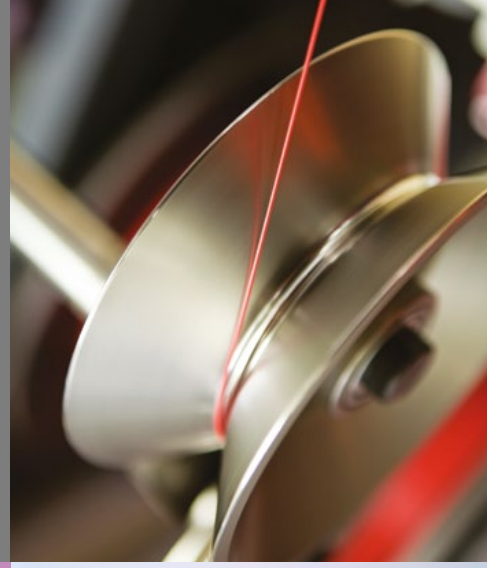


NEWSENSE®
CABLE SOLUTIONS AND SERVICES
TO PERFECTLY MATCH YOUR NEEDS





PREVENTION, DIAGNOSTICS, TREATMENT AND SURGERY REQUIRE NEWSENSE® CUSTOMIZED CABLE SOLUTIONS

We are in a new era of high-tech medicine where technology is playing an important role. Medicine is focusing on prevention as well as treatment and diagnostics requiring the use of imaging devices.

Recent breakthroughs in laparoscopy and telerobotics are transforming the operating theater, providing minimally invasive solutions as an alternative to complex open surgical techniques.

Eventually, electronic devices will be able to detect, evaluate, treat and report to the clinical doctor automatically via remote patient monitoring (RPM) and a wireless netlinked system, bringing advanced health care out of the hospital and right into the home.

Meanwhile, increased price pressures and new emerging markets in Asia are pushing medical manufacturers to manage costs more carefully while maintaining quality.

Much of this exciting medical revolution depends on high-quality microcables, multicore cables for dynamic applications, and composite cables which combine several functions in one cable: e.g. plastic optical fiber, coaxial cable, twisted pairs, tubes for air, gases or liquids, etc.

Customized micro and composite cables for your needs: no more, no less.

As an innovative manufacturer of imaging equipment and invasive solutions, you want high-performance medical cables that offer:

- Conformity with ISO 10993 in terms of biocompatibility, allowing FDA qualification
- Resistance to all sterilization techniques: chemical, heat, gamma rays, etc.
- Protection against multidrug-resistant (MDR) bacteria/viruses
- Comfort and ease of use for doctor, technician and patient
- Electromagnetic compatibility (EMC) in the "busy" clinical environment
- Optimal flexibility for biosensors, monitors, catheters
- Compactness and lightness for portable devices and wearable applications
- Cosmetic appearance and comfort, especially for probes and pacemakers

IMAGERY

Nexans medical micro and composite cables allow OEMs to build more convenience and intelligence into all investigative, diagnostic and therapeutic equipment. Physicians and patients worldwide appreciate their safety, comfort and discretion.

We meet your special needs and applications through cost-effective, custom designs to reduce your development time and increase performance. NEWSENSE® cables fully comply with EU and other international directives.

NEWSENSE® for medical imaging

A wide range of microcables and composite cables for numerous devices used in obstetrics, gynecology, cardiology, dentistry, endoscopic applications and the veterinary sciences.

For large imaging systems (radiography, magnetic resonance imaging/MRI, computer tomography, and nuclear camera/scanners) Nexans manufactures flexible composite cables with different solutions inside, from micro-coax to a complete set of plastic fiber-optic cables, twisted pairs and tubes.

Design

- Various conductor counts: 2-528 for coax; 2-130 for composite
- Antimicrobial cables for patient safety
- Bundles with identification thread
- Colored insulation; specific color by micro-coax
- Capacitance within the 55-95 pF/m range for ultrasound probes
- Single wires and coaxial cables in various constructions for CCD cameras
- Round, flat or square cable depending on equipment space
- Spike Proton Free (SPF) for MRI

Special services

Nexans tests electrical performance, bending and flexibility, and critical medical parameters. R&D is often done closely with the customer and small quantities are quickly tested and prototyped to assure quality and applicability. The right cost-quality equation is carefully studied, and logistics are meticulously planned to match customer production needs.



Benefits of NEWSENSE® for medical imaging

- Full biocompatibility, sterilization ease and operational flexibility
- Antimicrobial jackets to protect against multiresistant bacteria/viruses
- High data capacity and multi-constructions in miniaturized format
- EM-shielded for safe clinical operation and surgery



THERAPY

NEWSENSE® for invasive applications

Designed for diagnostic cardiac catheters, sensors and pacemakers, they offer high mechanical resistance, especially to tension, torsion and bending.

