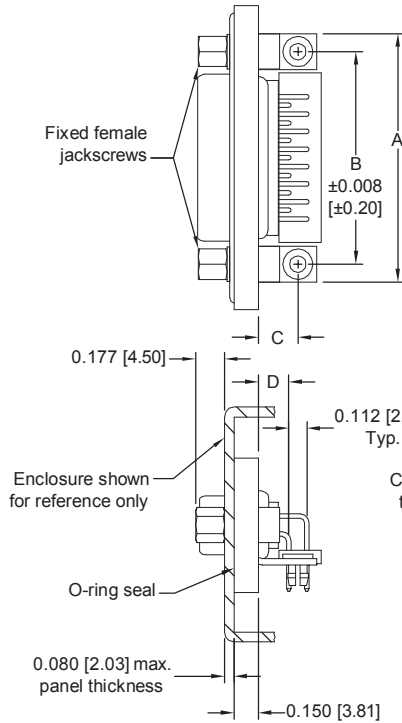
# WD SERIES

## PROFESSIONAL QUALITY STANDARD DENSITY FIXED CONTACTS

Environmental  
**D-Sub**

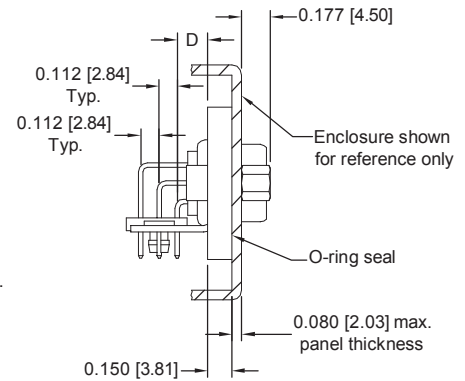
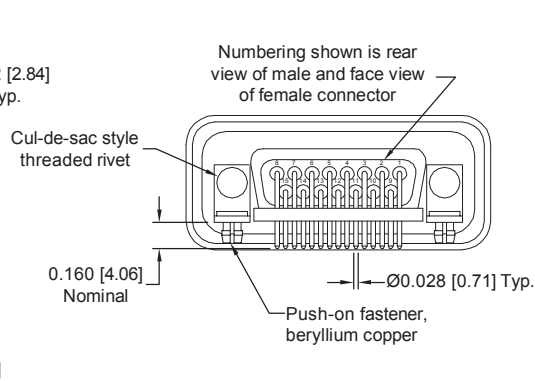
### RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION WITH ENCLOSURE MOUNT SEALING PLATE CODE 5, 0.188 [4.78] CONTACT EXTENSION

#### INSIDE WALL ENCLOSURE MOUNT



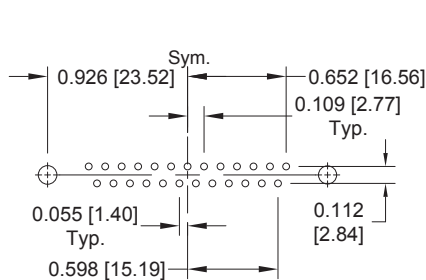
Typical part number:  
**WD25P5C7AT70**

WD**5*** 0.188 [4.78] CONTACT EXTENSION				
PART NUMBER	A	B	C	D
WD25P5***	2.072 [52.63]	1.852 [47.04]	0.244 [6.20]	0.188 [4.78]
WD50P5***	2.626 [66.70]	2.406 [61.11]	0.300 [7.62]	0.188 [4.78]

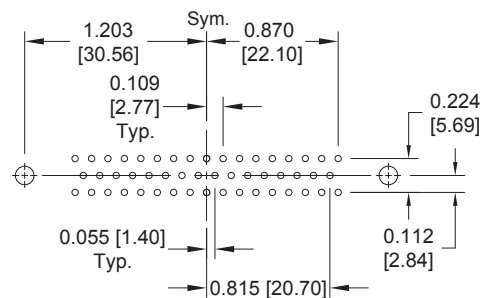


Typical part number:  
**WD50P5C7AT70**

### RIGHT ANGLE (90°) AND STRAIGHT PRINTED BOARD CONTACT HOLE PATTERN MOUNT CONNECTOR WITH MATING FACE POSITIONED TO FOLLOW DIRECTION OF THE ARROW.



**WD 25**



**WD 50**

#### SUGGESTED PRINTED BOARD HOLE SIZES:

Suggest 0.123 ±0.003 [3.12] Ø holes for mounting connector with push-on fasteners.  
Suggest 0.045 [1.14] hole for contact termination positions.



## ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 8

† Contact variants for size 9, 15, 37, 25 (female) and 50 (female) have been **transitioned** to the preferred **Unibody** design. For WD Unibody Ordering Information, see page 13.

STEP	1	2	3	4	5	6	7	8	9	10
<b>EXAMPLE</b>	WD	25	P	2	C5	A	T7	S	/AA	
<b>STEP 1 - BASIC SERIES</b> WD Series										<b>STEP 10 - SPECIAL OPTIONS</b> <b>CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS</b>
<b>† STEP 2 - CONNECTOR VARIANTS</b>  † 25 - Male only. † 50 - Male only.										<b>STEP 9 - ENVIRONMENTAL COMPLIANCE OPTIONS</b>  /AA - Compliant per EU Directive 2002/95/EC (RoHS)  <b>NOTE:</b> If compliance to environmental legislation is not required, this step will not be used. Example: WD25P2C5AT7S
<b>STEP 3 - CONNECTOR GENDER</b>  P - Male with interfacial seal F - Female										<b>STEP 8 - SHELLS AND ACCESSORY OPTIONS</b>  0 - <b>Corrosion Protected</b> Steel shells and jackscrews zinc plated with chromate seal. Contacts gold flash over nickel plate.  S - <b>Corrosion Resistant</b> Stainless steel shells and jackscrews Contacts 0.000030 inch [0.76µ] gold plated over nickel.
<b>STEP 4 - CONTACT TERMINATION TYPE</b>  2 - Solder cup. 3 - Solder, straight printed board mount with 0.150 [3.81] tail length. 5 - Solder, right angle (90°) printed board mount, contact extension 0.188 [4.78].										<b>STEP 7 - FEMALE FIXED JACKSCREWS</b> T7 - Always used when ordering C5, C7 and C8 (step 5).
<b>STEP 5 - CUL-DE-SAC STYLE MOUNTING ACCESSORIES</b>  C5 - Inside wall mounting for Code 2 and 3 (step 4) only. <i>Available for sizes: 25 male, and 50 male.</i> C7 - Inside wall mounting for Code 5 (step 4), right angle (90°) printed board mount only. Consists of an assembly of angle bracket, alignment bar and push-on fastener. <i>Available for sizes: 25 male, and 50 male.</i> C8 - Inside wall mounting for Code 3 (step 4) only. Includes push-on fastener. <i>Available for sizes: 25 male, and 50 male.</i>										<b>STEP 6 - ENCLOSURE WALL MOUNT SEALING PLATE</b> A - Inside wall enclosure mounted connector.
<b>NOTE:</b> For C9 outside wall mounting option, refer to Unique Features section, page 46.										



*Do you need 2-D drawings or 3-D models?*  
See page 10 for more information



Positronic Industries  
connectpositronic.com

# WDD SERIES

## PROFESSIONAL QUALITY HIGH DENSITY FIXED CONTACTS

Environmental  
D-Sub



- ✓ Popular, economical, high density option for applications requiring **sealed** connectors.
- ✓ Precision sealing process ensures environmental performance.  
*See page 6 for details.*
- ✓ **Fixed**, size 22 contacts
- ✓ Terminations include solder cup, straight and right angle (90°) printed board mount.  
*See pre-wired ordering information (page 33) for free/cable connectors.*
- ✓ Five connector variants with 15, 26, 44, 62, and 78 contacts.  
*See WDD Unibody section (page 16) for variants supplied in Unibody design.*
- ✓ Corrosion protected and corrosion resistant options.
- ✓ A wide variety of options and accessories.



**For RoHS options  
see page 28.**

### Connectors Conforms to:

- IP 67 per IEC 60529
- UL File # E49351
- CSA File # LR 54219

### Telecommunication:

- UL File # E140980

## TECHNICAL CHARACTERISTICS

### ENVIRONMENTAL CHARACTERISTICS:

**WIN-DD series connectors mounted on IEC 60529 or NEMA 250 enclosures for electrical equipment.**

**WIN-DD connector panel mount sealing plates**, when mounted on the walls of enclosures, maintain the dust and water ingress protection rating of IEC 60529 or NEMA 250 enclosures on which they are mounted. WIN-DD connector-enclosure assemblies provide dust and water ingress protection to IP67 which allows temporary immersion in water to a depth of 0.5 meters for 30 minutes without ingress of water or dust to the enclosure. Refer to Appendix A for details of IP67 ratings and NEMA enclosure types 6 and 4X, as well as other enclosures having less stringent environmental requirements.

**WIN-DD series cable connectors with cable support** WIN-DD cable connectors meet the requirements of IEC 60807-2 Performance Level 2, where applicable, plus the ingress protection requirements of IP67 thereby maintaining the electrical integrity and the ingress protection level of the connection system.

### ENVIRONMENTAL TEST SPECIFICATIONS

#### Applicable IEC Moisture Tests

**IP65 IEC 60529 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 System 1 – 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.

**IP67 IEC 60529 Test 14.2.7:** Temporary immersion, 0.5 meters for 30 minutes. **Requirements:** No water to have penetrated enclosure through connector.

*continued on next page. . . .*

## TECHNICAL CHARACTERISTICS, continued

continued from previous page. . . .

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

**IEC 60512-2, Test 3a:** Insulation Resistance

**IEC 60512-2, Test 4a:** Voltage proof

#### Requirements:

- System 1** – Portable enclosure. 1 G ohm minimum insulation resistance after connector face and contacts are dried. Voltage proof 1,000 V rms.
- System 2** – Enclosure mounted connector to cable connector. 1 G ohm minimum insulation resistance. 1,000 V rms. Voltage proof.
- System 3** – Cable to cable connection systems. 1 G ohm minimum insulation resistance. 1,000 V rms. Voltage proof.
- It is recommended that connectors be tested in the specific application.
- Service life of connectors cannot be predicted for all applications.

### MATERIALS AND FINISHES:

**Connector insert:** Glass filled polyester per ASTM D5927 , UL 94V-0, black color.

**Contacts:** Precision machined copper alloy.

#### Contact Plating:

**Corrosion Protection:** Gold flash over nickel plate.

**Corrosion Resistant:** Gold plate 0.000030 inch [0.76 μ] over nickel plate.

#### Shells, Jackscrew Systems and

##### Cul-de-sac Mounting Accessories:

**Corrosion Protection:** Steel, zinc plated with chromate seal.

**Corrosion Resistant:** Stainless steel passivated.

**Push-on Fasteners:** Phosphor bronze with tin plate.

**Angle Brackets:** Brass, zinc plate with chromate seal.

**Hoods (Cable supports):** Composite.

**Interfacial Seal:** Thermoplastic Elastomer (TPE), Santoprene™ or equivalent.

#### Panel Mount Sealing

**Plate Assembly:** Glass filled thermoplastic with elastomer O-ring.

#### Protective Cover Over

**Connector Shell:** Conductive polyethylene or conductive polyester.

### MECHANICAL CHARACTERISTICS:

**Size 22 Fixed Contacts:** Male contact – 0.030 inch [0.75 mm] mating diameter. Female contacts - rugged “Robi-D” open entry design. Closed entry design available, contact technical sales.

**Contact Retention in Insulator:** 9 lbs. [40N]

**Resistance to Solder Iron Heat:** 500°F [260°C] for 10 seconds duration per IEC 60512-6.

**Contact Terminations:** 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] termination diameter.

Right angle (90°) printed board mount - 0.030 inch [0.76 mm] termination diameter.

Trapezoidally shaped shells.

#### Coding (keying):

##### Enclosure Mounting

##### Accessories:

###### Inside Wall

###### Enclosure Mount:

##### Locking Systems:

##### Mechanical Operations:

Cul-de-sac blind hole fasteners, angle brackets and push-on fasteners.

Minimum thickness 0.040 inch [1.0 mm]. Maximum thickness 0.080 inch [2.0 mm].

Jackscrews.

250 operations minimum per IEC 60512-5 IP67 immersion rated.

500 operations minimum per IEC 60512-5 IP65 spray nozzle rated.

1.75 in-lb. [0.20 Nm] minimum.

2.25 in-lb. [0.25 Nm] maximum.

#### Required Sealing

#### Plate Mounting Torque:

### ELECTRICAL CHARACTERISTICS:

**Contact Current Rating:** 5 amperes nominal.

**Initial Contact Resistance:** 0.010 ohms maximum.

**Insulator Resistance:** 5 G ohms.

#### Clearance and Creepage

**Distance (minimum):** 0.042 inch [1.06 mm].

**Proof Voltage:** 1000 V r.m.s.

**Working Voltage:** 300 V r.m.s.

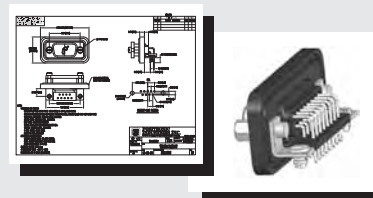
### CLIMATIC CHARACTERISTICS:

**Temperature Range:** -25°C to +85°C

Visit our web site for the latest catalog updates and supplements at <http://www.connectpositronic.com/products/61/EnvironmentallySealed/catalogs/>

## Do you need 2-D drawings or 3-D models?

Once you have made a connector selection, contact Technical Sales if you would like a 2-D drawing or 3-D model. If we do not have your specific part number on file, we can create one for you. Or, please visit [www.connectpositronic.com](http://www.connectpositronic.com) and use the search function.





Positronic Industries  
connectpositronic.com

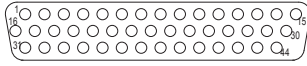
# WDD SERIES

## PROFESSIONAL QUALITY HIGH DENSITY FIXED CONTACTS

Environmental  
D-Sub

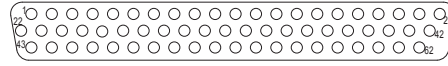
### CONTACT VARIANTS\*

FACE VIEW OF MALE OR REAR VIEW OF FEMALE



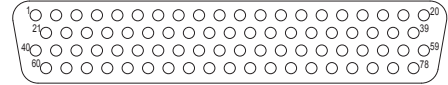
**WDD 44**

Currently available with male contacts.  
For female contact variants,  
see page 16.



