Amphenol AIB/GT Series MIL-DTL-5015

IMPROVED COUPLING OVER THREADED MIL-DTL-5015

The AIB/GT Series replaces the threaded coupling used in MIL-DTL-5015 with a positive, quick-mating, three-point reverse bayonet lock for improved performance. These Amphenol connectors are an ideal cost-effective option for applications requiring reliability in harsh environments, and is the world-standard for rail, mass transit, and military ground vehicle applications. This series has the same shell dimensions, contact layouts, contacts, and performance characteristics as the MIL-DTL-5015 threaded connectors; however, the two series do not intermate. They are sealed to withstand moisture, condensation, vibration and flash-over. Over 180 contact layouts are available, in variations that allow for just power, just signal, or a mix of both contact types.

- Meets NATO specification VG95234

COMMERCIAL & MILITARY

AIB/GT series connectors are made in accordance with German military specification VG95234 and MIL-DTL-5015. Originally designed for NATO combat vehicles, aircraft, and airborne equipment, these rugged connectors are now in a broad range of demanding commercial applications from trucks to industrial robots.

APPLICATIONS

Industrial environments requiring extreme environmental reliability and ease of mating and unmating, such as:

- Power generators
- Battery systems
- Engines
- Sensors
- Motion control
- Off-road vehicles
- Earth-moving equipment
- Ships
- Railroad equipment
- Mobile equipment
- Industrial machinery
- Telecommunications
- Mass transit

FEATURES

SIMPLE AND FAST MATING AND UN-MATING

AIB/GT series connectors use a unique “reverse bayonet” coupling system that allows for mating and un-mating with a simple 120° rotation without compromising shock, vibration, or moisture resistance. The large, open ramps are easily cleaned of mud or other contaminants. The ramp coupling system eliminates the possibility of cross-threading and thread damage possible with standard MIL-DTL-5015 threaded connectors. This design is easier to mate in cold weather, tight spaces, or on equipment which must be disassembled frequently.

SHOCK AND VIBRATION RESISTANCE

AIB/GT series connectors are supplied with military-standard resistant sealing and a three-point bayonet coupling nut. The three-point bayonet coupling incorporates a wave spring and washer specified by the rail industry. AIB/GT series connectors pass the most stringent tests of shock and vibration performance while maintaining proper continuity and water tightness. Rugged aluminum alloy shell and hardware are light in weight yet highly resistant to damage.

FEATURES

AUDIBLE, VISUAL, AND TACTILE CONFIRMATION OF MATING

AIB/GT series connectors provide three independent checks that the connector halves are mated. When the coupling nut is fully rotated, the three studs snap into the end of the ramps with a loud “click” (audible). The user can feel the bolts click into the grooves (tactile). Blue dots on the receptacle and coupling nut are aligned when the connector is properly mated (visual).

ENVIRONMENTAL

The sealing is not compromised by any of the operating conditions defined in MIL-DTL-5015 and is completely watertight when mated.

BROAD TEMPERATURE RANGE

These connectors will operate in temperatures from -67˚ to +257˚F (-55˚ to +125˚C). High-temperature and zero-halogen insulators are also available. Contact us for ordering information.

WIDE RANGE OF WIRE GAUGES AND CURRENT-CARRYING CAPABILITY

Up to 150 amps with accommodations for wire gauges from size 26 to size 0 AWG.

WIDE VARIETY OF CONTACTS

High-reliability screw machine contacts with silver or gold plating are available in sizes from 20 to 0 to accommodate wire gauges from 26 to 0 AWG. Solder, crimp, PC, coax, and thermocouple contacts are available.

AIB/GT connectors use rail industry-standard crimp contacts that are completely interchangeable with other rail connectors such as Litton/Veam CIR series.

INTERMATEABLE AND INTERMOUNTABLE WITH ALL VG95234 CONNECTORS

The standard MIL-DTL-5015 layouts and dimensions ensure intermateability and intermountability with all connectors made in accordance with VG95234.

All AIB/GT connectors are intermountable with standard threaded MIL-DTL-5015 connectors, often making it possible to upgrade without changing panel cutouts or clearances.

TECHNICAL SPECIFICATIONS

MATERIALS & FINISHES

Shell	Aluminum alloy. (Can be grounded)
Plating	Olive drab chromate coating over cadmium plating, conductive black alloy, non-conductive black alloy, electroless nickel, gray zinc nickel, green zinc, and black anodized
Contacts	Copper alloy
Platings	Hard silver plating or gold plating
Insulator*	Neoprene
Seals	Silicone, Neoprene, or Viton®**

*Optional zero-halogen and high-temperature insulators are available. Contact us for information.
**Viton® is a registered trademark of DuPont DOW Elastomers

ELECTRICAL DATA

Operating Voltage/Test Voltage according to MIL-DTL-5015H

The indicated values for the operating voltage are limits concerning the electrical function. When the working voltage exceeds 50V, safety precautions must be in accordance with the following standards: VDE 0100, IEC 309-1 or applicable national standards.

