ENVIRONMENTAL-D

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

- Founded in 1966
- Involvement in the development of international connector specifications through EIA®, IEC and ISO as well as PICMG®.
- 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: 407,441.

Support

- 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

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 COMPANY
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.
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**Dimensions are in inches [millimeters].**
**All dimensions are subject to change.**
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_Visual dimensions are in inches [millimeters]. All dimensions are subject to change._
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.

FOR MORE DETAILS CONTACT TECHNICAL SALES OR VISIT OUR WEB SITE AT: CONNECTPOSITRONIC.COM/CABLE-ASSEMBLIES
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 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.
CONNECTION SYSTEM 1
FIXED ENCLOSURE MOUNTED CONNECTOR
Provides ingress protection in an unmated condition.

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.

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

CONNECTION SYSTEM 1
This type of ingress protection can be achieved by selecting:
WD Series (page 13)
OR
WDD Series (page 18)

“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.

GENERAL INFORMATION
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.

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.

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.

Typical part numbers:

(1) Typical part number: WD15P5C7AT7U
(2) Typical part number: WD15F220Z00
(3) Typical part number: EVD15S10Z00
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.
**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.*
**NEW!**

**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.
Connectors Designed To Customer Specifications

Positronic’s 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.
INFORMATION RELATIVE TO COUPLING OF WD, WDD AND EVD SERIES CONNECTORS

RECOMMENDED COUPLING DIMENSION TO ENSURE WATER AND DUST INGRESS PROTECTION

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<td>WD, EVD</td>
<td>WDD</td>
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<tr>
<td>1</td>
<td>9</td>
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<td>50</td>
<td>78</td>
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Jackscrew systems not shown for clarity
Enclosure wall shown for reference
Composite hood not shown.

Dimensions are in inches [millimeters].
All dimensions are subject to change.
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

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.

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...
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: Gold flash over nickel plate.
Corrosion Protection: Steel, zinc plated with chromate seal.
Corrosion Resistant: Stainless steel passivated.

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 chrome 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.

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].
Jack screws.

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

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

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 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

OUTSIDE WALL ENCLOSURE MOUNT

Not available in Unibody design.
See Unique Feature section, page 46.

INSIDE WALL ENCLOSURE MOUNT

Typical part number: WD15F2C5AT7U

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.

INSIDE WALL ENCLOSURE MOUNT

Typical part number: WD15F3C8AT7U

DIMENSIONS ARE IN INCHES [MILLIMETERS]. ALL DIMENSIONS ARE SUBJECT TO CHANGE.
RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION
WITH ENCLOSURE MOUNT SEALING PLATE
CODE 5, 0.188 [4.78] CONTACT EXTENSION

INSIDE WALL ENCLOSEMENT MOUNT

Typical Part Number: WD15P5C7AT7U

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

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 - BASIC SERIES
WD - WD Unibody series

STEP 2 - CONNECTOR VARIANTS
9 - Male and Female
15 - Male and Female
25 - Female only
37 - Male and Female
50 - Female only

STEP 3 - CONNECTOR GENDER
P - Male with interfacial seal
F - Female

*2 STEP 4 - CONTACT TERMINATION TYPE
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].

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

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

STEP 6 - ENCLOSURE WALL MOUNT SEALING PLATE
A - Inside wall enclosure mounted connector.

*1 STEP 7 - FEMALE FIXED JACKSCREWS
T7 - Always used when ordering C5, C7 and C8 (Step 5).

*1 STEP 8 - SHELLS AND ACCESSORY OPTIONS
U - Corrosion Protected Unibody Design
Steel shells and jackscrews zinc plated with chromate seal. Contacts gold flash over nickel plate.

SU- - Corrosion Resistant Unibody Design
Stainless steel shells and jackscrews Contacts 0.000030 inch [0.76µ] gold plated over nickel.

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: WD8F2C5AT7SU

STEP 10 - SPECIAL OPTIONS
CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS

† Unibody is the preferred design.

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

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.
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.

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: Gold flash over nickel plate.
Corrosion Protection: 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 mm²] 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.

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].
- Jackscrews.

Locking Systems:
- Mechanical Operations: 500 operations minimum per IEC 60512-5.
- Required Sealing 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 www.connectpositronic.com/connector-details/d-subminiature/environmentally-sealed/catalog

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 and use the search function.

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

15
**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**

- **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**

- **Typical part number:** WDD26P3C8AT7U

**OUTSIDE WALL ENCLOSURE MOUNT**

*Not available in Unibody design. See Unique Feature section, page 46.*

**INSIDE WALL ENCLOSURE MOUNT**

**OUTSIDE WALL ENCLOSURE MOUNT**

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

WDD26*4**** 0.219 [5.56] CONTACT EXTENSION

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<th>C</th>
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<td>[52.63]</td>
<td>[47.04]</td>
<td>[8.10]</td>
<td>[5.56]</td>
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</tbody>
</table>

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.

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.
**ORDERING INFORMATION - CODE NUMBERING SYSTEM**

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

<table>
<thead>
<tr>
<th>STEP</th>
<th>EXAMPLE</th>
</tr>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<td>T7</td>
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<td>9</td>
<td>/AA</td>
</tr>
<tr>
<td>10</td>
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</tr>
</tbody>
</table>

**STEP 1 - BASIC SERIES**
WDD - WDD Unibody series

**STEP 2 - CONNECTOR VARIANTS**
- 15 - Male and Female
- 26 - Male and Female
- † 44 - Female only

**STEP 3 - CONNECTOR GENDER**
- P - Male with interfacial seal
- F - Female

**STEP 4 - CONTACT TERMINATION TYPE**
- 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].

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

**STEP 6 - ENCLOSURE WALL MOUNT SEALING PLATE**
- A - Inside wall enclosure mounted connector.

**STEP 7 - FEMALE FIXED JACkSCREWS**
- T7 - Always used when ordering C5, C7 and C8 (step 5).

**STEP 8 - SHELLS AND ACCESSORY OPTIONS**
- **U** - Corrosion Protected Unibody Design
  Steel shells and jackscrews zinc plated with chromate seal. Contacts gold flash over nickel plate.
- **SU** - Corrosion Resistant Unibody Design
  Stainless steel shells and jackscrews Contacts 0.000030 inch [0.76 µ] gold plated over nickel.

