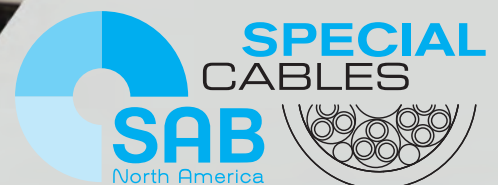


CABLES & ACCESSORIES FOR SEMICONDUCTOR MANUFACTURING



www.sabcable.com
866-722-2974 ■ info@sabcable.com



Cables & Accessories for Semiconductor Equipment

About Us



SAB North America is a focused supplier for the automation, aerospace, food and beverage, 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

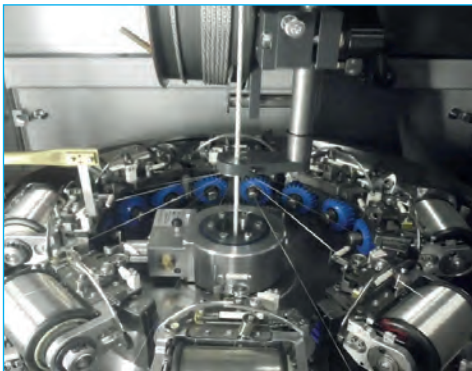


Facilities that produce semiconductor components and equipment must regularly filter and monitor the air to ensure their cleanrooms comply with international standards. These standards regulate the dispersion of micrometer-sized particles. The cables used in automated systems within cleanrooms must be able to withstand the rigors of repetitive or complex motion, and their flexing and torsion can't discharge any particles. Additionally, the cable materials can't influence product cleanliness. SABclean cables meet all quality requirements and are suitable for use in cleanrooms. In fact, the cable family meets the highest standards of ISO 14644-1.

Our cleanroom torsion and Ethernet cables are well-suited for a wide range of machines and systems found in cleanrooms. They feature quality insulation with a smooth surface and anti-stick wrapping to prolong cable life under extreme twisting and bending stresses. The outer jacket made of specially formulated TPE resists abrasion, oils, notching, microbes and hydrolysis. And, the surface quality prevents adhesion to adjacently installed cables.

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 industrial 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 equipment.

SAB's level of speed and service as a supplier is unmatched.



SAB Advantage...We make it Easy

- Engineering & technical assistance
- Cut to length with no cut charges
- Prepaid freight within US for orders over \$2,500
- Specialty cable designs (1500 ft minimum)
- No minimum on orders from stock
- Free drop shipments (no surcharges)
- 24-hour shipments from stock
- Cord Grips for securing and grounding cables



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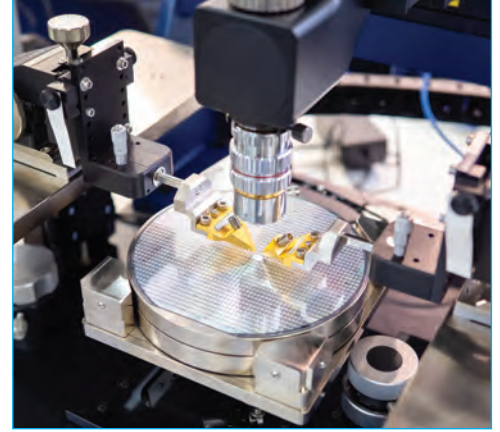
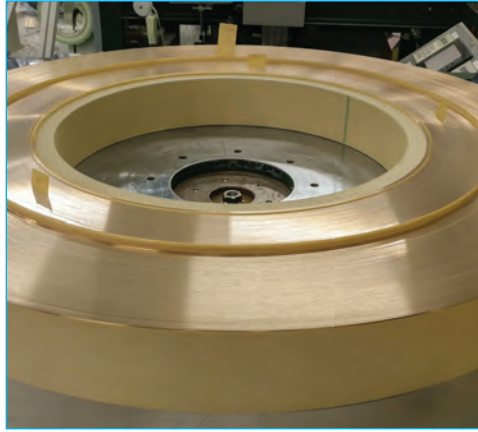
Cables & Accessories for Semiconductor Equipment

Stages of Production

Front-End Production Equipment:

Deposition Equipment ■ Wafer Fabrication ■ Wafer Sort ■ Etching

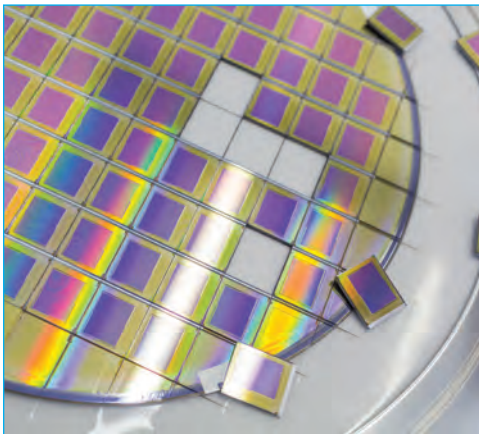
Machinery: Etchers, Wet Bench, Wafer Grinders, Reflow Furnaces, Plasma Cleaners, Sputters



Back-end Production Equipment:

Wafer Dicing ■ Chip Testing & Packaging ■ Package Reeling ■ Transfer

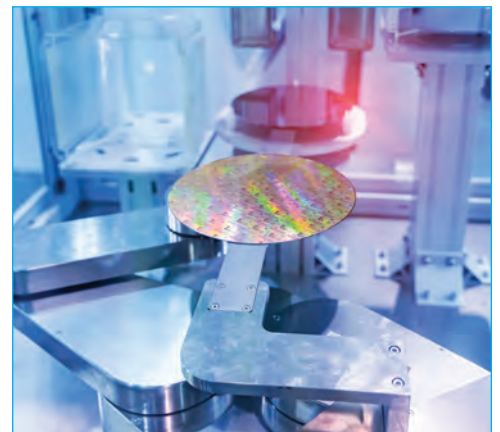
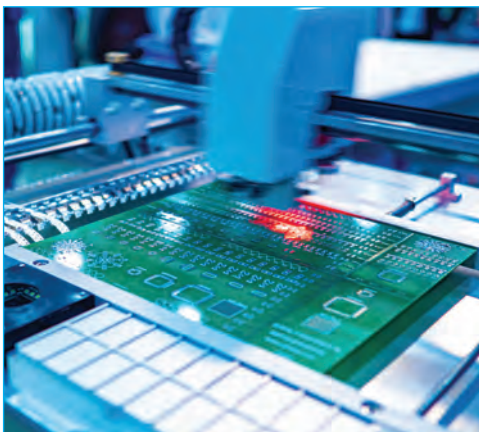
Machinery: Wafer Inspection, Dicing machines, Die Bond Equipment, Wire Bond, Solder Bump, Encapsulation



Fab Support Equipment:

Gas Delivery ■ Environmental Systems

Machinery: Evaluation Equipment, Testing Machines, Slicing and Cleaning Machines, Packaging



