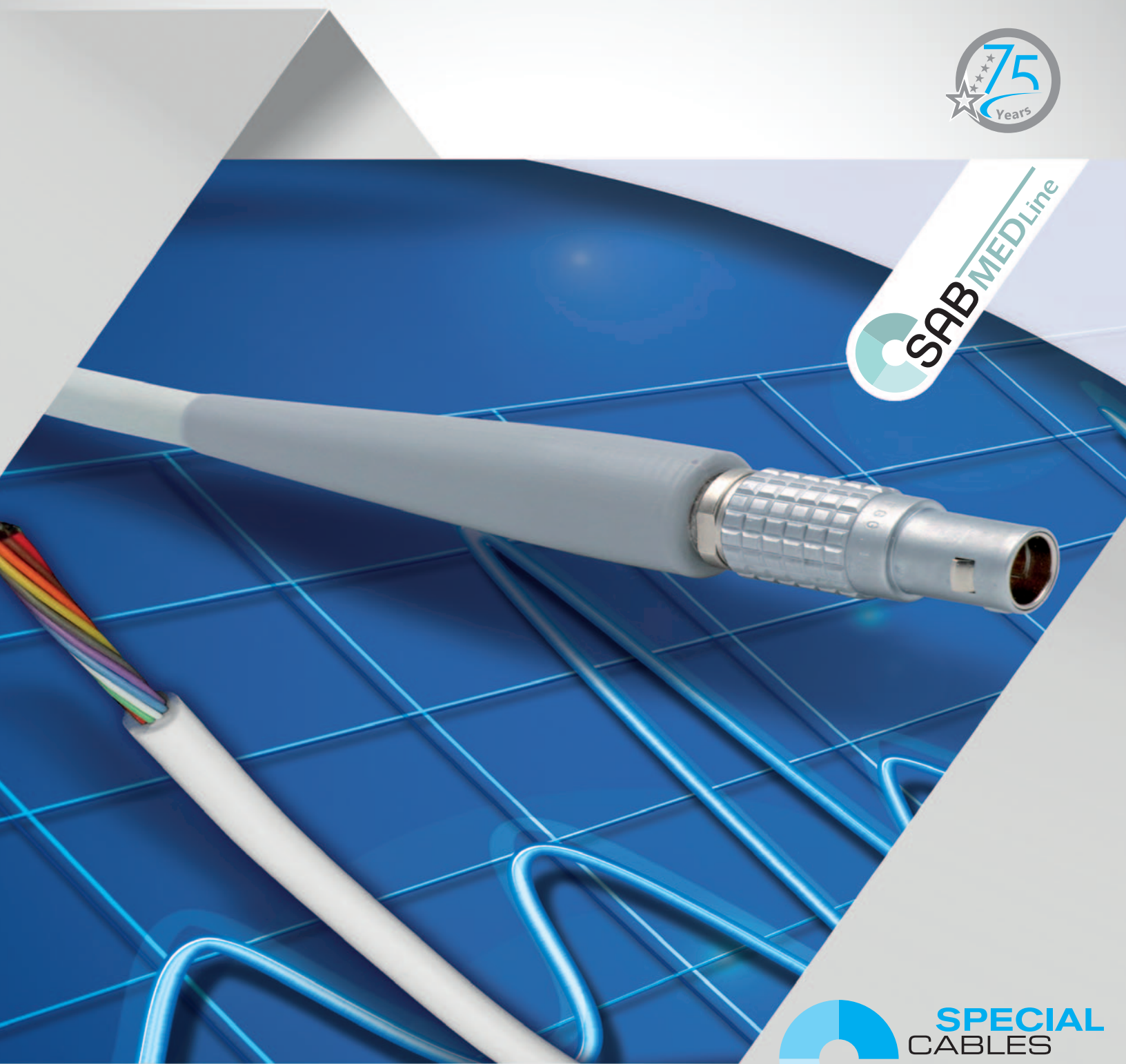
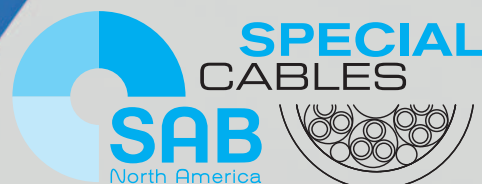


# CABLES & ACCESSORIES FOR MEDICAL TECHNOLOGY



[www.sabcable.com](http://www.sabcable.com)  
866-722-2974 ■ [info@sabcable.com](mailto:info@sabcable.com)



## About Us



SAB North America is a focused supplier for the automation, aerospace, medical, high temperature, and robotics industries, providing cable solutions that meet, exceed, and set new standards in the flexible cable market. In addition to flexible cable products, we offer an extensive inventory of high-quality cable accessories, including cord grips, grounding glands and other accessories that complement our flexible control and automation cables.

