# Amphenol® Cylindrical Connectors for Printed Circuit Board Applications

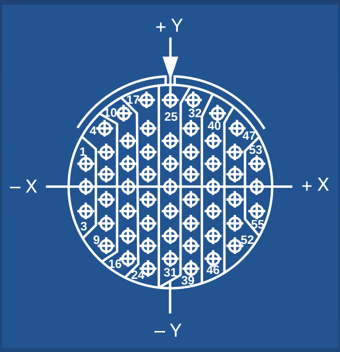
12-170-2

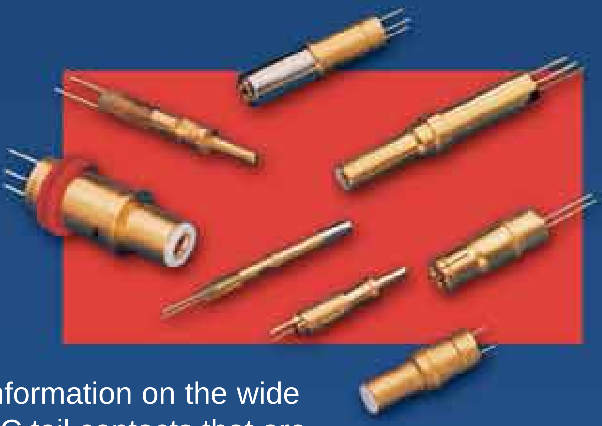
**Proven & reliable cylindrical connector solutions for PC board attachment: MIL-DTL-38999, MIL-C-26482 and MIL-5015, with a wide range of contact arrangements and options**

**Amphenol**

This catalog has been specifically designed to assist in the critical process of selecting the right cylindrical connector for a printed circuit board application.

Contact arrangements have been carefully selected to guide designers to the most commonly available and widely used insert patterns.
Pin-out location illustrations of these contact insert patterns are shown first, followed by connector shell drawings in three series:
MIL-DTL-38999, MIL-C-26482, MIL-5015.



For more information on the wide variety of PC tail contacts that are offered by Amphenol, see catalog 12-130, High Frequency Contacts, which also includes coax, twinax, triax and quadrax shielded contacts.

Amphenol has earned the reputation as the leader in the military electrical connection arena. Amphenol's interconnects meet almost any aerospace and ground vehicle design need as well as many industrial needs.

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If more information is needed concerning the products in this publication, or if you have any special application needs, please contact your nearest Amphenol sales office or Amphenol Corporation at the following address:


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See this catalog and the majority of catalogs of Amphenol Aerospace and Amphenol Industrial Interconnection Products at:
**www.amphenol-aerospace.com**

Amphenol operates quality systems that are certified to ISO9001:2000 by third party registrars.


# Amphenol ®Cylindrical Connectors for Printed Circuit Board Applications

Amphenol provides three popular connector series with PC tail contacts. The following key points give a quick overview of these series. For more detail, there are series catalogs available as listed below*. Go to **www.amphenol-aerospace.com** to view and download these catalogs. There is a guide to selecting a cylindrical connector with printed circuit board contacts on the following page to assist you further.

38999 Series III Box Mount Connector with PC Tails

## MIL-DTL-38999 CONNECTORS, METAL & COMPOSITE

- Lightweight, compact, high density and high reliability cylindrical
- Operating voltage to 900 VAC (RMS) at sea level
- Environmentally resistant
- Solder or crimp rear release contacts in mating plug
- Series I (LJT) - Bayonet coupling
  - Scoop-proof (recessed pins) offers maximum contact protection
- Series II (JT) - Bayonet coupling
  - For applications requiring maximum weight/space savings and reliability
- Series III (Tri-Start) - Threaded, quick coupling in one complete turn
  - Designed for general duty as well as severe environmental applications
  - Superior EMI shielding with grounding fingers and metal-to-metal mating
  - Filter/Transient protection versions available
  - Scoop-proof contact protection
  - Stainless steel firewall versions, and composite versions

Special 38999 Connector with Stand-off Shell and PC Tails

38999 Series III Connector with a Special Configuration Composite Shell and PC Tails

## MIL-C-26482 CONNECTORS

- Medium size, widely used cylindrical
- Operating voltage to 1,000 VAC (RMS) at sea level
- Series 1 (PT) - Bayonet coupling - most commonly used in PCB applications
- Environmentally resistant
- Solder or crimp front and rear release contacts in mating plug

Black/green zinc alloy plating (cadmium-free) available

26482 Series 1 Jam Nut Connector with PC Tails

5015 Box Mount Connector with PC Tails

## MIL-5015 CONNECTORS

- Medium–heavy weight, time-tested cylindrical
- Operating voltage to 1,500 VAC (RMS) at sea level
- Environmentally resistant or general duty
- Threaded coupling
- Solder or crimp rear insertion contacts in mating plug
- Black/green zinc alloy plating (cadmium-free) available

Flex Termination with MIL-C-26482 Special Connector

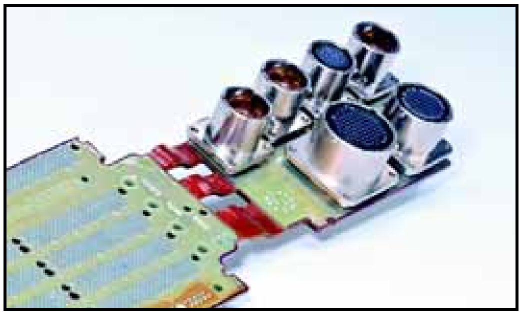
Also provided in this catalog are several additional product options for the designer of PCB board applications. For example: Amphenol's flex assemblies provide solutions for attachment to PCB boards where a self-locking terminal pad is needed or in tight-fitting space requirements. Connectors with compliant pin contacts are available, and pc tails within shielded coax, twinax and triax contacts are available. At the end of the catalog, see a brief description of Amphenol PCB rectangular connectors, backplane assemblies, terminal blocks and wiring interface modules.

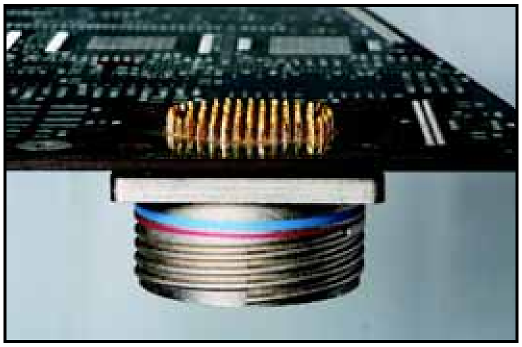
**Go to www.amphenol-aerospace for catalogs online.**

* Request Catalog 12-090 for MIL-DTL-38999 Series I, II
Request Catalog 12-092 for MIL-DTL-38999 Series III
Request Catalog 12-070 for MIL-C-26482, Series 1, 2
Request Catalog 12-071 for Matrix MIL-C-26482 Series 2
Request Catalog 12-020 for MIL-5015

Note: MIL-DTL-38999 supersedes MIL-C-38999.

# Guide to Selecting a PCB Cylindrical Connector





The connector selection process is one of the most important engineering decisions to be made in any electronic application. Amphenol has created this catalog specifically to provide the necessary information to select, layout and design both the appropriate Amphenol® cylindrical connector with PCB contacts and the connector footprint (contact locations) on the printed circuit board. The guide that follows is for application of cylindrical connectors on rigid printed circuit boards and also applies if a flex print assembly or other optional is being used.
Engineers working on those PCB or flex print applications requiring rectangular connectors are encouraged to refer to page 46-48 and ask for Amphenol Rectangular Product catalogs.

### How To Select a Cylindrical Connector for a PCB Application

The data provided in this catalog is based on three cylindrical connector series: MIL-DTL-38999 Series I, II and III, MIL-C-26482 Series 1, and MIL-C-5015. See page 1 for electrical and environmental features and differences of these three series. The "hot" side of the application determines the choice of pin or socket genders of the contacts.

### How to Measure the PCB Tail Length

The tail length of the PCB is the portion of the contact that extends beyond the rear of the shell. This length will vary in relationship to the mounting flange, depending on the series of connector selected. Standard lengths are shown on the connector shell style drawings in this
catalog. These shell style drawing pages also provide how to order part numbering for standard PCB cylindrical connectors.
When computing the desired tail length, it is important to take into consideration the following factors:

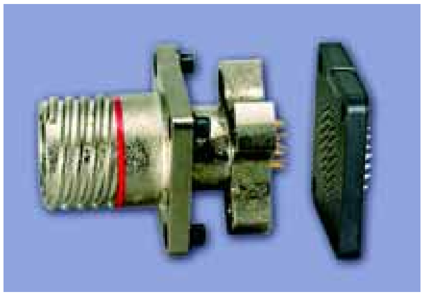
- The connector series and shell style.
- The mounting style of the receptacle; jam nut (D hole) or panel mount (four holes). This can affect the overall length of the tail.
- The extension of the tail beyond the opposite side of the board or the flex.
- The space required to adequately clean flux from between the board or flex and the rear of the connector shell. Connectors that are mounted flush against the board may trap soldering flux which could lead to corrosion of the solder joints.

Stand-off Adapter on a Jam Nut Receptacle.

### Would Alignment Discs, Headers or Special Stand-off Shells be Beneficial?

Any mechanical methods needed to stabilize the board or flex to the connector and/or the panel. The PCB tails shown in this catalog are of one diameter. Stepped tails or PCB tails with an increased diameter on a designated portion may be required for certain applications.
Alignment discs are available which provide ease of alignment of pins to boards, protection during shipment and optimized electrical circuit separation. Header assemblies (see pages 44 & 45) are available which provide time and cost saving potentials. Standoffs may be required for certain applications. Amphenol has developed a new stand-off adapter (see page 40) which may eliminate the need for special stand-off shell designs. Connectors with clinch nuts can be provided. Please call Amphenol to discuss any optional designs or any special requirements.

Special Design with Longer PC Tails in a 38999 Composite Shell Connector. Also shows an Alignment Disc.



Universal Header Assemblies are available for Flex Print/PC Board Mounting. Beneficial especially when electrical testing of the connector requires it to be removed and reattached.

# Guide to Selecting a PCB Cylindrical Connector, cont.

### What Determines the Diameter of the PCB Tail?

The outside diameter of the PCB tail is determined by the inside diameter of the plated through-hole on the board or flex print. The standard or most popular diameters are shown in the chart on the next page and are called out in the connector illustrations in this catalog (Pgs. 26-37).

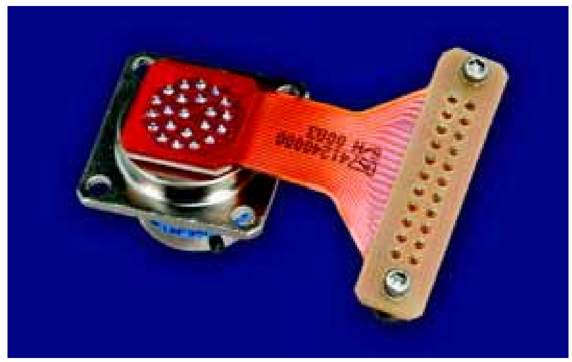
**Standard diameters of PCB tails**

| Connector Series | Size 16 Contact | Size 20 Contact | Size 22D Contact |
|---|---|---|---|
| MIL-DTL-38999 | .062 ±.001 | .019 ±.001 | .019 ±.001 |
| MIL-C-26482 | .030 ±.001 | .030 ±.001 | Not available |
| MIL-5015 | .030 ±.001 | Not available | Not available |

For availability of other contact diameters, consult Amphenol, Sidney NY.

### Should PCB Tails be Gold Plated or Pre-tinned?

The standard PCB tails for MIL-DTL-38999 and MIL-C-26482 receptacles have gold plating, .00050 inches over nickel. PCB tails for MIL-C-5015 receptacles are plated with silver, .00010 inches over copper. Amphenol can substitute a pre-tinned version of these tails to facilitate the termination process. This pre-tinning is a 60/40 lead-tin alloy. Call Amphenol for further information on pre-tinning and any other plating of contacts not covered in this catalog.



Flex Termination for Attachment to PC Boards

### Would Flex Assemblies be Necessary or Beneficial for the Application?

Flex print can radically simplify the assembly of a connector to a system, as well as eliminate wiring errors. Amphenol offers connector flex assemblies through ACT, Advanced Circuit Technologies division. Features and benefits of using flex technology include:

- Available for MIL-DTL-38999 (including filter EMI/EMP types), MIL-5015 and MIL-C-26482 cylindrical connectors
- Sculptures® Flexible Circuits with built-in terminations
- Eliminates failures associated with crimped or solder-on contacts
- Geometrically fit tight space requirements and create a self-locking terminal pad

Compliant Pin Contacts in a Bayonet 38999 Catalog

### Should Other PC Tail Contact Types be Considered?

Press-Fit Connectors with compliant pins are available which engage the plated through-holes in the board without the need for soldering. This optional contact style offers the following benefits

- Easy board repairability
- Improved board processing time
- Excellent temperature performance
- Ideal for low-lead applications

For more information on Press-Fit connectors with compliant pins refer to Amphenol data sheet #188.

Special Quadrax contacts have been designed with PC tails. Coax, twinax and triax contacts can also have PC tails. Refer to Amphenol catalog 12-130. Go online at www.amphenol-aerospace.com or consult Amphenol Aerospace for further information.

Quadrax PC Tail Contacts Combined with Standard PC Tail Contacts

Quadrax Contacts with PC Tails in a 38999 Connector with Special Stand-off Shell

# Cylindrical Connectors with PCB contacts insert availability

The following table lists the most commonly used insert arrangements for printed circuit board application of MIL-DTL-38999, MIL-C-26482 and MIL-C-5015 cylindrical connectors. This represents the most readily available patterns within these series. See illustrations of these selected patterns on the following pages. If you require other arrangements than what are shown here, consult Amphenol for further availability.

| MIL-DTL-38999 | | | | | | | Contact Size* | | |
|---|---|---|---|---|---|---|---|---|---|
| JT Series II | LJT Series I | Tri-Start Series III | MIL-C-26482 | MIL-5015 | Service Rating | Total Contacts | 22D | 20 | 16 |
| 8-3 | 9-3 | | 8-3 | | M/I | 3 | | 3 | |
| 8-35 | 9-35 | 9-35 | | | M | 6 | 6 | | |
| 8-98 | 9-98 | 9-98 | 8-98 | | I | 3 | | 3 | |
| | | | | 10SL-3 | A | 3 | | | 3 |
| 10-5 | 11-5 | 11-5 | 10-5 | | I | 5 | | 5 | |
| | 11-6 | | 10-6 | | I | 6 | | 6 | |
| 10-35 | 11-35 | 11-35 | | | M | 13 | 13 | | |
| 12-3 | 13-3 | | 12-3 | | II | 3 | | | 3 |
| | | | 12-10 | | I | 10 | | 10 | |
| 12-35 | 13-35 | 13-35 | | | M | 22 | 22 | | |
| | | | | 14S-6 | Inst. | 6 | | | 6 |
| 14-18 | 15-18 | 15-18 | 14-18 | | I | 18 | | 18 | |
| 14-19 | 15-19 | 15-19 | 14-19 | | I | 19 | | 19 | |
| 14-35 | 15-35 | 15-35 | | | M | 37 | 37 | | |
| | | | | 16S-1 | A | 7 | | | 7 |
| 16-26 | 17-26 | 17-26 | 16-26 | | I | 26 | | 26 | |
| 16-35 | 17-35 | 17-35 | | | M | 55 | 55 | | |
| | | | | 18-1 | A/Inst. | 10 | | | 10 |
| 18-11 | 19-11 | 19-11 | 18-11 | | II | 11 | | | 11 |
| 18-32 | 19-32 | 19-32 | 18-32 | | I | 32 | | 32 | |
| 18-35 | 19-35 | 19-35 | | | M | 66 | 66 | | |
| | | | | 20-11 | Inst. | 13 | | | 13 |
| 20-27 | 21-27 | | 20-27 | | I | 27 | | 27 | |
| 20-35 | 21-35 | 21-35 | | | M | 79 | 79 | | |
| 20-41 | 21-41 | 21-41 | 20-41 | | I | 41 | | 41 | |
| | | | | 22-14 | A | 19 | | | 19 |
| 22-35 | 23-35 | 23-35 | | | M | 100 | 100 | | |
| 22-55 | 23-55 | 23-55 | 22-55 | | I | 55 | | 55 | |
| | | | | 24-5 | A | 16 | | | 16 |
| | | | | 24-28 | Inst. | 24 | | | 24 |
| 24-31 | | | 24-31 | | I | 31 | | | 31 |
| 24-35 | 25-35 | 25-35 | | | M | 128 | 128 | | |
| 24-61 | 25-61 | 25-61 | 24-61 | | I | 61 | | 61 | |
| | | | | 28-15 | A | 35 | | | 35 |

* For information on size 12 PC tail contacts consult Amphenol Aerospace.

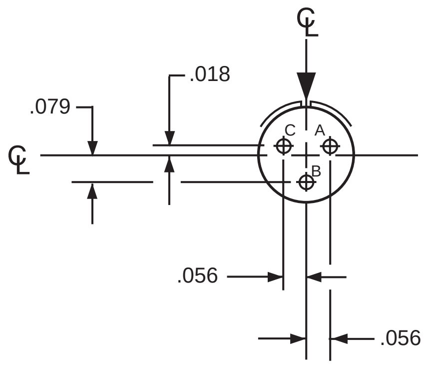
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #8-3 / 9-3

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | **8-3** | **9-3** | **NA** | **8-3** | **NA** |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating* |
|---|---|---|
| 3 | 20 | M/I |



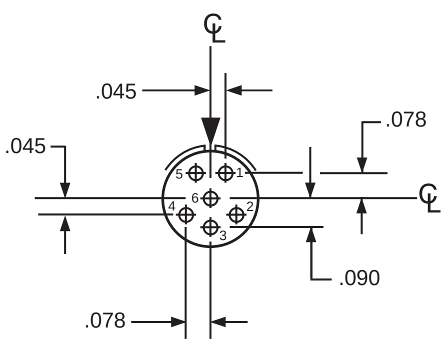

*Service Rating: M for MIL-DTL-38999
I for MIL-C-26482

### Insert Arrangement #8-35 /9-35

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | **8-35** | **9-35** | **9-35** | **NA** | **NA** |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 6 | 22D | M |




All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

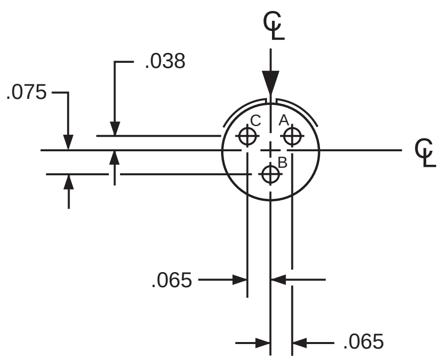
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #8-98 / 9-98

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Connector Type:** | | | | | |
| **Insert Designation:** | 8-98 | 9-98 | 9-98 | 8-98 | NA |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 3 | 20 | I |

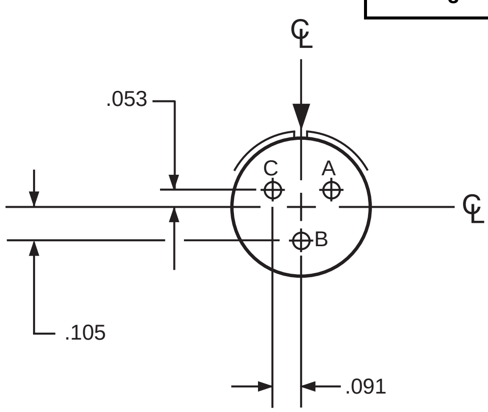



### Insert Arrangement #10SL-3

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Connector Type:** | | | | | |
| **Insert Designation:** | NA | NA | NA | NA | 10SL-3 |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 3 | 16 | A |




All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

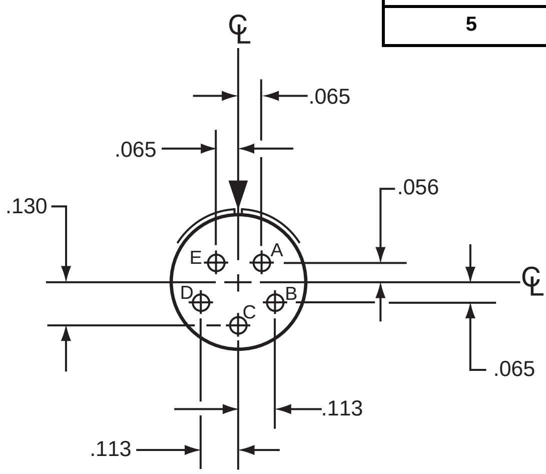
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #10-5 / 11-5

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Connector Type:** | | | | | |
| **Insert Designation:** | 10-5 | 11-5 | 11-5 | 10-5 | NA |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 5 | 20 | I |

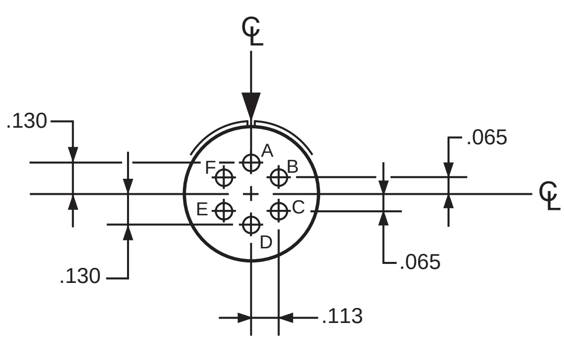



### Insert Arrangement #10-6 / 11-6

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Connector Type:** | | | | | |
| **Insert Designation:** | NA | 11-6 | NA | 10-6 | NA |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 6 | 20 | I |




All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

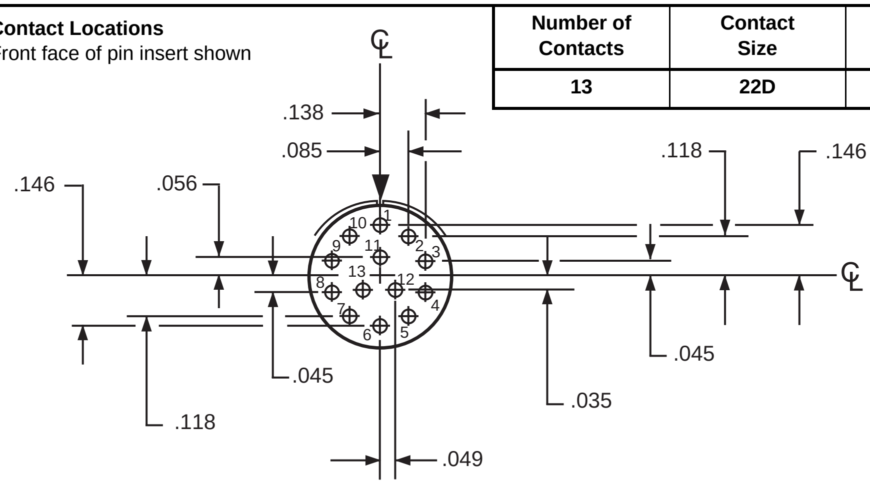
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #10-35 / 11-35

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | 10-35 | 11-35 | 11-35 | NA | NA |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 13 | 22D | M |

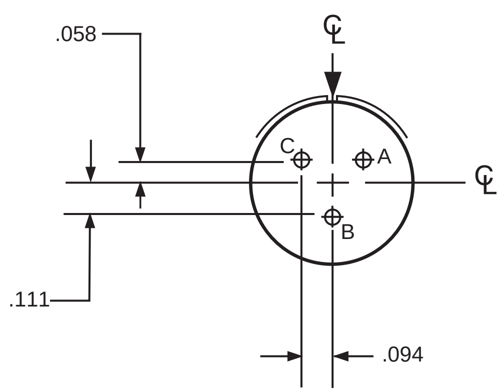



### Insert Arrangement #12-3 / 13-3

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | 12-3 | 13-3 | NA | 12-3 | NA |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 3 | 16 | II |




All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

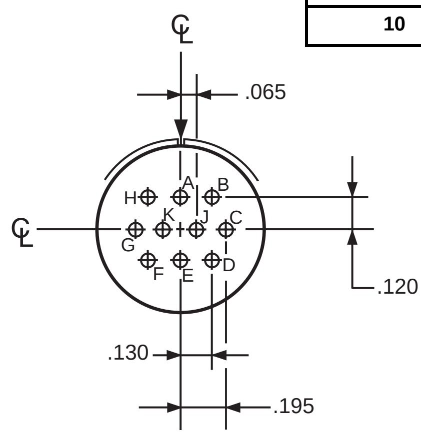
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #12-10