Cables & Accessories for Semiconductor Equipment

Cleanroom Applications

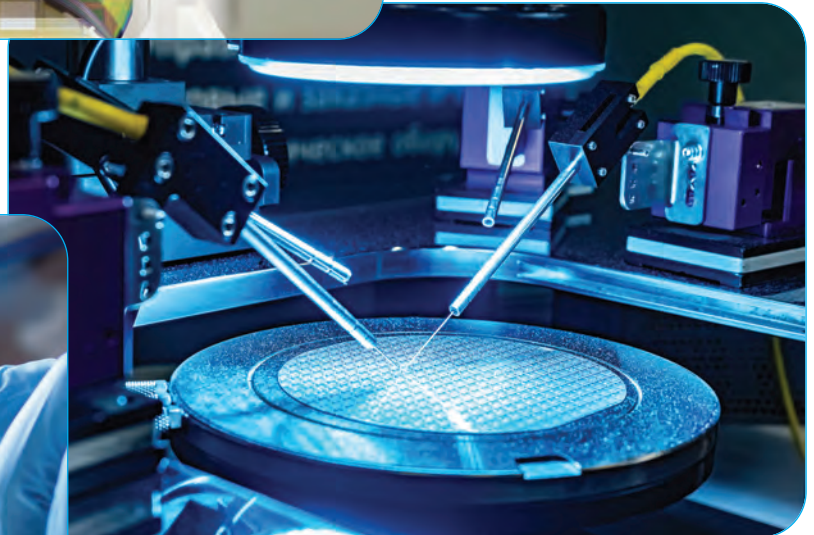
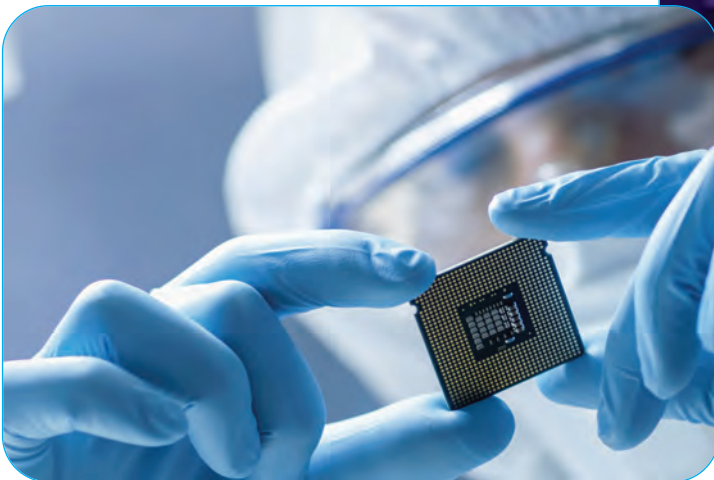
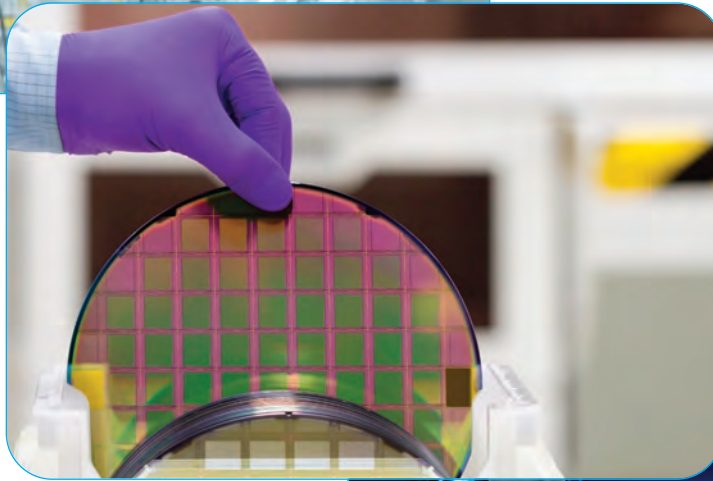


The guideline VDI 2083 sheet 8 treats the suitability of equipment for cleanrooms with respect to planning, production, maintenance, recovering and proof. The examination of our SABclean cables by the Fraunhofer Institute showed that our SABclean cables met all quality requirements.

Thus SAB Bröckses is able to present its "Tested Device Certificate" by the Fraunhofer Institute.



Cleanroom classification
ISO 14644-1
Air Cleanliness Class 1



Cables & Accessories for Semiconductor Equipment

CLEANROOM CABLES

INDUSTRIAL ETHERNET CABLES FOR CLEANROOMS

AWM Style 20549 80°C 300V CE



Front-End Production
Back-End Production
Fab Support

Features:

- Suitable for cable tracks
- Air Cleanliness Class 1: acc. to ISO 4644-1

Suggested Cables:

- SABclean CATLine CAT 5e (UR) - CAT 5e Industrial Ethernet Cable Suitable for Cable Tracks
- SABclean CATLine CAT 6A (UR) - CAT 6A Industrial Ethernet Cable Suitable for Cable Tracks
- SABclean CATLine CAT 7A (UR) - CAT 7A Industrial Ethernet Cable Suitable for Cable Tracks



CONTINUOUS FLEX CABLES FOR CLEANROOMS

SAB Clean SD 776 · 14 x 0.25 mm² CE



D-VIERSEN · SAB Clean S 776 · 4 G 1.0 mm² CE



Front-End Production
Back-End Production
Fab Support

Features:

- Flexible at low temperatures
- Small outer diameter
- Air Cleanliness Class 1: acc. to ISO 4644-1
- High abrasion resistance
- Oil resistant

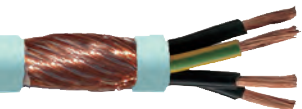
Suggested Cables:

- SABclean SD 776 (CE) - Continuous Flex Data Cable
- SABclean S 776 (CE) - Continuous Flex Control Cable
- SABclean SD 780 C (CE) - Continuous Flex Shielded Data Cable
- SABclean S 780 C (CE) - Continuous Flex Shielded Control Cable
- SABclean SD 787 C TP (CE) - Continuous Flex Shielded Paired Data Cable



