

Amphenol® Industrial Connectors

Amphenol®/Pyle® Interconnection Products

SL-381-3



Amphenol's capabilities meet a multitude of industrial applications.



Amphenol

Amphenol Industrial Connectors

97 Series



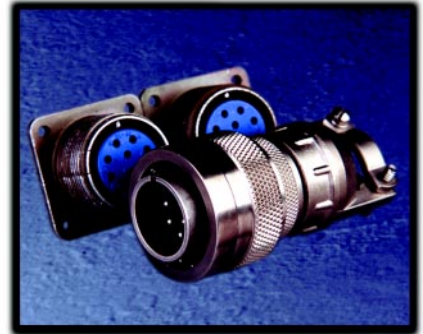
[Reference Catalog 12-022](#)

Pre-Earth/FMLB



[Reference Prod. Sheet #187](#)

Swiftmate®



[Reference Brochure SL-390](#)

APPLICATION

Low cost, general duty, non-environmental cylindricals with hard dielectric inserts.

STANDARDS

MIL-C-5015 type.
UL recognized.
CSA certified.

COUPLING TYPE

Threaded coupling (intermateable with AC threaded and MIL-C-5015 connectors).

TERMINATION TYPE

Solder - 310X types.
Crimp rear-release - 410X types.

ENVIRONMENTAL PERFORMANCE

Operating temperatures from -55°C to +125°C.

ELECTRICAL PERFORMANCE

Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- Solid or split shell construction.
- 6 shell styles, 128 insert patterns.
- Standard OD cadmium finish, optional finishes include non-cadmium zinc alloy.
- Thermocouples & reel assembly contacts.
- 97 Series reverse bayonet style available.
- Variety of backend accessories.

TYPICAL MARKETS

- Machine Tool
- Semiconductor Test & Assembly
- Welding Equipment

Grounded contact to shell provides first mate/last break capability and protects sensitive circuits and operators.

MIL-C-5015 type shells and inserts. Intermateable with MIL-C-5015 and 97 series. Conformity with European safety standards (DIN VDE 0627) and certified through TUV Product Service GMBH.

Threaded coupling.

Solder termination.

Meets Class IP67 protection against water and dust.

Operating voltage to 3000 VAC (RMS) at sea level.

- 3 shell styles, 7 insert patterns.
- Standard plating is conductive black zinc alloy; green zinc plating optional.

- Servo and Power Motors
- Machine Tool
- Factory Automation

Rapid mating plug, general duty. Offers solutions and feature enhancement for equipment already in the field.

Mates and locks to MIL-C-5015 type threaded receptacles.

Spring pressure coupling - simple push to mate/pull to unmate provides positive locking.

Accommodates most 97 series solder type inserts and contacts.

Meets vibration requirements of MIL-STD-810, category 10 for general equipment.

Operating voltage to 3000 VAC (RMS) at sea level.

- Straight plug, solid backshell design only.
- Available in electroless nickel; black non-conductive optional.

- Process Control
- Test Equipment
- Factory Automation



Amphenol offers more choices, more solutions, more options than any other interconnection manufacturer, and continues to develop products for emerging technologies. Amphenol and Pyle Industrial provides reliable, proven and cost effective products that will meet or exceed your industrial interconnect requirements.

Amphenol is an ISO 9001 manufacturer and a global leader in the connector marketplace.

MS/Standard MIL-C-5015



[Reference Catalog 12-020](#)

AC Threaded & AC-B Bayonet



[Reference Catalog 12-025](#)

GT Series



[Reference Catalog 12-024](#)

APPLICATION

General duty, environmentally resistant cylindricals with resilient neoprene inserts.

Modification of MIL-C-5015 connector family, designed for industrial applications. General duty, environmentally resistant.

Heavy duty, rugged connector, environmentally resistant. Preferred connector for mass transit.

STANDARDS

MS versions produced in strict accordance with MIL-C-5015 specifications.

- Class A, general usage
- Class C, pressurized
- Class E, F & R, environmental

Dimensions, styles and performance equate to MIL-C-5015 and the 97 Series.

UL recognized. Utilizes MIL-C-5015 inserts. Intermateable with existing VG95234 connectors.

COUPLING TYPE

Threaded coupling

Threaded coupling AC Series. Reverse bayonet coupling AC-B Series. Rated to 500 couplings min.

