

AIB/GT Series

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AIB/GT Series is basically a MIL-DTL-5015 (MIL-C-5015) connector, but with an improved coupling system. AIB/GT Series replaces the threaded coupling used in MIL-DTL-5015 with a positive, quick-mating, 3-point reverse bayonet lock. AIB/GT Series shares the same shell dimensions, contact layouts, contacts, and performance characteristics as the MIL-DTL-5015 threaded connectors; however, the two series do not intermate. Over 180 contact layouts are available from 1 to 85 circuits and up to 150 amps per contact. The standard MIL-DTL-5015 layouts allow the mixing of power and signal contacts, power only, or signal only. Contacts are available in solder, crimp, or PC termination covering wire gauges from size 26 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 plus the dynamic interfacial seal at the front create an environmentally sealed assembly.

Commercial and Military

AIB/GT Series connectors are made in accordance with German military specification VG 95 234 and MIL-DTL-5015. Originally designed for NATO combat vehicles, aircraft, and airborne equipment, these rugged connectors are now widely used 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 for ease of use. This system allows mating and un-mating of the connector halves 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 quick-mating design is easier to mate in cold weather, tight spaces, or on equipment which must be disassembled frequently.

Shock and Vibration Resistant

AIB/GT Series connectors are supplied with standard military resistant sealing and 3-point bayonet coupling nut. The 3-point bayonet coupling incorporates a wave spring and washer which is 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.

Proven Reliability

AIB/GT Series connectors are used extensively in military vehicles such as the M1 Tank. They also have found applications on advanced locomotives, transit cars, and way maintenance equipment.

Features

Audible, Visual, and Tactile Confirmation of Mating

AIB/GT Series connectors provide the user with 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 confirmation). At that same moment, the user can actually feel the bolts click into the grooves (tactile confirmation). Blue dots on the receptacle and on the coupling nut are aligned when the connector is properly mated (visual confirmation).

Environmental

The sealing of this connector is not compromised by any of the operating conditions defined in MIL-DTL-5015. The connector 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. Call for ordering information.

Wide Range of Wire Gauges and Current Carrying Capability

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

Wide Variety of Contacts

High reliability screw machine contacts with silver or gold plating are available in sizes from 20 through 0 to accommodate wire gauges from 26 to 0 AWG. Solder, Crimp, PC, Coax, and Thermocouple contacts are available.

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

Intermateable and Intermountable with all VG 95 234 Connectors

The standard MIL-DTL-5015 layouts and dimensions ensure intermateability and intermountability with all connectors made in accordance with VG 95 234.

All AIB/GT Series connectors are intermountable with standard threaded MIL-DTL-5015 connectors, making it possible to upgrade without the need to change panel cutouts or clearances in most cases.

Technical Specifications

MATERIALS & FINISHES

Shell	Aluminum alloy. (Shells can be grounded)
Plating	Olive drab chromate coating over cadmium plating, black zinc cobalt, electroless 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. Call for information.

**Viton is a registered trademark of DuPont DOW Elastomers

ELECTRICAL DATA

Operating Voltage/Test Voltage According to MIL-DTL-5015 The indicated values for the "operating voltage" are limits concerning the electrical function. In any case, 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
8	46 (69)*
4	80 (80)*
0	150 (225)*

*Test amps, multiconductor using Radsok contact

Altitude Voltage Derating* Chart

MS SERVICE RATING	NOMINAL DISTANCE INCHES		OPERATING VOLTAGE		STANDARD SEA LEVEL CONDITIONS		PRESSURE ALTITUDE† 50,000 FEET		PRESSURE ALTITUDE† 70,000 FEET	
	AIRSPACE	CREEPAGE	DC V	AC (RMS)	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

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

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

Wire Range Sizes

26 AWG to 0 AWG (See contact selection on pages 70-73 )

Contact Resistance

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)*

per MIL-DTL-5015 p3.5.4

*Using Radsok contact

Insulation Resistance

@77°F (25°C) > 5,000 Megohms

MECHANICAL

Operating Temperature

-67° to +257°F (-55° to +125°C) Neoprene

Sealing

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

CONTACT SIZE	SEALING RANGE	
	INCHES	(mm)
16	.090 - .118	2.3 - 3.0
12	.126 - .177	3.2 - 4.5
8	.150 - .256	3.8 - 6.5
4	.279 - .366	7.1 - 9.3
0	.394 - .539	10.0 - 13.7

