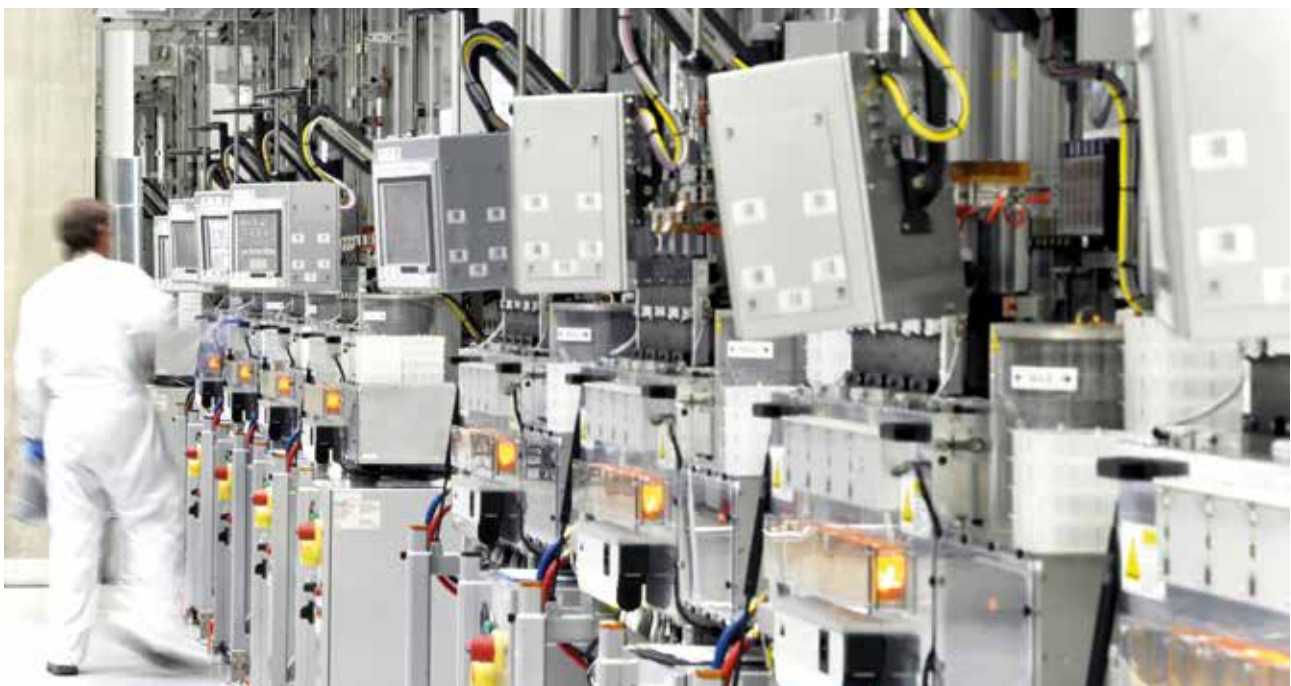


Cables for cleanroom technology





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Cables for cleanroom technology

Applications



Application Cleanroom Cables

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 **SAB^{clean}** cables by the Fraunhofer Institut showed that our **SAB^{clean}** cables met all quality requirements.

Thus SAB Bröckskes is able to present its „Tested Device Certificate“ by the Fraunhofer Institute.

Application examples:

- » **SAB^{clean}** 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.
- » **SAB^{clean}** cables meet highest requirements acc. to DIN EN ISO 14644-1.