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Connector Type:** | | | | | |
| **Insert Designation:** | NA | NA | NA | 12-10 | NA |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 10 | 20 | I |

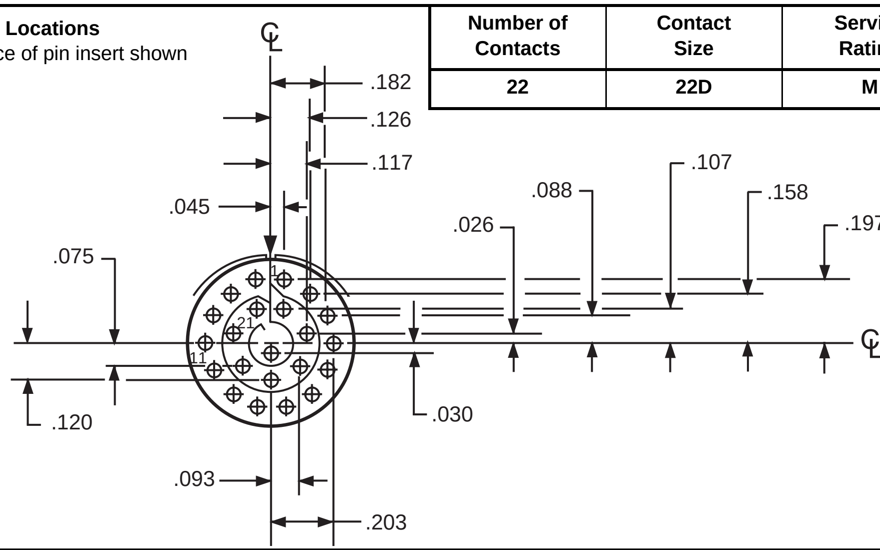



### Insert Arrangement #12-35 / 13-35

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Connector Type:** | | | | | |
| **Insert Designation:** | 12-35 | 13-35 | 13-35 | NA | NA |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 22 | 22D | M |




All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

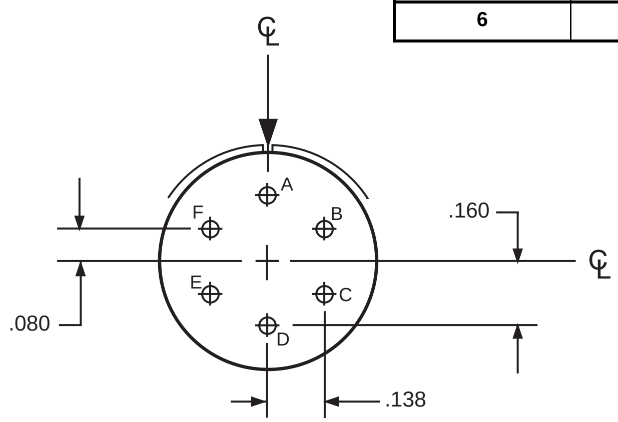
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #14S-6

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| Insert Designation: | NA | NA | NA | NA | 14S-6 |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 6 | 16 | Inst. |

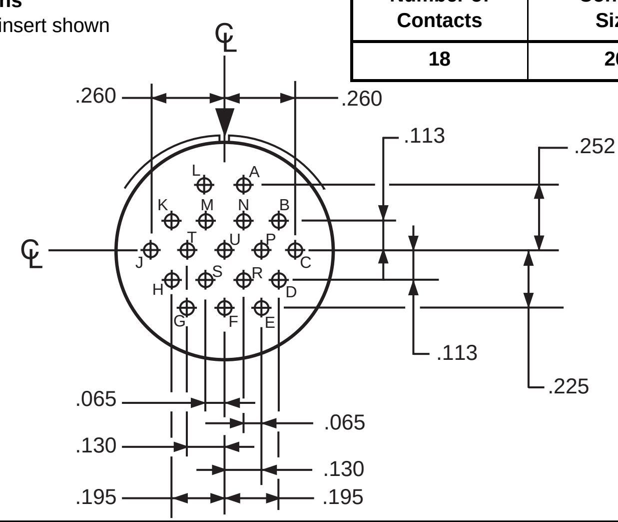



### Insert Arrangement #14-18 / 15-18

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| Insert Designation: | 14-18 | 15-18 | 15-18 | 14-18 | NA |

**Contact Locations**
Front face of pin insert shown

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 18 | 20 | I |




All dimensions for reference only. For alternate rotations see pages 25 & 26
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

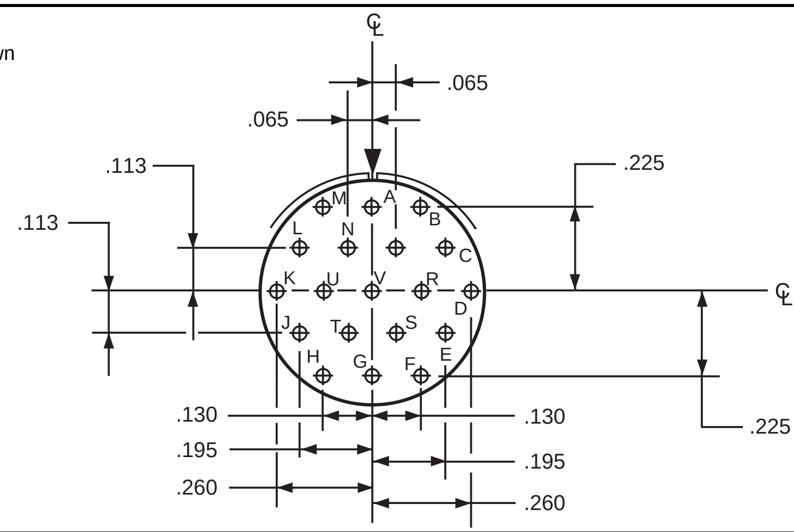
# Cylindrical Connectors with PCB contacts
# insert arrangements, cont.

### Insert Arrangement #14-19 / 15-19

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| Insert Designation: | 14-19 | 15-19 | 15-19 | 14-19 | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 19 | 20 | I |

**Contact Locations**
Front face of pin insert shown

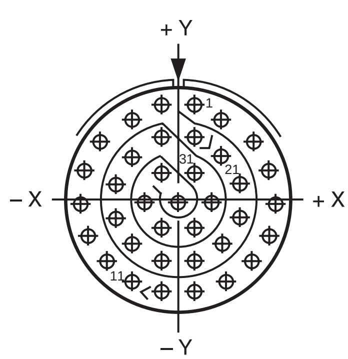



### Insert Arrangement #14-35 / 15-35

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| Insert Designation: | 14-35 | 15-35 | 15-35 | NA | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 37 | 22D | M |

**Contact Locations**
Front face of pin insert shown




**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| 1 | +.045 | +.262 |
| 2 | +.123 | +.217 |
| 3 | +.211 | +.160 |
| 4 | +.254 | +.080 |
| 5 | +.266 | –.010 |
| 6 | +.247 | –.098 |
| 7 | +.200 | –.175 |
| 8 | +.130 | –.232 |
| 9 | +.045 | –.262 |
| 10 | –.045 | –.262 |
| 11 | –.130 | –.232 |
| 12 | –.200 | –.175 |
| 13 | –.247 | –.098 |
| 14 | –.266 | –.010 |
| 15 | –.254 | +.080 |
| 16 | –.211 | +.160 |
| 17 | –.123 | +.217 |
| 18 | –.045 | +.262 |
| 19 | +.045 | +.172 |
| 20 | +.123 | +.119 |

**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| 21 | +.170 | +.040 |
| 22 | +.170 | –.050 |
| 23 | +.123 | –.127 |
| 24 | +.045 | –.172 |
| 25 | –.045 | –.172 |
| 26 | –.123 | –.127 |
| 27 | –.170 | –.050 |
| 28 | –.170 | +.040 |
| 29 | –.123 | +.119 |
| 30 | –.045 | +.172 |
| 31 | +.045 | +.074 |
| 32 | +.090 | –.004 |
| 33 | +.045 | –.082 |
| 34 | –.045 | –.082 |
| 35 | –.090 | –.004 |
| 36 | –.045 | +.074 |
| 37 | .000 | –.004 |

All dimensions for reference only. For alternate rotations see pages 25 & 26.

Note: Shown in this catalog are the most common insert patterns for PCB applications. For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

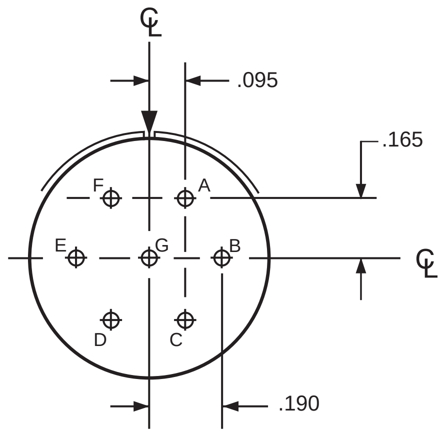
# Cylindrical Connectors with PCB contacts
insert arrangements, cont.

### Insert Arrangement #16S-1

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | NA | NA | NA | NA | 16S-1 |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 7 | 16 | A |

**Contact Locations**
Front face of pin insert shown

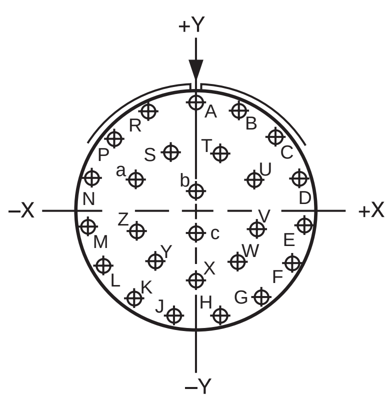



### Insert Arrangement #16-26 / 17-26

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | NA | 17-26 | 17-26 | 16-26 | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 26 | 20 | I |

**Contact Locations**
Front face of pin insert shown




**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| A | .000 | +.321 |
| B | +.131 | +.293 |
| C | +.239 | +.214 |
| D | +.305 | +.099 |
| E | +.319 | –.034 |
| F | +.278 | –.161 |
| G | +.189 | –.260 |
| H | +.067 | –.314 |
| J | –.067 | –.314 |
| K | –.189 | –.260 |
| L | –.278 | –.161 |
| M | –.319 | –.034 |
| N | –.305 | +.099 |
| P | –.239 | +.214 |

**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| R | –.131 | +.293 |
| S | –.070 | +.177 |
| T | +.070 | +.177 |
| U | +.175 | +.094 |
| V | +.178 | –.036 |
| W | +.119 | –.151 |
| X | .000 | –.203 |
| Y | –.119 | –.151 |
| Z | –.178 | –.036 |
| a | –.175 | +.094 |
| b | .000 | +.065 |
| c | .000 | –.065 |

All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications. For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

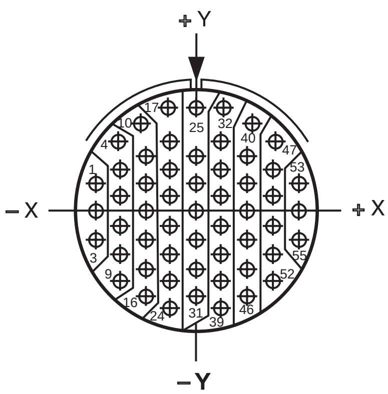
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #16-35 / 17-35

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| Insert Designation: | 16-35 | 17-35 | 17-35 | NA | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 55 | 22D | M |

**Contact Locations**
Front face of pin insert shown




| Contact Hole Locations | | |
|---|---|---|
| Contact Number | Location | |
| | X Axis | Y Axis |
| 1 | –.312 | +.086 |
| 2 | –.312 | –.004 |
| 3 | –.312 | –.094 |
| 4 | –.242 | +.221 |
| 5 | –.234 | +.131 |
| 6 | –.234 | +.041 |
| 7 | –.234 | –.049 |
| 8 | –.234 | –.139 |
| 9 | –.234 | –.229 |
| 10 | –.172 | +.279 |
| 11 | –.156 | +.176 |
| 12 | –.156 | +.086 |
| 13 | –.156 | –.004 |
| 14 | –.156 | –.094 |
| 15 | –.156 | –.184 |
| 16 | –.156 | –.274 |
| 17 | –.089 | +.316 |
| 18 | –.078 | +.221 |
| 19 | –.078 | +.131 |
| 20 | –.078 | +.041 |
| 21 | –.078 | –.049 |
| 22 | –.078 | –.139 |
| 23 | –.078 | –.229 |
| 24 | –.078 | –.319 |
| 25 | .000 | +.329 |
| 26 | .000 | +.176 |
| 27 | .000 | +.086 |
| 28 | .000 | –.004 |
| 29 | .000 | –.094 |
| 30 | .000 | –.184 |
| 31 | .000 | –.274 |

| Contact Hole Locations | | |
|---|---|---|
| Contact Number | Location | |
| | X Axis | Y Axis |
| 32 | +.089 | +.316 |
| 33 | +.078 | +.221 |
| 34 | +.078 | +.131 |
| 35 | +.078 | +.041 |
| 36 | +.078 | –.049 |
| 37 | +.078 | –.139 |
| 38 | +.078 | –.229 |
| 39 | +.078 | –.319 |
| 40 | +.172 | +.279 |
| 41 | +.156 | +.176 |
| 42 | +.156 | +.086 |
| 43 | +.156 | –.004 |
| 44 | +.156 | –.094 |
| 45 | +.156 | –.184 |
| 46 | +.156 | –.274 |
| 47 | +.242 | +.221 |
| 48 | +.234 | +.131 |
| 49 | +.234 | +.041 |
| 50 | +.234 | –.049 |
| 51 | +.234 | –.139 |
| 52 | +.234 | –.229 |
| 53 | +.312 | +.086 |
| 54 | +.312 | –.004 |
| 55 | +.312 | –.094 |

All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

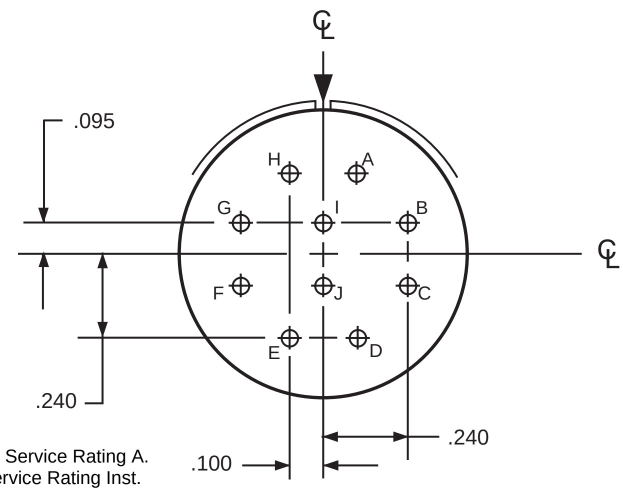
# Cylindrical Connectors with PCB contacts
# insert arrangements, cont.

### Insert Arrangement #18-1

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | NA | NA | NA | NA | 18-1 |

| Number of Contacts | Contact Size | Service Rating* |
|---|---|---|
| 10 | 16 | A/Inst. |

**Contact Locations**
Front face of pin insert shown



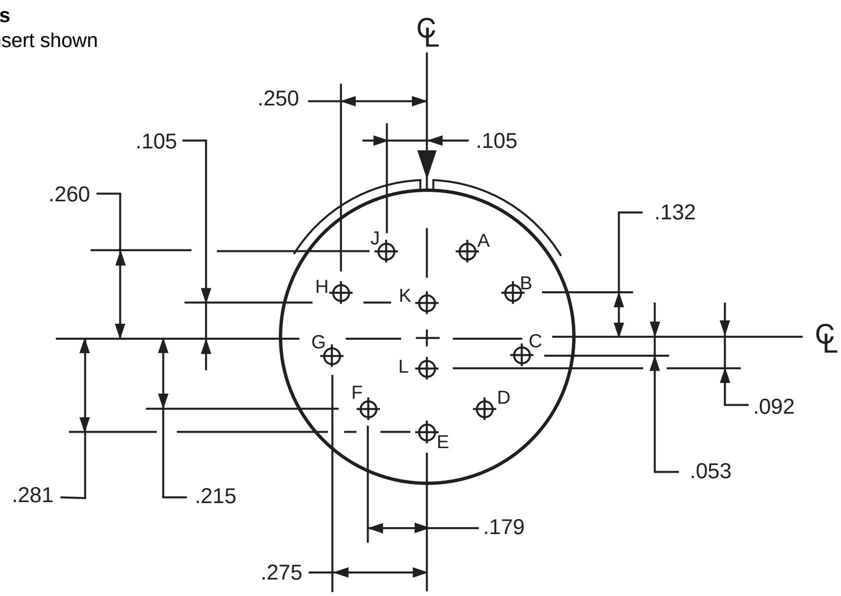

* Contact Locations B, C, F, G are Service Rating A.
All other contact locations are Service Rating Inst.

### Insert Arrangement #18-11 / 19-11

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | 18-11 | 19-11 | 19-11 | 18-11 | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 11 | 16 | II |

**Contact Locations**
Front face of pin insert shown




All dimensions for reference only. For alternate rotations see pages 25 & 26.

Note: Shown in this catalog are the most common insert patterns for PCB applications. For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

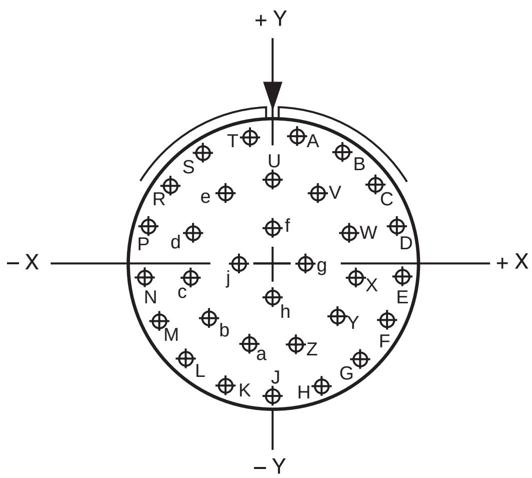
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

## Insert Arrangement #18-32 / 19-32

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | 18-32 | 19-32 | 19-32 | 18-32 | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 32 | 20 | I |

**Contact Locations**
Front face of pin insert shown




**Contact Hole Locations**

| Contact Letter | Location X Axis | Location Y Axis |
|---|---|---|
| A | +.066 | +.353 |
| B | +.189 | +.305 |
| C | +.286 | +.217 |
| D | +.345 | +.098 |
| E | +.357 | –.033 |
| F | +.321 | –.160 |
| G | +.242 | –.265 |
| H | +.130 | –.335 |
| J | .000 | –.359 |
| K | –.130 | –.335 |
| L | –.242 | –.265 |
| M | –.321 | –.160 |
| N | –.357 | –.033 |
| P | –.345 | +.098 |
| R | –.286 | +.217 |
| S | –.189 | +.305 |
| T | –.066 | +.353 |
| U | .000 | +.230 |

**Contact Hole Locations**

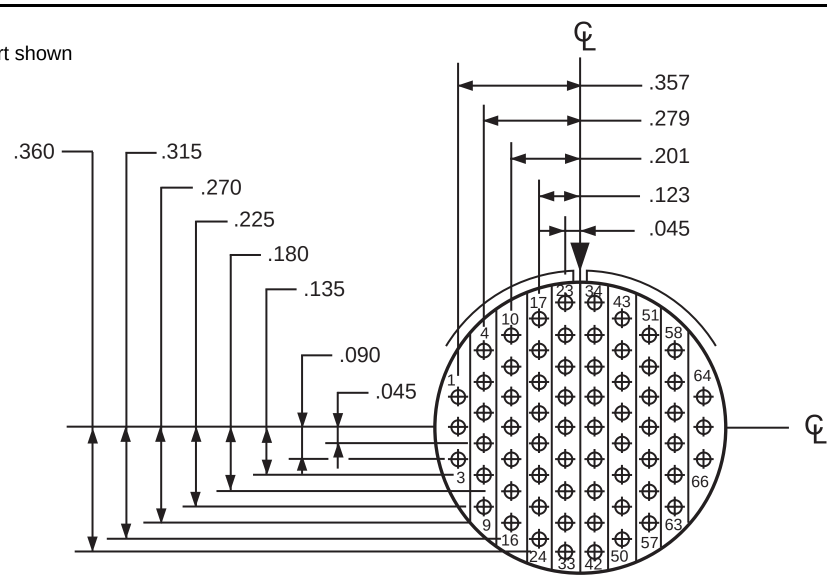
| Contact Letter | Location X Axis | Location Y Axis |
|---|---|---|
| V | +.124 | +.193 |
| W | +.209 | +.095 |
| X | +.228 | –.033 |
| Y | +.174 | –.151 |
| Z | +.065 | –.221 |
| a | –.065 | –.221 |
| b | –.174 | –.151 |
| c | –.228 | –.033 |
| d | –.209 | +.095 |
| e | –.124 | +.193 |
| f | .000 | +.096 |
| g | +.096 | .000 |
| h | .000 | –.096 |
| j | –.096 | .000 |

## Insert Arrangement #18-35 / 19-35

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | 18-35 | 19-35 | 19-35 | NA | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 66 | 22D | M |

**Contact Locations**
Front face of pin insert shown




All dimensions for reference only. For alternate rotations see pages 25 & 26.

Note: Shown in this catalog are the most common insert patterns for PCB applications. For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

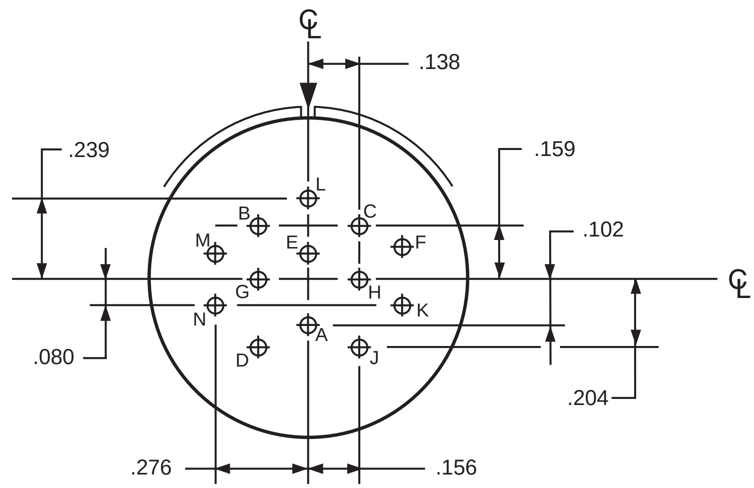
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #20-11

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | NA | NA | NA | NA | 20-11 |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 13 | 16 | Inst. |

**Contact Locations**
Front face of pin insert shown

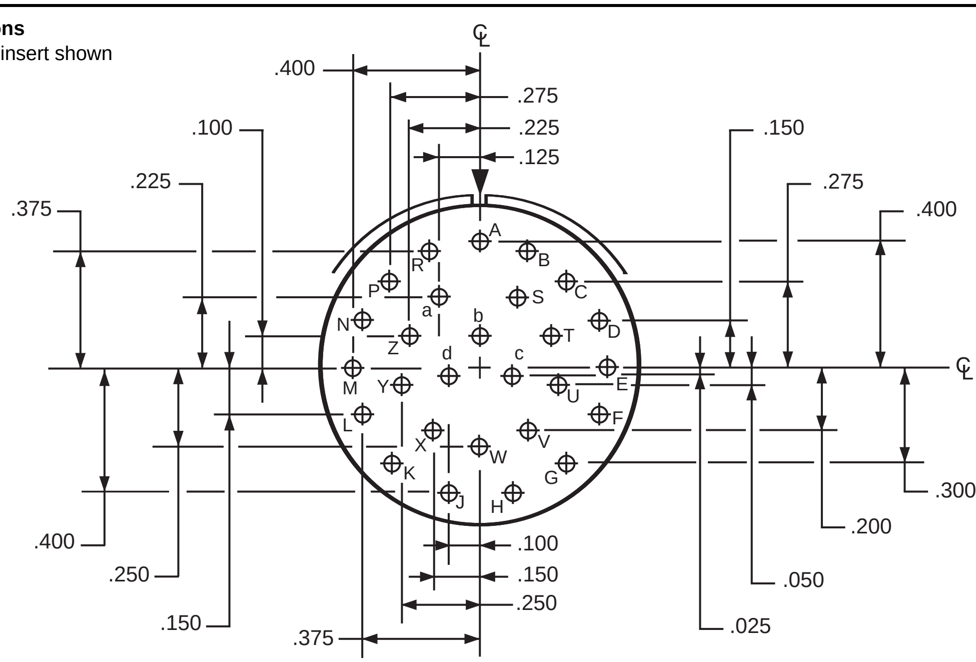



### Insert Arrangement #20-27 / 21-27

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | 20-27 | 21-27 | NA | 20-27 | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 27 | 20 | I |

**Contact Locations**
Front face of pin insert shown




All dimensions for reference only. For alternate rotations see pages 25 & 26.

