

Torsion





Cables



Torsion Cables

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**Also suitable
for applications on robots!**



■ Applications torsion able data cables

Torsion able data cables are designed for applications as connection cables in various industrial areas, e.g. construction of industrial robots or plants as well as machine tool construction. These cables are suitable for medium mechanical stress, particularly abrasive and scrubbing stress, for continuously flexible torsion stress with, at the same time, continuously flexible bending stress at free movement without any tensile load. The cables can be used wherever due to the construction the application of cable tracks is impossible, also applicable in dry, wet and damp rooms and with appropriate protection class in ex-proofed areas as well as at low temperatures.

■ Applications torsion able control cables

Torsion able control cables are designed for applications as connection cables in various industrial areas, e.g. construction of industrial robots or plants as well as machine tool construction. These cables are suitable for medium mechanical stress, particularly abrasive and scrubbing stress, for continuously flexible torsion stress with, at the same time, continuously flexible bending stress at free movement without any tensile load. The cables can be used wherever due to the construction the application of cable tracks is impossible, also applicable in dry, wet and damp rooms and with appropriate protection class in ex-proofed areas as well as at low temperatures.

Exemplary applications:

RT 123	Packaging, wood working, textile, welding and cutting machine construction, car manufacturing industry, industrial robot construction, electrical drive, control, and measurement technology, construction of industrial plants and machine tooling construction
RT 123 D	
RT 113	
RT 113 D	

■ You will find further information about the safe application of cables in chapter N

Torsion Cables

Selection table



Cable type		RT 123	RT 123 D	RT 113	RT 113 D
Appli- cation	screened		●		●
	Torsion angle 450°/0.5 m	●	●		
	Torsion angle 270°/0.5 m			●	●
Temperature range fixed laying*	+ 90 °C				
	+ 70 °C				
	- 40 °C				
	- 50 °C				
Voltage	0,14 mm ² - 0,34 mm ² : Peak operating voltage max. 350 V	●	●	●	●
	from 0,50 mm ² : Nominal voltage U ₀ /U 300/500 V	●	●	●	
	0,14 mm ² - 0,34 mm ² : Voltage UL/CSA 300 V	●	●	●	●
	from 0,50 mm ² : Voltage UL/CSA 600 V	●	●	●	
	0,14 mm ² - 0,34 mm ² : Testing voltage core/core 1500 V	●	●	●	●
	0,14 mm ² - 0,34 mm ² : Testing voltage core/screen 1200 V		●		●
	from 0,50 mm ² : Testing voltage core/core 2000 V			●	
	from 0,50 mm ² : Testing voltage core/core 3000 V	●	●		
	from 0,50 mm ² : Testing voltage core/screen 2000 V		●		
Standard	Halogen-free acc. to IEC 60754-1 + VDE 0482-754-1	●	●		
	Fire performance acc. to IEC 60332-1-2 + VDE 0482-332-1-2	●	●	●	●
	Fire performance acc. to UL VW-1	●	●	●	●
	Fire performance acc. to CSA FT1, FT2	●	●	●	
	UL recognized	●	●	●	●
	CSA approval	●	●	●	
Characteristic	very good oil resistance acc. to EN 50363-10-2 + VDE 0207-363-10-2	●	●		
	very good oil resistance acc. to EN 50363-4-1 + VDE 0207-363-4-1			●	●
	oilrating 60 °C acc. to UL 758, Fuel-Oil acc. to CSA C22.2 No. 210.2-M90			●	
	good chemical resistance	●	●		
	very good continuous flexibility	●	●	●	●



*The temperature range for flexible application is mentioned on the corresponding catalogue page

Torsion Cables

RT 123

PUR torsion cable, torsion angle up to $\pm 450^\circ$ over 0.5 m



Style 21060 80°C 600V CSA AWM I/II A/B 80°C 600V FT1 FT2 CE

marking example:

SAB BRÖCKSKES · D-VIERSEN · 07951815 18x1,5mm² RT 123 16 AWG/18c 07951618

AWM Style 21060 80°C 600V CSA AWM I/II A/B 80°C 600V FT1 FT2 CE

Construction:

Conductor 0,14 mm ² - 0,34 mm ² :	bare copper strands, extra fine wires
Conductor from 0,50 mm ² :	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Colour code 0,14 mm ² - 0,34 mm ² :	acc. to colour code US 2, see chapter N „Technical data“
Colour code from 0,50 mm ² :	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering with netting tape over each layer and one additional non-woven tape over the outer layer
Sheath material:	PUR, TPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Sheath colour:	black (RAL 9005)

Outstanding features:

- » rugged and reliable
- » torsion angle up to $\pm 450^\circ$ over 0.5 m
- » UL recognized, CSA approval

Technical data:

Peak operating voltage 0,14 mm ² - 0,34 mm ² :	max. 350 V
Nominal voltage from 0,50 mm ² :	U ₀ /U 300/500 V
Voltage UL/CSA 0,14 mm ² - 0,34 mm ² :	300 V
Voltage UL/CSA from 0,50 mm ² :	600 V
Testing voltage 0,14 mm ² - 0,34 mm ² :	core/core 1500 V
Testing voltage from 0,50 mm ² :	core/core 3000 V
Torsion angle:	up to $\pm 450^\circ/0.5$ m
Min. bending radius <i>continuously flexible:</i> <i>from 34 cores:</i>	12 x d 20 x d
Radiation resistance:	5 x 10 ⁷ cJ/kg
Temperature range <i>fixed laying:</i> <i>flexible application:</i>	DIN VDE UL/CSA: up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL VW-1, CSA FT1, FT2
Oil resistance:	very good - TPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous flexibility:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“

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	cable weight ≈ kg/km
07950301	3 x 0,14	0,11	5,5	4,0	31
07950401	4 x 0,14	0,11	4,7	5,4	26
07950302	3 x 0,25	0,11	4,6	7,2	25
07950402	4 x 0,25	0,11	4,8	9,6	28
07950702	7 x 0,25	0,11	5,4	16,8	39
07952502	25 x 0,25	0,11	9,1	60,0	117
07950203	2 x 0,34	0,11	4,8	6,6	27
07951805	18 x 0,50	0,16	12,5	95,0	216
07952505	25 x 0,50	0,16	14,6	132,0	303
07950407	4 x 0,75	0,16	7,8	28,8	78
07951407	14 x 0,75	0,16	12,6	100,8	207

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	cable weight ≈ kg/km
07950210	2 x 1,00	0,16	7,3	19,2	64
07950310	3 x 1,00	0,16	7,6	28,8	75
07950410	4 x 1,00	0,16	8,1	38,4	91
07950610	6 x 1,00	0,16	9,4	57,6	127
07950710	7 x 1,00	0,16	10,0	67,2	147
07951210	12 x 1,00	0,16	12,2	115,2	214
07951810	18 x 1,00	0,16	14,7	172,8	316
07952510	25 x 1,00	0,16	16,6	240,0	428
07953410	34 x 1,00	0,16	19,7	326,4	559
07954010	40 x 1,00	0,16	20,9	384,0	659
07954110	41 x 1,00	0,16	20,9	393,6	670
07950715	7 x 1,50	0,16	11,3	100,8	197
07951215	12 x 1,50	0,16	14,3	172,8	303
07951815	18 x 1,50	0,16	16,6	259,2	435
07952515	25 x 1,50	0,16	19,1	360,0	609
07950325	3 x 2,50	0,16	9,9	72,0	136
07950425	4 x 2,50	0,16	10,3	96,0	166
07950525	5 x 2,50	0,16	11,8	120,0	210
07950340	3 x 4,00	0,16	11,5	115,2	211
07950361	3 x 10,00	0,21	16,5	288,0	471
07950362	3 x 16,00	0,21	19,4	460,8	682
07950363	3 x 25,00	0,21	24,0	720,0	1035
07950364	3 x 35,00	0,21	27,2	1008,0	1389

Also suitable
for applications on robots!

Other dimensions and colours are possible on request.

