Amphenol
Industrial


# RADSOK® Power Connectors

## High Current Interconnect Solutions

Amphenol

## Amphenol

is one of the largest manufacturers of interconnect products in the world. The company designs, manufactures and markets electrical, electronic and fiber optic connectors, coaxial and flat-ribbon cable, and interconnect systems. Amphenol has long been the accepted leader in providing quality connectors and interconnect systems to the Industrial, Military and Telecommunication markets.

# Company Introduction

## Amphenol Industrial Operations

Amphenol Industrial Operations (AIO), a division of the Amphenol Corporation, is a prominent manufacturer of cylindrical connectors known around the world. Amphenol Industrial's product lines consist of rectangular, standard miniature, fiber optic, EMI/EMP filter, and a variety of special application connectors.

Manufacturing connectors since 1932, we take pride that Amphenol Industrial Operations is the undisputed leader in interconnect systems for harsh environment applications. Innovations like our RADSOK® contact technology can provide roughly 50% more current through the same size pin. Connectors utilizing this RADSOK® technology will outperform similar products in the market hands down.

The Sidney, NY facility, nestled at the foothills of the Catskill Mountains, is over 307,000 square feet. This complex houses over 1000+employees incorporating state-of-the-art manufacturing technologies. The facility is both ISO9001 certified and qualified to MIL-STD-790 requirements.

## Amphenol Technology (Zhuhai) Co., Ltd.

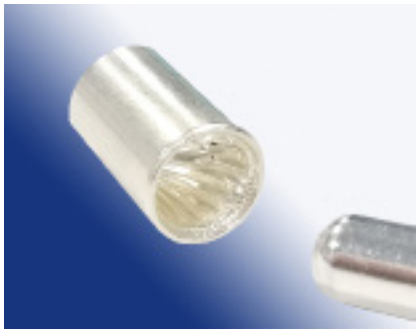

Established in 2007, Amphenol Technology (Zhuhai) Co., Ltd. is a manufacturing facility for Amphenol Industrial Operations, which serves a number of industrial markets, included but not limited to Factory Automation, Transportation, Heavy Equipment, Alternative Energy, Energy Storage, Server/Data Comm and Power Distribution.

Amphenol Technology (Zhuhai) Co., Ltd. covers an area of 28470m$^2$ and is equipped with CNC, plating, injection molding and assembly workshops. This plant specializes in the design and manufacturing of industrial connectors featuring high power, high density, medium to high voltage electrical properties, and harsh environment applications.

With industry leading engineering, design and manufacturing expertise, Amphenol Technology (Zhuhai) Co., Ltd. has earned more than 30 utility patents on its innovative interconnects. Many of the products produced have been certified by independent standards including UL, IEC/TUV, ATEX, IECEx and MA. The facility is also certified to ISO 9001, ISO 14001 and IATF 16949.


Amphenol's Power to Board Series products are widely used in the Server/Data Center, AI, IoT and 5G markets. Amphenol Industrial Operations provides many standard and custom power connectors for the aforementioned industries. The demand of high reliability and performance combined with unique high current RADSOK® R4 contact technology has all of these advantages for these applications.

