Amphenol MS3450 (Matrix®) Series MIL-DTL-5015

MIL-DTL-5015 Rear Release Crimp

HIGH-PERFORMANCE ALTERNATIVE TO OLDER MIL-DTL-5015 SOLDER TYPES

The MIL-DTL-5015 Rear-Release Threaded MS3450 Matrix® series uses rear-release crimp contacts with retention clip. These Amphenol connectors fill the gap between older MIL-DTL-5015s and the environmental and higher-performance needs of new technologies. They are sealed to withstand moisture, condensation, vibration and flash-over. Over 165 contact layouts are available, in variations that allow for just power, just signal, or a mix of both contact types.

- Formerly MIL-C-5015

APPLICATIONS

Military, industrial and commercial environments requiring extreme reliability, high-power handling and cost efficiency.

- Power generators
- Engines
- Sensors
- Motion control
- Off-road vehicles
- Earth-moving equipment
- Ships
- Mobile equipment
- Industrial machinery
- Telecommunications

FEATURES

BROAD OPERATING TEMPERATURES

The electroless nickel plating and stainless steel shell connectors will operate in temperature ranges from -75°F to +392°F (-55°C to 200°C). The cadmium olive drab plating connectors will operate in temperatures ranging from -75°F to +347°F (-55°C to 175°C).

ENVIRONMENTAL

These connectors will perform in the full range of operating conditions defined in MIL-DTL-5015 and are recommended for conditions where vibration, moisture, pressure, and/or temperatures are extreme.

RUGGED SHELL

The rugged aluminum alloy or steel shell are highly resistant to damage and corrosion with firewall capabilities. Shells are available in four different styles, like a self-locking coupling nut in seventeen different sizes.

WIDE RANGE OF WIRE GAUGES AND CURRENT-CARRYING CAPACITIY

Up to 150 amps for standard military contacts and wire gauges from size 20 to size 0 AWG.

TECHNICAL SPECIFICATIONS

MATERIALS & FINISHES

Shell	Aluminum alloy, steel and stainless steel
Plating	Olive drab chromate over cadmium per QQ-P-416, electroless nickel per ASTM B73 or black anodize for aluminum; olive drab chromate over cadmium or passivated steel
Contacts	Copper alloy
Plating	Gold-plated
Insulator	Neoprene
Seals	Silicone

ELECTRICAL DATA

Operating Voltage/Test Voltage

	NOMINAL DISTANCE		OPERATING VOLTAGE*		STANDARD SEA LEVEL CONDITIONS		PRESSURE ALTITUDE† 50,000 FEET		PRESSURE ALTITUDE† 70,000 FEET	
MS SERVICE RATING	AIRSPACE	CREEPAGE	DC V	AC VRMS	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)
I	1/32	1/16	250	200	1,400	1,000	550	400	325	260
A	1/16	1/8	700	500	2,800	2,000	800	600	450	360
D	1/8	3/16	1,250	900	3,600	2,800	900	675	500	400
E	3/16	1/4	1,750	1,250	4,500	3,500	1,000	750	550	440
B	1/4	5/16	2,450	1,750	5,700	4,500	1,100	825	600	480
C	5/16	1	4,200	3,000	8,500	7,000	1,300	975	700	560

* Each insulator has a specific service rating. These numbers should be used by the designer only as a guide. The Service Ratings for each layout are listed on ⇨ pages 72-93.

† Not corrected for change in density resulting from variations in temperature.

MS connectors show no evidence of breakdown when the given test voltages 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)	CONTACT RESISTANCE (MILLIOHM) MAX.
16	13	50	6
12	23	50	3
8	46	29	1 (0.44*)
4	80	14	0.5 (0.23*)
0	150	12	0.2 (0.18*)

*Using non-military crimp Radsok contact

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.