**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: WDD26F2C5AT7SU

**STEP 10 - SPECIAL OPTIONS**
- CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS

**NEW!**

**STEP 3 - CONNECTOR GENDER**
- P - Male with interfacial seal
- F - Female

**STEP 4 - CONTACT TERMINATION TYPE**
- 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].

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

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

### 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:
- 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.

### Environmental Characteristics:

#### WIN-D series
- Connectors mounted on IEC 60529 or NEMA 250-1991 enclosures for electrical equipment.
- 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.
- 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
- 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...*
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.
Push-on Fasteners: Phosphor bronze with tin plate.
Angle Brackets: Brass, zinc plate with chrome 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 mm²] 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. Minimum thickness 0.040 inch [1.0 mm]. Maximum thickness 0.080 inch [2.0 mm].
Coding (keying): Jackscrews.
Enclosure Mounting Accessories: 250 operations minimum per IEC 60512-5 IP67 immersion rated. 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

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 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

![Solder Cup Termination Diagram]

OUTSIDE WALL ENCLOSURE MOUNT

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

![Straight Solder Terminations Diagram]

OUTSIDE WALL ENCLOSURE MOUNT

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

DIMENSIONS ARE IN INCHES [MILLIMETERS]. ALL DIMENSIONS ARE SUBJECT TO CHANGE.
RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION
WITH ENCLOSURE MOUNT SEALING PLATE
CODE 5, 0.188 [4.78] CONTACT EXTENSION

Typical part number:
WD25P5C7AT70

Typical part number:
WD50P5C7AT70

INSIDE WALL ENCLOSEMENT MOUNT

Numbering shown is rear view of male and face view of female connector

Cul-de-sac style threaded rivet

Push-on fastener, beryllium copper

O-ring seal

Enclosure shown for reference only

Fixed female jackscrews

0.080 [2.03] max.
panel thickness

0.080 [2.03] max.
panel thickness

0.150 [3.81]

0.150 [3.81]

0.112 [2.84] Typ.

0.112 [2.84] Typ.

0.112 [2.84] Typ.

0.112 [2.84] Typ.

0.080 [2.03] max.
panel thickness

0.080 [2.03] max.
panel thickness

Typical part number:
WD25P5C7AT70

Typical part number:
WD50P5C7AT70

0.116 [2.95] Nominal

0.028 [0.71] Typ.

0.028 [0.71] Typ.

0.188 [4.78]

0.188 [4.78]

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

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<th>STEP</th>
<th>EXAMPLE</th>
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<td>4 5 6 7 8 9</td>
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</table>

† 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 - BASIC SERIES
WD Series

### STEP 2 - CONNECTOR VARIANTS
† 25 - Male only.  
† 50 - Male only.

### STEP 3 - CONNECTOR GENDER
P - Male with interfacial seal  
F - Female

### STEP 4 - CONTACT TERMINATION TYPE
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].

### STEP 5 - CUL-DE-SAC STYLE MOUNTING ACCESSORIES
C5 - Inside wall mounting for Code 2 and 3 (step 4) only.  
Available for sizes: 25 male, and 50 male.

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.  
Available for sizes: 25 male, and 50 male.

C8 - Inside wall mounting for Code 3 (step 4) only. Includes push-on fastener. Available for sizes: 25 male, and 50 male.

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

### STEP 6 - ENCLOSURE WALL MOUNT SEALING PLATE
A - Inside wall enclosure mounted connector.

### STEP 7 - FEMALE FIXED JACKSCREWS
T7 - Always used when ordering C5, C7 and C8 (step 5).

### STEP 8 - SHELLS AND ACCESSORY OPTIONS
D - 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 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: WD25P2C5AT7S

### STEP 10 - SPECIAL OPTIONS
CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS

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

---

**WDD SERIES**

**PROFESSIONAL QUALITY**

**HIGH DENSITY FIXED CONTACTS**

---

**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.

---

**Telecommunication:**

- **UL File # E140980**

---

**Connectors Conforms to:**

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

---

**WDD SERIES**

**TECHNICAL CHARACTERISTICS**

**DIMENSIONS ARE IN INCHES [MILLIMETERS], ALL DIMENSIONS ARE SUBJECT TO CHANGE.**
Applicable IEC Connector Tests After Moisture Exposure Tests Have Been Performed

### IEC 60512-2, Test 3a: Insulation Resistance
- **System 1** – Portable enclosure. 1 G ohm minimum insulation resistance after connector face and contacts are dried.
- **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:

<table>
<thead>
<tr>
<th>Component</th>
<th>Material Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector Insert</td>
<td>Glass filled polyester per ASTM D5927, UL 94V-0, black color.</td>
</tr>
<tr>
<td>Contacts</td>
<td>Precision machined copper alloy.</td>
</tr>
<tr>
<td>Corrosion Protection</td>
<td>Gold flash over nickel plate.</td>
</tr>
<tr>
<td>Corrosion Resistant</td>
<td>Gold plate 0.000030 inch [0.76 µ] over nickel plate.</td>
</tr>
<tr>
<td>Shells, Jackscrew Systems and Cul-de-sac Mounting Accessories:</td>
<td>Stainless steel passivated.</td>
</tr>
<tr>
<td>Push-on Fasteners</td>
<td>Phosphor bronze with tin plate.</td>
</tr>
<tr>
<td>Hoods (Cable supports)</td>
<td>Brass, zinc plate with chromate seal.</td>
</tr>
<tr>
<td>Interfacial Seal</td>
<td>Composite.</td>
</tr>
<tr>
<td>Panel Mount Sealing</td>
<td>Thermoplastic Elastomer (TPE), Santoprene® or equivalent.</td>
</tr>
<tr>
<td>Plate Assembly</td>
<td>Glass filled thermoplastic with elastomer O-ring.</td>
</tr>
<tr>
<td>Protective Cover Over Connector Shell</td>
<td>Conductive polyethylene or conductive polyester.</td>
</tr>
<tr>
<td>Contact Retention in Insulator:</td>
<td>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.</td>
</tr>
<tr>
<td>Resistance to Solder Iron Heat:</td>
<td>9 lbs. [40N]</td>
</tr>
<tr>
<td>Contact Terminations:</td>
<td>500°F [260°C] for 10 seconds duration per IEC 60512-6.</td>
</tr>
<tr>
<td></td>
<td>Solder cup contacts – 0.035 inch [0.89 mm] minimum hole diameter for 22 AWG [0.3 mm] wire maximum.</td>
</tr>
<tr>
<td></td>
<td>Straight printed board mount – 0.020 inch [0.5 mm] termination diameter.</td>
</tr>
<tr>
<td></td>
<td>Right angle (90°) printed board mount - 0.030 inch [0.76 mm] termination diameter.</td>
</tr>
<tr>
<td>Coding (keying):</td>
<td>Trapezoidal shaped shells.</td>
</tr>
<tr>
<td>Enclosure Mounting Accessories:</td>
<td>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].</td>
</tr>
<tr>
<td>Inside Wall</td>
<td>Jackscrews.</td>
</tr>
<tr>
<td>Enclosure Mounting Locking Systems:</td>
<td>250 operations minimum per IEC 60512-5 IP67 immersion rated.</td>
</tr>
<tr>
<td>Mechanical Operations:</td>
<td>500 operations minimum per IEC 60512-5 IP65 spray nozzle rated.</td>
</tr>
<tr>
<td>Required Sealing</td>
<td>1.75 in-lb. [0.20 Nm] minimum.</td>
</tr>
<tr>
<td>Plate Mounting Torque:</td>
<td>2.25 in-lb. [0.25 Nm] maximum.</td>
</tr>
</tbody>
</table>

**Electrical Characteristics:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Current Rating</td>
<td>5 amperes nominal.</td>
</tr>
<tr>
<td>Initial Contact Resistance</td>
<td>0.010 ohms maximum.</td>
</tr>
<tr>
<td>Insulator Resistance</td>
<td>5 G ohms.</td>
</tr>
<tr>
<td>Clearance and Creepage Distance</td>
<td>0.042 inch [1.06 mm].</td>
</tr>
<tr>
<td>Proof Voltage</td>
<td>1000 V r.m.s.</td>
</tr>
<tr>
<td>Working Voltage</td>
<td>300 V r.m.s.</td>
</tr>
</tbody>
</table>

**Climatic Characteristics:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range</td>
<td>-25°C to +85°C</td>
</tr>
</tbody>
</table>

### Technical Characteristics, continued

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 and use the search function.
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

OUTSIDE WALL ENCLOSURE MOUNT

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

INSIDE WALL ENCLOSURE MOUNT

Typical part number: WDD62F3C8AT70

OUTSIDE WALL ENCLOSURE MOUNT

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

DIMENSIONS ARE IN INCHES [MILLIMETERS]. ALL DIMENSIONS ARE SUBJECT TO CHANGE.
RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION
WITH ENCLOSURE MOUNT SEALING PLATE
CODE 4, 0.219 [5.56] CONTACT EXTENSION

WDD SERIES
PROFESSIONAL QUALITY
HIGH DENSITY FIXED CONTACTS

WDD44MALE

WDD62MALE

WDD78MALE

WDD62FEMALE

WDD78FEMALE

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

INSIDE WALL ENCLOSURE MOUNT

Typical part number:
WDD62P4C7AT70

Typical part number:
WDD78P4C7AT70

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

SUGGESTED PRINTED BOARD HOLE SIZES:
Suggest 0.123 ±0.003 [3.12] Ø holes for mounting connector with push-on fasteners

SUGGESTED PRINTED BOARD HOLE SIZES:
Suggest 0.123 ±0.003 [3.12] Ø holes for mounting connector with push-on fasteners

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

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

SUGGESTED PRINTED BOARD HOLE SIZES:
Suggest 0.123 ±0.003 [3.12] Ø holes for mounting connector with push-on fasteners

SUGGESTED PRINTED BOARD HOLE SIZES:
Suggest 0.123 ±0.003 [3.12] Ø holes for mounting connector with push-on fasteners
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

<table>
<thead>
<tr>
<th>STEP</th>
<th>EXAMPLE</th>
<th>WDD 62</th>
<th>F 2</th>
<th>C5</th>
<th>A</th>
<th>T7</th>
<th>S</th>
<th>/AA</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEP 1 - BASIC SERIES</td>
<td></td>
<td>WDD series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEP 2 - CONNECTOR VARIANTS</td>
<td>† 44 - Male only.</td>
<td>62 - Male and Female</td>
<td>78 - Male and Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEP 3 - CONNECTOR GENDER</td>
<td>P - Male with interfacial seal</td>
<td>F - Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEP 4 - CONTACT TERMINATION TYPE</td>
<td>2 - Solder cup</td>
<td>3 - Solder, straight printed board mount with 0.150 [3.81] tail length.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 - Solder, right angle (90°) printed board mount, contact extension 0.219 [5.56].</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEP 5 - CUL-DE-SAC STYLE MOUNTING ACCESSORIES</td>
<td>C5 - Inside wall mounting for Code 2 and 3 (step 4) only. Available for sizes: 62 and 78.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C8 - Inside wall mounting for Code 3 (step 4) only. Includes push-on fastener. Available for sizes: 62 and 78.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

STEP 6 - ENCLOSURE WALL MOUNT SEALING PLATE
A - Inside wall enclosure mounted connector.

STEP 7 - FEMALE FIXED JACKSCREWS
T7 - Always used when ordering C5, C7 and C8 (step 5).

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 [0.76 µ] gold plated over nickel.

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: WDD62F2C5AT7S

STEP 10 - SPECIAL OPTIONS
CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS

Do you need 2-D drawings or 3-D models?
See page 10 for more information
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...
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 chrome seal.
Corrosion Resistant: Stainless steel passivated.
Push-on Fasteners: Phosphor bronze with tin plate.
Angle Brackets: Brass, zinc plate with chrome 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.

Contact Retention in Connector Insert:
Resistance to Solder Iron Heat:

Contact Terminations:
Solder cup contacts - soldered to wire with 20 in [50 cm] flying leads.
Trapezoidally shaped shells.

