

RAYCHEM CUSTOM MULTICORE CABLES

Configured Specifically for Your Application



Custom multicore cables are unique combinations of Raychem products built specifically to suit your special needs for size and performance. Try out this cost-effective system solution today!

Components

We can build custom cables in virtually any configuration you need. We have the essential building blocks to combine power, signals, RF, and fiber optics into a single high-performance cable.

- **Aramid strength members**
- **Armor in steel / alloy and tin**
- **Controlled electrical cables**
- **Fabric and film tapes**
- **Full range of electrical shields**
- **Primary wires, pairs, triples, shielded and unshielded**
- **Optical fibers (fiber in steel tube)**
- **Special components**
- **Wraps and braids**

SIZE AND WEIGHT SAVINGS

- Up to 40% smaller than comparable products

HIGH PERFORMANCE

- Improved electrical, mechanical, and/or thermal performance
- Enhanced chemical and fluid resistance
- Ultra-flexible cables and components available
- Ability to include data, signal, and power in the same bundle

PRACTICAL

- Cost savings over hand-building point-to-point harnesses
- Available in small order quantities
- Special testing available upon request
- Cable design services provided free of charge

DESIGN FLEXIBILITY

- CAD for quick response
- High product performance
- Optimum layout
- Rapid quotations
- Size and weight details

LET'S CONNECT

We make it easy to connect with our experts and are ready to provide all the support you need. Just call your local support number or visit www.te.com/industrial to chat with a Product Information Specialist.

Technical Support

te.com/support-center

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te.com/multicore

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Consult TE for the latest dimensions and design specifications.

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AEROSPACE, DEFENSE & MARINE /// RAYCHEM CUSTOM MULTICORE CABLES



RAYCHEM CUSTOM MULTICORE CABLES

SAVE SPACE, WEIGHT, AND MONEY WITH CABLES DESIGNED FOR HARSH ENVIRONMENTS AND CONFIGURED SPECIFICALLY FOR YOUR APPLICATION

AEROSPACE, DEFENSE & MARINE /// RAYCHEM CUSTOM MULTICORE CABLES

TE Components . . . TE Technology . . . TE Know-how . . .
AMP | Agastat | CII | Hartman | Kilovac | Microdot | Nanonics | Polamco | Raychem | Rochester | DEUTSCH
SEACON Phoenix | L.L. Rowe | Phoenix Optix | AFP | SEACON

Get your product to market faster with a smarter, better solution.



APPLICATIONS

Military Ground Systems

- Rotating turret applications
- Engine bay wiring
- Bulk wiring for signal and power
- Back-up camera video feeds for large vehicles

Military Marine

- Auxiliary equipment, such as weapon systems and radar
- Below deck zero halogen cabling, including waterblocked cables that meet MIL-DTL-24640 and MIL-DTL-24643 requirements

Missile Technology

- Launch and control systems
- Missile internal wiring where small size and flexibility are needed due to tight space restrictions

Fixed and Rotary Wing
Commercial and
Military Aerospace

- Open airframe wiring communication systems
- In-flight entertainment systems



Expertise in Materials

Full range of custom formulated jacket materials give you a solution matched to the challenges of your application

Thick Wall

- **Thermorad F** flexible, general-purpose cross-linked polyolefin
- **Thermorad S** rigid general-purpose cross-linked polyolefin with improved fluid resistance
- **Thermorad O** oil-resistant cross-linked chlorinated polyolefin
- **FDR-25** highly flexible cross-linked polyester blend
- **Themorad LS** low-smoke, non-halogen cross-linked polyolefin
- **Zerohal** non-halogen cross-linked polyolefin, (M24640/M24643)
- **Raythane C/FR** flexible, abrasion-resistant polyurethane
- **Thermorad NTRF** oil-resistant, flexible chlorinated poly neoprene blend

Thin Wall

- **Thermorad 700** high-temperature, nuclear-biological-chemical resistant
- **Thermorad K** abrasion-resistant PVF2
- **Thermorad HT** solvent-resistant, high-temperature ETFE
- **Thermorad FL** flexible, solvent-resistant ETFE



