AIT/MS Series

AIT/MS Series is a low cost, MIL-DTL-5015 (MIL-C-5015) threaded connector for use in harsh environmental conditions. This popular, cylindrical connector is particularly well suited to commercial applications where a low cost, yet rugged connector is required. Over 286 contact layouts are available from 1 to 85 circuits and up to 150 amps per contact. The standard MIL-DTL-5015 (MIL-C-5015) layouts allow the mixing of power and signal contacts, power only, or signal only. Contacts are available in solder, crimp, or PC terminations covering wire gauges from size 24 to size 0 AWG. Thermocouple (J, Y, K, T) and coax contacts are also available. These connectors are completely sealed to withstand moisture, condensation, vibration, and flash-over across a broad range of wire diameters. When the two connector halves are mated, the rear-sealing grommet along with a dynamic interfacial seal at the front, create an environmentally sealed assembly.

Applications

Military, Industrial and Commercial environments requiring extreme reliability, high power handling and low cost.

- Power Generators
- Engines
- Sensors
- Motion Control
- Off-road Vehicles
- Earth Moving Equipment
- Ships
- Mobile Equipment
- Industrial Machinery
- Telecommunications

Features

Agency Approvals

MIL-DTL-5015 (MIL-C-5015)

Broad Temperature Range

These connectors will operate in temperatures ranging from -67°F to +257°F (-55°C to +125°C) under extremely harsh conditions.

Environmental

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

Resilient Insulator and Grommet

A resilient neoprene insulator and rear seal grommet provide a liquid-tight assembly.

Rugged Shell

The rugged aluminum alloy shell and hardware are light in weight yet highly resistant to damage and corrosion. Shells are available in 5 different styles and in 19 sizes.

Wide Range of Wire Gauges and Current Carrying Capacity

Up to 150 amps for standard military contacts and up to 255 amps using Radsok contacts. Wire gauges from 24 to size 0 AWG.

Wide Variety of Contacts

Machined contacts with silver or gold plating are available in sizes from 16 through 0. Solder, Crimp, PC, and Thermocouple contacts are available.

PEI-Genesis

Technical Specifications

MATERIALS & FINISHES

Shell	Aluminum alloy
Plating	Olive drab chromate coating over cadmium plating to QQ-P-416; black zinc cobalt, electroless nickel, anodized 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	Resilient Neoprene®, Viton®, Low Smoke Zero Halogen (LSZH) Viton is a registered trademark of Dupont Dow Elastomers

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	1,000	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 should be used by the designer only as a guide. The Service Ratings for each layout are listed on pages 50-69

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

MS 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)	CONTACT RESISTANCE (MILLIOHM) MAX.
16	13	49	6
12	23	42	3
8	46 (69*)	26 (20*)	1 (0.44*)
4	80 (80*)	23 (18*)	0.5 (0.23*)
0	150 (225*)	21 (27*)	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.

MECHANICAL

Wire Range Sizes	24 to 0 AWG (Crimp contacts on pages 24-25)
Insulation Resistance	>5000 megohms at 77°F (25°C) per MIL-DTL-5015, 3.18

Wire Sealing Range

CONTACT SIZE	WIRE SIZE (MIL-W-5086)	INSULATION OUTSIDE DIAMETER LIMIT			
		MIN.	(mm)	MAX.	(mm)
16	16 thru 20	.064	(1.63)	.130	(3.30)
12	12 thru 14	.114	(2.90)	.170	(4.32)
8	8 thru 10	.164	(4.17)	.255	(6.48)
4	4 thru 6	.275	(6.98)	.370	(9.40)
0	0 thru 2	.415	(10.54)	.550	(13.97)

The connector is designed for individual wire sealing. Sealing of an outer cable jacket on multiconductor cables must be accomplished with an appropriate endbell. Sealing is only guaranteed if wires according to MIL-W-5086 or within the listed ranges are used.