Coding (keying):
Cul-de-sac blind hole fasteners, angle brackets and push-on fasteners.

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 Plate Mounting Torque:
1.75 in-lb. [0.20 Nm] minimum.
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.
5 G ohms.

Insulator Resistance:
WD: 0.039 inch [1 mm].
WDD: 0.042 inch [1.06 mm].
1000 V r.m.s.
300 V r.m.s.

CLIMATIC CHARACTERISTICS:

Temperature Range: -25°C to +85°C

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 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

20 AWG [0.5 mm] flying leads

20 inch [51cm]

Typical part number:
WD15F220Z0S

Note: Z hood not shown for clarity.

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

20 AWG [0.5 mm] flying leads

O-ring seal

20 inch [51cm]

0.150 [3.81]

0.177 [4.50]

0.080 [2.03] max. panel thickness

Fixed female jackscrews

Typical part number:
WD15F23C5AT70

OUTSIDE WALL ENCLOSURE MOUNT

Enclosure shown for reference only

O-ring seal

0.150 [3.81]

For more information, see Unique Features section, page 46.
HIGH DENSITY CONTACT VARIANTS
FACE VIEW OF MALE OR REAR VIEW OF FEMALE

WDD 15
WDD 26
WDD 44
WDD 62
WDD 78

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

22 AWG [0.3 mm]
Flying leads

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

22 AWG [0.3 mm]
Flying leads

Typical part number:
WDD15F23C5AT70

Note: Z hood not shown for clarity.

For more information, see Unique Features section, page 46.
**ORDERING INFORMATION - CODE NUMBERING SYSTEM**

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

<table>
<thead>
<tr>
<th>STEP</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXAMPLE</td>
<td>WDD</td>
<td>9</td>
<td>F</td>
<td>22</td>
<td>0</td>
<td>Z</td>
<td>0</td>
<td>S</td>
<td>/AA</td>
<td></td>
</tr>
</tbody>
</table>

**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 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.

**STEP 7 - FEMALE FIXED JACKSCREWS**
- 0 - None. Use only with Code 0 (step 5).
- T7 - Always used when ordering C5 (step 5).

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

---

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

<table>
<thead>
<tr>
<th>STEP 10</th>
<th>PLATING</th>
<th>COLOR</th>
<th>GAUGE</th>
<th>LENGTH</th>
<th>TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXAMPLE</td>
<td>14</td>
<td>C</td>
<td>24G</td>
<td>3.05</td>
<td>T20</td>
</tr>
</tbody>
</table>

**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:

<table>
<thead>
<tr>
<th>Contact Position Number *</th>
<th>Insulation Color</th>
<th>Contact Position Number *</th>
<th>Insulation Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>6</td>
<td>Blue</td>
</tr>
<tr>
<td>2</td>
<td>Red</td>
<td>7</td>
<td>Violet</td>
</tr>
<tr>
<td>3</td>
<td>Orange</td>
<td>8</td>
<td>Gray</td>
</tr>
<tr>
<td>4</td>
<td>Yellow</td>
<td>9</td>
<td>White</td>
</tr>
<tr>
<td>5</td>
<td>Green</td>
<td>0</td>
<td>Black</td>
</tr>
</tbody>
</table>

* 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**

<table>
<thead>
<tr>
<th>Cable Length [meters]</th>
<th>≤1 m</th>
<th>&gt;1 m, ≤9 m</th>
<th>&gt;9 m, ≤16 m</th>
<th>&gt;16 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerance [millimeters]</td>
<td>±25</td>
<td>±50</td>
<td>±75</td>
<td>±100</td>
</tr>
</tbody>
</table>

**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:
-55º TO +105ºC

Voltage Rating:
600 Volts
ENVIRONMENTAL CHARACTERISTICS:
EVD connectors, having crimp contacts, meet all of the applicable requirements of MIL-DTL-24308 in addition to the requirements shown below:

<table>
<thead>
<tr>
<th>Test</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP67</td>
<td>Temporary immersion, 0.5 meters for 30 minutes. Mated condition. No water to have penetrated enclosure through connector.</td>
</tr>
<tr>
<td>Humidity per EIA-364-31 method IV, Method 1002.2, Type II</td>
<td>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.</td>
</tr>
<tr>
<td>Fluid Immersion per ANSI/EIA-364-10 Test Conditions A and D</td>
<td>1) No detrimental damage. 2) Meet mating and unmating requirements of MIL-DTL-24308.</td>
</tr>
</tbody>
</table>

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

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

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.
## T E C H N I C A L    C H A R A C T E R I S T I C S ,  c o n t i n u e d

### 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 mm²] through 24 AWG [0.25 mm²]; Solder contacts - 0.042 inch [1.06 mm] minimum hole diameter for 20 AWG [0.5 mm²] through 24 AWG [0.25 mm²] 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:

<table>
<thead>
<tr>
<th>Contact Current Rating, Tested per UL 1977:</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 amperes, 2 contacts energized</td>
</tr>
<tr>
<td>14 amperes, 6 contacts energized</td>
</tr>
<tr>
<td>11 amperes, 15 contacts energized</td>
</tr>
<tr>
<td>10 amperes, 25 contacts energized</td>
</tr>
<tr>
<td>9 amperes, 50 contacts energized</td>
</tr>
</tbody>
</table>


### 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.

### 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

RECOMMENDED MATING DIMENSIONS

OPTIONAL SHELL ASSEMBLY (0)

0.120 ±0.005 [3.05 ±0.13] Mounting hole, two places for stainless steel shell (0 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