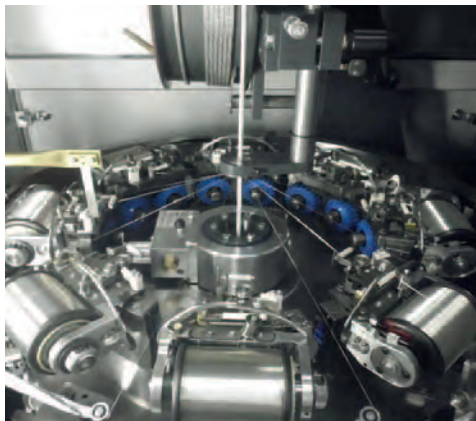
Whatever the need may be, look to SAB North America for Special Cables that can, for example, help minimize maintenance costs and increase productivity, reduce downtime, and solve specific problems. Here is a small sample of some of the challenges that Special Cables from SAB North America can help address:

- Hybrid designs for multiple functions
- Harsh environments
- Difficult applications
- Industry-specific requirements



Cables cannot compromise patient lives and safety, and they must maintain reliable connections amidst threats like frequent cleaning, disinfection, and handling, as well as be able to withstand abrasion, shock, impact, and tampering. Medical equipment OEMs must have complete certainty that the cables they choose are suitable for their design. SAB North America provides a wide variety of safe, reliable cables and over-molded cables for use in medical laboratories, operating rooms, and monitoring environments. SAB has more than 75 years of experience manufacturing quality, rugged cables for challenging applications so that you can be sure that SAB cable is a safe and reliable addition to your medical equipment.

SAB's level of speed and service as a supplier is unmatched. SAB lives up to its name in not only flexible cable but also flexible manufacturing.

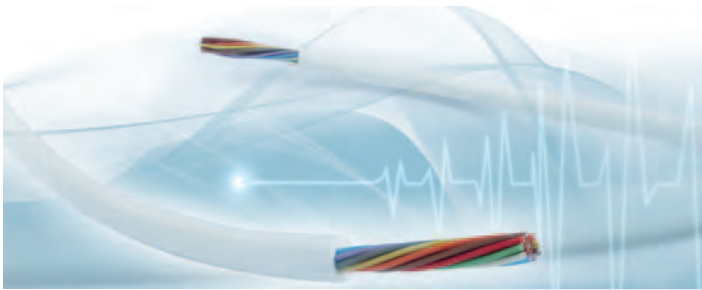
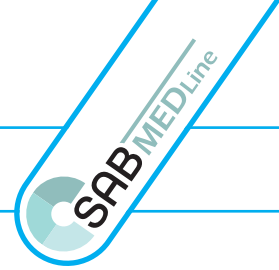


## SAB Advantage...We make it Easy

- Small prototype runs on serialized production equipment
- Biocompatible material range to meet your unique requirements.
- The color of the jacket can be customized to match the medical device.
- Plug & play pre-assembled solutions are available.
- Twisting characteristics include high flexibility, easy to grip, and no risk of kink.

# Cables for Medical Technology

## Biocompatibility acc. to EN ISO 10993-1



**BIOCOMPATIBLE MEDICAL CABLE  
WITH ULTRA SOFT JACKET**

SABmed Line cables were developed for the medical device market.

SABmed Line is our product range of biocompatible, highly flexible, non-kinking cable solutions for medical devices that withstand the demanding requirements of cleaning, disinfection, and handling. A wide range of materials can be customized to find the right product for your application.