Design

- Biocompatible materials
- Antimicrobial cables for patient safety
- Miniaturized, mono and multi-wire constructions
- Cosmetic adaptability

Catheters

Various types of conductors: gauges AWG 28 to 52; up to 14 conductors laid up in pairs. Lower cross-sections can be developed according to need.

Pacemakers

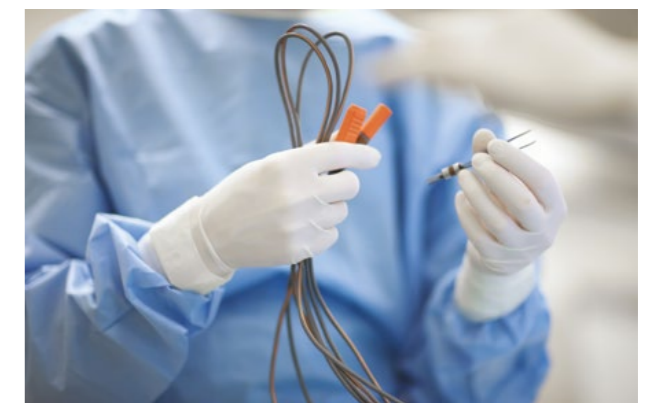
Wire or coaxial cable AWG 28 to 34, with stainless-steel conductor

Sterilization

Both kinds of cable are resistant to various sterilization methods, including chemical (ETO, Sterrad®, Cidex®, gas), gamma rays, and standard alcohol, ethanol, propanol, etc.

Micro-manufacturing unit

To assure quality and conformity with the strictest standards, Nexans maintains a separate contamination-free manufacturing unit that uses dedicated microtechnologies to produce very tiny screened and insulated cables. Tests are conducted according to customer specifications, including: electrical performance, bending and flexibility (to match user movement), salt-water tests to simulate behavior in blood environments, neutrality and biocompatibility, ability to support extreme temperatures and shock during transportation and storage, insulation resistance to certain chemicals, etc.

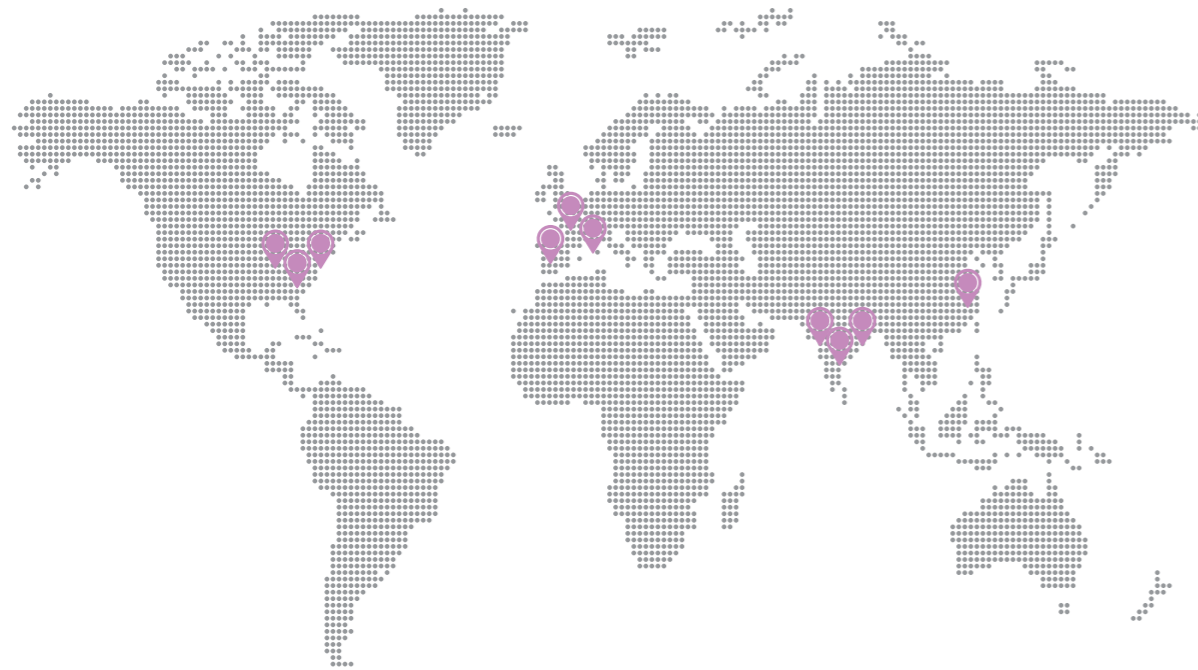


Benefits of NEWSENSE® for invasive applications

- State-of-the-art quality processes to ensure product consistency
- Full biocompatibility, sterilization ease and operational flexibility
- Antimicrobial jackets to protect against multiresistant bacteria/viruses
- High data capacity and multi-constructions in miniaturized format
- Cosmetically designed to offer patients exceptional comfort
- EM-shielded for safe clinical, home and on-the-job operation