Technical Specifications

Insulation Strip Lengths	(➥ see page 24)
Mating Life	100 cycles minimum. To MIL-DTL-5015, 3.16
Salt Spray	MIL-STD-1344 Method 1001 Condition B minimum (Cadmium), 48 hour, Olive drab chromate over cadmium, non-conductive black zinc, conductive black zinc, green zinc, black anodized, electroless nickel
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 (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	Solder, Crimp, PC, or Thermocouple (hard silver or gold plating)
Number of Circuits	1 to 85 (➥ See pages 50-69)
Contact Insertion	Insertion from rear with simple hand tool. Removable, 5 cycles minimum. (Solder, PC and coax outer housings are bonded into the insulator.)
Contact Retention and Separation Forces	To MIL-DTL-5015, 4.6.6 & 3.26

CONTACT SIZE	AXIAL LOAD		SEPARATION FORCE MINIMUM	
	NEWTONS	(LBS.)	NEWTONS	(LBS.)
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)

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Polarization	Integral key and keyway plus optional rotational polarization. ➥See pages 59-69 for valid rotations
Approvals	MIL-DTL-5015

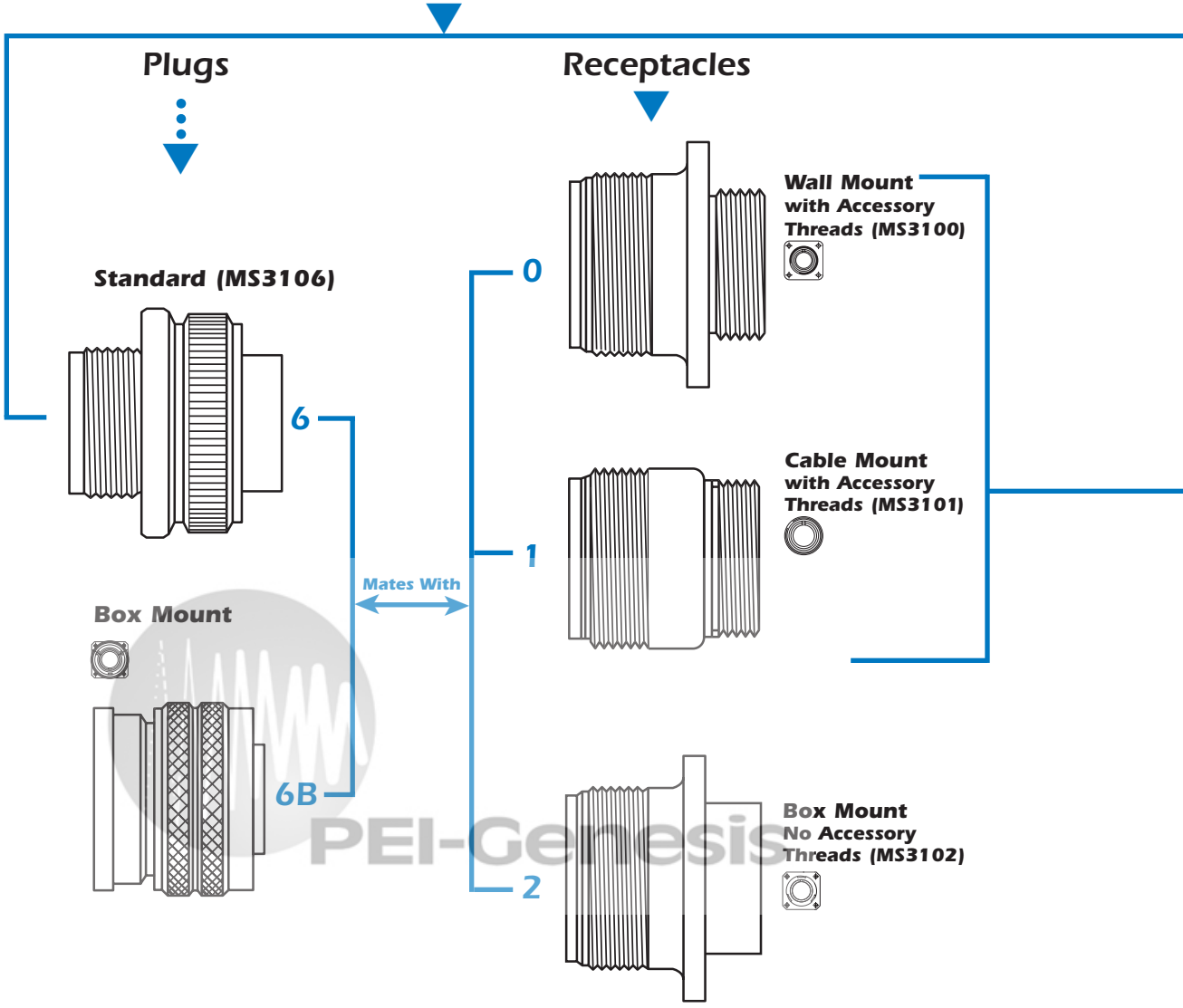
AIT/MS Series How to Order

There are four versions of MIL-DTL-5015 connectors included in this catalog. Construct your part number from the How-To-Order presentation on ➥ pages 22-23.