Note: Shown in this catalog are the most common insert patterns for PCB applications. For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

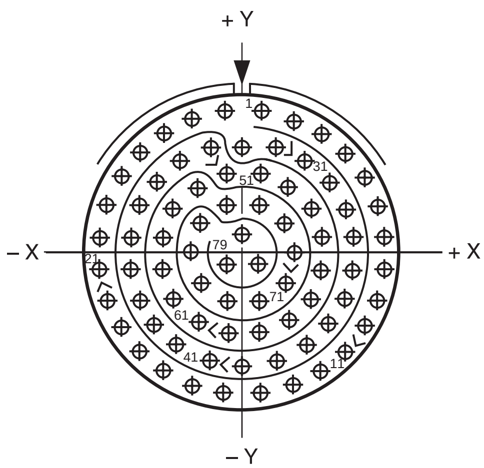
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

## Insert Arrangement #20-35 / 21-35

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Connector Type:** | | | | | |
| **Insert Designation:** | 20-35 | 21-35 | 21-35 | NA | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 79 | 22D | M |

**Contact Locations**
Front face of pin insert shown




**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| 1 | +.053 | +.426 |
| 2 | +.146 | +.404 |
| 3 | +.232 | +.362 |
| 4 | +.306 | +.302 |
| 5 | +.365 | +.227 |
| 6 | +.406 | +.141 |
| 7 | +.427 | +.048 |
| 8 | +.427 | –.048 |
| 9 | +.406 | –.141 |

**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| 10 | +.365 | –.227 |
| 11 | +.306 | –.302 |
| 12 | +.232 | –.362 |
| 13 | +.146 | –.404 |
| 14 | +.053 | –.426 |
| 15 | –.053 | –.426 |
| 16 | –.146 | –.404 |
| 17 | –.232 | –.362 |
| 18 | –.306 | –.302 |
| 19 | –.365 | –.227 |
| 20 | –.406 | –.141 |
| 21 | –.427 | –.048 |
| 22 | –.427 | +.048 |
| 23 | –.406 | +.141 |
| 24 | –.365 | +.227 |
| 25 | –.306 | +.302 |
| 26 | –.232 | +.362 |
| 27 | –.146 | +.404 |
| 28 | –.053 | +.426 |
| 29 | .000 | +.323 |
| 30 | +.098 | +.322 |
| 31 | +.184 | +.280 |
| 32 | +.258 | +.220 |
| 33 | +.311 | +.141 |
| 34 | +.332 | +.048 |
| 35 | +.332 | –.048 |
| 36 | +.311 | –.141 |
| 37 | +.258 | –.220 |
| 38 | +.184 | –.280 |
| 39 | +.098 | –.322 |
| 40 | .000 | –.347 |
| 41 | –.098 | –.322 |
| 42 | –.184 | –.280 |
| 43 | –.258 | –.220 |
| 44 | –.311 | –.141 |

**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| 45 | –.332 | –.048 |
| 46 | –.332 | +.048 |
| 47 | –.311 | +.141 |
| 48 | –.258 | +.220 |
| 49 | –.184 | +.280 |
| 50 | –.098 | +.322 |
| 51 | –.048 | +.241 |
| 52 | +.048 | +.241 |
| 53 | +.134 | +.199 |
| 54 | +.208 | +.139 |
| 55 | +.237 | +.048 |
| 56 | +.237 | –.048 |
| 57 | +.208 | –.139 |
| 58 | +.134 | –.199 |
| 59 | +.048 | –.241 |
| 60 | –.048 | –.241 |
| 61 | –.134 | –.199 |
| 62 | –.208 | –.139 |
| 63 | –.237 | –.048 |
| 64 | –.237 | +.048 |
| 65 | –.208 | +.139 |
| 66 | –.134 | +.199 |
| 67 | –.048 | +.146 |
| 68 | +.048 | +.146 |
| 69 | +.125 | +.090 |
| 70 | +.155 | .000 |
| 71 | +.125 | –.090 |
| 72 | +.048 | –.146 |
| 73 | –.048 | –.146 |
| 74 | –.125 | –.090 |
| 75 | –.155 | .000 |
| 76 | –.125 | +.090 |
| 77 | .000 | +.053 |
| 78 | +.048 | –.029 |
| 79 | –.048 | –.029 |

All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

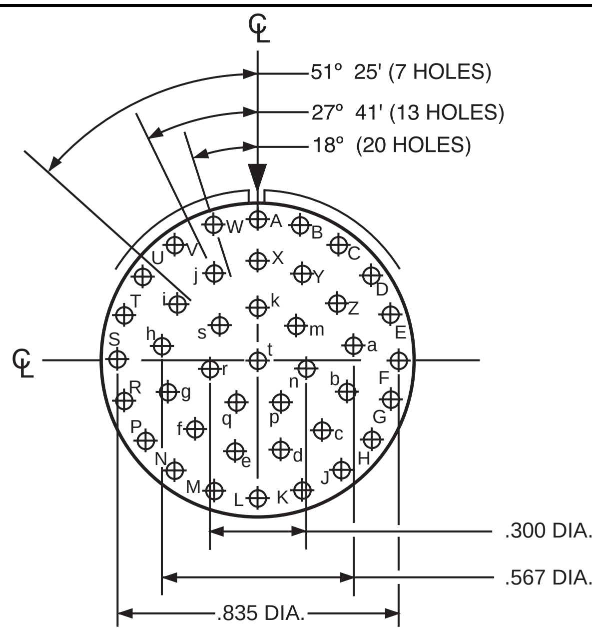
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #20-41 / 21-41

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| Insert Designation: | 20-41 | 21-41 | 21-41 | 20-41 | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 41 | 20 | I |

**Contact Locations**
Front face of pin insert shown

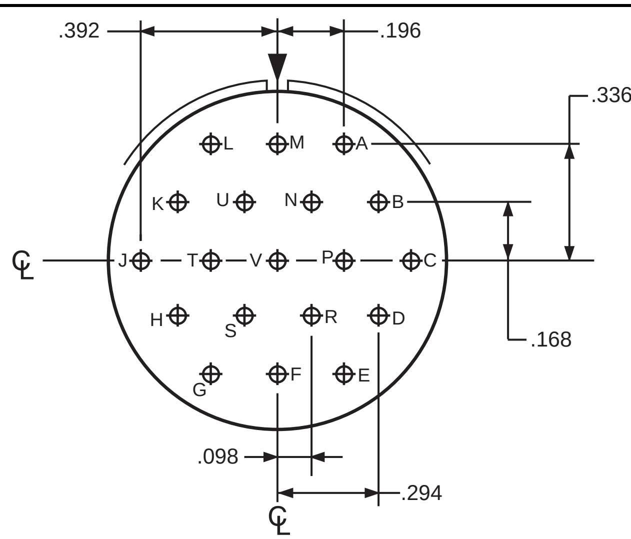



### Insert Arrangement #22-14

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| Insert Designation: | NA | NA | NA | NA | 22-14 |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 19 | 16 | A |

**Contact Locations**
Front face of pin insert shown




All dimensions for reference only. For alternate rotations see pages 25 & 26.

Note: Shown in this catalog are the most common insert patterns for PCB applications. For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

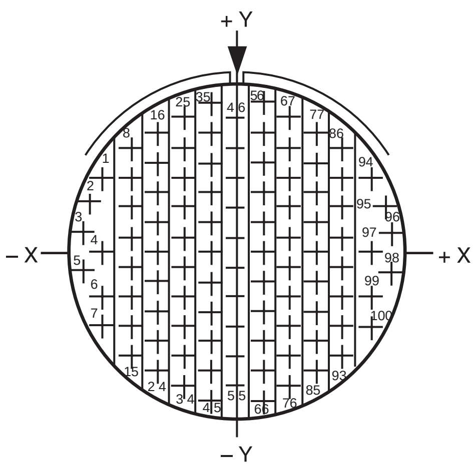
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #22-35 / 23-35

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| Insert Designation: | 22-35 | 23-35 | 23-35 | NA | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 100 | 22D | M |

**Contact Locations**
Front face of pin insert shown




**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| 1 | –.428 | +.241 |
| 2 | –.467 | +.154 |
| 3 | –.488 | +.061 |
| 4 | –.415 | .000 |
| 5 | –.488 | –.061 |
| 6 | –.428 | –.142 |
| 7 | –.428 | –.237 |
| 8 | –.332 | +.333 |
| 9 | –.332 | +.238 |
| 10 | –.332 | +.143 |
| 11 | –.332 | +.048 |
| 12 | –.332 | –.047 |
| 13 | –.332 | –.142 |
| 14 | –.332 | –.237 |
| 15 | –.332 | –.332 |
| 16 | –.249 | +.380 |
| 17 | –.249 | +.285 |
| 18 | –.249 | +.190 |
| 19 | –.249 | +.095 |
| 20 | –.249 | .000 |
| 21 | –.249 | –.095 |
| 22 | –.249 | –.190 |
| 23 | –.249 | –.285 |
| 24 | –.249 | –.380 |
| 25 | –.166 | +.428 |
| 26 | –.166 | +.333 |
| 27 | –.166 | +.238 |
| 28 | –.166 | +.143 |
| 29 | –.166 | +.048 |
| 30 | –.166 | –.047 |
| 31 | –.166 | –.142 |
| 32 | –.166 | –.237 |
| 33 | –.166 | –.332 |
| 34 | –.166 | –.427 |
| 35 | –.083 | +.475 |
| 36 | –.083 | +.380 |
| 37 | –.083 | +.285 |
| 38 | –.083 | +.190 |
| 39 | –.083 | +.095 |
| 40 | –.083 | .000 |
| 41 | –.083 | –.095 |
| 42 | –.083 | –.190 |
| 43 | –.083 | –.285 |
| 44 | –.083 | –.380 |
| 45 | –.083 | –.475 |
| 46 | .000 | +.428 |
| 47 | .000 | +.333 |
| 48 | .000 | +.238 |
| 49 | .000 | +.143 |
| 50 | .000 | +.048 |
| 51 | .000 | –.047 |
| 52 | .000 | –.142 |
| 53 | .000 | –.237 |
| 54 | .000 | –.332 |
| 55 | .000 | –.427 |
| 56 | +.083 | +.475 |
| 57 | +.083 | +.380 |
| 58 | +.083 | +.285 |
| 59 | +.083 | +.190 |
| 60 | +.083 | +.095 |
| 61 | +.083 | .000 |
| 62 | +.083 | –.095 |
| 63 | +.083 | –.190 |
| 64 | +.083 | –.285 |
| 65 | +.083 | –.380 |
| 66 | +.083 | –.475 |
| 67 | +.166 | +.428 |
| 68 | +.166 | +.333 |
| 69 | +.166 | +.238 |
| 70 | +.166 | +.143 |
| 71 | +.166 | +.048 |
| 72 | +.166 | –.047 |
| 73 | +.166 | –.142 |
| 74 | +.166 | –.237 |
| 75 | +.166 | –.332 |
| 76 | +.166 | –.427 |
| 77 | +.249 | +.380 |
| 78 | +.249 | +.285 |
| 79 | +.249 | +.190 |
| 80 | +.249 | +.095 |
| 81 | +.249 | .000 |
| 82 | +.249 | –.095 |
| 83 | +.249 | –.190 |
| 84 | +.249 | –.285 |
| 85 | +.249 | –.380 |
| 86 | +.332 | +.333 |
| 87 | +.332 | +.238 |
| 88 | +.332 | +.143 |
| 89 | +.332 | +.048 |
| 90 | +.332 | –.047 |
| 91 | +.332 | –.142 |
| 92 | +.332 | –.237 |
| 93 | +.332 | –.332 |
| 94 | +.428 | +.241 |
| 95 | +.467 | +.154 |
| 96 | +.488 | +.061 |
| 97 | +.415 | .000 |
| 98 | +.488 | –.061 |
| 99 | +.428 | –.142 |
| 100 | +.428 | –.237 |

All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

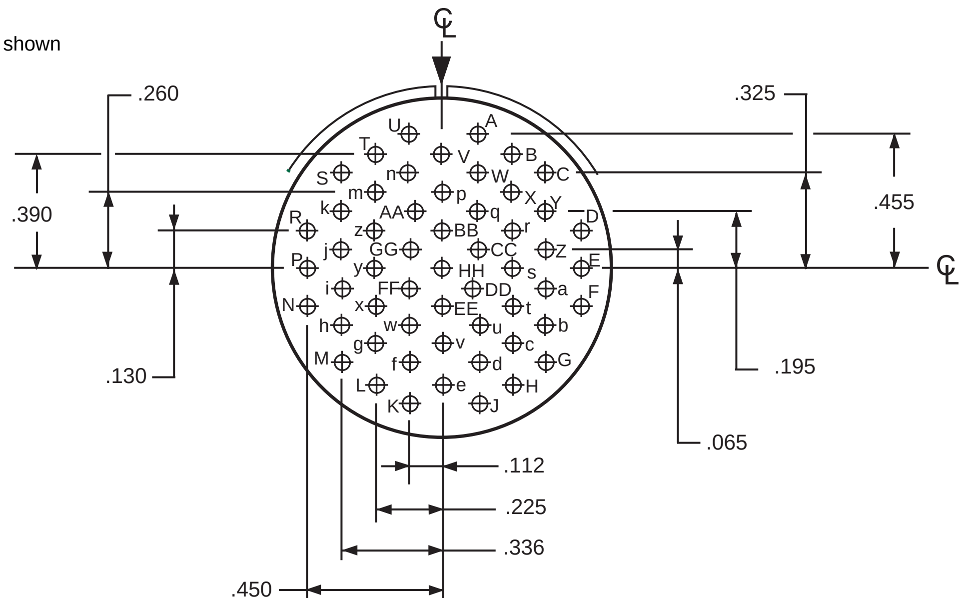
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #22-55 / 23-55

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | 22-55 | 23-55 | 23-55 | 22-55 | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 55 | 20 | I |

**Contact Locations**
Front face of pin insert shown

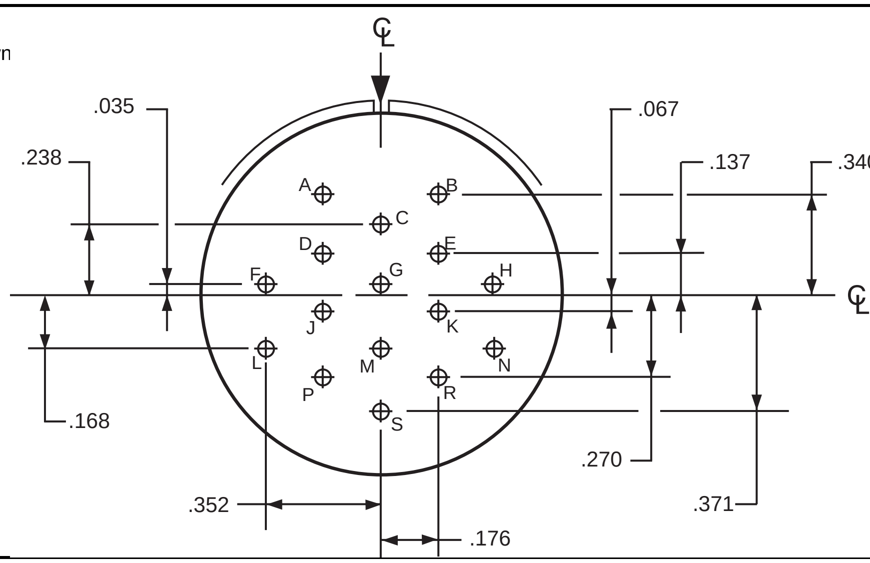



### Insert Arrangement #24-5

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | NA | NA | NA | NA | 24-5 |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 16 | 16 | A |

**Contact Locations**
Front face of pin insert shown




All dimensions for reference only. For alternate rotations see pages 25 & 26.

Note: Shown in this catalog are the most common insert patterns for PCB applications. For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

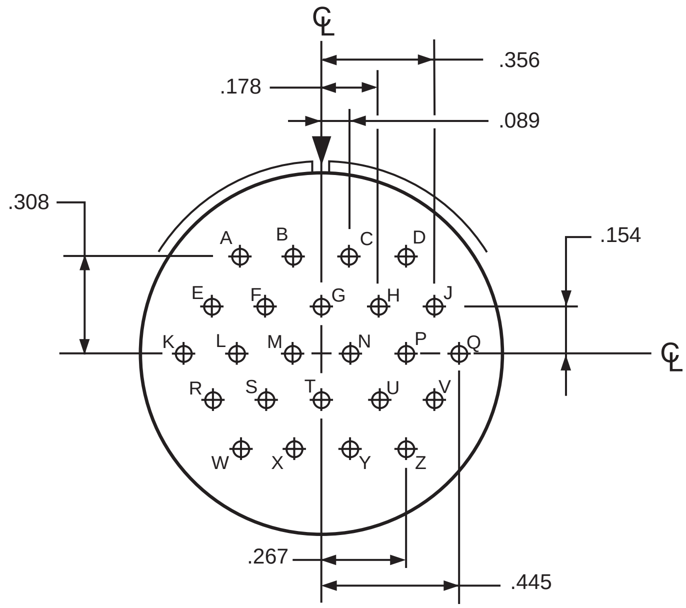
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #24-28

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Connector Type:** | | | | | |
| **Insert Designation:** | NA | NA | NA | NA | 24-28 |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 24 | 16 | Inst. |

**Contact Locations**
Front face of pin insert shown

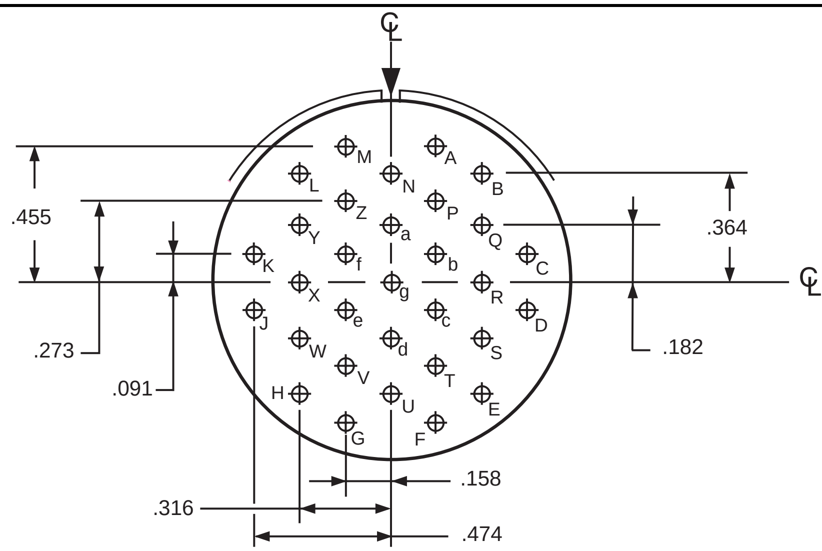



### Insert Arrangement #24-31 / 25-31

| | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Connector Type:** | | | | | |
| **Insert Designation:** | 24-31 | NA | NA | 24-31 | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 31 | 16 | I |

**Contact Locations**
Front face of pin insert shown




All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications. For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

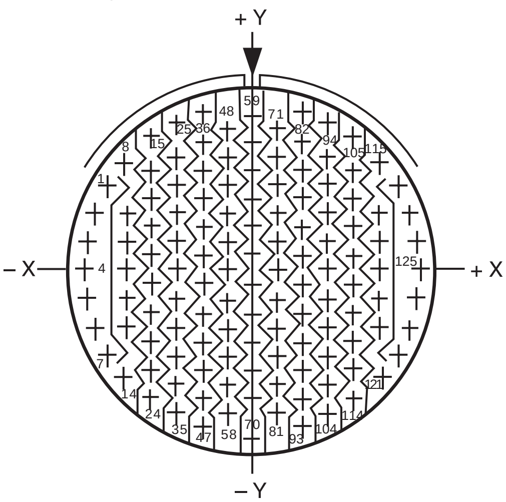
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #24-35 / 25-35

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| Insert Designation: | 24-35 | 25-35 | 25-35 | NA | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 128 | 22D | M |

**Contact Locations**
Front face of pin insert shown




**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| 1 | –.479 | +.279 |
| 2 | –.520 | +.190 |
| 3 | –.546 | +.095 |
| 4 | –.555 | .000 |
| 5 | –.546 | –.095 |
| 6 | –.520 | –.190 |
| 7 | –.479 | –.279 |
| 8 | –.424 | +.357 |
| 9 | –.415 | +.190 |
| 10 | –.415 | +.095 |
| 11 | –.415 | .000 |
| 12 | –.415 | –.095 |
| 13 | –.415 | –.190 |
| 14 | –.424 | –.357 |
| 15 | –.332 | +.444 |
| 16 | –.332 | +.332 |
| 17 | –.332 | +.237 |
| 18 | –.332 | +.142 |
| 19 | –.332 | +.047 |
| 20 | –.332 | –.047 |
| 21 | –.332 | –.142 |
| 22 | –.332 | –.237 |
| 23 | –.332 | –.332 |
| 24 | –.332 | –.427 |
| 25 | –.249 | +.496 |
| 26 | –.249 | +.380 |
| 27 | –.249 | +.285 |

**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| 28 | –.249 | +.190 |
| 29 | –.249 | +.095 |
| 30 | –.249 | .000 |
| 31 | –.249 | –.095 |
| 32 | –.249 | –.190 |
| 33 | –.249 | –.285 |
| 34 | –.249 | –.380 |
| 35 | –.249 | –.475 |
| 36 | –.160 | +.531 |
| 37 | –.166 | +.427 |
| 38 | –.166 | +.332 |
| 39 | –.166 | +.237 |
| 40 | –.166 | +.142 |
| 41 | –.166 | +.047 |
| 42 | –.166 | –.047 |
| 43 | –.166 | –.142 |
| 44 | –.166 | –.237 |
| 45 | –.166 | –.332 |
| 46 | –.166 | –.427 |
| 47 | –.166 | –.522 |
| 48 | –.083 | +.475 |
| 49 | –.083 | +.380 |
| 50 | –.083 | +.285 |
| 51 | –.083 | +.190 |
| 52 | –.083 | +.095 |
| 53 | –.083 | .000 |
| 54 | –.083 | –.095 |
| 55 | –.083 | –.190 |
| 56 | –.083 | –.285 |
| 57 | –.083 | –.380 |
| 58 | –.083 | –.475 |
| 59 | .000 | +.522 |
| 60 | .000 | +.427 |
| 61 | .000 | +.332 |
| 62 | .000 | +.237 |
| 63 | .000 | +.142 |
| 64 | .000 | +.047 |
| 65 | .000 | –.047 |
| 66 | .000 | –.142 |
| 67 | .000 | –.237 |
| 68 | .000 | –.332 |
| 69 | .000 | –.427 |
| 70 | .000 | –.555 |
| 71 | +.083 | +.475 |
| 72 | +.083 | +.380 |
| 73 | +.083 | +.285 |
| 74 | +.083 | +.190 |
| 75 | +.083 | +.095 |
| 76 | +.083 | .000 |
| 77 | +.083 | –.095 |

**Contact Hole Locations**

| Contact Number | Location X Axis | Location Y Axis |
|---|---|---|
| 78 | +.083 | –.190 |
| 79 | +.083 | –.285 |
| 80 | +.083 | –.380 |
| 81 | +.083 | –.475 |
| 82 | +.160 | +.531 |
| 83 | +.166 | +.427 |
| 84 | +.166 | +.332 |
| 85 | +.166 | +.237 |
| 86 | +.166 | +.142 |
| 87 | +.166 | +.047 |
| 88 | +.166 | –.047 |
| 89 | +.166 | –.142 |
| 90 | +.166 | –.237 |
| 91 | +.166 | –.332 |
| 92 | +.166 | –.427 |
| 93 | +.166 | –.522 |
| 94 | +.249 | +.496 |
| 95 | +.249 | +.380 |
| 96 | +.249 | +.285 |
| 97 | +.249 | +.190 |
| 98 | +.249 | +.095 |
| 99 | +.249 | .000 |
| 100 | +.249 | –.095 |
| 101 | +.249 | –.190 |
| 102 | +.249 | –.285 |
| 103 | +.249 | –.380 |
| 104 | +.249 | –.475 |
| 105 | +.332 | +.444 |
| 106 | +.332 | +.332 |
| 107 | +.332 | +.237 |
| 108 | +.332 | +.142 |
| 109 | +.332 | +.047 |
| 110 | +.332 | –.047 |
| 111 | +.332 | –.142 |
| 112 | +.332 | –.237 |
| 113 | +.332 | –.332 |
| 114 | +.332 | –.427 |
| 115 | +.424 | +.357 |
| 116 | +.415 | +.190 |
| 117 | +.415 | +.095 |
| 118 | +.415 | .000 |
| 119 | +.415 | –.095 |
| 120 | +.415 | –.190 |
| 121 | +.424 | –.357 |
| 122 | +.479 | +.279 |
| 123 | +.520 | +.190 |
| 124 | +.546 | +.095 |
| 125 | +.555 | .000 |
| 126 | +.546 | –.095 |
| 127 | +.520 | –.190 |
| 128 | +.479 | –.279 |

All dimensions for reference only. For alternate rotations see pages 25 & 26.

