

COMBINE OUR ADVANCED CABLE  
EXPERTISE WITH YOUR AEROSPACE  
EXCELLENCE TO BOOST PERFORMANCE







## A NEW GENERATION OF AIRCRAFT AND AEROSPACE PLATFORMS...

**Long-term forecasts for commercial aerospace predict yearly growth of between 5 to 8 percent over the next two decades, driven by increasing demand in Asia, the Middle East and South America.**

Meanwhile, high fuel costs, tougher regulations on noise and greenhouse gas emissions, as well as pressure from low-cost carriers are forcing all operators to use lighter more energy-efficient aircraft, while improving In-Flight Entertainment (IFE) systems.

Aircraft designers have also increasingly replaced mechanical and hydraulic systems with electrical systems (fly-by-wire) causing the amount of electrical power carried by the aircraft Electrical Wire & Interconnect System (EWIS) to almost double.

Increased demands on IFE and EWIS systems have led airframe manufacturers to find ways to reduce the weight and size of wires and cables, while at the same time raising the standards of safety and reliability.

Defense Aerospace has seen a similar shift towards next-generation platforms: a move to all-electrical systems, full computerization (leading to a dramatic increase of the amount of data carried), and a transition to all-composite airframes requiring more shielded cables.

Strict budget pressures have driven leading cable manufacturers to closely align R&D, production, supply chain and logistics with OEM needs, while improving service for aircraft maintenance providers and distributors.

### **What you expect from a cable manufacturer:**

- A comprehensive range of aerospace wires and cable solutions
- Products compliant with a range of standards worldwide
- Lighter, smaller, tougher, and more reliable wires and cables
- Abrasion-, arc-tracking-, fire-, and fluid-resistance and low maintenance
- Customized solutions and support for complex and advanced designs





## ...REQUIRE SMALLER, LIGHTER AND MORE POWERFUL CABLES

The Nexans product portfolio is comprehensive, and covers nearly all aerospace demands. From airframe wires and cables to fire-zone and high-temperature cables, from power feeders to coax, databus, quad Ethernet, and optical fiber for IFE and sub-systems. For every application, Nexans has a solution.

For special needs, like flexibility, dynamic cut-through resistance, electromagnetic compatibility, corona resistance, we can supply products customized to specific customer requirements that can be used in various types of harnesses.

In addition to delivering products that conform to most national, international and OEM standards, Nexans also has a worldwide industrial footprint with dedicated Aerospace plants in Draveil (France), Mohammedia (Morocco) and Suzhou (China) - that opened in October 2016.

### Aerospace cable solutions for safety, reliability, efficiency and adaptability

Almost half of commercial aircraft in service today are equipped with Nexans cables. Nexans is the only cable manufacturer worldwide to offer a broad spectrum of wires and cables, supported by a full range of aerospace services:

- Composite tape wrap
- ETFE
- FEP
- PTFE extruded
- Design and prototyping
- Testing and qualification
- Manufacturing
- Engineering support



### Standards and specifications

Nexans wires and cables meet most national, international and OEM standards for both commercial and defense applications. They include EN, NSA, ASN, ABS, BMS, etc., in addition to our own rigorous aerospace standards.





# A FULL RANGE OF PRODUCTS AND SOLUTIONS YOU CAN

## Airframe wires and cables



General-purpose airframe wires and cables are used on the flight deck, in the passenger area, in the wings and surfaces. They are used to carry signal and low level

power at 28 Volt DC or 115 Volts AC RMS, controlling everything from fasten-seatbelt signs to complex fly-by-wire sub-systems.

- Copper, copper-alloy, copper-clad aluminum or aluminum alloy
- PTFE polyimide wrapped insulation, laser markable
- High temperature, mechanical and chemical resistant
- Low weight, small diameter, and arc-tracking resistant

## Cables for power transmission



Power feeders energize motors and equipment from APUs and batteries. Nexans' offer includes main international standards. Compact nickel-plated

copper versions provide high conductivity, while larger nickel-plated aluminum versions achieve significant weight savings.

- AWG 8 to 4/0, copper or aluminum conductors to save weight
- Polyimide-wrapped/PTFE/glass-fiber insulation
- Operating temperatures up to 260°C

## Fire-zone and high-temperature area cables



For hot areas, engines and the nacelle environment. Their functions vary from carrying signals to transmitting energy. Nexans' offer includes main

international standards. Our range of cables answer both flame/fire retardant and fire-resistant requirements.

