

A photograph of an industrial manufacturing environment. In the foreground, a large, orange robotic arm is positioned over a silver metal car chassis. In the background, two workers wearing yellow hard hats are visible, one in a light blue shirt and the other in a dark suit, appearing to be in a discussion. The scene is brightly lit, suggesting a modern factory setting.

smiths interconnect

# Industrial

Connectivity Solutions

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CUTTING-EDGE  
CONNECTIVITY

# About Smiths Interconnect



## We Offer



Smiths Interconnect is a leading provider of high reliability connectivity products and solutions serving segments of aerospace and defence, medical, semiconductor test, and industrial markets. It designs and manufactures technically differentiated electronic components, microwave, optical and radio frequency products and multi-functional systems that connect, protect and control critical applications.

Smiths Interconnect is a leading provider of innovative solutions for demanding industrial applications. Smiths Interconnect's cutting-edge connectivity solutions offer superior quality and reliability, providing customers with a competitive advantage.

Our best-in-class engineering and technical expertise ensure the development of durable and robust platform products and customised solutions combining rugged backshells with high reliability contact technologies and easy assembly procedures.

Our extensive product portfolio ranges from highly integrated assemblies to microminiature connectors. We offer a number of value added services to customers, including cable assembly, prototyping, instrumentation housing, electrical modelling and testing.



## Defence & Aerospace



## Communications



## Industrial



Your partner  
of choice for  
cutting-edge  
connectivity  
solutions

**80+**

Years  
Experience

### Technology

Broad Range of Advanced  
Interconnect Technologies

### Flexibility

High Volume Product Platforms  
& Complete Tailored Solutions

### Service

Global Reach with  
Local Support

# Original Hypertac®

## Hyperboloid Contact Technology

Hypertac® (HYPERboloid conTACT) is the original superior performing hyperboloid contact technology designed for use in all applications and in harsh and demanding environments where high reliability and safety are critical.

The shape of the contact sleeve is formed by hyperbolically arranged contact wires, which align themselves elastically as contact lines around the pin, providing a number of linear contact paths. This construction allows a very tight control of the spring forces and consequently of the insertion and withdrawal forces.

The inherent electrical and mechanical characteristics of the Hypertac hyperboloid contact ensure unrivalled performance in terms of reliability, number of mating cycles, low contact force and minimal contact resistance.

### Hypertac hyperboloid contact provides the following commercial benefits:

- **Low cost of ownership**  
Does not need replacement during equipment life
- **Reduced system costs**  
Equipment design is less critical
- **Reduced qualification costs**  
No re-testing due to contact failures

## Unrivalled Performance

100,000

Number of Mating Cycles

Shock

& Vibration Immunity

Low

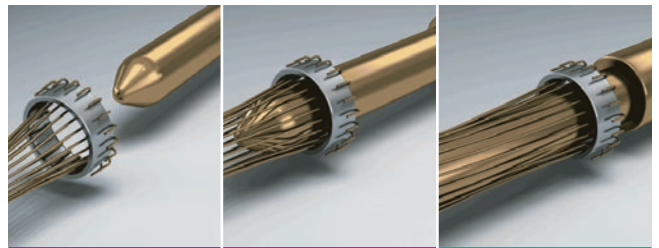
Insertion & Extraction Force

Low

Contact Resistance

High

Current Ratings



Wire sleeve before insertion of pin

Pin partially inserted into sleeve

Pin completely inserted into sleeve

## Hypertac® Hyperboloid Contacts - HC

- Extremely low insertion/extraction forces
- Industry-leading mating cycles (up to 100,000)
- No fretting corrosion during life cycle
- Very low contact resistance



## Screw-Machined Contacts - MR

- Rail standard contact life up to 500 mating cycles
- Tested signal integrity, no contact interruption >50 ns
- Low level contact resistance and low insertion/extraction forces



## High-Speed Contacts

- Twinax, triax and quadrax contacts suitable for high speed signal up to 100 MHz
- Fit various insert arrangements for d-sub, circular, PCB and rack and panel connectors



## High-Power Contacts

- Current ratings up to 650A
- Fit various insert arrangements for waterproof modular & circular connectors
- Fully RoHS and REACH compliant
- Low contact resistance resulting in low temperature rise



## Stamped Hyperboloid Contact - HCS

- Ideal for high volumes requiring a fully automated crimping process
- Delivered on reels for crimping machines with automatic feeder lines
- High reliability wire and insulation crimp



## Spring Probes

- Low profile, high compliance ratio
- High frequency, current ratings and insertion life
- Exceptional misalignment tolerance



# Test & Measurement for Semiconductor

Application-specific solutions for reliable and durable connectivity



LSH High Power Rack & Panel Connectors



High Density Mini-Modular Connectors

## Stability

Increasingly automated production environments require stable connectivity, as network failures can result in expensive line stops. Our interconnect solutions embed leading contact technologies that offer high reliability and the optimum balance between performance and cost, making them the ideal choice for demanding environments where the cost of failure is high.

