

MIL-DTL-5015, MIL-DTL-22992 Circular Connector Overview

Amphenol's medium to heavy weight circular include the MS/Standard MIL-DTL-5015 series and the heaviest weight, largest size circular is the Heavy Duty MIL-DTL-22992 series. These time-tested circulars have been used for several years. They are dependable general duty and environmentally resistant connectors for military and industrial applications.

Shielded coax contacts, although more popularly used in 38999 types and 26482 types, can be incorporated into some arrangements of the 5015 and 22992 type circulars. Shielded coaxial contacts within these series are considered MS modifications to the MIL-spec connector and the coax contacts are pre-installed in the connector. Normal operating voltage with power contacts only is up to 3000 VAC (RMS) at sea level for MIL-DTL-5015 circulars. The Heavy Duty types are designed for high current capacity and have current ratings (with power contacts only) of up to 200 amps.

Standard and Heavy Duty Circular offer these features for contact termination flexibility:

- Insert arrangements that can incorporate:
- Size 4, 8 & 12 Crimp Coax contacts, pre-installed in the connector
- Wide selection of connector shell styles and sizes
- Standard power contact options within the various connector styles include: solder type, crimp front release, crimp rear release
- Coax contacts are designed to the same high performance standards as power contacts. Coax and power contacts may be intermixed with no degradation of connector reliability.

Amphenol® MS/Standard Circular MIL-DTL-5015* Type Connector Family:

See MS/Standard catalog 12-020 for complete information on these styles

MS-A, MS-C, MS-E, MS-F, MS-R

- Produced in strict accordance with MIL-DTL-5015
- Threaded coupling, solder or crimp rear insertion contacts (coax available in crimp type only)
- Class A, Solid Shell - intended for general connector usage
- Class C, Pressurized - for use on pressurized bulkheads or pressure barriers
- Class E/F, Environmental Resisting - ideally suited for installation where condensation, vibration and rapid changes in pressure or temperature are considerations
- Class R, Lightweight Environmental Resisting - shorter in length and lighter in weight than Class E

GENERAL ORDERING INFORMATION

Amphenol MS/Standard MIL-DTL-5015 type and Heavy Duty MIL-DTL-22992 type circulars are normally supplied with a full complement of power contacts, separately packaged. Coax contacts are ordered by part number as referenced in the part number charts on the following pages of this catalog, and are substituted for the power contacts at the time of the cable or equipment assembly. Coax contacts are pre-installed in these series. Installation instructions for the coax contacts for these series are provided in Amphenol document L-650.

HOW TO ORDER:

1. Select the coax contacts designed for the cable being used from the chart on page 409 of this catalog. Select a connector insert from those shown on page 44 which will accommodate the quantity and size of coaxial contacts needed plus any power contacts required.
2. Determine the MS/Standard or Heavy Duty Series style desired. (See features of each series referenced above) The catalog referenced for each series will guide you in determining shell style, finish, service class and insert rotation required for your application. MS/Standard MIL-DTL-5015 Type Connectors (Catalog 12-020 on-line at www.amphenol-industrial.com)
Catalog 12-052 - MIL-DTL-22992 QWLD Connectors (on-line at www.amphenol-aerospace.com)
Catalog 12-053 - QWL Connectors (on-line at www.amphenol-aerospace.com)
3. Consult Amphenol Aerospace with the pertinent cable, contact, insert arrangement and connector style choices for complete connector part number.

* Amphenol also offers the following other MIL-DTL-5015 Circular Connectors which are threaded coupling

(consult Amphenol Industrial for availability of shielded contacts in any of these series):

- Amphenol®/Matrix® MIL-DTL-5015 with crimp rear releasable and rear insertable contacts. (See Matrix 5015 section of this catalog)
- Amphenol® MIL-DTL-5015 Modifications (Ask for Industrial Catalog 12-021)
- Amphenol® GT Series with reverse bayonet coupling (Ask for Catalog 12-024)
- Amphenol® AC Threaded and AC-B Bayonet Series (Ask for Industrial Catalog 12-025)



MS/Standard MIL-DTL-5015 Type Connectors



Heavy Duty QWLD, MIL-DTL-22992 Connectors

Amphenol® Heavy Duty Circular MIL-DTL-22992 Connector Family: QWLD

- Designed for most power and control circuits
 - Military MIL-DTL-22992 qualified versions & proprietary equivalents
- See Catalog 12-052 for complete information on these styles.

QWL

- A more compact heavy duty design for industrial power and control applications
- See Catalog 12-053 for complete information on these styles.

