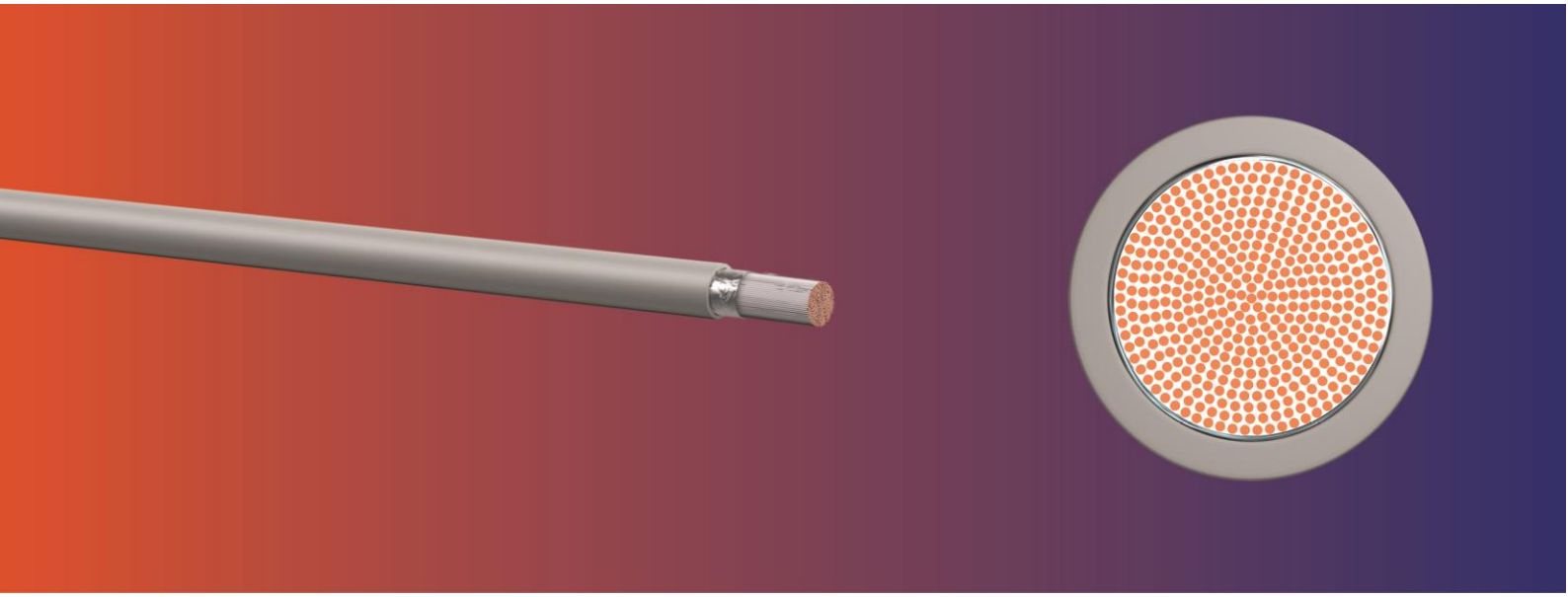
ROLLING STOCK - POWER CABLES

BETAtrans® 3 GKW-ENX FE 180 600 V M

Single core wire with circuit integrity



Application

This single core wire with circuit integrity is designed for fixed and protected installations in rail vehicles. This wire is suitable for interior wiring of safety appliances, such as: doors, emergency lightning, smoke exhaust system and control panels. It maintains its function in the event of a fire over a limited period of time. For installation the guidelines of EN 50355 and EN 50343 must be considered.

Construction

Conductor	Tinned fine copper strand acc. to VDE 0295 / IEC 60228, class 5
Taping	Mica tape
Insulation	Polyolefin Copolymer, Comp 752, electron beam cross-linked
Colour	Grey, further colours upon request

Advantages

- Halogen free
- Electron beam cross-linked
- Very long lifetime
- Low fire load
- Good media resistance
- High level cold resistance
- Circuit integrity up to 180 minutes

Electrical properties

Rated value	U0/U	0.6 / 1 kV AC
Maximum voltage	U0m	0.72 kV AC
Maximum voltage	Um	1.2 kV AC
Maximum voltage	V0	0.9 kV DC
Maximum voltage	Vm	1.8 kV DC
Test voltage		3.5 kV, 50 Hz / 5 min.
Test voltage for circuit integrity	U0	1 kV

Thermal properties

Max. operating temperature	fixed installation	+120°C
Min. ambient temperature	fixed installation	-40°C
Max. short circuit temperature		+280°C (max. 5s)

Mechanical properties

Bending radius	fixed installation	Ø < 10 mm: > 3 x Ø (-40°C)
Bending radius	fixed installation	Ø ≥ 10 mm: > 4 x Ø (-40°C)

Material properties / Standards

Material properties	EN 50264-3-1 hazard level M
Resistance to ozone	EN 50305
High resistance to cold	EN 60811-504
High resistance to oil	EN 60811-404

Material properties / Standards

High resistance to fuel	EN 60811-404
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
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 ≥12 mm	EN 60332-3-24
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
Circuit integrity	IEC 60331-21 EN 50200

Approvals

Swiss Federal Railways

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.
0.5	16 x 0.20	0.85	40.10	2.50 ± 0.10	10	0.019	312427
0.75	24 x 0.20	1.10	26.70	2.80 ± 0.10	14	0.023	312428
1	32 x 0.20	1.20	20.00	3.00 ± 0.10	17	0.026	312429
1.5	30 x 0.25	1.45	13.70	3.30 ± 0.20	22	0.031	312430
2.5	50 x 0.25	1.95	8.21	3.90 ± 0.20	33	0.040	312431
4	52 x 0.30	2.55	5.09	4.30 ± 0.20	48	0.048	312432
6	78 x 0.30	3.10	3.39	4.85 ± 0.20	67	0.055	312433
10	74 x 0.40	4.10	1.95	5.90 ± 0.20	105	0.071	312434
16	119 x 0.40	5.00	1.24	6.80 ± 0.20	157	0.084	312435
25	181 x 0.40	6.20	0.80	8.30 ± 0.20	241	0.124	312436
35	257 x 0.40	7.70	0.57	9.80 ± 0.20	338	0.156	312437
50	371 x 0.40	9.70	0.39	12.00 ± 0.20	481	0.211	312438
70	336 x 0.50	11.20	0.28	13.70 ± 0.20	680	0.324	312439
95	444 x 0.50	12.80	0.21	15.30 ± 0.30	886	0.352	316934