Classification of air cleanliness acc. to ISO 14644-1

class	maximum particles/m ³					
	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	2.370	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



Fraunhofer
TESTED[®]
DEVICE
SAB Bröckskes Kabelmäntel
PUR 450, TPE 840 & TPE 850
Report No. BR 0609-363

IPA-Qualifizierungsurkunde
Hiermit wird bescheinigt, dass für untenstehendes Produkt der Unternehmen
SAB BRÖCKSKES GmbH & Co. KG
Greiffrather Str. 204 - 212b
D-41779 Viersen
das IPA-Qualifizierungsiegel mit der Bericht-Nummer BR 0609-363
vergeben wurde.
Die Kabelmaterialien PUR 450, TPE 840 und TPE 850 wurden
auf deren Abgabe leicht flüchtiger organischer Ensstoffen geprüft.
Detaillierte Informationen sowie die Parameter der Prüfungslegung
erhalten Sie bitte dem IPA-Prüfbericht der Fraunhofer-Gesellschaft.
Bescheinigt am 20. November 2005.
Die zeitliche Gültigkeit dieser Bescheinigung ist unbefristet.
Weitere Informationen finden Sie auf der Website
<http://www.ipa-qualification.com>
Stuttgart, den 20. November 2005



Fraunhofer
Institut
Produktionstechnik und
Automatisierung



Fraunhofer
TESTED[®]
DEVICE
cable sheathings
Report No. BR 0512-338

IPA Qualification Certificate
This is to certify that the product mentioned below manufactured
by this company
SAB BRÖCKSKES GmbH & Co. KG
Greiffrather Str. 204 - 212b
D-41779 Viersen
has been awarded an IPA Qualification Seal bearing the report
number BR 0512-338.
The cable with cable sheathings bearing the following identification
numbers and operated at the velocities stated below are suitable
for use in cleanrooms fulfilling the corresponding air cleanliness
specifications in accordance with ISO 14644-1:

Material	ISO Cleanroom Class	Air Cleanroom Vel.	Air Cleanroom Dir.
IPK 450	ISO Class 1	0,5 m/s max.	0,4 µm max.
IPK 840	ISO Class 1	0,5 m/s max.	0,4 µm max.
IPK 850	ISO Class 1	0,5 m/s max.	0,4 µm max.

Detailed information and parameters of the test environment can be
found in the IPA Test Report compiled by the Fraunhofer Gesellschaft.
Certified on 17th December 2005.
The duration of the validity of this certificate is unlimited. For further
information visit our website at <http://www.ipa-qualification.com>
Stuttgart, Germany 17th December 2005



Fraunhofer
Institut
Produktionstechnik und
Automatisierung

Customised connection solutions - quality & innovation since 1947

For three generations, SAB Bröckskes has stood for customised connection solutions in cable and measurement technology. Having grown from a one-man operation, we now employ approx. 550 people and realise more than 1,500 customer-specific special constructions every year. Our strength lies in the development and production of customised solutions that are perfectly tailored to our customers' requirements.

As a manufacturer and service provider, we combine technological expertise with maximum flexibility and genuine

partnership. Our products are in use in more than 100 countries and fulfil the highest quality standards, certified in accordance with DIN EN ISO 9001. In addition, we set a clear example of sustainability and responsibility with environmental, labour and energy management systems in accordance with international standards.

The same applies to us today as in the future:

WE GO FORWARD!

FOUNDATION

- » 1947 by Peter Bröckskes sen.
- » an independent, medium-sized company

MANAGEMENT

- » Peter Bröckskes and Sabine Bröckskes-Wetten

EMPLOYEES

- » approx. 550 employees worldwide, approx. 430 at the location in Viersen

PRODUCTS

- » Special Cables
- » Measurement Technology
- » Cable Harnessing

YEARLY SALES

- » over 134 Mio. € worldwide

HEAD OFFICE & PRODUCTION

- » in Viersen-Süchteln (Lower Rhine), with a floor area of 110,000 m²
- » own manufacturing in Germany from copper conductor to outer sheath
- » VDE approved burnchamber and technical centre with own test laboratory

CERTIFICATES AND APPROVALS

- » Quality management system acc. to DIN EN ISO 9001 for every manufacturing field
- » Environmental management system acc. to DIN EN ISO 14001
- » Occupational Safety and Health Management System acc. to NLF/ILO-OSH and DIN ISO 45001
- » Energy management system acc. to DIN EN ISO 50001
- » UL, CSA, CE, VDE, HAR, IEC, EN, ISO, DNV, ABS, BSI



Family business in its third generation



1947 - 1989

Peter Bröckskes sen.

