LADD DISTRIBUTION
a TE Connectivity Company

LADD DISTRIBUTION: LEVERAGING THE POWER OF TE CONNECTIVITY

TE Connectivity (TE) is a system-knowledgeable connectivity solutions supplier with electronics architecture and physical integration know-how. We speak our customers' technical language, working closely with them to develop solutions based on the latest standards, technologies, and materials innovations. As mobility solutions become more connected, automated and electrified, in-vehicle component connectivity challenges greatly intensify.

LADD Distribution: Leveraging the Power of TE Connectivity

TE's team of engineers and scientists engage closely with customers to ensure their success, providing robust solutions tailored to their specific needs and delivering architectures that can withstand the harshest of environments. We support our customers with a comprehensive product portfolio of robust solutions for high-power and high-data rate applications and technical design, manufacturing, and application tooling expertise.

TE provides the engineers and scientists, co-creation capabilities, and local presence to serve you in every market and industry and while ensuring you have a reliable source of high-performance products when and where you need them. From concept to design and through manufacturing to field support, TE leverages over 75 years of expertise to support our customers every step of the way. We measure our success by our customers' success. Because trusted connections count.

As part of TE's ICT team, LADD enables its customers to have direct engagement with TE engineers as well as access to direct manufacturer support. Whether it's high-speed data connectivity or high power charging needs, working with. It really is the perfect outcomee.

Helping our Customers via our State-of-the-art Simulation, Equipment, and Laboratories

Now more than ever, highly competent environmental test, validation, and analysis laboratories are a critical facet of each stage of a component's lifecycle. Typically, test and validation are associated with the later stages of a product's development lifecycle. This is only a small piece of the value that laboratories bring. Development engineers need to work closely with the labs early in the design cycle, matching test and validation capability investments to new system and component-level design requirements. Early prototypes that are designed to meet extremely harsh and challenging quality requirements need to be tested and verified early in the development phase, ensuring vehicle OEMs and suppliers needs can be fulfilled. If the design is validated too late in the design cycle, then there will be greater risk and cost associated with delivering the final product.

The lab´s role does not stop once a connectivity product is in production. If problems arise in the field, staff at the environmental test and validation labs jump into action by working with internal and external engineers to analyze and diagnose problematic products and application issues.

Most importantly, results are made immediately available for design engineers, manufacturing engineers, and application engineers — addressing design, production, and end-application issues holistically. Our customers frequently spend time at our test and laboratory facilities, engaging with our design and product assurance engineers throughout the complete product lifecycle. Together, we're constantly refining our testing approach, ensuring that as lessons are learned in the field, we bring that knowledge back to our global labs.

State-of-the-Art Simulation and Analysis Capability

TE Connectivity has extensive experimental equipment including measurement and analysis systems. The analytics identify whether the tested parts still comply with the required specifications after they have been subjected to loads. The spectrum of services in this area ranges from surface and material analysis methods, through non-destructive analysis methods, to weak-point analysis. Here, analytics has several functions: It is a partner during development and a supporting element for simulating the environment, and it is also used for failure and reliability analyses. All of this serves as a cohesive complement to TE's model-based design and digital engineering approach:

- Infrared thermal imaging
- 3D digital microscope
- X-ray plating thickness unit
- Analytical scanning electron microscope (SEM, EDX, FIB)
- 3D x-ray computer tomography (CT)
- FT-IR spectroscopy
- 3D confocal surface measuring system
- Audio measuring station
- FFT analyzer

Comprehensive Test Capability

TE's laboratories provide a spectrum of services ranging from concept and design verification in the form of tests in parallel with development, to product approval. For system development and new applications, very comprehensive product qualification tests are performed. Failure analyses, customer-specific tests, and lifetime tests as well as functional and performance tests complete the comprehensive portfolio of services. These services include:

- Environmental-climatical simulation
- Accelerated life and stress testing (HALT/HASS)
- Electrical tests
- Mechanical tests
- Water and dustproofing
- Material and surface finish analyses
- Chemical resistance
- Microscopy and micro sectioning
- Suitability for soldering and resistance to heat during soldering
- Optical communications (plastic optical fiber tests)
- Electromagnetic compatibility (EMC) tests
- Power distributor tests
- RF measurements
- Acoustics

NORTH AMERICA

Winston-Salem Electrical Components Test Laboratory
Winston-Salem Failure Analysis and Reliability Laboratory
Corporate Fremont Advanced Analytical Lab
Fuquay-Varina High Voltage Test Laboratory
Markham Energy / Utility Products Test Laboratory
Harrisburg Signal Integrity / EMC Test Laboratory
Fuquay-Varina Outside Plant Products Test Laboratory
Winston-Salem Electromechanical Components Test Laboratory
Wilsonville Cable Assemblies Test Laboratory

SOUTH AMERICA

Braganca-Paulista Electrical Components Test Laboratory

EMEA

Bensheim Electrical Components Test Laboratory
Collegno Electrical Components Test Laboratory
Oostkamp Electrical Components Test Laboratory
Pontoise Electrical Components Test Laboratory
Brighton High Voltage Test Laboratory
Gevrey-Chambertin Energy / Utility Products Test Laboratory
Ottobrunn High Voltage Test Laboratory
Swindon Energy / Utility Products Test Laboratory
Witham-Essex Energy / Utility Products Test Laboratory
Tewkesbury Active Interconnect Systems Test Lab
Den Bosch Electrical Components Test Laboratory
Horgen Electromechanical Components Test Laboratory
Barcelona Electrical Components Test Laboratory
Berlin Electromechanical Components Test Laboratory
Evora Electromechanical Components Test Laboratory
Waidhofen Electromechanical Components Test Laboratory
Wildberg/Calw Electrical Components Test Laboratory