Follow these 8 steps to create your part number. . .

STEP 1

Select Shell Style, Plug or Receptacle



PEI-Genesis

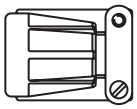
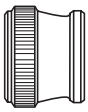
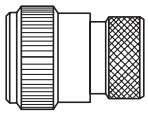
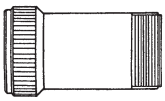
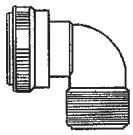
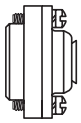
Create your part number using these eight steps

(example)

AIT	6	A	A	24-21	S		S	-472
Series Prefix	1 Shell Style	2 End Bells (if omitting endbell, enter - (dash))	3 Cable Clamp/ Boot (if needed)	4 Layout	5 Contact	6 Rotation	7 Contact Type	8 Plating/ Modifications

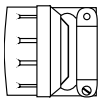
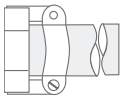
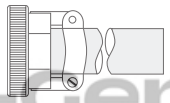
* See pages 41-42 for Amphenol order codes.

STEP 2
Choose Endbell

- **E** —  **MS Style (E/F) Standard Clamp**
- **RV** —  **No Clamp**
- **G** —  **Heat Shrink**
- **L** —  **Long Extender**
- **A** —  **Standard Extender**
- **T** —  **MS Style (MS3108) 90°**
- **R** —  **MS Style Low Profile**
- **P** —  **Potting** * Potting Compound see page 261.

STEP 3
Choose Cable Clamp or Heat Shrink Boot
(if applicable)

Heat Shrink Boot
See pages 258-260.

- **C** —  **MS3057-C**
- **A** —  **MS3057-A**
- **9767-** —  **9767-**

STEP 4
Choose Layout
See pages 50-69.

STEP 5
Choose Contact
- **P** = Pin
- **S** = Socket

STEP 6
Choose Rotation
See pages 59-69.
(omit for normal)
- **W, X, Y, Z**

STEP 7
Choose Contact Type
- **S** = Solder
- **C** = Crimp*
- **H** = PC**
- **0** = Less contacts

* When using a "C" in part number, the connector is supplied with the standard size crimp contacts for its layout. Bolded part numbers on page 24 indicate crimp contact. If reduced or enlarged crimp contacts are required, specify connector 0 (less contacts) and order contacts separately.

** See page 32 for post diameters and lengths.

STEP 8
Choose Plating/ Modifications

CONTACTS
- **B30** = Gold 50µ Gold over Nickel
  Omit for silver contacts
- **T** = Thermocouple
- **RDS** = RADSOK (Socket only) 8,4,0

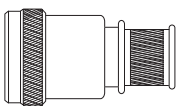
SHELLS
- **023** = Electroless Nickel (RoHS with crimp only)
- **024** = Green Zinc Cobalt
- **025** = Black Zinc Cobalt (RoHS with crimp only)
- **027** = Conductive Black Zinc Cobalt
- **G96** = Black Anodized
  Omit for olive drab chromate over cadmium (MS Style)
- **116** = Less Pre-tinned Solder Cups
- **472** = 116&025 mod codes (RoHS)
- **548** = 116&023 mod codes (RoHS)

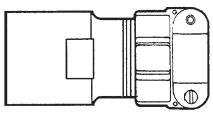
MATERIALS
- **L** = Low Smoke Zero Halogen
- **V** = High Temperature Viton®
  Omit for standard Neoprene

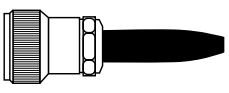
Viton is a registered trademark of DuPont Dow Elastomers

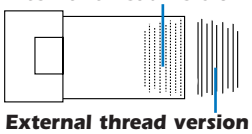
Standard Specials —
Call with NPT thread size, Sealtite conduit diameter, or cable outside diameter.

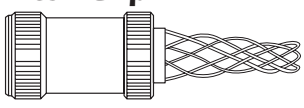
Shielded Cable

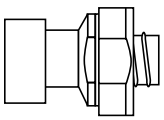

Shielded Cable


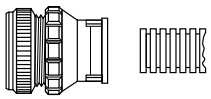
Gland Seal


Low Cost Gland Seal


Internal thread version

External thread version

Mesh Grip


Conduit Metal


Conduit Plastic
See pages 262-263.


PEI-Genesis