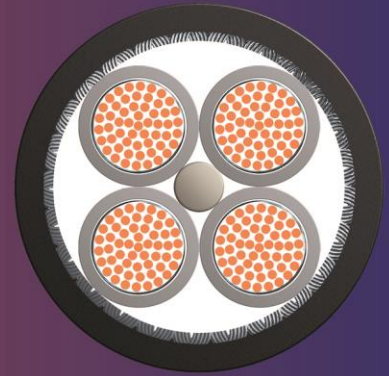
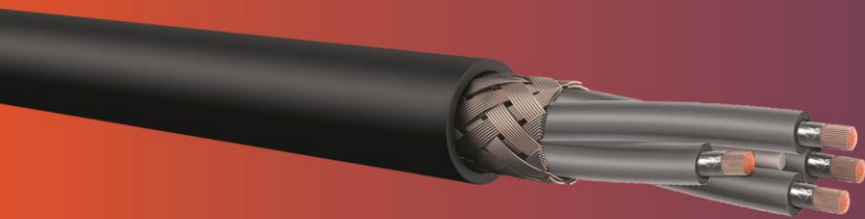


ROLLING STOCK - POWER CABLES

BETrans® 3 GKW-ENX FE 180 C-flex 600 V MM S

Screened sheathed multicore cable with circuit integrity



Application

This screened sheathed cable with circuit integrity is designed for fixed and protected installations of rail vehicles and buses. It is suitable for wiring of safety appliances, such as: doors, emergency lighting, smoke exhaust system and control panels. The cable maintains his 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
Filler	Optional
Shield	Tinned copper braid
Sheath	Polyolefin Copolymer, Comp 752, electron beam cross-linked
Colour	Black

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	U ₀ /U	0.6 / 1 kV AC
Maximum voltage	U _{0m}	0.72 kV AC
Maximum voltage	U _m	1.2 kV AC
Maximum voltage	V ₀	0.9 kV DC
Maximum voltage	V _m	1.8 kV DC
Test voltage		3.5 kV, 50 Hz / 5 min.
Test voltage for circuit integrity	U ₀	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	∅ < 10 mm: > 5 x ∅ (-40°C)
Bending radius	fixed installation	∅ ≥ 10 mm: > 6 x ∅ (-40°C)

Material properties / Standards

Material properties	EN 50264-3-2 hazard level MM
Resistance to ozone	EN 50305
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 ≥ 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. [mm ²]	Color code	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.
2 x 0.75	NR	1.10	6.3	1.76	26.7	7.60 ± 0.20	80	0.178	313216
4 x 0.75	NR	1.10	7.5	1.76	26.7	9.10 ± 0.20	116	0.232	313217
2 x 2 x 0.75	NR	1.10	9.8	1.76	26.7	11.40 ± 0.30	154	0.362	313219
4 x 2 x 0.75	NR	1.10	12	1.76	26.7	14.00 ± 0.30	228	0.475	313220
2 x 1	NR	1.20	6.6	1.76	20	8.20 ± 0.20	93	0.209	313221
4 x 1	NR	1.20	7.9	1.76	20	9.50 ± 0.20	132	0.251	313222
2 x 1.5	NR	1.45	7.1	1.76	13.7	8.70 ± 0.20	109	0.231	313223
3 x 1.5	NR	1.45	7.6	1.76	13.7	9.30 ± 0.20	125	0.221	*
3 G 1.5	NRPE	1.45	7.6	1.76	13.7	9.30 ± 0.20	125	0.221	314754
4 x 1.5	NR	1.45	8.6	1.76	13.7	10.20 ± 0.30	159	0.282	*
7 x 1.5	NR	1.45	10.4	2.64	13.7	12.30 ± 0.30	249	0.430	313224
10 x 1.5	NR	1.45	13.6	4.464	13.7	15.80 ± 0.30	368	0.626	316159
2 x 2.5	NR	1.95	8.4	1.76	8.21	10.00 ± 0.30	147	0.291	*
4 x 2.5	NR	1.95	10.1	2.64	8.21	12.00 ± 0.30	225	0.380	*
4 G 2.5	NRPE	1.95	10.1	2.64	8.21	12.00 ± 0.30	225	0.380	314755
4 x 4	NR	2.55	11.7	2.64	5.09	13.70 ± 0.30	307	0.474	313225
4 G 4	NRPE	2.55	11.7	2.64	5.09	13.70 ± 0.30	307	0.474	316063
4 G 2.5	NRPE	1.95	10.1	2.64	8.21	12.00 ± 0.30	225	0.380	316817

Note:

* Upon request