TORSIONAL CABLES FOR CLEANROOMS

AWM I/II A/B 80°C 600V FT1 FT2 CE



Front-End Production
Back-End Production
Fab Support

Features:

- Rugged and reliable
- Halogen-free
- Air Cleanliness Class 1 & 2: acc. to ISO 4644-1
- Torsion angle up to ± 360° over 1 meter

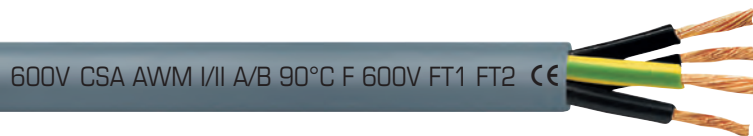
Suggested Cables:

- SABclean RT 793 D (UR/CSA/CE) - TPE Shielded Torsional Cable ± 360° Torsion Over 1 m



Cables & Accessories for Semiconductor Equipment

FLEXIBLE POWER & CONTROL CABLES



Front-End Production
Back-End Production
Fab Support



Features:

- Flexible for easy installation
- Chemical resistant
- Shielded versions available
- NFPA 79 compliant
- Abrasion and notch resistant
- Easy to crimp conductors

Suggested Cables:

- CC 600 & CC 600 CY (UR/CSA/CE) - Flexible, Unshielded & Braid Shielded, Oil Resistant PVC Control Cable
- CC 600 P & CC 600 CP (UR/CSA/CE) - Flexible, Unshielded & Braid Shielded, Notch Resistant PUR Control Cable



CONTINUOUS FLEX CABLES

CSA AWM I/II A/B 90°C 600V FT1 FT2 CE



D-VIERSEN · S 200 12 x 1.5 mm² CE



Front-End Production
Back-End Production
Fab Support

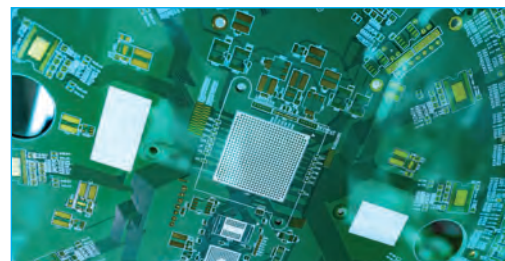
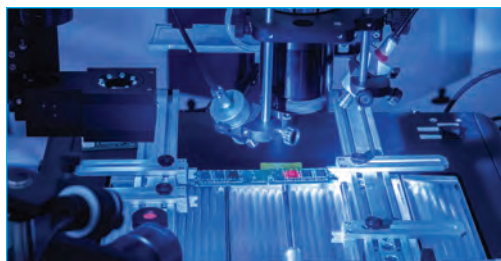


Features:

- Applications requiring alternate bending or continuous motion
- Long service life- millions of bending cycles
- Abrasion resistant
- Chemical resistant

Suggested Cables:

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



Cables & Accessories for Semiconductor Equipment

FLEXIBLE TRAY CABLES

R FT4 OR AWM I/II A/B 90C 1000V FT4 RoHS CE



OR AWM I/II A/B 90C 1000V FT4 RoHS CE



Front End Production

Back-end Production

Fab Support

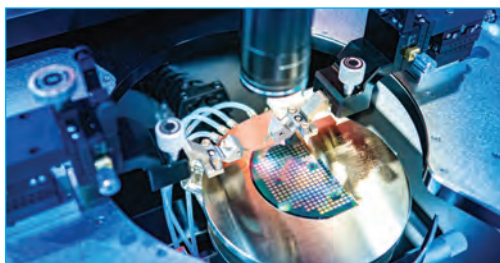


Features:

- Flexible for easier installation
- Chemical resistant
- Can be routed around tight bends and fit into confined spaces
- Shielded versions available
- UL TC-ER for exposed runs
- NFPA 79 compliant

Suggested Cables:

- TR 600 S & TR 600 S CY (UL TC-ER/CSA-TC/CE) - UV & Oil Resistant Flexible Cable, Shielded & Unshielded