TYPES OF SHIELDING



Aluminized Polyester
Electrostatic Shielding



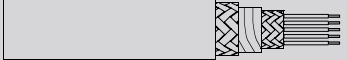
Single Braid
Low EMI Levels
Low Sensitivity



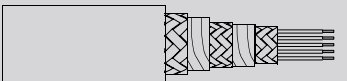
Single Optimized Braid
High EMI Levels
Sensitive Lines



Double Optimized Braid
Severe EMI Levels
Highly Sensitive Lines



Supershielded
EMP/TEMPEST



Double Supershielded
Highest Level of Shielding

Shielding: Control the Noise for
Better Signal Integrity

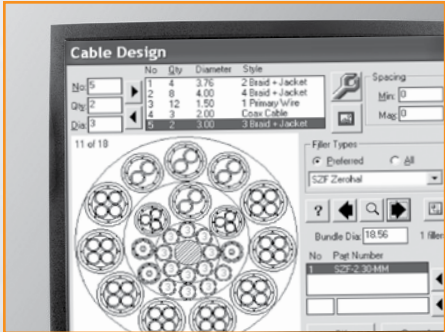
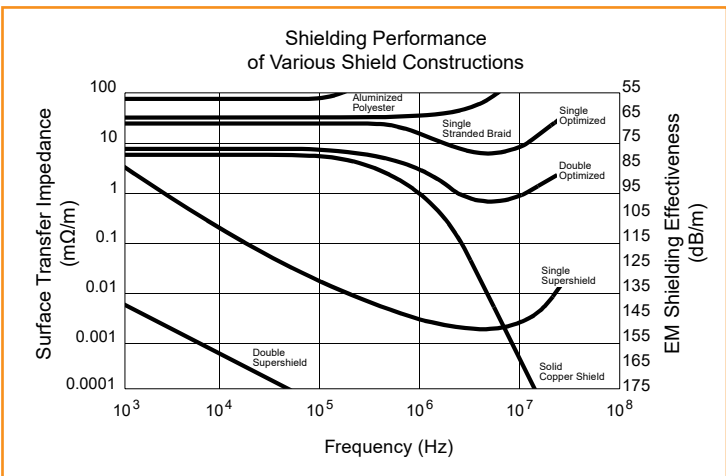
Shielding of cables is important is important in many applications. Shielding helps to minimize crosstalk within the cable, prevent interference from external sources, or eliminate radiation from the cable itself.

The design of cables to provide effective shielding over a broad frequency spectrum is complex, and cables must be tailored to specific electromagnetic environments. Choices range from simple aluminized polyester film that provides electrostatic shielding to progressively more complex shielding with plated copper braids and Mu metal wraps.

Performance of conventional braiding can be significantly improved by computer optimization. This tightly controlled process can significantly increase shielding performance of a basic braided shield with minimal weight penalty or increase in optical coverage. Supershielded cables combine Mu metal wraps with optimized braids to provide even further enhanced performance, especially at low frequencies.

Shielding Efficiency

To assess the effectiveness of a shield, TE has adopted the line injection method as described in IEC 1196-1 to measure the surface transfer impedance (Zt) of a cable shield. To determine the surface transfer impedance across a range of frequencies, a drive signal is generated by the internal tracking generator of a spectrum analyzer. The voltage is induced on the center conductor of the sample which is amplified and returned to the signal generator for measurement.



Computer-Aided Design for
Fast, Accurate Results

Every year, TE designs and builds several thousand custom, high-performance, multicore/multiconductor cables that meet unique product needs. Design staff can draw on an extensive range of high-performance cable components and jacket materials, while incorporating both color-coding and alphanumeric marking techniques for component identification. These options, combined with a full range of EMI shields, lead to a huge variety of construction possibilities.

TE developed computer-aided design tools to provide a fast response to design requests. The software, used by factory engineers and product specialists in the field, can generate cable design proposals with drawings and quotations in minutes. A design drawing details all the cable data and can be used as the input to harness or cable splice (joint) design. The resulting cable is tailored to customers' exact needs in an efficient design.

Quality Assurance

Our WCD and WSD cable specifications ensure that performance and quality standards are maintained to the highest level. TE manufacturing sites have obtained the highest available quality system approvals, including ISO 9000 and QS9000. Raychem cables are manufactured to meet industry standards.