Visionary with a thirst for action: Peter Bröckskes Senior was a successful company founder with determination, hard work and a pioneering spirit. He started out in 1947 as a one-man alarm system company and continuously developed new products. In the course of his entrepreneurial career, he overcame setbacks and repeatedly managed to recognise gaps in the market and develop new products.

1989 - 2017

Peter Bröckskes

After studying business administration, Peter Bröckskes joined the company in 1980 as sales manager and took over the management in 1989. Under his leadership, the company's strategy shifted away from trading to speciality cable manufacturing and problem solving. Despite economic challenges, the company grows.

since 2011

Sabine Bröckskes-Wetten

In the summer of 2000, Sabine Bröckskes-Wetten began her training as a cable production mechanic at SAB Bröckskes. After completing her studies in industrial engineering, Sabine Bröckskes-Wetten rejoined the company in 2007. She becomes head of the production department and later has overall responsibility for the technical area. In 2011, she became the owner of the company and successfully focused on expansion, quality and service.

Industrial Ethernet cables

SAB^{clean} CATLine CAT 5e S
 SAB^{clean} CATLine CAT 6A S
 SAB^{clean} CATLine CAT 7A S

Industrial Ethernet Cable, suitable for cable tracks



SEN · CATLine Cat. 7A DR 4x2x26AWG 1739-4651 CE



marking example:

SAB BRÖCKSKES · D-VIERSEN · S Clean CATLine Cat. 7A S 4x2x26AWG 1777-9003 AWM Style 20549 80°C 300V CE RoHS and current meter marking

Construction:	SAB ^{clean} CATLine CAT 5e S	SAB ^{clean} CATLine CAT 6A S	SAB ^{clean} CATLine CAT 7A S
Dimension:	4 x 2 x 26 AWG		
Conductor:	bare copper strands, fine wires		
Insulation:	special polymer		
Colour code:	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown		
Stranding:	cores twisted to pairs, pairs together	cores twisted to pairs, pairs screened with foil, pairs together	
Screen:	alu foil and tinned copper braiding	aluminized non-woven tape and tinned copper braiding	
Wrapping:	non-woven tape		
Sheath material:	TPE		
Sheath colour:	black (RAL 9005)		

Technical data:	SAB ^{clean} CATLine CAT 5e S	SAB ^{clean} CATLine CAT 6A S	SAB ^{clean} CATLine CAT 7A S
Dimension:	1577-9001	1677-9006	1777-9003
Peak operating voltage:	max. 90 V		
Voltage UL:	300 V		
Testing voltage core/core:	2000 V		
core/screen:	2000 V		
Min. bending radius fixed laying:	5 x d		
flexible application:	10 x d		
continuously flexible:	15 x d		
Temperature range fixed laying:	UL: up to +80 °C -40/+70 °C		
flexible application:	-30/+70 °C		
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL Horizontal Flame Test FT2		
Characteristic impedance:	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-2-2 / CAT 5	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-10-2 / CAT 6A	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-9-2 / CAT 7A
Oil resistance:	very good - Oil 60 °C acc. to UL 758		
Flexibility:	very good		
Air cleanliness class 1:	acc. to DIN EN 14644-1		
UL Style:	20549		
Application:	suitable for EtherCAT and EtherNET/IP applications		
Absence of harmful substances:	acc. to RoHS directive of the European Union		

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
15779001	SAB Clean CATLine CAT 5e S	4 x 2 x 26 AWG	6,4	31,8	48
16779006	SAB Clean CATLine CAT 6A S	4 x 2 x 26 AWG	6,9	31,8	56
17779003	SAB Clean CATLine CAT 7A S	4 x 2 x 26 AWG	8,9	38,5	85

Other dimensions and colours are possible on request.

