

# 97 Series



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The Amphenol Industrial 97 series connector is a MIL-DTL-5015 (MIL-C-5015) style, general duty, standard, medium to heavy weight, cylindrical connector. It is widely used for robotics, machine tools and welding applications as well as numerous industrial, commercial and medical applications. This durable and field proven design is intermateable and intermountable with all threaded MIL-DTL-5015 connectors.

The shell components are fabricated from high-grade aluminum alloy for strength and environmental protection. This series of connectors is available in nine shell styles, a variety of sizes, contacts and layouts. Connectors are available in 128 contact arrangements, from 1 to 52 circuits. Contacts are silver plated with pre-tinned solder cups with optional gold over silver plating.

## Applications

Industrial, commercial and medical applications where low cost, general duty connectors are required.

- Communications systems
- Conveyors
- Factory automation
- Industrial machinery
- Medical instrumentation
- Motors
- Mobile equipment
- Sensors
- Ships
- Trucks
- Trailers

## Features

- Low cost
- Solder termination
- UL recognized and CSA certified
- Wide selection of shell styles and insert patterns
- Wide variety of connector finishes
- Threaded coupling, hard dielectric inserts
- Solid or split shell construction

## Technical Specifications

### MATERIALS & FINISHES

Shell	Aluminum alloy
Plating	Olive drab chromate or clear chromate coating over cadmium plating to QQ-P-416; Black zinc cobalt; electroless nickel; or green zinc
Contacts	Brass or Copper alloy
Platings	Silver plating to QQ-S-365 (Solder contacts have tinned solder pot) Gold plating to MIL-G-45204
Insulator	Diallyl phthalate

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## ELECTRICAL DATA

### Operating Voltage/Test Voltage

SERVICE RATING*	TEST VOLTAGE (RMS 60 cps)	SUGGESTED* OPERATING VOLTAGE		AIR SPACING NOM. (INCHES)	CREEPAGE DISTANCE NOM. (INCHES)
		DC	AC (rms)		
I	1,000	250	200	-	1/16
A	2,000	700	500	1/16	1/8
D	2,800	1,250	900	1/8	3/16
E	3,500	1,750	1,250	3/16	1/4
B	4,500	2,450	1,750	1/4	5/16

\*Each insulator has a specific service rating. These should be used by the designer only as a guide. The Service Ratings for each layout are listed on [pages 50-69](#).

**97 Series connectors show no evidence of breakdown when the test voltages given are applied between the two closest contacts and between the shell and the contacts closest to the shell for a period of one minute per MIL-STD-1344 Method 3001.**

### Current Rating & Contact Resistance

CONTACT SIZE	TEST CURRENT (AMPS)	POTENTIAL DROP (MILLIVOLTS)
16	13	49
12	23	42
8	46	26
4	80	23
0	150	21

Maximum total current to be carried per connector in wire bundles as specified in MIL-W-5088. Contact resistance when tested to MIL-C-39029 will not exceed voltage drops listed in above table.








## MECHANICAL

Wire Range Sizes	24 to 0 AWG
Contact Resistance	(See table above)
Insulation Resistance	>5000 megohms at 77°F (25°C) per MIL-DTL-5015, 3.18
Mating Life	100 cycles minimum. To MIL-DTL-5015, 3.16
Salt Spray	MIL-STD-1344 Method 1001 Condition B minimum (Cadmium) 48 hour
Heat	+257°F (+125°C) for 60 hours, +185°F (+85°C) for 1000 hours per MIL-DTL-5015, 4.6.14, minimum
Chemical Resistance	20 hour full immersion unmated in hydraulic fluid and lubricating oil per MIL-DTL-5015 minimum
Vibration	10 to 2,000Hz (15g's) 10 microseconds maximum discontinuity to MIL-STD-1344 Method 2005 per MIL-DTL-5015
Shock	50g 11 millisecond duration, three major axes. 10 microseconds maximum discontinuity To MIL-DTL-5015, 3.13
Contact Type	Solder (hard silver or gold plating)
Number of Circuits	1 to 52 ( <a href="#">See pages 50-69</a> )

Contact retention and separation forces. To MIL-DTL-5015, 4.6.6 & 3.26 minimum.

CONTACT SIZE	RETENTION AXIAL LOAD		SEPARATION FORCE MINIMUM	
	NEWTONS	(LB)	NEWTONS	(LB)
16	44	(10)	1	(0.25)
12	67	(15)	2	(0.50)
8	89	(20)	3	(0.75)
4	89	(20)	4	(1.00)
0	111	(25)	9	(2.00)

Polarization	Integral key and keyway plus optional rotational polarization. ➡ See pages 59-69 for valid rotations
Approvals/Agency listing	UL# EII5497; CSA LR69183 for 97 Series

Components		
	Plugs	Receptacles
Barrel/Shell		
Coupling Nut/Spring		
Insert Assembly		
Insert Retainer Spring		
Endbell	