Note: Shown in this catalog are the most common insert patterns for PCB applications. For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

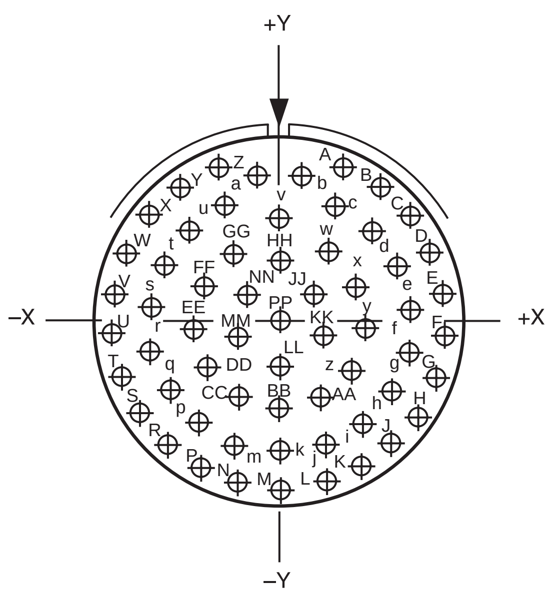
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #24-61 / 25-61

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| Insert Designation: | 24-61 | 25-61 | 25-61 | 24-61 | NA |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 61 | 20 | I |

**Contact Locations**
Front face of pin insert shown




| Contact Hole Locations | | |
|---|---|---|
| Contact Number | Location | |
| | X Axis | Y Axis |
| A | +.196 | +.500 |
| B | +.314 | +.435 |
| C | +.413 | +.343 |
| D | +.485 | +.230 |
| E | +.527 | +.101 |
| F | +.536 | –.030 |
| G | +.511 | –.164 |
| H | +.454 | –.287 |
| J | +.368 | –.391 |
| K | +.259 | –.470 |
| L | +.134 | –.519 |
| M | .000 | –.537 |
| N | –.134 | –.519 |
| P | –.259 | –.470 |
| R | –.368 | –.391 |
| S | –.454 | –.287 |
| T | –.511 | –.164 |
| U | –.536 | –.030 |
| V | –.527 | +.101 |
| W | –.485 | +.230 |
| X | –.413 | +.343 |
| Y | –.314 | +.435 |
| Z | –.196 | +.500 |
| a | –.068 | +.454 |
| b | +.068 | +.454 |
| c | +.173 | +.363 |
| d | +.285 | +.283 |
| e | +.362 | +.175 |
| f | +.399 | +.046 |
| g | +.392 | –.088 |

| Contact Hole Locations | | |
|---|---|---|
| Contact Number | Location | |
| | X Axis | Y Axis |
| h | +.341 | –.213 |
| i | +.251 | –.314 |
| j | +.133 | –.379 |
| k | .000 | –.402 |
| m | –.133 | –.379 |
| n | –.251 | –.314 |
| p | –.341 | –.213 |
| q | –.392 | –.088 |
| r | –.399 | +.046 |
| s | –.362 | +.175 |
| t | –.285 | +.283 |
| u | –.173 | +.363 |
| v | .000 | +.338 |
| w | +.147 | +.223 |
| x | +.237 | +.122 |
| y | +.267 | –.010 |
| z | +.228 | –.139 |
| AA | +.131 | –.233 |
| BB | .000 | –.267 |
| CC | –.131 | –.233 |
| DD | –.228 | –.139 |
| EE | –.267 | –.010 |
| FF | –.237 | +.122 |
| GG | –.147 | +.223 |
| HH | .000 | +.200 |
| JJ | +.105 | +.094 |
| KK | +.135 | –.041 |
| LL | .000 | –.132 |
| MM | –.135 | –.041 |
| NN | –.105 | +.094 |
| PP | .000 | .000 |

All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

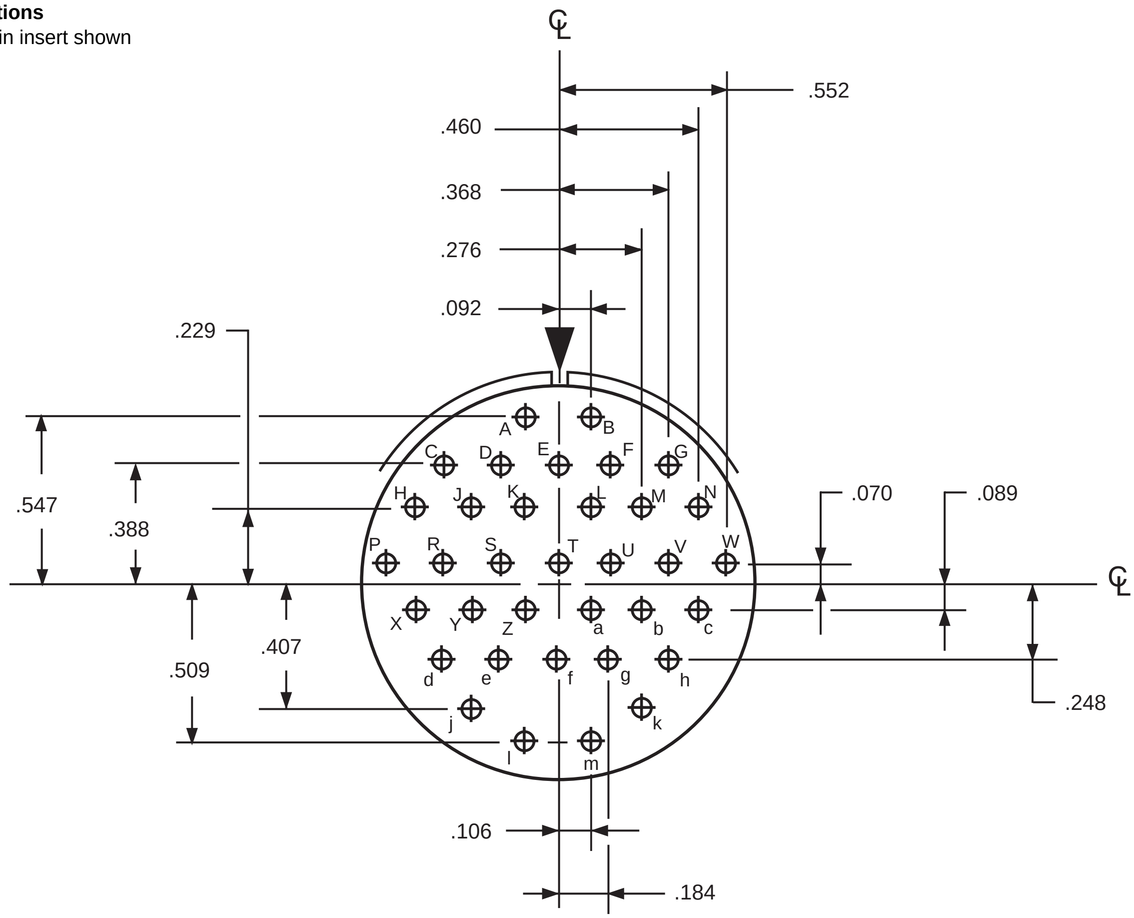
# Cylindrical Connectors with PCB contacts insert arrangements, cont.

### Insert Arrangement #28-15

| Connector Type: | JT MIL-DTL-38999 Series II | LJT MIL-DTL-38999 Series I | Tri-Start MIL-DTL-38999 Series III | MIL-C-26482 Series 1 & 2 | MIL-5015 |
|---|---|---|---|---|---|
| **Insert Designation:** | NA | NA | NA | NA | 28-15 |

| Number of Contacts | Contact Size | Service Rating |
|---|---|---|
| 35 | 16 | A |

**Contact Locations**
Front face of pin insert shown




All dimensions for reference only. For alternate rotations see pages 25 & 26.
Note: Shown in this catalog are the most common insert patterns for PCB applications.
For availability of other arrangements, consult Amphenol Corp., Sidney, NY.

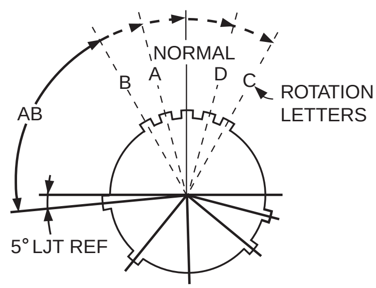
# Cylindrical Connectors with PCB contacts alternate positioning available for MIL-DTL-38999 connectors

To avoid cross-plugging problems in applications requiring the use of more than one connector of the same series, size and arrangement, alternate rotations are available as indicated in the accompanying charts.

**In MIL-DTL-38999 Series I, II and III connectors the rotation is based on rotating the master key/keyway in the connector shell.** A plug with a given rotation letter will mate with a receptacle with the same rotation letter. Only the master key/keyway rotates in the shell, and the insert always remains in the same position relative to the minor keys. Refer to diagrams below for each connector series.

**LJT (MIL-DTL-38999 Series I) KEY/KEYWAY ROTATION**

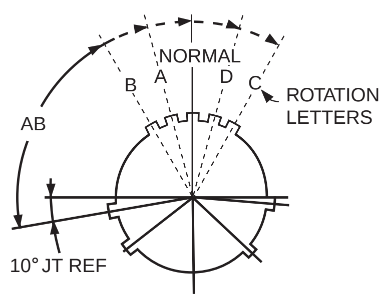
| AB ANGLE OF ROTATION (Degrees) | | | | | |
|---|---|---|---|---|---|
| **Shell Size** | **Normal°** | **A°** | **B°** | **C°** | **D°** |
| 9 | 95 | 77 | – | – | 113 |
| 11 | 95 | 81 | 67 | 123 | 109 |
| 13 | 95 | 75 | 63 | 127 | 115 |
| 15 | 95 | 74 | 61 | 129 | 116 |
| 17 | 95 | 77 | 65 | 125 | 113 |
| 19 | 95 | 77 | 65 | 125 | 113 |
| 21 | 95 | 77 | 65 | 125 | 113 |
| 23 | 95 | 80 | 69 | 121 | 110 |
| 25 | 95 | 80 | 69 | 121 | 110 |




RELATIVE POSSIBLE POSITION
OF ROTATED MASTER KEYWAY
(front face of LJT connector receptacle shown)

**JT (MIL-DTL-38999 Series II) KEY/KEYWAY ROTATION**

| AB ANGLE OF ROTATION (Degrees) | | | | | |
|---|---|---|---|---|---|
| **Shell Size** | **Normal°** | **A°** | **B°** | **C°** | **D°** |
| 8 | 100 | 82 | – | – | 118 |
| 10 | 100 | 86 | 72 | 128 | 114 |
| 12 | 100 | 80 | 68 | 132 | 120 |
| 14 | 100 | 79 | 66 | 134 | 121 |
| 16 | 100 | 82 | 70 | 130 | 118 |
| 18 | 100 | 82 | 70 | 130 | 118 |
| 20 | 100 | 82 | 70 | 130 | 118 |
| 22 | 100 | 85 | 74 | 126 | 115 |
| 24 | 100 | 85 | 74 | 126 | 115 |




RELATIVE POSSIBLE POSITION
OF ROTATED MASTER KEYWAY
(front face of JT connector receptacle shown)

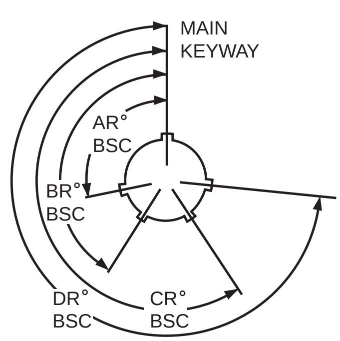
**LJT & JT CONNECTORS ALTERNATE ROTATION CROSS REFERENCE LETTERS**

| Pins in Alternate Rotations | Sockets in Alternate Rotations |
|---|---|
| PA = E | SA = F |
| PB = R | SB = T |
| PC = W | SC = X |
| PD = Y | SD = Z |

Explanation:
Use P at end of part number for pin contacts in Normal position.
Use S at end of part number for socket contacts in Normal position.
Use cross reference letters given in chart above for alternate rotations.

**Tri-Start (MIL-DTL-38999 Series III) KEY/KEYWAY ROTATION**

| Shell Size | Key & Keyway Arrangement Identification Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC |
|---|---|---|---|---|---|
| 9 | N | 105 | 140 | 215 | 265 |
| | A | 102 | 132 | 248 | 320 |
| | B | 80 | 118 | 230 | 312 |
| | C | 35 | 140 | 205 | 275 |
| | D | 64 | 155 | 234 | 304 |
| | E | 91 | 131 | 197 | 240 |
| 11, 13, and 15 | N | 95 | 141 | 208 | 236 |
| | A | 113 | 156 | 182 | 292 |
| | B | 90 | 145 | 195 | 252 |
| | C | 53 | 156 | 220 | 255 |
| | D | 119 | 146 | 176 | 298 |
| | E | 51 | 141 | 184 | 242 |
| 17 and 19 | N | 80 | 142 | 196 | 293 |
| | A | 135 | 170 | 200 | 310 |
| | B | 49 | 169 | 200 | 244 |
| | C | 66 | 140 | 200 | 257 |
| | D | 62 | 145 | 180 | 280 |
| | E | 79 | 153 | 197 | 272 |
| 21, 23, and 25 | N | 80 | 142 | 196 | 293 |
| | A | 135 | 170 | 200 | 310 |
| | B | 49 | 169 | 200 | 244 |
| | C | 66 | 140 | 200 | 257 |
| | D | 62 | 145 | 180 | 280 |
| | E | 79 | 153 | 197 | 272 |




RELATIVE POSSIBLE POSITION
OF ROTATED MASTER KEYWAY
(front face of Tri-Start connector receptacle shown)

**TRI-START CONNECTORS ALTERNATE ROTATION CROSS REFERENCE LETTERS**

| Pins in Alternate Rotations | Sockets in Alternate Rotations |
|---|---|
| PA = G | SA = H |
| PB = I | SB = J |
| PC = K | SC = L |
| PD = M | SD = N |
| PE = R | SE = T |

Explanation:
Use P at end of part number for pin contacts in Normal position.
Use S at end of part number for socket contacts in Normal position.
Use cross reference letters given in chart above for alternate rotations.

# Cylindrical Connectors with PCB contacts alternate positioning available for MIL-C-26482 and MIL-5015 connectors

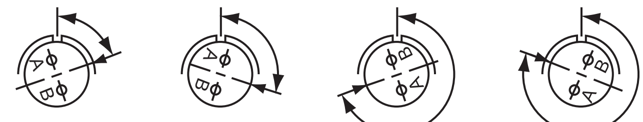
To avoid cross-plugging problems in applications requiring the use of more than one connector of the same series, size and arrangement, alternate rotations are available as indicated in the accompanying charts.

**In MIL-C-26482 and MIL-5015 connectors the rotation is based on rotation of the insert within the connector.**

A plug with a given rotation letter will mate with a receptacle with the same rotation letter. The front face of the pin insert is rotated within the shell in a clockwise direction from the normal shell key. Refer to diagram below for both MIL-C-26482 and MIL-C-5015 connectors.

**MIL-C-26482 INSERT ROTATION**

| Insert Rotation | | | | | |
|---|---|---|---|---|---|
| **Shell Size** | **Insert Arrangement** | **Degrees** | | | |
| | | **W** | **X** | **Y** | **Z** |
| 8 | 8-3 | 60 | 210 | – | – |
| 8 | 8-98 | – | – | – | – |
| 10 | 10-5 | 45 | 151 | 180 | 270 |
| 14 | 14-18 | 15 | 90 | 180 | 270 |
| 14 | 14-19 | 30 | 165 | 315 | – |
| 16 | 16-26 | 60 | – | 275 | 338 |
| 18 | 18-32 | 85 | 138 | 222 | 265 |
| 20 | 20-41 | 45 | 126 | 225 | – |
| 22 | 22-36 | 72 | 144 | 216 | 288 |
| 24 | 24-31 | 90 | 225 | 255 | – |
| 24 | 24-61 | 90 | 180 | 270 | 324 |




Position W Position X Position Y Position Z

RELATIVE POSSIBLE POSITION
OF ROTATED INSERT
(front face of connector receptacle shown)
(MIL-C-26482 and MIL-C-5015)

**MIL-5015 INSERT ROTATION**

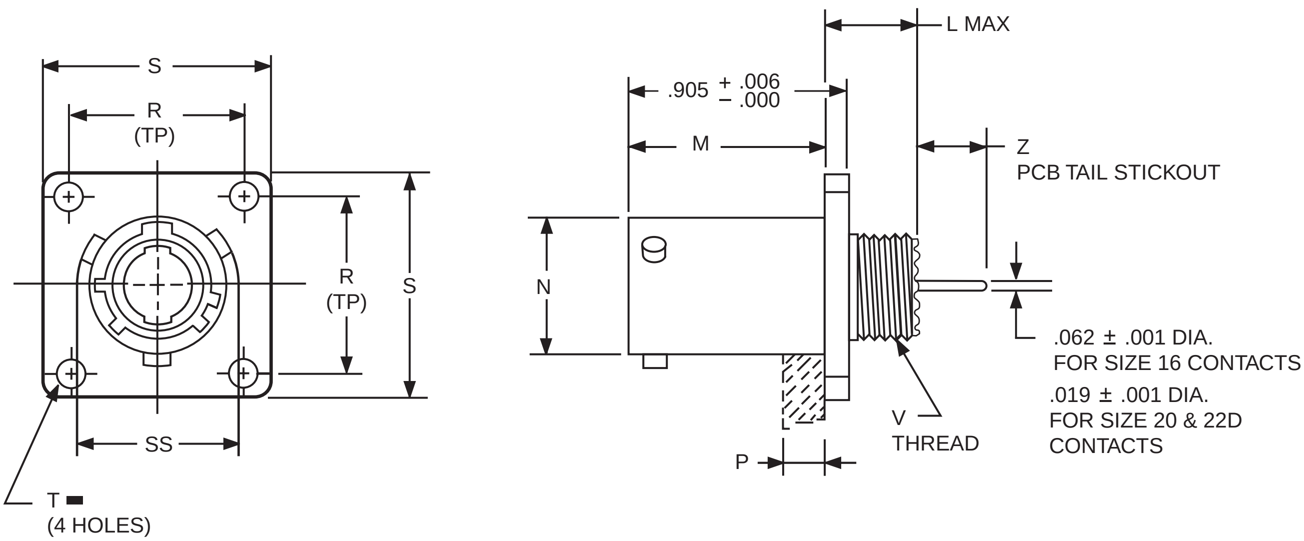
| Insert Rotation | | | | | |
|---|---|---|---|---|---|
| **Shell Size** | **Insert Arrangement** | **Degrees** | | | |
| | | **W** | **X** | **Y** | **Z** |
| 10 | 10SL-3 | – | – | – | – |
| 14 | 14S-6 | – | – | – | – |
| 16 | 16S-1 | 80 | – | – | 280 |
| 18 | 18-1 | 70 | 145 | 215 | 290 |
| 20 | 20-11 | – | – | – | – |
| 22 | 22-14 | 80 | 110 | 250 | 280 |
| 24 | 24-28 | 80 | 110 | 250 | 280 |
| 28 | 28-15 | 80 | 110 | 250 | 280 |

**MIL-26482 AND MIL-5015 CONNECTORS ALTERNATE ROTATION CROSS REFERENCE LETTERS**

| Pins in Alternate Rotations | Sockets in Alternate Rotations |
|---|---|
| PW = G | SW = H |
| PX = I | SX = J |
| PY = K | SY = L |
| PZ = M | SZ = N |

Explanation:
Use P at end of part number for pin contacts in Normal position.
Use S at end of part number for socket contacts in Normal position.
Use cross reference letters given in chart above for inserts with alternate rotations.

# MIL-DTL-38999 Series I Type Connectors with PCB contacts
# LJTPQ00R wall mounting receptacle
## (back panel mounting)




HOW TO ORDER
- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-569701-35P designates shell size 9 with a 9-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

⌖ .005 DIA Ⓜ

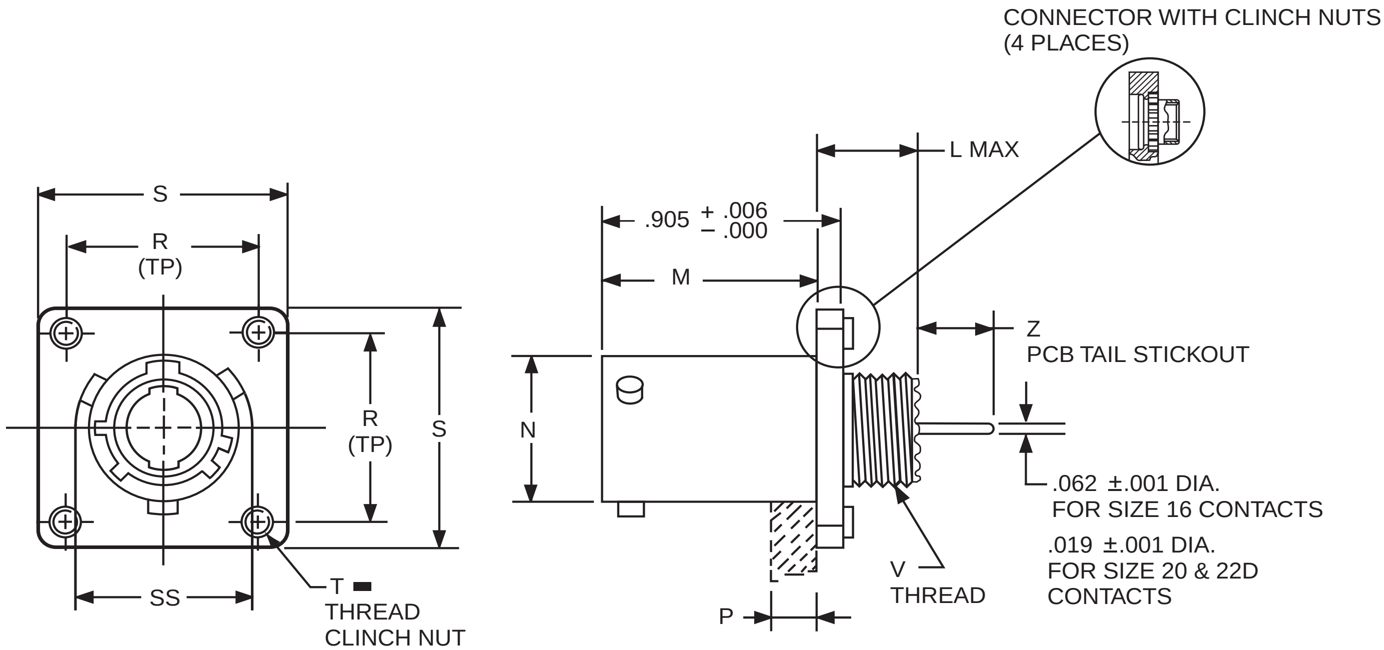
| Shell Size | Part Number | L Max. | M +.000 –.005 | N Dia. | P Max. Panel Thickness | R (TP) | S +.011 –.010 | T Dia. ±.005 | V Thread Class 2A (Plated) | SS Dia. +.000 –.016 | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 88/91-569701-XXX | .453 | .820 | .572 | .234 | .719 | .938 | .128 | .4375-28 UNEF | .662 | .281 – .235 | .249 – .188 |
| 11 | 702-XXX | .453 | .820 | .700 | .234 | .812 | 1.031 | .128 | .5625-24 UNEF | .810 | .281 – .235 | .249 – .188 |
| 13 | 703-XXX | .453 | .820 | .850 | .234 | .906 | 1.125 | .128 | .6875-24 UNEF | .960 | .281 – .235 | .249 – .188 |
| 15 | 704-XXX | .453 | .820 | .975 | .234 | .969 | 1.219 | .128 | .8125-20 UNEF | 1.085 | .281 – .235 | .249 – .188 |
| 17 | 705-XXX | .453 | .820 | 1.100 | .234 | 1.062 | 1.312 | .128 | .9375-20 UNEF | 1.210 | .281 – .235 | .249 – .188 |
| 19 | 706-XXX | .453 | .820 | 1.207 | .234 | 1.156 | 1.438 | .128 | 1.0625-18 UNEF | 1.317 | .281 – .235 | .249 – .188 |
| 21 | 707-XXX | .484 | .790 | 1.332 | .204 | 1.250 | 1.562 | .128 | 1.1875-18 UNEF | 1.442 | .281 – .235 | .249 – .188 |
| 23 | 708-XXX | .484 | .790 | 1.457 | .204 | 1.375 | 1.688 | .147 | 1.3125-18 UNEF | 1.567 | .281 – .235 | .249 – .188 |
| 25 | 709-XXX | .484 | .790 | 1.582 | .193 | 1.500 | 1.812 | .147 | 1.4375-18 UNEF | 1.692 | .281 – .235 | .249 – .188 |

All dimensions for reference only.