### Jacket Material

### Features

<b>SABmed S Basic</b>	Smooth & flexible with increased mechanical properties for various medical devices
<b>SABmed S Classic</b>	High notch and tear-resistance with excellent flexibility
<b>SABmed S Ultraflexible</b>	Provides high flexibility and increased mobility for doctor or technician
<b>SABmed S UL</b>	UL Certified power, data, bus, connection, or single-core cables for medical devices
<b>SABmed S Platin</b>	Completely eliminates blooming
<b>SABmed S Plus</b>	Designed for easier faster handling, can be used in automated strip-and-cut machines for large production runs
<b>SABmed S Universal</b>	High mechanical resistance and flexibility, dual cables move together and are easily separated (electrosurgery devices)
<b>SABmed T</b>	Halogen-free and suited for gas or radiation sterilization. Easy to grip and slide non-stick jacket does not require a parabellum coating. Useful in endoscope devices

All compounds mentioned above passed the examination for **biocompatibility (DIN EN ISO 10993-5 cytotoxicity)**. Furthermore we are able to produce in small batches especially interesting for pilot series and prototyping.

## OVER-MOLDED CABLE SOLUTIONS

SAB North America offers high-quality cable solutions with a wide variety of material for plug & play solutions for medical equipment, even for prototypes and small runs.

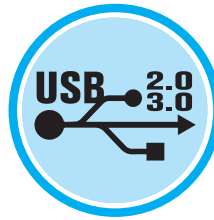
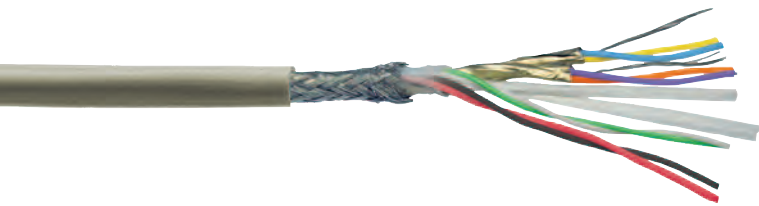
Connection cables for medical devices are often subject to demanding requirements in daily use, be it through cleaning, disinfection, or handling. A well-thought-out system solution is a key factor for reliability and completes the individual application. SAB has expanded its range of medical cables with new plug & play over-molded solutions, made of medical-grade silicone or thermoplastic elastomers.



Manufacturers of medical devices will be able to use this complete system solution as a custom designed Plug & Play product "from a single source" for greater design freedom in the development of devices.



### USB 3.0 M Cable



SAB offers high-quality cables that meet the high standards for high-resolution camera systems and data transmission.

Imaging systems are an integral part of medical, diagnostics, and surgical treatments. A brilliant and crystal clear image representation is crucial for evaluation, diagnosis, treatment, and therapy.



Due to the demand for ever-faster transmission systems and interference-free imaging devices, the designers of camera systems are facing a major challenge selecting the right cable. To be equipped for the picture imaging of tomorrow a “medical-grade” USB 3.0 cable has been developed. Developed by balancing between high flexible design features, low weight, and safe data transmission, this innovation is highly suitable for the manual positioning of the camera systems without affecting the device with unnecessary cable weight.

#### **Features:**

- Autoclavable
- UL Certified
- Overmolded assemblies available

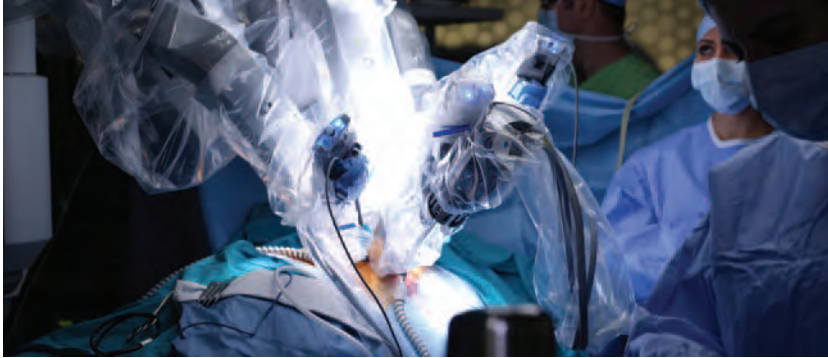
## CABLES FOR PROTOTYPE CONSTRUCTION

Prototype and small runs of production of connection cables for medical devices are a real challenge for manufacturers. Cable manufacturers generally offer customized designs only for huge minimum order quantities. Cables are rarely stocked to meet the exact requirements of every application. SAB North America can be your partner for the design of prototypes and small-batch productions.