Cleanroom classification
 DIN EN ISO 14644-1
 air cleanliness class 1

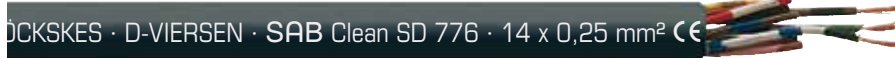


Customized plug-and-play solutions
 from cable manufacturing
 to customized cable assembly
 from a single source

Cable Track Cables

SAB_{clean} SD 776 continuously flexible data cable

SAB_{clean} S 776 continuously flexible control cable



marking example:

SAB BRÖCKSKES · D-VIERSEN · SAB Clean SD 776 · 14 x 0,25 mm² CE RoHS and current meter marking



marking example:

SAB BRÖCKSKES · D-VIERSEN · SAB Clean S 776 · 4 G 1,0 mm² CE RoHS and current meter marking

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
Colour code:	SD 776: with reference to DIN 47100 S 776: black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specialy adjusted layering
Wrapping:	non-woven tape
Sheath material:	TPE
Sheath colour:	black (RAL 9005)

Technical data:

Peak operating voltage:	SD 776: max. 350 V
Nominal voltage:	S 776: U ₀ /U 300/500 V
Testing voltage:	SD 776: core/core 1500 V S 776: core/core 2000 V
Min. bending radius:	7,5 x d
Temperature range	
<i>fixed laying:</i>	-40/+80 °C
<i>flexible application:</i>	-30/+80 °C
Oil resistance:	very good - Oil 60 °C acc. to UL 758
Air cleanliness class 1:	acc. to DIN EN ISO 14644-1
Absence of harmful substances:	acc. to RoHS directive of the European Union

Outstanding features:

- » flexible at low temperatures
- » high abrasion resistance
- » small outer diameter
- » oil resistant
- » PFAS free

item no.	type	no. of cores x cross section n x mm ²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	copper figure kg/km	ohmic resistance at 20 °C max. Ω/km
37760302	SD 776	3 x 0,25	0,11	4,1	7,2	23	78,0
37760402	SD 776	4 x 0,25	0,11	4,3	9,6	26	78,0
37760502	SD 776	5 x 0,25	0,11	4,6	12,0	31	78,0
37760602	SD 776	6 x 0,25	0,11	5,0	14,4	37	78,0
37760702	SD 776	7 x 0,25	0,11	5,3	16,8	42	78,0
37761002	SD 776	10 x 0,25	0,11	6,1	24,0	52	78,0
37761402	SD 776	14 x 0,25	0,11	6,5	33,6	65	78,0
37760503	SD 776	5 x 0,34	0,11	4,9	16,3	37	57,4
37763203	SD 776	32 x 0,34	0,11	9,9	104,4	162	57,4
37760205	S 776	2 x 0,50	0,16	5,3	9,6	35	39,0
37760305	S 776	3 x 0,50	0,16	5,5	14,4	41	39,0
37760405	S 776	4 x 0,50	0,16	5,9	19,2	49	39,0
37760505	S 776	5 x 0,50	0,16	6,4	24,0	60	39,0
37760705	S 776	7 x 0,50	0,16	7,3	33,6	79	39,0
37761205	S 776	12 x 0,50	0,16	8,7	57,6	111	39,0
37760407	S 776	4 x 0,75	0,16	6,5	28,8	63	26,0
37760507	S 776	5 x 0,75	0,16	7,1	36,0	77	26,0
37760707	S 776	7 x 0,75	0,16	8,1	50,4	104	26,0
37760410	S 776	4 x 1,00	0,16	7,0	38,4	77	19,5
37760415	S 776	4 x 1,50	0,16	7,7	57,6	100	13,3
37760515	S 776	5 x 1,50	0,16	8,4	72,0	123	13,3
37760425	S 776	4 x 2,50	0,16	9,6	96,0	157	7,98
37760440	S 776	4 x 4,00	0,16	12,1	153,6	252	4,95
37760460	S 776	4 x 6,00	0,21	13,2	230,4	335	3,30
37760461	S 776	4 x 10,0	0,21	15,8	384,0	514	1,91