Reverse bayonet coupling (quick mating, audible, visual and tactile full mating indicators). Rated to 2000 couplings min.

TERMINATION TYPE

MS versions are solder. Non-MS versions in crimp or solder.

Crimp or solder termination.

Crimp or solder termination.

ENVIRONMENTAL PERFORMANCE

Operating temp. from -55°C to $+125^{\circ}\text{C}$. Resilient inserts provide high dielectric strength and moisture barrier. IP67 performance in environmental versions.

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Operating temp. from -55°C to $+125^{\circ}\text{C}$; with Viton inserts from -50°C to 200°C . Resilient inserts provide high dielectric strength and moisture barrier. IP67 performance in environmental versions.

ELECTRICAL PERFORMANCE

Operating voltage to 3000 VAC (RMS) at sea level.

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Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 5 shell styles, 286 insert patterns.
- Hermetic configurations available.
- Standard OD cadmium finish, optional finishes include non-cadmium zinc alloy.
- Coax, thermocouple and PCB contact options.
- Variety of backend accessories.

- 5 shell styles, 275 insert patterns.
- Nickel and black zinc plating, plus other finishes available.
- Variety of backend accessories including PG adapters.

- Over 40 varieties of shell styles and backend accessory combinations.
- Optional insert materials: Neoprene, Viton, or low smoke/flame retardant.
- Variety of platings including non-cadmium.
- Resilient cover coupling nuts available.
- GT-PC with first mate/last break features.

TYPICAL MARKETS

- Heavy Equipment/ Off Road Vehicles
- Mass Transportation
- Power Generation

- Process Control
- Sensors
- Test and Measurement

- Mass Transportation
- Power Generation, Petro-Chemical
- Heavy Equipment, Geophysical



Industrial

Amphenol Industrial Connectors

Amphe-Lite™



[Reference Catalog 12-094](#)

P-Lok®



[Reference Pyle P-Lok Catalog](#)

Amphe-Power™ with RADSOK® Technology



[Reference Brochure SL-391](#)

APPLICATION

Commercial 38999, Series III type connector for higher performance industrial usage.

Standard duty, control and signal rapid mating connector for use where MIL-C-5015 threaded connectors could be used.

High amperage capability connector for the most demanding industrial and transportation applications.

STANDARDS

Offers 38999 type high performance capabilities for severe environment applications, yet is cost effective enough for general duty and non-environmental use as well.

Same electrical characteristics and approximate size as MIL-C-5015 connectors, but is not intermateable with 5015 types.

Family consists of: P-Lok, GT and 5015 (AC) connectors enhanced with RADSOK contacts (hyperbolic, stamped grid configuration within the socket) that handle up to 150% higher amperages than standard contacts.

COUPLING TYPE

Threaded coupling (quickly, completely mates in one 360° turn of coupling nut).

Spring pressure coupling - simple push to mate/pull to unmate provides positive locking.

Amphe-Power P-Lok is push-pull coupling; Amphe-Power GT is reverse bayonet; Amphe-Power 5015 (AC) is threaded

TERMINATION TYPE

Crimp termination.

Crimp or solder termination.

Crimp termination.

ENVIRONMENTAL PERFORMANCE

Operating temp. from -55°C to +125°C. Class F provides excellent EMI shielding. Class X provides a non-conductive finish. IP67 rating for environmental sealing. Composite shells resist severe corrosion.

Environmentally sealed - rated to IP65 specifications. Black hard coat finish provides long service life.

Amphe-Power connectors are all 5015 type performance: Operating temp. from -55°C to +125°C. GT and 5015 styles are IP67 similar performance in environmental versions; P-Lok is IP65.

ELECTRICAL PERFORMANCE

Operating voltage to 900 VAC (RMS) at sea level.

Operating voltage to 3000 VAC (RMS) at sea level.

Current Amphe-Power lines support from 50A to 500A continuous duty.

OPTIONAL FEATURES

- 3 shell styles, 59 insert patterns.
- Twinax, coax, filter contacts and fiber optic termini can be incorporated - ideal for communications equipment.
- Ground plane version and high decoupling version available.

- 4 shell styles, 80 insert patterns.
- Variety of backend accessories.

- 3 series offered - most shell styles avail.
- RADSOK contacts currently available in size 8 (69 amps), size 4 (120 amps) and size 0 (250 amps).
- Hybrid arrangements with RADSOK and power contacts tailored to meet customer needs.