**WDD 62**

Currently available with male and female contacts.



**WDD 78**

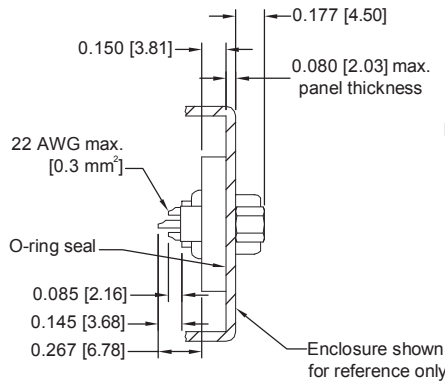
Currently available with male and female contacts.

\* Contact variants for size 15, 26 and 44 (female) are available in the **IMPROVED Unibody design**. See page 16 for details.  
For sealing plate dimensions see page 7.

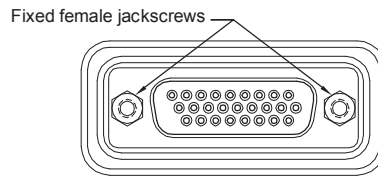
### SOLDER CUP TERMINATION

WITH ENCLOSURE WALL MOUNT SEALING PLATE

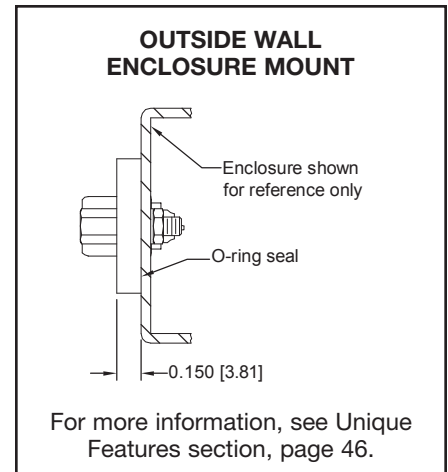
CODE 2



**INSIDE WALL  
ENCLOSURE MOUNT**



**Typical part number:  
WDD62F2C5AT70**

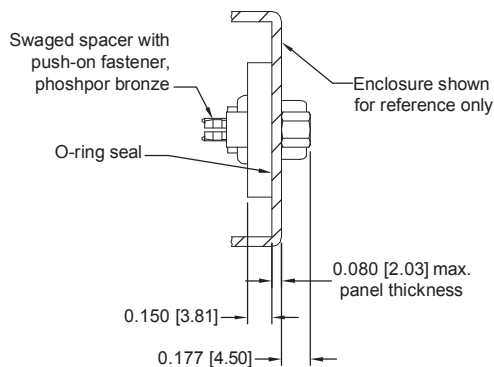


### STRAIGHT SOLDER PRINTED BOARD MOUNT TERMINATION

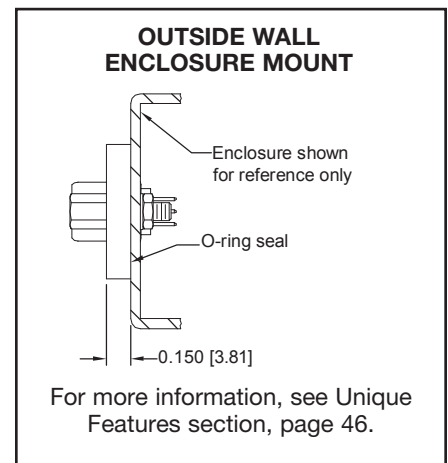
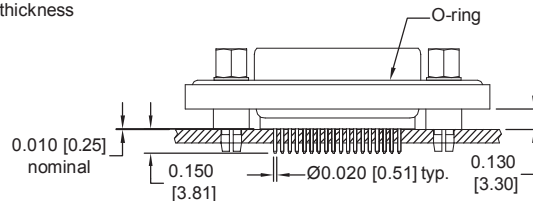
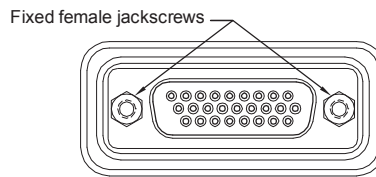
WITH ENCLOSURE WALL MOUNT SEALING PLATE

CODE 3, 0.150 [3.81] CONTACT EXTENSION

**INSIDE WALL  
ENCLOSURE MOUNT**

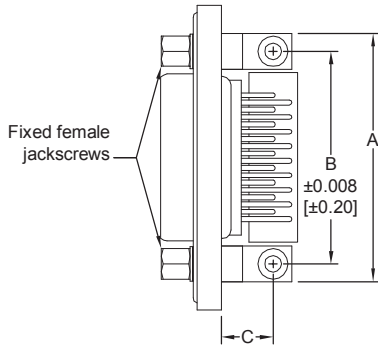


**Typical part number:  
WDD62F3C8AT70**

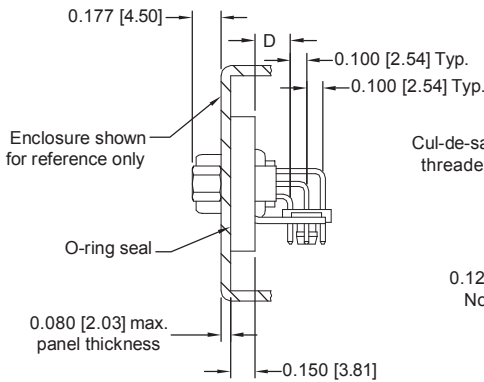




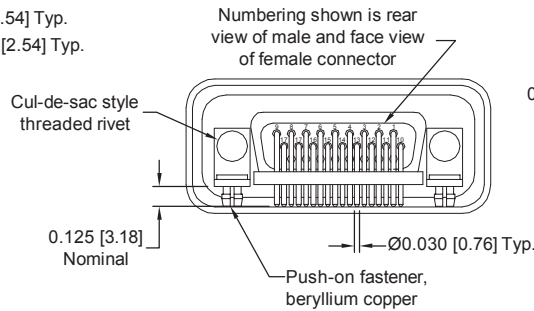
**RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION**  
WITH ENCLOSURE MOUNT SEALING PLATE  
**CODE 4, 0.219 [5.56] CONTACT EXTENSION**



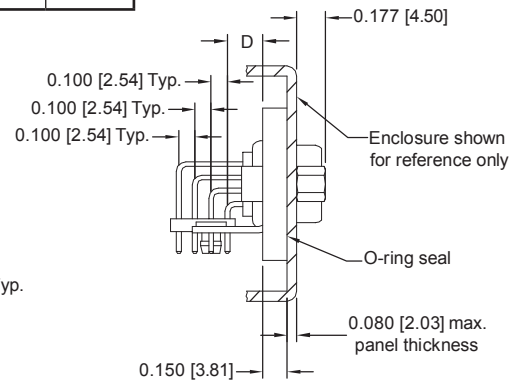
WDD**4**** 0.219 [5.56] CONTACT EXTENSION				
PART NUMBER	A	B	C	D
WDD44M4****	2.072 [52.63]	1.852 [47.04]	0.319 [8.10]	0.219 [5.56]
WDD62*4****	2.720 [69.09]	2.500 [63.50]	0.319 [8.10]	0.219 [5.56]
WDD78*4****	2.626 [66.70]	2.406 [61.11]	0.319 [8.10]	0.219 [5.56]



**INSIDE WALL ENCLOSURE MOUNT**



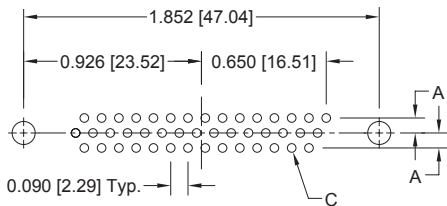
Typical part number:  
**WDD62P4C7AT70**



Typical part number:  
**WDD78P4C7AT70**

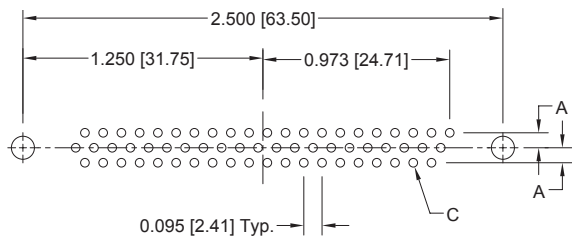
**RIGHT ANGLE (90°) AND STRAIGHT PRINTED BOARD CONTACT HOLE PATTERN**  
MOUNT CONNECTOR WITH MATING FACE POSITIONED TO FOLLOW DIRECTION OF ARROWS.

**WDD44 MALE**

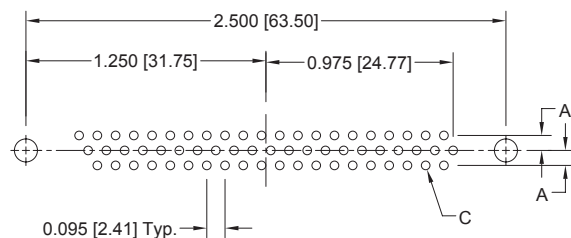


CODE NUMBER	A	B	C	D
3	0.078 [1.98]	0.082 [2.08]	0.035 [0.89]	0.123 [3.12]
4	0.100 [2.54]	0.100 [2.54]	0.045 [1.14]	0.100 [2.54]

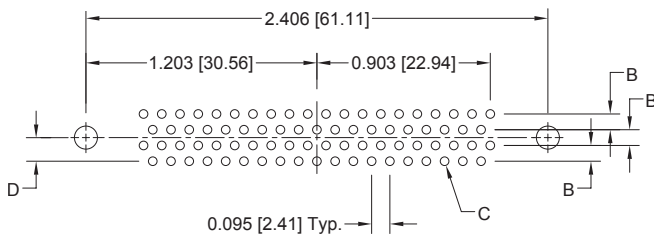
**WDD62 MALE**



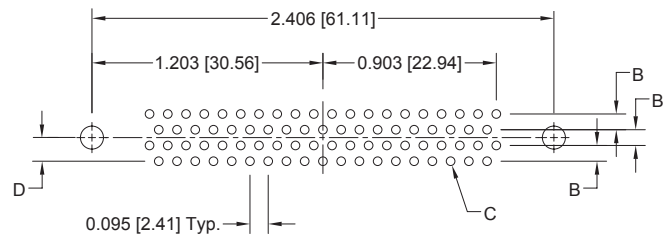
**WDD62 FEMALE**



**WDD78 MALE**



**WDD78 FEMALE**



**SUGGESTED PRINTED BOARD HOLE SIZES:**

Suggest 0.123 ±0.003 [3.12] Ø holes for mounting connector with push-on fasteners

**DIMENSIONS ARE IN INCHES [MILLIMETERS]. ALL DIMENSIONS ARE SUBJECT TO CHANGE.**



Positronic Industries  
connectpositronic.com

# WDD SERIES


## PROFESSIONAL QUALITY HIGH DENSITY FIXED CONTACTS

Environmental  
**D-Sub**

## ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 8

† Contact variants for size 15, 26 and 44 (female) have been **transitioned** to the preferred **Unibody** design. For WDD Unibody Ordering Information, see page 18

STEP	1	2	3	4	5	6	7	8	9	10
<b>EXAMPLE</b>	WDD	62	F	2	C5	A	T7	S	/AA	
<b>STEP 1 - BASIC SERIES</b> WDD series										<b>STEP 10 - SPECIAL OPTIONS</b> <b>CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS</b>
<b>† STEP 2 - CONNECTOR VARIANTS</b> † 44 - Male only. 62 - Male and Female 78 - Male and Female										<b>STEP 9 - ENVIRONMENTAL COMPLIANCE OPTIONS</b> /AA - Compliant per EU Directive 2002/95/EC (RoHS)  <b>NOTE:</b> If compliance to environmental legislation is not required, this step will not be used. Example: WDD62F2C5AT7S
<b>STEP 3 - CONNECTOR GENDER</b> P - Male with interfacial seal F - Female										<b>STEP 8 - SHELLS AND ACCESSORY OPTIONS</b> <b>0 - Corrosion Protected</b> Steel shells and jackscrews zinc plated with chromate seal. Contacts gold flash over nickel plate. <b>S - Corrosion Resistant</b> Stainless steel shells and jackscrews Contacts 0.000030 inch [0.76 μ] gold plated over nickel.
<b>STEP 4 - CONTACT TERMINATION TYPE</b> 2 - Solder cup 3 - Solder, straight printed board mount with 0.150 [3.81] tail length. 4 - Solder, right angle (90°) printed board mount, contact extension 0.219 [5.56].										<b>STEP 7 - FEMALE FIXED JACKSCREWS</b> T7 - Always used when ordering C5, C7 and C8 (step 5).
<b>STEP 5 - CUL-DE-SAC STYLE MOUNTING ACCESSORIES</b> C5 - Inside wall mounting for Code 2 and 3 (step 4) only. Available for sizes: 62 and 78. C7 - Inside wall mounting for Code 4 (step 4), right angle (90°) printed board mount only. Consists of an assembly of angle bracket, alignment bar and push-on fastener. Available for sizes: 62 and 78. C8 - Inside wall mounting for Code 3 (step 4) only. Includes push-on fastener. Available for sizes: 62 and 78. <b>NOTE:</b> For C9 outside wall mounting option, refer to Unique Features section, page 46.										<b>STEP 6 - ENCLOSURE WALL MOUNT SEALING PLATE</b> A - Inside wall enclosure mounted connector.

*Do you need 2-D drawings or 3-D models?*  
See page 10 for more information



- ✓ Popular, economical option for applications requiring **sealed** connectors.
- ✓ Precision sealing process ensures environmental performance.  
*See page 6 for details.*
- ✓ **Pre-wired**, size 20 and size 22 contacts
- ✓ Ten connector variants include 9, 15, 25, 37, and 50 (*standard density*); 15, 26, 44, 62, and 78 (*high density*) contacts.
- ✓ Corrosion protected and corrosion resistant options.



**For RoHS options see page 33.**

### Connectors Conforms to:

- IP 67 per IEC 60529
- IEC 60807-2, performance level 2
- UL File # E49351
- CSA File #LR 54219

### Telecommunication:

- UL File # E140980

## TECHNICAL CHARACTERISTICS

### ENVIRONMENTAL CHARACTERISTICS:

**WIN-D and WIN-DD series connectors mounted on IEC 60529 or NEMA 250 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 60529 or NEMA 250 enclosures on which they are mounted. WIN-DD connector-enclosure assemblies provide dust and water ingress protection to IP67 which allows temporary immersion in water to a depth of 0.5 meters for 30 minutes without ingress of water or dust to the enclosure. Refer to Appendix A for details of IP67 ratings and NEMA enclosure types 6 and 4X, as well as other enclosures having less stringent environmental requirements.