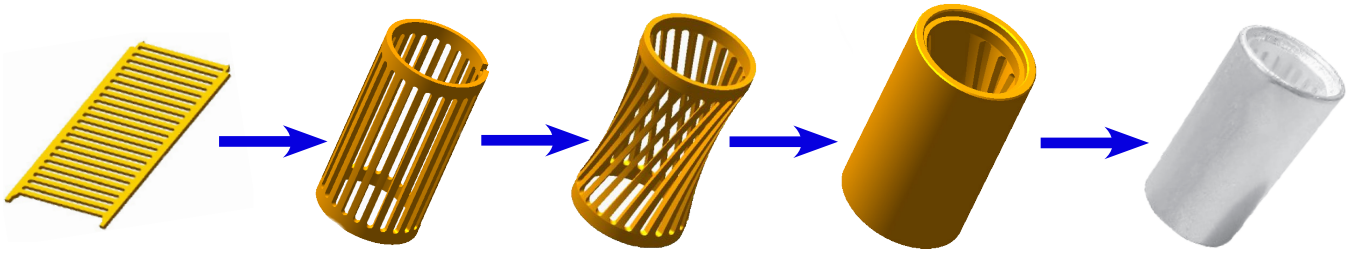
Amphenol
RADSOK®



## What is RADSOK®?

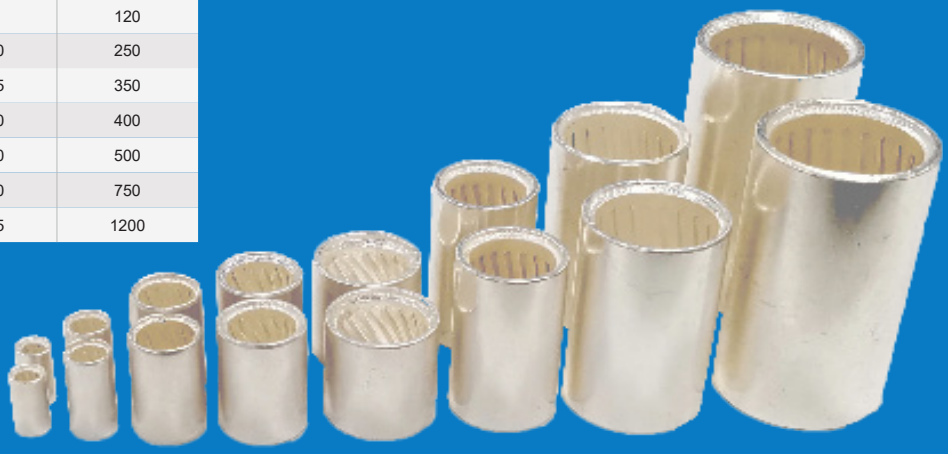
- A RADSOK® is a RADial SOcKet Contact.
- Developed from flat stamped grid twisted into a hyperbolic geometry to form socket contact with unique characteristics.

## Process of Forming



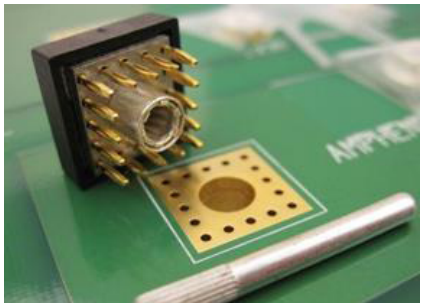
## RADSOK® Sizes and Ampacity

| Contact Size | MIL Standard (Amps) | RADSOK (Amps) |
|---|---|---|
| Size 12 (2.4mm) | 23 | 35 |
| Size 8 (3.6mm) | 46 | 70 |
| Size 4 (5.7mm) | 80 | 120 |
| Size 0 (9.1mm) | 150 | 250 |
| Size 2/0 (10.3mm) | 175 | 350 |
| Size 4/0 (12.0mm) | 230 | 400 |
| Size350 (14.0mm) | 310 | 500 |
| Size 700(18.0mm) | 460 | 750 |
| Size 1500 (23.1mm) | 625 | 1200 |



## RADSOK® Technology Advantages

RADSOK's hyperbolic contact configuration allows for more current to pass through the same size pin, while providing increased reliability, cycle durability and lower insertion force. The higher surface area contact also results in lower T-rise and voltage drop.

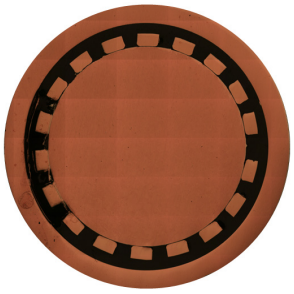


### • HIGH RELIABILITY

Applications in Aerospace, Medical, Industrial, EV, Battery Storage, Data Center, Equipment, Clean Energy, Automotive, Mining, Marine, Military and other harsh environments depend on the high reliability of Amphenol's RADSOK® technology.

### • LOW ENGANGEMENT AND 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.

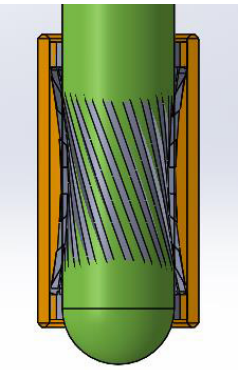


### • LOW CONTACT RESISTANCE

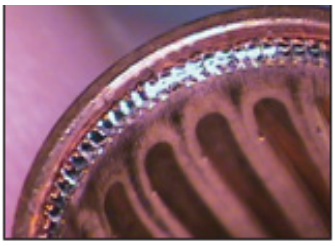
The large interface area between the socket lamella and pin surface results in very low contact resistance, enabling the RADSOK® to have higher current ratings compared to traditional power contact designs.

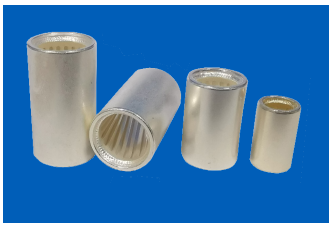
### • HIGH MATING DURABILITY

RADSOK® contacts with silver plating finishes have demonstrated up to 10,000 mating cycles. Specialized plating and contact lubricants can extend cycle life up to 200,000 mating. 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.



## R4 RADSOK® Technology





### The R4 RADSOK®

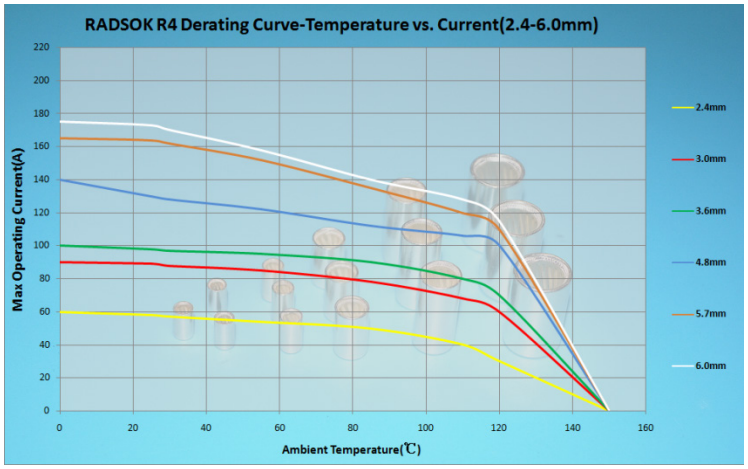
Innovative Laser Welded construction of the RADSOK® cartridge provides the following benefits.