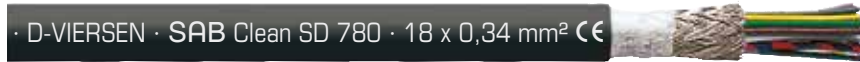
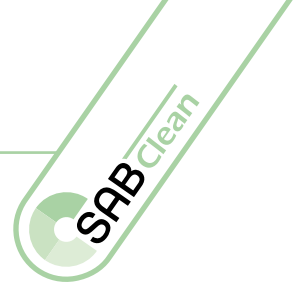
**Cleanroom
classification
DIN EN ISO 14644-1
air cleanliness class 1**

Other dimensions and colours are possible on request.

Cable Track Cables

SAB_{clean} SD 780 C continuously flexible data cable with overall copper screen

SAB_{clean} S 780 C continuously flexible control cable with overall copper screen



marking example:

SAB BRÜCKSKES · D-VIERSEN · SAB Clean SD 780 · 18 x 0,34 mm² CE RoHS and current meter marking



marking example:

SAB BRÜCKSKES · D-VIERSEN · SAB Clean S 780 C · 4 G 1,0 mm² CE RoHS and current meter marking

Construction:

Conductor:	SD 780 C: bare copper strands, extra fine wire S 780 C: bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Colour code:	SD 780 C: with reference to DIN 47100 S 780 C: black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specialy adjusted layering
Wrapping:	non-woven tape
Inner sheath:	S 780 C: SABIX*
Wrapping:	S 780 C: non-woven tape
Screen:	tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	TPE
Sheath colour:	black (RAL 9005)

Technical data:

Peak operating voltage:	SD 780 C: max. 350 V
Nominal voltage:	S 780 C: U _o /U 300/500 V
Testing voltage:	SD 780 C: core/core 1500 V core/screen 1200 V S 780 C: core/core 2000 V core/screen 2000 V
Min. bending radius:	7,5 x d
Temperature range	
<i>fixed laying:</i>	-40/+80 °C
<i>flexible application:</i>	-30/+80 °C
Oil resistance:	very good - Oil 60 °C acc. to UL 758
Air cleanliness class 1:	acc. to DIN EN ISO 14644-1
Absence of harmful substances:	acc. to RoHS directive of the European Union

Outstanding features:

- » flexible at low temperatures
- » high abrasion resistance
- » small outer diameter
- » oil resistant
- » good EMC characteristics
- » PFAS free

item no.	type	no. of cores x cross section n x mm ²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	copper figure kg/km	ohmic resistance at 20 °C max. Ω/km
37800201	SD 780 C	2 x 0,14	0,11	4,3	13,4	25	139,3
37800301	SD 780 C	3 x 0,14	0,11	4,4	14,8	27	139,3
37800302	SD 780 C	3 x 0,25	0,11	4,8	18,3	32	78,0
37800402	SD 780 C	4 x 0,25	0,11	5,0	20,8	36	78,0
37800303	SD 780 C	3 x 0,34	0,11	5,0	21,0	35	57,4
37800503	SD 780 C	5 x 0,34	0,11	5,6	31,8	51	57,4
37800703	SD 780 C	7 x 0,34	0,11	6,3	39,2	62	57,4
37801003	SD 780 C	10 x 0,34	0,11	7,2	52,8	77	57,4
37801803	SD 780 C	18 x 0,34	0,11	8,4	84,6	117	57,4
37800305	S 780 C	3 x 0,50	0,16	7,2	34,6	68	39,0
37800405	S 780 C	4 x 0,50	0,16	7,6	39,8	76	39,0
37800207	S 780 C	2 x 0,75	0,16	7,5	34,9	70	26,0
37800407	S 780 C	4 x 0,75	0,16	8,2	51,6	92	26,0
37800210	S 780 C	2 x 1,00	0,16	7,9	41,8	80	19,5
37800310	S 780 C	3 x 1,00	0,16	8,2	51,6	92	19,5
37800410	S 780 C	4 x 1,00	0,16	8,9	64,6	113	19,5
37800315	S 780 C	3 x 1,50	0,16	9,0	69,4	118	13,3
37800415	S 780 C	4 x 1,50	0,16	9,6	84,5	138	13,3
37800425	S 780 C	4 x 2,50	0,16	11,7	148,3	216	7,98
37800440	S 780 C	4 x 4,00	0,16	13,9	215,5	313	4,95