FLEXIBLE VFD CABLES

AWM I/II A/B 90C 1000V FT4 RoHS CE



Front End Production

Back-end Production

Fab Support

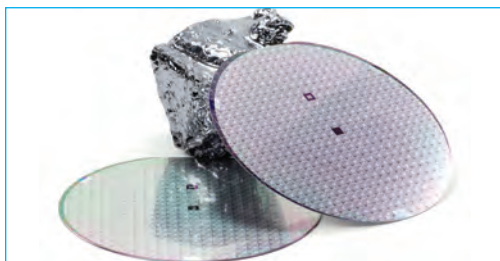


Features:

- Cables engineered to suppress the noise issues associated with VFD drives
- XLPE insulation offers improved capacitance for longer installations
- NFPA 79 compliant
- Flex or continuous flex operations
- Heavy-duty jacket for harsh environments

Suggested Cables:

- VFD XLPE TR (UL/CSA/CE) - 4c Power with Overall Shield
- VFD Combo XLPE (UL/CSA/CE) - 4c Power Plus Shielded Pair for Brake or Sensor
- VFD XLPE Auto TR (UL/CSA/CE) - 4c Power with Overall Shield for Continuous Flexing
- VFD XLPE Lean (UL/CSA/CE) - 4c Power with Overall Shield with Reduced Diameter



Cables & Accessories for Semiconductor Equipment

DATA & SENSOR CABLES

CSA TYPE CMG or AWM I/II A/B 105°C 300V FT4

D-VIERSEN · LIYY 32x0.25mm² CE

Front End Production

Back-end Production

Fab Support



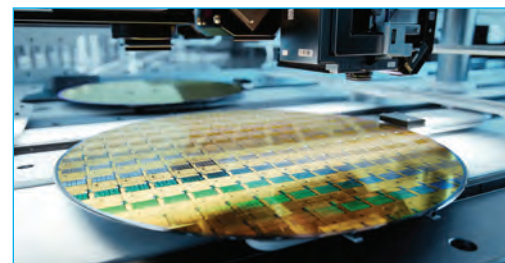
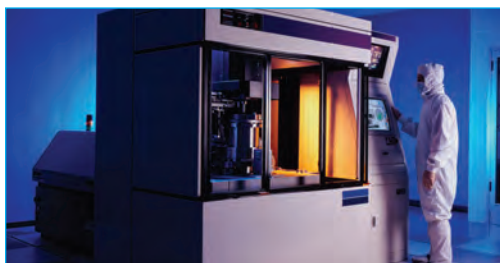
Features:

- 26 AWG to 16 AWG data/communication cables
- Shielded, unshielded and paired with overall shield

- Flexible for easier routing

Suggested Cables:

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



FLEXIBLE INDUSTRIAL BUS & ETHERNET CABLES

°C 300V CSA AWM I/II A/B 80°C 300V FT2 CE

0601-0222 AWM Style 2655 80°C 300V CE

Front End Production

Back-end Production

Fab Support



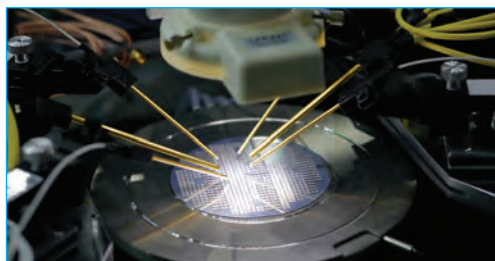
Features:

- Available with PLTC rating for use in tray
- CATLine is available for continuous flex & torsion/robotic applications
- Resistance to extreme temperatures.

- CAT 5e, CAT 6, CAT 6A, or CAT 7A
- USB 2.0 and 3.0 versions also available.
- Profinet: Type A, B, & C

Suggested Cables:

- Profinet/CAT5 Cables for Type A, B, & C Applications Plus Torsion and Reeling (UL/CSA)
- DeviceNet™ Cables for Flexible, Continuous Flex, and Torsion Applications (UL/CSA)
- Profibus Cables for Flexible, Continuous Flex, Torsion, and Outdoor Applications. Halogen-Free (UL/CSA)
- CATLine 5e, 6, 6A, 7A Cables for Continuous Flex, Torsion, Reeling, and High Temperature Applications (UL/CSA)