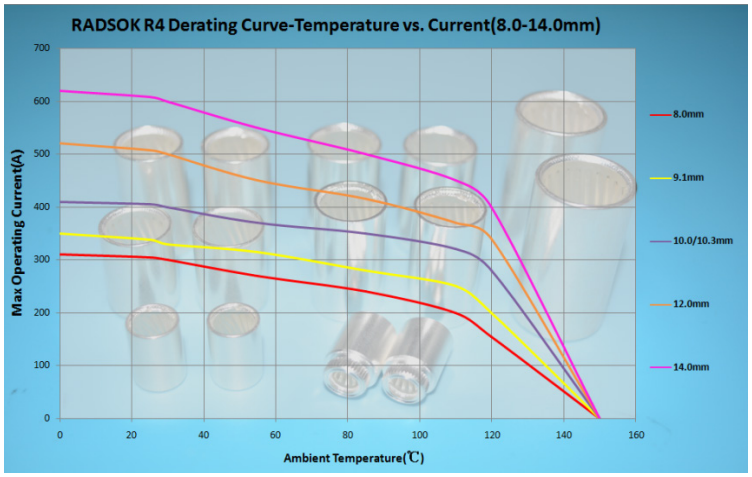
### Features and Benefits

- Smaller outside diameter of RADSOK®, saving space of package
- High volume automated assembly processes
- Consistency in performance
- Improved mechanical strength
- Lower voltage drop and resistance
- Low temperature rise

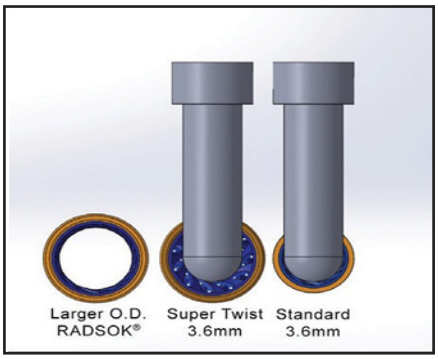
### RADSOK® Derating Chart – Temperature vs. Current

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



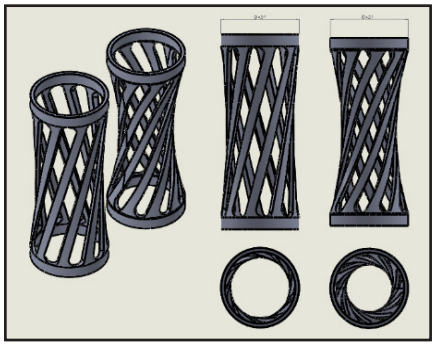



# Super Twist RADSOK®



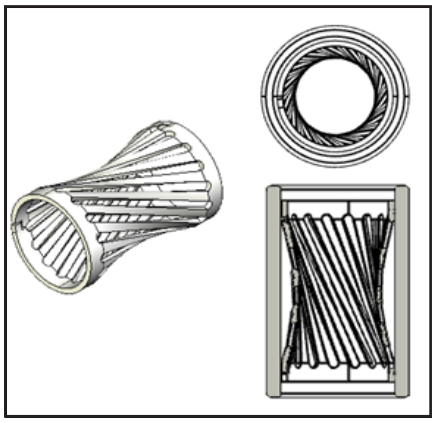

## Design Background

The RADSOK® Super Twist contact was developed to enable greater radial misalignment tolerance or "float," in drawer and blind mate applications. Greater radial gatherability is achieved in the Super Twist (ST) contact by adding additional "twist" to a larger RADSOK® contact. Using a larger O.D RADSOK® creates additional I.D clearance for the mating male pin while maintaining electrical and mechanical performance.



## Benefits of Using Super Twist RADSOK®

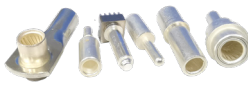
Radial misalignment tolerance is significantly increased. The RADSOK® Super Twist contacts are used in applications where mechanical system tolerance is difficult to control in manufacturing and/or assembly, for example, mating multiple positions on a bus bar with poor true positioning to a PCB or pluggable power supply assembly.