Current Rating

CONTACT SIZE	TEST CURRENT (AMPS)
16/16S	13
12	23 (60)*
8	46 (69)*
4	80 (120)*
0	150 (225)*

*Test amps, multiconductor using Radsok contact

Altitude Voltage Derating* Chart

	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

* No attempt has been made to recommend operating voltages. The designer must determine own operating voltage by the application of a safety factor to the above derating chart to compensate for circuit transients, surges, etc.

† Not corrected for changes in density due to variations in temperature.

Wire Range Sizes: 26 AWG to 0 AWG (See contact selection on ⇨ pages 94-97)

Contact Resistance per MIL-DTL-5015H p 3.15

CONTACT SIZE	CONTACT RESISTANCE MILLIOHM MAX.	POTENTIAL VOLTAGE DROP IN MILLIVOLTS MAX.
16/16S	6	21
12	3	20
8	1/(0.44)*	12 (20)*
4	0.5/(0.23)*	10 (18)*
0	0.2/(0.18)*	10 (27)*

*Using Radsok contact

Insulation Resistance: @77°F (25°C) > 5,000 Megohms

MECHANICAL

Operating Temperature: -67° to +257°F (-55° to +125°C) Neoprene/ Low Smoke Zero Halogen (Flame Retardant)
-58° to +392°F (-50° to +200°C) Viton

Sealing: 33-foot submersible
Sealed when mated. ≈ IP 67 and NEMA 4P

TECHNICAL SPECIFICATIONS

Wire Sealing Range

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 used are according to MIL-W-5086 or within the listed ranges.

CONTACT SIZE	SEALING RANGE	
	INCHES	MM
16	.064 - .130	1.62 - 3.30
12	.114 - .170	2.89 - 4.31
8	.164 - .255	4.16 - 6.47
4	.272 - .370	6.90 - 9.30
0	.415 - .550	10.50 - 13.97

Insulation Strip Lengths	See Contact Selection Chart on ⇨ pages 94 and 97
Mating Life	2,000 cycles minimum (AIB/GT) 500 cycles minimum (AIBC/ACA-B)
Salt Spray	Olive drab chromate over cadmium - 500 hours Non-conductive black alloy - 48 to 200 hours Conductive black alloy - 48 to 200 hours Black anodized - 500+ hours Electroless nickel - 48 hours Gray zinc nickel - 500+ hours
Heat	Neoprene low-smoke, zero-halogen (LSZH) 257˚F (+125˚C); Viton 392˚F (+200˚C)
Chemical Resistance	Diesel Fuel JP-4 Hydraulic Fluid Gasoline 48-hour intermittent spray for each chemical with no deterioration, followed by Contact Retention (CR), Insulation Resistance (IR), Dielectric Withstanding Voltage tests (DWV)
Corrosion Resistance	Olive Drab Cadmium-Plated 48 hours per MIL-DTL-5015 (3.17/4.6.13)
Fluid Immersion	Hydraulic Fluid 20 hours per MIL-DTL-5015 (3.19/4.6.15) Lubrication Oil 20 hours per MIL-DTL-5015 (3.19/4.6.15)
Vibration	Per MIL-STD-810C, method 516.2, procedure VIII 1.0 g peak from 5 to 25 Hz .030" double amplitude from 25 to 57 Hz 5g peak from 57 to 500 Hz
Basic Shock	Per MIL-STD-810C, method 516.2, procedure I pulse at half-sine wave of 30g for 11 seconds
Gun fire Shock	Per MIL-STD-810C, method 516.2, procedure IV pulse at half-sine wave of 100g for 1.5 seconds
Ballistic Shock	Per MIL-STD-810C, method 516.2, procedure IV pulse at half sine wave of 200g for .5 seconds
Contact Type	Solder, crimp, PC, coax, or thermocouple. Hard silver or gold plating.
Contact Insertion	From rear with simple hand-tool. Removable, 5 cycles minimum.
Contact Retention	Pin and socket contacts are designed to resist severe vibration and repeated connection and disconnection. Contact retention and separation is tested according to MIL-DTL-5015H (4.6.6.1)

CONTACT SIZE	RETENTION FORCE MIN.
16	10
12	15
8	20
4	20
0	25

TECHNICAL SPECIFICATIONS

Number of Circuits	1 to 85
Polarization	Key and keyway plus three point bayonet with optional rotational polarization. See pages 83-93.
Rear Accessories	Maximum Torque