<table>
<thead>
<tr>
<th>CONNECTOR VARIANT SIZES</th>
<th>GENDER</th>
<th>A ±0.015 [0.38]</th>
<th>B ±0.005 [0.13]</th>
<th>B1 ±0.005 [0.13]</th>
<th>C ±0.005 [0.13]</th>
<th>D ±0.005 [0.13]</th>
<th>D1 ±0.005 [0.13]</th>
<th>E ±0.015 [0.38]</th>
<th>F ±0.010 [0.25]</th>
<th>G ±0.010 [0.25]</th>
<th>H ±0.010 [0.25]</th>
<th>K ±0.005 [0.13]</th>
<th>M ±0.010 [0.25]</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVD 25 (SHELL SIZE 3)</td>
<td>MALE</td>
<td>2.088 [53.04]</td>
<td>1.534 [38.96]</td>
<td>1.852 [47.04]</td>
<td>0.329 [8.36]</td>
<td>0.494 [12.55]</td>
<td>1.625 [41.28]</td>
<td>0.422 [10.72]</td>
<td>0.230 [6.84]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
</tr>
<tr>
<td></td>
<td>FEMALE</td>
<td>2.088 [53.04]</td>
<td>1.511 [38.38]</td>
<td>1.852 [47.04]</td>
<td>0.311 [7.90]</td>
<td>0.494 [12.55]</td>
<td>1.625 [41.28]</td>
<td>0.422 [10.72]</td>
<td>0.230 [6.84]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
</tr>
<tr>
<td>EVD 37 (SHELL SIZE 4)</td>
<td>MALE</td>
<td>2.729 [69.32]</td>
<td>2.182 [55.42]</td>
<td>2.500 [63.50]</td>
<td>0.329 [8.36]</td>
<td>0.494 [12.55]</td>
<td>2.272 [57.71]</td>
<td>0.422 [10.72]</td>
<td>0.230 [6.84]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
</tr>
<tr>
<td></td>
<td>FEMALE</td>
<td>2.729 [69.32]</td>
<td>2.169 [54.50]</td>
<td>2.500 [63.50]</td>
<td>0.311 [7.90]</td>
<td>0.494 [12.55]</td>
<td>2.272 [57.71]</td>
<td>0.422 [10.72]</td>
<td>0.230 [6.84]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
</tr>
<tr>
<td>EVD 50 (SHELL SIZE 5)</td>
<td>MALE</td>
<td>2.635 [66.93]</td>
<td>2.079 [52.81]</td>
<td>2.406 [61.17]</td>
<td>0.441 [11.20]</td>
<td>0.605 [15.37]</td>
<td>2.178 [55.30]</td>
<td>0.534 [13.56]</td>
<td>0.230 [6.84]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
<td>0.426 [10.82]</td>
</tr>
</tbody>
</table>

DIMENSIONS ARE IN INCHES [MILLIMETERS]. ALL DIMENSIONS ARE SUBJECT TO CHANGE.
EVD SERIES DESIGN
ENVIRONMENTAL SEALING FEATURES

FEMALE CONNECTOR

MALE CONNECTOR

SEALING PLUG

INTERFACIAL SEAL

GROMMET

CONTACT RETENTION CLIP

REAR SHELL

FRONT SHELL

SEALANT

CONNECTOR INSERT

FEMALE CONTACT

MALE CONTACT

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

SEALING PLUG

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]

Material: Fluorosilicone and silicone blend.
Contact technical sales for ordering information.

DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.
MILITARY LEVEL REMOVABLE CRIMP CONTACT

FOR USE WITH EVD SERIES CONNECTORS

SIZE 20

FEMALE CONTACT

“CLOSED ENTRY” DESIGN

MALE CONTACT

FEMALE CONTACT

“CLOSED ENTRY” DESIGN

MALE CONTACT

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>WIRE SIZE AWG/[mm²]</th>
<th>ØA</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC6020D2-14</td>
<td>20 / 22 / 24</td>
<td>0.045 [1.14]</td>
</tr>
<tr>
<td>MC6020D-14</td>
<td>20 / 22 / 24</td>
<td>0.045 [1.14]</td>
</tr>
</tbody>
</table>

INDUSTRIAL / MILITARY LEVEL REMOVABLE CRIMP CONTACT

FOR USE WITH EVD SERIES CONNECTORS

SIZE 20

FEMALE CONTACT

“CLOSED ENTRY” DESIGN

MALE CONTACT

FEMALE CONTACT

“CLOSED ENTRY” DESIGN

MALE CONTACT

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>WIRE SIZE AWG/[mm²]</th>
<th>ØA</th>
</tr>
</thead>
<tbody>
<tr>
<td>*M39029/63-368</td>
<td>20 / 22 / 24</td>
<td>0.066 [1.68]</td>
</tr>
<tr>
<td>*M39029/64-369</td>
<td>20 / 22 / 24</td>
<td>0.066 [1.68]</td>
</tr>
</tbody>
</table>

PROFESSIONAL LEVEL REMOVABLE CRIMP CONTACT

FOR USE WITH EVD SERIES CONNECTORS

SIZE 20

FEMALE CONTACT

“ROBI-D” OPEN ENTRY DESIGN

MALE CONTACT

FEMALE CONTACT

“ROBI-D” OPEN ENTRY DESIGN

MALE CONTACT

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>WIRE SIZE AWG/[mm²]</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC6520D-14</td>
<td>20 / 22 / 24</td>
</tr>
</tbody>
</table>

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

**FOR USE WITH EVD SERIES CONNECTORS**

**SIZE 20**

---

**FEMALE CONTACT**

“CLOSED ENTRY” DESIGN

**MALE CONTACT**

---

### TYPE MATERIAL

<table>
<thead>
<tr>
<th>Type</th>
<th>Material</th>
<th>Female Part Number</th>
<th>Male Part Number</th>
<th>Color Code</th>
<th>Wire Size AWG [mm²] ØA</th>
<th>ØB</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>CHROMEL (+)</td>
<td>FC6020D2CH††</td>
<td>MC6020DCH†</td>
<td>WHITE</td>
<td>20 / 22 / 24 [0.5 / 0.3 / 0.25]</td>
<td>0.066</td>
</tr>
<tr>
<td></td>
<td>ALUMEL (-)</td>
<td>FC6020D2AL††</td>
<td>MC6020DAL†</td>
<td>GREEN</td>
<td>20 / 22 / 24 [0.5 / 0.3 / 0.25]</td>
<td>0.066</td>
</tr>
<tr>
<td>T</td>
<td>COPPER (+)</td>
<td>FC6020D2CU††</td>
<td>MC6020DCU†</td>
<td>RED</td>
<td>20 / 22 / 24 [0.5 / 0.3 / 0.25]</td>
<td>0.066</td>
</tr>
<tr>
<td></td>
<td>CONSTANTAN (-)</td>
<td>FC6020D2CO††</td>
<td>MC6020DCO†</td>
<td>YELLOW</td>
<td>20 / 22 / 24 [0.5 / 0.3 / 0.25]</td>
<td>0.066</td>
</tr>
<tr>
<td>E</td>
<td>CHROMEL (+)</td>
<td>FC6020D2CH††</td>
<td>MC6020DCH†</td>
<td>WHITE</td>
<td>20 / 22 / 24 [0.5 / 0.3 / 0.25]</td>
<td>0.066</td>
</tr>
<tr>
<td></td>
<td>CONSTANTAN (-)</td>
<td>FC6020D2CO††</td>
<td>MC6020DCO†</td>
<td>YELLOW</td>
<td>20 / 22 / 24 [0.5 / 0.3 / 0.25]</td>
<td>0.066</td>
</tr>
</tbody>
</table>