## Super Twist Heavy Duty RADSOK (ST x.xx HD)

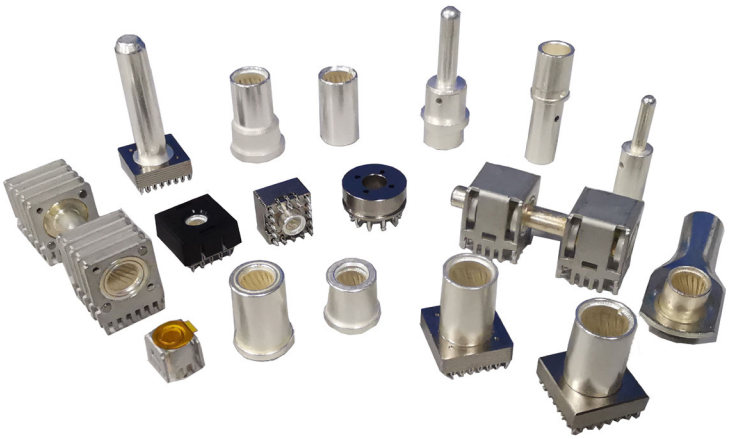
With RADSOK products integrated in many high vibration applications, we have engineered a Heavy Duty (HD) version RADSOK that can withstand higher Shock & Vibration demands. Ask if RADSOK HD is right for your application.

## RADSOK® Power to Board Connectors

| Item No. | Product | Shell Material | Package | Rated Current | Termination | Description | RoHS* |
|---|---|---|---|---|---|---|---|
| 1 | RADSERT™  | Metal | T&R/Tray/ Bulk | 35~1200A | Solder/SMT/ Knurl/Press Fit | ✧ Board / Wire to Board<br>✧ Quick push/pull<br>✧ Low profile<br>✧ Low cost | Yes |
| 2 | PowerBlok™  | Metal | T&R/Tray/ Tube | 35~1200A | Compliant Pin/ Press Fit | ✧ Board to Board<br>✧ Customized<br>✧ Quick push/pull<br>✧ Available with plastic cover & locking function | Yes |
| 3 | PowerBlok™ WTB  | Metal | T&R/Tube/ Bulk | 35~70A | Solder/ Press Fit | ✧ Wire to Board(6~12AWG)<br>✧ Quick push/pull<br>✧ Low profile<br>✧ Low cost | Yes |
| 4 | PGY™  | Metal | Tube/Bulk | 35~350A | Solder | ✧ Board to Board<br>✧ Horizontal or vertical Insert<br>✧ Quick push/pull<br>✧ Available in plastic cover. | Yes |
| 5 | RadFin™  | Metal | Tube/Bulk | 100~350A | Solder | ✧ Board to Board<br>✧ Horizontal Insert<br>✧ Quick push/pull<br>✧ Available in plastic cover<br>✧ Excellent heat dissipation | Yes |
| 6 | Amphe-PD  | Plastic | Bulk | 55~120A | Solder/ Bolt On | ✧ Two way connector<br>✧ Latching feature<br>✧ Voltage rating: ~1500V<br>✧ Low cost<br>✧ High temperature material<br>✧ Excellent heat dissipation | Yes |
| 7 | RADSOK® Pin  | Metal | Tray/Bulk | 35~1200A | Solder/ Crimp/ Knurl/ Threaded | ✧ Mates with Radsok connector<br>✧ Easily customize<br>✧ High current applications<br>✧ High reliability | Yes |
| 8 | Busbar  | Metal | Tray/Bulk | 35~400A | Solder/ Knurl/Threaded/ Swage | ✧ Busbar to Board<br>✧ Available in fixed and flexible Busbars<br>✧ Highly customized<br>✧ Excellent heat dissipation | Yes |

# Product Collection

High speed and high density electronics have driven demand for significant increases in the amount of power needed for power to board applications. To meet the need for higher current density interconnects Amphenol Industrial has developed the RADSOK® Power to Board series of connectors. RADSOK® Power to Board solutions facilitates the distribution of power with higher amperage, while allowing the design engineer to achieve size and weight reductions. Conventional interconnects are limited in their ability to deliver high current without consuming excessive board surface area. The RADSOK® Power to Board series of connectors incorporates a hyperbolic lamella socket contact construction that provides more contact surface area. The high performance contact enables higher current carrying capabilities with lower temperature rises than traditional contact systems. Amphenol's RADSOK® Power to Board product line offers many options for delivering high current and single-point connections to the PCB. Please contact your Amphenol Industrial representative for product extensions and custom applications.



# 1 RADSERT™

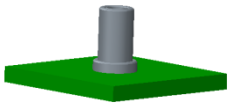
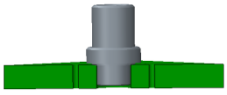
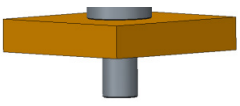
## Technical Information

- Accessory plastic lead-in available
- T&R packaging is available
- Contact plating available in gold and silver
- Operating temperatures range: -40~125℃
- Durability: 100+ mating cycles
- Surface mount compatible

