CABLES & ACCESSORIES FOR CLEANROOM TECHNOLOGY



SAB North America

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.

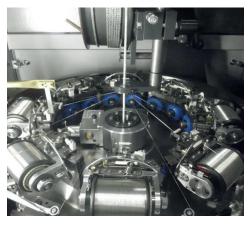
Whatever the need may be, look to SAB North America for Special Cables that can, for example, help minimize maintenance costs and increase productivity, reduce downtime, and solve specific problems. Here is a small sample of some of the challenges that Special Cables from SAB North America can help address:

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

The SAB Cleanroom Cables are used for cleanroom applications. It doesn't matter if it is applied for semiconductor production, in machines for display manufacturing, in devices of biological or medical technique or in food or medicine industry.

SABclean cables are used in cleanrooms where combined twisting and bending stresses occur. The high quality insulation with its smooth surface and slide wrapping increases cable life expectancy under extreme twisting and bending stresses. The outer jacket made of specially formulated TPE is highly resistant to abrasion, oil, notching, microbes and hydrolysis. In addition, the surface quality prevents adhesion to adjacently installed cables. SABclean cables meet the highest requirements acc. to ISO 14644-1.

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 cables



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SABclean 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 Bröckskes is able to present its "Tested Device Certificate" by the Fraunhofer Institute.



Classification of air cleanliness acc. to ISO 14644-1

maximum particles/m³								
class	0.1 μm	0.2 μm	0.3 μm	0.5 μm	1.0 μm	5.0 μm		
ISO 1	10	2						
ISO 2	100	24	10	4				
ISO 3	1,000	237	102	35	8			
ISO 4	10,000	2370	1,020	352	83			
ISO 5	100,000	23,700	10,200	3,520	832	29		
ISO 6	1,000,000	237,000	102,000	35,200	8,320	293		
ISO 7				352,000	83,200	2,930		
ISO 8				3,520,000	832,000	29,300		
ISO 9				35,200,000	8,320,000	293,000		



Application examples

SABclean cables are used in cleanrooms.

Examples are the production of semiconductors, machines for display manufacturing, devices for biological or medical engineering, food and medical production.

SABclean cables meet highest requirements acc. to ISO 14644-1.



SABclean Applications

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. Also, the surface quality prevents adhesion to adjacently installed cables.



SABclean CATLine CAT 5e S SABclean CATLine CAT 6A S SABclean CATLine CAT 7A S

CAT 5e industrial Ethernet cable CAT 6A industrial Ethernet cable CAT 7A industrial Ethernet cable



<26AWG 17779003 · AWM Style 20549 80°C 300V €€</p>





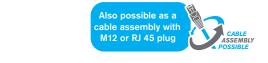
Marking for SABclean CATLine CAT 7A S 17779003

SAB BRÖCKSKES · D-VIERSEN · SAB Clean CATLine Cat. 7A S 4x2x26AWG 17779003 | AWM Style 20549 80°C 300V € RoHS