#### **Advantages of SAB North America:**

- Prototype and sample-batch production on serialized production lines.
- SABmed line offers a wide range of biocompatible materials adapted to your individual needs. Corresponding certificates including EN ISO10993-1 (cytotoxicity acc. to EN ISO 10993-5) upon request.
- Outer jacket color adapted to the design of the medical device for a harmonious visual appearance.
- Cables with the highest flexibility, easier handling, and moveability with no risk of kinking because they are designed especially for use as handheld connection cables for medical devices.
- Plug and play pre-assembled cables available upon request.
- Non-stick jacket does not require a parabellum coating.





### ROBOT SURGERY SYSTEMS

Robot Surgery systems demand cables with high mechanical properties as well as million cycles of torsional and bending movements. To fulfill these high requirements, we test the performance and durability of our products in our in-house testing facility. The combination of different insulation and jacket materials allows the use of various disinfectants and cleaning substances, including autoclaving and clean-room applications.



### DENTAL TECHNOLOGY

Dental technology applications range from flexible, smooth silicone cables in handheld applications to torsional flexing in swivel arms to miniaturized connection cables. The wide range of SAB medLine material allows us to design to your exact requirements.



### IMAGING TECHNIQUES

Medical diagnostic imaging devices require a reliable connection for transmission. SAB offers a variety of possibilities to fulfill your demands with a custom-made solution. Design possibilities for highly flexible hybrid cables range from including COAX-elements or special electrical screens or simply a custom color jacket.



### STERILIZATION & DISINFECTION

SAB produces connection cables and products for temperature measurement for sterilization and disinfection. Steam-tight versions are possible as well as autoclavable connection cables.





### OPERATING TABLES

The use of SABmedLine cables on operating tables or in treatment units makes patient positioning easier. Whether we produce helix-cables with harnessed ends, connection cables or hybrid cables with high-flexible performance - we can satisfy your demands at the highest level.



### SURGICAL LIGHTS

For medical lighting, cables need to withstand high and fluctuating ambient temperatures up to +180°C. For this application, SAB offers a broad range of Besilen silicone insulated cables and strands. These are used for the inner wiring of lamps and devices, as well as for the wiring of switch and distribution boards with low mechanical stress.



### ELECTRO-SURGICAL SYSTEMS

Whether the application is monopolar or bipolar - the manufacturing at SAB always takes place on the highest quality level using bio-compatible materials. Versions with increased screen protection to avoid disturbance of the imaging quality can be designed and manufactured.

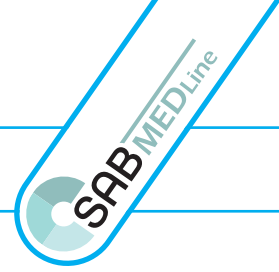


### ELECTRO-THERAPY DEVICES

Connection cables in the field of electrotherapy with electric stimulation and/or magnetic flux are designed and manufactured to the customer's specification. Some of the requirements SAB can meet are extreme flexibility and motion-friendly performance, resistance against wipe-disinfection, and even space-saving hybrid cable designs. Also cable harnessing is possible.

# Cables for Medical Technology

## Applications



### LABORATORY EQUIPMENT

For the demands of laboratory equipment, SAB offers a wide range of innovative products: very flexible Besilen® silicone cable with high-temperature resistance up to +250°C or connection cables designed for permanent movement at the door of appliances. Steam-tight versions are possible as well as autoclavable connection cables, even with international standards.



### MONITORING

To keep up with the latest developments in medical monitoring and information techniques, SAB has developed a variety of new cable solutions. For example, for the application of linked surgery systems, we can offer flexible CAT5, CAT6, and CAT7-cables with temperature and chemical resistance as well as drumable and robot suitable variations.



### ENDOSCOPY

Endoscopic systems need, like other imaging systems, secure and reliable transmission connections in combination with smooth and user-friendly performance. SAB can provide an innovative custom-made solutions for your application as well as prototypes and harnessed assemblies for testing.



### ELECTRO-MOBILITY

Based on our experiences in the field of vehicle technology and battery-charging systems, SAB offers a wide range of products for electro-mobility. The special advantage is the easy installation, even with narrow space conditions.



# Cables for Medical Technology



## Flexible Control Cables

Flexible & oil resistant cables for use on industrial machinery, electrical equipment, assembly and production lines, and processing machinery.

