Automotive & Heavy Duty Vehicle

Standard Products.

Custom Solutions.

Diagnostic Solutions
Amphenol has been an automotive OEM supplier for automotive diagnostics cable assemblies for 20+ years. These OEM programs must meet the highest standards of quality and reliability in the diagnostic industry. We continue to have an integral part in the following companies and their diagnostic needs:

**Ford Motor Company (IDS, VCM, VMM and WDS programs)**

**GM Tech II • Jaguar • Land Rover • Mercedes • Porsche • BMW • Honda • Mazda • Volvo Man • Knorr Bremse • Iveco Bosch • Teradyne • SPX • CNH Genrad • Rotunda • MPSI • BRP Spyder Mastercraft • Snap-On**

Amphenol can custom design, engineer and manufacture cable assemblies to your exact customer specifications and produce large or small quantities, all to the highest standards, delivered on-time and in-specification, all with a significant cost-savings over the competition.
Standard Connector Products and Custom Solutions

J1962, 16-way Headers (Type “A” and “B” versions available.)

Amphenol J1962 Connectors are designed specifically as a cost-conscious, reliable alternative, intermateable to industry standard OBD II connectors. OBD II provides access to engine control and also monitors parts of the chassis, body and accessory devices, as well as the diagnostic control network of the car.

Wire Gauge Range
18 - 24AWG

Contact Resistance
<30mΩ

Integrated Alignment Keys
Tactile verification for blind mating

Operating Temperature
-55°C TO +125°C - Wide range compatibility

Economically Sound
Low overall cost

Rohs Compliant
Environmentally friendly

Physical Shock
Impact resistant

Durability
10,000 mating cycles

Housings
Thermoplastic

Dielectrical Withstand
1500 volts minimum

Contacts
Stamped/Formed:
Nickel underplate 100u;
Gold plate 5u;
AHD Series™ Diagnostic Connectors (includes J1939)

Amphenol AHD Series™ Diagnostic Connectors (including J1939) are designed specifically as a cost-conscious, reliable alternative, intermateable to industry standard 6 and 9 pin connectors. The AHD Series™ is ideal for any situation where either controlled and/or uncontrolled environmental conditions exist. Offered in both a smooth, non-sealing option for controlled applications, as well as an environmentally-sealed, threaded option for more demanding applications.

- **Integrated Alignment Keys**: Tactile verification for blind mating
- **Operating Temperature**: -55°C TO +125°C - Wide range compatibility
- **RoHS Compliant**: Environmentally friendly
- **UL APPROVAL**: Certified and compliant
- **Contact Current Rating**: At +125°C, continuous, less thru wire: #12 contact = 25 amps max. current; #16 contact = 13 amps max. current
- **Physical Shock**: No locking, unmating or other unsatisfactory result after 50 g’s in each of three mutually perpendicular planes.
- **Dielectrical Strength**: 1500 volts minimum
- **Vibration**: Maintains continuity and exhibits no mechanical or physical damage after vibration. (20 g’s at 10-2000 Hz) 1000 megohms minimum at 25°C.
- **Insulation Resistance**: No electric or mechanical defects after 100 cycles of engagement and disengagement.
- **Durability**: Connectors show no evidence of corrosion after exposure to 48 hours of salt spray per MIL-STD 1344 method 1001.
- **Corrosion Resistance**: Silicone Elastomer
- **Seals**: Copper Alloy/Gold plated
- **Contacts**: Copper Alloy/Gold plated
ABG, 19 Pos Connector

Amphenol ABG Connectors are designed as a high-performance, cost-effective solution to diagnostic industries requiring high mating cycles and rapid connections and disconnections. By featuring a spring-loaded, self-lubricating polyurethane pad, the ABG Connector’s contacts are continuously lubricated to ensure longevity. With its specific design, continuous mating and unmating is done with ease, no matter the location or application.