*Dimensionally equivalent to M39007/64-369
††Dimensionally equivalent to M39007/63-368

---

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.

Chrome® and Alumel® are registered trademarks of Hoskins Manufacturing Company.

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

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**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.

---

DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.
## Ordering Information - Code Numbering System

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

### Step 1 - Basic Series

EVD Series

### Step 2 - EVD Connector Variants

9, 15, 25, 37, 50

### Step 3 - Connector Gender

P - Male with interfacial seal
S - Female - PosiBand closed entry contact design

### Step 4 - Type of Contacts

0 - Contacts ordered separately. See pages 39 & 40.
1 - Crimp, 20 AWG - 24 AWG [0.5 mm² - 0.25 mm²] kitted with connector.
2 - Solder, 20 AWG - 24 AWG [0.5 mm² - 0.25 mm²] kitted with connector.

### Step 5 - Mounting Style

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.

### Step 6 - Hoods

0 - None.
Z - Composite hood with rotating male jackscrews.
Z4 - Composite hood with fixed female jackscrews.

### Step 7 - Locking Systems

0 - None. Use only with 'Z' or 'Z4' (step 6).
T2 - Fixed female jackscrews.
E - Rotating male jackscrews.

### Step 8 - Shell Options

* - Stainless steel, passivated.
0 - Zinc plated with chromate seal.

### Step 9 - Environmental Compliance Options

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

**Step 10 - Special Options Consult Technical Sales**

### 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 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

4-40 UNC
Threads

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

4-40 UNC
Threads

C8
PHOSPHOR BRONZE,
TIN PLATE

4-40 UNC
Threads

Mounting Bracket

Enclosure

0.150 [3.81]

0.130 [3.30]

Water-tight
Sealing

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

ENCLOSURE WALL MOUNT SEALING PLATE
FOR USE WITH WD AND WDD SERIES
CODE A (STEP 6)

INSIDE WALL ENCLOSURE MOUNT

UNIBODY DESIGN

Enclosure

O-ring

0.150 [3.81]

0.080 [2.03] max.

Enclosure mount sealing plate

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.

LEGACY DESIGN

Enclosure

O-ring

0.150 [3.81]

0.080 [2.03] max.

Enclosure mount sealing plate

Sealing Plate Material:
Glass filled thermoplastic

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

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]

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

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

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

FOR USE WITH WD, WDD OR EVD SERIES

**CODE Z OR Z4 (STEP 6)**

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

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

### Typical part numbers:

- **D25000Z00**
- **D25000Z400**

### Insert Tree Assembly

Various inserts are provided to accommodate different cable sizes.

### Typical Inserts

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

### Attenuation:
40+ decibels

### Cable Opening

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>MIN.</th>
<th>MAXIMUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>D9000Z00</td>
<td>1.387</td>
<td>1.935</td>
<td>0.735</td>
<td>0.100</td>
<td>0.400 x 0.570</td>
</tr>
<tr>
<td>D9000Z400</td>
<td>1.387</td>
<td>1.935</td>
<td>0.735</td>
<td>0.100</td>
<td>0.400 x 0.570</td>
</tr>
<tr>
<td>D15000Z00</td>
<td>1.715</td>
<td>1.935</td>
<td>0.735</td>
<td>0.100</td>
<td>0.400 x 0.570</td>
</tr>
<tr>
<td>D15000Z400</td>
<td>1.715</td>
<td>1.935</td>
<td>0.735</td>
<td>0.100</td>
<td>0.400 x 0.570</td>
</tr>
<tr>
<td>D25000Z00</td>
<td>2.254</td>
<td>2.200</td>
<td>0.735</td>
<td>0.100</td>
<td>0.550 x 0.570</td>
</tr>
<tr>
<td>D25000Z400</td>
<td>2.254</td>
<td>2.200</td>
<td>0.735</td>
<td>0.100</td>
<td>0.550 x 0.570</td>
</tr>
<tr>
<td>D37000Z00</td>
<td>2.903</td>
<td>2.200</td>
<td>0.735</td>
<td>0.100</td>
<td>0.550 x 0.570</td>
</tr>
<tr>
<td>D37000Z400</td>
<td>2.903</td>
<td>2.200</td>
<td>0.735</td>
<td>0.100</td>
<td>0.550 x 0.570</td>
</tr>
<tr>
<td>D50000Z00</td>
<td>3.809</td>
<td>2.700</td>
<td>0.900</td>
<td>0.100</td>
<td>0.630 x Ø 0.630</td>
</tr>
<tr>
<td>D50000Z400</td>
<td>3.809</td>
<td>2.700</td>
<td>0.900</td>
<td>0.100</td>
<td>0.630 x Ø 0.630</td>
</tr>
</tbody>
</table>

