

## Connection Technology For Harsh Environment



# Sealed D-sub

IP 65 / IP 67 Rated

CONEC – Sealed D-sub IP 65 / IP 67 Rated

Welcome to the Conec Connector system for Harsh Environments. Conec is a world-class manufacturer offering one of the broadest lines of high reliable water-sealed products. Our many years of engineering excellence provide harsh environment solutions for many industries.

## Sealed D-sub:

*Target: any application that will be subject to harsh environments, specifically the need for **Sealing** against Liquids & Dusts.*

2 Types of Applications:

- those that are occasionally or accidentally wet
- those that are expected to be wet often, if not continuously



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Outside the usual 'office' environment, there are many industrial electronics products that require a robust, sealed connector system, to protect it from the expected process liquids, or from accidental soakings.

## Just How SEALED is Sealed?



> Ingress Protection rating of “IP 67” means:

### Solid Objects

- 0 no protection
- 2 no fingers
- 4 1.0 mm object
- **6 not even dust**
- ref. IEC 529

### Liquids

- 0 no protection
- 3 rain at 60 degrees
- 5 water jets
- 6 ship deck scenario
- 7 immersion, defined**
- 8 submersion, indefinite

**Industry accepted test: 1 meter depth for 30 minutes.**

Since the environment can cause an infinite number of water hazards, the industry rates Degree of Protection on a scale, and Conec Sealed D-sub's are rated as IP67. That is a very tough environment for electronic devices, and only continuous submersion could be worse, and fortunately, unlikely for the target market. The industry agreed-upon test is immersion in water for 30 minutes, at a depth of 1 meter, with no air/water leakage.

# Ingress Protection



## “IP 67” in practical terms >>

- ✓ you can leave them outside
- ✓ you can drop them in a puddle
- ✓ they can be rained on
- ✓ you can hose them down

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Complicated explanations aside, Conec Sealed D-subS can be used for electronic applications that might get left outside, accidentally, or intentionally; on portable equipment that might get dropped in a puddle; on vehicular equipment that will be rained on or hosed down. Conec Sealed D-subS can likely be used on 90% of the ‘wet’ applications, the 10% balance requiring much more expensive technology solutions.

# CONEC Sealed D-sub



## Examples of Applications using Sealed D-sub:

### INDOORS:

- industrial machinery, CNC machines
- food and chemical process equip
- industrial process control
- test equipment
- medical equipment
- factory automation, robotics



### OUTDOORS:

- outdoor communication equipment
- outdoor displays / signs
- ruggedized computers
- GPS & Survey equipment
- surveillance systems, X-ray screening
- utilities
- chemical plants



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While there can be many Indoor applications that involve the presence of liquids for washing or cooling, you will also realize that there are many Outdoor electronics applications that can use Conec Sealed D-sub. As you see from the list, it is very diverse. Until now, most designers didn't know a Sealed D-sub existed and often used much more expensive MIL class connectors. Now they have a choice that is cost effective for commercial/industrial applications.

## WATER RESISTANT D-SUB CONNECTORS



- Environmentally Sealed, to IP67 rating
- Materials resist most common chemicals, not just water
- Seals are flexible over broad temp. range
- BRASS shells, tin plated, for corrosion resistance
- **Stainless Steel** option for Outdoor use
- D-Sub, High Density, Filter D-Sub & Combination D's...
- **CONEC seals them ALL**



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While the original intention was to prevent Water Ingress, these connectors also seal out many other fluids such as automotive liquids, and cleaning solutions as might be used in food processing. Replacing the common steel shells, Conec uses brass components, and for really harsh environments, stainless steel shells. Since Conec can seal just about any D-sub, regardless of size, contact density, or termination, this is the broadest line of Sealed D-sub anywhere.

## Sealing Construction



- Frame with O-ring to ensure panel-connector seal
- Interfacial Seal to ensure function even when immersed
- Internal potting to prevent liquid ingress to the device
- Blind threaded holes, to eliminate a leak path

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Conec Sealed D-sub connectors are not just a standard connector with 'sealant' added as an afterthought. This is an engineered product, providing the user with a ready-to-install connector, which : a) seals the connector-to-panel joint, b) seals connector-to-connector when mated to make it electrically functional even when wet, not just a protection for the box contents, and c) seals the path thru the connector in the event of liquid exposure when not mated.