# MIL-DTL-38999 Series I Type Connectors with PCB contacts

# LJTPQ00R wall mounting receptacle

## (back panel mounting) (with clinch nuts)




HOW TO ORDER

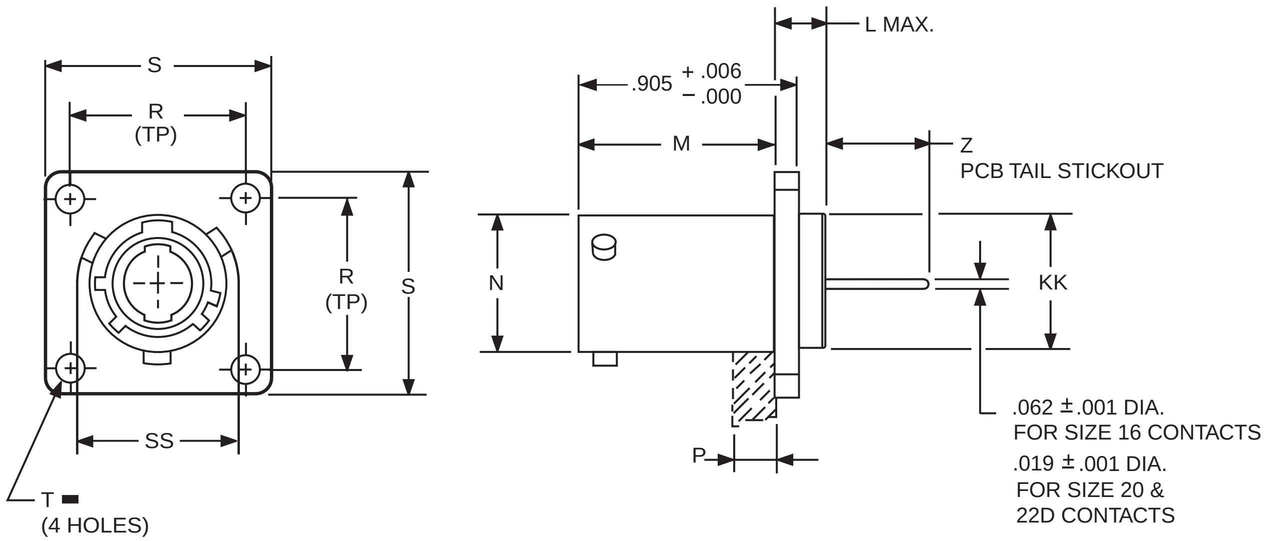
- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-628701-35P designates shell size 9 with a 9-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

▬ ⊕ .005 DIA Ⓜ

| Shell Size | Part Number with Clinch Nuts* | L Max. | M +.000 –.005 | N Dia. | P Max. Panel Thickness | R (TP) | S +.011 –.010 | T Thread | V Thread Class 2A (Plated) | SS Dia. +.000 –.016 | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 88/91-628701-XXX | .453 | .820 | .572 | .234 | .719 | .938 | .112-40UNC-3B | .4375-28 UNEF | .662 | .281 – .235 | .249 – .188 |
| 11 | 702-XXX | .453 | .820 | .700 | .234 | .812 | 1.031 | .112-40UNC-3B | .5625-24 UNEF | .810 | .281 – .235 | .249 – .188 |
| 13 | 703-XXX | .453 | .820 | .850 | .234 | .906 | 1.125 | .112-40UNC-3B | .6875-24 UNEF | .960 | .281 – .235 | .249 – .188 |
| 15 | 704-XXX | .453 | .820 | .975 | .234 | .969 | 1.219 | .112-40UNC-3B | .8125-20 UNEF | 1.085 | .281 – .235 | .249 – .188 |
| 17 | 705-XXX | .453 | .820 | 1.100 | .234 | 1.062 | 1.312 | .112-40UNC-3B | .9375-20 UNEF | 1.210 | .281 – .235 | .249 – .188 |
| 19 | 706-XXX | .453 | .820 | 1.207 | .234 | 1.156 | 1.438 | .112-40UNC-3B | 1.0625-18 UNEF | 1.317 | .281 – .235 | .249 – .188 |
| 21 | 707-XXX | .484 | .790 | 1.332 | .204 | 1.250 | 1.562 | .112-40UNC-3B | 1.1875-18 UNEF | 1.442 | .281 – .235 | .249 – .188 |
| 23 | 708-XXX | .484 | .790 | 1.457 | .204 | 1.375 | 1.688 | .138-32UNC-3B | 1.3125-18 UNEF | 1.567 | .281 – .235 | .249 – .188 |
| 25 | 709-XXX | .484 | .790 | 1.582 | .193 | 1.500 | 1.812 | .138-32UNC-3B | 1.4375-18 UNEF | 1.692 | .281 – .235 | .249 – .188 |

All dimensions for reference only.
* Consult Amphenol for more information on ordering connectors with clinch nuts. There is also a 3mm clinch nut available (part number 88/91-628401/409)

# MIL-DTL-38999 Series I Type Connectors with PCB contacts
# LJTP02R box mounting receptacle
## (back panel mounting)



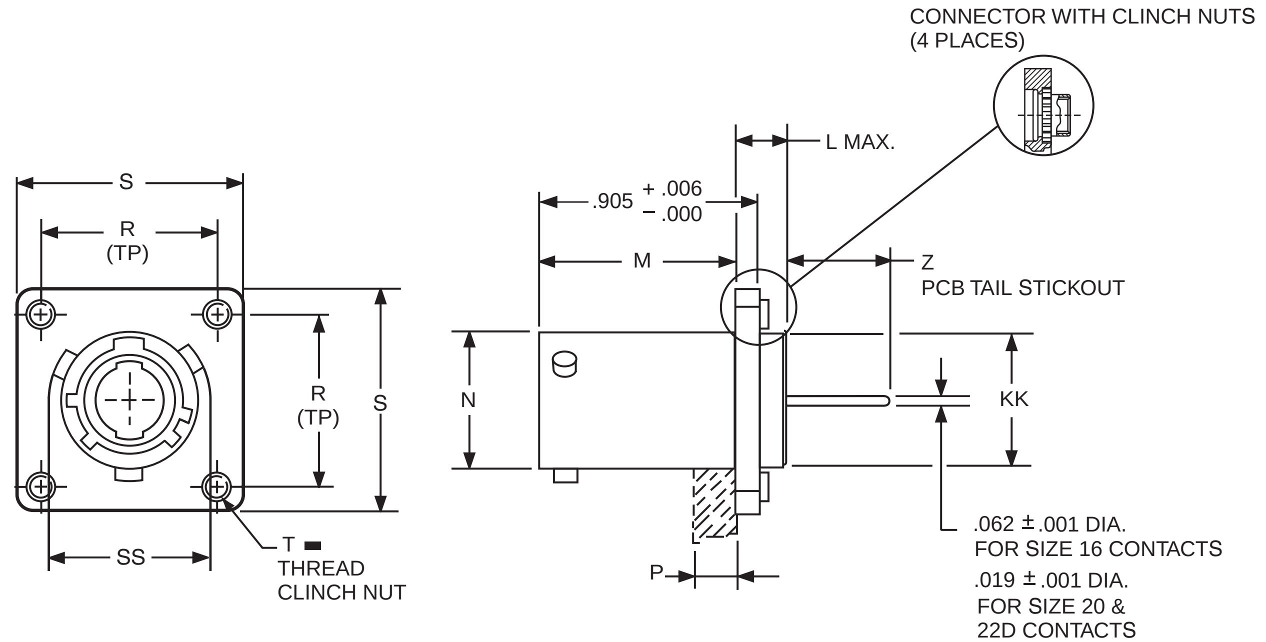

HOW TO ORDER
- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-569711-35P designates shell size 9 with a 9-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

.005 DIA Ⓜ

| Shell Size | Part Number | L Max. | M +.000 –.005 | N +.001 –.005 | P Max. Panel Thickness | R (TP) | S +.011 –.010 | T Dia. ±.005 | KK Dia. +.006 –.005 | SS Dia. +.000 –.016 | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 88/91-569711-XXX | .203 | .820 | .572 | .234 | .719 | .938 | .128 | .433 | .662 | .454 – .401 | .468 – .406 |
| 11 | 712-XXX | .203 | .820 | .700 | .234 | .812 | 1.031 | .128 | .557 | .810 | .454 – .401 | .468 – .406 |
| 13 | 713-XXX | .203 | .820 | .850 | .234 | .906 | 1.125 | .128 | .676 | .960 | .454 – .401 | .468 – .406 |
| 15 | 714-XXX | .203 | .820 | .975 | .234 | .969 | 1.219 | .128 | .801 | 1.085 | .454 – .401 | .468 – .406 |
| 17 | 715-XXX | .203 | .820 | 1.100 | .234 | 1.062 | 1.312 | .128 | .926 | 1.210 | .454 – .401 | .468 – .406 |
| 19 | 716-XXX | .203 | .820 | 1.207 | .234 | 1.156 | 1.438 | .128 | 1.032 | 1.317 | .454 – .401 | .468 – .406 |
| 21 | 717-XXX | .234 | .790 | 1.332 | .204 | 1.250 | 1.562 | .128 | 1.157 | 1.442 | .454 – .401 | .468 – .406 |
| 23 | 718-XXX | .234 | .790 | 1.457 | .204 | 1.375 | 1.688 | .147 | 1.282 | 1.567 | .454 – .401 | .468 – .406 |
| 25 | 719-XXX | .234 | .790 | 1.582 | .193 | 1.500 | 1.812 | .147 | 1.407 | 1.692 | .454 – .401 | .468 – .406 |

All dimensions for reference only.

# MIL-DTL-38999 Series I Type Connectors with PCB contacts
# LJTP02R box mounting receptacle
## (back panel mounting) (with clinch nuts)




HOW TO ORDER

- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 5-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-628701-35P designates shell size 9 with a 9-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

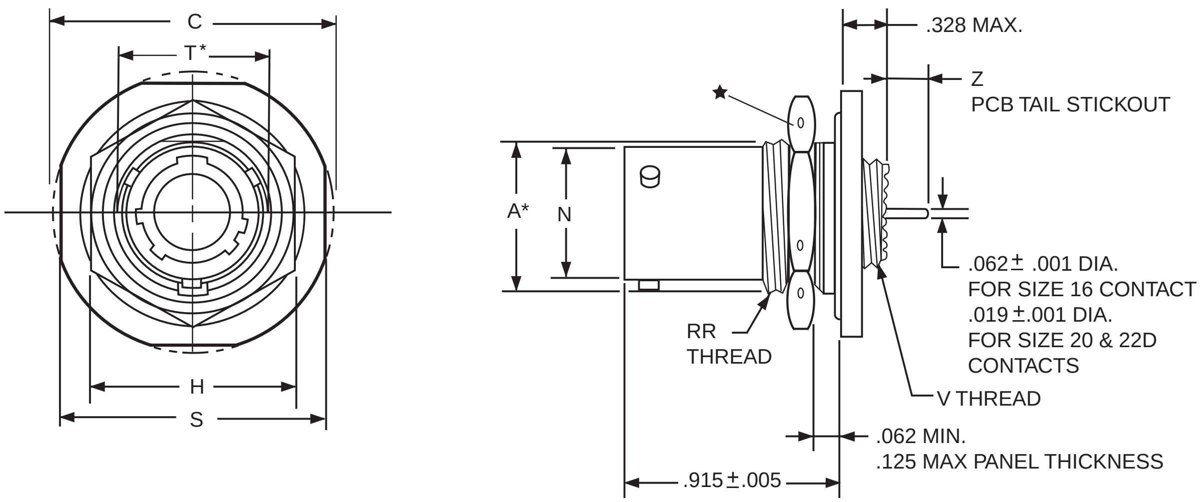
▬ ⊕ .005 DIA Ⓜ

| Shell Size | Part Number with Clinch Nuts | L Max. | M +.000 –.005 | N +.001 –.005 | P Max. Panel Thickness | R (TP) | S +.011 –.010 | T Thread | KK Dia. +.006 –.005 | SS Dia. +.000 –.016 | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 88/91-628711-XXX | .203 | .820 | .572 | .234 | .719 | 1.031 | .112-40UNJC-3B | .433 | .662 | .454 – .401 | .468 – .406 |
| 11 | 712-XXX | .203 | .820 | .700 | .234 | .812 | 1.125 | .112-40UNJC-3B | .557 | .810 | .454 – .401 | .468 – .406 |
| 13 | 713-XXX | .203 | .820 | .850 | .234 | .906 | 1.172 | .112-40UNJC-3B | .676 | .960 | .454 – .401 | .468 – .406 |
| 15 | 714-XXX | .203 | .820 | .975 | .234 | .969 | 1.281 | .112-40UNJC-3B | .801 | 1.085 | .454 – .401 | .468 – .406 |
| 17 | 715-XXX | .203 | .820 | 1.100 | .234 | 1.062 | 1.375 | .112-40UNJC-3B | .926 | 1.210 | .454 – .401 | .468 – .406 |
| 19 | 716-XXX | .203 | .820 | 1.207 | .234 | 1.156 | 1.469 | .112-40UNJC-3B | 1.032 | 1.317 | .454 – .401 | .468 – .406 |
| 21 | 717-XXX | .234 | .790 | 1.332 | .204 | 1.250 | 1.625 | .112-40UNJC-3B | 1.157 | 1.442 | .454 – .401 | .468 – .406 |
| 23 | 718-XXX | .234 | .790 | 1.457 | .204 | 1.375 | 1.750 | .138-32UNJC-3B | 1.282 | 1.567 | .454 – .401 | .468 – .406 |
| 25 | 719-XXX | .234 | .790 | 1.582 | .193 | 1.500 | 1.875 | .138-32UNJC-3B | 1.407 | 1.692 | .454 – .401 | .468 – .406 |

All dimensions for reference only.

* Consult Amphenol for more information on ordering connectors with clinch nuts. There is also a 3mm clinch nut available (part number 88/91-628410/419)

# MIL-DTL-38999 Series I Type Connectors with PCB contacts
# LJT07R jam nut receptacle




HOW TO ORDER

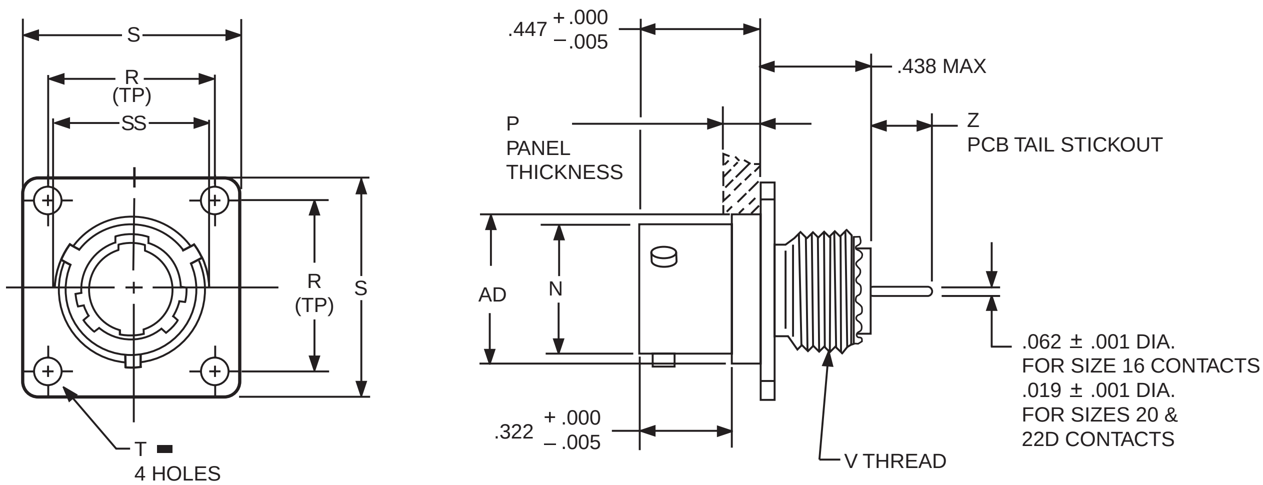
- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-569721-35P designates shell size 9 with a 9-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

★ .059 dia. min. 3 lockwire holes.
Formed lockwire hole design (6 holes) is optional.
* "D" shaped mounting hole dimensions

| Shell Size | Part Number | A* +.000 –.010 | C Max. | H Hex +.017 –.016 | L Max. | N +.001 –.005 | S ±.016 | T* +.010 –.000 | V Thread Class 2A (Plated) | RR Thread Class 2A (Plated) | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 88/91-569721-XXX | .669 | 1.199 | .875 | .625 | .572 | 1.062 | .697 | .4375-28 UNEF | .6875-24 UNEF | .229 – .175 | .243 – .182 |
| 11 | 722-XXX | .769 | 1.386 | 1.000 | .625 | .700 | 1.250 | .822 | .5625-24 UNEF | .8125-20 UNEF | .229 – .175 | .243 – .182 |
| 13 | 723-XXX | .955 | 1.511 | 1.188 | .625 | .850 | 1.375 | 1.007 | .6875-24 UNEF | 1.0000-20 UNEF | .229 – .175 | .243 – .182 |
| 15 | 724-XXX | 1.084 | 1.636 | 1.312 | .625 | .975 | 1.500 | 1.134 | .8125-20 UNEF | 1.1250-18 UNEF | .229 – .175 | .243 – .182 |
| 17 | 725-XXX | 1.208 | 1.761 | 1.438 | .625 | 1.100 | 1.625 | 1.259 | .9375-20 UNEF | 1.2500-18 UNEF | .229 – .175 | .243 – .182 |
| 19 | 726-XXX | 1.333 | 1.949 | 1.562 | .656 | 1.207 | 1.812 | 1.384 | 1.0625-18 UNEF | 1.3750-18 UNEF | .207 – .158 | .221 – .165 |
| 21 | 727-XXX | 1.459 | 2.073 | 1.688 | .750 | 1.332 | 1.938 | 1.507 | 1.1875-18 UNEF | 1.5000-18 UNEF | .207 – .158 | .221 – .165 |
| 23 | 728-XXX | 1.580 | 2.199 | 1.812 | .750 | 1.457 | 2.062 | 1.634 | 1.3125-18 UNEF | 1.6250-18 UNEF | .207 – .158 | .221 – .165 |
| 25 | 729-XXX | 1.709 | 2.323 | 2.000 | .750 | 1.582 | 2.188 | 1.759 | 1.4375-18 UNEF | 1.7500-18 UNS | .207 – .158 | .221 – .165 |

All dimensions for reference only.

# MIL-DTL-38999 Series II Type Connectors with PCB contacts
# JTPQ00R wall mounting receptacle
## (back panel mounting)




HOW TO ORDER

- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-569731-35P designates shell size 8 with a 8-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

.005 DIA Ⓜ

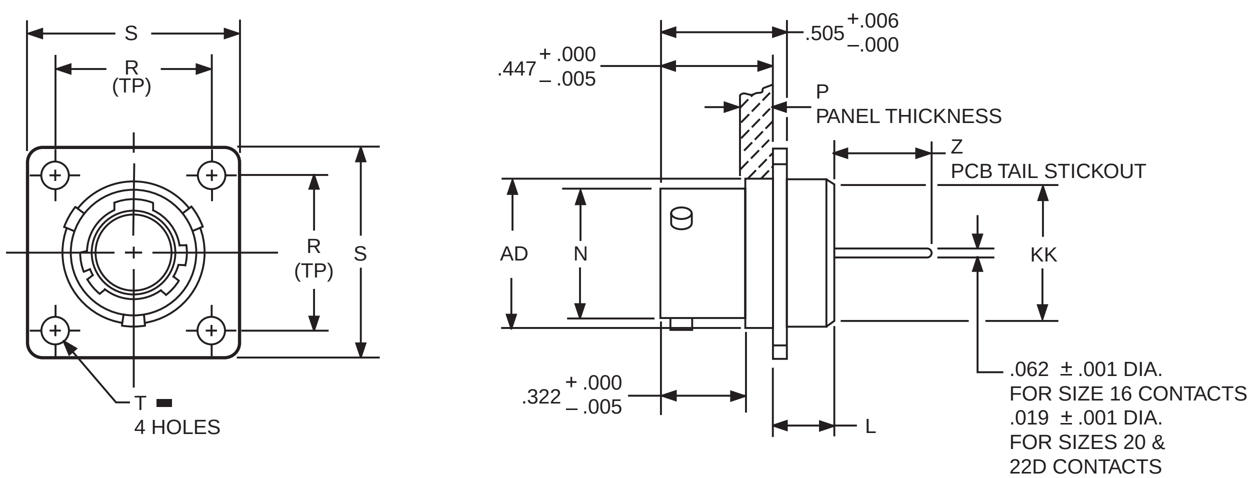
| Shell Size | Part Number | N +.001 –.005 | P Max. Panel Thickness | R (TP) | S ±.016 | T Dia. ±.005 | V Thread Class 2A (Plated) | AD Dia. ±.005 | SS Dia. +.000 –.016 | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 88/91-569731-XXX | .473 | .142 | .594 | .812 | .120 | .4375-28 UNEF | .516 | .563 | .257 – .200 | .268 – .178 |
| 10 | 732-XXX | .590 | .142 | .719 | .938 | .120 | .5625-24 UNEF | .633 | .680 | .257 – .200 | .268 – .178 |
| 12 | 733-XXX | .750 | .142 | .812 | 1.031 | .120 | .6875-24 UNEF | .802 | .859 | .257 – .200 | .268 – .178 |
| 14 | 734-XXX | .875 | .142 | .906 | 1.125 | .120 | .8125-20 UNEF | .927 | .984 | .257 – .200 | .268 – .178 |
| 16 | 735-XXX | 1.000 | .142 | .969 | 1.219 | .120 | .9375-20 UNEF | 1.052 | 1.108 | .257 – .200 | .268 – .178 |
| 18 | 736-XXX | 1.125 | .142 | 1.062 | 1.312 | .120 | 1.0625-18 UNEF | 1.177 | 1.233 | .257 – .200 | .268 – .178 |
| 20 | 737-XXX | 1.250 | .142 | 1.156 | 1.438 | .120 | 1.1875-18 UNEF | 1.302 | 1.358 | .257 – .200 | .268 – .178 |
| 22 | 738-XXX | 1.375 | .142 | 1.250 | 1.562 | .120 | 1.3125-18 UNEF | 1.427 | 1.483 | .257 – .200 | .268 – .178 |
| 24 | 739-XXX | 1.500 | .142 | 1.375 | 1.688 | .147 | 1.4375-18 UNEF | 1.552 | 1.610 | .257 – .200 | .268 – .178 |

All dimensions for reference only.