- Burn-in Test Equipment
- Industrial Robots
- Processing Equipment

- Servo-Drives & Encoders
- Power Suppliers
- Scientific Instrumentation



Shielded Circular  
Metal Connectors



Robust Power &  
Signal M23 Connectors

## Wide Product Offering

Our diverse product offering, from off-the-shelf products to customised solutions, provides unrivalled performance under the most stringent industry conditions.

# Test & Measurement for Automotive

Superior longevity and electrical stability



Compact Signal & Ethernet PCB Connectors



Robust & Reliable M12 Connectors

## Integrity

Test equipment applications rely on the integrity of the components used within them. Our connectors ensure superior longevity with exceptionally low mating forces even when using high pin counts as requested in test applications, including microchips, wafer, burn-in, Hardware-In-Loop and automotive testing.

- Production End-of-Line Test Equipment & Laboratory Test Bench Equipment
- Power Hardware-in-Loop (HIL)
- Hardware-in-Loop (HIL) to Test Electronic Control Units (ECU)



Rugged High Density Modular Connectors



High Density Mini-Modular Connectors

## Reliable Test Solutions

Test instrumentation devices are connected and disconnected many times, thus requesting the high mating cycles and low insertion/extraction forces of the Hypertac contact system. Our hyperboloid and pin loop and spring contact technologies are also suitable for Burn-In-Test equipment.

# Electrification of High Vibration Applications

Enabling transition to clean energy sources



High Power Battery Connectors



LSH High Power Rack & Panel Connectors

## High Power

Our high power solutions offer high current carrying capacity enabling up to 90% energy transfer at peak current which allows the battery to use every kWh of energy efficiently.

- Battery Energy Storage System
- Battery Fleet for Mining



Rugged High Density Modular Connectors



High Density Mini-Modular Connectors

## Reduced Power Loss

Equipped with Hypertac Green Connect™ contact technology, our battery connectors minimise Joule heating and therefore reduce power loss. They offer low power consumption and the lower contact resistance of hyperboloid technology.

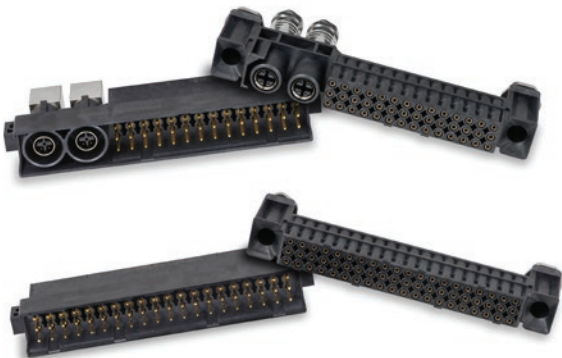
## High Power Quick Release

- Compact and small size for weight savings available in both single and five pole version
- Quick locking device
- Current ratings from 300A to 500A
- 360° EMI/RFI shielding
- IP67 fully sealed
- Robust metal shells
- Finger proof IP2X



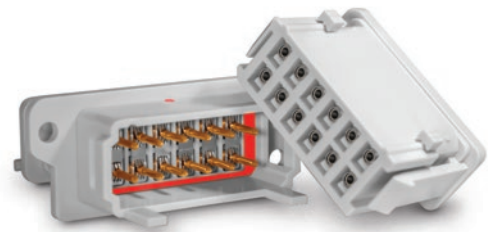
## Signal & Ethernet PCB - Intercompact

- Compact Signal and Ethernet PCB Connectors
- Compliance with the main European Railway standards
- Insulators in Liquid Cristal Polymer material for an optimised insulation resistance in severe environment conditions



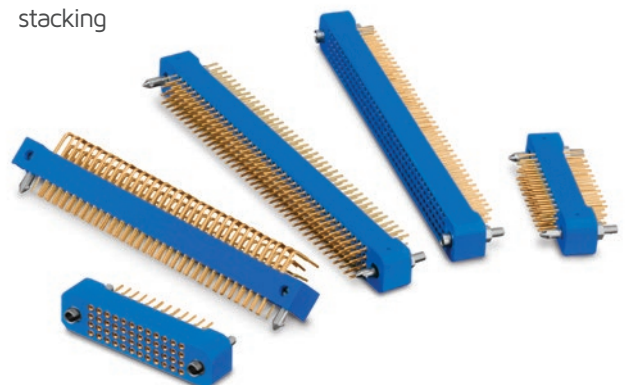
## Environmentally Sealed Rectangular Plastic - REP