## CONEC Sealed D-sub

### Product features

- Machined contacts for high reliability
- 30 microinch gold plated contacts for long life stability
- corrosion resistant materials, no ferrous materials to rust
- IP 67 protection even when NOT mated
- variety of mounting styles
- ALL D-sub sizes available, including High Density, Combination, and EMI Filtered
- NEW 2009 Solid-Body diecast version
- UL & CSA certified



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The basis of this product, is a high end industrial connector, featuring machined contacts with 30 microinches of gold plating. Add to that the Conec sealing methods and corrosion resistant components, available in all the common configurations of standard connectors, and you end up with a UL / CSA certified product for the harshest environments of your commercial design.



## **Newest Evolution: Solid Body Design**

**One-Piece Zinc diecast body, for even tougher sealing applications.**

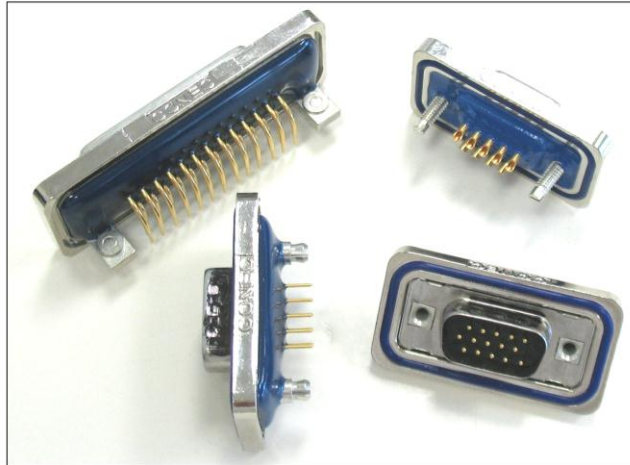


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Introduced in 2009, Conec now has several years ‘in the field’ experience with the ‘Solid-Body’ design. It uses a zinc diecast body, eliminating several potential leak paths, and provides sealing performance even beyond the current IP67 standards for time and pressure.

## Termination Types

- Solder Cup
- Straight PC Tail
- Right Angle PC



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Conec Sealed D-subs are available in all the needed termination types, including: Solder Cup, straight PC tails, and right angle PC tails available in several offsets.

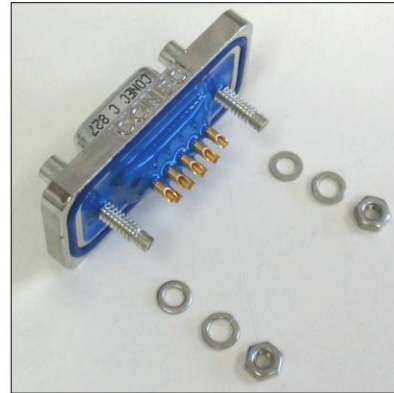
## CONEC Sealed D-sub



Panel Mounting... **Rear (Inside)** or **Front (Outside)**



For panel thicknesses to 3.2 mm



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Most applications have the connector attaching to the panel from the inside (rear mount). However, some choose a Front Mount, and for that configuration Conec offers pre-installed and sealed mounting studs of various lengths, and the necessary hardware parts to complete the installation.

## Sealed Combination D-sub



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If your connector needs go beyond “Signals only”, then the Combination D-sub arrangements allow mixtures of signal and Power contacts, and even coaxial types.

## Sealed Connector Caps

- Protect Unused ports, from liquids, physical damage, and EMI
- Includes rubber seal and hardware
- Available with Lanyard to prevent loss
- Corrosion resistant materials



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Since not all I/O ports are always connected, a useful accessory especially in harsh environments, is a Protective Cap. These caps include an internal rubber seal to positively keep out liquids. Caps with simple screws can be used during the shipment of equipment. For ports subject to connect/disconnect in the field, Caps with Lanyards are suggested so that they don't get lost.

## WaterSealed Hood



- Seals the connector to the Panel
- IP 67
- fits wide range of cable diameters

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Completing the Sealed Connector system, is a Sealed Hood. This adds an additional protective barrier at the panel surface, preventing liquids from reaching the connectors. The detail photos show the included Panel Seal, and the size-variable cable seal. The jackscrews are also sealed with o-rings.

- Thank you for exploring the world of Sealed D-subcs from Conec.