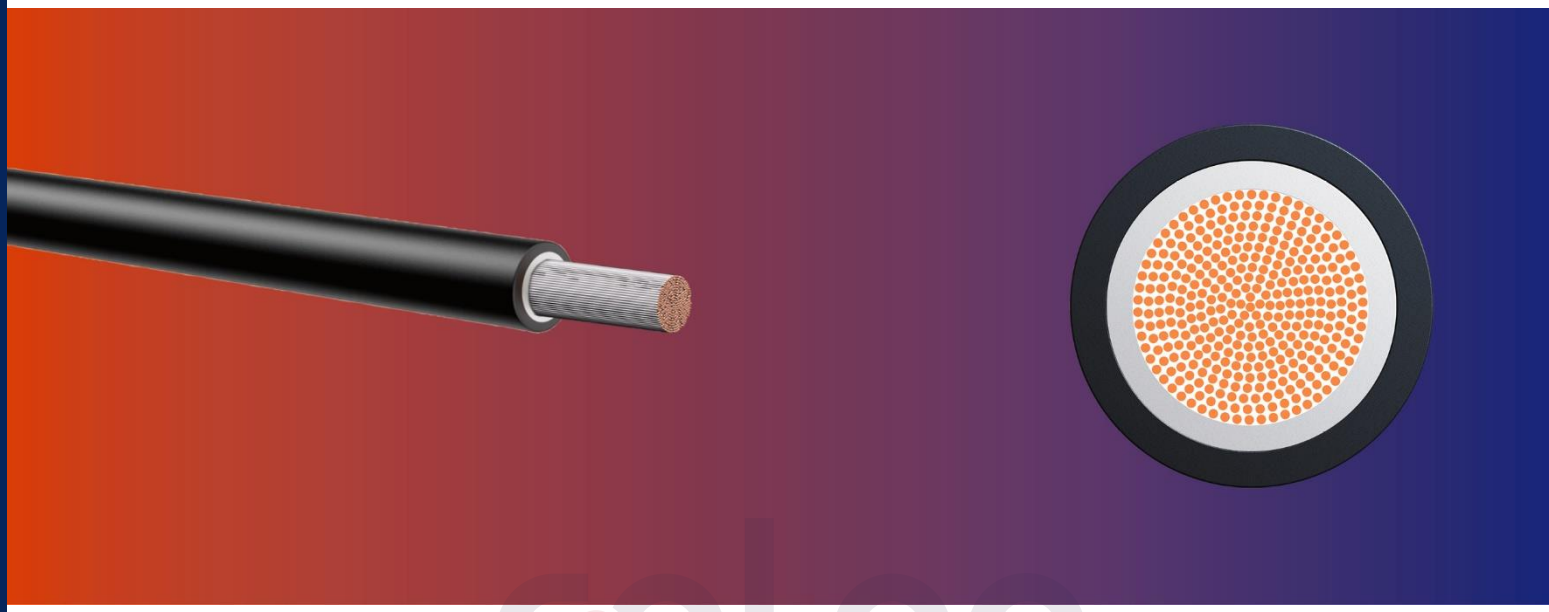
Studer Cables

ROLLING STOCK – AUXILIARY - AND MAINPOWER CABLE

BETAtrans® 4 GKW-ENX R 1800 V M

Single core wire based on EN 50264-1



Application

This single core wire is used for fixed and protected installations inside and outside of rail vehicles and buses for the connection of fixed and moved parts. It has optimised outer diameter and therefore they are applied in applications where space is very limited. This wire is suitable for the wiring of electric engines, switch and auxiliary boards, converters and distribution boxes. Due to the double-insulated design, this cable is qualified for short circuit and earth fault-proof applications. For installation the guidelines of EN 50355 and EN 50343 must be considered.

Advantages

- Halogen free
- Electron-beam cross-linked
- Weight and volume-optimised
- Very long lifetime
- Good media resistance
- Short circuit and fault proof
- High level cold resistance
- Low fire load

Construction

Conductor	Tinned fine copper strand acc. to VDE 0295 / IEC 60228, class 5
Insulation	Polyolefin Copolymer, Comp 752, electronbeam cross-linked
Colour	White
Outer sheath	Polyolefin Copolymer, Comp 752, electronbeam cross-linked
Colour	Black, further colours upon request

Electrical properties

Rated value	U0/U	1.8 / 3 kV AC
Maximum voltage	U0m	2.16 kV AC
Maximum voltage	Um	3.6 kV AC
Maximum voltage	V0	2.7 kV DC
Maximum voltage	Vm	5.4 kV DC
Test voltage		6.5 kV, 50 Hz / 5 min.

Thermal properties

Max. operating temperature	fixed installation	+120°C
Max. operating temperature	Occasionally moved	+90°C
Min. ambient temperature	fixed installation	-50°C
Max. short circuit temperature		+280°C (max. 5s)

Mechanical properties

Bending radius	fixed installation	all cables > 3 x Ø (-40°C)
Bending radius	fixed installation	all cables > 5 x Ø (-50°C)
Bending radius	occasionally moved	all cables > 8 x Ø (-40°C)

Material properties / Standards

Material properties	EN 50264-3-1 hazard level M
Resistance to ozone	EN 60811-403
High resistance to cold	EN 60811-504
High resistance to oil	EN 60811-404
High resistance to fuel	EN 60811-404

Material properties / Standards

Resistance to acid	EN 60811-404
Resistance to alkaline	EN 60811-404
Low fire load	DIN 51900
Limiting oxygen index (LOI)	ISO 4589-2 ASTM D 2863
Resistance to UV	EN 50618
Fire performance for rolling stock	EN 45545-2 HL1 - HL3
Fire performance for rolling stock	EN 50264-1
Vertical flame propagation for a single insulated wire or cable	EN 60332-1-2
Vertical flame spread of bunched wires or cables > 6 < 12 mm	EN 60332-3-25
Vertical flame spread of bunched wires or cables < 6 mm	EN 50305
Smoke density	EN 61034-2
Toxicity of gases	EN 50305
Absence of halogens	EN 60754-1 EN 60684-2
Corrosivity of gases	EN 60754-2
Fire performance for rolling stock	NFPA130
Vertical flame propagation for bunched wires or cables	FT 4/IEEE 1202
Smoke release	UL 1685
Technical prescriptions concerning the burning behaviour	UN/ECE-R 118
Resistance to flame propagation	ISO 6722-1

Approvals

Swiss Federal Railways

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Construction Cross-sec. [mm2]	Conductor construction [n x mm]	Conductor-Ø [mm]	R_{20} [mΩ/m]	Outer-Ø [mm]	Weight [kg/km]	Fire load [kWh/m]	Part no. black	Part no. red	Part no. grey
0.5	16 x 0.20	0.85	40.10	2.45 ± 0.10	11	0.027	317335	*	*
1	32 x 0.20	1.20	20.00	2.80 ± 0.10	16	0.030	312472	*	*
1.5	30 x 0.25	1.45	13.70	3.20 ± 0.10	22	0.037	312473	317362	317247
2.5	50 x 0.25	1.95	8.21	3.70 ± 0.15	33	0.046	312474	*	*
4	52 x 0.30	2.55	5.09	4.85 ± 0.15	54	0.080	312475	*	*
6	78 x 0.30	3.10	3.39	5.50 ± 0.20	75	0.097	312476	*	*
10	74 x 0.40	4.10	1.95	6.70 ± 0.20	117	0.132	312477	*	*
16	119 x 0.40	5.00	1.24	7.80 ± 0.30	174	0.168	312478	*	*

Note:
* Upon request