**Wire Gauge Range**
18 - 24AWG

**Current Rating**
5A

**Operating Temperature**
-55°C to +125°C

**Insulation Resistance**
5000 MQ min.

**Durability**
Min. 5000 matings

**Vibration**
5-50Hz, 0.5 dA; 8 hrs axis

**Connector Body and Strain Relief**
Glass-filled thermoplast UL94-V0

**Locking Latch**
Stainless Steel

**Compression Spring**
Music Wire, Nickel-plated

**Lubricating Pad**
Polyurethane foam

**Rivet**
Brass, Tin-plated

**Strain Relief Screws**
Steel, Cadmium-plated

**Contacts**
Tin over Nickel, Gold flash plate overall; Available in Gold plate 10μ and 30μ

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AT Series™ Connectors

Amphenol AT Series™ Connectors are designed as a high-performance, cost-effective solution to be used in the Heavy Equipment, Agricultural, Automotive, Diagnostic, Alternative Energy and other demanding interconnect architectures. The AT Series™ connectors contain superior environmental seals, seal retention capabilities and feature our RockSolid™ Contact technology.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Capacity</td>
<td>No. 16, 13A</td>
</tr>
<tr>
<td>Wire Range</td>
<td>No. 16, 14 - 20AWG</td>
</tr>
<tr>
<td>Operating Temp.</td>
<td>-55°C to +125°C</td>
</tr>
<tr>
<td>Dielectric Value</td>
<td>Meets or exceeds 1500 volts minimum</td>
</tr>
<tr>
<td>Flame Resistance</td>
<td>All dielectric materials have a flammability rating of UL94 HB or better</td>
</tr>
<tr>
<td>Shock</td>
<td>No latch disengagement or discontinuity shall be the result when subjected to 50 g’s in each of three axes (X, Y &amp; Z)</td>
</tr>
<tr>
<td>Vibration</td>
<td>Continued continuity without degradation to mechanical or physical attributes following vibration, (max acceleration 20 g’s at Sine sweep of 10-2000Hz)</td>
</tr>
<tr>
<td>Connector Terminal Retention</td>
<td>When subjected to a direct pull, size 14-20 achieves minimum pull-out force of 110 newtons</td>
</tr>
<tr>
<td>Connector Retention</td>
<td>A mated connector subjected to a pulling force by the exiting wire bundle at 111 newtons times the number of contacts to a maximum of 444 newtons applying load for 30 seconds</td>
</tr>
<tr>
<td>Thermal Shock</td>
<td>Subjected to 10 cycles at -55°C to +125°C with no cracking, chipping or other damage detrimental to the normal operation of the connector</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>Insulation resistance at 25°C shall be greater than 20 megohms when 1000 VDC are applied</td>
</tr>
<tr>
<td>Durability</td>
<td>No electric or mechanical defects after 100 cycles of engagement and disengagement</td>
</tr>
<tr>
<td>Mating Cycle Durability</td>
<td>Following 100 cycles of connection engagement and disengagement, degradation either mechanical or electrical is not evident</td>
</tr>
<tr>
<td>Contact Millivolt Drop</td>
<td>No. 16 contacts with 16AWG conductor - &quot;100 millivolt drop max at 13A test current</td>
</tr>
<tr>
<td>Ultraviolet Effects</td>
<td>Test the mated connectors for 1000 hours per ASTM G 154 or ASTM G 153 with 20 hours UV and 4 hours of condensation for each cycle</td>
</tr>
<tr>
<td>Water Immersion</td>
<td>A mated connection, properly wired, placed in an oven at +125°C for 1 hour, then placed immediately in a depth of water of 1 meter for 4 hours without loss of electronic performance</td>
</tr>
<tr>
<td>UL Approval</td>
<td>Certified and compliant ECC12</td>
</tr>
<tr>
<td>Housings</td>
<td>Thermoplastic</td>
</tr>
<tr>
<td>Seals</td>
<td>Silicone Elastomer</td>
</tr>
<tr>
<td>Contacts</td>
<td>Copper Alloy, Nickel Plated; Gold optional</td>
</tr>
</tbody>
</table>
ECTA133 series Connectors

This Connector with its rugged design, convenient push-pull operation, wide range of contact sizes and high contact density. It provides an ideal component to use in a wide range of applications especially by test equipment, tool interconnection and Diagnostic equipment by Automobile, trucks and Railway.