- CC 600 & CC 600 CY (UR/CSA/CE) - Flexible, Unshielded & Braid Shielded, Oil Resistant 600V, 90°C PVC
- CC 600 P & CC 600 CP (UR/CSA/CE) - Flexible, Unshielded & Braid Shielded, Notch Resistant, PUR



## Continuous Flex Cables

Continuous flex cables for a variety of applications from heavy-duty power & control to sensitive data communications. Designed & tested for X-Y flexing and alternate bending. Life cycle testing available up to 20 million cycles.

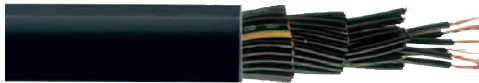
- S 960 & S 960 CY (UR/CSA/CE) - Unshielded & Braid Shielded, Oil Resistant PVC
- S 200 & S 200 C (CE) - Unshielded & Braid Shielded Cable, Extreme Temperatures, and Tight Bending Radius, TPE/PUR
- S 980 P & S 980 CP (UR/CSA/CE) - Unshielded & Braid Shielded, Oil Resistant, PUR
- S 900 & S 900 P (UR/CSA/CE) - Single Conductor, Tight Bend Radius for Confined Areas, PVC & PUR



## Torsion Cables

Flexible robotic cables designed for twisting applications used on robotic arms and other applications requiring rotary motion.

- RT 123 (UR/CSA/CE) - Torsional and Continuous Flex Cable for  $\pm 450^\circ$  / 1/2 m, Available Shielded and Unshielded, TPE/PUR



## Tray Cables

Flexible tray cables for easier installation saving on labor costs. Oil & humidity resistant for longer plant life.

- TR 600 S & TR 600 S CY (UL TC-ER-JP, MTW, WTTC/UR/CSA-TC/CE) - UV & Oil Resistant Flexible Cable, Shielded & Unshielded, PVC
- TRAY HD TPE & TR 600 Heavy duty tray cable (UL TC-ER-JP/UR/CSA/CE) - Available with Red, Blue or Black Numbered Conductors, Shielded & Unshielded, TPE



## VFD Cables

VFD cables for connection of VFD drives and motors. Various designs to fit your specific need all UL TC-ER and 1000V.

- VFD XLPE TR (UL TC-ER-JP, WTTC/cUL/CSA/CE) - 4c Power with Overall Shield
- VFD Combo XLPE (UL TC-ER-JP, WTTC/cUL/CSA/CE) - 4c Power Plus Shielded Pair for Brake or Sensor
- VFD XLPE TR Lean (UL TC-ER-JP, WTTC/cUL/CSA/CE) - 4c Power with Overall Shield with reduced diameter
- VFD Symmetrical XLPE TR (UL TC-ER, WTTC/CSA/CE) - Ranging from 14 AWG to 500 KCMIL



## European Standardized Cables

European Standardized Hook-up wire and cables built to the European Union's Harmonized standards.

- H05V-K/MTW/TEW (UL/CSA/HAR/VDE/CE) - Harmonized 300/500 Volt Hook-Up Wire
- H07V-K/MTW/TEW (UL/CSA/HAR/VDE/CE) - Harmonized 450/750 Volt Hook-Up Wire
- H07RN-F (HAR/CE) - Harmonized 450/750 Volt Neoprene Heavy Duty Multi-Conductor Cable

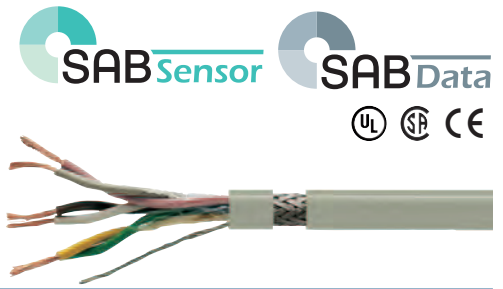


# Cables for Medical Technology

## Data & Sensor Cables

General purpose European and North American style data cables.

- DC 105, DC 105 C, & DC 105 TP (UL PLTC/ITC/CMG) - Flexible Multi-Conductor & Paired Cable, Shielded & Unshielded, PVC
- LiYY, LiYCY, & LiYCY TP (CE) - General Purpose, Multi-Conductor and Twisted Pair, Shielded & Unshielded, PVC
- DC 300 DS & DC 300 DS TP - Flexible Multi-Conductor & Paired Cable, Shielded & Unshielded, PVC



## Servo Motor Cables

Industrial grade cables for servo motor connections for power, power with signal pairs, and for encoder/resolver.