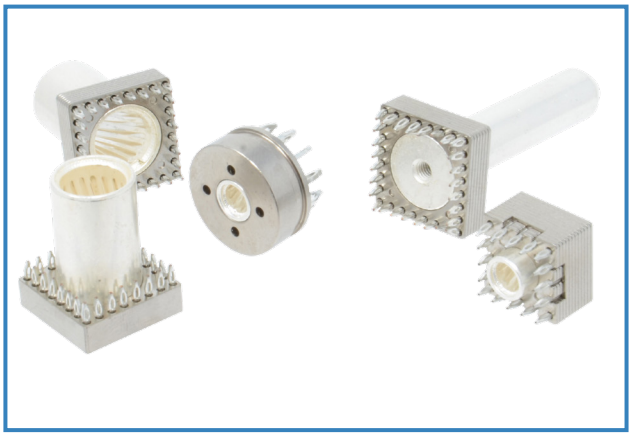
## Application

Easily configured to fit any applications

## RADSERT™ Product Details

| RADSERT™ Type | Example | Part Number | Rated Current | Application | Mated Part |
|---|---|---|---|---|---|
| Above Board (Solder) |  | C10-737495~499-001<br>ST Contact Sizes:<br>2.4/3.0/3.6/5.7/8.0mm | 35~200+A |  | Thread type:<br>C10-737401~406-XXX<br>Knurl type:<br>C10-737407~412-XXX<br>Crimp type:<br>C10-737413~418-XXX<br>Solder type:<br>C10-737582~587-XXX<br>or Busbar Pins |
| Thru Board 1 (Solder) |  | C10-737490~494-001<br>ST Contact Sizes:<br>2.4/3.0/3.6/5.7/8.0mm | 35~200+A |  | Thread type:<br>C10-737401~406-XXX<br>Knurl type:<br>C10-737407~412-XXX<br>Crimp type:<br>C10-737413~418-XXX<br>Solder type:<br>C10-737582~587-XXX<br>or Busbar Pins |
| Thru Board 2 (Knurl) |  | C10-737500~504-001<br>ST Contact Sizes:<br>2.4/3.0/3.6/5.7/8.0mm | |  | |

## 2 POWERBLOK™ Press-Fit Type



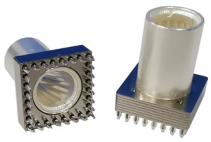
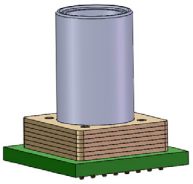
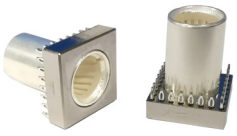
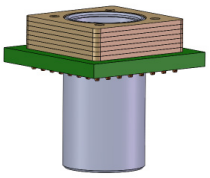
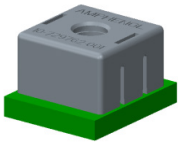
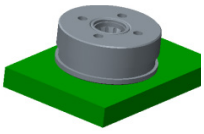
### Technical Information

- Accessory plastic lead-in cap available
- Eye-of-the-needle compliant pin
- Tube or tray packaging
- Contact plating available in gold and silver
- Operating temperatures range: -40~125℃
- Durability: 100+ mating cycles

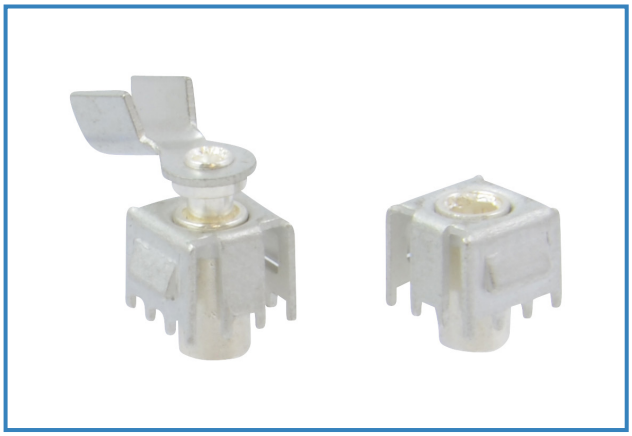
### Application

Easily configured to fit any applications

### POWERBLOK™ (Press-Fit) Product Data

| POWERBLOK™ Type | Example | Part Number | Rated Current | Application | Mated Part |
|---|---|---|---|---|---|
| Above Board (Press-Fit) |  | Configured to customer applications | 35~400+A |  | Configured to customer applications |
| Thru Board 1 (Press-Fit) |  | | |  | |
| Thru Board 2 (Press-Fit) |  | ST_2.4mm: C10-707897-001<br>ST_3.0mm: C10-700300-001<br>ST_6.0mm: C10-729762-001<br>or configured to customer applications | 35~120+A |  | Configured to customer applications |
| Thru Board 3 (Press-Fit) |  | ST_3.6mm HD: Configured to customer applications | 35~70+A |  | Configured to customer applications |

## 3 POWERBLOK™ Wire to Board (WTB) Type



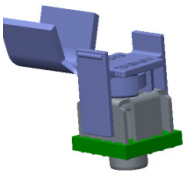
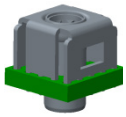
### Technical Information

- Tube or tray packaging
- Contact plating available in gold and silver
- Operating temperatures range: -40~125℃
- Durability: 100+ mating cycles
- Plastic locking clips available