- Available with the proven Hypertac® hyperboloid contact technology (up to 20,000 mating cycles) and with the MR screw machined contacts (up to 500 mating cycles)
- Conforms to EN 45545 and EN 50124 standards
- Voltage rating up to 400 V
- Allows wire sections from 0.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup> (20-12AWG)
- Shunt function available
- 2, 6, and 12 way standard sealed insulators
- Crimp, straight or bent termination options



## High Density PCB

- Long life cycle connectors with immunity to shock and vibration fretting
- Signal, power, coaxial and high speed, RF contacts and spring probes solutions
- Straight dip, right angle solder, crimp, solder cup and Wire Wrap® terminations
- Board-to-board, cable to board, cable to cable and stacking



## Robust & Reliable M12

- Compact IP67 metal shell
- 360° EMI shielding
- Hyperboloid contact technology
- Compliant with fire and smoke standards
- Straight and right angle 90° rotatable backshell
- Compatible with most commonly used rail cables
- Easy to terminate, field attachable



## Robust Power & Signal M23

- Outstanding protection against electromagnetic interference through a full 360° screen shielding
- RoHS compliant and UL/CSA approved
- Metallic and plastic versions available
- Hypertac® contact technology ensures immunity to shock and vibration and minimal contact resistance
- O-rings for protection against vibration



## High Power Battery Connectors

- Low power consumption with Hypertac Green Connect™: the lower contact resistance of hyperboloid technology
- High voltage interlock (HVIL) monitoring safety mechanism for enhanced electrical safety
- Suitable for harsh environments: IP67 (mated), suitable for high shock and vibration
- Compliant to EN45545-2



## Did you know?

Smiths Interconnect are driving revolution in automotive testing by providing connectors that can perform reliably and consistently in the relentlessly unforgiving test environment.

# Intelligent drone-based solutions saving time and increasing workflow



## Rugged High Density Modular

- Mixed signal, power, coaxial, data, fibre optic and pneumatic modules
- Provides up to 200 amp power
- Cable to chassis and rack & panel; plastic backshell with strain relief and half turn quick disconnect jackscrew
- Float mountable for blind mating
- Configurations compliant to EN45545 standards
- Large offering thanks to the modularity
- High reliability contact technology
- Several locking devices and hood are proposed



## High Density Mini-Modular

- High-density mini modular connectors
- Allows up to 900 contact positions
- Building block system composed of custom module combinations within a connector frame
- Keying system available
- Jackscrews available in half-turn quick disconnect
- Float mountable for blind mating



## Spring Probe Interposers

- High density spring probe technology
- Low, stable contact resistance throughout long insertion life
- Optimal signal integrity  $\geq 40$  GHz
- Ingress protection to IP68 and MIL-810 available



## Cable Assemblies & Wire Harnesses

- Wide range of cable assemblies and wire harnesses, consisting of point-to-point or multi-branch connections for efficient transmission of power, data or signal
- Pre-wired encoding connectors and adapters
- In-house capabilities to design, development, prototyping, manufacturing and testing
- Custom solutions tailored to volume manufacturing requirements and customers' technical needs



# Global Capabilities



## Reliable Solutions

In-house capabilities encompassing design, development, manufacturing and testing to anticipate market needs, respond quickly and accurately to customers, and provide the most reliable connectivity solutions.

## Market-leading Engineering and Technology Solutions

# 80+

## Years Experience





## Certifications, Standards & Compliance

- AS9100D
- ISO 9001
- ISO 14001
- ISO 45001
- NF F 61-030
- NF F 61-032
- NF F 16-101
- NF F 16-102
- NF-C 93421
- DIN 41612
- DIN 43652
- EN 50124
- EN 45545-2
- IEEE-1101.2-'92
- IEC 1076-4 101
- IEC 61373
- IEC 61984
- HE 501
- HE 704
- UTE C93-425
- UL94 VO
- RoHS compliance
- IRIS

## Engineering

- 3D EM Modelling
- Advanced RF & System Modelling
- CAD/CAM & Solid Modelling
- Finite Element Analysis
  - Thermal Analysis
  - Shock & Vibration Analysis
- Reliability Analysis