38999

III
HD
Dualok
II
I
SJT
Accessories
Aquacon
Herm/Seal
PCB

HIGH SPEED

Fiber Optics

Contacts Connectors Cables

EMI Filter Transient

26482 Matrix 2

83723 III Matrix | Pyle

26500 Pyle

5015 Crimp Rear Release Matrix

22992 Class 1

Back-Shell

Options Others

NOTE:

MIL-DTL-5015 supersedes MIL-C-5015
MIL-DTL-22992 supersedes MIL-C-22992

38999

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**HIGH
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Fiber
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EMI Filter
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26482
Matrix 2

83723 III
Matrix | Pyle

26500
Pyle

5015
Crimp Rear
Release
Matrix

22992
Class I

Back-
Shells

Options
Others

Amphenol® Coaxial Contacts - Can be incorporated into MS/Standard MIL-DTL-5015 Type Circular Connectors and Heavy Duty MIL-DTL-22992 Connectors. They offer the same durability advantages and design benefits for reliable interconnection as the Amphenol coax contacts used in high performance D38999 connectors. A variety of military and commercial shielded cables are accommodated within these circular series.

Other features of the coax contacts available for MS/Standard and Heavy Duty circulars include:

- Several insert arrangements that can incorporate:
 - Size 4, 8 and 12 coax contacts
- Advanced shielding wire technology in a rugged military connector
- Single connector with multiple coaxial connection eliminates cross-mating
- Positive contact captivation - especially important in these series with its much higher coupling/uncoupling force
- Older shielded cable type availability



Coax Contact, Pin
for use in MS/Standard MIL-DTL-5015 and
Heavy Duty MIL-DTL-22992 Connectors



Coax Contact, Socket
for use in MS/Standard MIL-DTL-5015 and
Heavy Duty MIL-DTL-22992 Connectors

TYPICAL ELECTRICAL PERFORMANCE

Size 4, 8 & 12 Contacts
Contact Resistance:
Center @ 1 Amp, 170 millivolts max. voltage drop @ 25°C
Outer @ 12 Amps, 150 millivolts max. voltage drop @ 25°C
Dielectric Withstanding Voltage:
Size 4 & 8: 1,300 VAC Rms @ sea level
Size 12: 1,000 VAC Rms @ sea level
Size 4, 8 & 12: 250 VAC Rms @ 50,000 ft.
Insulation Resistance
5,000 megohms minimum @ 25°C

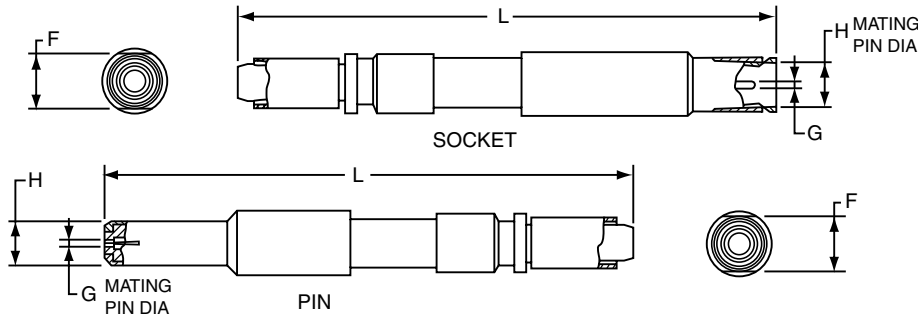
All contacts in these series are non-impedance matched contacts.

Part numbers 21-033063-XX() and 21-033064-XX() are moisture seal design (internal O-ring).

CONTACT FINISHES:

Suffix	Finish
1	0.00020 min. silver over copper flash
2	0.00005 min. gold (Knoop hardness 130-200) over silver
3	0.00010 min. gold (Knoop hardness 130-200) over silver
4	0.00010 min. gold (Knoop hardness 130-200) over copper
5	0.00005 min. gold (Knoop hardness 130-200) over nickel
E	0.00005 min. gold (Knoop hardness 90 max.) over copper
F	0.00005 min. gold (Knoop hardness 130-200) over copper
H	0.00010 min. gold (Knoop hardness 130-200) over copper

Coaxial Contacts for MIL-DTL-5015, Heavy Duty MIL-DTL-22992 Application Data



NOTE: All contacts of the same size and the same inner and outer contact diameters (G & H) will mate with each other.