- AWG 24 to 4/0
- Fire-proof and fire-resistant insulations
- High temperature from 260°C to 310°C
- Arc-tracking resistant
- Nickel-clad copper/copper-alloy conductors



## Coaxial cables



For onboard HF data transmission (radio/radar/anti-collision/communications/navigation/avionics). RG and improved coax

designs: KX for enhanced high-frequency, WZ for signal transmission, and KW, featuring an all-aluminum weight-saving conductor.

- Silver-plated, copper, copper-alloy, copper-clad steel/aluminum
- Aerated fluoropolymer, PTFE extruded with wrapped insulation
- Single or double screen (braids, tapes, etc.)
- Low attenuation



## Databus, quad Ethernet and optical fiber

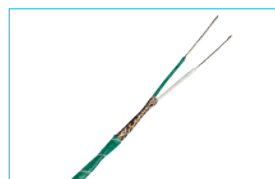


In addition to avionics, these cables serve various in-flight entertainment and communication needs. To increase data volume without increasing space

requirements or weight, Nexans has optimized shielding and armoring to reduce weight by 20-60%, and offers solutions based on optical fiber.

- Silver-plated, copper, copper-alloy, copper-clad steel/aluminum
- Aerated fluoropolymer, PTFE extruded with wrapped insulation
- Single or double screen (braids, tapes, etc.)
- Optical fiber: robust, fluid-resistant, rated at 125°C

## Customized cables for specific applications



Our AS9100 and ISO9001 certified facilities manufacture ultra-low-weight shielded cables for satellites and coiled cables for cockpit, special sensor

cables, flight-test wires, low-noise cables for vibration-prone areas, custom-built coaxial assemblies for SATCOM systems, and various hybrid cables.

- Multi-core, screened, jacketed, and extendable coil cords
- Coaxial assemblies for SATCOM
- Ultra-low-weight shields
- Hybrid cables combining hook-up wires, power feeders, shielded cables and coaxes
- Specialties, such as low-noise, flight-test, and thermocouple extension cables







# SPECIALIZED SERVICES YOU CAN RELY ON

To further support our customers with our complete cable offer, Nexans provides services tailored to customer needs. Our expertise adds value to your products and facilitates new approvals in keeping with national and world standards. Combined with your own aerospace excellence, our services help boost your performance in a highly competitive high-tech market.

## Customized kitting

Nexans can propose customized kitting and packaging to its customers, especially for pre-cut power cables. Kits can include other components, according to customer needs and specifications.

## Training modules

At the request of OEMs, harness makers and distributors, we provide custom training on our products to explain their specific performance characteristics and benefits.



## Resident engineers

If a customer has issues or questions related to wires and cables, we can assign a resident engineer to work with their research department to help them make the right choice, or facilitate acceptance according to design criteria, test information and applicable standards.

## Re-design to cost

In a world where size, weight and reliability are of the utmost importance, we can help suppliers, harness makers and OEMs find optimal solutions. For example, we have pioneered the use of aluminum to achieve significant weight reduction.

## Dedicated customer portals

While integrating with customer portals, Nexans can also set up dedicated portals to offer customized information according to design, manufacturing and operational needs (including technical data, commercial information, specifications, and billing).



Nexans brings energy to life through an extensive range of cables and cabling solutions that deliver increased performance for our customers worldwide. Nexans' teams are committed to a partnership approach that supports customers in four main business areas: Power transmission and distribution (submarine and land), Energy resources (Oil & Gas, Mining and Renewables), Transportation (Road, Rail, Air, Sea) and Building (Commercial, Residential and Data Centers). Nexans' strategy is founded on continuous innovation in products, solutions and services, employee development, customer training and the introduction of safe, low-environmental-impact industrial processes. In 2013, Nexans became the first cable player to create a Foundation to introduce sustained initiatives for access to energy for disadvantaged communities worldwide. Nexans is an active member of Europacable, the European Association of Wire & Cable Manufacturers, and a signatory of the Europacable Industry Charter. The Charter expresses its members' commitment to the principles and objectives of developing ethical, sustainable and high-quality cables. We have an industrial presence in 40 countries and commercial activities worldwide, employing close to 26,000 people and generating sales in 2015 of 6.2 billion euros. Nexans is listed on NYSE Euronext Paris, compartment A.

## Nexans

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