Reeling Cables

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SAB
BRÖCKSKES

DIN EN ISO 9001

More than 60 years of experience in temperature measurement and control technique as well as in cable production have made a one man business a company with nearly 500 staff members. Our strength is not only the production of standard products but also the development and manufacturing of special products acc. to customers' specifications. Every year we manufacture more than 1500 special products on our customer's request. Every single product is a challenge for our technical team.

We at SAB Bröckskes see ourselves as manufacturer and service provider - in the sense of real partnership and customer oriented work. The quality of our products is known in more than 40 countries of the world. Our customers have tested our products intensively and confirm that they have a longer service life than others. In all product ranges we are certified acc. to ISO 9001:2008. Besides we established an environmental management system for our company acc. to ISO 14001:2004, an occupational health and safety management acc. to NLF/ILO-OSH 2001 and OHSAS 18001:2007 as well as an energy management system acc. to DIN EN 16001:2009. And our future slogan is: **We go forward!**

founded:
- 1947 by Peter Bröckskes sen.
- an independent, middle sized company

CEO:
- Peter Bröckskes

plant/location:
- in Viersen (lower Rhine) 110.000 m² company site
- manufacturing from copper conductor to outer sheath,
- own VDE proofed burnchamber and laboratory

employees/workers:
- approx. 420 at the plant in Viersen, 500 worldwide

yearly sales:
- approx. 95 Mio. € worldwide

products:
- Special Cables
- Temperature Measurement
- Cable Harnessing

certificates and approvals:
- quality management system acc. to ISO 9001:2008 for every manufacturing field
- environmental management system acc. to ISO 14001:2004
- occupational health and safety management acc. to NLF/ILO-OSH 2001 and OHSAS 18001:2007
- energy management system acc. to DIN EN 16001:2009

MIL, VDE, HAR, IEC, GL, DNV, BV, KR, ABS, NK, RINA, LR, CE

DR 717 P Highflex

RoHS

Marking for DR 717 P Highflex 07170425:
SAB BRÖCKSKES · D-VIERSEN · DR 717 P Highflex 4 G 2,5 mm²

Construction:

Conductor:	bare copper strands acc. to IEC 60228 EN 60228, VDE 0295, class 5
Insulation:	special polymer
Colour code:	coloured acc. to HD 308 (VDE 0293 part 308); from 6 cores black cores with consecutive numbers acc. to EN 50334; green-yellow earth wire from 3 cores *DMX-bus:* white/brown, green/yellow *IE Cat 5:* white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Stranding:	specially adjusted layering around central suspension unit
Inner sheath:	PUR
Supporting screen:	high-tech yarn
Outer sheath:	PUR
Sheath colour:	black (RAL 9005)

Outstanding features:

- **reeling length up to 60 m**
- **high winding and unwinding strength**
- **corresponds to low voltage guideline 73/23/EWG CE**
- **small outer diameter**
- **small cable weight**

Application:

- **The DR 717 P Highflex is used for spring cables reels on stages and theaters**

Technical Data:

Nominal voltage:	Uo/U 300/500 V (supply conductors)		
Peak operating volatge:	*item no. 07179001:* max. 500 V (DMX-bus) *item no. 07179002:* max. 125 V (IE Cat 5)		
Testing voltage:	core/core 2000 V		
Current-carrying capacity:	acc. to DIN VDE 0298-4		
Min. bending radius:			
for laying and installation (fixed laying):	≤ 12 mm 3 x d / >12 mm 4 x d		
for repeated winding action (flexible):	6 x d		
guided on deflection pulleys (flexible):	7,5 x d		
Temperature range		*item no. 07179001*	*item no. 07179002*
with installation:			-00/+50 °C
fixed laying:	-50/+90 °C	-40/+70 °C	-20/+60 °C
flexible application:	-40/+90 °C	-40/+70 °C	-20/+60 °C
Halogen-free:	acc. to DIN VDE 0472 part 815 and IEC 60754-1		
Oil resistance:	very good - TMPU acc. to DIN VDE 0282 part 10 + HD 22.10		
Chemical resistance:	good against acids, alkalines, solvents, hydraulic liquids, etc.		
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 and EN 60332-1-2		
Sunlight resistance:	very good - enhanced due to black sheath colour		
Tensile strength:	with reference to DIN VDE 0298-3 section 7.1		
Mechanical characteristics:	the main mechanical characteristics accomplished by the PUR outer sheath are: - high tensile strength - high tear strength - high abrasion resistance - high notch resistance		
Absence of harmful substances:	acc. to RoHS directive of the European Union		