COAX CONTACTS For use in MS/Standard MIL-DTL-5015 Type and Heavy Duty MIL-DTL-22992 Type Connectors																						
Cable	Contact Part Number (See L-650 Termination Instruction Sheet for all contacts listed below)**		Size	Finish on Mating Parts (See Pg. 42)	Dimensional Data (See Drawings above)				Crimp Ferrule Tools			Retainer Nut Wrench										
	Pin	Socket			G Dia.	H Dia. ± 0.001	F Across Flats ±0.004	L Length Ref. Pin Socket		MIL-T-22910/7-1 Tool Use with Die Part Number	MIL-T-22520/5-01 Tool Use with Die Part Number		MIL-T-229520/10-01 Tool Use with Die Part Number									
RG-58C/U, RG-141A/U, RG-303/U	21-033014-001	21-033013-001	8	5	0.0355 ±0.0010	0.218	0.280	1.481	1.511	M22910/7-15 (B)	M22520/5-05 (B) M22520/5-41 (B)	M22520/10-07 (B)	11-8676-2									
	21-033034-002	21-033033-002	8	1																		
	21-033048-002	21-033047-002	8	††																		
	21-033016-005	21-033015-005	8	3																		
	21-033130-002()	21-033129-002()	8	***																		
RG-59B/U, RG-62A/U, RG-62B/U, RG-210/U	21-033014-005	21-033013-005	8	5	0.0355 ±0.0010	0.218	0.280	1.481	1.511	M22910/7-18 (B)	M22520/5-45 (B)		11-8676-3									
	21-033016-002	21-033015-002	8	3																		
	21-033034-005	21-033033-005†	8	1																		
	21-033130-005()	21-033129-005()	8	***																		
	21-033064-021()	21-033063-021()	8	***																		
	21-033060-010()	21-033059-010()	4	***										0.0400 ±0.0010	0.344	0.375	1.669	1.605				11-8676-4
RG-161/U, RG-174A/U, RG-179B/U, RG-187A/U, RG-188A/U, RG-316/U	21-033014-003	21-033013-003	8	5	0.0355 ±0.0010	0.218	0.280	1.481	1.511	M22910/7-12 (B)	M22520/5-03 (A) M22520/5-08 (A) M22520/5-35 (B)	M22520/10-05 (A)	11-8676-2									
	21-033016-001	21-033015-001	8	3																		
	21-033034-003	21-033033-003	8	1																		
	21-033130-003()†	21-033129-003()†	8	***																		
	21-033064-020()†	21-033063-020()†	8	***																		
	21-033014-021	21-033013-021	12	5										0.0200 ±0.0005	0.128	0.172	1.481	1.511				11-8676-1
	21-033034-001	21-033033-001	12	1																		
	21-033048-001	21-033047-001	12	***																		
21-033130-001()†	21-033129-001()†	12	***																			
RG-178B/U, RG-196A/U	21-033014-022†	21-033013-022†	12	5	0.0200 ±0.0005	0.128	0.172	1.481	1.511	M22910/7-11 (B)	M22520/5-03 (B) M22520/5-33 (B)	M22520/10-05 (B)	11-8676-1									
RG-180B/U, RG-195A/U	21-033014-006	21-033013-006	8	5	0.355 ±0.0010	0.218	0.280	1.481	1.511	M22910/7-15 (B)	M22520/5-05 (B) M22520/5-41 (B)	M22520/10-07 (B)	11-8676-2									
	21-033034-006†	21-033033-006†	8	1																		
	21-033048-003	21-033047-003	8	***																		
	21-033130-006()†	21-033129-006()	8	***																		
RG-212/U	21-033060-011()	21-033059-011()	4	***	0.0625 ±0.0010	0.344	0.375	1.669	1.605	M22910/7-14 (A)	M22520/5-39 (A)		11-8676-4									
RG-140/U, RG-302/U	21-033014-008	21-033013-008	8	5	0.0355 ±0.0010	0.218	0.280	1.481	1.511	M22910/7-17 (B)	M22520/5-05 (A) M22520/5-19 (B)	M22520/10-07 (A)	11-8676-2									
	21-033034-008	21-033033-008	8	1																		
	21-033130-008()†	21-033129-008()†	8	***																		
RG-55B/U, RG-142A/U, RG-142B/U, RG-223/U	21-033014-004	21-033013-004	8	5	0.0355 ±0.0010	0.218	0.280	1.481	1.511	M22910/7-17 (B)	M22520/5-05 (A) M22520/5-19 (B)	M22520/10-07 (A)	11-8676-2									
	21-033034-004	21-033033-004	8	1																		
	21-033130-004()	21-033129-004()	8	***																		
	21-033060-102()	21-033059-012()	4	***	0.0625 ±0.0010	0.344	0.375	1.669	1.605				11-8676-4									

***See finish options for MS/Standard and Heavy Duty contacts listed on page 262.
Replace the parenthesis of the contact part number with the finish suffix number. However, you should consult Amphenol Aerospace regarding the availability of all finish choices for each part number.