- SL 860 C & SL 863 C (UR/CE) - Braid Shielded Servo Motor Cables for Stationary Applications, 1000V, PVC
- SL 834 C (UR/CSA/CE) - Braid Shielded Servo Motor Cable for Continuous Flex, 1000V, PUR
- SL 841 C (UL/CSA/CE) - Braid Shielded Composite Servo Motor Cable with Pairs for Continuous Flex, 1000V, PUR
- SL 839 C & SL 843 C (UL/CE) - Braid Shielded Servo Motor Cables for Resolver/Encoder, PUR



## Industrial Ethernet Cables

Category cables (CAT 5/Profinet, CAT 5e, CAT 6 & 6A, CAT 7A) for a multitude of applications: static, flexible, continuous flex, torsion, reeling & Rail.

- Profinet/CAT5 Cables for Type A, B, & C Applications Plus Torsion and Reeling
- CAT 5e with PLTC and Rail for Flexible Applications (CE)
- CATLine 6 & 6A Cables for Continuous Flex, Torsion, Reeling, Rail and High Temperature
- CATLine 7A Cables for Continuous Flex, Torsion, Reeling, and Rail Applications
- CATLine SPE (Single-Pair-Ethernet Cable) Suitable for Cable Tracks, Robots, & High Temperature



## Bus Cables

Flexible Bus Cables designed for industrial applications requiring data, sensor and power communications

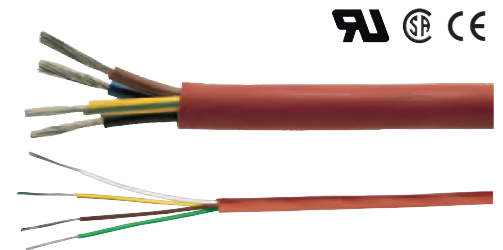
- DeviceNet™ Cables for Flexible, Continuous Flex, and Torsion Applications
- Profibus Cables for Flexible, Continuous Flex, Torsion, and Outdoor Applications. Halogen-Free
- CANBUS cables for Flexible and Continuous Flex Applications. Halogen-Free Available
- USB 2.0 Cables for Flexible, Continuous Flex, and Torsion Applications. Halogen-Free Available
- USB 3.0 Cables for Flexible, Continuous Flex, and Torsion Applications. Medical Version Available



## High Temperature Cables

High temperature flexible silicone cables for extreme heat and cold.

- SC 600 HDTR (UR/CSA/CE) - Heavy-Duty, Tear Resistant Silicone Multi-Conductor Cable, Shielded Available
- SC 113 (CE) 300 Volt Silicone Hook-Up Wire
- SC 123 (CE) 500 Volt Silicone/Fiberglass Hook-Up Wire



Extreme Temperature flexible FEP, ETFE, & PFA cables

## Halogen-Free Cables

Flexible Halogen-Free cables designed not to give off corrosive gases in case of fire. Over 30 different SABIX® compounds available to meet your specific application.

- SABIX® CC 625 FRNC M (UR/CSA/CE) - Halogen-Free, Non-Corrosive Cable. Shielded
- SABIX® BL Halogen-Free Cable for the Shipboard (DNV/CE)
- SABIX® Rail FRNC Series Meeting DIN EN 45545-2 and NFPA 130 (CE)
- SABIX® Ultra Series of Halogen-Free Continuous Flex Cables (CE)



# Cables for Medical Technology

## Cables Design to Specifications

WE DEVELOP AND PRODUCE **CABLES AND WIRES**  
AS WELL AS **SPECIAL SOLUTIONS**  
PARTICULARLY ACCORDING TO YOUR REQUIREMENTS AND APPLICATIONS.

### Conductor Materials

- Bare copper
- Tinned copper
- Silver plated copper
- Nickel plated copper
- Nickel
- Nickel pure
- Compensating cable alloys

### Conductor Sizes

- 0.14 mm<sup>2</sup> - 300 mm<sup>2</sup>  
(26 AWG to 500 MCM)
- variety of stranding styles

### Insulation and Jacketing Materials

- PVC (many varieties)
- Polyethylene
- Polypropylene
- TPE
- Fiberglass
- Besilen®/Silicone
- Pi foil
- FEP, ETFE, PFA, PTFE
- SABIX® zero halogen
- Polyurethane

