Nexans

MOTIONLINE™

Reliable cable solutions and services for automation

Challenges to automation...

Worldwide, there are well over a million industrial robots in operation, with over 100,000 new robots installed every year, representing some $19 billion annually, if software, peripherals and systems engineering are included.

The automotive industry once led the drive to robotize. However, today, food and beverage producers ; the electrical/electronics industry; chemical, rubber and plastics; and the metal products and machinery industries are continuing to robotize operations.

What drives this growth? Prices for robots have plummeted, and quality has increased. Robots now cost half of what they did in 1990.

Meanwhile, automation systems and process control have radically changed. Today's machines are electrically-driven, and control systems have much improved through Programmable Logic Controllers (PLCs), Distributed Control Systems (for heavy process, large-scale applications), and new PC-based Control Systems.

What robotic and machine tool manufacturers expect of a cable supplier:

- High performance for efficient integration and distributed control
- Quality, reliability and durability to avoid costly stoppages
- Availability and fast delivery for production line flexibility
- Resistance to harsh environments and imperviousness to EMI
- Safety for personnel, e.g. lead- and cadmium-free, and easy recycling
- Conformity to international standards, and cross-industry compatibility
- Excellent service, from testing to support and maintenance

Assembly lines require a complete range of high-performance robotic cables for production efficiency and process control.

...require **MOTIONLINE™** reliable and flexible cables

One weak link can interrupt the production chain and delay the delivery of a product resulting in financial loss. To prevent this, Nexans manufactures a full range of MOTIONLINE™ reliable, dynamic cables to assure the interconnection, control and process efficiency of robots and flowlines.

Nexans offers a wide scope of cable products for automation under its MOTIONLINE™ brand that conform to all major international safety standards, such as German (VDE), Canadian (CSA), American (ANSI) Chinese (CCC) and UL worldwide. We also frequently design and engineer a special cable to deliver the vital combination of high-performance, reliability and long life. This is especially true for custom-made miniaturized installations.

We supply everything from miniaturized control cables to state-of-the-art industrial Profinet cables to bring the office and the production floor closer together. Efficiency begins with an up-front requirement analysis. Then, our Nexans research centers test the cables currently used, and strive to surpass them in terms of performance, durability, chemical and oil-resistance.

This move from benchmarking to theory and then back to practical implementation results in customized designs, modularity and appropriate materials that can fit neatly into the entire production process. Thus, together with the world's leading robot and industrial equipment manufacturers, we are creating standards to streamline automation worldwide.

MOTIONLINE™ for robotics and industrial assembly

- A full range of products for power and control functions
- Interconnectivity to merge both the analog and digital worlds
- Optimized conductor and insulation materials (no shrinkage and low hydrolysis)
- Special designs to maintain electrical parameters throughout the life cycle
- Easy strippability and connectivity for installation and replacement ease
- Fire- and heat-resistance for safety and performance
- Imperviousness to oils, fats and other chemical agents
- Technical support tailored to customer needs

MOTIONLINE™ for dynamic applications...

ROBOTIC APPLICATIONS

Robotic cables

Carrying energy/data on one or several cores, they perform excellently under high torsion conditions, with low break susceptibility. Nexans manufactures over a hundred sizes (0.14 to 95 mm^2) in polypropylene (PP), thermoplastic elastomer (TPE) and our own Thermoplastic Modified (TPM) insulations.

Nexans provides a wide range of robotic cables for the German KUKA Robot Group, the largest producer of robots in Europe and No. 2 worldwide.

CHAIN APPLICATIONS

Power cables

These screened cables provide power to servos and motors for two-dimensional movements, and are available from 1.5 to 50 mm^2, delivering from 600–1,000 V. Depending upon specific types, cables contain one or two pairs to connect servo breaks and thermal sensors.

Low capacitance cables are being produced for SEW, a German supplier for robot and machine tool manufacturers.

Encoder cables (green)

A control cable, usually 4 to 18 cores, but up to 50 cores, in pairs and quads. They link the central processing unit (CLP) to the machine, for 3-dimensional movements, and opening and closing. With a small bending radius, these quality cables can deliver up to 10 million cycles.

Schweiger GmbH integrates all Nexans families in its automated procurement system offering maximum technical and commercial benefits to customers like Index, Grob or FANUC Automation.

Unshielded power cables (black)

When EMI is not a problem, these power cables (600–1,000 V) provide a cost-efficient solution for servo-motors operating under harsh conditions.

Lutze uses these cables in cranes for large production halls and port facilities.