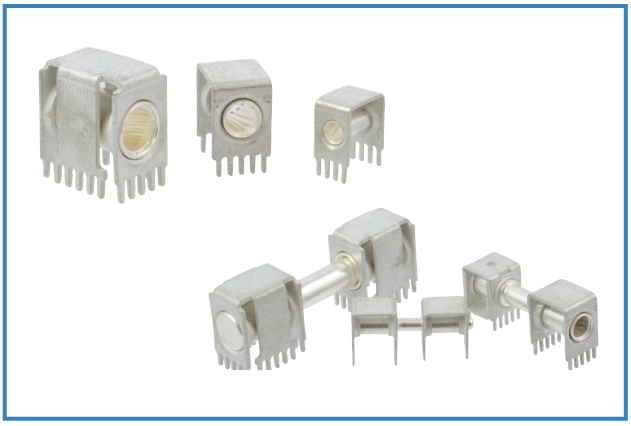
### Application

Power wire to Board, Datacom, Server, Telecom

### POWERBLOK™ WTB Product Data

| WTB Type | Example | Part Number | Rated Current | Application | Mated Part |
|---|---|---|---|---|---|
| Thru Board (Solder) |  | 2.4mm: C10-752001-000 | 35A |  | C10-729455-000 |
| | | 3.6mm: C10-729923-000(short) C10-731162-000(long) | 70A |  | C10-729922-000 (for 8AWG) C10-747999-000 (for 10AWG) |

## 4 PGY™



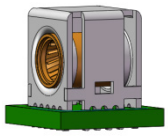
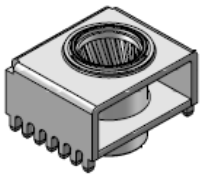
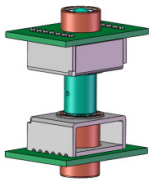
### Technical Information

- Orthogonal, co-planar & right angle connections between PCBs or PCB to busbar
- Legs of the PGY distribute high power evenly
- Available in plastic cover for insulating
- Operating temperatures range: -40~125℃
- Durability: 100+ mating cycles

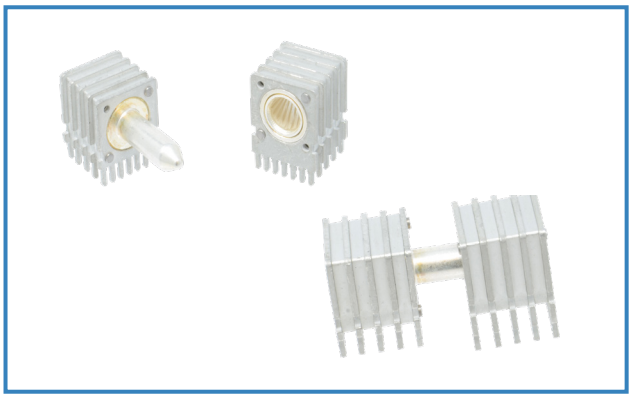
### Application

Power to Board, Datacom, Server, Telecom

### PGY™ Product Data

| PGY™ Type | Example | Sizes | Rated Current | Application | Mated Part |
|---|---|---|---|---|---|
| Above Board (Solder) |  | 3.6mm, 5.7mm | 35~120+A |  | Configured to customer applications |
| Above Board HD Version (Solder) |  | ST_3.6mm HD: Configured to customer applications | 35~70+A |  | |
| Thru Board (Solder) |  | 8.0mm, 10.3mm | 200~350+A |  | |

## 5 RADFIN™



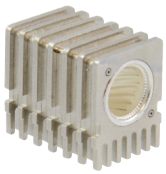
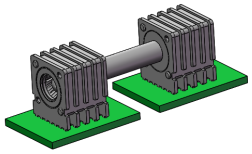
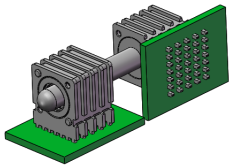
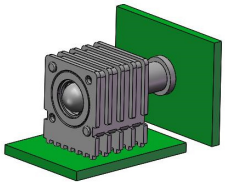
### Technical Information

- Orthogonal, co-planar & right angle connections between PCBs or PCB to busbar
- Legs of the PGY distribute high power evenly
- Available in plastic cover for insulating
- Operating temperatures range: -40~125℃
- Durability: 100+ mating cycles

### Application

Power to Board, Datacom, Server, Telecom

### RADFIN™ Product Data

| RADFIN™ Type | Example | Part Number | Rated Current | Application | Mated Part |
|---|---|---|---|---|---|
| Above Board (Solder) |   | ST_ 6.0mm C10-754532-000 or C10-761948-000 | 120A |  | Configured to customer applications |
| | | ST_8.0mm C10-752978-000 | 200A |  | |
| | | ST_10.3mm C10-754532-000 | 350A |  | |

## 6 Amphe-PD™

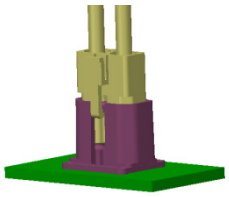
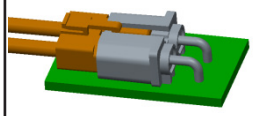
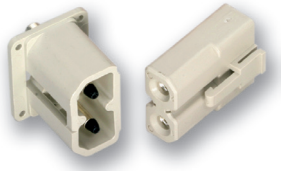
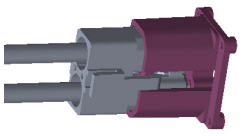
### Technical Information