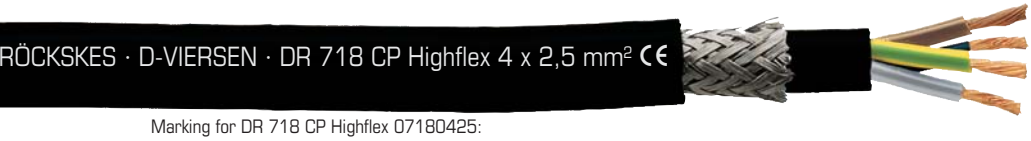
item no.	no. of cores x cross section n x mm²	outer-ø ± 5% mm	copper figure kg/km	cable weight ≈ kg/km	tensile strength max. N	min breaking load of suspension unit N
07170425	4 G 2,50	9,7	96,0	157	150	1345
07170440	4 G 4,00	11,7	153,6	239	240	1690
07171440	14 G 4,00	20,9	537,6	739	840	3200
07172040	20 G 4,00	23,3	768,0	1021	1200	3700
07172540	25 G 4,00	28,3	960,0	1318	1500	4200
07170460	4 G 6,00	13,4	230,4	333	360	1860
07171360	13 G 6,00	24,3	748,8	1013	1170	3400
07170470	4 G 10,0	17,1	384,0	559	600	2300
07170480	4 G 16,0	21,3	614,4	864	960	2800
07179001	14 G 4,00 + 2 x (2 x 0,25)C	22,4	575,4	794	840	2500
07179002	5 G 16,0 + 4 x 2 x 0,14	26,4	791,6	1163	1200	3000
07179013	25 G 4,00	min. 25,0 max. 28,0	960,0	1290	1500	2600

Other dimesnsions and colours are possible on request.

Please mention the required winding length when placing the order.

Note: Please pay attention to the installation instructions on page 7!

DR 718 CP Highflex with overall copper screen



RoHS

Marking for DR 718 CP Highflex 07180425:
SAB BRÖCKSKES · D-VIERSEN · DR 718 CP Highflex 4 x 2,5 mm² CE

Construction:

Conductor:	bare copper strands acc. to IEC 60228 EN 60228, VDE 0295, class 5
Insulation:	special polymer
Colour code:	coloured acc. to HD 308 (VDE 0293 part 308); from 6 cores black cores with consecutive numbers acc. to EN 50334; green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering around central suspension unit
Inner sheath:	PUR
Screen:	tinned copper braiding
Outer sheath:	PUR
Sheath colour:	black (RAL 9005)

Outstanding features:

- **high winding and unwinding strength**
- **small cable weight**
- **good EMC characteristics**

Applications:

- **The DR 718 CP Highflex is used for spring cable reels on stages for example in theaters as well as control cable in crane arms**

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	2000 V
Current-carrying capacity:	acc. to DIN VDE 0298-4
Min. bending radius:	
for laying and installation (fixed laying):	5 x d
for repeated winding action (flexible):	7,5 x d
guided on deflection pulleys (flexible):	10 x d
Temperature range	
fixed laying:	-50/+90 °C
flexible application:	-40/+90 °C
Halogen-free:	acc. to DIN VDE 0472 part 815 and IEC 60754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 and EN 60332-1-2
Oil resistance:	very good - TMPU acc. to DIN VDE 0282 part 10 + HD 22.10
Chemical resistance:	good against acids, alkalines, solvents, hydraulic liquids, etc.
Sunlight resistance:	very good - enhanced due to black sheath colour
Tensile strength:	with reference to DIN VDE 0298-3 section 7.1
Mechanical characteristics:	the main mechanical characteristics accomplished by the PUR outer sheath are: - high tensile strength - high tear strength - high abrasion resistance - high notch resistance
Absence of harmful substances:	acc. to RoHS directive of the European Union