# MIL-DTL-38999 Series II Type Connectors with PCB contacts

# JTP02R box mounting receptacle

## (back panel mounting)




HOW TO ORDER

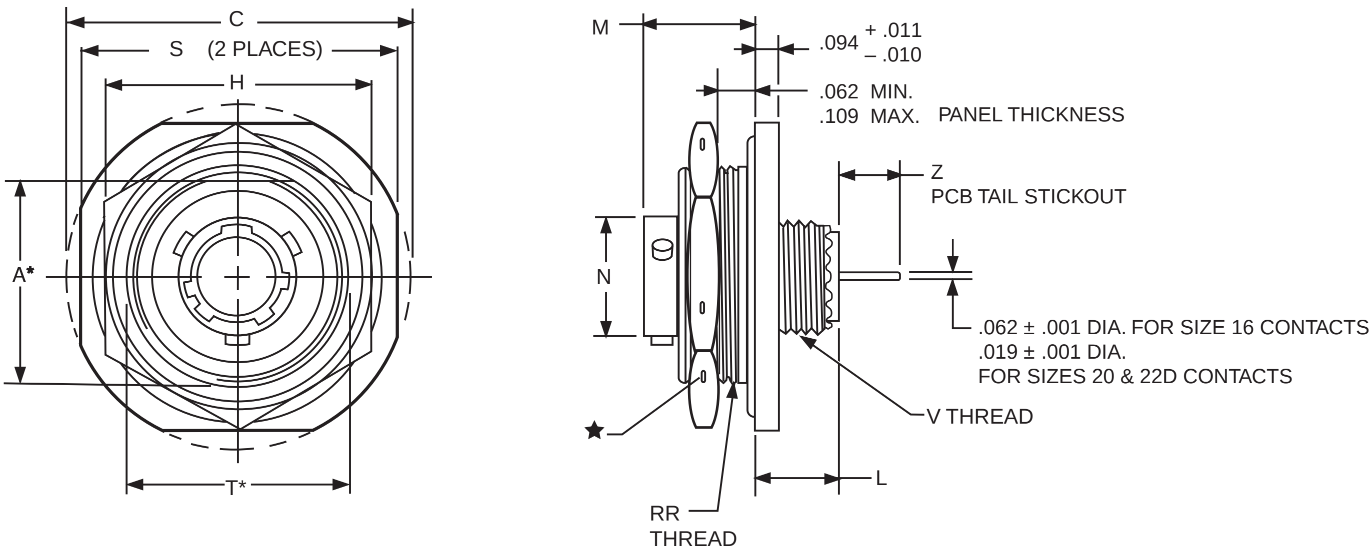
- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-569741-35P designates shell size 8 with a 8-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

■ ⊕ .005 DIA Ⓜ

| | | | | | | | | | | Z | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Shell Size | Part Number | L Max. | N +.001 –.005 | P Max. Panel Thickness | R (TP) | S ±.016 | T Dia. ±.005 | AD Dia. ±.005 | KK Dia. Max. | Size 16 & 20 Contacts | Size 22D Contacts |
| 8 | 88/91-569741-XXX | .225 | .473 | .147 | .594 | .812 | .120 | .516 | .531 | .455 – .403 | .466 – .409 |
| 10 | 742-XXX | .225 | .590 | .152 | .719 | .938 | .120 | .633 | .656 | .455 – .403 | .466 – .409 |
| 12 | 743-XXX | .225 | .750 | .152 | .812 | 1.031 | .120 | .802 | .828 | .455 – .403 | .466 – .409 |
| 14 | 744-XXX | .225 | .875 | .152 | .906 | 1.125 | .120 | .927 | .953 | .455 – .403 | .466 – .409 |
| 16 | 745-XXX | .225 | 1.000 | .152 | .969 | 1.219 | .120 | 1.052 | 1.078 | .455 – .403 | .466 – .409 |
| 18 | 746-XXX | .225 | 1.125 | .152 | 1.062 | 1.312 | .120 | 1.177 | 1.203 | .455 – .403 | .466 – .409 |
| 20 | 747-XXX | .225 | 1.250 | .179 | 1.156 | 1.438 | .120 | 1.302 | 1.328 | .455 – .403 | .466 – .409 |
| 22 | 748-XXX | .225 | 1.375 | .179 | 1.250 | 1.562 | .120 | 1.427 | 1.453 | .455 – .403 | .466 – .409 |
| 24 | 749-XXX | .225 | 1.500 | .169 | 1.375 | 1.688 | .147 | 1.552 | 1.578 | .455 – .403 | .466 – .409 |

All dimensions for reference only.

# MIL-DTL-38999 Series II Type Connectors with PCB contacts
# JT07R jam nut receptacle




HOW TO ORDER

- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-569751-35P designates shell size 8 with a 8-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

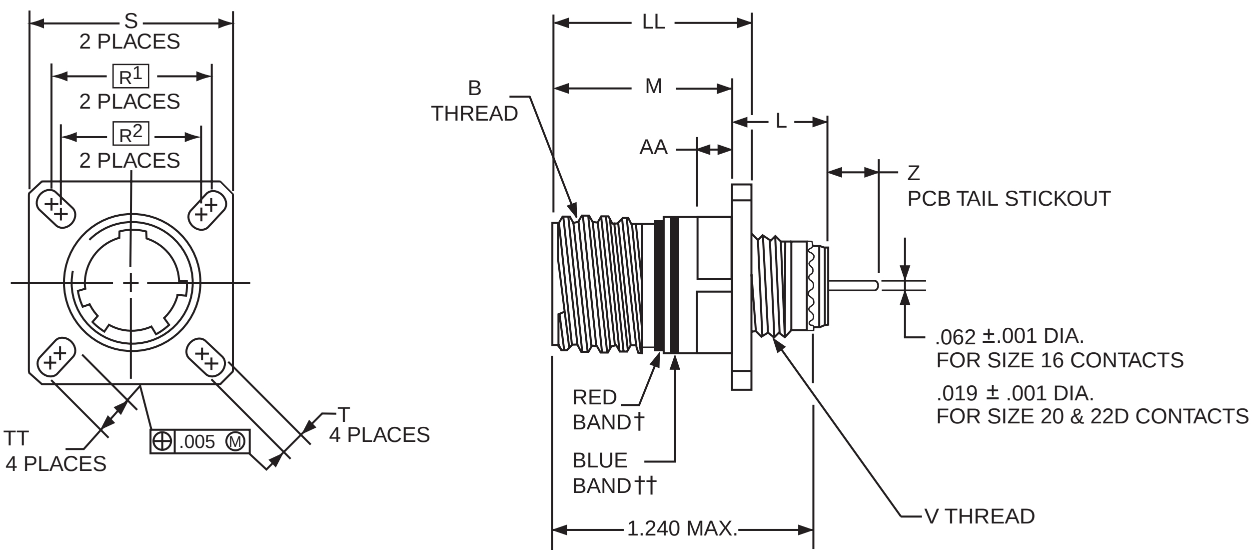
★ .059 dia. min. 3 lockwire holes.
Formed lockwire hole design (6 holes) is optional.

* "D" shaped mounting hole dimensions

| Shell Size | Part Number | A* +.000 –.010 | C Max. | H Hex +.017 –.016 | L Max. | M ±.005 | N +.001 –.005 | S ±.016 | T* +.010 –.000 | V Thread Class 2A (Plated) | RR Thread Class 2A (Plated) | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 88/91-569751-XXX | .830 | 1.390 | 1.062 | .453 | .438 | .473 | 1.250 | .884 | .4375-28 UNEF | .8750-20 UNEF | .272 – .200 | .283 – .178 |
| 10 | 752-XXX | .955 | 1.515 | 1.188 | .453 | .438 | .590 | 1.375 | 1.007 | .5625-24 UNEF | 1.0000-20 UNEF | .272 – .200 | .283 – .178 |
| 12 | 753-XXX | 1.084 | 1.640 | 1.312 | .453 | .438 | .750 | 1.500 | 1.134 | .6875-24 UNEF | 1.1250-18 UNEF | .272 – .200 | .283 – .178 |
| 14 | 754-XXX | 1.208 | 1.765 | 1.438 | .453 | .438 | .875 | 1.625 | 1.259 | .8125-20 UNEF | 1.2500-18 UNEF | .272 – .200 | .283 – .178 |
| 16 | 755-XXX | 1.333 | 1.953 | 1.562 | .453 | .438 | 1.000 | 1.781 | 1.384 | .9375-20 UNEF | 1.3750-18 UNEF | .272 – .200 | .283 – .178 |
| 18 | 756-XXX | 1.459 | 2.031 | 1.688 | .453 | .438 | 1.125 | 1.890 | 1.507 | 1.0625-18 UNEF | 1.5000-18 UNEF | .272 – .200 | .283 – .178 |
| 20 | 757-XXX | 1.576 | 2.156 | 1.812 | .422 | .464 | 1.250 | 2.016 | 1.634 | 1.1875-18 UNEF | 1.6250-18 UNEF | .272 – .200 | .283 – .178 |
| 22 | 758-XXX | 1.701 | 2.280 | 2.000 | .422 | .464 | 1.375 | 2.140 | 1.759 | 1.3125-18 UNEF | 1.7500-18 UNS | .272 – .200 | .283 – .178 |
| 24 | 759-XXX | 1.826 | 2.405 | 2.125 | .422 | .464 | 1.500 | 2.265 | 1.884 | 1.4375-18 UNEF | 1.8750-16 UN | .272 – .200 | .283 – .178 |

All dimensions for reference only.

# MIL-DTL-38999 Series III Type Connectors with PCB contacts
# TVP00R wall mounting receptacle
## (back panel mounting)




HOW TO ORDER

- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-569761-35P designates shell size 9 with a 9-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

Composite Series III connectors are available; consult Amphenol, Sidney, NY.

☐ Designates true position dimensioning
† Red band indicates fully mated
†† Blue band indicates rear release contact retention system

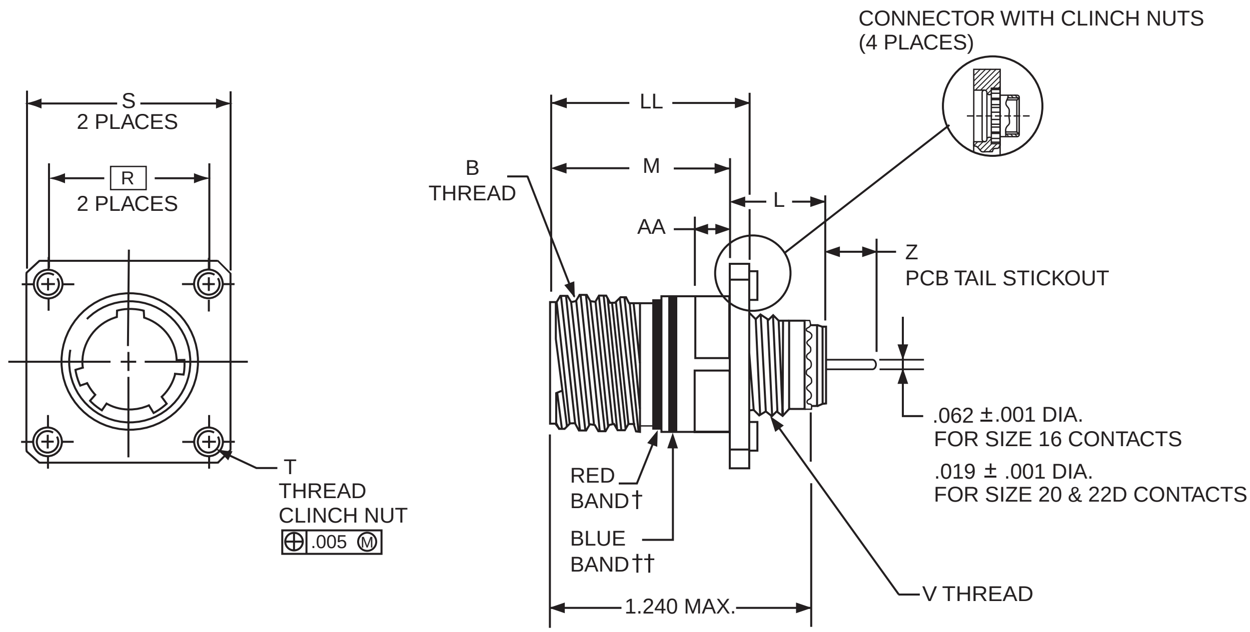
| Shell Size | Part Number | B Thread Class 2A (Plated) 0.1P-0.3L-TS | L Max. | M +.000 –.005 | R1 | R2 | S Max. | T +.008 –.006 | V Thread Metric | AA Max. Panel Thickness | LL +.006 –.000 | TT +.008 –.006 | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 88/91-569761-XXX | .6250 | .469 | .820 | .719 | .594 | .948 | .128 | M12X1-6g | .234 | .905 | .216 | .228–.178 | .242–.181 |
| 11 | 762-XXX | .7500 | .469 | .820 | .812 | .719 | 1.043 | .128 | M15X1-6g | .234 | .905 | .194 | .228–.178 | .242–.181 |
| 13 | 763-XXX | .8750 | .469 | .820 | .906 | .812 | 1.137 | .128 | M18X1-6g | .234 | .905 | .194 | .228–.178 | .242–.181 |
| 15 | 764-XXX | 1.0000 | .469 | .820 | .969 | .906 | 1.232 | .128 | M22X1-6g | .234 | .905 | .173 | .228–.178 | .242–.181 |
| 17 | 765-XXX | 1.1875 | .469 | .820 | 1.062 | .969 | 1.323 | .128 | M25X1-6g | .234 | .905 | .194 | .228–.178 | .242–.181 |
| 19 | 766-XXX | 1.2500 | .469 | .820 | 1.156 | 1.062 | 1.449 | .128 | M28X1-6g | .234 | .905 | .194 | .228–.178 | .242–.181 |
| 21 | 767-XXX | 1.3750 | .500 | .790 | 1.250 | 1.156 | 1.575 | .128 | M31X1-6g | .204 | .905 | .194 | .228–.178 | .242–.181 |
| 23 | 768-XXX | 1.5000 | .500 | .790 | 1.375 | 1.250 | 1.701 | .154 | M34X1-6g | .204 | .905 | .242 | .228–.178 | .242–.181 |
| 25 | 769-XXX | 1.6250 | .500 | .790 | 1.500 | 1.375 | 1.823 | .154 | M37X1-6g | .204 | .905 | .242 | .228–.178 | .242–.181 |

All dimensions for reference only.

# MIL-DTL-38999 Series III Type Connectors with PCB contacts

# TVP00R wall mounting receptacle

## (back panel mounting) (with clinch nuts)




HOW TO ORDER

- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-628741-35P designates shell size 9 with a 9-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

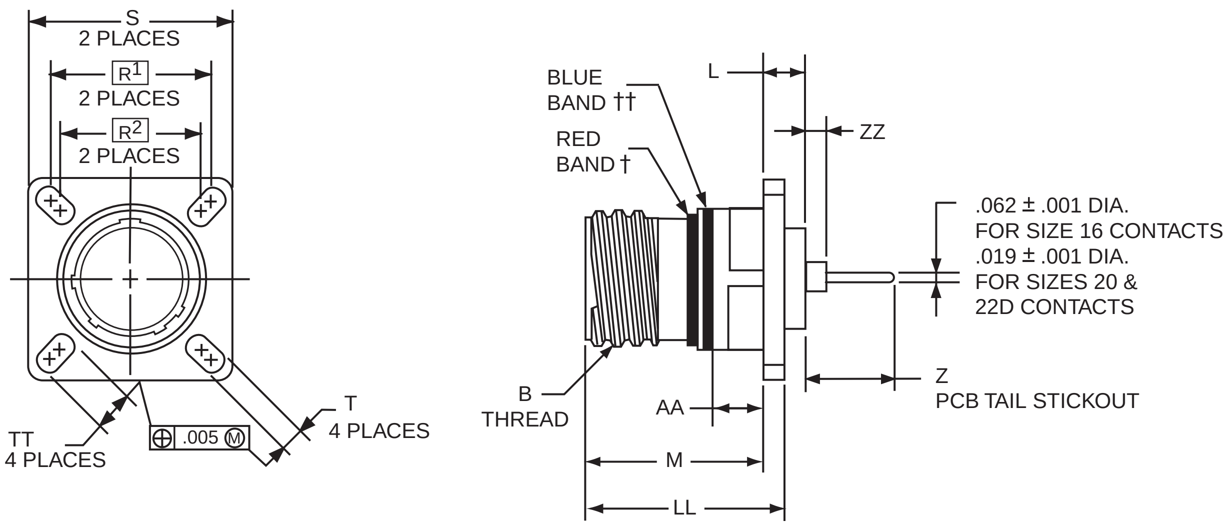
Composite Series III connectors are available; consult Amphenol, Sidney, NY.

☐ Designates true position dimensioning
† Red band indicates fully mated
†† Blue band indicates rear release contact retention system

| Shell Size | Part Number with Clinch Nuts | B Thread Class 2A (Plated) 0.1P-0.3L-TS | L Max. | M +.000 –.005 | R | S Max. | T Thread | V Thread Metric | AA Max. Panel Thickness | LL +.006 –.000 | Z | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Size 16 & 20 Contacts | Size 22D Contacts |
| 9 | 88/91-628741-XXX | .6250 | .469 | .820 | .719 | 1.094 | .112-40UNC-3B | M12X1-6g | .234 | .905 | .228–.178 | .242–.181 |
| 11 | 742-XXX | .7500 | .469 | .820 | .812 | 1.187 | .112-40UNC-3B | M15X1-6g | .234 | .905 | .228–.178 | .242–.181 |
| 13 | 743-XXX | .8750 | .469 | .820 | .906 | 1.281 | .112-40UNC-3B | M18X1-6g | .234 | .905 | .228–.178 | .242–.181 |
| 15 | 744-XXX | 1.0000 | .469 | .820 | .969 | 1.344 | .112-40UNC-3B | M22X1-6g | .234 | .905 | .228–.178 | .242–.181 |
| 17 | 745-XXX | 1.1875 | .469 | .820 | 1.062 | 1.437 | .112-40UNC-3B | M25X1-6g | .234 | .905 | .228–.178 | .242–.181 |
| 19 | 746-XXX | 1.2500 | .469 | .820 | 1.156 | 1.531 | .112-40UNC-3B | M28X1-6g | .234 | .905 | .228–.178 | .242–.181 |
| 21 | 747-XXX | 1.3750 | .500 | .790 | 1.250 | 1.625 | .112-40UNC-3B | M31X1-6g | .204 | .905 | .228–.178 | .242–.181 |
| 23 | 748-XXX | 1.5000 | .500 | .790 | 1.375 | 1.750 | .138-32UNC-3B | M34X1-6g | .204 | .905 | .228–.178 | .242–.181 |
| 25 | 749-XXX | 1.6250 | .500 | .790 | 1.500 | 1.875 | .138-32UNC-3B | M37X1-6g | .204 | .905 | .228–.178 | .242–.181 |

All dimensions for reference only.
* Consult Amphenol for more information on ordering connectors with clinch nuts.

# MIL-DTL-38999 Series III Type Connectors with PCB contacts
# TVP02R box mounting receptacle




HOW TO ORDER

- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-569771-35P designates shell size 9 with a 9-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

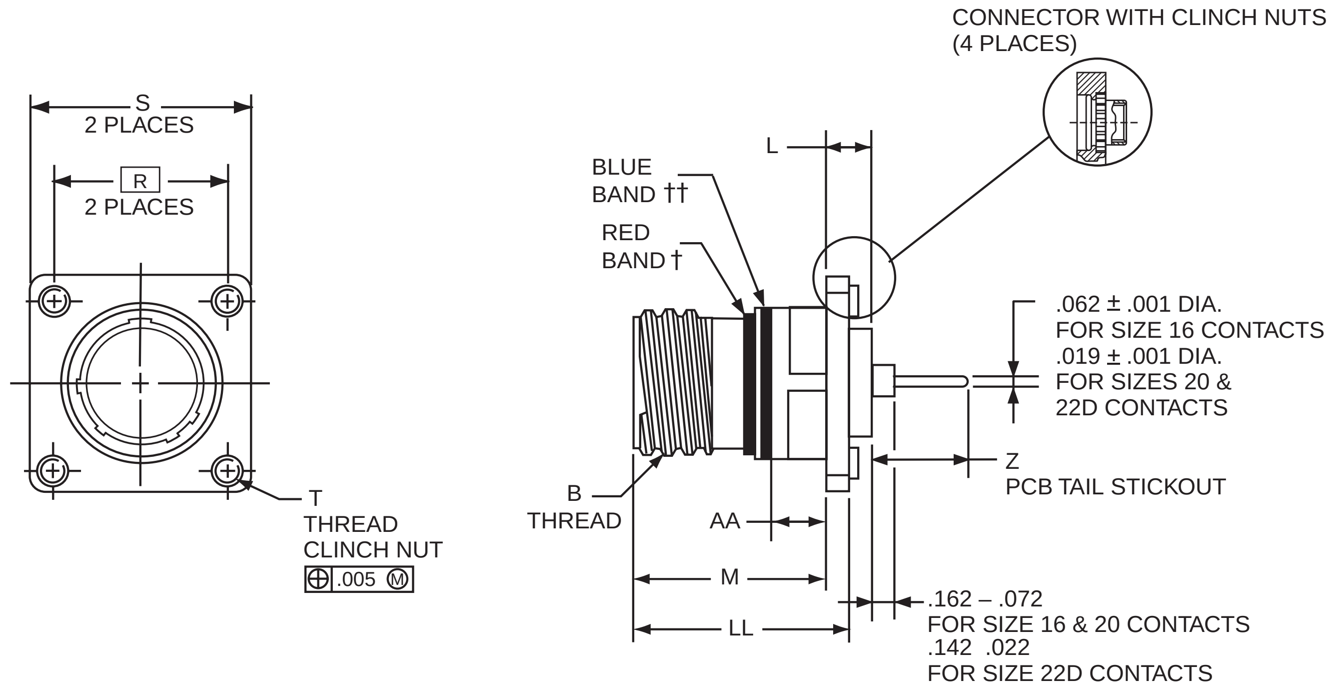
Composite Series III connectors are available; consult Amphenol, Sidney, NY.

☐ Designates true position dimensioning
† Red band indicates fully mated
†† Blue band indicates rear release contact retention system

| Shell Size | Part Number | B Thread Class 2A (Plated) 0.1P-0.3L-TS | L Max. | M +.000 –.005 | R1 | R2 | S Max. | T +.008 –.006 | AA Max. Panel Thickness | LL +.006 –.000 | TT +.008 –.006 | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 88/91-569771-XXX | .6250 | .205 | .820 | .719 | .594 | .948 | .128 | .234 | .905 | .216 | .460–.375 | .471–.399 |
| 11 | 772-XXX | .7500 | .205 | .820 | .812 | .719 | 1.043 | .128 | .234 | .905 | .194 | .460–.375 | .471–.399 |
| 13 | 773-XXX | .8750 | .205 | .820 | .906 | .812 | 1.137 | .128 | .234 | .905 | .194 | .460–.375 | .471–.399 |
| 15 | 774-XXX | 1.0000 | .205 | .820 | .969 | .906 | 1.232 | .128 | .234 | .905 | .173 | .460–.375 | .471–.399 |
| 17 | 775-XXX | 1.1875 | .205 | .820 | 1.062 | .969 | 1.323 | .128 | .234 | .905 | .194 | .460–.375 | .471–.399 |
| 19 | 776-XXX | 1.2500 | .205 | .820 | 1.156 | 1.062 | 1.449 | .128 | .234 | .905 | .194 | .460–.375 | .471–.399 |
| 21 | 777-XXX | 1.3750 | .235 | .790 | 1.250 | 1.156 | 1.575 | .128 | .204 | .905 | .194 | .460–.375 | .471–.399 |
| 23 | 778-XXX | 1.5000 | .235 | .790 | 1.375 | 1.250 | 1.701 | .154 | .204 | .905 | .242 | .460–.375 | .471–.399 |
| 25 | 779-XXX | 1.6250 | .235 | .790 | 1.500 | 1.375 | 1.823 | .154 | .204 | .905 | .242 | .460–.375 | .471–.399 |

All dimensions for reference only.