- Current Rating: 55A~120A
- Voltage Rating: 1000V AC
- UL certified. Color available in black and gray
- Operating temperatures range: -40~125℃
- Applicable cable: 4~12AWG
- Crimp cable, soldering, bolt on termination

### Application

Datacom, Factory Automation/Robotics, Server, Power Suppliers

### Amphe-PD™ Product Data

| PD Type | Example | Part Number | Rated Current | Application | Mated Part |
|---|---|---|---|---|---|
| Vertical Receptacle (Solder) |  | 3.6mm: C10-752155-000 C10-747781-000 | ~69A or customized higher |  | Depends on wire gauge and specific applications. |
| Horizontal Receptacles (Solder) |  | 3.6mm: C10-752109-000 | ~69A or customized higher |  | |
| Connectors (Bolt On) |  | 3.6mm, 5.7mm Color available in black, gray | 55~120A |  | Depends on wire gauge and specific applications. |
| Connector & Cable Assembly |  | 3.6mm, 5.7mm Color available in black, gray | 55~120A |  | |

## 7 RADSOK® Contact

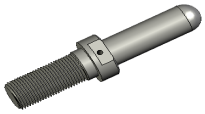
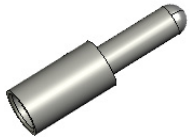
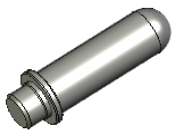
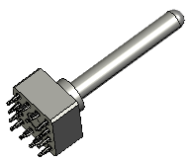
### Technical Information

- Current Rating: 35A~1200A
- Operating temperatures range: -40~125℃
- Crimp, solder, knurling, press-fit knurl or compliant pin, male/female thread

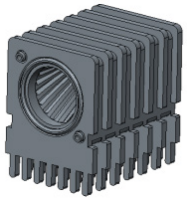
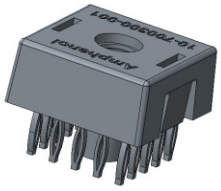
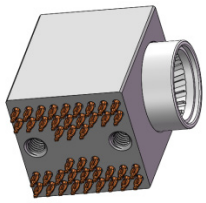
### Application

Easily configured to fit any applications

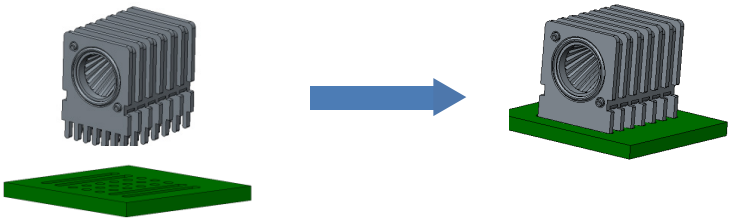
### RADSOK® Contact Data

| RADSOK® Contact Type | Example | Part Number | Rated Current | Application | Mated Part |
|---|---|---|---|---|---|
| Thread Type |  | C10-737401~406-XXX | 35~200A or customized higher | / | Depends on wire gauge and specific application. |
| Knurl Type |  | C10-737407~412-XXX | 35~200A or customized higher | / | |
| Crimp Type |  | C10-737413~418-XXX | 35~200A(0~12AWG) or customized higher | / | |
| Solder Type |  | C10-737582~587-XXX | 35~200A or customized higher | / | |
| Press-fit Compliant Pin Type |  | Configured to customer applications | 35~200A or customized higher | / | |

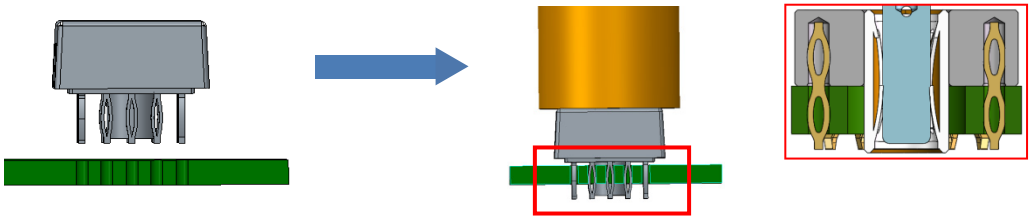
## PCB and Busbar Termination Options

| Type | Solder (SMT/THT) | Press-Fit Compliant Pin | Press-Fit Knurling | + Screw |
|---|---|---|---|---|
| Configurations |  |  |  |  |
| Recommended PCB/Busbar Thickness | t≥1.6mm | t≥2.0mm | t≥3.0mm | t≥2.0mm |