Also possible without inner sheath!

item no.	no. of cores x cross section n x mm²	outer-ø ± 5% mm	copper figure kg/km	cable weight ≈ kg/km	tensile strength max. N	min breaking load of suspension unit N
07182005	20 x 0,50	12,8	161,4	258	150	1600
07182505	25 x 0,50	14,9	192,7	331	187	1700
07182507	25 x 0,75	16,9	281,2	442	281	2000
07180410	4 x 1,00	8,0	62,2	103	60	1100
07181210	12 x 1,00	15,0	188,2	317	180	2000
07181810	18 x 1,00	14,5	237,2	348	270	2200
07182510	25 x 1,00	17,8	355,8	522	375	2400
07182610	26 x 1,00	17,8	365,4	533	390	2400
07180415	4 x 1,50	8,9	86,3	133	90	1340
07180515	5 x 1,50	10,2	120,8	175	112	1690
07180715	7 x 1,50	11,9	157,3	237	157	2150
07181215	12 x 1,50	16,9	274,0	419	270	2600
07181415	14 x 1,50	16,3	301,7	439	315	2600
07181615	16 x 1,50	16,3	330,5	451	360	2600
07181815	18 x 1,50	16,4	359,7	484	405	2600
07182415	24 x 1,50	18,2	463,3	618	540	2800
07183015	30 x 1,50	23,4	586,4	841	675	2900
07183715	37 x 1,50	22,2	681,1	893	832	3200
07180425	4 x 2,50	10,8	144,7	201	150	1345
07180525	5 x 2,50	11,9	176,5	248	187	2100
07180725	7 x 2,50	13,7	232,5	332	262	2500
07181225	12 x 2,50	19,9	418,0	610	450	2900

item no.	no. of cores x cross section n x mm²	outer-ø ± 5% mm	copper figure kg/km	cable weight ≈ kg/km	tensile strength max. N	min breaking load of suspension unit N
07181825	18 x 2,50	19,5	561,7	709	675	3450
07182425	24 x 2,50	23,6	730,4	950	900	2600
07183025	30 x 2,50	26,8	892,0	1187	1125	4200
07183625	36 x 2,50	26,1	1035,8	1280	1350	5000
07184825	48 x 2,50	30,7	1353,0	1726	1800	6500
07185625	56 x 2,50	32,6	1547,8	1909	2100	7900
07180440	4 x 4,00	12,3	210,3	284	240	1690
07180540	5 x 4,00	13,7	256,5	346	300	2200
07180740	7 x 4,00	16,3	372,9	500	420	2600
07180460	4 x 6,00	13,7	302,9	388	360	1860
07180560	5 x 6,00	15,7	389,1	492	450	2300
07180760	7 x 6,00	18,9	518,7	690	630	2600
07180470	4 x 10,0	18,1	499,7	656	600	2900
07180570	5 x 10,0	20,3	609,5	808	750	3000
07180480	4 x 16,0	22,3	757,7	985	960	2800
07180580	5 x 16,0	24,9	926,6	1207	1200	3000
07180490	4 x 25,0	27,0	1131,6	1447	1500	3300
07180495	4 x 35,0	30,8	1542,9	1970	2100	3300
07180496	4 x 50,0	35,3	2147,7	2761	3000	3800

Other dimesnsions and colours are possible on request.
Please mention the required winding length when placing the order.

Note: Please pay attention to the installation instructions on page 7!

