Commercial/Industrial Circular Connectors
Spectrum Control has been a leader in providing application-specific EMI filtered connector solutions since its founding in 1968. Now, in response to market demand, we have developed a line of circular connectors for commercial and industrial applications that are completely intermateable with MIL-DTL-38999 Series III compact shell connectors.

To meet this need, we reviewed our extensive library of proven connector designs to create a line of EMI filtered or unfiltered circular connectors that are highly reliable, durable and fully customizable. Our standard circular connectors are available in wall mount, jam nut or straight plug shell options, 9 different shell sizes, 5 contact/termination styles and 18 insert configurations.

At Spectrum, we know it’s rare to find an off-the-shelf connector that completely satisfies the environmental, mechanical and electrical requirements of demanding, high reliability applications. Our engineering team is ready to modify one of these existing designs or start with a “clean sheet” to ensure our connector satisfies all of your requirements.

Our commercial/industrial circular connectors are ideal for high reliability or demanding environmental applications such as commercial aviation and avionics, off-highway and agricultural vehicles, and hi-rel power supplies.

EMI Filtered or Unfiltered Connectors

Spectrum Control’s compact shell circular connectors are available in EMI filtered or unfiltered styles to allow for a wide range of design flexibility. Our filtered compact shell connectors provide an effective filtering device that reduces the amount of real estate required within a product enclosure. Using our expertise in EMI filter design and manufacturing, we offer planar-style filtered arrays, available in C and Pi circuits. Other filter circuits including transient protection are available.

In addition, we can accommodate your quick-turn schedule for prototyping by adding either planar or tubular capacitor filtering to the rear of a standard connector.

Unfiltered circular connectors also can be designed to meet various environmental and mechanical specifications. As with our filtered connectors, Spectrum offers multiple termination styles, various material and finishing options and a variety of shell styles and sizes. Integral strain relief, and power, signal and coax line features are also available.
Vertically Integrated

As a fully vertically integrated company, Spectrum Control is truly unique among connector suppliers. We design and manufacture all components for our circular filtered and unfiltered connectors. From shells and shields to seals and grommets, each component of your custom connector undergoes our extensive assembly and testing services, ensuring Spectrum is able to deliver extremely reliable, high performance custom connectors to fit both your economic and mechanical needs.

Our complete in-house production capability also allows us to maintain tighter quality control, in turn enabling us to provide our customers with high quality parts at very competitive prices. In addition, our vertical integration facilitates the industry’s shortest lead-times of 8 to 10 weeks, standard.

Composite Shell Connectors

For even greater design flexibility, Spectrum now offers composite shell circular connectors. These composite connectors feature shells fabricated from high grade thermoplastic and are designed to displace traditional metal connector shells for substantial weight reduction. The new composite shell maintains the form, fit and function of the original connector shell, making it ideal for applications where weight is a critical factor. A composite shell version of any Spectrum circular connector is available.

Custom Mechanical Packages

Our vertical integration includes a unique material process and extensive machining capabilities, allowing us to easily modify the mechanical package of any connector, ensuring fast and affordable custom designs. Other connector manufacturers mold their composite shells, making custom designs expensive. At Spectrum, custom mechanical variations are machined allowing for unique packages without traditional tooling charges.
Spectrum Control offers a premium line of circular filtered connectors completely interchangeable with MIL-DTL-38999 Series III. These custom high reliability, circular connectors have a proven reputation for superior quality and performance. Several types of EMI filtering are available (see figures at right).

### Electrical Specifications

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

- **Capacitance**
  
  - See table

- **Capacitance Tolerance**
  
  - ±25%

- **Voltage Rating**
  
  - 200VDC

- **Dielectric Withstanding Voltage**
  
  - 500VDC

- **Dissipation Factor**
  
  - < 3.5%

- **Insulation Resistance**
  
  - 1000 MΩ

The electrical properties listed above are typical, and can be exceeded based on customer requirements and mechanical configuration. Since many variables affect the design, it is best to contact us directly for a detailed assessment of your connector needs.

### Capacitance

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*Note: Custom capacitance values and tolerances available.*
## Connector Styles

### Wall Mount

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### Recommended Solder Cup

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<th>Ø D</th>
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Dimensions shown in inches.
Insert Configurations

(A)35 6 # 22D
(A)98 3 # 20
(B)35 13 # 22D
(B)98 6 # 20
(C)35 22 # 22D
(C)98 10 # 20
(D)35 37 # 22D
(D)18 18 # 20

(E)35 55 # 22D
(E)26 26 # 20
(F)32 32 # 20
(F)35 66 # 22D
(G)35 79 # 22D

(G)41 41 # 20
(H)35 100 # 22D
(H)55 55 # 20
(J)35 128 # 22D
(J)61 61 # 20
Ordering Information

- **Series**: RoHS
  - F - Standard
  - R - RoHS Compliant
- **Shell Style**: 
  - 0 - Wall Mount Receptacle
  - 1 - Jam Mount Receptacle
  - 2 - Straight Plug Self-Locking (Unfiltered Only)
- **Shell Size**: A: 9, B: 11, C: 13, D: 15, E: 17, F: 19, G: 21, H: 23, J: 25
- **Insert Configurations** (See page 6)
- **Polarization**: N - Normal A, B, C, D E
- **Filter Circuit**: 1 - C Filter 4 - Pi Filter
  - *Note: Leave blank for unfiltered
- **Material Finish**: 
  - A - AL/Electroless Ni
  - B - AL/Olive Drab Cad (Not available RoHS)
  - C - SS/Electroless Ni
  - D - SS/Electro Deposited Ni
  - E - SS/Passivated
  - F - Composite/Electroless Ni
  - G - Composite/Olive Drab Cad (Not Available RoHS)
- **Contact Termination Style**: 
  - PP - Pin to PCB
  - PS - Pin to Solder cup
  - SP - Socket to PCB
  - SS - Socket to Solder cup
  - CR - Crimp Removable (Plug Only, Unfiltered)
- **EIA Capacitance Code**: 
  - Example: 1000pF = 102
  - *Note: Leave blank for unfiltered

Harnessing Products & Services

To help you simplify the installation of our custom circular connectors into your system and lower your costs, we provide custom cabling and harnessing services. Our capabilities include a wide range of cable harnessing, flat ribbon cable and ribbon cable processing, lead wire preparation, component, wire, and assembly marking, electro-mechanical assembly and more. All of our custom connector assemblies are 100% tested for integrity and effective performance.

- Built in accordance with IPC-A-610 and J-Std-001
- Cable harnessing
- Coaxial and RF cabling
- Flat ribbon cable
- High voltage
- Electro-mechanical assembly

Ask About Our Complete Line of Connectors

Spectrum Control offers an extensive line of connectors to satisfy nearly any requirement. Our connector family includes military circular (MIL-DTL-38999, 83723, 26482, 55116, 24308 and 5015), D-subminiature, combo, hermetically sealed, audio, USB, transient protected and datacom. Call one of our application specialists or visit us online to learn more.
Instant Inventory Information

Check Stock will provide you with distributor names, part numbers, quantity on hand, online ordering capability and the last date inventory was updated for that particular component.

Project Starter

Design your product to meet the exact requirements of your application. Project Starter allows you to choose from multiple configurations to get a product that will best meet your application needs and you can even request a drawing, sample or quote of your custom product.

About API Technologies Corporation:

API Technologies, a publicly traded company (NASDAQ: ATNY), designs, develops and manufactures electronic systems, subsystems, RF and secure solutions for technically demanding applications in the defense, aerospace and commercial industries.