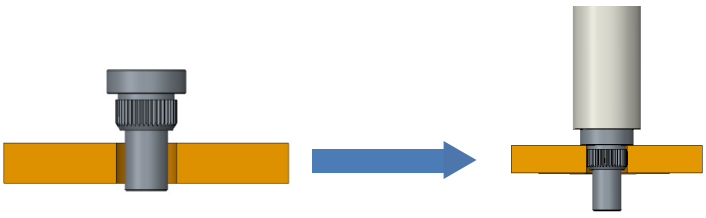
Solder/Surface Mount or Through Hole



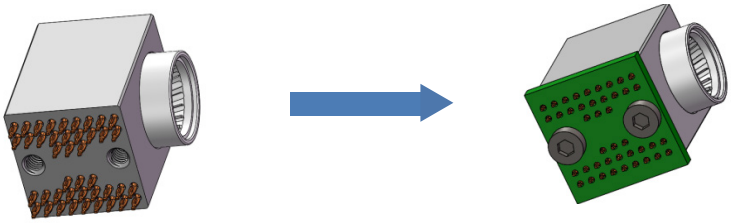
Press-Fit with Compliant Pin



Press-Fit with Knurl Feature



Screw Termination to PCB Pad



## Why Choose RADSOK®?

- Patented technology, over 20 years of manufacturing experience.
- RADSOK® contacts provide more than 50% current through the same size terminal.
- High reliability, high durability, low contact resistance, low insertion and extraction force, low T-rise.
- Available in solder, press-fit, knurl, wire crimp cable and screw termination.
- Flexible and easily configured to meet design requirements.

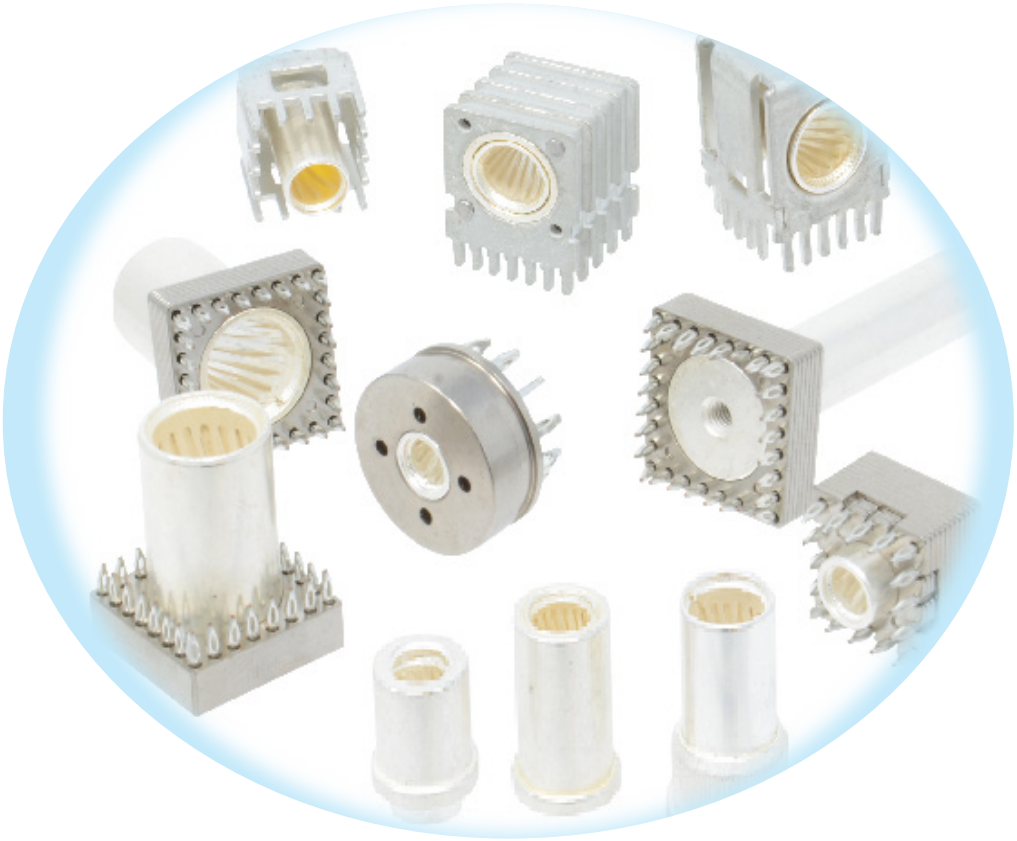
Our technical team can recommend a RADSOK solution optimized for your project requirements.

Submit your request to tech@amphenol-aio.com Please include application detail per the following questionnaire.

Please include space constraints and special environmental requirements if applicable.

| Item | Information/Spec./Data |
|---|---|
| Company Name | |
| Application | |
| Project Name | |
| Project Schedule | |
| Estimated Annual Usage | |
| Rated Current | |
| Rated Voltage | |
| Thickness of Board | |
| Mating Cycle | |
| Operating Temperature | |
| Vibration Test Condition | |
| Other Requirements | |

# Amphenol




Amphenol Industrial Operations
Phone: 888-364-9011
191 Delaware Avenue
Sidney, NY 13838-1395
www.amphenol-industrial.com

Amphenol Technology (Zhuhai) Co., Ltd.
No.63, Xinghan Road, Sanzao Town,
Jinwan, Zhuhai, 519040
China
www.amphenol-industrial.com