DR 721 P

RoHS

Marking for DR 721 P 07211215:
SAB BRÖCKSKES · D-VIERSEN · DR 721 P 12 G 1,5 mm² CE

Construction:

Conductor:	bare copper strands acc. to IEC 60228 EN 60228, VDE 0295, class 5
Insulation:	special polymer
Colour code:	coloured acc. to HD 308 (VDE 0293 part 308); from 6 cores black cores with consecutive numbers acc. to EN 50334; green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering
Inner sheath:	special PVC
Supporting screen:	high-tech yarn
Outer sheath:	PUR
Sheath colour:	black (RAL 9005)

Outstanding features:

- **good winding and unwinding strength**
- **small outer diameter**
- **small cable weight**
- **corresponds to low voltage guideline 73/23/EWG CE**

Application:

- **The DR 721 P is used for spring cable and motor cable reels, hoists, transport systems and farm vehicles with medium mechanical stress.**

Technical Data:

Nominal voltage:	0,6/1 kV
Testing voltage:	core/core 4000 V
Current-carrying capacity:	acc. to DIN VDE 0298-4
Min. bending radius:	
for laying and installation (fixed laying):	6 x d
for repeated winding action (flexible):	10 x d
guided on deflection pulleys: (flexible):	12 x d
Temperature range of the cable:	
fixed laying:	-30/+70 °C
flexible:	-30/+70 °C
Temperature resistance of primary insulation:	up to +90 °C
Oil resistance:	very good - TMPU acc. to DIN VDE 0282 part 10 + HD 22.10
Chemical resistance:	very good against acids, alkaline solutions, solvents and hydraulic liquids, etc.
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 und EN 60332-1-2
Weather resistance:	very good
Sunlight resistance:	very good - enhanced due to black sheath colour
Tensile strength:	acc. to DIN VDE 0298-3 section 7.1
Mechanical characteristics:	the main mechanical characteristics accomplished by the PUR outer sheath are: - high tensile strength - high tear strength - high abrasion resistance - high notch resistance
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of coresx cross section n x mm²	outer-ø ± 5% mm	copper figure kg/km	cable weight ≈ kg/km
07210415	4 G 1,50	8,8	57,6	124
07210515	5 G 1,50	9,6	72,0	148
07210715	7 G 1,50	11,7	100,8	214
07211215	12 G 1,50	16,4	172,8	357
07211815	18 G 1,50	16,3	259,2	445
07212415	24 G 1,50	19,6	345,6	597
07213615	36 G 1,50	22,1	518,4	829
07210425	4 G 2,50	10,2	96,0	178
07210525	5 G 2,50	11,2	120,0	217
07210725	7 G 2,50	13,6	168,0	310
07211225	12 G 2,50	19,4	288,0	530
07211825	18 G 2,50	19,4	432,0	660
07212425	24 G 2,50	23,6	576,0	891

item no.	no. of coresx cross section n x mm²	outer-ø ± 5% mm	copper figure kg/km	cable weight ≈ kg/km
07213625	36 G 2,50	26,4	864,0	1240
07210440	4 G 4,00	12,4	153,6	270
07210460	4 G 6,00	14,4	230,4	382
07210560	5 G 6,00	15,6	288,0	459
07210470	4 G 10,0	17,9	384,0	614
07210480	4 G 16,0	22,4	614,4	950
07210580	5 G 16,0	25,0	768,0	1172
07210390	3 x 25,0 + 3 G 6,00	24,2	892,8	1224
07210395	3 x 35,0 + 3 G 6,00	28,0	1180,8	1630
07210396	3 x 50,0 + 3 G 10,0	31,8	1728,0	2333

Other dimesnsions and colours are possible on request.
Please mention the required winding length when placing the order.

Note: Please pay attention to the installation instructions on page 7!

DR 720 P Highflex

RoHS

Marking for DR 720 P Highflex 07201215:
SAB BRÖCKSKES · D-VIERSEN · DR 720 P Highflex 12 G 1,5 mm² CE

Construction:

Conductor:	bare copper strands acc. to IEC 60228 EN 60228, VDE 0295, class 5
Insulation:	special polymer
Colour code:	coloured acc. to HD 308 (VDE 0293 part 308); from 6 cores black cores with consecutive numbers acc. to EN 50334; green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering around central suspension unit
Inner sheath:	PUR
Supporting screen:	high-tech yarn
Outer sheath:	PUR
Sheath colour:	black (RAL 9005)

Outstanding features:

- **path feed rate up to 120 m/min.**
- **high winding and unwinding strength**
- **small outer diameter**
- **small cable weight**
- **corresponds to low voltage guideline 73/23/EWG CE**

Application:

- **The DR 720 P Highflex is used for heavy appliances as for example motor cable reels hoists, transport systems, movable motors and farm vehicles with high mechanical stress.**

Technical Data:

Nominal voltage:	0,6/1 kV
Testing voltage:	core/core 4000 V
Current-carrying capacity:	acc. to DIN VDE 0298-4
Min. bending radius:	
for laying and installation (fixed laying):	≤ 12 mm 3 x d / >12 mm 4 x d
for repeated winding action (flexible):	6 x d
guided on deflection pulleys (flexible):	7,5 x d
Temperature range	
fixed laying:	-50/+90 °C
flexible application:	-40/+90 °C
Halogen-free:	acc. to DIN VDE 0472 part 815 and IEC 60754-1
Oil resistance:	very good - TMPU acc. to DIN VDE 0282 part 10 + HD 22.10
Chemical resistance:	good against acids, alkalines, solvents, hydraulic liquids, etc.
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 and EN 60332-1-2
Weather resistance:	very good
Sunlight resistance:	very good - enhanced due to black sheath colour
Tensile strength:	acc. to DIN VDE 0298-3 section 7.1
Mechanical characteristics:	the main mechanical characteristics accomplished by the PUR outer sheath are: - high tensile strength - high tear strength - high abrasion resistance - high notch resistance
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	outer-ø ± 5% mm	copper figure kg/km	cable weight ≈ kg/km	min breaking load of suspension unit N
07200415	4 G 1,50	9,0	57,6	119	1340
07200515	5 G 1,50	9,8	72,0	142	1690
07200715	7 G 1,50	11,8	100,8	204	2150
07201215	12 G 1,50	16,6	172,8	359	2600
07201815	18 G 1,50	16,4	259,2	430	2600
07200425	4 G 2,50	10,4	96,0	170	1345
07200525	5 G 2,50	11,6	120,0	213	2100
07201225	12 G 2,50	19,6	288,0	531	2900
07201825	18 G 2,50	19,7	432,0	641	3450
07202425	24 G 2,50	23,8	576,0	879	2700
07203025	30 G 2,50	26,6	720,0	1099	4200
07205025	50 G 2,50	32,4	1200,0	1739	6750

item no.	no. of cores x cross section n x mm²	outer-ø ± 5% mm	copper figure kg/km	cable weight ≈ kg/km	min breaking load of suspension unit N
07200440	4 G 4,00	12,4	153,6	255	1690
07201240	12 G 4,00	24,0	460,8	835	5000
07200460	4 G 6,00	14,8	230,4	369	1860
07200470	4 G 10,0	18,2	384,0	592	2300
07200480	4 G 16,0	22,7	614,4	915	2800
07200390	3 x 25,0 + 3 G 6,00	24,3	892,8	1188	3300
07200490	4 G 25,0	26,9	960,0	1351	3300
07200395	3 x 35,0 + 3 G 6,00	28,1	1180,8	1577	3300
07200495	4 G 35,0	31,5	1344,0	1893	3300
07200396	3 x 50,0 + 3 G 10,0	31,9	1728,0	2264	3800

Other dimesnsions and colours are possible on request.
Please mention the required winding length when placing the order.

Note: Please pay attention to the installation instructions on page 7!

The trouble-free and long service life of reeling cables requires the adherence to certain installation guidelines.

The cable shall be wound directly from the supplied drum to the reeling drum. The complete unwinding of the cable isn' t necessary. A straight torsion-free guiding has to be observed. Equally the cable has to be fixed and connected torsion-free. The indicated min. bending radius has to be adhered to.

In case of complete extension of the cable at least 2 windings shall remain on the reeling drum. For fixing the other cable end Kellem grips or large surface clamp connections can be used.