The connectors series Ecta133 are designed, produced and certified according to EN61984. Authoritative for use of connectors are the respective requirements of the device specifications. By diagnostic tool have the Ecta series following benefits:

- 5000 Mating Cycles
- Visual safety connection
- Mixed inserts arrangements
- PCB contacts available
- Pressure tight Receptacle
- Saltspray up to 700 hours

<table>
<thead>
<tr>
<th>Locking system</th>
<th>Push-Pull</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temp.</td>
<td>-40°C to +125°C</td>
</tr>
<tr>
<td>IP rating</td>
<td>Up to IP67 and IP69K for Overmolding Cables</td>
</tr>
<tr>
<td>Shell material</td>
<td>Aluminium alloy with nickel plated finish (Locking ring: Black anodized On request ZINi and Stainless Steel, 316L)</td>
</tr>
<tr>
<td>Insulator Material</td>
<td>Fiber Glass reinforced thermoplast, UL94-V0, DIN 5510-2-S1</td>
</tr>
<tr>
<td>Salt Spray</td>
<td>48 hours and 700 hours for ZINi</td>
</tr>
<tr>
<td>Vibration</td>
<td>IEC 60512 (IEC 68-2-6) 10-2000Hz / 10g / 10 cycles per axis</td>
</tr>
<tr>
<td>Shock</td>
<td>IEC 60512 (IEC 68-2-29) 25g / 6ms / 50 bumps per direction</td>
</tr>
<tr>
<td>Standards</td>
<td>DIN EN 61984-2002-09 (VDE 0627); UL1977; Directive 2002/95/EC RoHs</td>
</tr>
<tr>
<td>Shock</td>
<td>DIN EN 61984; Vibration</td>
</tr>
<tr>
<td>RoHS Compliant</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Series 1332: with 7.5 Amps from 3 to 41 contacts
Series 1331: from 10 Amps to 125 Amps and 3 to 6 contacts

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ECTA 544 series Connectors

The 544 Series offer a range of plastic circular connectors for industrial automation applications by diagnostic equipment and also by robotics, laboratory test equipment, transportation industry and tool interconnection.

A less expensive product of plastic connectors. This circular connectors are made in plastic with a Push-Pull quickly closure. The series consist of 11 different contacts configuration (up to 27 contacts and up to 25Amps) to used with machined, stamped rolled, coax or Fiber optic contacts in solder, crimp or PCB connection.

**Locking system**
- Push-Pull

**Operating Temp.**
- -40°C to + 125°C

**Mating Cycle durability**
- 1000 operations with machined contacts
- 250 operations with stamped rolled contacts
- Up to IP67

**Shell material**
- Thermoplastic with glass fiber UL 94-V0, DIN 5510-2-S1

**Contacts material**
- Copper alloy with nickel and gold plating

**Insulator material**
- Thermoplastic with glass fiber UL 94-V0, DIN 5510-2-S1

**Salt Spray**
- >1000 hours if connector coupled

**Vibration**
- IEC 60512 (IEC 68-2-6) 10-2000Hz / 10g / 10 cycles per axis

**Shocks**
- IEC 60512 (IEC 68-2-29) 25g / 6ms / 50 bumps per direction

**Polarizations**
- Insert permits 3 polarization settings. Shell can be requested with different colors (by 700 pieces demand)

**Standards**
- IEC 488/560/CD (VDE 0627) for connectors

AMPHENOL Diagnostic Solutions
Driven by Amphenol Sine Systems and Amphenol-AirLB GmbH
PT series Connectors

One of the most famous robust connectors for industrial applications. PT Series is a cylindrical metallic connector based on the Mil standard MIL-C-26482 Series 1. With its 3 Pin Bayonet locking system and up to 34 different arrangements configurations, up to 61 contacts in crimp, solder, or PCB version.

Therefore, following specify solutions for diagnostic equipment:

- 5000 Mating cycles
- Customized Flange by the receptacles
- Rotary Knob for the Locking Ring, easy locking
- Salt spary up to 500 hours