**WIN-D and WIN-DD series cable connectors with cable support**  
WIN-D and WIN-DD cable connectors meet the requirements of IEC 60807-2 Performance Level 2, where applicable, plus the ingress protection requirements of IP67 thereby maintaining the electrical integrity and the ingress protection level of the connection system.

### ENVIRONMENTAL TEST SPECIFICATIONS

#### Applicable IEC Moisture Tests

**IP65 IEC 60529 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 System 1 – 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.

**IP67 IEC 60529 Test 14.2.7:** Temporary immersion, 0.5 meters for 30 minutes. **Requirements:** No water to have penetrated enclosure through connector.

*continued on next page. . . .*



Positronic Industries  
connectpositronic.com



## PRE-WIRED WD / WDD SERIES

PROFESSIONAL QUALITY  
SEALED FREE CABLE CONNECTOR  
STANDARD OR HIGH DENSITY

Environmental  
D-Sub

# TECHNICAL CHARACTERISTICS, continued

continued from previous page. . . .

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

**IEC 60512-2, Test 3a:** Insulation Resistance  
**IEC 60512-2, Test 4a:** Voltage proof

#### Requirements:

- System 1** – Portable enclosure. 1 G ohm minimum insulation resistance after connector face and contacts are dried. Voltage proof 1,000 V rms.
- System 2** – Enclosure mounted connector to cable connector. 1 G ohm minimum insulation resistance. 1,000 V rms. Voltage proof.
- System 3** – Cable to cable connection systems. 1 G ohm minimum insulation resistance. 1,000 V rms. Voltage proof.

- It is recommended that connectors be tested in the specific application.
- Service life of connectors cannot be predicted for all applications.

### MATERIALS AND FINISHES:

**Connector Insert:** **WD:** Nylon resin, UL 94V-0, black color.  
**WDD:** Glass filled polyester per ASTM D5927 UL 94V-0, black color.  
**Contacts:** Precision machined copper alloy.

#### Contact Plating:

**Corrosion Protection:** Gold flash over nickel plate.  
**Corrosion Resistant:** Gold plate 0.000030 inch [0.76 μ] over nickel plate.

#### Shells, Jackscrew Systems and

#### Cul-de-sac Mounting Accessories:

**Corrosion Protection :** Steel, zinc plated with chromate seal.  
**Corrosion Resistant:** Stainless steel passivated.

#### Push-on Fasteners:

Phosphor bronze with tin plate.

#### Angle Brackets:

Brass, zinc plate with chromate seal.

#### Hoods (Cable supports):

Composite.

#### Interfacial Seal:

Thermoplastic Elastomer (TPE), Santoprene™ or equivalent.

#### Panel Mount Sealing

**Plate Assembly:** Glass filled thermoplastic with elastomer O-ring.

#### Protective Cover Over

**Connector Shell:** Conductive polyethylene or conductive polyester.

### MECHANICAL CHARACTERISTICS:

#### Fixed Contacts:

**WD Size 20:** Male contact – 0.040 inch [1.02 mm] mating diameter. Female contacts - rugged open entry design.

**WDD Size 22:** Male contact – 0.030 inch [0.75 mm] mating diameter. Female contacts - rugged "Robi-D" open entry design.

*Closed entry design available, contact technical sales.*

#### Contact Retention in

**Connector Insert:** 6 lbs. [27N]

#### Resistance to Solder

**Iron Heat:** 500°F [260°C] for 10 seconds duration per IEC 60512-6.

#### Contact Terminations:

Solder cup contacts - soldered to wire with 20 in [50 cm] flying leads.

#### Coding (keying):

Trapezoidally shaped shells.

#### Enclosure Mounting

**Accessories:** Cul-de-sac blind hole fasteners, angle brackets and push-on fasteners.

#### Inside Wall

Minimum thickness 0.040 inch [1.0 mm].

#### Enclosure Mount:

Maximum thickness 0.080 inch [2.0 mm].

#### Locking Systems:

Jackscrews.

#### Mechanical Operations:

250 operations minimum per IEC 60512-5 IP67 immersion rated.

500 operations minimum per IEC 60512-5 IP65 spray nozzle rated.

#### Required Sealing

1.75 in-lb. [0.20 Nm] minimum.

#### Plate Mounting Torque:

2.25 in-lb. [0.25 Nm] maximum.

### ELECTRICAL CHARACTERISTICS:

#### Contact Current Rating:

**WD:** 7.5 amperes nominal.

**WDD:** 5 amperes nominal.

#### Initial Contact

**WD:** 0.008 ohms maximum.

**WDD:** 0.010 ohms maximum.

#### Insulator Resistance:

5 G ohms.

#### Clearance and Creepage

**WD:** 0.039 inch [1 mm].

#### Distance (minimum):

**WDD:** 0.042 inch [1.06 mm].

#### Proof Voltage:

1000 V r.m.s.

#### Working Voltage:

300 V r.m.s.

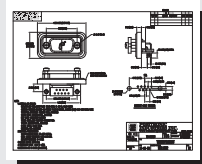
### CLIMATIC CHARACTERISTICS:

**Temperature Range:** -25°C to +85°C

Visit our web site for the latest catalog updates and supplements at  
<http://www.connectpositronic.com/products/61/EnvironmentallySealed/catalogs/>

## Do you need 2-D drawings or 3-D models?

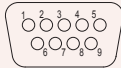
Once you have made a connector selection, contact Technical Sales if you would like a 2-D drawing or 3-D model. If we do not have your specific part number on file, we can create one for you. Or, please visit [www.connectpositronic.com](http://www.connectpositronic.com) and use the search function.



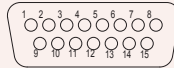


## STANDARD DENSITY CONTACT VARIANTS

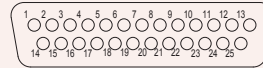
FACE VIEW OF MALE OR REAR VIEW OF FEMALE



WD 9



WD 15



WD 25



WD 37



WD 50

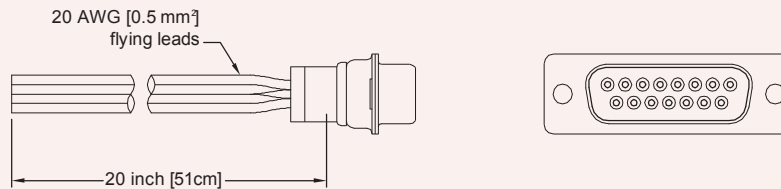
## SOLDER CUP TERMINATION

SOLDERED TO WIRE AND ENCAPSULATED IN EPOXY RESIN

20 INCH [50 CM] FLYING LEADS

FOR USE WITH WD SERIES

CODE 22



Note: Z hood not shown for clarity.

Typical part number:  
WD15F220Z0S

## SOLDER CUP TERMINATION

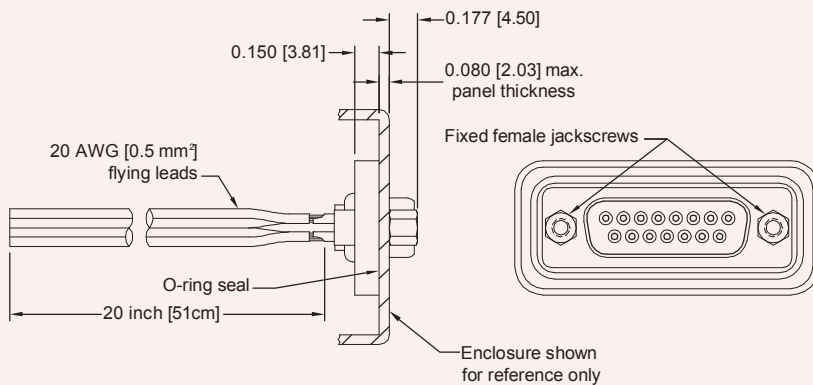
SOLDERED TO WIRE FOR USE WITH ENCLOSURE MOUNTED CONNECTORS

20 INCH [50 CM] FLYING LEADS

FOR USE WITH WD SERIES

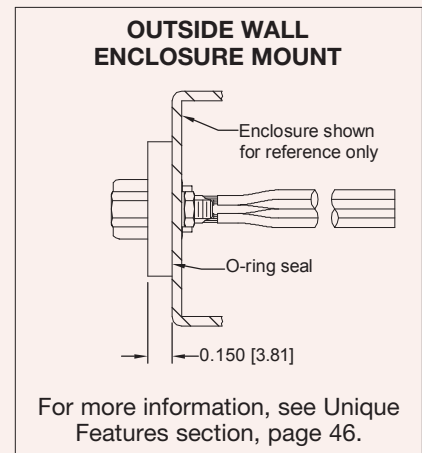
CODE 23

### INSIDE WALL ENCLOSURE MOUNT



Typical part number:  
WD15F23C5AT70

### OUTSIDE WALL ENCLOSURE MOUNT



For more information, see Unique Features section, page 46.



Positronic Industries  
connectpositronic.com

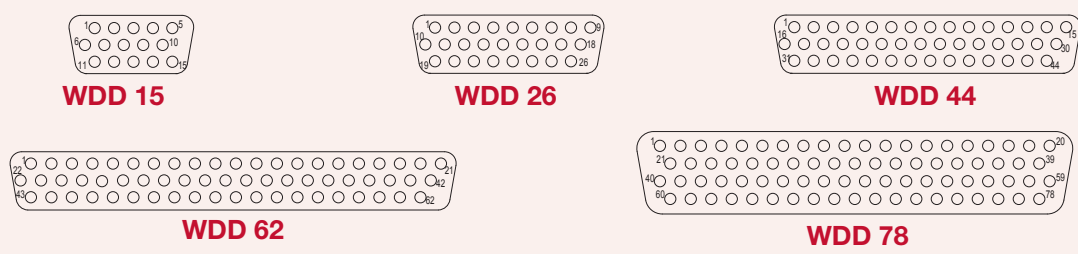


# PRE-WIRED WD / WDD SERIES

PROFESSIONAL QUALITY  
SEALED FREE CABLE CONNECTOR  
STANDARD OR HIGH DENSITY

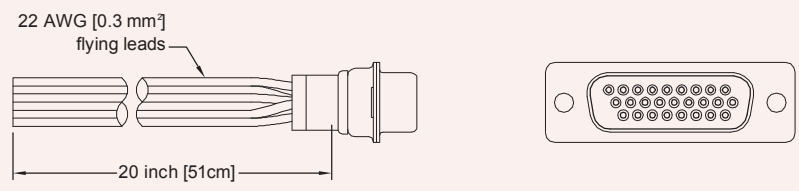
Environmental  
**D-Sub**

## HIGH DENSITY CONTACT VARIANTS FACE VIEW OF MALE OR REAR VIEW OF FEMALE



## SOLDER CUP TERMINATION

SOLDERED TO WIRE AND ENCAPSULATED IN EPOXY RESIN  
20 INCH [50 CM] FLYING LEADS  
FOR USE WITH WDD SERIES  
**CODE 22**

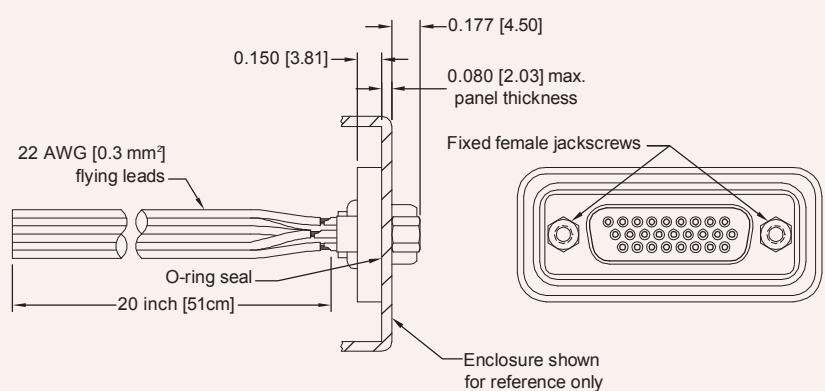


**Note:** Z hood not shown for clarity.      **Typical part number:**  
**WDD15F220Z0S**

## SOLDER CUP TERMINATION

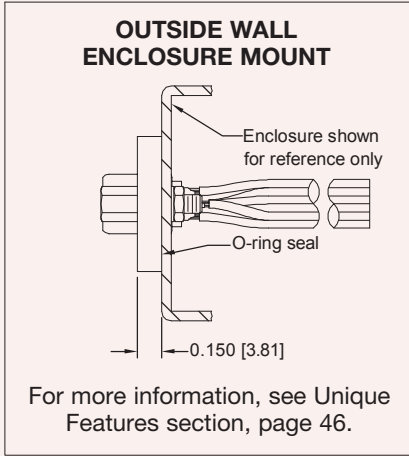
SOLDERED TO WIRE FOR USE WITH ENCLOSURE MOUNTED CONNECTORS  
20 INCH [50 CM] FLYING LEADS  
FOR USE WITH WDD SERIES  
**CODE 23**

### INSIDE WALL ENCLOSURE MOUNT



**Typical part number:**  
**WDD15F23C5AT70**

### OUTSIDE WALL ENCLOSURE MOUNT





**ORDERING INFORMATION - CODE NUMBERING SYSTEM**

*Specify Complete Connector By Selecting An Option From Step 1 Through 8*

STEP	1	2	3	4	5	6	7	8	9	10
EXAMPLE	WDD	9	F	22	0	Z	0	S	/AA	

**STEP 1 - BASIC SERIES**

WD Series - Size 20 contacts  
WDD Series - Size 22 contacts

**STEP 2 - CONNECTOR VARIANTS**

WD Series Connector Variants  
9, 15, 25, 37, and 50

WDD Series Connector Variants  
15, 26, 44, 62, and 78

**STEP 3 - CONNECTOR GENDER**

P - Male with interfacial seal  
F - Female

**STEP 4 - CONTACT TERMINATION TYPE**

- 22 - Solder cup, soldered to wire and encapsulated in epoxy resin with 20 inch [51 cm] flying leads. Other lengths available by special order (See page 34).
- 23 - Solder cup, soldered to wire with 20 inch [51 cm] flying leads. Not encapsulated. For use with enclosure mounted connectors.