Hybrid cables

A key trend in the automation industry is towards hybrid cables that combine power, control and data cores within a single cable. These tailor-made cables deliver unsurpassed energy and control capability, meeting the needs of decentralized control systems.

Nexans developed these special cables with leading German connector producers and harness makers to meet specific connector and environmental factors for all applications.

CONTROL APPLICATIONS

Control cables

Multi-standard, easy-to-strip miniature cables (up to 2.5 mm^2) with a small bending radius and long life (up to 5 million cycles) used for control in assembly line machines.

Incorporating our Thermoplastic Modified (TPM) insulation, the cable's' improved dielectric quality has made FANUC Robotics, a prime supplier for the machine tool industry.

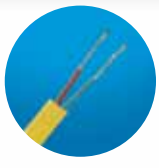
Robotic cables

Power cables

Encoder cables (green)

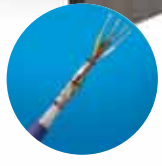
Unshielded power cables (black)

Hybrid cables



ASI-bus cables

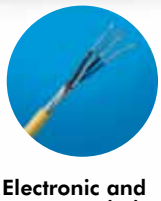
Profibus cables



Profinet / Industrial Ethernet cables

...through technical expertise

Control cables



Electronic and data transmission cables

BUS APPLICATIONS

ASI-bus cables

All bus cables provide signal transmission for wider control purposes beyond simple servo-motor functions. ASI-bus (co-developed with Siemens) is a flat 2-core, 1.5 mm^2 cable which fits into a special module with pins, making it fast and easy to connect within high security systems.

For its mailing/sorting systems, instead of multicore cables, Siemens preferred an easy-to-install cable which could send several control functions to various "addresses" via a simple two-core cable.

Profibus cables

A two-core round cable in a dozen designs for complex control. Delivering up to 12 Mbits/s, Profibus is the leading standard in Europe, and widely used in the automotive industry. Superior mechanical and dynamic properties, as well as fast connections account for its continuing market dominance.

Originally co-developed with Siemens in 1989, a new version accommodates Drive-CliQ networking for servo drives and motors, allowing both flexibility and high dynamic performance for multi-axis systems.

Profinet/Industrial Ethernet cables

To merge office and factory LANS, Nexans offers a symmetrical copper cable with a data transfer rate of 100 Mbit/s (Fast Ethernet) in a 2-pair or a starquad, twisted and shielded cable; copper/copper and copper/fiber solutions, with a 24-V energy feed, and all fiber-optic solutions.

Drive-CLiQ Industrial Ethernet Cables represent the latest state-of-the-art development for servo-drives and motors, allowing both flexibility and high dynamic performance for multi-axis systems.

SENSOR APPLICATIONS

Sensor cables

To measure position, heat, liquid level, pressure, vibration, etc., Thermoplastic Modified (TPM) cables provide exceptional reliability in a 2–5 core cable, which is Halogen-Free and Flame-Retardant (HFFR).

For Lumberg, a leader in automation connectors and components, Nexans created a UL-certified HFFR cable for its Lumflex generation, capable of delivering 5 million flex cycles. For Murrelektronik, we provided the largest selection of cable types and colors for sensor/actuator connectivity, tested to 5 million drag-chain cycles and more.

A service commitment that goes a long way

GLOBAL EXPERTISE

Global players want a global cable partner who can deliver the goods, wherever high-performance robots are used. That is why we fully comply with major standards, like VDE, UL and CSA, and the Chinese CCC. As supply chain managers in our own complex production facilities, we are doubly aware of our customers' needs.

LOCAL PRESENCE

Based in countries who are major robotics producers and users, themselves, we are highly sensitive to national needs, languages and cultures; and are committed to sharing our expertise through problem-solving, adding value through cable design, and supporting local manufacturing practices.

INNOVATION

We are inventors and standard setters for robotics and automation. Since reliability depends on quality, we are constantly re-engineering, redesigning and improving our products through better alloys, and more durable insulations capable of operating in high temperatures, and delivering superior fire-performance.

Nexans

Global expert in cables and cabling systems

With energy as the basis of its development, Nexans, the worldwide leader in the cable industry, offers an extensive range of cables and cabling systems. The Group is a global player in the infrastructure, industry, building and Local Area Network markets. Nexans addresses a series of market segments: from energy, transport and telecom networks to shipbuilding, oil and gas, nuclear power, automotives, electronics, aeronautics, material handling and automation. With an industrial presence in 39 countries and commercial activities worldwide, Nexans employs 22,700 people and had sales in 2009 of 5 billion euros. Nexans is listed on NYSE Euronext Paris, compartment A.

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