TYPICAL MARKETS

- Communications
- Medical Equipment
- Automotive

- Robotics
- Factory Automation
- Entertainment Equipment

- Power Generation, Petro-Chemical
- Mass Transportation



This overview brochure references detailed catalogs for each connector type. Please see our website for on-line catalogs, or contact us by phone or fax for more information concerning the connectors covered in this publication, or if there are special application needs.

Website: www.amphenol-industrial.com Phone: 607-563-5011 Fax: 607-563-5157

MIL-C-26482, Series 1



[Reference Catalog 12-070](#)

Over-Molded Cable



Contact Amphenol Industrial Operations
for further information

Quelarc®



[Reference Brochure QA-300](#)

APPLICATION

Miniature, environmental connector.
Large family with wide variety of styles.

Cables can be designed with a custom
overmold to any Amphenol cylindrical for
almost any industrial application.

Heavy duty plugs and receptacles
designed for use on portable, detachable
equipment.

STANDARDS

MS versions produced in strict accor-
dance to MIL-C-26482, Series 1.
MS-PT Service Classes E, F and P types
are UL recognized.
Several non-MS types offered.

Standards are design specific to
connector style.

UL listed.
CSA certified.
Conform with the National Electrical code
requirements.

COUPLING TYPE

Three point bayonet coupling.
Threaded PC types also available.

Coupling types are design specific to
connector style.

Push-pull or threaded coupling.

TERMINATION TYPE

Crimp or solder termination.

Termination types are design specific to
connector style.

Solder contacts are standard. Ground
contacts are pressure type terminals.

ENVIRONMENTAL PERFORMANCE

Operating temp. from -55°C to +125°C.
Resilient inserts provide high dielectric
strength and moisture barrier.

Overmold seals to the rear of the
connector and to the cable jacket providing
moisture sealing. Cables may be designed
to meet any environmental performance
requirement.

Rugged thick wall construction ensures
safe operation, uninterrupted service and
long life. Arching is prevented from pole-
to-pole and from poles to ground. Suitable
for operating in moisture conditions.

ELECTRICAL PERFORMANCE

Operating voltage to 1000 VAC (RMS) at
sea level.

Cables may be designed to meet any
electrical performance requirement.

Circuit breaking 30, 60 and 100 amperes
capability and 600 VAC power capability.

OPTIONAL FEATURES

- 7 shell styles, 57 insert patterns.
- Hermetic configurations available.
- Standard OD cadmium finish, optional
finishes include non-cadmium zinc alloy.
- Coax, thermocouple and PCB contact
options.
- Variety of backend accessories.

- Variety of materials: Neoprene, Hypalon
and others.
- Variety of lengths and configurations
designed to customer specifications.
- Personalization/special stamping (such as
company logo or cable part number) on
the overmolds is available.

- Designs for grounding, first mate/last
break available.

TYPICAL MARKETS

- Instrumentation/Control /Machine Tool
- Communications
- Geophysical

- All types of Industrial Markets

- Power Generation
- Instrumentation/Control



Industrial

Amphenol Industrial Connectors

Star-Line®/Star-Line EX®



[Reference Catalog 12-054](#)

Star-Lok®



[Reference Catalog 12-054](#)

Trans-Power®



[Reference Pyle Transportation Brochure](#)

APPLICATION

Heavy duty, for high power applications. Star-Line EX for harsh, potentially explosive environments.

Heavy duty, for similar applications as Star-Line series, but with reverse bayonet coupling.

Head-end power connectors for commercial rail systems.

STANDARDS

UL listed and CSA listed for circuit breaking capability. Equals or exceeds MIL-C-5015 E and R specifications.

UL listed and CSA listed for circuit breaking capability.

Meets Amtrak specification D-77-24, APTA #RP-E-016.

COUPLING TYPE

Double-lead Acme threads - complete coupling in one turn of coupling nut.

Spring-loaded reverse bayonet coupling - simple push to mate, and a simple eighth turn and pull to unmate.

Slip-fit, double-seated for environmental protection. Retention by receptacle cover or optional accessories.

TERMINATION TYPE

Solder, crimp and pressure terminals. Circuit breaking power and control types.

Solder, crimp and pressure terminals. Circuit breaking power and control types.

Crimp termination per Amtrak and APTA specifications.