† Consult Amphenol Aerospace for current availability of this contact.
CRIMPING TOOLS: Italicized letters in parenthesis that follow positioner part numbers indicate applicable die closure. Commercial equivalents with the same die closure dimension may be used.
†† 21-033047-X and 21-033048-X are supplied with E (soft gold) finish on mating socket parts, and F (hard gold) finish on mating pin parts. **Termination instruction sheet L-650 can be found on-line at: www.amphenol-aerospace.com/serviceinstructions.asp

- 38999
- III
- HD
- Dualok
- II
- I
- SJT
- Accessories
- Aquacon
- Herm/Seal
- PCB

- HIGH SPEED
- Fiber Optics
- Contacts Connectors Cables

- EMI Filter
- Transient

- 26482
- Matrix 2

- 83723 III
- Matrix | Pyle

- 26500
- Pyle

- 5015
- Crimp Rear Release Matrix

- 22992
- Class 1

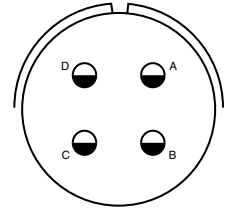
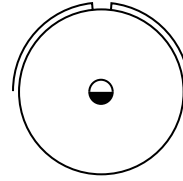
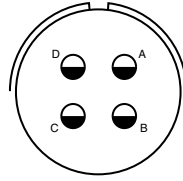
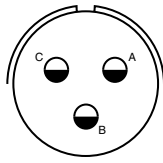
- Back-Shell's

- Options
- Others

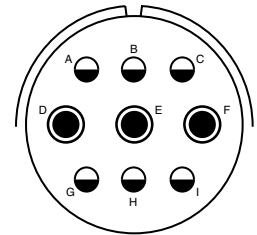
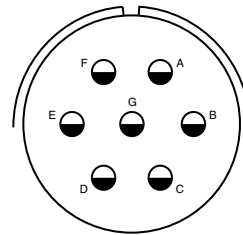
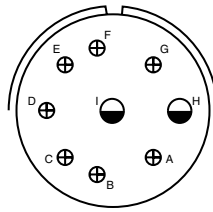
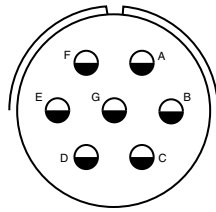
Insert Arrangements - Standard MIL-DTL-5015, Heavy Duty MIL-DTL-22992 Incorporating Coax Contacts

38999

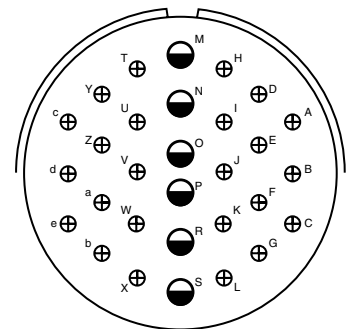
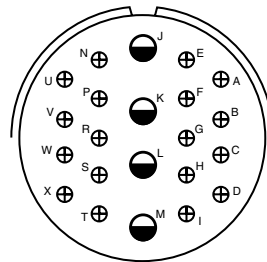
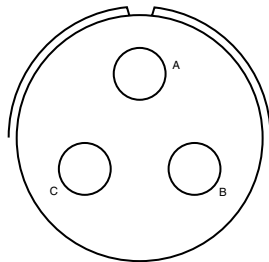
Front face of pin inserts illustrated



Insert Arrangement	16-10	18-10	18-16	20-4
Connector Series	MS/Standard, QWLD, QWL	MS/Standard, QWLD, QWL	MS/Standard, QWLD, QWL	MS/Standard, QWLD, QWL
Service Rating	A	A	C	D
Number of Contact	3	4	1	4
Contact Size	12	12	12	12



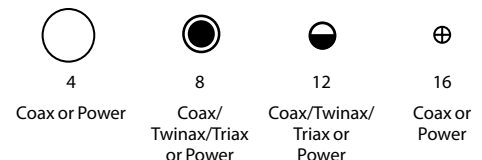
Insert Arrangement	20-15	20-16	24-2	24-11
Connector Series	MS/Standard, QWLD, QWL	MS/Standard, QWLD, QWL	MS/Standard, QWLD, QWL	MS/Standard, QWLD, QWL
Service Rating	A	A	D	A
Number of Contact	7	2 7	7	3 6
Contact Size	12	12 16	12	8 12



Insert Arrangement	28-6	28-11	32-8
Connector Series	MS/Standard, QWLD, QWL	MS/Standard, QWLD, QWL	MS/Standard, QWLD, QWL
Service Rating	D	A	A
Number of Contact	3	4 18	6 24
Contact Size	4	12 16	12 16

The insert arrangements shown on this page represent the most readily available patterns within the MIL-DTL-5015 and MIL-DTL-22992 Series. If you require other arrangements than what are shown here, consult Amphenol for further availability. MS/Standard connectors have over 200 insert pattern arrangements available, and within these patterns any size 4, 8 or 12 contact cavities can be incorporated with coax contacts. However, you need to consult Amphenol, Sidney NY for availability and ordering information. All coax contacts in the Standard and Heavy Duty series come pre-installed in connectors.

CONTACT LEGEND



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26500
Pyle

5015
Crimp Rear Release Matrix

22992
Class 1

Back-Shells

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Others