Wire Range Sizes	20 AWG – 0 AWG
Insulation Resistance	50,000 megohms minimum at 77°F (25°C) 1,000 megohm minimum at 392°F (200°C) Class L and 347°F (175°C) Class W

MECHANICAL

Operating	Classes L, LS and KS -75°F to 392°F (-55°C to +200°C) Temperature classes W and KT -75°F to 347°F (-55°C to 175°C)

Wire Sealing Range

CONTACT SIZE	WIRE SEALING RANGE MIN.	WIRE SEALING RANGE MAX.
16/16S	0.053 (1.35)	0.103 (2.62)
12	0.085 (2.16)	0.158 (4.01)
8	0.132 (3.35)	0.255 (6.48)
4	0.237 (6.02)	0.370 (9.40)
0	0.360 (9.14)	0.550 (13.97)

TECHNICAL SPECIFICATIONS

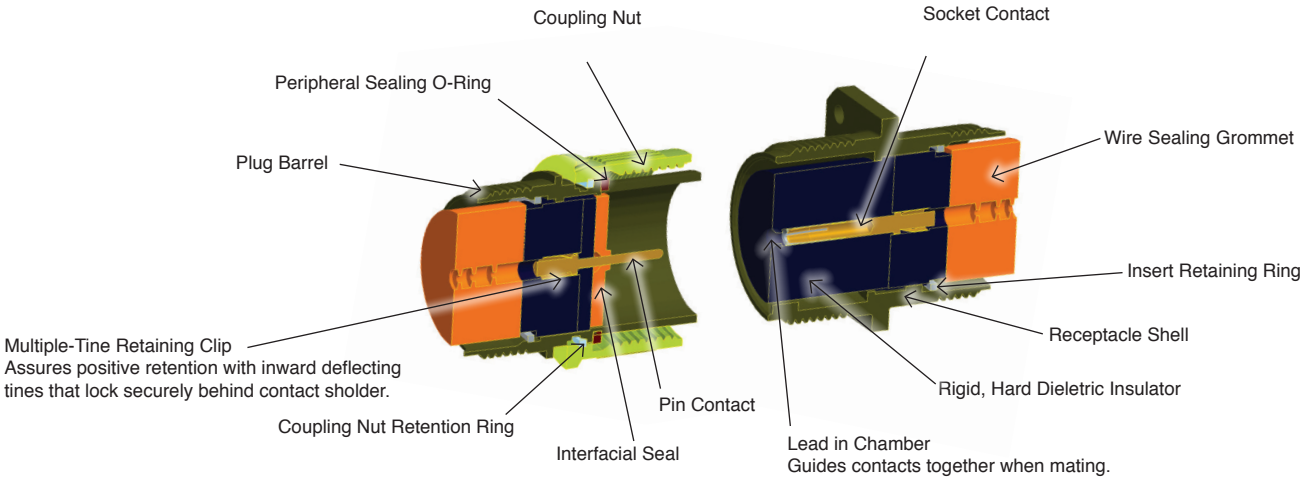
Insulation Strip Length

CONTACT SIZE	STRIP LENGTH
16/16S	.245 (6.2)
12	.245 (6.2)
8	.465 (11.8)
4	.465 (11.8)
0	.540 (13.7)

Mating Life	100 cycles minimum
Salt Spray	Class L & W 48 hours unmated; 48 hours mated per MIL-STD-1344 method 1001 condition letter A, paragraph 4.6.13.2 of MIL-DTL-5015, Class LS, KT, KS 952 hours mated, 48 hours unmated per MIL-STD-1344, method 1001 condition letter D, paragraph 4.6.13.3 of MIL-DTL5015
Heat	Class L, LS & KS, +392°F (+200°C); Class W, KT, +347°F (+175°C)
Chemical Resistance	20-hour full-immersion unmated in hydraulic fluid and lubricating oil per MIL-DTL-5015 minimum
Vibration	10 to 2,000Hz (10g's) 10 microseconds maximum discontinuity to MIL-STD-1344 Method 2005, condition II per MIL-DTL-5015
Shock	50g 11millisecond duration, three major axes. 10 microseconds maximum discontinuity to MIL-DTL-5015 per MIL-STD-1344 method 2004, condition A, 3.13.
Contact Type	Rear-release crimp
Number of Circuits	1 to 85
Contact Insertion & Extraction	Insertion from rear of connector with simple plastic or high-quality metal hand tool. Extraction from rear with plastic or high-quality metal hand tools.
Contact Retention	Per MIL-DTL-5015, 3.10 & 4.6.6.

CONTACT SIZE	AXIAL LOAD LBS. MIN.
16	25
12	30
8	50
4	60
0	75

Polarization	Integral key and keyway plus optional rotational polarization. ⇨ See pages 83-93 for valid rotations.
Approvals	MIL-DTL-5015 (MIL-C-5015)



All dimensions in inches (millimeters in parenthesis)