Torsion Cables

RT 123 D

PUR torsion cable with overall copper screen, torsion angle up to $\pm 450^\circ$ over 0.5 m



marking example:

SAB BRÜCKSKES · D-VIERSEN · 07961815 18x1,5mm² RT 123 D 16 AWG/18c 07961618

AWM Style 21060 80°C 600V CSA AWM I/II A/B 80°C 600V FT1 FT2 CE

Construction:

Conductor 0,14 mm ² - 0,34 mm ² :	bare copper strands, extra fine wires
Conductor from 0,50 mm ² :	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Colour code 0,14 mm ² - 0,34 mm ² :	acc. to colour code US 2, see chapter N „Technical data“
Colour code from 0,50 mm ² :	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering with netting tape over each layer and one additional non-woven tape over the outer layer
Screen:	wrapped with bare copper wires
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Sheath colour:	black (RAL 9005)

Outstanding features:

- » rugged and reliable
- » torsion angle up to $\pm 450^\circ$ over 0.5 m
- » UL recognized, CSA approval

Technical data:

Peak operating voltage 0,14 mm ² - 0,34 mm ² :	max. 350 V
Nominal voltage from 0,50 mm ² :	U ₀ /U 300/500 V
Voltage UL/CSA 0,14 mm ² - 0,34 mm ² :	300 V
Voltage UL/CSA from 0,50 mm ² :	600 V
Testing voltage 0,14 mm ² - 0,34 mm ² :	core/core 1500 V core/screen 1200 V
Testing voltage from 0,50 mm ² :	core/core 3000 V core/screen 2000 V
Torsion angle:	up to $\pm 450^\circ/0.5$ m
Min. bending radius <i>continuously flexible:</i> <i>from 34 cores:</i>	12 x d 20 x d
Radiation resistance:	5 x 10 ⁷ cJ/kg
Temperature range <i>fixed laying:</i> <i>flexible application:</i>	DIN VDE UL/CSA: up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL VW-1, CSA FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous flexibility:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“

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	cable weight ≈ kg/km
07961201	12 x 0,14	0,11	6,9	30,2	62
07962502	25 x 0,25	0,11	10,0	90,9	156
07960505	5 x 0,50	0,16	8,2	40,5	94
07960710	7 x 1,00	0,16	10,7	108,5	178
07961215	12 x 1,50	0,16	14,9	214,7	338
07961815	18 x 1,50	0,16	17,1	326,0	496

Other dimensions and colours are possible on request.

Also suitable
for applications on robots!

Torsion Cables

RT 113

PVC torsion cable, torsion angle up to $\pm 270^\circ$ over 0.5 m



marking example:

SAB BRÖCKSKES · D-VIERSEN · 07971815 18x1,5mm² RT 113 16 AWG/18c 07961618

AWM Style 21216 90°C 600V Oil 60°C CSA AWM I/II A/B 90°C F 600V FT1 FT2 CE

Construction:

Conductor 0,14 mm ² - 0,34 mm ² :	bare copper strands, extra fine wires
Conductor from 0,50 mm ² :	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	PVC, TI2 acc. to EN 50363-3 + VDE 0207-363-3
Colour code 0,14 mm ² - 0,34 mm ² :	acc. to colour code US 2, see chapter N „Technical data“
Colour code from 0,50 mm ² :	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering with netting tape over each layer and one additional non-woven tape over the outer layer
Sheath material:	PVC, TM5 acc. to EN 50363-4-1 + VDE 0207-363-4-1
Sheath colour:	black (RAL 9005)

Outstanding features:

- » rugged and reliable
- » torsion angle up to $\pm 270^\circ$ over 0.5 m
- » UL recognized, CSA approval

Technical data:

Peak operating voltage 0,14 mm ² - 0,34 mm ² :	max. 350 V	
Nominal voltage from 0,50 mm ² :	U ₀ /U 300/500 V	
Voltage UL/CSA 0,14 mm ² - 0,34 mm ² :	300 V	
Voltage UL/CSA from 0,50 mm ² :	600 V	
Testing voltage 0,14 mm ² - 0,34 mm ² :	core/core 1500 V	
Testing voltage from 0,50 mm ² :	core/core 2000 V	
Torsion angle:	up to $\pm 270^\circ/0.5$ m	
Min. bending radius <i>continuously flexible:</i> <i>from 34 cores:</i>	12 x d 20 x d	
Temperature range 0,14 mm ² - 0,34 mm ² : <i>fixed laying:</i> <i>flexible application:</i>	DIN VDE -40/+70 °C +5/+70 °C	UL: up to +80 °C
Temperature range from 0,50 mm ² : <i>fixed laying:</i> <i>flexible application:</i>	DIN VDE -40/+70 °C +5/+70 °C	UL/CSA: up to +80 °C
Fire performance 0,14 mm ² - 0,34 mm ² :	acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL VW-1	
Fire performance from 0,50 mm ² :	acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL VW-1, CSA FT1, FT2	
Oil resistance:	very good - TM5 acc. to EN 50363-4-1 + VDE 0207-363-4-1, oilrating 60 °C acc. to UL 758, Fuel-Oil acc. to CSA C22.2 No. 210.2-M90	
Continuous flexibility:	very good	
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“	