### Dimensions are in inches [millimeters].

**CONTACT TECHNICAL SALES FOR MORE INFORMATION**
ENCLOSURE WALL CUTOUT FOR CONNECTORS
WD SERIES AND WDD SERIES

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

<table>
<thead>
<tr>
<th>SHELL SIZE</th>
<th>WD</th>
<th>WDD</th>
<th>MOUNTING</th>
<th>A ±0.005</th>
<th>B ±0.005</th>
<th>C ±0.005</th>
<th>D ±0.005</th>
<th>E ±0.005</th>
<th>F ±0.005</th>
<th>G ±0.002</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 15/9</td>
<td>Inside Wall</td>
<td>0.806</td>
<td>0.403</td>
<td>0.984</td>
<td>0.492</td>
<td>0.449</td>
<td>0.225</td>
<td>0.132</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outside Wall</td>
<td>0.924</td>
<td>0.437</td>
<td>0.984</td>
<td>0.492</td>
<td>0.513</td>
<td>0.257</td>
<td>0.083</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 26/15</td>
<td>Inside Wall</td>
<td>1.134</td>
<td>0.567</td>
<td>1.312</td>
<td>0.656</td>
<td>0.449</td>
<td>0.226</td>
<td>0.132</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outside Wall</td>
<td>1.292</td>
<td>0.601</td>
<td>1.312</td>
<td>0.656</td>
<td>0.513</td>
<td>0.257</td>
<td>0.083</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 44/25</td>
<td>Inside Wall</td>
<td>1.674</td>
<td>0.837</td>
<td>1.852</td>
<td>0.926</td>
<td>0.449</td>
<td>0.226</td>
<td>0.132</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Outside Wall</td>
<td>1.743</td>
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<td>0.926</td>
<td>0.513</td>
<td>0.257</td>
<td>0.083</td>
<td></td>
<td></td>
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<tr>
<td>4 62/37</td>
<td>Inside Wall</td>
<td>2.326</td>
<td>1.163</td>
<td>2.500</td>
<td>1.250</td>
<td>0.449</td>
<td>0.226</td>
<td>0.132</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outside Wall</td>
<td>2.391</td>
<td>1.196</td>
<td>2.500</td>
<td>1.250</td>
<td>0.513</td>
<td>0.267</td>
<td>0.083</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 78/50</td>
<td>Inside Wall</td>
<td>2.218</td>
<td>1.109</td>
<td>2.406</td>
<td>1.203</td>
<td>0.555</td>
<td>0.278</td>
<td>0.132</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outside Wall</td>
<td>2.297</td>
<td>1.149</td>
<td>2.406</td>
<td>1.203</td>
<td>0.623</td>
<td>0.312</td>
<td>0.083</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 WD CONDUCTIVE REPLACEMENT PART NUMBER WITHOUT EARS STATIC DISSIPATIVE REPLACEMENT PART NUMBER WITHOUT EARS REPLACEMENT PART NUMBER WITH EARS

<table>
<thead>
<tr>
<th>WD EVD</th>
<th>WDD</th>
<th>CONDUCTIVE REPLACEMENT PART NUMBER WITHOUT EARS</th>
<th>STATIC DISSIPATIVE REPLACEMENT PART NUMBER WITHOUT EARS</th>
<th>REPLACEMENT PART NUMBER WITH EARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>9M</td>
<td>15M</td>
<td>4931-9-0-0</td>
<td>4931-9-1-0</td>
<td>4931-9-100-0</td>
</tr>
<tr>
<td>9F</td>
<td>15F</td>
<td>4932-9-0-0</td>
<td>4932-9-1-0</td>
<td>4932-9-100-0</td>
</tr>
<tr>
<td>15M</td>
<td>26M</td>
<td>4931-15-0-0</td>
<td>4931-15-1-0</td>
<td>4931-15-100-0</td>
</tr>
<tr>
<td>15F</td>
<td>26F</td>
<td>4932-15-0-0</td>
<td>4932-15-1-0</td>
<td>4932-15-100-0</td>
</tr>
<tr>
<td>25M</td>
<td>44M</td>
<td>4931-25-0-0</td>
<td>4931-25-1-0</td>
<td>4931-25-100-0</td>
</tr>
<tr>
<td>25F</td>
<td>44F</td>
<td>4932-25-0-0</td>
<td>4932-25-1-0</td>
<td>4932-25-100-0</td>
</tr>
<tr>
<td>37M</td>
<td>62M</td>
<td>4931-37-0-0</td>
<td>4931-37-1-0</td>
<td>4931-37-100-0</td>
</tr>
<tr>
<td>37F</td>
<td>62F</td>
<td>4932-37-0-0</td>
<td>4932-37-1-0</td>
<td>4932-37-100-0</td>
</tr>
<tr>
<td>50M</td>
<td>78M</td>
<td>4931-50-0-0</td>
<td>4931-50-1-0</td>
<td>4931-50-100-0</td>
</tr>
<tr>
<td>50F</td>
<td>78F</td>
<td>4932-50-0-0</td>
<td>4932-50-1-0</td>
<td>4932-50-100-0</td>
</tr>
</tbody>
</table>

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

**NEW! OTHER SEALED D-SUBMINIATURE CONNECTOR OPTIONS**

- Contacts have special water-tight interference fit seal into insulator
- Panel mount sealing plate
- Female contact
- Silicone sealant

**MD STYLE CONNECTOR**

- Rear shell
- Front shell

- Contacts are sealed to insulator with epoxy sealant
- Female contact
- Silicone sealant

**COMBO-D STYLE CONNECTOR**

- Rear shell
- Front shell

- Epoxy sealant
- O-ring seal

**ODD STYLE CONNECTOR**

- Male contact
- Front shell

- Interfacial seal
- Silicone sealant

**COMBO-D STYLE CONNECTOR**

- Male contact
- Front shell

- Interfacial seal, contact technical sales for availability of all sizes
- Silicone sealant

**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.
**MACHINED ALUMINUM MOUNTING PLATE WITH CONDUCTIVE O-RING**

Panel mount sealing plate

Enclosure shown for reference only

Silicone sealant

Front shell

Epoxy sealant

O-ring seal

0.080 [2.03] max. panel thickness

Panel mount jackscrews

0.150 [3.81] max. practical limit

0.177 [4.50]

Rear shell

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.

Enclosure

Enclosure mount sealing plate

4-40 UNC Threads

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.
EVD connectors are offered with removable crimp contacts.