## Prototyping

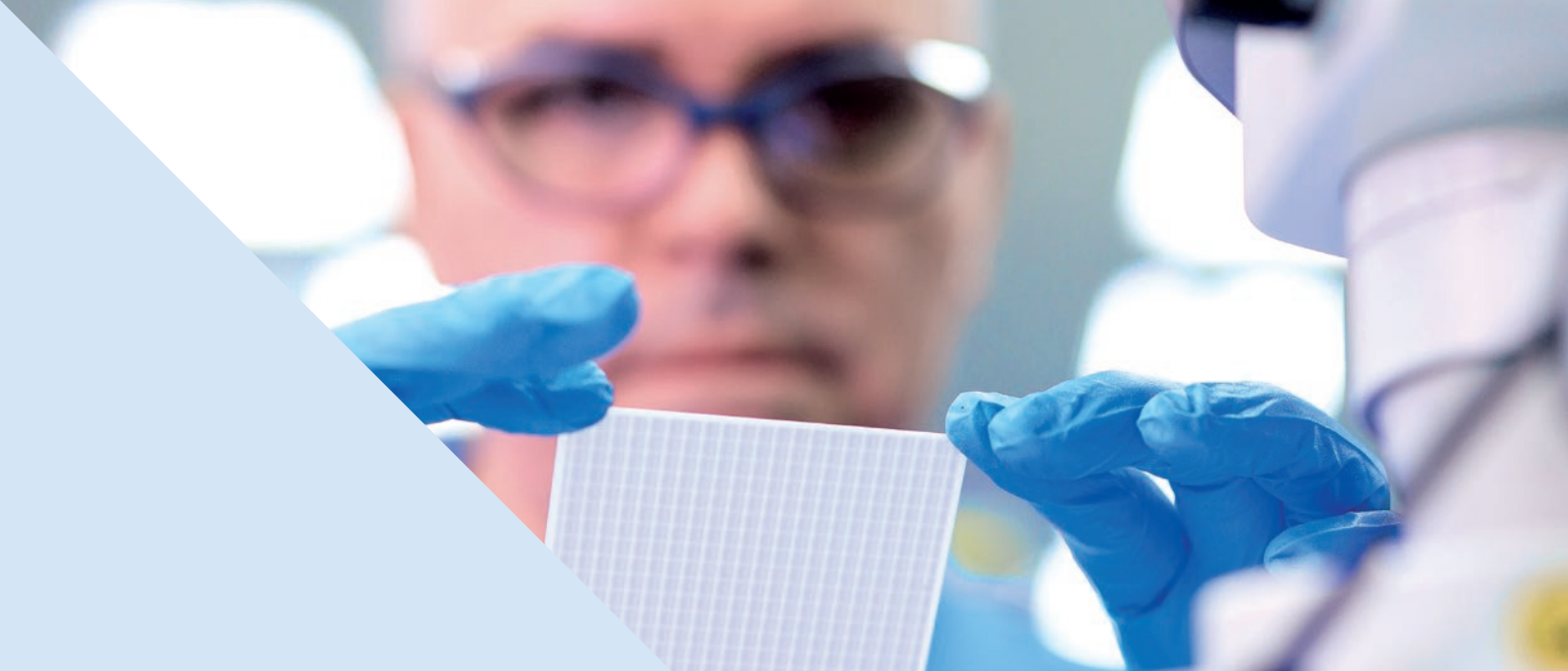
- CNC Turning & Milling Centres
- Cabling / Prototype Assembly
- 3D Printing
- Ceramic Grinding
- EDM
- Circuit Board Routing

## Manufacturing

- Precision Machine Shops
- Connector, Contact & Cable Assembly
- Automated PCB Assembly & Inspection
- Automated Hybrid Assembly
  - Die Placement
  - Wedge & Wire Bonding
  - Gap Welding
- NASA Certified Soldering
- Automated Test & Tune
- Optical Alignment
- System Integration
- Validation Testing

## Testing/Qualification

- Electrical Acceptance & LOT Test
- RF Test Capability, up to 325 GHz
- High Speed Digital
- Anechoic Chamber Testing
- ESS Environmental Qualification
- ESS Temperature, Shock & Vibration
- Metallurgical
- Real Time X-Ray
- Thermal Vacuum
- High Power RF Testing
- Optics Lab
- Multi paction, SRS mechanical shock



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## Connecting Global Markets

Smiths Interconnect's strong focus on serving international markets and customers is supported by our sales and technical teams across the Americas, Europe and Asia.

[smithsinterconnect.com](https://smithsinterconnect.com)



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## Business Unit

Connectors

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Fibre Optics &  
RF Components

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Semiconductor  
Test

# Worldwide Support

## Americas

### Sales

connectors.uscsr@smithsinterconnect.com

### Technical Support

connectors.ustechsupport@smithsinterconnect.com

## Europe

### Sales

connectors.emeacsr@smithsinterconnect.com

### Technical Support

connectors.emeatechsupport@smithsinterconnect.com

## Asia

### Sales

asiacsr@smithsinterconnect.com

### Technical Support

asiatechsupport@smithsinterconnect.com

### Sales

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# Pioneers of Progress

## Advancing the world through cutting-edge connectivity

We aim to be the partner of choice for innovative connectivity solutions where reliability, high quality, technical expertise, application knowledge, and a reputation for excellence is vital.



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