Insulation Strip Lengths

See Contact Selection Chart on page 70

Mating Life

2,000 cycles minimum (commercial) 500 cycles minimum (military)

Salt Spray

Olive drab chromate over cadmium - 500 hours
 Non-conductive black zinc - 200 hours
 Conductive black zinc - 48 hours
 Black anodized - 500+ hours
 Electroless nickel - 48 hours

Heat

Neoprene 257°F (+125°C); Low Smoke Zero Halogen (LSZH) 347°F (+175°C); Viton 392°F (+200°C)

Chemical Resistance

Diesel Fuel	48-hour intermittent spray for each chemical with no deterioration,
JP-4	followed by Contact Retention (CR),
Hydraulic Fluid	Insulation Resistance (IR), Dielectric
Gasoline	Withstanding Voltage tests (DWV)

Corrosion Resistance

Olive Drab Cadmium Plated
 48 Hrs 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

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

Pin and socket contacts are designed to resist severe vibration and repeated connection & disconnection. Contact retention and separation is tested according to MIL-DTL-5015 (3.10/4.6.6.3)

Technical Specifications

Number of Circuits 1 to 85
 Polarization Key and keyway plus three point bayonet with optional rotational polarization. See pages 59-69. ➔

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

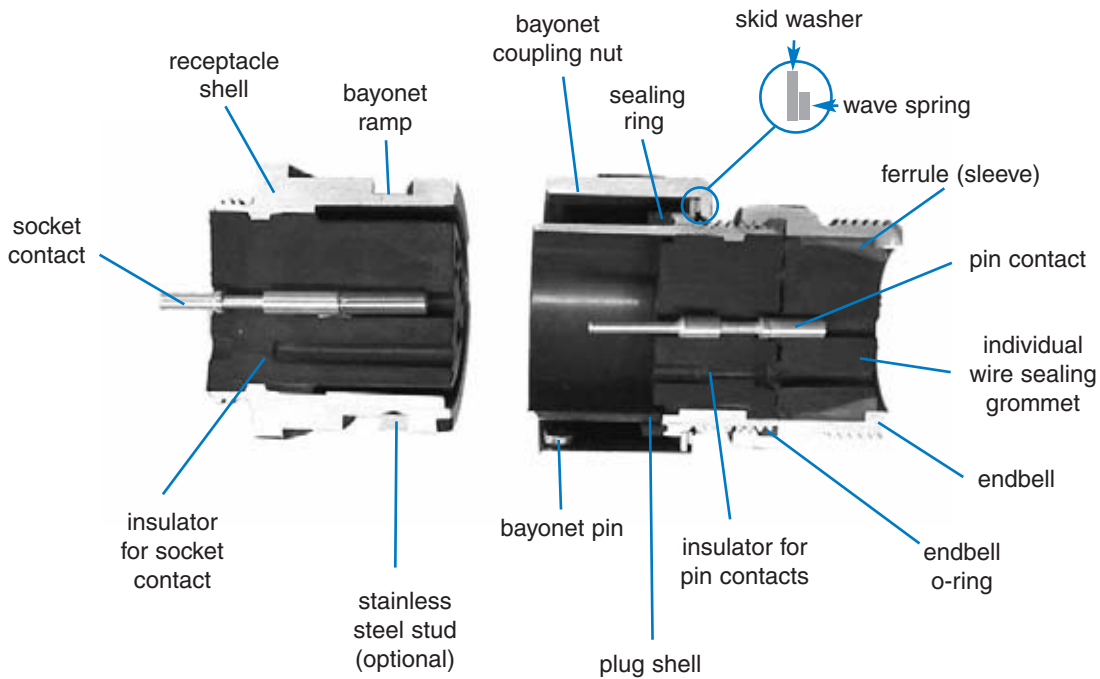
Color code is identified by small dot on wire well end of contact.