Construction:	SABclean CATLine CAT 5e S	SABclean CATLine CAT 6A S	SABclean CATLine CAT 7A S		
Item numbers:	15779001	16779006	17779003		
Dimensions:	4 x 2 x 26 AWG	4 x 2 x 26 AWG	4 x 2 x 26 AWG		
Conductor:	bare copper strands, fine wires	bare copper strands, fine wires	bare copper strands, fine wires		
Insulation:	special polymer	special polymer	special polymer		
Color code:	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown			
Stranding:	conductors twisted to pairs, pairs together	conductors twisted to pairs, pairs together	conductors twisted to pairs, pairs shielded with foil, pairs together		
Shielding:	alu foil and tinned copper braiding	alu foil and tinned copper braiding	aluminized non-woven tape and tinned copper braiding		
Wrapping:	non-woven tape	non-woven tape	non-woven tape		
Jacket material:	TPE	TPE	TPE		
Jacket color:	black (RAL 9005)	black (RAL 9005)	black (RAL 9005)		
Technical data:	SABclean CATLine CAT 5e S	SABclean CATLine CAT 6A S	SABclean CATLine CAT 7A S		
Peak operating voltage:	max. 90 V	max. 90 V	max. 90 V		
Voltage UL:	300 V	300 V	300 V		
Testing voltage: conductor/conductor: conductor/shielding:	2000 V 2000 V	2000 V 2000 V	2000 V 2000 V		
Min. bending radius fixed laying: flexible application: continuously flexible:	5 x O.D. 10 x O.D. 15 x O.D.	5 x O.D. 10 x O.D. 15 x O.D.	5 x O.D. 10 x O.D. 15 x O.D.		
Temperature range VDE: static: flexible:	UL: up to +80°C -40/+70°C -30/+70°C	UL: up to +80°C -40/+70°C -30/+70°C	UL: up to +80°C -40/+70°C -30/+70°C		
Burning Characteristics:	flame retardant and se	lf-extinguishing acc. to IEC 60332-1-2 UL Horizontal Flame Test FT2	+ VDE 0482-332-1-2		
Oil resistance:	very good - Oil 60°C acc. to UL 758	very good - Oil 60°C acc. to UL 758	very good - Oil 60°C acc. to UL 758		
Characteristic impedance (100 MHz):	100Ω ± 10Ω, accomplishes the electrical and transmission requirements with high frequency with reference to EN 50288-2-2 / CAT 5	100Ω ± 10Ω, accomplishes the electrical and transmission requirements with high frequency with reference to EN 50288-10-2 / CAT 6A	100Ω ± 10Ω, accomplishes the electrical and transmission requirements with high frequency with reference to EN 50288-9-2 / CAT 7A		
Flexibility:	very good	very good	very good		
Air cleanliness class 1:	acc. to ISO 14644-1	acc. to ISO 14644-1	acc. to ISO 14644-1		
UL Style:	20549	20549	20549		
Absence of harmful substances:	acc. to RoHS directive of the European Union, see page O/30				

item no.	type	dimensions	outer-e	max.	cable	
		AWG	±10% inch	±10% mm	weight ≈lbs/mft	
15779001	SABclean CATLine CAT 5e S	26 (≈ 7/34)/4pr	0.251	6.4	32	
► 16779006	SABclean CATLine CAT 6A S	26 (≈ 7/34)/4pr	0.271	6.9	38	
▶ 17779003	SABclean CATLine CAT 7A S	26 (≈ 7/34)/4pr	0.350	8.9	57	
		Other dimensions and colors are available on request				







SABclean SD 776 Continuously flexible data cable

SABclean S 776 Continuously flexible control cable



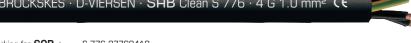


(SKES · D-VIERSEN · **SAB** Clean SD 776 · 14 x 0.25 mm² **(6**

Marking for SABclean SD 776 37761402:

SAB BRÖCKSKES · D-VIERSEN ·SAB Clean SD 776 · 14 x 0.25 mm² € RoHS

BRÖCKSKES · D-VIERSEN · SAB Clean S 776 · 4 G 1.0 mm² (€



Marking for SABclean S 776 37760410:

SAB BRÖCKSKES · D-VIERSEN ·SAB Clean S 776 · 4G 1.0 mm² (€ RoHS

	Construction:
Conductor: SD 776:	bare copper strands extra fine wire
S 776:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Color code: SD 776:	acc. to DIN 47100, see below
S 776:	black conductors with consecutive numbers acc. to EN 50334 + VDE 0293-334, green/yellow ground from 3 conductors
Stranding:	specially adjusted layering
Wrapping:	non-woven tape
Jacket material:	TPE
Jacket color:	black (RAL 9005)



SD 776

item no.	no. of conductors	oute ±10% inch	±10%	cable weight ≈lbs/mft	ohmic resistance at 20°C max, Ω/km		
		IIICII	mm		IIIax. 12/KIII		
► 24 AWG • ().25 mm ²						
37760302	3	0.161	4.1	15	78		
37760402	4	0.169	4.3	17	78		
37760502	5	0.181	4.6	21	78		
37760602	6	0.197	5.0	25	78		
37760702	7	0.209	5.3	28	78		
37761002	10	0.240	6.1	35	78		
37761402	14	0.256	6.5	44	78		
▶ 22 AWG ■ 0.34 mm²							
37760503	5	0.193	4.9	25	57.4		
37763203	32	0.390	9.9	109	57.4		

Other dimensions and colors are available on request

DIN 47100 color code:

#1- white, #2- brown, #3- green, #4- yellow, #5- gray, #6- pink, #7- blue,

#8- red, #9- black, #10- violet, #11- gray-pink, #12- red-blue, #13- white-green,

#14- brown-green, #15- white-yellow, #16- yellow-brown, #17- white-gray, #18- gray-brown, #19- white-pink, #20- pink-brown, #21- white-blue,

#22- brown-blue, #23- white-red, #24- brown-red, #25- white-black,

#26- brown-black, #27- gray-green, #28- yellow-gray, #29- pink-green,

#30- yellow-pink, #31- green-blue, #32- yellow-blue

	Technical data:
Peak operating voltage:	<i>SD 776:</i> max. 350 V
Nominal voltage:	S 776: Uo/U 300/500 V
Testing voltage: SD 776:	conductor/conductor: 1500 V
S 776:	conductor/conductor: 2000 V
Min. bending radius:	7.5 x O.D.
Temperature range: static: flexing:	-40/+80°C -30/+80°C
Oil resistance:	very good - oil rating 60°C acc. to UL 758
Air cleanliness class 1:	acc. to ISO 14644-1
Approvals:	CE, RoHS
Absence of harmful substances:	acc. to RoHS directive of the European Union see page O/30



S 776

item no.	no. of	out	er-ø	cable	ohmic resistance
	conductors incl. ground	±10% inch	±10% mm	weight ≈lbs/mft	at 20°C max. Ω/km
► 20 AWG • 0	0.50 mm²				
37760205	2	0.209	5.3	24	39
37760305	3	0.217	5.5	28	39
37760405	4	0.232	5.9	33	39
37760505	5	0.252	6.4	40	39
37760705	7	0.287	7.3	53	39
37761205	12	0.343	8.7	75	39
▶ 19 AWG • ().75 mm²				
37760407	4	0.256	6.5	42	26
37760507	5	0.280	7.1	52	26
37760707	7	0.319	8.1	70	26
► 18 AWG • 1	I.0 mm²				
37760410	4	0.276	7.0	52	19.5
► 16 AWG • 1	I.5 mm²				
37760415	4	0.303	7.7	67	13.3
37760515	5	0.331	8.4	83	13.3
► 14 AWG • 2	2.5 mm ²				
37760425	4	0.378	9.6	105	7.98
► 12 AWG • 4	1.0 mm ²				
37760440	4	0.476	12.1	169	4.95
► 10 AWG • (3.0 mm ²				
37760460	4	0.520	13.2	225	3.3
► 8 AWG • 10) mm²				
37760461	4	0.622	15.8	345	1.91
		Othe	r dimensions	and colors ar	e available on reques

Other dimensions and colors are available on request



SABclean SD 780 C Continuously flexible data cable with overall shield

SABclean S 780 C

Continuously flexible control cable with overall shield



CE ROHS

· D-VIERSEN · SAB Clean SD 780 · 18 x 0.34 mm² (€

Marking for **SAB**clean SD 780 37801803: SAB BRÖCKSKES · D-VIERSEN ·SAB Clean SD 780 · 18 x 0.34 mm² **€** RoHS

ES \cdot D-VIERSEN \cdot **SAB** Clean S 780 C \cdot 4 G 1.0 mm 2 **C \epsilon**

Marking for SABclean S 776 37780410:

SAB BRÖCKSKES · D-VIERSEN ·SAB Clean S 780 C · 4G 1.0 mm² C€ RoHS

	Construction:
Conductor: SD 780:	bare copper strands extra fine wire
S 780 C:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Color code: SD 780:	acc. to DIN 47100, see below
S 780 C:	black conductors with consecutive numbers acc. to EN 50334 + VDE 0293-334, green/yellow ground from 3 conductors
Stranding:	specially adjusted layering
Wrapping:	non-woven tape
Inner jacket:	S 780 C: SABIX®
Wrapping:	S 780 C: non-woven tape
Shielding:	tinned copper braiding
Wrapping:	non-woven tape
Jacket material:	TPE
Jacket color:	black (RAL 9005)