### Conductor Count Ranges

- unshielded - up to 125 conductors
- shielded - up to 100 conductors

### Temperature Ranges (based on material)

- Thermoplastic Elastomers -50°C up to +145°C
- Besilen®/Silicone -40°C up to +220°C
- FEP, ETFE, PFA, PTFE -90°C up to +260°C
- Halogen-free -50°C up to +220°C
- Fiberglass up to +600°C

### Shielding and Braiding Materials

- Bare copper
- Tinned copper
- Galvanized steel
- Stainless steel
- Aluminium foil
- Fiberglass
- Aramid

### Approvals

- UL, CSA, CE, EAC, VDE, HAR, IEC, EN, ISO, DNV, LR, ABS, RINA, RMRS, BSI





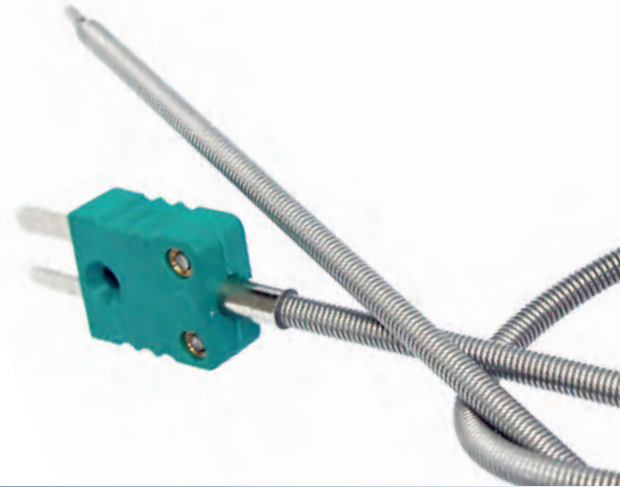
# Cables for Medical Technology

## Temperature Measurement & Cord Grips

WITH US YOU GET **TEMPERATURE MEASUREMENT**  
AND **ACCESSORIES** FOR A WIDE VARIETY OF REQUIREMENTS AND INDUSTRIES.

SAB North America has expertise in thermocouples, resistance thermometers and the cabling you need to build an optimal assembly. We're well-positioned to answer cabling questions that pertain to your temperature measurement needs.

- Protecting armatures and gauge slides
- Mineral insulated thermocouples
- Mineral insulated resistance thermometers
- Temperature measurement in plastics processing industry/hot runner process
- Temperature measurement in test vehicles
- Probe with stainless steel sleeve
- Compensating and extension cables
- Accessories



## SECURE YOUR CABLE

### **CG 100 Polyamide Cord Grips**

**Dome cap, black or gray available in NPT, PG, or metric thread**

Liquid tight seal, fast and easy installation, wide clamping range, multi-purpose applications, easy handling.



### **CG 200 Polyamide Cord Grips**

**Flex cap, black or gray available in NPT, PG, or metric thread**

Strain relief gland offers maximum protection against conductor fatigue caused by flexing cables



### **CG 300 Nickel Plated Brass Cord Grips**

**Available in NPT, PG, or metric thread**

Impact resistant, suitable for industrial applications, water tight, corrosion resistant.



### **CG 350 SS303 or SS316 Stainless Steel Cord Grips**

**Available in NPT, PG, or metric thread**

Impact resistant, suitable for industrial applications, water tight, corrosion resistant.



### **EMC-2 Grounding Cord Grips**

**Nickel plated brass EMC cable gland available in NPT, PG, or metric thread**

EMC-2 is a nickel plated brass strain relief with integral grounding springs in the gland.

#### **Features:**

- One Direction Installation
- Affordable
- Nickel Plated Brass with Tinned Copper Springs



### **EMC-4 Grounding Cord Grips**

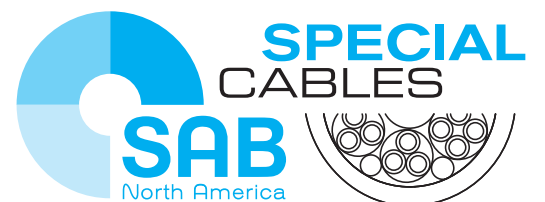
**Nickel plated brass, EMC cable gland, vibration proof, available in NPT, PG, or metric thread**

EMC-4 is a nickel plated brass strain relief with integral grounding springs in the gland that will allow the cable to move without damage to the shield.

#### **Features:**

- Bi-directional Installation
- Great Anti-Vibration Mechanisms
- Nickel Plated Brass with Tinned Copper Springs





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