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 contains a pictograph which portrays 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 does give you a convenient way to select your connector. Call 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 94-95. ➔

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

AIB/GT Series Connectors

- SERIES** _____
- GT Circular connectors with bayonet coupling
- CONTACT STYLE/INSERT** _____
- C = Crimp
 - S = Solder
 - CY = Crimp with Viton
 - SY = Solder with Viton
 - CL = Crimp with low smoke/flame retardant inserts
 - SL = Solder with low smoke/flame retardant inserts
- SHELL STYLE** _____
- 00 Wall mount receptacle
 - 01 Inline receptacle
 - 02 Box mount receptacle
 - 020 Box mount receptacle with accessory threads
 - 030 Square flange receptacle - rear panel mount (Most Popular)
 - 05 Dummy receptacle
 - 06 Straight plug (Most Popular)
 - 062 Straight plug with deep serrated coupling nut*
 - 064 Panel mounted plug with heavy duty coupling nut
 - 065 Straight plug with long heavy duty coupling nut
 - 07 Jam nut receptacle - rear panel mount
 - 070 Jam nut receptacle with accessory threads
 - 08 90° angle plug
 - TB Thru-bulkhead

CONNECTOR SHELL VARIATIONS

- Omit for standard olive drab with silver plated contacts
- (G96) Black anodized
 - (014) Olive drab cadmium plate, nickel base
 - (A24) Gold/nickel plated contacts
 - (025) Black zinc cobalt
 - (027) Conductive black zinc cobalt
 - (024) Green zinc cobalt
 - (B30) Gold



(RDS) Radsok power contacts 8, 4 & 0 socket contact only

ALTERNATE INSERT ROTATION

"W", "X", "Y", "Z" designates that the insert is rotated in its shell from a normal position. No letter required for normal (no rotation) position.



See pages 59-69.

CONTACT STYLE

- P designates pin contacts
- S designates socket contacts

SHELL SIZE & LAYOUT



See pages 50-69.

CONNECTOR CLASS

- A General duty, threaded backshell, no cable clamp, no grommet
- AF General duty, threaded backshell, cable clamp, no grommet
- F General duty, threaded backshell, cable clamp, with grommet
- CF General duty, threaded endbell, gland-seal cable clamp, no grommet
- CFZ General duty, threaded endbell, gland-seal cable clamp, with grommet
- G One-piece, heat shrink endbell adaptor, with grommet (use with heat shrink boot – see Accessories, pages 184-185)
- G2 Two-piece, heat shrink endbell adaptor, with grommet (use with heat shrink boot – see Accessories, pages 184-185)
- LC Long threaded backshell, gland-seal cable clamp, with grommet, and basket-weave cord grip (please call with cable O.D.)
- LCF Long threaded endbell, gland-seal cable clamp, no grommet
- LCFZ Long threaded endbell, gland-seal cable clamp, with grommet
- R General duty, threaded backshell, no cable clamp, with grommet
- RV General duty, short backshell, with grommet (may be used with heat shrink boot – see Accessories, pages 184-185)
- CFGG General duty, threaded endbell, gland-seal cable clamp, no grommet, rubber-covered coupling nut (shell styles 06 and 08 only)
- PP Panel plug, only for shell styles 06 and 064
- LT Long back shell for metal core conduit, with grommet (please call with conduit O.D.)
- PFC For plastic, flexible conduit (please call with conduit O.D.) see pages 186-187.
- SL Long backshell for use with PG gland-seal style cord grip (please call with cable O.D.)

Mateability with identical contact arrangements

Connector Style	Mateable with Style
GT00	GT06/062/064/065/08
GT01	GT06/062/064/065/08
GT02	GT06/062/064/065/08
GT020	GT06/062/064/065/08
GT030	GT06/062/064/065/08
GT06/062/064/065	GT00/01/02/020/03/030/05/070/TB
GT07/070	GT06/062/064/065/08
GT08	GT00/01/02/020/03/030/05/070/TB
GTTB	GT06/062/064/065/08

Have a unique requirement?

Doing standard modifications quickly is our specialty! To save cost, minimize lead time, and reduce assembly labor, please call 800-523-0727 for engineering assistance.