**STEP 5 - CUL-DE-SAC STYLE MOUNTING ACCESSORIES**

- 0 - No mounting plate or accessories. Available only with Code 22 (step 4).
- C5 - Inside wall mounting.

**NOTE:** For C9 outside wall mounting option, refer to Unique Features section, page 46.

**STEP 10 - SPECIAL OPTIONS**  
See page 34 for additional options.



**STEP 9 - ENVIRONMENTAL COMPLIANCE OPTIONS**

/AA - Compliant per EU Directive 2002/95/EC (RoHS)

**NOTE:** If compliance to environmental legislation is not required, this step will not be used. Example: WDD9F220Z0S

**STEP 8 - SHELLS AND ACCESSORY OPTIONS**

- 0 - **Corrosion Protected**  
Steel shells and jackscrews zinc plated with chromate seal. Contacts gold flash over nickel plate.
- S - **Corrosion Resistant**  
Stainless steel shells and jackscrews  
Contacts 0.000030 inch [0.76µ] gold plated over nickel.

**STEP 7 - FEMALE FIXED JACKSCREWS**

- 0 - None. Use only with Code 0 (step 5).
- T7 - Always used when ordering C5 (step 5).

**STEP 6 - ENCLOSURE WALL MOUNT SEALING PLATE OR HOODS**

- 0 - None Use only with Code 0 (step 5).
- A - Inside wall enclosure mounted connector. Available with C5 (step 5) only.
- Z - Composite hood with rotating male jackscrews. Available with Code 22 (step 4) only.
- Z4 - Composite hood with fixed female jackscrews. Available with Code 22 (step 4) only.

*Do you need 2-D drawings or 3-D models?*

See page 10 for more information



Positronic Industries  
connectpositronic.com



# PRE-WIRED WD / WDD SERIES

PROFESSIONAL QUALITY  
SEALED FREE CABLE CONNECTOR  
STANDARD OR HIGH DENSITY

Environmental  
**D-Sub**

## SPECIAL OPTIONS PART NUMBER SUFFIX (STEP 10) FOR PRE-WIRED CABLE ASSEMBLIES ORDERING INFORMATION- CODE NUMBERING SYSTEM

Specify Special Options for Completed Connector By Selecting Options Below

STEP 10	PLATING	COLOR	GAUGE	LENGTH	TOLERANCE
EXAMPLE	14	C	24G	3.05	T20

### PLATING

Omit if standard plating is required.

- 14 - Contacts to be plated 0.000030 [0.76µ] gold over nickel.
- 15 - Contacts to be plated 0.000050 [1.27µ] gold over nickel.
- 50 - Contacts to be plated 0.000050 [1.27µ] gold over copper.

Contact technical sales for additional plating options.

### COLOR

Omit if standard (black) is required for all wires.

C - Colored wire option, consists of up to 10 different wire insulation colors pre-wired in the following configuration:

Contact Position Number *	Insulation Color	Contact Position Number *	Insulation Color
1	Brown	6	Blue
2	Red	7	Violet
3	Orange	8	Gray
4	Yellow	9	White
5	Green	0	Black

\* The contact position number indicated represents the last digit of the contact position number. (I.E.: position 37 will be Violet)

### TOLERANCE

Omit if standard tolerance (refer to Table 1 below) is required.  
TXX - XX = ± tolerance in mm.

### LENGTH

Omit if standard 20 in [0.51 mm] length is required.  
Insert length in meters (0.3048 x length in feet) to two decimal places. Use leading 0 if less than one.

### GAUGE

Omit if standard wire is required - Standard for WD series is 20 AWG.  
Standard for WDD series is 22 AWG.

- 22G - 22 AWG wire
- 24G - 24 AWG wire

TABLE 1. CABLE LENGTH TOLERANCE

Cable Length [meters]	≤1 m	>1 m, ≤8 m	>8 m, ≤16 m	> 16 m
Tolerance [millimeters]	±25	±50	±75	±100



WDD15F22Z0X-1422G3.05T20

### STANDARD WIRE CHARACTERISTICS

#### Materials:

**Wire:** Stranded tinned copper  
7/30-22 AWG and  
7/28-20 AWG

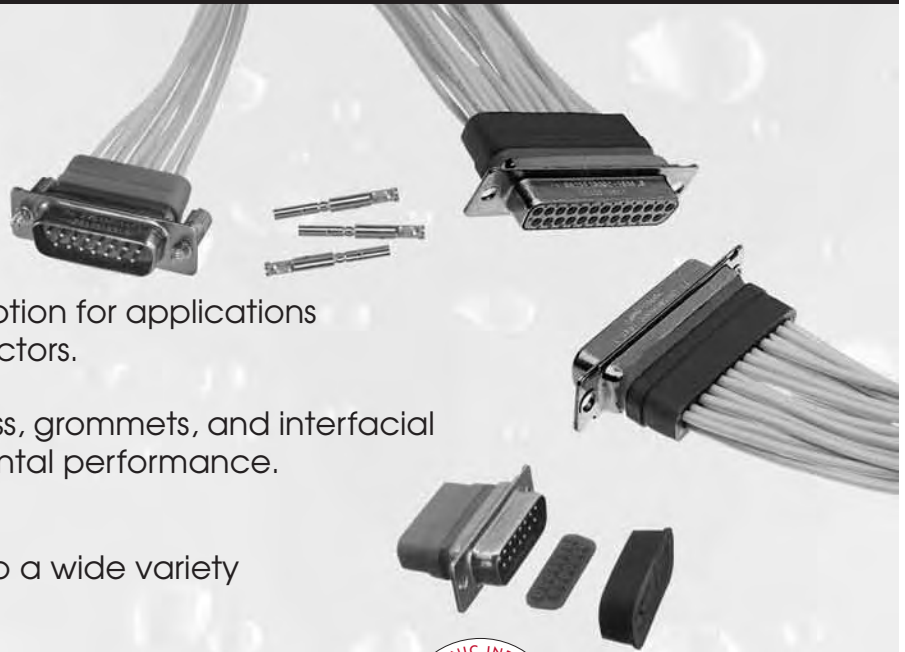
**Insulation:** PVC

**Specification:** per Mil-W-16878/1-PVC

**Temperature Rating:** -55° TO +105°C

**Voltage Rating:** 600 Volts





- ✓ Popular, economical option for applications requiring **sealed** connectors.
- ✓ Precision sealing process, grommets, and interfacial seals ensure environmental performance. *See page 38 for details.*
- ✓ Materials are resistant to a wide variety of harsh liquids.
- ✓ **Crimp removable**, size 20 contacts
- ✓ Five connector variants include 9, 15, 25, 37, and 50 contacts.
- ✓ Corrosion protected and corrosion resistant options.
- ✓ A wide variety of options and accessories.



**For RoHS options see page 41.**

**Connectors Conforms to:**

- IP 67 per IEC 60529
- Performance conforms to applicable requirements of MIL-DTL-24308 and SAE AS39029

**EVD SERIES**

**T E C H N I C A L C H A R A C T E R I S T I C S**

**ENVIRONMENTAL CHARACTERISTICS:**

EVD connectors, having crimp contacts, meet all of the applicable requirements of MIL-DTL-24308 in addition to the requirements shown below:

<p><b>Test</b> <b>IP67</b></p>	<p><b>Requirements</b> Temporary immersion, 0.5 meters for 30 minutes. Mated condition. No water to have penetrated enclosure through connector.</p>
<p><b>Humidity per</b> <b>EIA 364-31 method IV,</b> <b>Method 1002.2, Type II</b></p>	<p>1) No deterioration of performance. 2) Insulation resistance greater than 100 mega ohms. 3) Withstand a potential of 1000 VAC (rms) without evidence of flashover or breakdown.</p>
<p><b>Fluid Immersion</b> <b>per ANSI/EIA-364-10</b> <b>Test Conditions A and D</b></p>	<p>1) No detrimental damage. 2) Meet mating and unmating requirements of MIL-DTL-24308.</p>

**Immersion, 2 hours at a depth of 36 inch [914.4 mm] in mated condition per MIL-STD 810 Method 512.3. Procedure 1.**

While Immersed:  
1) Insulation resistance greater than 100 mega ohms.  
2) Withstand a potential of 1000 VAC (rms) without evidence of flashover or breakdown.

**MATERIALS AND FINISHES:**

<p><b>Connector Insert:</b></p>	<p>Glass-filled DAP per ASTM-D-5948 type SDG-F, UL 94V-0, green color.</p>
<p><b>Contacts:</b></p>	<p>Precision machined cooper alloy.</p>
<p><b>Contact Plating:</b></p>	<p><b>Military performance</b> - 0.000050 inch [1.27 μ] gold over nickle plate. <b>Industrial performance</b> - 0.000030 inch [0.76 μ] gold over nickel.</p>
<p><b>Shells:</b></p>	<p>Steel with zinc plate with chromate seal and stainless steel, passivated.</p>



Positronic Industries  
connectpositronic.com

# EVD SERIES

**MILITARY / INDUSTRIAL QUALITY**  
FOR MILITARY AND SEVERE INDUSTRIAL ENVIRONMENTAL APPLICATIONS  
**STANDARD DENSITY REMOVABLE CONTACTS**

Environmental  
**D-Sub**

## TECHNICAL CHARACTERISTICS, continued

continued from previous page. . . .

- Mounting Spacers:** Steel or brass, zinc plate with chromate seal.
- Jackscrew Systems:** Steel with zinc plate and chromate seal; and stainless steel, passivated.
- Hoods:** Composite.
- Grommet and Interfacial Seal:** Fluorosilicone Rubber per MIL-DTL-25988.
- Bonding Material:** Fluorosilicone based sealant/adhesive.
- Protective Cover Over Connector Shell:** Conductive polyethylene or conductive polyester.
- Sealing Plug:** Teflon.

### MECHANICAL CHARACTERISTICS:

- Size 20 Removable Contacts:** Install contact to rear face of connector insert and release from rear face of connector insert. Male - 0.040 inch [1.02 mm] diameter. Female - PosiBand closed entry design
- Contact Retention in Insulator:** 9 lbs. [40 N].
- Contact Terminations:** Closed barrel crimp, wire sizes 20 AWG [0.5 mm<sup>2</sup>] through 24 AWG [0.25 mm<sup>2</sup>]; Solder contacts - 0.042 inch [1.06 mm] minimum hole diameter for 20 AWG [0.5 mm<sup>2</sup>] through 24 AWG [0.25 mm<sup>2</sup>] wire size.
- Coding (keying):** Trapezoidally shaped shells.
- Locking Systems:** Jackscrews.
- Mechanical Operations:** 500 operations minimum per IEC 60512-5.

### ELECTRICAL CHARACTERISTICS:

- Dry Conditions, Basic Connector Body:
- Contact Current Rating, Tested per UL 1977:**
  - 18 amperes, 2 contacts energized.
  - 14 amperes, 6 contacts energized.
  - 11 amperes, 15 contacts energized.
  - 10 amperes, 25 contacts energized.
  - 9 amperes, 50 contacts energized.
- Visit [http://www.connectpositronic.com/products/61/EnvironmentallySealed/61/tech\\_specs/](http://www.connectpositronic.com/products/61/EnvironmentallySealed/61/tech_specs/) to view temperature rise curves.
- Initial Contact Resistance:** 0.004 ohms maximum.
- Proof Voltage:** 1,000 V r.m.s.
- Insulation Resistance:** 5 G ohms.
- Clearance and Creepage Distance (minimum):** 0.039 inch [1.0 mm].
- Working Voltage:** 300 V r.m.s.

### CLIMATIC CHARACTERISTICS:

- Temperature Range:** -55°C to +125°C.

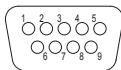
### THERMOCOUPLE CONTACTS:

Size 20 crimp contacts are available, see page 40 for details.

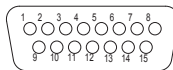
Visit our web site for the latest catalog updates and supplements at <http://www.connectpositronic.com/products/61/EnvironmentallySealed/catalogs/>

## CONTACT VARIANTS

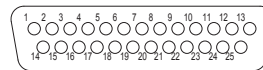
FACE VIEW OF MALE OR REAR VIEW OF FEMALE



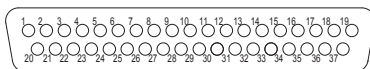
**EVD 9**



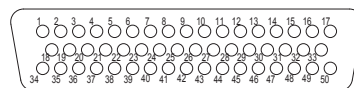
**EVD 15**



**EVD 25**



**EVD 37**



**EVD 50**

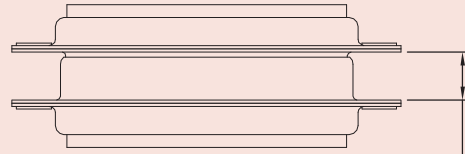
For information regarding **REMOVABLE CONTACTS**, see illustration/drawing and charts on pages 39 & 40.