Cables & Accessories for Semiconductor Equipment

FLEXIBLE SERVO CABLES



Front-End Production
Back-End Production
Fab Support

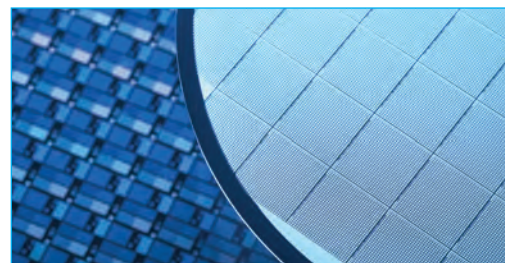
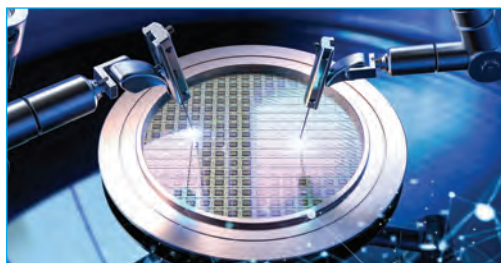


Features:

- Available in position or feedback versions with copper screen (0.6/1 kV or overall)
- Halogen-free versions
- Good chemical resistance
- Long operating life
- Suitable for use in cable tracks

Suggested Cables:

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



HALOGEN-FREE CABLES



Front-End Production
Back-End Production
Fab Support

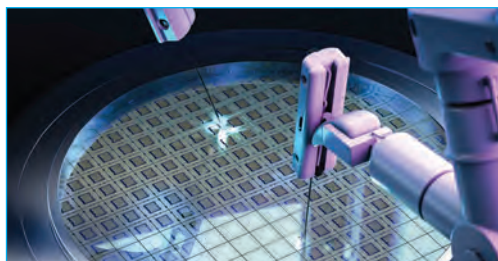
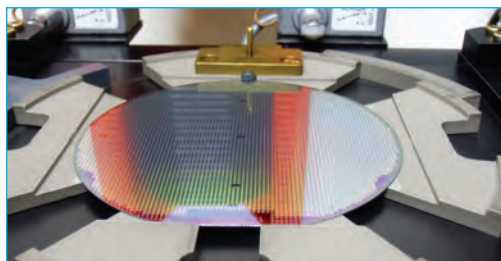


Features:

- Designed not to give off corrosive gases in case of fire.
- Over 30 different SABIX® compounds available to meet your specific application.

Suggested Cables:

- SABIX® CC 625 FRNC M (UR/CSA/CE) - Halogen-Free, Non-Corrosive Cable, Shielded
- Available Styles Include: Data, Communication, Control, and Power



Cables & Accessories for Semiconductor Equipment

CORD GRIPS & ACCESSORIES

Secure & Protect your Cable

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

Protection type:

Technical data:

IP 68 - 5 Bar
NEMA 4X

Temperature range:

permanent:
intermittent:

-20°C to +100°C
-30°C to +150°C

Flammability:

V2 (according to UL 94)

Front-End Production

Back-End Production

Fab Support



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 STAINLESS STEEL CORD GRIPS

Available in NPT, PG, or metric thread and SS 303 or SS 316

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
- Impact resistant
- 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



Accessories & Fittings

Enlargers

Reducers

Hole Plugs

Multi-Hole Bushing

Vent Gland & Plugs

Locknuts



Cables & Accessories for Semiconductor Equipment

Production possibilities

Flexible cables and wires “Made in Germany”

As a leading manufacturer we develop and produce cables for industrial purposes.

Our wide range of materials offer a lot of possibilities for your individual product requirement.

The following survey shows an extract of our production possibilities:

Conductor Materials:

- ✓ bare copper
- ✓ tinned copper
- ✓ silver plated copper
- ✓ nickel plated copper
- ✓ nickel
- ✓ nickel pure
- ✓ compensating cable alloys

Insulation and Jacketing Materials:

- ✓ PVC
- ✓ Polyethylene
- ✓ Polypropylene
- ✓ Polyurethane
- ✓ TPE
- ✓ SABIX® (zero halogen)
- ✓ Besilen® - Silicone
- ✓ FEP, ETFE, PFA, PTFE
- ✓ PI foil
- ✓ Fiberglass

Temperature Ranges:

- Thermoplastic Elastomers
- ✓ -50°C up to +145°C
- SABIX®
- ✓ -50°C up to +220°C
- Besilen® - Silicone
- ✓ -40°C up to +220°C
- FEP, ETFE, PFA
- ✓ -90°C up to +260°C
- Fiberglass
- ✓ up to +600°C