ASIA / PACIFIC

Shanghai Electrical Components Test Laboratory
Kyungsangbuk-Do Electrical Components Test Laboratory
Bangalore Energy / Utility Products Test Laboratory
Bangalore Automotive / Test Competence Center
Bangalore Electrical Components Test Laboratory
Shanghai Energy / Utility Products Test Laboratory
Berkeley Vale Electrical Components Test Lab
Shenzhen Electromechanical Components Test Laboratory
Kawasaki Electrical Components Test Laboratory

Robust Environmental Simulation
Given the ever-increasing harsh environments that connectivity solutions are subjected to, TE's laboratories are well-equipped to simulate those environments. Environmental simulation capabilities include:

- Vibration systems with combined climate/temperature and slip table
- Shock test machine
- Climatic chambers
- Temperature shock systems
- Salt fog chamber
- Anechoic chambers
- Four-component mixed flowing gas test unit
- Reflow soldering unit
- Water and dustproofing/IP degree of protection
- Electrical and mechanical test units

A Global Network, Ensuring 24/7 Operation When and Where Services Are Needed

With design centers located around the world, all the simulation, modeling, prototyping, and testing can be done close to where our customers are located. If a harness maker is in Morocco, for example, TE is right there with them. This makes it is easy for our customers to access our experts and collaboration with them — helping them address their most challenging connectivity problems. Our global test, validation, and analysis engineers share knowledge and capabilities with each other, ensuring that lessons learned are shared globally and that issues are addressed and not repeated.

Every day, our lab-based engineers and technicians work together to solve our customers' toughest challenges. To illustrate the point, recently TE's engineers were working with an international (headquartered in Europe) heavy-duty truck manufacturer that was designing a truck in North America and encountering water intrusion issues with one of its designs.

The TE team in North America was able to set up a test to demonstrate the problem and quickly consulted with colleagues from Europe who were able to quickly set up the same tests across the Atlantic. TE's engineers on two continents, along with our customers' engineers on the same two continents, were able to collaboratively and rapidly develop solutions that solved the immediate problem in North America and completely avoided the same problem in Europe. We know that someone at TE Connectivity knows the answer. Our global test and validation labs are a well-connected team, enablingall our customers around the world to have access to those answers.

Helping our Customers apply our Products

TE Connectivity not only practices world-class manufacturing processes for its products, but also confirms that its product designs align with specific customers' manufacturing methods and practices. TE has the tools and equipment to optimize designs to customers' ever-evolving operating environment needs. TE works with the complete supply chain, from chip makers to module makers to system suppliers, to provide optimized system-level performance for power and date integrity and quality. TE provides the right connectivity solution for the specific application and need.

World-class Manufacturing Operations

TE Connectivity is a global manufacturer of connectivity solutions with an in-house application tooling business unit. This allows us to not only deliver reliable, world-class products, but also offer tools and equipment engineered to the exact specification of TE terminals and connectors. From portable hand tools to machines for larger volume processing, we provide solutions tailored to our customers' unique

manufacturing requirements, combined with the expertise to support them for their entire product lifecycle from prototyping and repair work to full production.

We support our customers across their entire product lifecycle: from prototyping to production, all the way through field service and maintenance. Plus, our global network of field service engineers is available on site or remotely to train, troubleshoot, and repair tooling and machines, as well as make recommendations for optimization.

Helping our Customers Service our Products

LADD maintains a comprehensive inventory of products and provides assembly and service kits containing products as well as assembly and service tools. LADD's Field Application Engineers (FAEs) provide on-site and in-field support wherever and however their customers need them.

THE RIGHT TOOLS FOR THE TASK AT HAND

It's one thing to find the right parts. It's another thing to reliably apply those parts to the rugged application. When customers work with LADD Distribution, they are working with TE's internal application tooling team. Delivering a quality connection is essential to delivering high performance and reliability in extreme environments.

From crimping a terminal onto a wire or pressing a connector onto a board, TE Connectivity's hand tools, equipment, and services are designed to facilitate field repairs and service, maximize production uptime, extend tooling life, and minimize manufacturing waste.

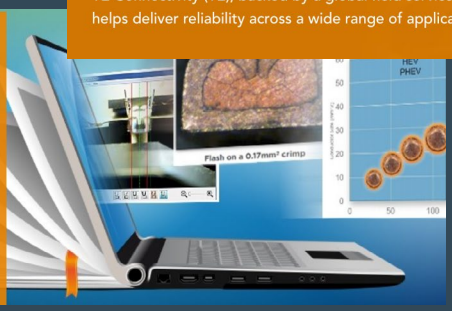
WHITE PAPER

TOP TOOLING TIPS TO MAXIMIZE YOUR INVESTMENT

A quality connection doesn't end at the component selection. Download our white paper to learn how matched tooling from TE Connectivity (TE), backed by a global field service network, helps deliver reliability across a wide range of applications.

APPLICATION TOOLING KNOWLEDGE SERIES

Gain insights from TE experts on critical topics ranging from crimp quality and tool selection to small and large wire crimping, as well as PC board processing. Register using the form below to access this informative white paper series.



About TE Connectivity

TE Connectivity is a global industrial technology leader creating a safer, sustainable, productive, and connected future. Our broad range of connectivity and sensor solutions, proven in the harshest environments, enable advancements in ransportation, industrial applications, medical technology, energy, data communications, and the home. With more than 85,000 employees, including over 8,000 engineers, working alongside customers in approximately 140 countries, TE ensures that EVERY CONNECTION COUNTS. Learn more at **www.te.com** and on LinkedIn, Facebook, WeChat and Twitter.

Connect with us

We make it easy to connect with our experts and are ready to provide all the support you need. Visit **www.te.com/support** to chat with a Product Information Specialist.

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