## STANDARD SHELL ASSEMBLY

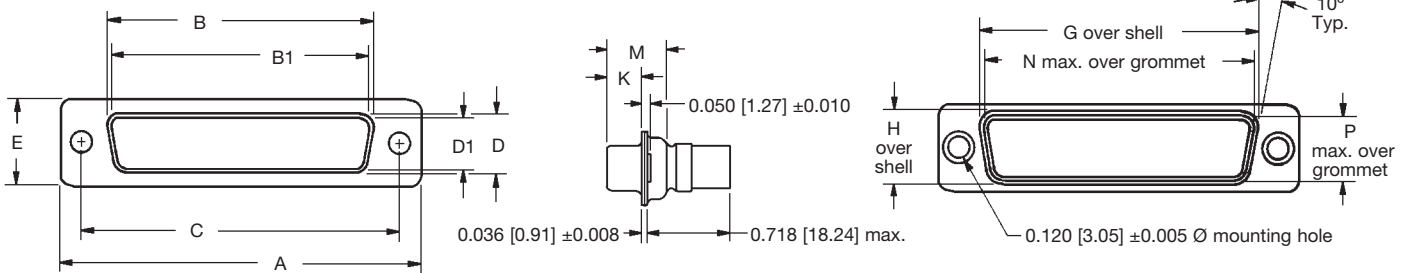


**EVD25P000E20** (upper left), **EVD15P00000** (middle) and **EVD15P1000** (upper right).

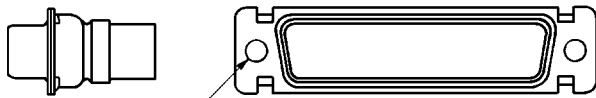
### RECOMMENDED MATING DIMENSIONS



Shell Sizes 1 & 2 =  
0.265±0.015 [6.73±0.38]  
Shell Sizes 3, 4, 5 & 6 =  
0.256±0.015 [6.50±0.38]

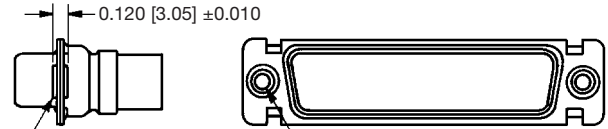


### OPTIONAL SHELL ASSEMBLY (O)



Ø0.120±0.005 [3.05±0.13]  
Mounting hole, two places for stainless steel shell (O option)

### OPTIONAL SHELL ASSEMBLY WITH UNIVERSAL FLOAT MOUNTS (F)



0.032 [0.81]  
Total diametral float

0.086 [2.18] +0.005-0.000  
Mounting hole, two places

CONNECTOR VARIANT SIZES	GENDER	A	B	B1	C	D	D1	E	G	H	K	M
		±0.015 [0.38]	±0.005 [0.13]	±0.005 [0.13]	±0.005 [0.13]	±0.005 [0.13]	±0.005 [0.13]	±0.005 [0.13]	±0.015 [0.38]	±0.010 [0.25]	±0.010 [0.25]	±0.005 [0.13]
EVD 9 (SHELL SIZE 1)	MALE	1.213 [30.81]		0.666 [16.92]	0.984 [24.99]		0.329 [8.36]	0.494 [12.55]	0.759 [19.28]	0.422 [10.72]	0.233 [5.92]	0.422 [10.72]
	FEMALE	1.213 [30.81]	0.643 [16.33]		0.984 [24.99]	0.311 [7.90]		0.494 [12.55]	0.759 [19.28]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
EVD 15 (SHELL SIZE 2)	MALE	1.541 [39.14]		0.994 [25.25]	1.312 [33.32]		0.329 [8.36]	0.494 [12.55]	1.083 [27.51]	0.422 [10.72]	0.233 [5.92]	0.422 [10.72]
	FEMALE	1.541 [39.14]	0.971 [24.66]		1.312 [33.32]	0.311 [7.90]		0.494 [12.55]	1.083 [27.51]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
EVD 25 (SHELL SIZE 3)	MALE	2.088 [53.04]		1.534 [38.96]	1.852 [47.04]		0.329 [8.36]	0.494 [12.55]	1.625 [41.28]	0.422 [10.72]	0.230 [5.84]	0.426 [10.82]
	FEMALE	2.088 [53.04]	1.511 [38.38]		1.852 [47.04]	0.311 [7.90]		0.494 [12.55]	1.625 [41.28]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
EVD 37 (SHELL SIZE 4)	MALE	2.729 [69.32]		2.182 [55.42]	2.500 [63.50]		0.329 [8.36]	0.494 [12.55]	2.272 [57.71]	0.422 [10.72]	0.230 [5.84]	0.426 [10.82]
	FEMALE	2.729 [69.32]	2.159 [54.84]		2.500 [63.50]	0.311 [7.90]		0.494 [12.55]	2.272 [57.71]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
EVD 50 (SHELL SIZE 5)	MALE	2.635 [66.93]		2.079 [52.81]	2.406 [61.11]		0.441 [11.20]	0.605 [15.37]	2.178 [55.32]	0.534 [13.56]	0.230 [5.84]	0.426 [10.82]
	FEMALE	2.635 [66.93]	2.064 [52.43]		2.406 [61.11]	0.423 [10.74]		0.605 [15.37]	2.178 [55.32]	0.534 [13.56]	0.243 [6.17]	0.429 [10.90]



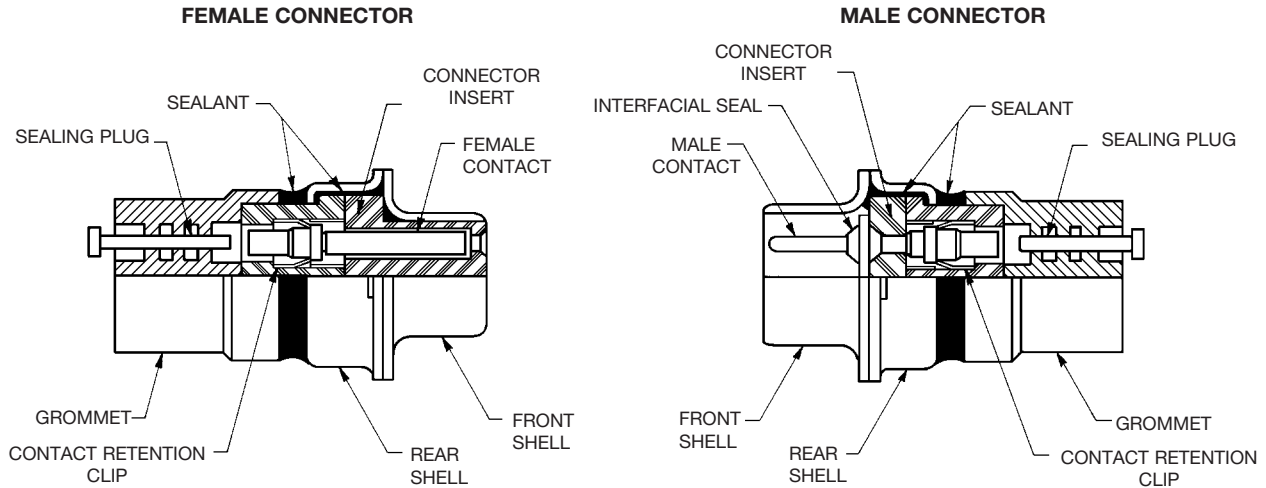
Positronic Industries  
connectpositronic.com

# EVD SERIES

MILITARY / INDUSTRIAL QUALITY  
FOR MILITARY AND SEVERE INDUSTRIAL ENVIRONMENTAL APPLICATIONS  
STANDARD DENSITY REMOVABLE CONTACTS

Environmental  
D-Sub

## EVD SERIES DESIGN ENVIRONMENTAL SEALING FEATURES



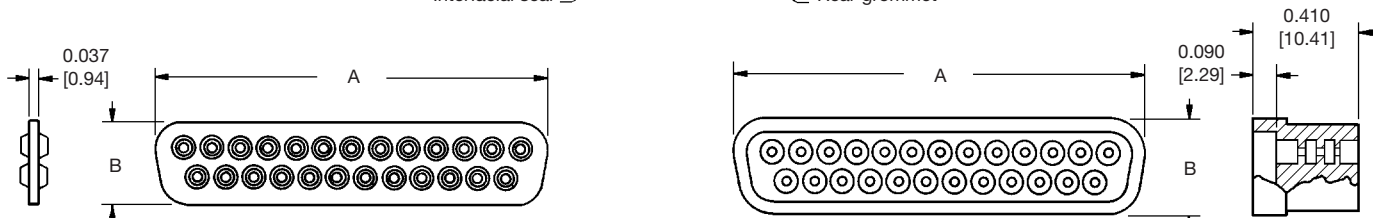
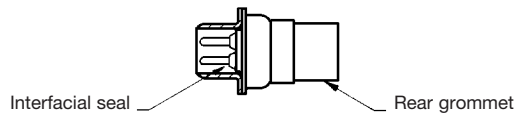
### SEALING PLUG

ORDER SEPARATELY, PART NUMBER 4737-37-0-0



## INTERFACIAL SEALS AND REAR GROMMETS

FOR USE WITH EVD SERIES



INTERFACIAL SEAL		
CONNECTOR VARIANT	A	B
9	0.650 [16.51]	0.318 [8.08]
15	0.978 [24.84]	0.318 [8.08]
25	1.513 [38.43]	0.318 [8.08]
37	2.156 [54.76]	0.318 [8.08]
50	2.058 [52.27]	0.425 [10.80]

REAR GROMMET		
CONNECTOR VARIANT	A	B
9	0.725 [18.42]	0.375 [9.53]
15	1.051 [26.70]	0.375 [9.53]
25	1.595 [40.51]	0.375 [9.53]
37	2.247 [57.07]	0.375 [9.53]
50	2.147 [54.53]	0.490 [12.45]



## MILITARY LEVEL REMOVABLE CRIMP CONTACT FOR USE WITH EVD SERIES CONNECTORS

### SIZE 20

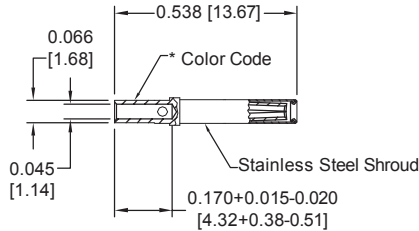
Note: Connectors can be kitted with all applicable crimp contacts, contact Technical Sales for connector part number.

**\*MILITARY SPECIFICATION CONTACTS**

**STANDARD FINISH:**  
0.000050 inch [1.27μ] gold over nickel

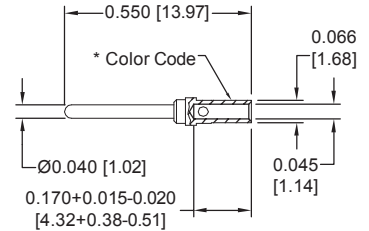
**COLOR CODE:**  
**MALE CONTACT:**  
ORANGE/BLUE/WHITE  
**FEMALE CONTACT:**  
ORANGE/BLUE/GRAY

#### FEMALE CONTACT "CLOSED ENTRY" DESIGN



FEMALE PART NUMBER	WIRE SIZE AWG/[mm <sup>2</sup> ]
<b>*M39029/63-368</b>	20 / 22 / 24 [0.5/0.3/0.25]

#### MALE CONTACT



MALE PART NUMBER	WIRE SIZE AWG/[mm <sup>2</sup> ]
<b>*M39029/64-369</b>	20 / 22 / 24 [0.5/0.3/0.25]



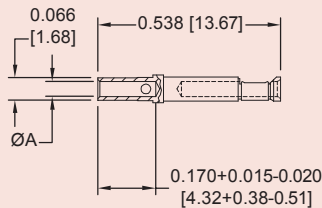
## INDUSTRIAL / MILITARY LEVEL REMOVABLE CRIMP CONTACT FOR USE WITH EVD SERIES CONNECTORS

### SIZE 20



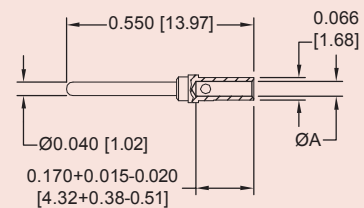
Note: Connectors can be kitted with all applicable crimp contacts, contact Technical Sales for connector part number.

#### FEMALE CONTACT "CLOSED ENTRY" DESIGN



FEMALE PART NUMBER	WIRE SIZE AWG/[mm <sup>2</sup> ]	ØA
<b>FC6020D2-14</b>	20 / 22 / 24 [0.5/0.3/0.25]	0.045 [1.14]

#### MALE CONTACT

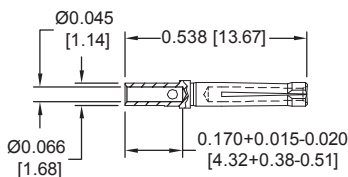


MALE PART NUMBER	WIRE SIZE AWG/[mm <sup>2</sup> ]	ØA
<b>MC6020D-14</b>	20 / 22 / 24 [0.5/0.3/0.25]	0.045 [1.14]

## PROFESSIONAL LEVEL REMOVABLE CRIMP CONTACT FOR USE WITH EVD SERIES CONNECTORS

### SIZE 20

#### FEMALE CONTACT "ROBI-D" OPEN ENTRY DESIGN



FEMALE PART NUMBER	WIRE SIZE AWG/[mm <sup>2</sup> ]
<b>FC6520D-14</b>	20 / 22 / 24 [0.5/0.3/0.25]

Note: Connectors can be kitted with all applicable crimp contacts, contact Technical Sales for connector part number.

For information regarding **CRIMP TOOL AND CRIMPING TOOL TECHNIQUES**, see page 47.

EVD SERIES



Positronic Industries  
connectpositronic.com

# EVD SERIES

MILITARY / INDUSTRIAL QUALITY  
FOR MILITARY AND SEVERE INDUSTRIAL ENVIRONMENTAL APPLICATIONS  
STANDARD DENSITY REMOVABLE CONTACTS

Environmental  
D-Sub

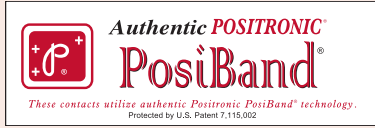


## REMOVABLE THERMOCOUPLE CRIMP CONTACT

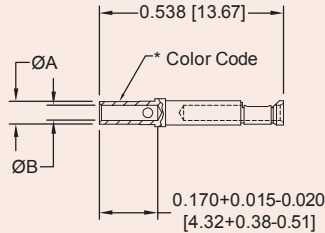
FOR USE WITH EVD SERIES CONNECTORS

SIZE 20

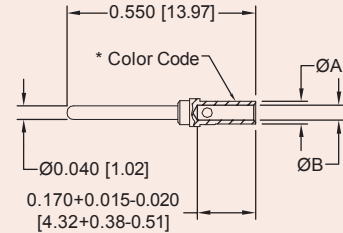
Note: Connectors can be kitted with all applicable crimp contacts, contact Technical Sales for connector part number.



