

HIGH POWER APPLICATIONS

Introduction/
Pkg. Solutions/
Brush Contact

LRM (Line Replaceable Modules)
Options - Fiber Optics / Staggered/
GEN-X
Hi Speed/RF/Power

Ruggedized
VME64x /
VITA 60, 66

High Density
HDB3
HSB3
Hi Speed

Low Mating Force MIL-DTL-55302
Hybrids - Signal/Power / Standard
Coax/Fiber Optics
Brush
Docking Conn./
Accessories/Install.

Rack & Panel
Brush
Ruggedized

LMD/LMS
Rectangular
Interconnects

Other
Rectangular
Interconnects

The RADSOK® Design:

RADSOK® technology is based upon a stamped and formed flat grid, uniquely twisted into a hyperbolic geometry to provide robust, high density contact to the mating pin contact.

Most pin and socket technologies rely upon spring (beam element) properties of the contact elements, which tend to weaken over time. Unlike most other pin and socket solutions, the RADSOK® also utilizes the tensile strength properties of the flat, high conductivity alloy grid. This provides the high normal forces required for conductivity while also providing large conductive surface area. Correspondingly low voltage drop and low temperature rise are also achieved while maintaining low insertion forces.



RADSOK® Key Features:

- Socket cylinder within female contact has several equally spaced longitudinal beams twisted into a hyperbolic shape
- As male pin is inserted, axial members in the female half deflect, imparting high current flow across the connection with minimal voltage loss.
- The hyperbolic, stamped grid configuration ensures a large, coaxial, face-to-face surface area engagement.
- Ideal for crimp termination applications requiring repeated mating cycles and high current with low milli-volt drop.

RADSOK® Advantages:

- **High Reliability**
Unique RADSOK® design and construction technology create an electrical contact interface that exceeds typical interconnect requirements. Applications in aerospace, medical, industrial, automotive, mining, offshore, and other harsh environments depend on high reliability of the Amphenol RADSOK® technology.
- **Low Contact Engagement/ Separation Forces**
The hyperbolic lamella socket contact construction distributes normal forces over a high percentage of the mating pin surface. This creates a smooth, even engagement effort. This force distribution also contributes to excellent performance in vibration applications with resistance to typical fretting corrosion.
- **Low Contact Resistance**
The large interface area between the socket lamella and pin surface result in very low contact resistance, enabling the RADSOK® contacts' high current ratings compared to traditional power contact designs.
- **High Mating Cycle Durability**
RADSOK® contacts with typical silver plating finishes have demonstrated survival of 20,000 mating cycles. Specialized plating and contact lubricants can extend cycle life to 200,000 matings or higher. Even with continuous exposure to harsh environmental abuse (salt, sand, and high humidity), RADSOK® contacts have been tested to maintain low contact resistance beyond 10,000 mating cycles.

The RADSOK® (**RA**Dial **SO**cKet) High Amperage, Low Insertion Force Electrical Terminal provides value to your purchasing, engineering, quality and manufacturing objectives.

RADSOK® Technology brings power to the board in a wide variety of applications such as:

- Replacement of ring terminals (lugs) on threaded studs
- High current PCBs
- Communication towers
- Backplane power
- Uninterrupted power supplies
- Fuel cell connectors
- Hybrid electric vehicles
- AC inductive drive motors
- Power distribution modules
- Busbar terminations (plug-in hardware/modules)
- "Pluggable" breakers
- Battery terminals
- Contacts with RADSOK® technology give 50% more ampacity.
- RADSOK® contacts can be designed to fit any housing.
- Combinations of RADSOK® and high speed copper contacts in the same interconnect package

RADSOK® Technology brings high power to Military and Aerospace applications:

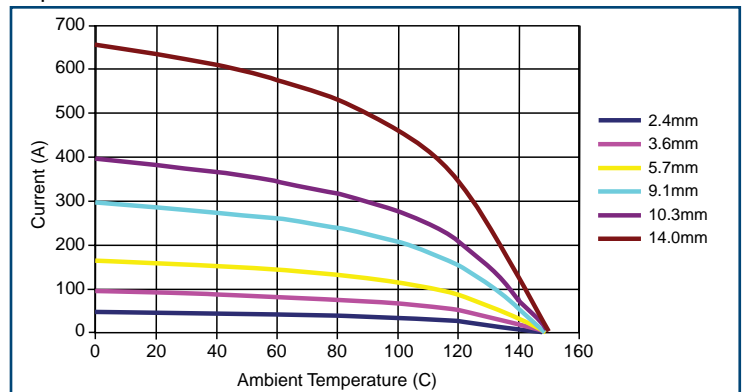
- Naval
- Military & Commercial Avionics
- Military Vehicles
- Missiles and Ordnance
- C4I

There are many developing military applications of RADSOK® technology - combinations of RADSOK® and high speed copper contacts in the same interconnect package has become a requirement in rectangular as well as circular connectors.



RADSOK® Derating Chart - Temp. vs. Current

Based on single conductors in free air. Wire cross-section same size as pin contact cross-sectional area.



HIGH POWER FOR BOARD LEVEL CONNECTORS

Amphenol offers high current single-point connections for PC boards with RADSOK® contacts:

- PowerBlok™
- RADSERT™
- PGY™

The compact footprint design of these products can supply up to 120 Amp to the board which preserves surface area and provides more flexibility in board design.

- PowerBlok is available in a 3.0mm (70 AMPS) which is press-fit into the PCB
- RADSERT's are available in 2.4mm (35 AMPS) and 3.6mm (70 (AMPS). Offered in solder or press-fit styles, and available for many board thicknesses.
- RADSOK PGY's are available in 3.6mm (70 AMPS) and 5.7mm (120 AMPS). Pgy's are connected to the PDB through a solder reflow process.

Standard and Custom-Developed Solutions

- In addition to the various standard sizes of RADSOK® components, custom-developed solutions are also available. Amphenol has the global design, engineering and manufacturing resources to provide RADSOK® sockets pressed into busbars, crimped to cables, assembled into connectors, assembled into customer or Amphenol designed specialized electrical devices, or as stand-alone components. Amphenol also manufactures a full compliment of mating pin contacts for any application.
- Steady-state current capacities for standard RADSOK® products range from 50 amps to over 1000 amps.
- Amphenol connectors with RADSOK® contacts are offered with a variety of positive-locking features that insure and maintain fully-mated connections.
- Sealing (Sealtac™) and high voltage hot break options are available within the RADSOK® itself or within a very wide range of IP rated connector housings to provide environmental protection to the contact area.



RADSOK® contacts in LRM connectors: see page 30 of the LRM Section.



RADSOK® contacts in Ruggedized Rack and Panel Connectors - see pages 97 & 98.

Rectangular Connectors for High Power Applications

Amphenol's offers new Power Interconnects for your high power applications featuring RADSOK® technology. This multi-pole family of connectors is designed for 1750 VRMS or 2450 VDC at 400 A continuous.

Design features include:

- Easy to identify shell polarization
- Split-insert construction for ease of assembly of contacts
- Shell to shell bottoming for electrical conductivity/EMI protection
- Customer programmable keying and a latch with snap detent for solid engagement locking
- Also offered in a low profile right angle 90 degree back shell option with over mold capabilities, helping ease the strain of tight fitting applications.
- Offered in standard plating options as well as Durmalon finish*

* Consult Amphenol Aerospace for more information on cadmium alternative, Durmalon finish.



New Mil-Power Group of Connectors



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