**Cleanroom
classification
DIN EN ISO 14644-1
air cleanliness class 1**

Other dimensions and colours are possible on request.

Cable Track Cables

SAB_{clean} SD 787 C TP

continuously flexible paired data cable with overall copper screen



BRÜCKSKES · SAB Clean SD 787 C TP · 7 x 2 x 0,25 mm² CE



marking example:

SAB BRÜCKSKES · D-VIERSEN · SAB Clean SD 787 C TP · 7 x 2 x 0,25 mm² CE RoHS and current meter marking

Construction:

Conductor: tinned copper strands, extra fine wire with reference to VDE 0812

Insulation: TPE

Colour code: with reference to DIN 47100

Stranding: cores twisted to pairs in specially adjusted layering

Wrapping: non-woven tape

Screen: tinned copper braiding

Wrapping: non-woven tape

Sheath material: TPE

Sheath colour: black (RAL 9005)

Technical data:

Peak operating voltage: max. 350 V

Testing voltage: core/core 1500 V
core/screen 1200 V

Min. bending radius: 7,5 x d

Temperature range
fixed laying: -40/+80 °C
flexible application: -30/+80 °C

Oil resistance: very good - Oil 60 °C acc. to UL 758

Air cleanliness class 1: acc. to DIN EN ISO 14644-1

Absence of harmful substances: acc. to RoHS directive of the European Union

Outstanding features:

- » flexible at low temperatures
- » high abrasion resistance
- » small outer diameter
- » oil resistant
- » good EMC characteristics
- » PFAS free

item no.	no. of pairs x cross section n x 2 x mm ²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	copper figure kg/km	ohmic resistance at 20 °C max. Ω/km
37810225	2 x 2 x 0,25	0,11	5,5	25,2	45	80,0
37810325	3 x 2 x 0,25	0,11	6,1	30,7	53	80,0
37810425	4 x 2 x 0,25	0,11	7,0	39,1	67	80,0
37810525	5 x 2 x 0,25	0,11	7,5	44,5	78	80,0
37810625	6 x 2 x 0,25	0,11	7,7	49,6	86	80,0
37810725	7 x 2 x 0,25	0,11	8,0	56,3	99	80,0
37810825	8 x 2 x 0,25	0,11	9,6	65,0	125	80,0
37811225	12 x 2 x 0,25	0,11	10,8	104,3	158	80,0
37810850	8 x 2 x 0,50	0,11	12,1	129,7	211	40,1

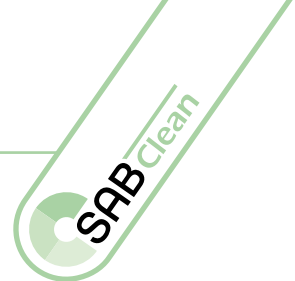
Other dimensions and colours are possible on request.

Cleanroom
classification
DIN EN ISO 14644-1
air cleanliness class 1

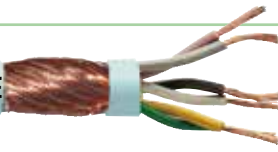
Torsion Cables

SAB_{clean} RT 123 D TP (B)

torsional data cable with twisted pairs and overall copper screen



3 80°C 300V CSA AWM I/II A/B 80°C 300V FT1 FT2 CE



marking example:

SAB BRÖCKSKES · D-VIERSEN · SAB Clean RT 123 D TP (B) AWM Style 20233 80°C 300V CSA AWM I/II A/B 80°C 300V FT1 FT2 CE

Construction:

Conductor:	bare copper strands, extra fine wire, with reference to VDE 0812
Insulation:	TPE
Colour code:	colour code US 2
Stranding:	cores twisted to pairs in specially adjusted layering
Wrapping:	netting tape, non-woven tape
Screen:	wrapped with bare copper wires
Drain wire:	bare copper strands, extra fine wire 0,34 mm ²
Wrapping:	non-woven tape
Sheath material:	TPE
Sheath colour:	whitgreen (RAL 6019)

Technical data:

Peak operating voltage:	max. 350 V	
Voltage UL/CSA:	300 V	
Testing voltage:	core/core	2000 V
	core/screen	2000 V
Torsion angle:	up to ± 450°/1 m	
Min. bending radius	7,5 x d	
continuously flexible:		
Temperature range	DIN VDE	UL/CSA: up to +80 °C
fixed laying:	-50/+70 °C	
flexible application:	-40/+70 °C	
Air cleanliness class 1:	acc. to DIN EN ISO 14644-1	
Absence of harmful substances:	acc. to RoHS directive of the European Union	

Outstanding features:

- » rugged and reliable
- » torsion angle up to ± 450° over 1 m
- » PFAS free

item no.	no. of pairs x cross section n x 2 x mm ²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	copper figure kg/km
on request	3 x 2 x 0,34	0,11	7,7	37,7	69
	4 x 2 x 0,34	0,11	8,6	44,5	82

Other dimensions and colours are possible on request.

**Cleanroom
classification
DIN EN ISO 14644-1
air cleanliness class 1**

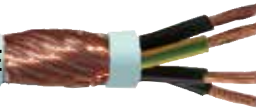
Torsion Cables

SAB_{clean} RT 793 D

torsional control cable with overall copper screen



0 80°C 600V CSA AWM I/II A/B 80°C 600V FT1 FT2 CE



marking example:

SAB BRÖCKSKES · D-VIERSEN · 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 CE

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering
Wrapping:	netting tape, non-woven tape
Screen:	wrapped with bare copper wires
Wrapping:	non-woven tape
Sheath material:	TPE
Sheath colour:	whitegreen (RAL 6019)

Technical data:

Nominal voltage:	U _o /U 300/500 V	
Voltage UL/CSA:	600 V	
Testing voltage:	core/core	3000 V
	core/screen	2000 V
Torsion angle:	up to ± 360°/1 m	
Min. bending radius <i>continuously flexible:</i>	7,5 x d	
Temperature range	DIN VDE	UL/CSA: up to +80 °C
<i>fixed laying:</i>	-50/+70 °C	
<i>flexible application:</i>	-40/+70 °C	
Air cleanliness class 1:	acc. to DIN EN ISO 14644-1	
Absence of harmful substances:	acc. to RoHS directive of the European Union	

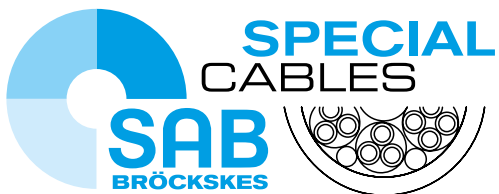
Outstanding features:

- » rugged and reliable
- » torsion angle up to ± 360° over 1 m
- » PFAS free

item no.	no. of cores x cross section n x mm ²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	copper figure kg/km	ohmic resistance at 20 °C max. Ω/km
item group 3793	5 x 0,50	0,16	8,7	40,3	99	39,0
	4 x 1,50	0,16	9,6	88,3	145	13,3
	12 x 1,50	0,16	14,1	216,4	317	13,3
item no. on request	2 x 2,50	0,16	9,8	80,7	140	7,98
	4 x 2,50	0,16	11,0	130,9	192	7,98

Other dimensions and colours are possible on request.

Cleanroom
classification
DIN EN ISO 14644-1
air cleanliness class 1



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