FEMALE CONTACT  
"CLOSED ENTRY" DESIGN



MALE CONTACT



TYPE	MATERIAL	FEMALE PART NUMBER	MALE PART NUMBER	COLOR CODE	WIRE SIZE AWG [mm <sup>2</sup> ]	ØA	ØB
K	CHROMEL (+)	FC6020D2CH <sup>††</sup>	MC6020DCH <sup>†</sup>	WHITE	20 / 22 / 24 [0.5 / 0.3 / 0.25]	0.066 [1.68]	0.045 [1.14]
	ALUMEL (-)	FC6020D2AL <sup>††</sup>	MC6020DAL <sup>†</sup>	GREEN	20 / 22 / 24 [0.5 / 0.3 / 0.25]	0.066 [1.68]	0.045 [1.14]
T	COPPER (+)	FC6020D2CU <sup>††</sup>	MC6020DCU <sup>†</sup>	RED	20 / 22 / 24 [0.5 / 0.3 / 0.25]	0.066 [1.68]	0.045 [1.14]
	CONSTANTAN (-)	FC6020D2CO <sup>††</sup>	MC6020DCO <sup>†</sup>	YELLOW	20 / 22 / 24 [0.5 / 0.3 / 0.25]	0.066 [1.68]	0.045 [1.14]
E	CHROMEL (+)	FC6020D2CH <sup>††</sup>	MC6020DCH <sup>†</sup>	WHITE	20 / 22 / 24 [0.5 / 0.3 / 0.25]	0.066 [1.68]	0.045 [1.14]
	CONSTANTAN (-)	FC6020D2CO <sup>††</sup>	MC6020DCO <sup>†</sup>	YELLOW	20 / 22 / 24 [0.5 / 0.3 / 0.25]	0.066 [1.68]	0.045 [1.14]

For more information on the availability of Type J thermocouple contacts, and information about thermocouple contacts with printed circuit board solder termination, please contact Technical Sales.

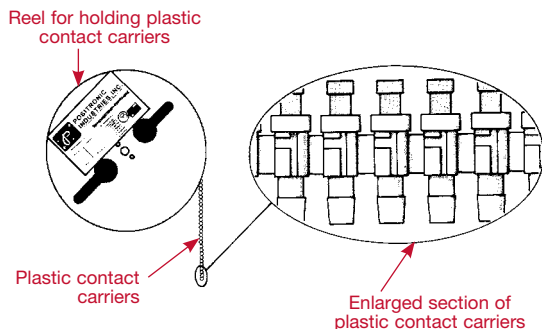
Chromel<sup>®</sup> and Alumel<sup>®</sup> are registered trademarks of Hoskins Manufacturing Company.

<sup>†</sup>Dimensionally equivalent to M39029/64-369

<sup>††</sup>Dimensionally equivalent to M39029/63-368

For information regarding **CRIMP TOOL AND CRIMPING TOOL TECHNIQUES**, see page 47.

## CONTACT REELS FOR AUTOMATIC PNEUMATIC CRIMP TOOLS



Contacts may be supplied in plastic carriers, packaged in reels holding 2,000 contacts for use with the automatic pneumatic crimp tools, catalog part numbers 9550-0 and 9550-1; packaged in reels holding 1,000 contacts for use with the automatic pneumatic crimp tools, catalog part number 9555-0-2. The same type carrier is used for both male and female contacts.

All male and female crimp contacts can be ordered in reels by adding letter "R" after the contact part number, such as MC6020DR for a male contact and FC6026D2R for a female contact.



## ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 8

STEP	1	2	3	4	5	6	7	8	9	10
<b>EXAMPLE</b>	<b>EVD</b>	<b>25</b>	<b>P</b>	<b>1</b>	<b>0</b>	<b>Z</b>	<b>0</b>	<b>S</b>	<b>/AA</b>	
<b>STEP 1 - BASIC SERIES</b> EVD Series										<b>STEP 10 - SPECIAL OPTIONS</b> Consult Technical Sales
<b>STEP 2 - EVD Connector Variants</b> 9, 15, 25, 37, 50										<b>STEP 9 - ENVIRONMENTAL COMPLIANCE OPTIONS</b> /AA - Compliant per EU Directive 2002/95/EC (RoHS) <b>NOTE:</b> If compliance to environmental legislation is not required, this step will not be used. Example: EVD25P10Z0S
<b>STEP 3 - CONNECTOR GENDER</b> P - Male with interfacial seal S - Female - PosiBand closed entry contact design										<b>STEP 8 - SHELL OPTIONS</b> *2S - Stainless steel, passivated. 0 - Zinc plated with chromate seal.
<b>STEP 4 - Type of Contacts</b> 0 - Contacts ordered separately. See pages 39 & 40 . 1 - Crimp, 20 AWG - 24 AWG [0.5 mm <sup>2</sup> - 0.25 mm <sup>2</sup> ] kitted with connector. 2 - Solder, 20 AWG - 24 AWG [0.5 mm <sup>2</sup> - 0.25 mm <sup>2</sup> ] kitted with connector.										<b>*1 STEP 7 - LOCKING SYSTEMS</b> 0 - None. Use only with 'Z' or 'Z4' (step 6). T2 - Fixed female jackscrews. E - Rotating male jackscrews.
<b>*1 STEP 5 - MOUNTING STYLE</b> 0 - Mounting hole, 0.120 [3.05] diameter. F - Float mounts, universal. S2 - Swaged spacer, 4-40 threads, 0.125 [3.18] length. S5 - Swaged locknut, 4-40 threads.										<b>*1 STEP 6 - HOODS</b> 0 - None. Z - Composite hood with rotating male jackscrews. Z4 - Composite hood with fixed female jackscrews.



EVD SERIES

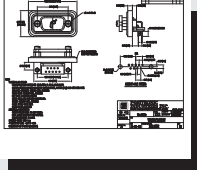

**NOTES:**

- \*1 For additional information listed in Steps 5, 6, and 7, see the Accessories section, page 42.
- \*2 For stainless steel dimpled male versions, contact Technical Sales.

For information regarding **REMOVABLE CONTACTS**, see illustration/drawing and charts on pages 39 & 40 .

### Do you need 2-D drawings or 3-D models?

Once you have made a connector selection, contact Technical Sales if you would like a 2-D drawing or 3-D model. If we do not have your specific part number on file, we can create one for you. Or, please visit [www.connectpositronic.com](http://www.connectpositronic.com) and use the search function.

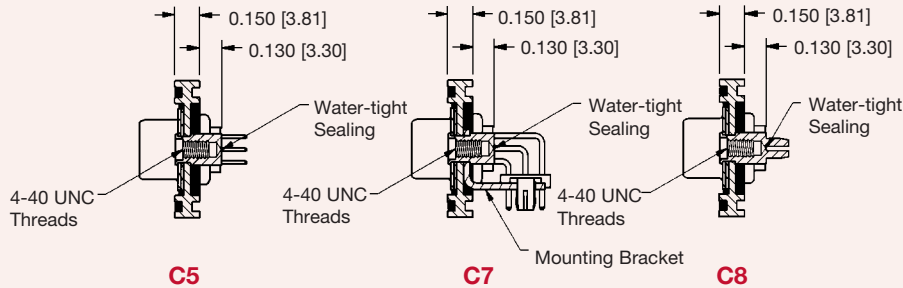





**CUL-DE-SAC STYLE MOUNTING ACCESSORIES**

FOR USE WITH WD AND WDD SERIES  
CODE C5, C7 AND C8 (STEP 5)

**INSIDE WALL**



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

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

**C8**  
PHOSPHOR BRONZE,  
TIN PLATE

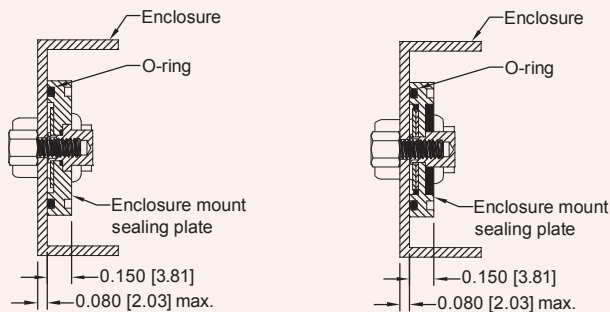
**OUTSIDE WALL  
ENCLOSURE MOUNT**  
*Not available in Unibody design.*  
See Unique Feature  
section, page 46.

ACCESSORIES

**ENCLOSURE WALL MOUNT SEALING PLATE**

FOR USE WITH WD AND WDD SERIES  
CODE A (STEP 6)

**INSIDE WALL ENCLOSURE MOUNT**



**UNIBODY DESIGN**

**LEGACY DESIGN**

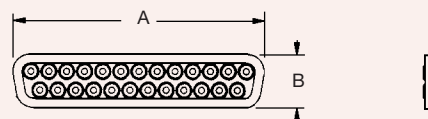
**OUTSIDE WALL  
ENCLOSURE MOUNT**  
*Not available in Unibody design.*  
See Unique Feature  
section, page 46.

**Sealing Plate Material:**  
Glass filled thermoplastic

**Note:** Sealing plate is mounted to enclosure wall with jackscrews torqued to a value of 1.75 in-lb [0.20 Nm] minimum, 2.25 in-lb [0.25 Nm] maximum.

CONNECTOR VARIANT		A	B
WD	WDD		
9	15	0.67 [17.02]	0.34 [8.64]
15	26	1.00 [25.40]	0.34 [8.64]
25	44	1.53 [38.86]	0.34 [8.64]
37	62	2.18 [55.37]	0.34 [8.64]
50	78	2.08 [52.83]	0.45 [11.43]

**INTERFACIAL SEAL**  
FOR USE WITH WD, AND WDD SERIES\*  
FURNISHED ON ALL MALE CONNECTORS



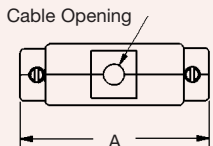
**Material:** Thermoplastic Elastomer (TPE), Santoprene™ or equivalent.

**\*NOTE:**  
For information on the interfacial seal supplied with EVD Series, see page 38.

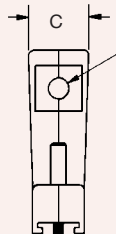
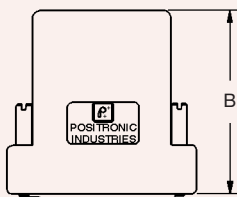




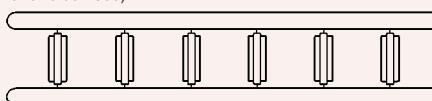
**COMPOSITE HOODS**  
FOR USE WITH WD, WDD OR EVD SERIES  
CODE Z OR Z4 (STEP 6)



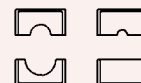
**CODE Z:** Composite hood with rotating male jackscrews.



Cable Opening  
(Side cable opening not available for size 50 hood)



**Insert Tree Assembly**

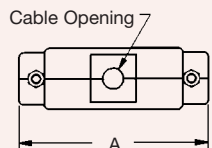


**Typical Inserts**

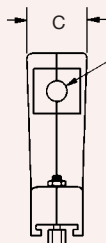
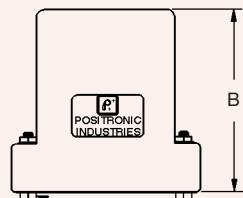
Various inserts are provided to accommodate different cable sizes

**Typical part number:**  
**D25000Z00**

Rotating Male Jackscrews  
4-40 UNC Threads, Steel, Zinc plated or Stainless Steel, passivated



**CODE Z4:** Composite hood with fixed female jackscrews.



Cable Opening  
(Side cable opening not available for size 50 hood)

**Typical part number:**  
**D25000Z400**

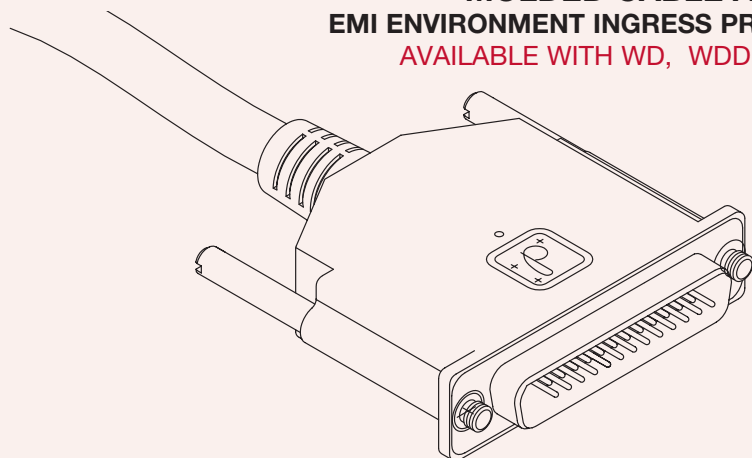
Fixed Female Jackscrews  
4-40 UNC Threads, Steel, Zinc plated or Stainless Steel, passivated

PART NUMBER	A	B	C	Cable Opening	
				MIN.	MAXIMUM
<b>D9000Z00</b> <b>D9000Z400</b>	1.387 [35.23]	1.935 [49.15]	0.735 [18.67]	0.100 [2.54]	0.400 x 0.570 [10.16] x [14.48]
<b>D15000Z00</b> <b>D15000Z400</b>	1.715 [43.56]	1.935 [49.15]	0.735 [18.67]	0.100 [2.54]	0.400 x 0.570 [10.16] x [14.48]
<b>D25000Z00</b> <b>D25000Z400</b>	2.254 [57.25]	2.200 [55.88]	0.735 [18.67]	0.100 [2.54]	0.550 x 0.570 [13.97] x [14.48]
<b>D37000Z00</b> <b>D37000Z400</b>	2.903 [73.74]	2.200 [55.88]	0.735 [18.67]	0.100 [2.54]	0.550 x 0.570 [13.97] x [14.48]
<b>D50000Z00</b> <b>D50000Z400</b>	2.809 [71.35]	2.700 [68.58]	0.900 [22.86]	0.100 [2.54]	Ø 0.630 [16.00]

**Material:** Composite, conductive volume resistivity [1.0 OHM-cm max]. Alternate material: Glass filled nylon, UL 94V-0.