# MIL-DTL-38999 Series III Type Connectors with PCB contacts
# TVP02R box mounting receptacle
## (with clinch nuts)




HOW TO ORDER

- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-628751-35P designates shell size 9 with a 9-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

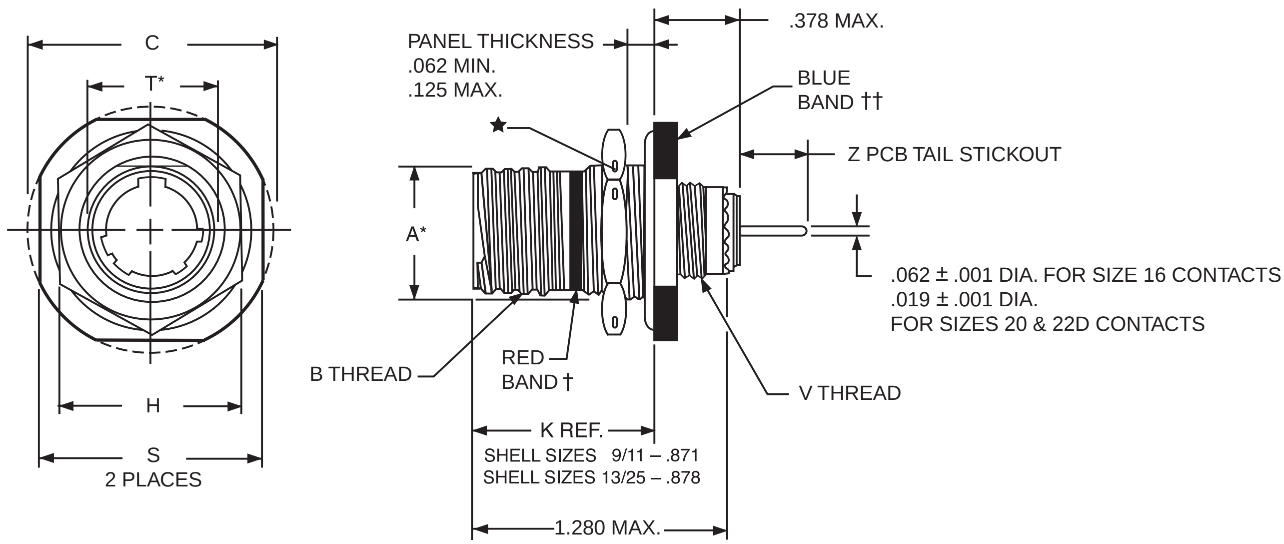
Composite Series III connectors are available; consult Amphenol, Sidney, NY.

□ Designates true position dimensioning
† Red band indicates fully mated
†† Blue band indicates rear release contact retention system

| Shell Size | Part Number with Clinch Nuts | B Thread Class 2A (Plated) 0.1P-0.3L-TS | L Max. | M +.000 –.005 | R | S Max. | T Thread | AA Max. Panel Thickness | LL +.006 –.000 | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 88/91-628751-XXX | .6250 | .205 | .820 | .719 | 1.031 | .112-40UNC-3B | .234 | .905 | .460–.375 | .471–.399 |
| 11 | 752-XXX | .7500 | .205 | .820 | .812 | 1.125 | .112-40UNC-3B | .234 | .905 | .460–.375 | .471–.399 |
| 13 | 753-XXX | .8750 | .205 | .820 | .906 | 1.172 | .112-40UNC-3B | .234 | .905 | .460–.375 | .471–.399 |
| 15 | 754-XXX | 1.0000 | .205 | .820 | .969 | 1.281 | .112-40UNC-3B | .234 | .905 | .460–.375 | .471–.399 |
| 17 | 755-XXX | 1.1875 | .205 | .820 | 1.062 | 1.375 | .112-40UNC-3B | .234 | .905 | .460–.375 | .471–.399 |
| 19 | 756-XXX | 1.2500 | .205 | .820 | 1.156 | 1.469 | .112-40UNC-3B | .234 | .905 | .460–.375 | .471–.399 |
| 21 | 757-XXX | 1.3750 | .235 | .790 | 1.250 | 1.562 | .112-40UNC-3B | .204 | .905 | .460–.375 | .471–.399 |
| 23 | 758-XXX | 1.5000 | .235 | .790 | 1.375 | 1.750 | .138-32UNC-3B | .204 | .905 | .460–.375 | .471–.399 |
| 25 | 759-XXX | 1.6250 | .235 | .790 | 1.500 | 1.875 | .138-32UNC-3B | .204 | .905 | .460–.375 | .471–.399 |

All dimensions for reference only.
* Consult Amphenol for more information on ordering connectors with clinch nuts.

# MIL-DTL-38999 Series III Type Connectors with PCB contacts
# TV07R jam nut receptacle




HOW TO ORDER

- Order by applicable 88/91 part number in table below.
  88 prefix designates olive drab cadmium plated connector shell.
  91 prefix designates electroless nickel plated connector shell.
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 25 for alternate rotation letter to use.
  Example part number: 88-569781-35P designates shell size 9 with a 9-35 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

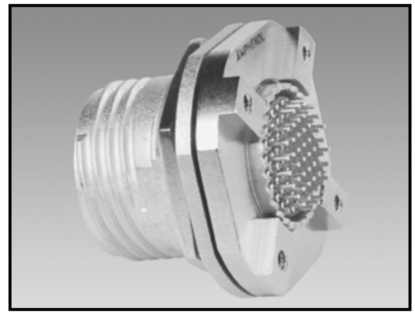
Composite Series III connectors are available; consult Amphenol, Sidney, NY.
† Red band indicates fully mated
†† Blue band indicates rear release contact retention system
★ .059 dia. min. 3 lockwire holes. Formed lockwire hole design (6 holes) is optional.
* "D" shaped mounting hole dimensions

| Shell Size | Part Number | A* +.000 –.000 | B Thread Class 2A (Plated) 0.1P-0.3L-TS | C Max. | H Hex +.017 –.016 | S ±.010 | T +.010 –.000 | V Thread Metric | Z Size 16 & 20 Contacts | Z Size 22D Contacts |
|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 88/91-569781-XXX | .669 | .6250 | 1.199 | .875 | 1.062 | .697 | M12X1-6g | .244 – .200 | .258 – .206 |
| 11 | 782-XXX | .769 | .7500 | 1.386 | 1.000 | 1.250 | .822 | M15X1-6g | .244 – .200 | .258 – .206 |
| 13 | 783-XXX | .955 | .8750 | 1.511 | 1.188 | 1.375 | 1.007 | M18X1-6g | .244 – .200 | .258 – .206 |
| 15 | 784-XXX | 1.084 | 1.0000 | 1.636 | 1.312 | 1.500 | 1.134 | M22X1-6g | .244 – .200 | .258 – .206 |
| 17 | 785-XXX | 1.208 | 1.1875 | 1.761 | 1.438 | 1.625 | 1.259 | M25X1-6g | .244 – .200 | .258 – .206 |
| 19 | 786-XXX | 1.333 | 1.2500 | 1.949 | 1.562 | 1.812 | 1.384 | M28X1-6g | .222 – .177 | .236 – .180 |
| 21 | 787-XXX | 1.459 | 1.3750 | 2.073 | 1.688 | 1.938 | 1.507 | M31X1-6g | .222 – .177 | .236 – .180 |
| 23 | 788-XXX | 1.575 | 1.5000 | 2.199 | 1.812 | 2.062 | 1.634 | M34X1-6g | .222 – .177 | .236 – .180 |
| 25 | 789-XXX | 1.709 | 1.6250 | 2.323 | 2.000 | 2.188 | 1.759 | M37X1-6g | .222 – .177 | .236 – .180 |

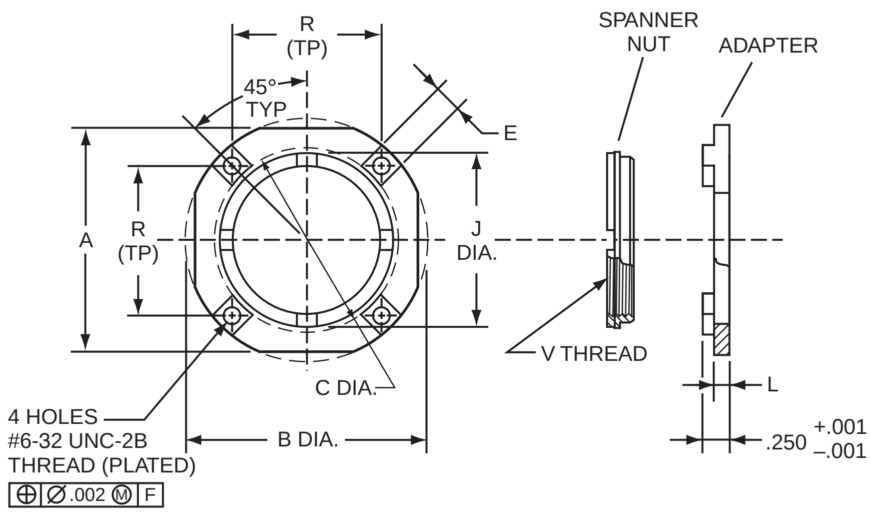
All dimensions for reference only.

# Stand-off Adapter
for use with 38999 PCB connectors

Amphenol's stand-off adapter and spanner nut assembly allows any MIL-DTL-38999 jam nut receptacle to support PCB contacts and may eliminate the need for special stand-off shell design. Consult Amphenol for more information.



Tri-Start MIL-DTL-38999 Jam Nut Connector with Stand-off Adapter

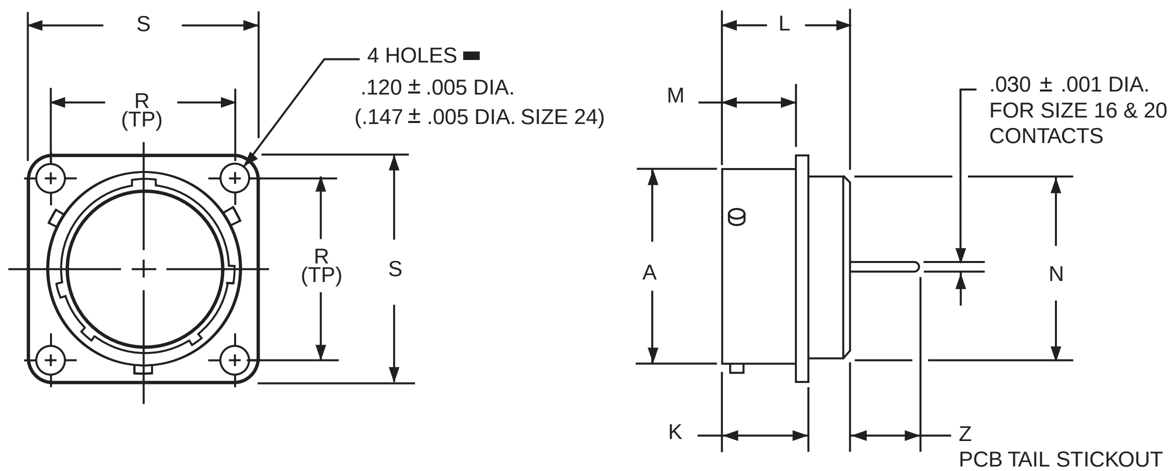



HOW TO ORDER
Order by

| Shell Size | Part Number | A ± .003 | B Dia. ± .003 | C Dia. | E | J Dia. | L | V Thread Metric Plated |
|---|---|---|---|---|---|---|---|---|
| 9 | XP10-611901-09G | 1.062 | 1.188 | .750 | .200 | .625 | .150 | M12X1-6H |
| 11 | XP10-611901-11G | 1.250 | 1.375 | .900 | .200 | .744 | .150 | M15X1-6H |
| 13 | XP10-611901-13G | 1.375 | 1.500 | .975 | | .862 | | M18X1-6H |
| 15 | XP10-611901-15G | 1.500 | 1.625 | 1.125 | | 1.019 | | M22X1-6H |
| 17 | XP10-611901-17G | 1.625 | 1.750 | 1.250 | | 1.137 | | M25X1-6H |
| 19 | XP10-611901-19G | 1.812 | 1.938 | 1.375 | | 1.255 | | M28X1-6H |
| 21 | XP10-611901-21G | 1.938 | 2.062 | 1.469 | | 1.373 | | M31X1-6H |
| 23 | XP10-611901-23G | 2.062 | 2.188 | 1.625 | | 1.492 | | M34X1-6H |
| 25 | XP10-611901-25G | 2.188 | 2.312 | 1.750 | | 1.610 | | M37X1-6H |

All dimensions for reference only.

# MIL-C-26482 Series 1 Type Connectors with PCB contacts
# PT02 box mounting receptacle



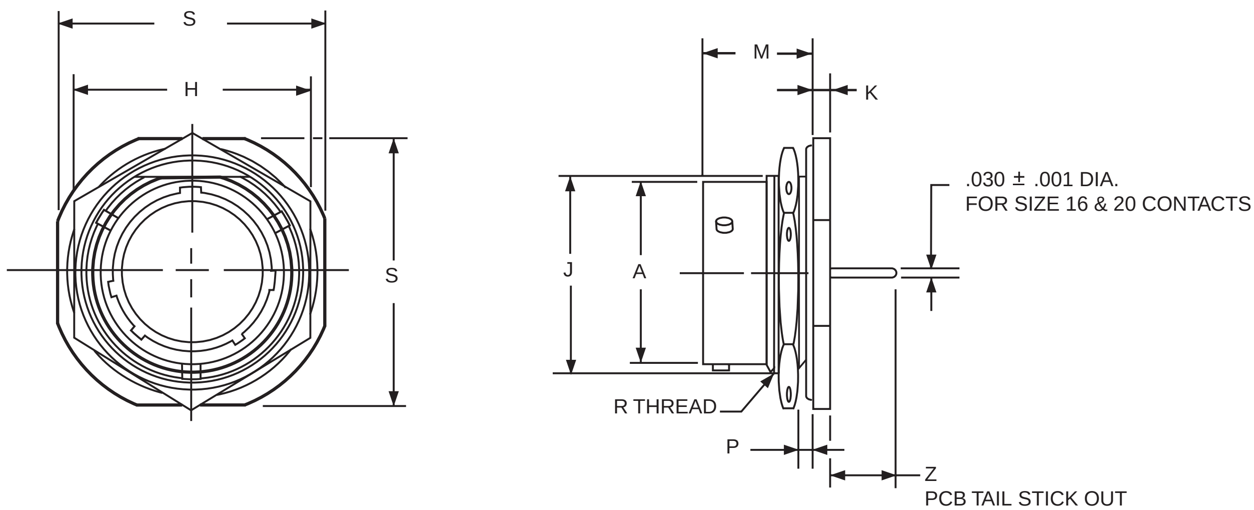

HOW TO ORDER
- Order by applicable 71 part number in table below.
  71 prefix designates olive drab cadmium plated connector shell.
  (For availability of other finishes consult Amphenol, Sidney, NY)
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 26 for alternate rotation letter to use.
  Example part number: 71-570121-98P designates shell size 8 with a 8-98 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

■ (MMC) located within .0025 of (TP)

| Shell Size | Part Number | A +.001 –.005 | K +.021 –.010 | L Max. | M +.010 –.000 | N Dia. Max. | R (TP) | S +.011 –.010 | Z +.040 –.050 Size 16 & 20 Contacts |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 71-570120-XXX | .348 | .493 | .825 | .431 | .323 | .469 | .688 | .380 |
| 8 | 71-570121-XXX | .473 | .493 | .825 | .431 | .449 | .594 | .812 | .380 |
| 10 | 71-570122-XXX | .590 | .493 | .825 | .431 | .573 | .719 | .938 | .380 |
| 12 | 71-570123-XXX | .750 | .493 | .825 | .431 | .699 | .812 | 1.031 | .380 |
| 14 | 71-570124-XXX | .875 | .493 | .825 | .431 | .823 | .906 | 1.125 | .380 |
| 16 | 71-570125-XXX | 1.000 | .493 | .825 | .431 | .949 | .969 | 1.219 | .380 |
| 18 | 71-570126-XXX | 1.125 | .493 | .825 | .431 | 1.073 | 1.062 | 1.312 | .380 |
| 20 | 71-570127-XXX | 1.250 | .650 | 1.076 | .556 | 1.199 | 1.156 | 1.438 | .286 |
| 22 | 71-570128-XXX | 1.375 | .650 | 1.076 | .556 | 1.323 | 1.250 | 1.562 | .286 |
| 24 | 71-570129-XXX | 1.500 | .683 | 1.109 | .589 | 1.449 | 1.375 | 1.688 | .253 |

All dimensions for reference only.

# MIL-C-26482 Series 1 Type Connectors with PCB contacts
## PT07 jam nut receptacle



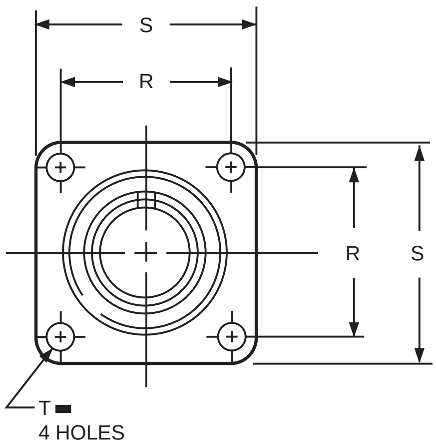

HOW TO ORDER
- Order by applicable 71 part number in table below.
  71 prefix designates olive drab cadmium plated connector shell.
  (For availability of other finishes consult Amphenol, Sidney, NY)
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 26 for alternate rotation letter to use.
  Example part number: 71-533721-98P designates shell size 8 with a 8-98 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

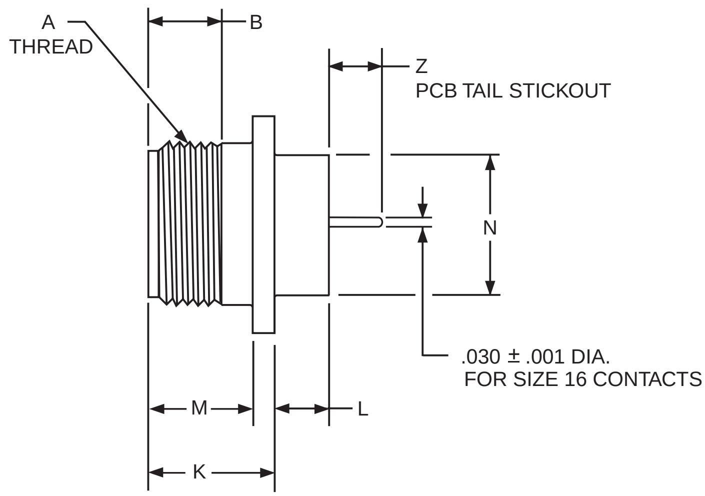
All lockwire holes are .044 dia. min.

| Shell Size | Part Number | A Dia. +.001 –.005 | H +.017 –.016 | J Flat +.000 –.010 | K +.011 –.010 | M ±.010 | P Panel Thickness | | R Thread Class 2A | S ±.010 | Z +.025 –.035 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Min. | Max. | | | Size 16 & 20 Contacts |
| 6 | 71-533720-XXX | .348 | .625 | .405 | .125 | .696 | .062 | .125 | .4375-28 UNEF | .812 | .376 |
| 8 | 71-533721-XXX | .473 | .750 | .530 | .125 | .696 | .062 | .125 | .5625-24 UNEF | .938 | .376 |
| 10 | 71-533722-XXX | .590 | .875 | .655 | .125 | .696 | .062 | .125 | .6875-24 UNEF | 1.062 | .376 |
| 12 | 71-533723-XXX | .750 | 1.062 | .818 | .125 | .696 | .062 | .125 | .8750-20 UNEF | 1.250 | .376 |
| 14 | 71-533724-XXX | .875 | 1.188 | .942 | .125 | .696 | .062 | .125 | 1.0000-20 UNEF | 1.375 | .376 |
| 16 | 71-533725-XXX | 1.000 | 1.312 | 1.066 | .125 | .696 | .062 | .125 | 1.1250-18 UNEF | 1.500 | .376 |
| 18 | 71-533726-XXX | 1.125 | 1.438 | 1.191 | .125 | .696 | .062 | .125 | 1.2500-18 UNEF | 1.625 | .376 |
| 20 | 71-533727-XXX | 1.250 | 1.562 | 1.316 | .156 | .884 | .062 | .250 | 1.3750-18 UNEF | 1.812 | .367 |
| 22 | 71-533728-XXX | 1.375 | 1.688 | 1.441 | .156 | .884 | .062 | .250 | 1.5000-18 UNEF | 1.938 | .367 |
| 24 | 71-533729-XXX | 1.500 | 1.816 | 1.566 | .156 | .917 | .062 | .250 | 1.6250-18 UNEF | 2.062 | .334 |

All dimensions for reference only.

# MIL-5015 Type Connectors with PCB contacts MS3102R box mounting receptacle




HOW TO ORDER

- Order by applicable 10- part number in table below.
  10- prefix designates olive drab cadmium plated connector shell.
  (For availability of other finishes consult Amphenol, Sidney, NY)
- Add insert arrangement to end of number. Refer to insert availability chart on page 4 and pin-out illustrations on pages 4-24. Last letter of part number designates rotation; P for pins in normal position, S for sockets in normal position. See page 26 for alternate rotation letter to use.
  Example part number: 10-602462-3P designates shell size 10SL with a 10SL-3 insert and pin contacts in normal position.
- Z dimension is determined by contact type in the insert arrangement.
- Most common options are shown; other options are available.

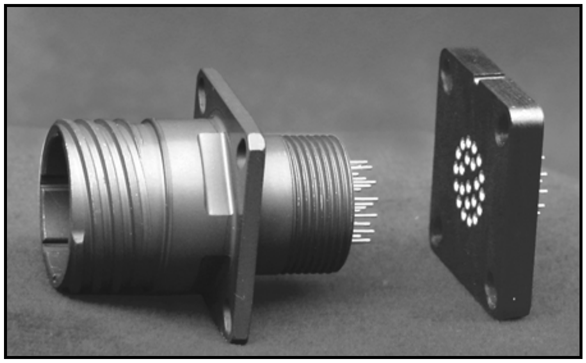
Reverse Bayonet GT Series connectors that incorporate 5015 inserts can also be supplied with printed circuit board contacts. Consult Amphenol for more information.

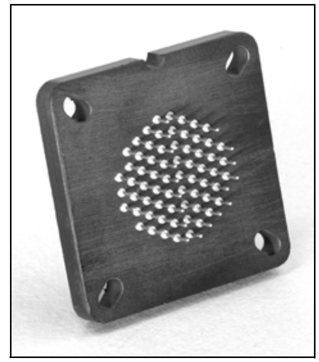
| Shell Size | Part Number | A Thread Class 2A | B Min. Full Thread | K +.020 –.010 | L +.000 –.010 | M +.010 –.000 | N Dia. +.010 –.000 | R ±.005 | S ±.031 | T Dia. +.004 –.002 | Z ±.045 Size 16 Contacts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8S | 10-602460-XXX | .5000-28 UNEF | .391 | .672 | .297 | .562 | .375 | .594 | .875 | .120 | .188 |
| 10S | 461-XXX | .6250-24 NEF | .391 | .672 | .297 | .562 | .500 | .719 | 1.000 | .120 | .188 |
| 10SL | 462-XXX | .6250-24 NEF | .391 | .672 | .297 | .562 | .625 | .719 | 1.000 | .120 | .188 |
| 12S | 463-XXX | .7500-20 UNEF | .450 | .672 | .297 | .562 | .625 | .812 | 1.094 | .120 | .188 |
| 12 | 464-XXX | .7500-20 UNEF | .625 | .860 | .484 | .750 | .625 | .812 | 1.094 | .120 | .188 |
| 14S | 465-XXX | .8750-20 UNEF | .450 | .672 | .297 | .562 | .750 | .906 | 1.188 | .120 | .188 |
| 14 | 466-XXX | .8750-20 UNEF | .625 | .860 | .484 | .750 | .750 | .906 | 1.188 | .120 | .188 |
| 16S | 467-XXX | 1.0000-20 UNEF | .450 | .672 | .297 | .562 | .875 | .969 | 1.281 | .120 | .188 |
| 16 | 468-XXX | 1.0000-20 UNEF | .625 | .860 | .484 | .750 | .875 | .969 | 1.281 | .120 | .188 |
| 18 | 469-XXX | 1.1250-18 NEF | .625 | .891 | .453 | .750 | 1.000 | 1.062 | 1.375 | .120 | .188 |
| 20 | 470-XXX | 1.2500-18 NEF | .625 | .891 | .453 | .750 | 1.125 | 1.156 | 1.500 | .120 | .188 |
| 22 | 471-XXX | 1.3750-18 NEF | .625 | .891 | .453 | .750 | 1.250 | 1.250 | 1.625 | .120 | .188 |
| 24 | 472-XXX | 1.5000-18 NEF | .625 | .953 | .453 | .812 | 1.375 | 1.375 | 1.750 | .147 | .188 |
| 28 | 473-XXX | 1.7500-18 NS | .625 | .953 | .453 | .812 | 1.625 | 1.562 | 2.000 | .147 | .188 |
| 32 | 474-XXX | 2.0000-18 NS | .625 | 1.031 | .438 | .875 | 1.875 | 1.750 | 2.250 | .173 | .188 |
| 36 | 475-XXX | 2.2500-16 UN | .625 | 1.031 | .438 | .875 | 2.062 | 1.938 | 2.500 | .173 | .188 |
| 40 | 476-XXX | 2.5000-16 UN | .625 | 1.031 | .438 | .875 | 2.312 | 2.188 | 2.750 | .173 | .188 |

All dimensions for reference only.