SD 780 C

no. of conductors	oute ±10% inch	er-ø ±10% mm	cable weight ≈lbs/mft	ohmic resistance at 20°C max. Ω/km			
0.14 mm ²							
2	0169	4.3	17	139.3			
3	0.173	4.4	18	139.3			
≥ 24 AWG = 0.25 mm ²							
3	0.189	4.8	22	78			
4	0.197	5.0	24	78			
0.34 mm ²							
3	0.197	5	24	57.4			
5	0.220	5.6	34	57.4			
7	0.248	6.3	42	57.4			
10	0.283	7.2	52	57.4			
18	0.331	8.4	79	57.4			
	conductors 0.14 mm ² 2 3 0.25 mm ² 3 4 0.34 mm ² 5 7	conductors ±10% inch 0.14 mm² 2 0169 3 0.173 0.25 mm² 3 0.189 4 0.197 0.34 mm² 3 0.197 5 0.220 7 0.248 10 0.283	conductors ±10% inch ±10% mm 0.14 mm² 2 0169 4.3 2 0.173 4.4 0.25 mm² 3 0.189 4.8 4 0.197 5.0 0.34 mm² 3 0.197 5 5 0.220 5.6 7 0.248 6.3 10 0.283 7.2	conductors ±10% inch ±10% mm weight ≈lbs/mft 0.14 mm² 2 0169 4.3 17 3 0.173 4.4 18 0.25 mm² 3 0.189 4.8 22 4 0.197 5.0 24 0.34 mm² 3 0.197 5 24 5 0.220 5.6 34 7 0.248 6.3 42 10 0.283 7.2 52			

Other dimensions and colors are available on request

DIN 47100 color code:

#1- white, #2- brown, #3- green, #4- yellow, #5- gray, #6- pink, #7- blue, #8- red, #9- black, #10- violet, #11- gray-pink, #12- red-blue, #13- white-green, #14- brown-green, #15- white-yellow, #16- yellow-brown, #17- white-gray, #18- gray-brown

	Technical data:
Peak operating voltage:	<i>SD 780 C</i> max. 350 V
Nominal voltage:	S 780 C: Uo/U 300/500 V
Testing voltage: SD 780 C	conductor/conductor: 1500 V conductor/shielding: 1200 V
S 780 C:	conductor/conductor: 2000 V conductor/shielding: 2000 V
Min. bending radius:	7.5 x O.D.
Temperature range: static: flexing:	-40/+80°C -30/+80°C
Oil resistance:	very good- oil rating 60°C acc. to UL 758
Air cleanliness class 1:	acc. to ISO 14644-1
Approvals:	CE, RoHS
Absence of harmful substances:	acc. to RoHS directive of the European Union see page O/30



Cleanroom classification ISO 14644-1 Air Cleanliness Class 1

S 780 C

item no.	no. of conductors incl. ground	oute ±10% inch	er-ø ±10% mm	cable weight ≈lbs/mft	ohmic resistance at 20°C max. Ω/km
► 20 AWG • 0	0.50 mm ²				
37800305	3	0.283	7.2	46	39
37800405	4	0.299	7.6	51	39
► 19 AWG • 0).75 mm²				
37800207	2	0.295	7.5	47	26
37800407	4	0.323	8.2	62	26
► 18 AWG • 1	1.00 mm ²				
37800210	2	0.311	7.9	54	19.5
37800310	3	0.322	8.2	62	19.5
37800410	4	0.350	8.9	76	19.5
► 16 AWG • 1	1.50 mm²				
37800315	3	0.354	9	79	13.3
37800415	4	0.378	9.6	93	13.3
► 14 AWG • 2	2.50 mm²				
37800425	4	0.461	11.7	145	7.98
► 12 AWG • 4	1.00 mm ²				
37800440	4	0.547	13.9	210	4.95
		Otho	r dimonoion	and colors of	o available on reques

Other dimensions and colors are available on request



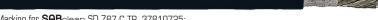
SABclean SD 787 C TP

Continuously flexible paired data cable with overall shield





RSEN \cdot SAB Clean SD 787 C TP \cdot 7 x 2 x 0.25 mm 2 (ϵ



Marking for SABclean SD 787 C TP 37810725:

SAB BRÖCKSKES · D-VIERSEN ·SAB Clean SD 787 C TP · 7 x 2 x 0.25 mm² C€ RoHS

	Construction:
Conductor:	tinned copper strands, extra fine wires with reference to VDE 0812
Insulation:	TPE
Color code:	DIN 47100, see below
Stranding:	conductors twisted to pairs in specially adjusting layering
Wrapping:	non-woven tape
Shielding:	tinned copper braiding
Wrapping:	non-woven tape
Jacket material:	TPE
Jacket color:	black (RAL 9005)



item no.	no. of pairs	oute ±10% inch	er-ø ±10% mm	cable weight ≈lbs/mft	ohmic resistance at 20°C max. Ω/km
► 24 AWG • 0.	25 mm²				
37810225	2	0.217	5.5	30	80
37810325	3	0.240	6.1	36	80
37810425	4	0.276	7.0	45	80
37810525	5	0.295	7.5	52	80
37810625	6	0.303	7.7	58	80
37810725	7	0.315	8.0	67	80
37810825	8	0.378	9.6	84	80
37811225	12	0.425	10.8	106	80
▶ 20 AWG • 0.50 mm²					
37810850	8	0.476	12.1	142	40.1

Other dimensions and colors are available on request

	Technical data:
Peak operating voltage:	max. 350 V
Testing voltage:	conductor/conductor: 1500 V conductor/shielding: 1200 V
Min. bending radius:	7.5 x O.D.
Temperature range: static: flexing:	-40/+80°C -30/+80°C
Oil resistance:	very good - oil rating 60°C acc. to UL 758
Air cleanliness class 1:	acc. to ISO 14644-1
Approvals:	CE, RoHS
Absence of harmful substances:	acc. to RoHS directive of the European Union see page O/30

DIN 47100 color code:

#1 - white/brown, #2- green/yellow, #3- gray/pink, #4- blue/red, #5- black/purple, #6- gray-pink/red-blue, #7- white-green/brown-green, #8- white-yellow/yellow-brown, #9- white-gray/gray-brown, #10- white-pink/pink-brown, #11- white-blue/brown-blue, #12- white-red/brown-red





SABclean RT 793 D

TPE Cleanroom shielded torsional cable ± 360° torsion over 1 m







600V CSA AWM I/II A/B 80°C 600V FT1 FT2 **C€**







Marking for SABclean RT 793 D 37930415:

SAB BRÖCKSKES - D-VIERSEN - 4 x 1.5 mm² SAB Clean RT 793 D 16 AWG/4c 37930415 🕦 AWM Style 21060 80°C 600V CSA AWM I/II A/B 80°C 600V FT1 FT2 CC

	Construction:
Conductor:	bare copper strands, acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Color code:	black conductors with consecutive white numbers acc. to EN 50334 + VDE 0293-334 and green/yellow ground from 3 conductors
Stranding:	conductors twisted with specially adjusted layering
Wrapping:	non-woven tape
Shielding:	wrapped with bare copper wires
Wrapping:	non-woven tape
Jacket material:	TPE
Jacket color:	white green (RAL 6019)

84			
	•		



Outstanding features:

rugged and reliable torsion angle up to \pm 360° over 1 meter

item no.	dimensions	oute	er-ø	cable	ohmic resistance
		±10% inch	±10% mm	weight ≈lbs/mft	at 20°C max Ω/km
> 37930505	20 AWG (≈ 28/34) / 5c	0.343	8.7	67	39.0
> 37930415	16 AWG (≈ 84/34) / 4c	0.378	9.6	97	13.3
> 37931215	16 AWG (≈ 84/34) / 12c	0.555	14.1	213	13.3
> 37930225	14 AWG (≈ 140/34) / 2c	0.386	9.8	94	7.98
> 37930425	14 AWG (≈ 140/34) / 4c	0.433	110	129	798

Other dimensions and colors are possible on request.

	Technic	al data:	
Nominal voltage:	Uo/U 300/500 V		
Voltage UL/CSA:	600 V		
Testing voltage:	conductor/conductor: 3000 V conductor/shielding: 2000 V		
Torsion angle:	up to ± 360°/1 m (tested)		
Min. bending radius: continuously flexible:	7.5 x O.D.		
Temperature range: static: motion:	DIN VDE -50/+70°C -40/+70°C	UL/CSA: up to +80°C up to +80°C	
Air cleanliness class 1:	acc. to ISO 14644-1		
Approvals:	UR AWM, CSA AWM, CE, RoHS		
Absence of harmful substances:	acc. to RoHS directive of the European Union see page O/30		





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.



temperature sensors

mobile high voltage measuring technology temperature sensors for vehicle testing





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