**Attenuation:** 40+ decibels

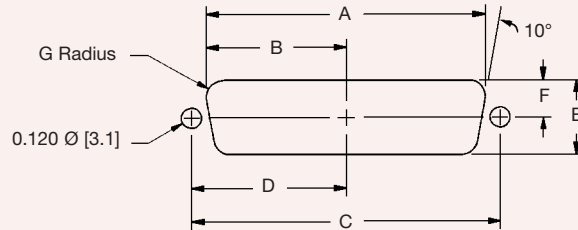
**MOLDED CABLE ASSEMBLY**  
EMI ENVIRONMENT INGRESS PROTECTION CODE IP67  
AVAILABLE WITH WD, WDD AND EVD SERIES



**CONTACT TECHNICAL SALES FOR MORE INFORMATION**



**ENCLOSURE WALL CUTOUT FOR CONNECTORS**  
WD SERIES AND WDD SERIES



SHELL SIZE	WD	WDD	MOUNTING	A ±0.005	B ±0.005	C ±0.005	D ±0.005	E ±0.005	F ±0.005	G ±0.002
1	9	15	Inside Wall	0.806 [20.47]	0.403 [10.24]	0.984 [24.99]	0.492 [12.50]	0.449 [11.40]	0.225 [5.72]	0.132 [3.35]
			Outside Wall	0.874 [22.20]	0.437 [11.10]	0.984 [24.99]	0.492 [12.50]	0.513 [13.03]	0.257 [6.53]	0.083 [2.11]
2	15	26	Inside Wall	1.134 [28.80]	0.567 [14.40]	1.312 [33.32]	0.656 [16.66]	0.449 [11.40]	0.225 [5.72]	0.132 [3.35]
			Outside Wall	1.202 [30.53]	0.601 [15.27]	1.312 [33.32]	0.656 [16.66]	0.513 [13.03]	0.257 [6.53]	0.083 [2.11]
3	25	44	Inside Wall	1.674 [42.52]	0.837 [21.26]	1.852 [47.04]	0.926 [23.52]	0.449 [11.40]	0.225 [5.72]	0.132 [3.35]
			Outside Wall	1.743 [44.27]	0.872 [22.15]	1.852 [47.04]	0.926 [23.52]	0.513 [13.03]	0.257 [6.53]	0.083 [2.11]
4	37	62	Inside Wall	2.326 [59.08]	1.163 [29.54]	2.500 [63.50]	1.250 [31.75]	0.449 [11.40]	0.225 [5.72]	0.132 [3.35]
			Outside Wall	2.391 [60.73]	1.196 [30.38]	2.500 [63.50]	1.250 [31.75]	0.513 [13.03]	0.257 [6.53]	0.083 [2.11]
5	50	78	Inside Wall	2.218 [56.34]	1.109 [28.17]	2.406 [61.11]	1.203 [30.57]	0.555 [14.10]	0.278 [7.06]	0.132 [3.35]
			Outside Wall	2.297 [58.34]	1.149 [29.18]	2.406 [61.11]	1.203 [30.57]	0.623 [15.82]	0.312 [7.92]	0.083 [2.11]

ACCESSORIES

**PROTECTIVE COVER**

SUPPLIED AS STANDARD WITH ALL CONNECTORS  
WD, WDD AND EVD SERIES

**COVER WITHOUT EARS**

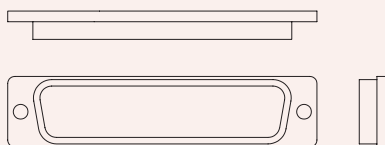
(FOR CONNECTORS WITHOUT FIXED JACKSCREWS)



**Material:** Conductive polyethylene  
**Color:** Black  
**Optional :**  
**Material:** Static dissipative ethylene vinyl acetate  
**Optional:** Pink

**COVER WITH EARS**

(FOR CONNECTORS WITH FIXED JACKSCREWS)



**Material:** Conductive polyester  
**Color:** Black

WD EVD	WDD	CONDUCTIVE REPLACEMENT PART NUMBER WITHOUT EARS	STATIC DISSIPATIVE REPLACEMENT PART NUMBER WITHOUT EARS	REPLACEMENT PART NUMBER WITH EARS
9M	15M	4931-9-0-0	4931-9-1-0	4931-9-100-0
9F	15F	4932-9-0-0	4932-9-1-0	4932-9-100-0
15M	26M	4931-15-0-0	4931-15-1-0	4931-15-100-0
15F	26F	4932-15-0-0	4932-15-1-0	4932-15-100-0
25M	44M	4931-25-0-0	4931-25-1-0	4931-25-100-0
25F	44F	4932-25-0-0	4932-25-1-0	4932-25-100-0
37M	62M	4931-37-0-0	4931-37-1-0	4931-37-100-0
37F	62F	4932-37-0-0	4932-37-1-0	4932-37-100-0
50M	78M	4931-50-0-0	4931-50-1-0	4931-50-100-0
50F	78F	4932-50-0-0	4932-50-1-0	4932-50-100-0



Positronic Industries  
connectpositronic.com



## UNIQUE FEATURES

Environmental  
D-Sub

# U N I Q U E F E A T U R E S



**POSITRONIC**  
GLOBAL *Connector* SOLUTIONS

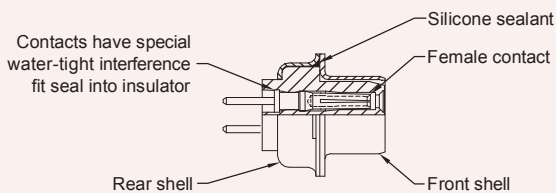
Positronic Industries is **known** around the world **for offering** our customers **flexibility** when choosing connectors.

In addition to allowing **customers** to **create** part numbers for **particular applications**, Positronic offers a **wide variety** of features and accessories within our products.

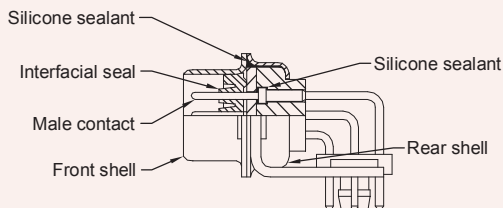
Positronic is also **eager** to modify existing products **to meet unique customer requirements**. If you do not find what you need with this catalog, please contact us for assistance.



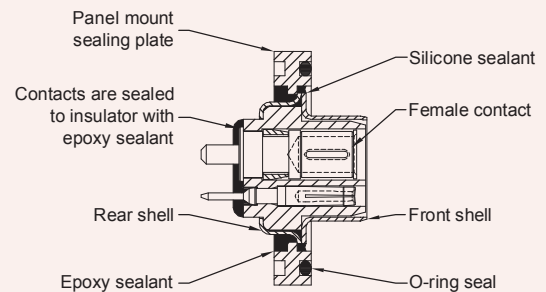
### OTHER SEALED D-SUBMINIATURE CONNECTOR OPTIONS



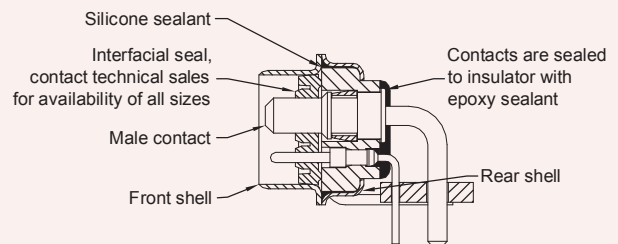
**MD STYLE CONNECTOR**



**ODD STYLE CONNECTOR**



**COMBO-D STYLE CONNECTOR**



**COMBO-D STYLE CONNECTOR**

#### SEALED STANDARD OR HIGH DENSITY D-SUBMINIATURE

- Available in both standard density and high density connector variants.
- Standard MD or ODD series connectors can be sealed between the connector shell and the connector insert.
- Contact technical sales for more information.

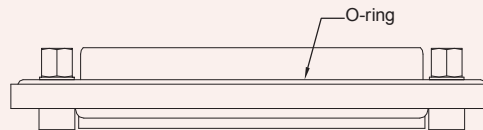
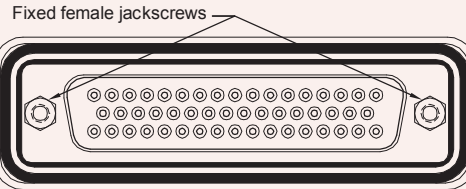
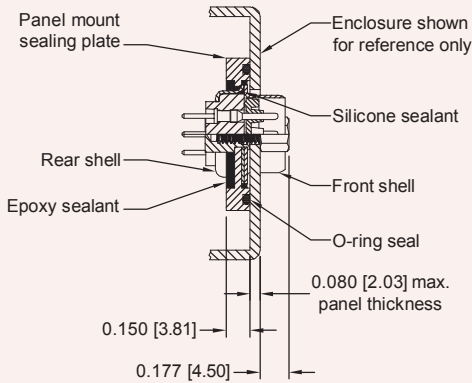
#### SEALED COMBINATION D-SUBMINIATURE

- Could be supplied with mounting plate or without.
- Contact technical sales for more information or additional contact configurations.

UNIQUE FEATURES



## MACHINED ALUMINUM MOUNTING PLATE WITH CONDUCTIVE O-RING



### MATERIALS AND FINISHES:

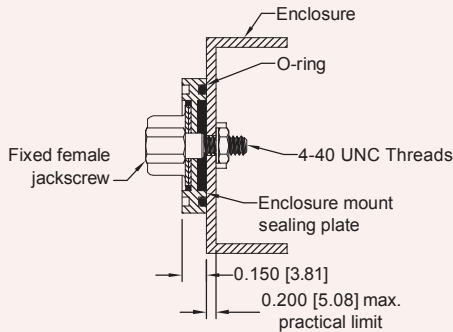
**Panel mount sealing plate** - Aluminum, yellow chromate coating.

**Conductive O-ring** - Silver coated thermoplastic elastomer.

**CONTACT TECHNICAL SALES FOR MORE INFORMATION**

## OUTSIDE WALL ENCLOSURE MOUNT

FOR APPLICATIONS REQUIRING SEALED D-SUBMINIATURE CONNECTOR TO BE MOUNTED ON THE OUTSIDE OF THE ENCLOSURE.



**Sealing Plate Material:** Glass filled thermoplastic

**Note:** Sealing plate is mounted to enclosure wall with jackscrews torqued to a value of 1.75 in-lb [0.20 Nm] minimum, 2.25 in-lb [0.25 Nm] maximum.

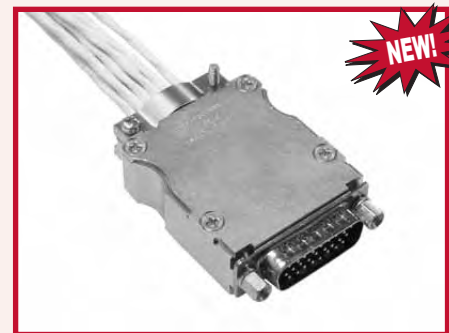
**CONTACT TECHNICAL SALES FOR PART NUMBER**

## LIGHTWEIGHT ALUMINUM HOOD

Positronic now offers a **Lightweight Aluminum Hood** for use with D-subminiature connectors!

These hoods are offered in the following material and finish combinations:

- Aluminum
- Aluminum with electroless nickel plate
- Aluminum with yellow anodize,
- Aluminum with yellow chromate conversion, zinc content is 1% maximum.





Positronic Industries  
connectpositronic.com



## UNIQUE FEATURES

Environmental  
D-Sub

### OTHER ENVIRONMENTAL CONNECTOR OFFERINGS



#### HERMETIC CONNECTORS

Intended for use as an electrical feed through in high vacuum applications • Leakage rate:  $< 5 \times 10^{-9}$  mbar.l/s under a vacuum  $1.5 \times 10^{-2}$  mbar • Signal, power, coax and high voltage versions available • Connectors can be mounted on flange assembly per customer specification

#### ENVIRONMENTAL CIRCULAR CONNECTORS

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  
• Over molding available on full assemblies



## APPLICATION TOOLS

Environmental  
D-Sub

Positronic Industries  
connectpositronic.com

### A P P L I C A T I O N T O O L S S E C T I O N

*EVD connectors are offered with **removable crimp contacts**.*

*Positronic Industries recognizes the **importance of** supplying **application tooling** to support our customers' use of our products.*

*Information on application tooling is **available** on our web site at*

*<http://www.connectpositronic.com/products/157/ApplicationTooling>*

*There you will find **downloadable PDF** cross reference charts for removable and compliant press-in contacts. These charts will **supply part numbers** for insertion, removal and crimping tools, along with **information regarding use** of tools and techniques.*



DIMENSIONS ARE IN INCHES [MILLIMETERS].  
ALL DIMENSIONS ARE SUBJECT TO CHANGE.



## CONTACT APPLICATION TOOLS CROSS REFERENCE LIST

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

Positronic Contact Part Number	Hand Crimp Tool	Mfg. Cross	Mil Equiv	Positioner	Mfg. Cross	Mil Equiv,	Insertion Tool	Mfg. Cross	Mil Equiv.	Removal Tool	Mfg. Cross	Mil. Equiv	Automatic Crimp Tool <small>See note*</small>
<b>FC6020D2-14</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>FC6020D2AL</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>FC6020D2CH</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>FC6020D2CO</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>FC6020D2CU</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>FC6520D2-14</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>M39029/63-368</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>M39029/64-369</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>MC6020D-14</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>MC6020DAL</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>MC6020DCH</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>MC6020DCO</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0
<b>MC6020DCU</b>	9507-0-0-0	AFM8	M22520/2-01	9502-5-0-0	K13-1	M22520/2-08	4711-2-0-0	91067-2	M81969/1-02	4711-2-0-0	91067-2	M81969/1-02	9550-1-0-0

All male and female crimp contacts can be ordered on reels in quantities of 2,000 by adding letter "R" after the contact part number, see page 40 for more information.







## EXPLANATION OF INGRESS PROTECTION (IP) SYSTEM FOR ENCLOSURES

This system outlined in IEC 60529 is designed to indicate the standard degrees of protection: from (a) touch and ingress of solids, and (b) from ingress of liquids, which enclosures may exhibit, and must not be confused with explosion protection techniques. These degrees of protection are, however, frequently referred to in standards and literature, and hence are listed below.

The first numeral designates the degree of protection against touching live parts and ingress of solid foreign bodies, the second designates the degree of protection against ingress of liquid.

The higher the numeral of the first and second characteristic, the greater degree of protection the enclosure offers, e.g. IP55 meets all the less onerous degrees such as IP22, IP23, IP34 and IP54. The term “weatherproof” is not included at present in the IP system but IP54 enclosures are frequently described in this way.

