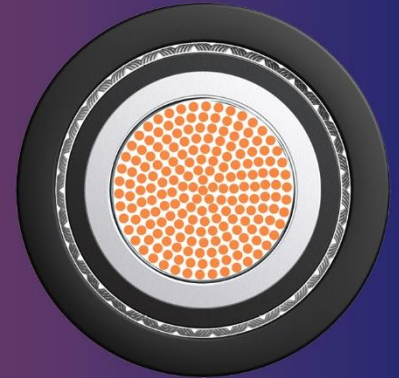
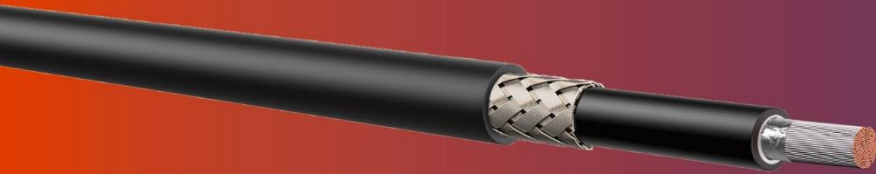


ROLLING STOCK – AUXILIARY - AND MAINPOWER CABLE
BETrans® 4 GKW-ENX FE 180 C-flex R 1800 V MM S
Screened sheathed cable with circuit integrity


Application

This screened sheathed cable is meant for fixed and protected installations inside and outside of rail vehicles and buses. These cable which keeps its function for a limited period of time during fire impacts, is used for wiring of switchboards, converters and distribution boxes. Due to the double-insulated design, this cable is qualified for short circuit and earth fault-proof applications. The thin outer layer protects against the influence of mineral oil fuels and ozone. 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, electronbeam cross-linked
Colour	White
Sheath	Polyolefin Copolymer, Comp 752, electronbeam cross-linked
Colour	Black, further colours upon request
Shield	Tinned copper braid
Sheath	Polyolefin Copolymer, Comp 752, electronbeam cross-linked
Colour	Black, further colours upon request

Advantages

- Halogen free
- Electron-beam cross-linked
- Weight and volume-optimised
- Very long lifetime
- Good media resistance
- EMC-optimised braided shield
- High level cold resistance
- Low fire load
- Circuit integrity up to 180 minutes

Electrical properties

Rated value	U ₀ /U	1.8 / 3 kV AC
Maximum voltage	U _{0m}	2.16 kV AC
Maximum voltage	U _m	3.6 kV AC
Maximum voltage	V ₀	2.7 kV DC
Maximum voltage	V _m	5.4 kV DC
Test voltage		6.5 kV, 50 Hz / 5 min.
Test voltage for circuit integrity	U ₀	1.0 kV

Thermal properties

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

Mechanical properties

Bending radius	fixed installation	∅ < 10 mm: > 3 x ∅ (-40°C)
Bending radius	fixed installation	∅ ≥ 10 mm: > 4 x ∅ (-40°C)
Bending radius	fixed installation	all cables > 5 x ∅ (-50°C)

Material properties / Standards

Material properties	EN 50264-3-2 hazard level MN
Resistance to ozone	EN 60811-403
High resistance to cold	EN 60811-504

Material properties / Standards

High resistance to oil	EN 60811-404
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
UV resistant	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 ≥ 12 mm	EN 60332-3-24
Vertical flame spread of bunched wires or cables > 6 < 12 mm	EN 60332-3-25
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	EN 50200 EN IEC 60331-1 IEC 60331-21

Approvals

Swiss Federal Railways

Construction Cross-sec. [mm ²]	Conductor-Ø [mm]	Shield-Ø [mm]	Cross-sec shield [mm ²]	R ₂₀ [mΩ/m]	Outer-Ø [mm]	Weight [kg/km]	Fire load [kWh/m]	Part no. black	Part no. orange
1 x 10	3.85	8	1.76	1.95	9.60 ± 0.30	185	0.256	315446	*
1 x 16	5.00	9.5	1.76	1.24	11.20 ± 0.30	266	0.318	315447	*
1 x 25	6.20	11.3	2.64	0.795	13.10 ± 0.40	379	0.507	315448	*
1 x 35	7.70	13	2.64	0.565	15.00 ± 0.40	509	0.622	317674	*
1 x 50	9.70	15.1	4.46	0.393	17.10 ± 0.40	687	0.728	317675	*
1 x 70	11.20	16.6	4.46	0.277	18.80 ± 0.40	915	0.841	317038	317040
1 x 95	12.80	18.7	5.94	0.21	20.90 ± 0.50	1153	1.002	317604	*
1 x 120	14.60	21	7.92	0.164	23.40 ± 0.50	1444	1.253	315195	*
2 x 150	16.40	22.8	7.92	0.132	25.20 ± 0.50	1730	1.367	317676	*
3 x 185	17.90	24.6	7.92	0.108	27.00 ± 0.50	2058	1.536	317677	*

Note:

* Upon request