NEXANS IN THE MEDICAL MARKET

SUPPLIER OF 3 MAIN WORLDWIDE IMAGING OEMS



Nexans expertise

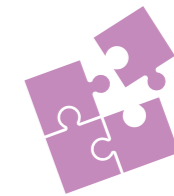
- Based on ongoing R&D in dedicated Nexans competence centers
- Industrial capacity adapted to OEM production; customized prototypes
- Draws on Nexans experience in aeronautics, robotics, LANs, etc.
- Shared expertise, laboratory technical support, extensive service program
- Worldwide presence and country-specific project development



2 dedicated plants
Piolteello, Italy
Draveil, France



1 competence center
dedicated to medical



Harnesses solutions
with our preferred partners

NEXANS MEDICAL INDUSTRIAL FOOTPRINT

PLANTS	NEXANS PIOLTELLO PLANT	NEXANS DRAVEIL PLANT
Nexans Offer	IMAGING AND MONITORING (Core Section AWG32 to 50 mm ²) Products: Hybrid cables, customized design Coax ; Multi-coax ; Single wires ; Multi-conductors Optical fiber	INVASIVE (Cores section AWG52 to AWG38) Products: Multi-pairs, Multi-conductors, Coax ENDOSCOPY (Cores section AWG46 to AWG 34) Products: Hybrid cables, customised design ULTRASOUND (Cores section AWG44 to AWG36) Products: Multicoax
DESIGN CAPABILITIES		
Conductors	Copper, Tinned copper, Silver plated copper, Enamelled copper, Tinsel, Constantan, Alloys	Copper, Tinned copper, Silver plated copper, Enamelled copper, Stainless steel, Constantan, Alloys
Extrusion capabilities	PVC, PE, PA, PP, Foam PE, PUR, TPE, TPC, ETFE, FEP, PFA, PVDF, PET, PEI, LSZH, XLPE Semi-conductive PVC	PVC, PE, PA, PUR, TPE, Siltem, FEP, MFA, PFA, PTFE, PEI, LSZH Fluoro aerated technology
Taping capabilities	Polyester, PTFE, Aluminium/Polyester, Copper, Mumetal, Mica, semi-conductive	PTFE, Polyimide, Polyester, Aluminium, Copper, Mumetal, Mica, Semi-conductive
Assembling capabilities	Hybrid cables with FO, tubes Water-blocking material Max numbers: 130 cores	Hybrid cables, Multicoax Max numbers: 528 cores
Shield capabilities	Serve shield and braiding (wires Ø until AWG44) Textile braid: aramid	Serve shield and braiding (wires Ø until AWG54) Textile braid: Aramid, glass, Cotton
Quality certification	ISO 9001 ; many UL AWM styles approvals	ISO 13485, EN9100, ISO 9001, ISO 14001



As a global leader in advanced cabling and connectivity solutions, Nexans brings energy to life through an extensive range of best-in-class products and innovative services. For over 120 years, innovation has been the company's hallmark, enabling Nexans to drive a safer, smarter and more efficient future together with its customers.

Today, the Nexans Group is committed to facilitating energy transition and supporting the exponential growth of data by empowering its customers in four main business areas: Building & Territories (including utilities, smart grids, e-mobility), High Voltage & Projects (covering offshore wind farms, submarine interconnections, land high voltage), Telecom & Data (covering data transmission, telecom networks, hyperscale data centers, LAN), and Industry & Solutions (including renewables, transportation, Oil & Gas, automation, and others).

Corporate Social Responsibility is a guiding principle of Nexans' business activities and internal practices. In 2013 Nexans became the first cable provider to create a Foundation supporting sustainable initiatives bringing access to energy to disadvantaged communities worldwide. The Group's commitment to developing ethical, sustainable and high-quality cables drives its active involvement within several leading industry associations, including Europacable, The National Electrical Manufacturers Association (NEMA), International Cablemakers Federation (ICF) or CIGRE to mention a few.

Nexans employs more than 26,000 people with industrial footprint in 34 countries and commercial activities worldwide. In 2017, the Group generated 6.4 billion euros in sales. Nexans is listed on Euronext Paris, compartment A.

Nexans

Immeuble Le Vinci - 4 allée de l'Arche
92070 Paris La Défense Cedex - France
Tel. : +33 (0) 1 78 15 00 00
www.nexans.com/newsense
marcom.info@nexans.com