Positronic 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/design-tools/tooling

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.
## CONTACT APPLICATION TOOLS CROSS REFERENCE LIST

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

<table>
<thead>
<tr>
<th>Application Tools</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Crimp Tool</td>
<td>9953-1-0-0</td>
<td>See note*</td>
</tr>
<tr>
<td>Mill Eqv.</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Mfg. Cross</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Removal Tool</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Mill Eqv.</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Mfg. Cross</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Insertion Tool</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Mill Eqv.</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Mfg. Cross</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Postioner</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Mill Eqv.</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Mfg. Cross</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Hand Crimp Tool</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Positronic Contact Part Number</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Automatic Crimp Tool</td>
<td>9953-1-0-0</td>
<td>See note*</td>
</tr>
<tr>
<td>Mill Eqv.</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Mfg. Cross</td>
<td>9953-1-0-0</td>
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</tr>
<tr>
<td>Removal Tool</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Mill Eqv.</td>
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<td>Insertion Tool</td>
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</tr>
<tr>
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<td>9953-1-0-0</td>
<td></td>
</tr>
<tr>
<td>Positronic Contact Part Number</td>
<td>9953-1-0-0</td>
<td></td>
</tr>
</tbody>
</table>

*Note: 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.

**Environmental**

**D-SUB**

**APPLICATION TOOLS**

**connectpositronic.com**

**APPLICATION TOOLS**

**NEW!**

**48 DIMENSIONS ARE IN INCHES [MILLIMETERS].**

**ALL DIMENSIONS ARE SUBJECT TO CHANGE.**
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

<table>
<thead>
<tr>
<th>SOLID FOREIGN BODIES</th>
<th>LIQUIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST CHARACTERISTIC NUMERAL</strong></td>
<td><strong>OBJECT SIZE</strong></td>
</tr>
<tr>
<td>0</td>
<td>No protection of persons against contact with live or moving parts inside the enclosure. No protection of equipment against ingress of solid foreign bodies.</td>
</tr>
<tr>
<td>1</td>
<td>&gt;50 mm</td>
</tr>
<tr>
<td>2</td>
<td>&gt;12.5 mm</td>
</tr>
<tr>
<td>3</td>
<td>&gt;2.5 mm</td>
</tr>
<tr>
<td>4</td>
<td>&gt;1.0 mm</td>
</tr>
<tr>
<td>5</td>
<td>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.</td>
</tr>
<tr>
<td>6</td>
<td>Complete protection against contact with live or moving parts inside the enclosure. Protection against ingress of dust.</td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
## DESCRIPTION OF NEMA ENCLOSURE TYPES

<table>
<thead>
<tr>
<th>TYPE</th>
<th>INTENDED USE AND DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indoor use primarily to provide a degree of protection against limited amounts of falling dirt.</td>
</tr>
<tr>
<td>2</td>
<td>Indoor use primarily to provide a degree of protection against limited amounts of falling water and dirt.</td>
</tr>
<tr>
<td>3</td>
<td>Outdoor use primarily to provide a degree of protection against rain, sleet, windblown dust and damage from external ice formation.</td>
</tr>
<tr>
<td>3R</td>
<td>Outdoor use primarily to provide a degree of protection against rain, sleet and damage from external ice formation.</td>
</tr>
<tr>
<td>3S</td>
<td>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.</td>
</tr>
<tr>
<td>4</td>
<td>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.</td>
</tr>
<tr>
<td>4X</td>
<td>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.</td>
</tr>
<tr>
<td>5</td>
<td>Indoor use primarily to provide a degree of protection against settling airborne dust, falling dirt and dripping noncorrosive liquids.</td>
</tr>
<tr>
<td>6</td>
<td>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.</td>
</tr>
<tr>
<td>6P</td>
<td>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.</td>
</tr>
<tr>
<td>12, 12K</td>
<td>Indoor use primarily to provide a degree of protection against circulating dust, falling dust, falling dirt and dripping noncorrosive liquids.</td>
</tr>
<tr>
<td>13</td>
<td>Indoor use primarily to provide a degree of protection against dust, spraying of water, oil and noncorrosive coolant.</td>
</tr>
</tbody>
</table>

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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 of 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.

<table>
<thead>
<tr>
<th>NEMA ENCLOSEMENT TYPE NUMBER</th>
<th>IEC ENCLOSEMENT CLASSIFICATION DESIGNATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IP10</td>
</tr>
<tr>
<td>2</td>
<td>IP11</td>
</tr>
<tr>
<td>3</td>
<td>IP54</td>
</tr>
<tr>
<td>3r</td>
<td>IP14</td>
</tr>
<tr>
<td>3s</td>
<td>IP54</td>
</tr>
<tr>
<td>4 and 4x</td>
<td>IP56</td>
</tr>
<tr>
<td>5</td>
<td>IP52</td>
</tr>
<tr>
<td>6 and 6p</td>
<td>IP67</td>
</tr>
<tr>
<td>12 and 12K</td>
<td>IP52</td>
</tr>
<tr>
<td>13</td>
<td>IP54</td>
</tr>
</tbody>
</table>

Note: This comparison is based on tests specified in IEC Publication 60529.
Positronic 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.
Positronic HIGH RELIABILITY Products

**POWER**
- Contact Sizes: 0, 8, 12, 16, 20, 22 and 24
- Current Ratings: To 200 amperes per contact
- Terminations: Crimp and fixed cable connector, straight solder, 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

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

**D-SUBMINIATURE**
- Contact Sizes: 8, 16, 20 and 22
- Current Ratings: To 13 amperes nominal
- Terminations: Crimp, wire solder, straight solder, right angle (90°) solder, 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

**FEATURES:**
- Two performance levels available: industrial quality and military quality
- A wide variety of accessories
- Broad selection of contact arrangement and package sizes
- Connector coding device (keying) options

**RECTANGULAR**
- 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**
- 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

**FEATURES:**
- Intended for use as an electrical feedthrough in high vacuum applications
- Helium leakage rate at ambient temperature: ≤ 8x10⁻⁹ mbar·l/s under a vacuum 1.5x10⁻² mbar
- Signal, power, coax and high voltage versions available
- Connectors can be mounted on flange assembly per customer specification

**CABLE**
- 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

**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

**HERMETIC**
- 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.

For more information, visit www.connectpositronic.com or call your nearest Positronic sales office listed on the back of this catalog.
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Sales Offices  
Positronic has local sales representation all over the world. To find the nearest sales office, please visit [www.connectpositronic.com/locations](http://www.connectpositronic.com/locations)