<table>
<thead>
<tr>
<th>Locking system</th>
<th>3 Pin Bayonet coupling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temp.</td>
<td>-55°C to +125°C</td>
</tr>
<tr>
<td>Mating Cycle durability</td>
<td>500 cycles</td>
</tr>
<tr>
<td>Mateable</td>
<td>With following standards: MIL-C-83723, LN 29500, LN 29504, NFL 54125, NAS 1599, DEF 5325-3, DEF 5326-3, IEC Publ.130-7</td>
</tr>
<tr>
<td>Backshells</td>
<td>8 different types depend on the duty class</td>
</tr>
<tr>
<td>Shell material</td>
<td>aluminium alloy with nickel plated finish or Olive drab cadmium other plating on request.</td>
</tr>
<tr>
<td>Contacts</td>
<td>Machined contacts AWG16 and AWG20, Crimp, solder, PCB and Wire Warps contacts for current up to 13Amps</td>
</tr>
<tr>
<td>Polarization</td>
<td>5 different coding</td>
</tr>
<tr>
<td>IP rating</td>
<td>Depend on Backshells, up to IP67</td>
</tr>
<tr>
<td>Insulator material</td>
<td>Neoprene</td>
</tr>
<tr>
<td>Shock</td>
<td>IEC 60512 (IEC 68-2-29) 25g / 6ms / 50bumps per direction</td>
</tr>
<tr>
<td>Standards</td>
<td>DIN EN 61984:2002-09 (VDE 0627); UL1977; Directive 2002/95/EC-RoHs</td>
</tr>
<tr>
<td>Arrangement</td>
<td>From 2 to 61 contacts</td>
</tr>
<tr>
<td>RoHS Compliant</td>
<td>Nickel plating</td>
</tr>
</tbody>
</table>

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RT360 Series™ Connectors

Amphenol RT360™ industrial circular connectors are multiway connectors available in 6 shell sizes and 22 insert arrangements with a variety of wire gauge options. RT360 industrial circular connectors are designed to be intermateable with other industry standard connectors, such as Souriau and Cannon Trident series. As part of the RT360™ Circular Connector product line, our RTHP Series™ Single Pole Connectors, featuring RADSO® Connectors, are ideally suited for Hybrid vehicle usage and are available in a variety of sizes and configurations.

**RT Series**
- 6 shell sizes and 11 insert configurations
- Insert arrangements from 4-28 contacts, mixed Power and Signal arrangements
- Operating voltage of 300V
- Current rating: 13A (signal contacts)
- Alternate keying positions available

**RTOW Series**
- 6 shell sizes and 5 insert configurations
- Mating with MIL-C-24682 series connectors
- High density arrangements from 6-32 contacts
- Operating voltage of 150V
- Current rating of 7.5A with machined contacts and 5A with stamped and formed contacts
- Alternate keying positions available

**RTHP Series**
- 4 shell sizes and 5 insert configurations
- Single pole High Power arrangements
- 3.6mm-10mm contact sizes
- Operating voltage of 630V
- Current rating: 56A-455A

| Shells | Zinc Alloy |
| Backshells and Cable Glands | | |
| Coupling Ring | Aluminum |
| Coupling Spring | Spring Stainless Steel |
| Interfacial Seal | Silicone |
| Insert | Glass-filled Thermoplastic UL94-V0 |
| Finish | Nickel |
| RoHS Compliant | Yes |
| Operating Temp | -40°C to +105°C |

| Insulation Resistance | 5000 MΩ min. |
| Durability | 500 matings and unmatings per MIL-STD202 method 204 |
| Vibration Resistance | per MIL-STD202 method 207 |
| Thermal Shock | Salt spray per MIL-STD 202, method 101; 48h (standard version), 96h (black anodised coupling ring) *Higher salt spray resistance (200/500h) upon request. |
| Corrosion | Dynamic IP67 / IP68 in mated condition and in combination with sealed back shell. |

Souriau is a registered trademark of Souriau Corporation; Cannon Trident Series is a registered trademark of ITT Cannon product, none of which are affiliated with Amphenol Sine Systems.

AMPHENOL Diagnostic Solutions
Driven by Amphenol Sine Systems and Amphenol-AirLB GmbH
USB ‘Extreme Service’ Cable Assemblies

Amphenol USB ‘Extreme Service’ Cable Assemblies are ideal for technicians in lab and service bay environments where “off the shelf” cable assemblies regularly fail due to heavy duty usage. Custom engineered and utilized in the Automotive Diagnostic market, the USB ‘Extreme Service’ has been tested and proven under the following conditions: Pull Test, Flex Test Cycling, Torsional Testing, Abrupt Pull (reference UL817), Cold Bend Test and Functional Field Testing.

*Reference assembly P30379-Mxx

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