UL

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	cable weight ≈ kg/km
07970301	3 x 0,14	0,11	5,2	4,0	31
07970401	4 x 0,14	0,11	5,6	5,4	36
07970302	3 x 0,25	0,11	5,4	7,2	37
07970402	4 x 0,25	0,11	5,9	9,6	43
07970702	7 x 0,25	0,11	7,3	16,8	67
07972502	25 x 0,25	0,11	11,2	60,0	173
07970203	2 x 0,34	0,11	5,3	6,5	36

UL / CSA

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	cable weight ≈ kg/km
07972505	25 x 0,50	0,16	14,8	120,0	332
07970407	4 x 0,75	0,16	7,4	28,8	75
07970707	7 x 0,75	0,16	9,6	67,2	134
07971407	14 x 0,75	0,16	12,5	100,8	225
07970210	2 x 1,00	0,16	6,8	19,2	59
07970310	3 x 1,00	0,16	6,9	28,8	71
07970410	4 x 1,00	0,16	7,8	38,4	90
07971210	12 x 1,00	0,16	12,4	115,2	234
07971810	18 x 1,00	0,16	14,4	172,8	334
07972510	25 x 1,00	0,16	16,9	240,0	468
07971815	18 x 1,50	0,16	16,5	259,2	456
07972515	25 x 1,50	0,16	18,7	360,0	630
07970325	3 x 2,50	0,16	9,8	72,0	146
07970425	4 x 2,50	0,16	10,6	96,0	184
07970340	3 x 4,00	0,16	12,1	115,2	225
07970361	3 x 10,00	0,21	16,8	288,0	502
07970362	3 x 16,00	0,21	19,7	460,8	731
07970363	3 x 25,00	0,21	23,8	720,0	1080
07970364	3 x 35,00	0,21	27,2	1008,0	1470

Also suitable
for applications on robots!

Other dimensions and colours are possible on request.

Torsion Cables

RT 113 D

PVC torsion cable with overall copper screen, torsion angle up to $\pm 270^\circ$ over 0.5 m



marking example:

SAB BRÖCKSKES · D-VIERSEN · 07981201 12x0,14mm² RT 113 D 26 AWG/12c 07982612 AWM Style 2464 80°C 300V CE

Construction:

Conductor:	bare copper strands, extra fine wires
Insulation:	PVC, TI2 acc. to EN 50363-3 + VDE 0207-363-3
Colour code:	acc. to colour code US 2, see chapter N „Technical data“
Stranding:	specially adjusted layering with netting tape over each layer and one additional non-woven tape over the outer layer
Screen:	wrapped with bare copper wires
Wrapping:	non-woven tape
Sheath material:	PVC, TM5 acc. to EN 50363-4-1 + VDE 0207-363-4-1
Sheath colour:	black (RAL 9005)

Technical data:

Peak operating voltage:	max. 350 V
Voltage UL:	300 V
Testing voltage:	core/core 1500 V core/screen 1200 V
Torsion angle:	up to $\pm 270^\circ/0.5$ m
Min. bending radius	
<i>continuously flexible:</i>	12 x d
<i>from 34 cores:</i>	20 x d
Temperature range	DIN VDE UL: up to +80 °C
<i>fixed laying:</i>	-40/+70 °C
<i>flexible application:</i>	+5/+70 °C
Fire performance:	acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL VW-1
Oil resistance:	very good - TM5 acc. to EN 50363-4-1 + VDE 0207-363-4-1
Continuous flexibility:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union, see chapter N „Technical data“

Outstanding features:

- » rugged and reliable
- » torsion angle up to $\pm 270^\circ$ over 0.5 m
- » UL recognized

item no.	no. of cores x cross section n x mm ²	largest single wire ø mm	outer-ø $\pm 10\%$ mm	copper figure kg/km	cable weight ≈ kg/km
07981201	12 x 0,14	0,11	8,4	32,2	88
07982502	25 x 0,25	0,11	11,6	102,3	201

Other dimensions and colours are possible on request.

Also suitable
for applications on robots!