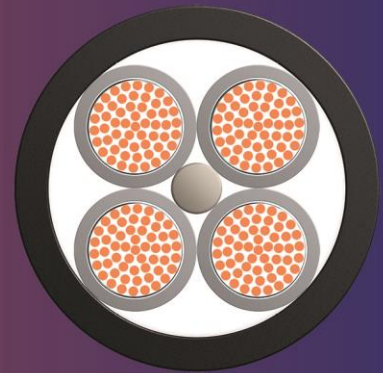
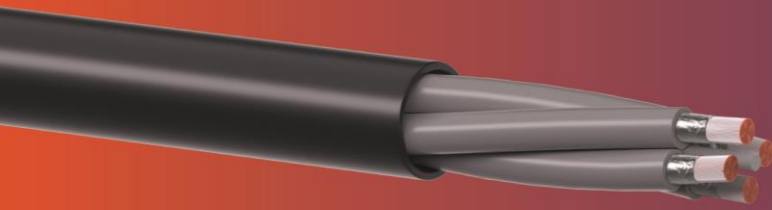


**ROLLING STOCK - POWER CABLES**
**BETAtans® 3 GKW-ENX FE 180 flex 600 V MM**  
Multicore sheathed cable with circuit integrity


## Application

This multicore 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 lightning, smoke exhaust system and control panels. This cable also maintains its function in the event of a fire over a limited period. 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
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 <sub>0</sub> /U	0.6 / 1 kV AC
Maximum voltage	U <sub>0m</sub>	0.72 kV AC
Maximum voltage	U <sub>m</sub>	1.2 kV AC
Maximum voltage	V <sub>0</sub>	0.9 kV DC
Maximum voltage	V <sub>m</sub>	1.8 kV DC
Test voltage		3.5 kV, 50 Hz / 5 min.
Test voltage for circuit integrity	U <sub>0</sub>	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. [n x mm <sup>2</sup> ]	Color code	Conductor-Ø [mm]	R <sub>20</sub> [mΩ/m]	Outer-Ø [mm]	Weight [kg/km]	Fire load [kWh/m]	Part no.
5 x 0.5	NR	0.85	40.1	8.50 ± 0.20	95	0.268	317372
4 x 0.75	NR	1.1	26.7	8.50 ± 0.20	98	0.264	315206
5 x 0.75	NR	1.1	26.7	9.30 ± 0.20	118	0.313	315207
3 x 1.5	NR	1.45	13.7	8.80 ± 0.20	114	0.279	315208
4 x 1.5	NR	1.45	13.7	9.90 ± 0.20	147	0.353	*
4 G 1.5	NRPE	1.45	13.7	9.90 ± 0.20	147	0.353	315209
7 G 1.5	NRPE	1.45	13.7	12.20 ± 0.30	210	0.426	317482
2 x 4	NR	2.55	5.09	10.80 ± 0.30	142	0.247	*

Note:

\* Upon request