

How To Select the Proper Backshell

1. Successful backshell selection begins with identifying the application, based on how the completed interconnect solution will be used. Factors to define are:

Intended environment of use (exposure to dirt, moisture, electrical or radio interference)

Connector type (size, shape)

Cable diameter

Size, shape or cable routing restrictions

Mil-spec performance requirements

2. Based on the design and application demands, select the backshell type you'll need from one of the following families:

Non-Environmental: Will be used where no harsh environment will be present (dust, dirt, moisture, fluids, salt.) Suitable for an inside the box/climate controlled room application or where there is a requirement for additional space between the rear of the connector and the strain relief to allow for cable service loops, jumping, filter networks, etc.

Environmental: Will be used in a harsh environment (dust, dirt, moisture, fluids, salt, temperature extremes.) Most common military specification cylindrical connectors are designed so that they will be environmentally sealed once the backshell or strain relief is secured.

Non-Environmental EMI/RFI: Will be used in an area susceptible to the reception of Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI) where no harsh environment will be present (dust, dirt, moisture, fluids, salt.) EMIs and RFIs originate from coils, electromagnets, electric motors, transformers, fluorescent lighting, high power radar, broadcast stations and other communications circuits.

Environmental EMI/RFI: Will be used in a harsh environment(dust, dirt, moisture, fluids, salt) area susceptible to the reception of Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI.) EMIs and RFIs originate from coils, electromagnets, electric motors, transformers, fluorescent lighting, high power radar, broadcast stations and other communications circuits.

3. Determine most appropriate shape and coupling style that meets your cable routing or space requirements (see [Backshell Shapes and Coupling Types](#) .)

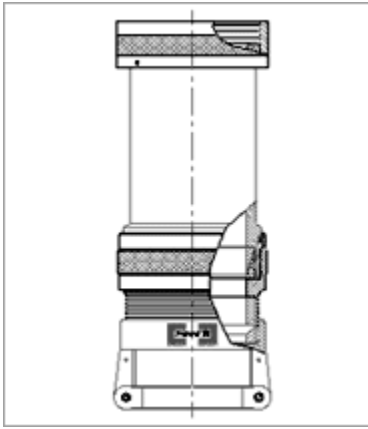
4. Find the connector you will be using in “[Connector Group Tables](#)” and match it up to the backshell group (J – N) in which it will fit. All groups are available in configurations that meet your previously determined environmental and EMI/RFI filtration requirements.

5. Go to the respective environmental group you’ve selected ([Non-Environmental Backshell](#) , [Environmental Backshell](#), [Non-Environmental EMI/RFI Backshell](#), [Environmental EMI/RFI Backshell](#)) and look for the backshell group that you have determined will match your connector. Choose the backshell that corresponds to your connector size, cable diameter and shape requirements. Finishes are explained [here](#) .

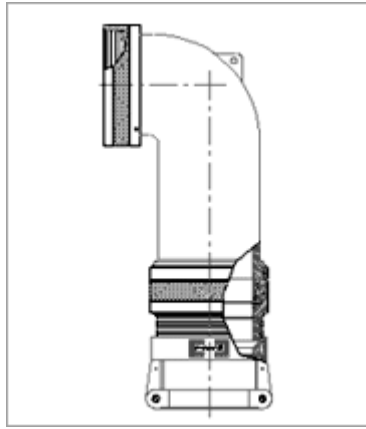
6. Before finalizing your choice, see “[What Accessories Do I Need?](#)” for suggestions as how to optimize the performance of your connector assembly or address specific needs for specialized requirements.

If none of the standard Amphenol PCD backshells fit your specific needs, CDM can help you with a custom solution – call (877) 386-8200 or [email us](#) with your specifications.

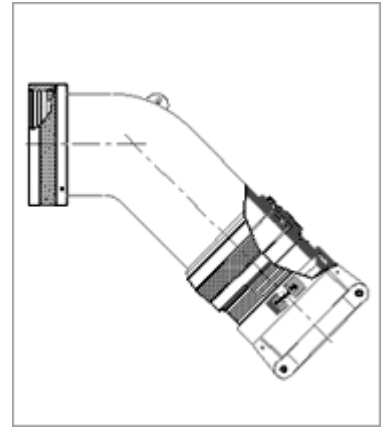
Backshell Shapes



**Straight
Backshell**



**90° Bent
Profile Backshell**



**45° Bent
Profile Backshell**

Coupling Types



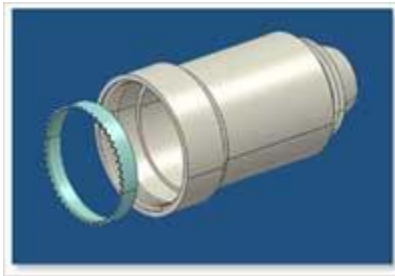
Spin Coupling

This style allows free rotation of the coupling nut onto the backshell and avoids turning the entire backshell body. Lock wire holes are provided on the coupling nut to prevent accidental de-coupling.



Self-Lock Coupling

In self-lock style, the free movement of the coupling nut is stopped so that accidental de-coupling is prevented when used in an environment with moderate vibration levels.



Direct coupling

The coupling nut is eliminated in this design, as the coupling end of the backshell fits directly onto the connector. This coupling type is used where direct connectivity is sufficient (no adverse environmental conditions or vibration are present.)

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Pickup Page

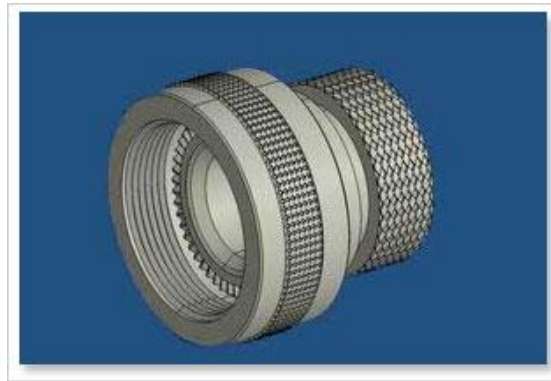
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What Accessories Do I Need?

Depending upon the application, some backshell types can be used without any additional protection or cable support. However, many connector assemblies are subject to harsh environmental conditions, vibration, or regular handling. The accessories shown below can be used with virtually all Amphenol PCD backshells to optimize performance and longevity.



Shrink Boot Adapter

This is a good option when unshielded cables are terminated with heat shrink boots. It has a groove on which the boot lip holds, and provides good grip along with space inside for the cable looping. It is available only in straight version.



Crimp Ring Adapter

Useful where heat shrink boots are used but screens are present. A ring is crimped to the back shell body holding the screens in between. A conventional crimping tool is used for 360° shield termination. Crimp Ring terminations give a low dc resistance.



Band Lock Adapter

This is another useful accessory for terminating screens by use of a band. A design option is to cover the band by heat shrink boot or some other method. Banded terminations give a low dc resistance.



Quick Clamp

Used in applications where minimum cable support is required or weight of the overall connector assembly is a concern.



Strain Relief Clamp

The purpose of this device is to hold or grip the cable fast anterior to the location where any damage to terminations can potentially occur. This is used where environmental protection is not a concern.

If you don't see the accessory that your connector assembly requires, call (877) 386-8200 or [email us](#) with your specifications.

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