# Universal Header Assemblies for flex print or PCB connectors

### Mounts to all MIL-DTL-38999 and MIL-C-26482 Connectors





Headers provide easy separation of the connector from the PC board.

The use of connectors with printed circuit termination is rapidly gaining popularity due to the use of high volume, vapor phase or wave solder manufacturing processes. Termination of this style of connector to flex print or a printed circuit board represents a major cost in the manufacturing process for users. When adding flex or printed circuit board assemblies to an expensive filter or filter/transient protection connector, the total cost of a failed solder joint, a bent pin, or an unanticipated electrical failure becomes prohibitive. The universal header assembly from Amphenol will provide for easy separation of the connector from the board on these occasions.

### Header Assemblies Provide Cost Savings

Incorporation of the header assembly provides the user with time and cost saving potentials. These header assemblies can be vapor phase or wave soldered to flex or printed circuit boards prior to the receipt of the EMI/EMP connector. Headers can be installed to standard connectors, allowing for electrical testing that would adversely affect the sensitive diodes, MOV's or capacitors in the EMI/EMP connectors. Expensive connector assemblies can be easily removed from and reattached to the header assembly as the manufacturing process dictates.

### Mounting Applications

Shell modifications are recommended, but are not necessary. The header assembly can be attached to connectors with standard flange placement or directly to the circuit board. The ideal application would involve either a single flange moved all the way to the rear of the connector or a double flange. Cinch nuts can be installed in either flange to allow easier mounting to the panel or the header assembly. The forward flange would mount the connector to the panel; the rear flange would be used to mount the header assembly. Various types of captivated or loose attaching screws can be utilized for unique applications. Amphenol universal headers are slotted to allow mounting to all series of MIL-DTL-38999 or MIL-C-26482 connectors without special alterations. They are of similar dimension as the flange of the mounting connector and would be approximately .185 inches (4.70 mm) thick.

### Incorporates a Shorter Pin/Socket Contact

The heart of the header assembly is a short pin/socket contact. The tall of the contact would accommodate standard through-hole diameter and thickness of the flex or printed circuit board materials. The socket is imbedded in the molded material, making electrical engagement with the printed circuit tail of the connector.

### Cylindrical Configuration

- 3 PCB stickout dimensions are available.
- Size 22D contacts use .175 thick headers
- Size 16 contacts use .195 thick headers
- Consult Amphenol for Size 20 contact use with headers.
- Headers for cylindrical connectors accommodate up to 128 pins. Consult Amphenol catalogs for mating connector contact layouts (12-092 and 12-090 for MIL-DTL-38999 and 12-070 for MIL-C-26482).

### Mounting to Rectangular ARINC Connectors

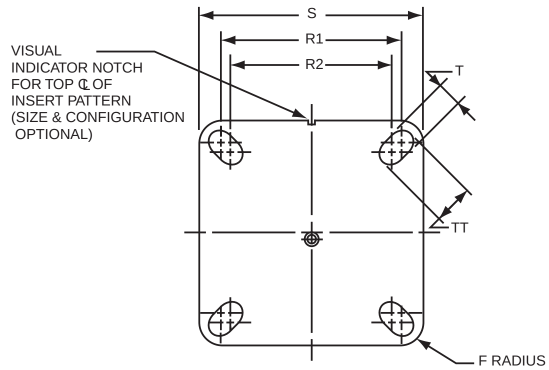
- Headers for ARINC connector arrangements accommodate up to 150 pins.
- Consult Amphenol for ARINC configurations and detailed dimensions.

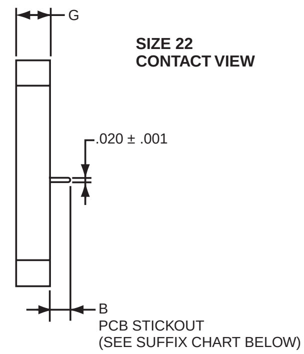
### Materials

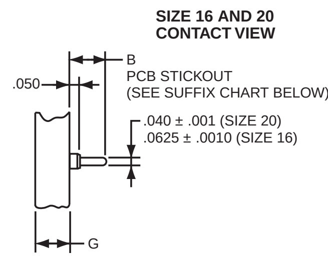
- Body is molded from Torlon or PPS (Polyphenylene Sulfide)
- Electrical engagement areas of the header contact are plated with .00003 inches minimum of gold over .00005 inches minimum of nickel.

# Universal Header Assemblies
# for flex print or PCB connectors, cont.

The drawing below shows the standard universal adapter for use with MIL-DTL-38999 and MIL-C-26482 connectors. Consult Amphenol, Sidney, NY for drawings of headers for ARINC configurations.




| Assembly Part Number | Shell Size | F Radius | G ±.005 | S ±.005 | T +.008 –.006 | R1 TP† | R2 TP† | TT +.008 –.006 |
|---|---|---|---|---|---|---|---|---|
| 21-904008-XX( ) | 8/9 | .094 | | .938 | .128 | .719 | .594 | .216 |
| 21-904010-XX( ) | 10/11 | .094 | | 1.031 | .128 | .812 | .719 | .194 |
| 21-904012-XX( ) | 12/13 | .094 | | 1.125 | .128 | .906 | .812 | .194 |
| 21-904014-XX( ) | 14/15 | .125 | | 1.219 | .128 | .969 | .906 | .173 |
| 21-904016-XX( ) | 16/17 | .125 | | 1.312 | .128 | 1.062 | .969 | .194 |
| 21-904018-XX( ) | 18/19 | .125 | | 1.438 | .128 | 1.156 | 1.062 | .194 |
| 21-904020-XX( ) | 20/21 | .125 | | 1.562 | .128 | 1.250 | 1.156 | .194 |
| 21-904022-XX( ) | 22/23 | .125 | | 1.688 | .154 | 1.375 | 1.250 | .242 |
| 21-904024-XX( ) | 24/25 | .125 | | 1.812 | .154 | 1.500 | 1.375 | .242 |

See Suffix Chart

Assemblies containing Size 22 contact only: .175
Assemblies containing Size 16 or 20 contacts: .195

† TP designates true position dimensioning.

NOTE:
Size 22 accepts .018 to .022 dia. PCB tails.
Size 16 accepts .048 to .064 dia. PCB tails.
Size 20 accepts .037 to .043 dia. PCB tails.

**HOW TO ORDER INFORMATION**
**For Universal Adapter used with MIL-DTL-38999 and MIL-C-26482 Connectors**
Use coded number as follows:

**21-9040 XX – XX X**

- 21-9040: Designates Amphenol® Interface Adapter
- XX: Shell size designation for MIL-DTL-38999 Series I, II, III and IV or MIL-C-26482 Series 1 and 2. See suffix chart.
- XX: Arrangement number - See MIL-STD-1560 or MIL-STD-1669. Also consult Amphenol catalogs 12-092 (MIL-DTL-38999 Series III), 12-090 (MIL-DTL-38999 Series I, II), and 12-070 (MIL-C-26482 Series 1)
- X: Contact PCB Stickout designation See suffix chart.

For how to order information on adapters to be used with ARINC connectors, consult Amphenol Aerospace, Sidney NY.

**ASSEMBLY NUMBER SUFFIX CHART**

| Shell Size Designation* | Arrangement Number Suffix*** | Contact PCB Stickout** | |
|---|---|---|---|
| | | Suffix | B ±.015 Stickout |
| 08 | Insert Arrangement Suffix from MIL-STD-1560 or MIL-STD-1669 | 1 | .120 |
| 10 | | 2 | .185 |
| 12 | | 3 | .270 |
| 14 | | | |
| 16 | | | |
| 18 | | | |
| 20 | | | |
| 22 | | | |
| 24 | | | |

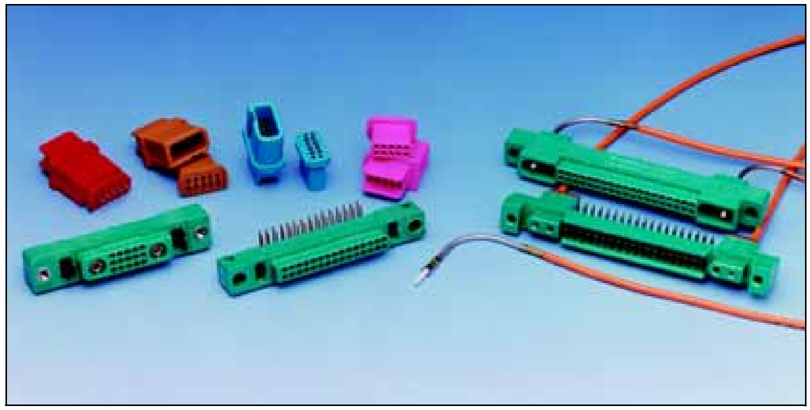
* Shell size designation for MIL-DTL-38999 Series I, II, III & IV and MIL-C-26482 Series 1 and 2.
Examples: Shell size 9 use 08. Shell size 25 use 24.

** Size 22 contacts available in all 3 stickout lengths.
Size 16 and 20 contacts available only in .185 and .270 lengths.

*** Insert arrangement 14-97 and 15-97 are not available at this time. Consult Amphenol, Sidney, NY for information.

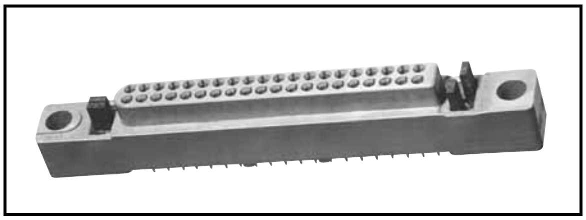
# Additional Products for PCB Application
# Amphenol® rectangular interconnects

**Amphenol is also a leader in rectangular interconnects for printed circuit board application. Within the rectangular families of Amphenol interconnects are Low Mating Force MIL-C-55302 connectors and LRM Surface Mount Connectors.**



Variety of Low Mating Force Rectangular Connectors including styles with fiber optics (right) and small styles with only 10 contacts (upper left).

1



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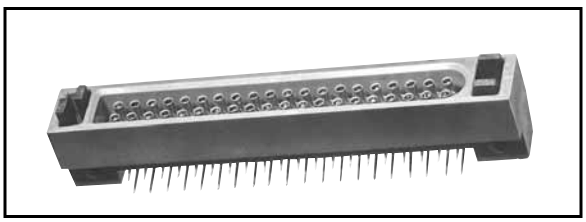

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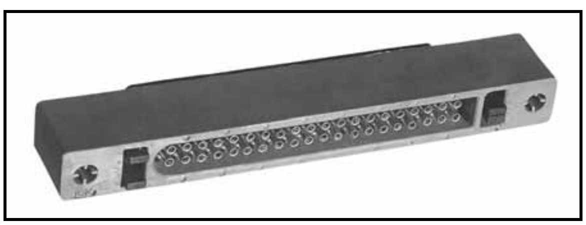

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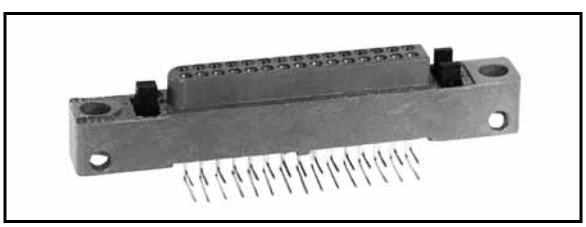


**LOW MATING FORCE MIL-C-55302 CONNECTORS**

- Superior electrical characteristics - redundant current paths, low constrictive resistance, stable time/life contact resistance, uniform current densities
- High performance polyester dielectric moldings
- Over 20,000 mating cycles with $B^3$ Bristle Brush Bunch® contacts
- Significant reduction in mating force. Only 1.5 ounce max contact engaging and separating forces
- –65° to +125°C temperature rating
- High circuit count interconnections to 400 contacts per connector
- Two, three and four row patterns, 10 to 100 contacts per row, in one contact per row increments
- 0.100 in. center to center contact spacing, square grid
- Serviceability - removable crimp contacts, repairable PC stud and solder less wrap contacts
- Board support structure - reinforcing reduced
- Variety of contact terminations and platings
- Accessories to suit latching, piloting and polarization variations
- Up to 256 keyed mating polarizations

**M55302/166 or 167 Mother Board, M55302/170 Daughter Board**
**1., 2.** Two piece PCB connector featuring PCB stud or solderless wrap contacts in the MB Series and field repairable 90° PCB stud contacts in the DB Series.

**M55302/169 Input/Output**
**3.** Rear release, rear removable crimp contacts for discrete wire cabling. I/O connector series mates with standard MB and PC receptacle series to provide external inputs/outputs.

**M55302/168 PC**
**4.** 90° PCB stud contacts for side mounting on board. Mates with DB and I/O series.

**Hybrid Rectangular Connectors with Brush/Power/Coax/Fiber Optic Combinations**
Amphenol offers wide versatility of combining contact types in rectangular interconnects.
For more information on Low Mating Force Connectors see catalog 12-035 online at www.amphenol-aerospace.com

# Additional Products for PCB Application
# Amphenol® rectangular interconnects, cont.

**LRM SURFACE MOUNT CONNECTORS**

The introduction of high speed integrated circuitry such as VHSIC and MMIC has enabled the Design Engineer to accomplish far more on his printed circuit board than ever before. This, coupled with the emergence of a revolutionary change in avionics packaging - modular avionic architectures - has created the need for a high performance, low insertion force PCB connector with significantly increased contact density.

The LRM (Line Replaceable Module) connector series are high performance, high density interconnects, specifically designed to connect printed circuit boards. The Amphenol Brush contact technology is the foundation of the LRM connector series.

**LRM Connectors with Staggered Grid**

- Advanced design to provide high contact density for high speed integrated circuitry in SEM-E and custom form factors
- 180 contact insert pattern grid in 8 rows: 0.100 inch spacing along the row with 0.050 inch between rows, rows offset 0.050 inch.
- Options include various shell designs to accommodate a wide range of PC board/heat sink combinations
- Solder tail, wire wrap or compliant contact availability
- ESD protection

**LRM Connectors with GEN-X Grid**

- Higher contact density and improved electrical performance
- All the features of the 180 contact pattern, including ESD protection
- Available in SEM-E and custom form factors
- 236 contact pattern grid in 8 rows: 0.075 inch spacing along the row with 0.060 inch between rows, rows offset 0.0375 inch

**LRM Staggered Grid Airflow-thru Connectors**

- Available for wider boards up to 0.425 inch. These accommodate standard brush tails in staggered pattern, but with increased spacing in the center, and they also provide more airflow cooling of inserts.

**LRM Connectors with Many Contact and Shell Design Options**

Flexibility to meet customer demands that include: combinations of brush and fiber optics; options for high speed contacts, RF contacts, or new high amperage RADSOK® contacts; incorporation of flex circuits; custom shells with multiple bays.

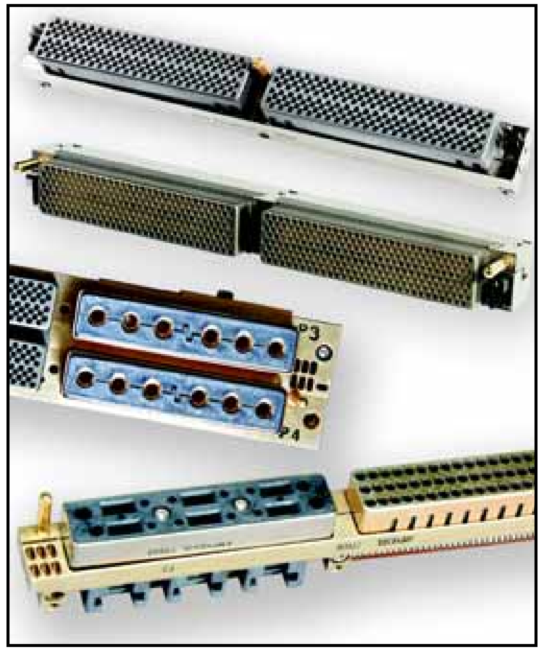
For more information on LRM Connectors see new catalog 12-037 at website www.amphenol-aerospace.com.

**BACKPLANE ASSEMBLIES**

Amphenol is the leading manufacturer of custom backplane assemblies using high density, ruggedized, board-to-board backplane interconnects. These can incorporate brush contacts, pc tail, or press-fit compliant pin contacts, or fiber optic termini. They also can incorporate fork and blade contacts (see next page for fork and blade contact connectors).

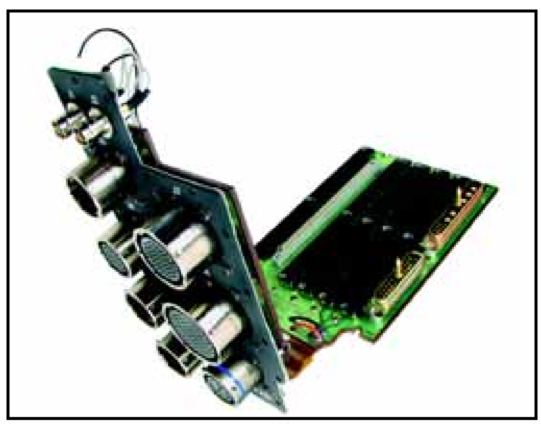
- Electrical Backplanes - Large panel sizes with high layer counts, and features such as high aspect ratio plating, small diameter plated-through holes, and controlled impedances.
- Optical Backplanes - Fiber termination with Multi-Terminal (MT) optical ferrules. Ribbon cable sorting allows programming flexibility; thus rendering the entire system easily upgradeable.
- Hybrid Optical Backplanes - Integrated electrical and optical systems in one discreet package for advanced avionics systems.

For more information on Backplane Assemblies from Amphenol Backplane Systems division, see publication SL-392 at websites: www.amphenol-abs.com or www.amphenol-aerospace.com.




From top to bottom:
Staggered Grid, 2 Bay LRM;
GEN-X Grid, 2 Bay LRM;
LRM inserts with RADSOK contacts;
LRM insert with MT ferrule fiber optics and brush contacts in a Differential Pair insert.

LRM Module Inserts (showing front and back of inserts) with PC Tails in Staggered Grid Pattern



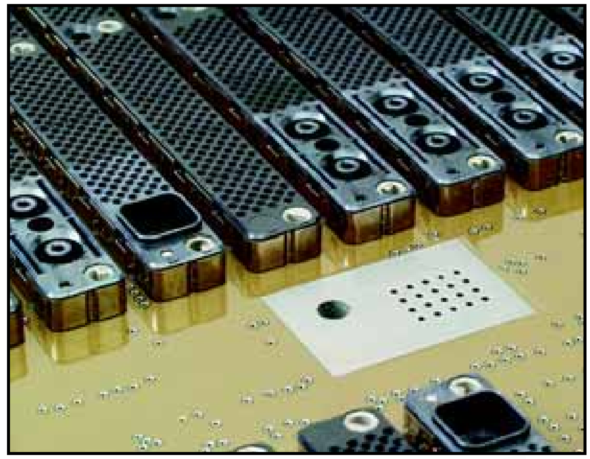
Backplane Assembly with LRM Connectors with Brush Contacts on one side and Cylindrical Connectors with Press-fit Compliant Contacts on the other.

# Amphenol ®Rectangular Interconnects additional products for PCB application

**UHD MODULE/BACKPLANE CONNECTORS WITH FORK & BLADE CONTACTS**

Amphenol's wide range of board level interconnects also includes high density UHD Series module and backplane connectors. These use the staggered grid pattern but do not use brush contacts. The staggered grid pattern is 80 contacts per inch, .025 pitch in 8 rows. They are SEM-E format and are qualified to: EIA 15-763, DESC 89065, IEEE 1101.1 to 1101.9.

The UHD module connectors have surface mount blade contacts and the mating UHD backplane connectors have solderless press-fit tuning fork contacts. There are a wide range of high contact density patterns and the length and style can be tailored to meet customer requirements. They are rigid pin terminated to the board or flex terminated to the board. Coax, fiber optics and power contacts can also be integrated into the connector configuration. Other options include EMI shielding and UHD interconnects can be provided in a stacking configuration.

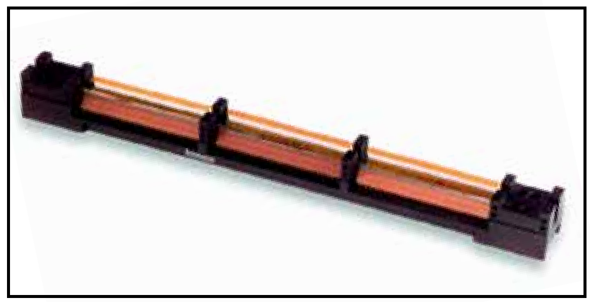


UHD Backplane Connectors on Board, Rigid Pin Termination, with Fiber Optics, Coax or Power Contacts

**NAFI SERIES WITH FORK & BLADE CONTACTS**

Amphenol NAFI daughtercard and backplane connectors are another board level interconnect that uses the fork and blade contact termination. They provide a wide range of medium contact density patterns and meet MIL-C-28754 standards. Daughtercard termination is through-hole, using nickel/gold solder plated contacts. The mating interface is a blade contact which can be either parallel or perpendicular to the daughtercard. They are available with 2, 3, 4 and 5 rows of contacts, .100 x .100 pitch. They can be rigid pin terminated to the board or flex circuitry can be used to attach to the board.

Both UHD and NAFI interconnects are used in military and commercial aviation, in space applications, shipboard and in military vehicles. For more information see catalog 12-036 at www.amphenol-abs.com or www.amphenol-aerospace.com.



NAFI Daughtercard Connector with Flex Termination

**PRINTED CIRCUIT BOARD TERMINAL BLOCKS**

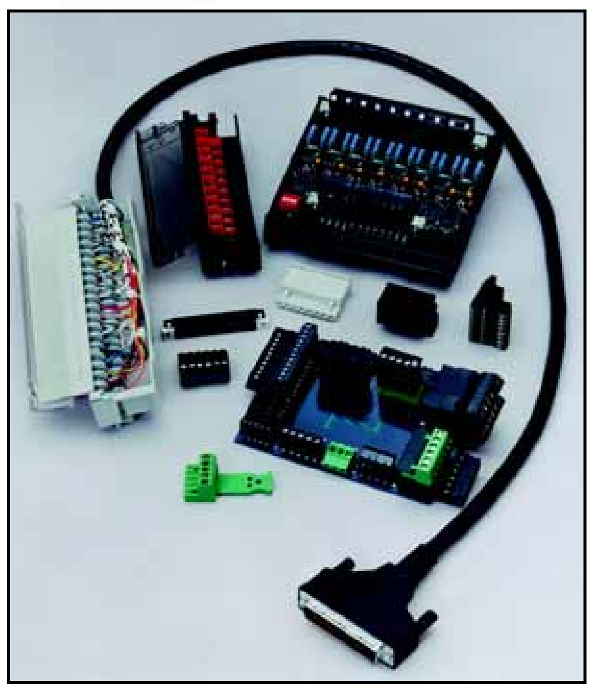
Amphenol Pcd division supplies wire-to-board discrete-wire connections in a variety of styles.

- Pluggable terminal blocks and headers in 3.5mm/.150" pitches in straight, angled, with locking ears, 2-tier, 3 tier, and low profile styles.
- Fixed terminal blocks in 5.0mm, .200", .250", .375" pitches in standard profiles, multi-tier, spring-clamp, high current and high voltage styles.
- Edgecard connectors that are screw terminated style in different size pitches.
- Custom designed terminal blocks with ear mounting options, DIN-rail mounting options, and others.

**WIRING INTERFACE MODULES**

Amphenol Pcd also supplies an industrial board level interconnect that replaces discrete terminations with a single pluggable unit. Connectors can be D-Sub, ribbon cable, RJ style, Centronic or DIN types. Also diodes, LEDs, resistors, capacitors, relays or fuses can be included in the unit.

For more information on terminal blocks and wiring interface modules go online to www.amphenol-pcd.com.



PCB Circuit Board Terminal Blocks and Wiring Interface Modules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