## PROTECTION OF EQUIPMENT AGAINST INGRESS OF SOLID BODIES AND LIQUIDS

SOLID FOREIGN BODIES			LIQUIDS	
FIRST CHARACTERISTIC NUMERAL	OBJECT SIZE	DEGREE OF PROTECTION	SECOND CHARACTERISTIC NUMERAL	DEGREE OF PROTECTION
0		No protection of persons against contact with live or moving parts inside the enclosure. No protection of equipment against ingress of solid foreign bodies.	0	No protection.
1	>50 mm 	Protection against accidental or inadvertent contact with live or moving parts inside the enclosure by a large surface of the human body, e.g. a hand, but not protection against deliberate access to such parts. Protection against ingress of large solid foreign bodies.	1	Protection against drops of condensed water. Drops of condensed water falling on the enclosure shall have no harmful effect.
2	>12.5 mm 	Protection against contact with live or moving parts inside the enclosure by fingers. Protection against ingress of medium size solid foreign bodies.	2	Protection against drops of liquid. Drops of falling liquid shall have no harmful effect when the enclosure is tilted at any angle up to 15° from the vertical.
3	>2.5 mm 	Protection against contact with live or moving parts inside the enclosure by tools, wires or such objects of thickness greater than 2.5 mm. Protection against ingress of small solid foreign bodies.	3	Protection against rain. Water falling in rain at an angle equal to or smaller than 60° with respect to the vertical shall have no harmful effect.
4	>1.0 mm 	Protection against contact with live or moving parts, inside the enclosure by tools, wires or such objects of thickness greater than 1 mm. Protection against ingress of small solid foreign bodies.	4	Protection against splashing. Liquid splashed from any direction shall have no harmful effect.
5		Complete protection against contact with live or moving parts inside the enclosure. Protection against harmful deposits of dust. The ingress of dust is not totally prevented, but dust cannot enter in an amount sufficient to interfere with satisfactory operation of the equipment enclosed.	5	Protection against water jets. Water projected by a nozzle from any direction under stated conditions shall have no harmful effect.
6		Complete protection against contact with live or moving parts inside the enclosure. Protection against ingress of dust.	6	Protection against conditions on ships' decks (deck watertight equipment). Water from heavy seas shall not enter the enclosures under prescribed conditions.
			7	Protection against immersion in water. It shall not be possible for water to enter the enclosure under stated conditions of pressure and time.
			8	Protection against indefinite immersion in water under specified pressure. It shall not be possible for water to enter the enclosure.



## DESCRIPTION OF NEMA ENCLOSURE TYPES

TYPE	INTENDED USE AND DESCRIPTION
1	Indoor use primarily to provide a degree of protection against limited amounts of falling dirt.
2	Indoor use primarily to provide a degree of protection against limited amounts of falling water and dirt.
3	Outdoor use primarily to provide a degree of protection against rain, sleet, windblown dust and damage from external ice formation.
3R	Outdoor use primarily to provide a degree of protection against rain, sleet and damage from external ice formation.
3S	Outdoor use primarily to provide a degree of protection against rain, sleet, windblown dust and to provide for operation of external mechanisms when ice laden.
4	Indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water and damage from external ice formation.
4X	Indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water and damage from external ice formation.
5	Indoor use primarily to provide a degree of protection against settling airborne dust, falling dirt and dripping noncorrosive liquids.
6	Indoor or outdoor use primarily to provide a degree of protection against hose-directed water and the entry of water during occasional temporary submersion at a limited depth and damage from external ice formation.
6P	Indoor or outdoor use primarily to provide a degree of protection against hose-directed water, the entry of water during prolonged submersion at a limited depth and damage from external ice formation.
12, 12K	Indoor use primarily to provide a degree of protection against circulating dust, falling dust, falling dirt and dripping noncorrosive liquids.
13	Indoor use primarily to provide a degree of protection against dust, spraying of water, oil and noncorrosive coolant.

*This material is reproduced from NEMA Standards Publication 250-1991 by permission of the National Electrical Manufacturers Association which holds the copyright.*





## COMPARISON BETWEEN NEMA ENCLOSURE TYPE NUMBERS AND IEC ENCLOSURE CLASSIFICATION DESIGNATIONS

IEC Publication 60529, Classification of Degrees of Protection Provided by Enclosures, provides a system for specifying the enclosures of electrical equipment on the basis of the degree of protection provided by the enclosure. IEC 60529 does not specify degrees of protection against mechanical damage of equipment, risk of explosions or conditions such as moisture (produced for example by condensation), corrosive vapors, fungus or vermin. NEMA Standards Publication 250 does test for environmental conditions such as corrosion, rust, icing, oil and coolants. For this reason, and because the tests and evaluations for other characteristics are not identical, the IEC Enclosure Classification Designations cannot be exactly equated with NEMA Enclosure Type Numbers.

The IEC designation consists of the letters IP followed by two numerals. The first characteristic numeral indicates the degree of protection provided by the first enclosure with respect to persons and solid foreign objects entering the enclosure. The second characteristic numeral indicates the degree of protection provided by the enclosure with respect to the harmful ingress of water.

The Table provides an approximate equivalent conversion from NEMA Enclosure Type Numbers to IEC Enclosure Classification Designations. The NEMA Types meet or exceed the test requirements for the associated IEC Classifications; for this reason the Table cannot be used to convert exactly from IEC Classifications to NEMA Types.

### COMPARISON OF NEMA TYPE NUMBERS TO IEC CLASSIFICATION DESIGNATIONS

(Cannot be used to convert IEC Classification Designations to NEMA Type Numbers)

NEMA ENCLOSURE TYPE NUMBER	IEC ENCLOSURE CLASSIFICATION DESIGNATION
1	IP10
2	IP11
3	IP54
3r	IP14
3s	IP54
4 and 4x	IP56
5	IP52
6 and 6p	IP67
12 and 12K	IP52
13	IP54

*This material is reproduced from NEMA Standards Publication 250-1991 by permission of the National Electrical Manufacturers Association which holds the copyright.*

**Note:** This comparison is based on tests specified in IEC Publication 60529.

# OTHER D-SUBMINATURE PRODUCTS

Positronic Industries offers a full line of D-subminiature connectors in a wide variety of contact variants and package sizes with press-fit, solder and cable terminations. All Positronic connector products provide quality, reliability and flexibility.



## HIGH PERFORMANCE D-SUBMINIATURE CONNECTORS

Standard and high density connectors manufactured to MIL-PRF-24308, Class M; Goddard Space Flight Center S-311-P-4 and Goddard Space Flight Center S-311-P-10.

## COMPLIANT PRESS-IN CONNECTORS

Standard and high density connectors  
Straight and right angle (90°) printed board mount  
**Low press-in force** eliminates stress on printed circuit board during insertion.

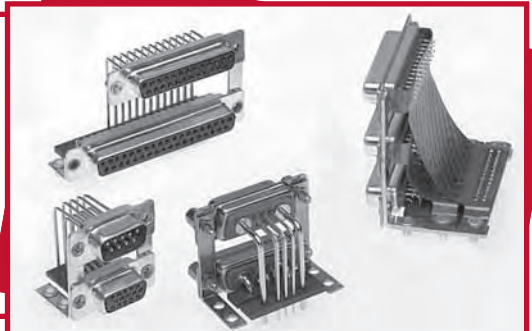


## COMBO-D CONNECTORS

Connectors with signal, shielded, power, thermocouple or high voltage contacts in a single package.  
Power press-fit terminations now available.

## DUAL PORT CONNECTORS

Right angle (90°) printed board mount connectors assembled stacked to maximize real estate; contact variants 9 through 62; available in standard density high density, and mixed density.



# Connector Excellence<sup>®</sup>

## Positronic HIGH RELIABILITY Products

### POWER



#### FEATURES:

- High current density • Energy saving - low contact resistance • Hot swap capability
- AC/DC operation in a single connector
- Signal contacts for hardware management • Blind mating • Sequential mating
- Large surface area contact system • Wide variety of accessories
- Customer-specified contact arrangements • Modular tooling which produces a single piece connector insert

**Contact Sizes:** 0, 8, 12, 16, 20, 22 and 24

**Current Ratings:** To 200 amperes per contact

**Terminations:** Crimp and panel mount, straight solder, right angle (90°) solder, straight compliant press-in and right angle (90°) compliant press-in

**Configurations:** Multiple variants in a variety of package sizes

**Compliance:** PICMG 2.11, PICMG 3.0, VITA 41, DSCC, GSFC S-311-P-4, GSFC S-311-P-10

### D-SUBMINIATURE



#### FEATURES:

- Four performance levels available for best cost/performance ratio: professional, industrial, military and space-flight quality
- Options include high voltage, coax, thermocouple and air coupling contacts; environmentally sealed and dual port connector packages including mixed density
- Broad selection of accessories
- Size 20 and 22 contacts suitable for use in carrying power
- IP65, IP67

**Contact Sizes:** 8, 16, 20 and 22

**Current Ratings:** To 100 amperes

**Terminations:** Crimp, wire solder, straight solder, right angle (90°) solder, straight compliant press-in and right angle (90°) compliant press-in

**Configurations:** Multiple variants in both standard and high densities, seven shell sizes

**Qualifications:** MIL-DTL-24308, GSFC S-311-P-4, GSFC S-311-P-10, SAE AS39029, DSCC

### RECTANGULAR



#### FEATURES:

- Two performance levels available: industrial quality and military quality
- A wide variety of accessories
- Broad selection of contact variants and package sizes
- Connector keying options

**Contact Sizes:** 16, 20 and 22

**Current Ratings:** To 13 amperes nominal

**Terminations:** Crimp, wire solder, straight solder, right angle (90°) solder, and straight compliant press-in

**Configurations:** Multiple variants in both standard and high densities, thirty package sizes

**Qualifications:** MIL-DTL-28748, SAE AS39029, CCITT V,35

### CIRCULAR



#### 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

**Contact Sizes:** 12, 16, 20 and 22

**Current Ratings:** To 25 amperes nominal

**Terminations:** Crimp, wire solder, straight solder, and right angle (90°) solder

**Configurations:** Multiple variants in four package sizes

**Qualifications:** Environmental protection to IP67

### CABLE



#### FEATURES:

- Shorten the supply chain and reduce additional costs and delays by "cablizing" your Positronic connector selection
- Overmolding available
- Shielded and environmentally sealed versions available
- Power cables and access boxes which meet the SAE J2496 specification

- ✓ Design assemblies in accordance with customer specifications.
- ✓ Prepare cablized connector configuration and performance specifications.
- ✓ Design each system in accordance with applicable customer, domestic, and international standards.
- ✓ Define and conduct performance and verification testing.

### HERMETIC



#### FEATURES:

- Intended for use as an electrical feedthrough in high vacuum applications
- Leakage rate:  $< 5 \times 10^{-9}$  mbar.l/s under a vacuum  $1.5 \times 10^{-2}$  mbar
- Signal, power, coax and high voltage versions available
- Connectors can be mounted on flange assembly per customer specification

**Contact Sizes:** 8, 12, 16, 20 and 22

**Current Ratings:** To 40 amperes nominal

**Terminations:** Feedthrough is standard; flying leads and board mount available upon request

**Configurations:** See D-subminiature and circular configurations above

**Compliance:** Space-D32

For more information, visit [www.connectpositronic.com](http://www.connectpositronic.com) or call your nearest Positronic sales office listed on the back of this catalog.

## **NORTH AMERICAN LOCATIONS**

### **UNITED STATES, Springfield, Missouri, Corporate Headquarters**

Factory Sales and Engineering Offices 800 641 4054 info@connectpositronic.com

### **PUERTO RICO, Ponce Factory**

Factory Sales and Engineering Offices 800 641 4054 info@connectpositronic.com

### **MEXICO**

Factory Sales and Engineering Offices 800 872 7674 info@connectpositronic.com

### **CANADA**

Factory Sales and Engineering Offices 800 327 8272 info@connectpositronic.com

## **ASIA/PACIFIC LOCATIONS**

### **SINGAPORE, Asia/Pacific Headquarters**

Factory Sales and Engineering Offices 65 6842 1419 singapore@connectpositronic.com

### **ASIA, Direct Sales Offices**

China - Zhuhai Factory and Sales Office 86 756 3626 466 zhuhai@connectpositronic.com  
China - Shenzhen Sales Office 86 755 2643 7578 shenzhen@connectpositronic.com  
China - Shanghai Sales Office 86 158 2907 9779 shanghai@connectpositronic.com  
China - Xian/Beijing Sales Office 86 29 8839 5306 xian@connectpositronic.com  
Korea Sales Office 82 31 909 8047 korea@connectpositronic.com  
Taiwan Sales Office 886 2 2937 8775 taiwan@connectpositronic.com

### **JAPAN, Direct Sales Offices**

Sales and Engineering Offices 81 3 5619 8072 japan@connectpositronic.com

### **INDIA, Direct Sales Offices**

Factory Sales and Engineering Offices 91 20 2439 4810 india@connectpositronic.com  
Bangalore Sales Office 91 94 4907 3251 bangalore@connectpositronic.com  
New Delhi Sales Office 91 80 1071 1175 delhi@connectpositronic.com

### **ASIA/PACIFIC, Technical Agents**

Technical Agents in Malaysia, Australia, New Zealand, Philippines, Hong Kong, Vietnam, Thailand

## **EUROPEAN LOCATIONS**

### **FRANCE, Auch Factory, European Headquarters**

Factory Sales and Engineering Offices 33 5 6263 4491 contact@connectpositronic.com

### **EUROPE, Direct Sales Offices**

Northern France Sales Office 33 1 4588 1388 jchalaux@connectpositronic.com  
Southern France Sales Office 33 5 6263 4491 plafon@connectpositronic.com  
Eire + Northern Ireland 33 5 6263 4557 tauvin@connectpositronic.com  
Italy Sales Office 39 02 5411 6106 rmagni@connectpositronic.com  
Germany Sales Office 49 23 5163 4739 cbouche@connectpositronic.com  
UK Sales Office 44 1242 897493 lbridwell@connectpositronic.com

### **EUROPE, Technical Agents**

Technical Agents in Austria, Benelux, Eastern Europe Countries, Greece, Ireland, Russia, Scandinavia, Spain, Switzerland and the United Kingdom

### **MIDEAST, Technical Agents**

Technical Agents in Israel and Turkey



### **POSITRONIC INDUSTRIES, INC.**

423 N Campbell Avenue • PO Box 8247 • Springfield, MO 65801  
Tel 417 866 2322 • Fax 417 866 4115 • Toll Free 800 641 4054  
info@connectpositronic.com

### **POSITRONIC INDUSTRIES, S.A.S.**

Zone Industrielle d'Engachies • 46 Route d'Engachies  
France 32020 Auch Cedex 9  
Telephone 33 5 6263 4491 • Fax 33 5 6263 5117  
contact@connectpositronic.com

### **POSITRONIC ASIA PTE LTD.**

3014A Ubi Road 1 #07-01 • Singapore 408703  
Telephone 65 6842 1419 • Fax 65 6842 1421  
singapore@connectpositronic.com

For most current sales office information, please visit [http://www.connectpositronic.com/contact/sales\\_offices.html](http://www.connectpositronic.com/contact/sales_offices.html)

# LOCALATIONS