Conductors:

- ✓ cross sections 0.055 - 300 mm²
- ✓ unshielded and shielded over 100 conductors

Cable assemblies directly from the manufacturer SAB:

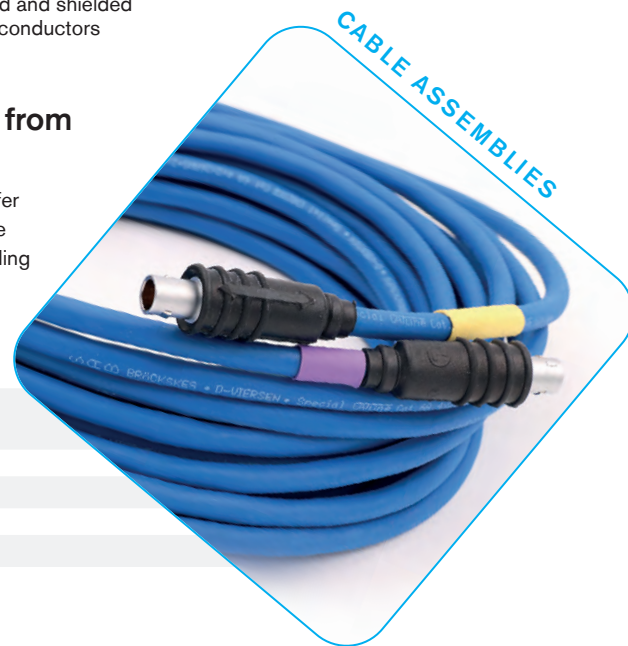
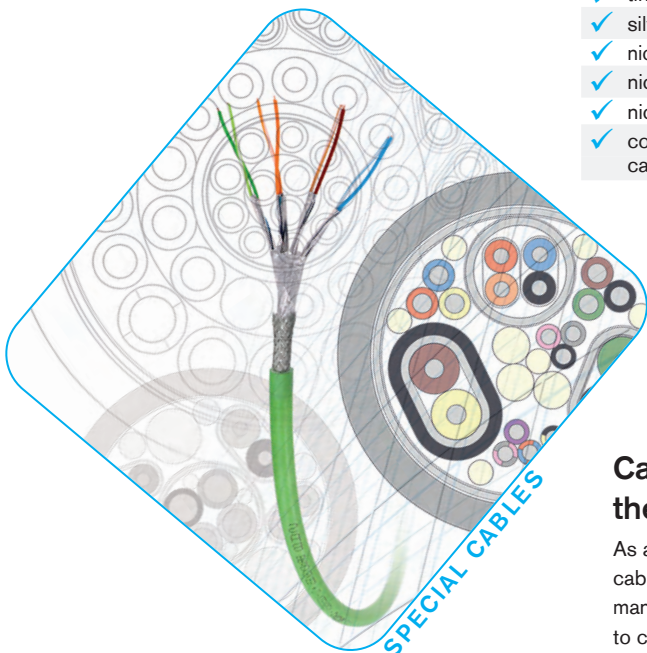
As a full service partner, we are able to offer cable design and production as well as the manufacturing of cable assemblies according to customer's request. Please trust on our experience for decades in the treatment of cables and connectors.

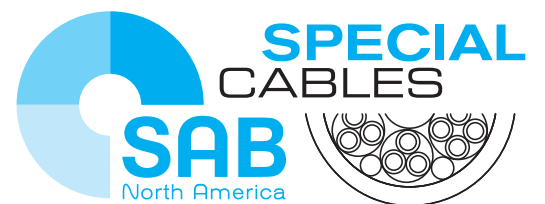
- ✓ cable assemblies according to customer's demands
- ✓ complete cable assemblies
- ✓ UL certified assemblies
- ✓ helix cables
- ✓ HV measuring assemblies

Measuring technology for industrial applications

Manufacturer of temperature sensors for industrial applications with 75 years of experience!

- ✓ mineral insulated thermocouples
- ✓ mineral insulated resistance thermometers
- ✓ temperature sensors
- ✓ mobile high voltage measuring technology
- ✓ temperature sensors for vehicle testing





344 Kaplan Drive
Fairfield, NJ 07004
Toll Free: 866-722-2974
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info@sabcable.com