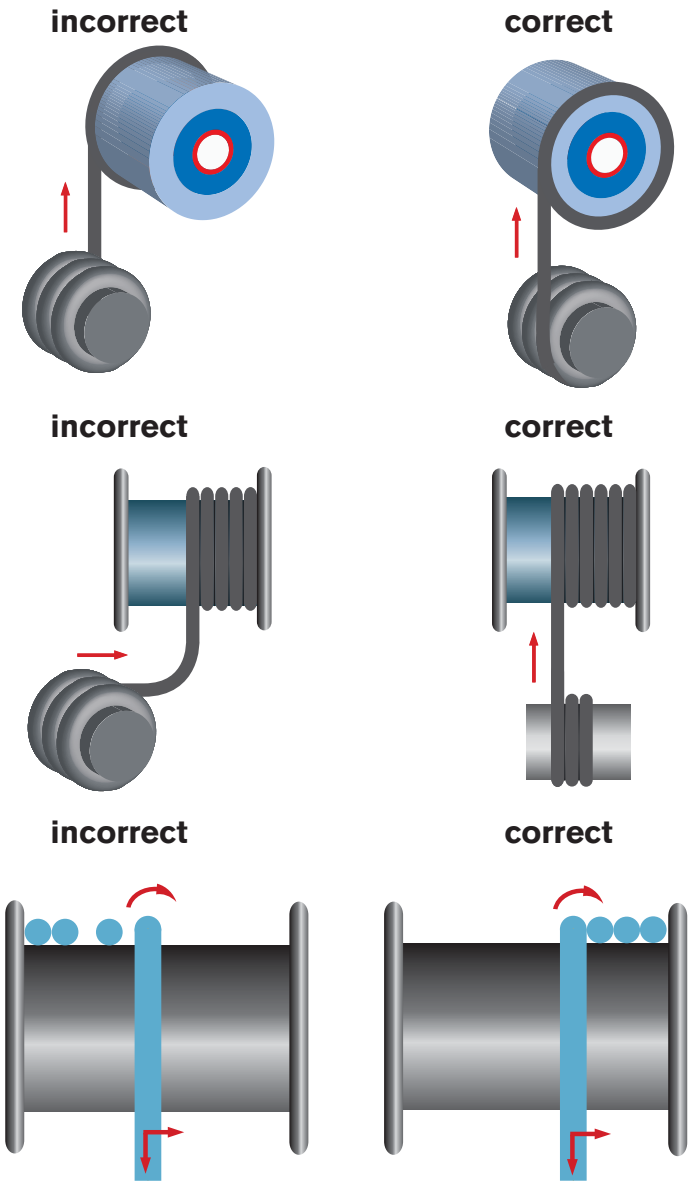
The installation of reeling cables has to be done carefully. They have to be protected against external damage during installation and operation.

The start of winding of reeling cables on cylinder drums shall be made in stranding direction. Cables with right stranding direction (Z-lay) shall be operated to the right side and vice versa. If the stranding direction isn't known, please contact our technical support for any information.

Without special notice in our catalogue, the tensile stress of the copper conductors shall not exceed 15 N/mm2 (DIN VDE 0298 part 3). In case of higher tensile stress, we recommend to contact our technical support to align the cable construction to the requirements. The max. allowed limit deviations of the tensile stress are to be understood as the sum of the static and dynamic stress.

Reeling cables are generally not appropriate for torsion stress. During operation, however, torsion stress can't be avoided. As a consequence the exceeding of the limit values (generally >± 25°/m) lead to a considerable reduction of service life.

In case of undercutting the smallest allowed min. bending radius, the service life of the cable is reduced.



FLEXIBLE CABLES

- Halogen-free cables
- Cable track cables
- Servo motor cables
- ETFE, FEP, PFA cables
- Bus cables
- Torsion cables
- Hybrid and special cables
- Control and connection cables
- Data cables
- Besilen® (Silicone) cables
- Compensating and extension cables
- Tray cables

TEMPERATURE MEASUREMENT

- Protecting armatures and gauge slides
- Mineral insulated thermocouples and Mineral insulated resistance thermometers
- Temperature measurement in plastic processing industry/Hot runner technique
- Diesel thermocouples
- Probe with stainless steel sleeve
- Temperature measurement in test vehicles
- Measurement techniques

CABLE HARNESSING

- Harnessed cables acc. to customer's specification
- Harnessed cable track cables
- Helix cables
- Cable harnesses
- Harnessed motor and transmission cables for Siemens and Indramat drives

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