ENVIRONMENTAL PERFORMANCE

Environmentally rated to IP67. Star-Line: oper. temp. range to 257°F; Star-Line EX: oper. temp. range to 750°F. Star-Line EX is Cenelec certified for use in Zone1-IIc hazardous environment. Hard anodized shells resist corrosion.

Meets similar operating conditions as Star-Line series: Environmentally rated to IP67; Temp. range to 750°F.

Raintight. Operating ambient temperature -57° to +110° F.

ELECTRICAL PERFORMANCE

Up to high amperage of 1135 amps at 1000V / AC or DC.

Up to high amperage of 1135 amps at 1000V / AC or DC.

Up to 600 Volts, 400 Amps.

OPTIONAL FEATURES

- 3 retention styles with captive contacts or insertable/removable contacts.
- 4 styles, over 150 inserts; several varieties of backend hardware.
- Star-Line EX can be terminated onto unarmored/armored/sheathed cables built to several popular standards.

- Same choices of inserts, contacts, tooling and hardware accessories as Star-Line series.

- Available in varying lengths, and optional color coding.
- Control only loop plugs available.
- Integrally molded or repairable styles.

TYPICAL MARKETS

- Mass Transportation
- Automotive

- Mass Transportation
- Automotive

- Mass Transportation



Other Industrial Products

Amphe-Base™



- 2 or 3 position molded connector for backplane, PC board or bus bar applications
- Molded-in circuit identification
- One-handed mating and unmating
- No tools required for socket insertion

Low Mating Force Brush Contact



The [Bristle Brush contact system](#) provides smooth, low friction interfaces and multiple points of contact. The advantages are:

- 70%-90% reduction in mating forces
- Stable electrical characteristics
- Increased durability (20,000 + mating/unmating cycles)
- High contact count capability

High Volume Molded Products



- Custom molded interconnects designed to specific application specifications
- Amphe-Cor™ (shown in photo) is a [molded RADSOK contact housing](#) for an info-comm application
- Available for power, signal, RF or fiber optic contacts
- Quick turn design and proto-typing with Pro-Engineering capabilities

27 Pole Train-line



- 27 pole MU and communication receptacles and jumpers for rail applications
- Designed to Amtrak and APTA specifications
- Receptacles supplied with or without leads

Amphe-Flex™



- Flex circuitry is available for use with Industrial [Amphe-Lite™](#) connectors in flat or sculptured styles
- Used for attachment to printed circuit boards
- Sculptured® Flexible Circuits with built-in terminations eliminate the failures associated with crimped or solder-on contacts

Cord Grips



- Large family of [cable pass-thru and strain relief devices](#) - straight, 45 degree and 90 degree
- Provide liquid tight strain relief of cord, cable and flexible conduit
- For panel board or threaded hub applications
- UL listed and CSA certified

Freight-Mate™



- Connector/cable assembly for ECP (electronically controlled pneumatic) braking systems
- Freight-mate I style is AAR approved
- Automatic decoupling
- Meets railway applications such as communication and tracking equipment, signaling equipment, end of train units

EMI Filter



- EMI shielding protection devices can be integrated into the high performance Industrial [Amphe-Lite™](#) connector
- Cost effective alternative to mounting discrete circuit protection devices inside the box
- Provides weight and space savings necessary for modern electronic systems

Fiber Optics



- [Amphe-Lite™](#) Industrial connectors are available with Amphenol® fiber optic termini for high speed and secure optic transmission
- Incorporate MIL-T-29504/4 & 5 fiber to fiber termination system
- Insertion losses range from .5 to 1.5dB

RADSOK® High Amperage Contacts



[RADSOK Contacts](#) (see Amphe-Power connectors) offer the following advantages:

- Lower contact resistance
- Low millivolt drop performance
- Higher current capacity with minimized temperature rise
- Reliability under vibration and shock
- High quality, consistency, lower cost

Amphenol Solutions by Design

Engineering Expertise

We have the engineering resources to address most any industrial interconnection design need. Our knowledge of industrial applications in such markets as motion control, communications, rail mass transit, heavy equipment, petrochemical and power generation have made us a leader in interconnection solutions for these industries.

Custom Connector Manufacturing

We have the experience to design and manufacture a vast array of interconnect products to meet your specific application demands. We assist in the design of products to meet environmental stresses such as extreme temperatures, high insertion forces, vibration and most corrosive environments.