SIZE	IN./LB. MAX.
10SL	26
14S	44
16	50
16S	50
18	55
20	65
22	85
24	90
28	114
32	120
36	153
40	170

THERMOCOUPLE CODES		
MATERIAL	COLOR CODE	CODE
Iron	Black	IR
Constantan	Yellow	CON
Copper Alloy	–	Cu
Chromel	White	CH
Alumel	Green	AL

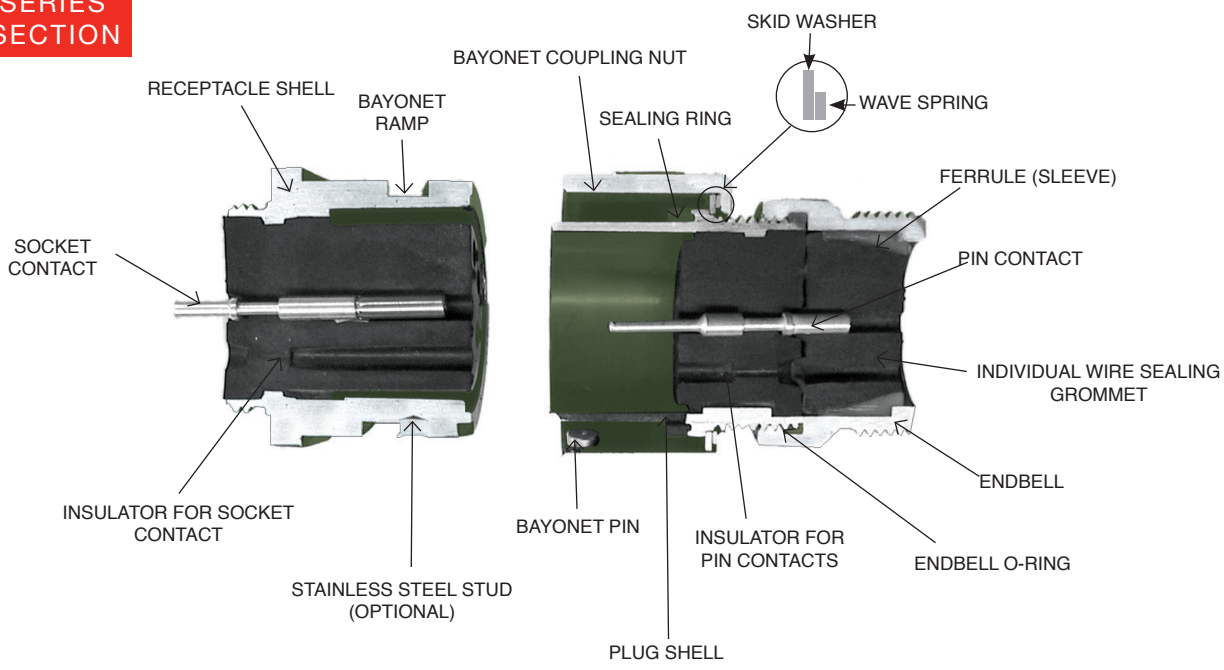
Color code is identified by small dot on wire well end of contact.

Thermocouple Types:

J = Iron-Constantan
K = Alumel-Chromel
T = Copper-Constantan
E = Chromel-Constantan

Approvals/Agency Listing	UL File# E115497

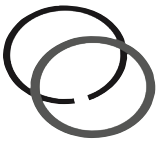
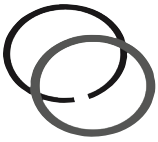
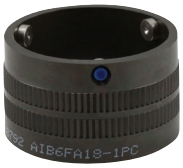
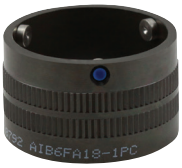
AIB/GT SERIES CROSS-SECTION



AIB/GT SERIES HOW TO ORDER

The next page shows all of the standard possibilities for AIB/GT series connectors. Follow the nine steps to create a description of the connector best suited to your application. This is not an Amphenol part number, but gives you a convenient way to select your connector. Contact us with the description for a valid Amphenol part number. If you prefer to select the Amphenol part number, see the How-To-Order Guide on pages 70-71.

Many additional options not shown are available. Contact us if your needs are not met by the options on the next page.

	COMPONENTS			
	PLUGS		**RECEPTACLES**	
	AIB/GT	AIBC/ACA-B	AIB/GT	AIBC/ACA-B
O-Ring				
Barrel/Shell				
Insert/ Insulator				
Contacts				
Wave Spring and Skid Washer (Optional)				
Coupling Nut				
Individual Wire Sealing Grommet				
Ferrule/Sleeve Compression Ring				
Endbell/ Backshell/ Cable Clamp