

# BiTflame® S FE180/E90



Fire resistant, halogen-free power cable 300/500 V



internal application



EN 60332-1-2



EN 60332-3-24



halogen-free  
EN 60754



low smoke emission  
EN 61034



insulation  
resistance  
to fire 180 min.



PH90 fire  
integrity function



E90 fire  
integrity function

## Technical data:

### Thermal parameters:

#### Temperature range:

fixed installation: -40 °C up to 80 °C  
min. installation temp: -10 °C  
max. installation temp: 50 °C

### Electrical parameters:

Operating voltage: 300/500 V

#### Test voltage:

AC 3000 V

DC 7200 V

Insulation resistance (min.): 100 MΩ x km

### Mechanical parameters:

Min. bending radius: 10 x Ø

## Design:

### Conductors:

bare solid copper conductor, class 1 acc. to EN 60228, IEC 60228

### Insulation:

special ceramic silicone rubber

### Core colors:

without green/yellow earth conductor  
2- core – blue, brown  
3- core – brown, black, grey  
4-core – blue, brown, black, grey  
5-core – blue, brown, black, grey, black

#### Above 5 cores – In each layer:

brown (starting conductor), blue (reference conductor), remaining conductors – any freely selected colours with exception of green, yellow, brown, blue with green/yellow earth conductor  
3-core – green/yellow, blue, brown  
4-core – green/yellow, brown, black, grey  
5-core – green/yellow, blue, brown, black, grey

#### Above 5 cores – In external layer:

green/yellow (starting conductor), blue (reference conductor) remaining conductors – any freely selected colours with exception of green, yellow, brown, blue  
brown (starting conductor), blue (reference conductor) remaining conductors – any freely selected colours with exception of green, yellow, brown, blue  
polyester tape  
halogen-free compound; colour: red

### Other layers:

### Wrapping:

### Outer sheath:

## Application:

Halogen-free fire resistant cables designed for installations in places where it is necessary to ensure operation of devices under fire conditions. They are recommended for emergency lighting installations, smoke extraction systems, alarm systems, signalling systems, sound warning and control systems, fire alarm signalling and automation and other safety ensuring circuits. Under fire conditions those cables ensure correct functioning of installation for at least 90 minutes (PH90) and insulation resistance to fire exposure for 180 minutes (FE180). During burning they do not emit corrosive gases or dense smoke. Cables are suitable for fixed installations inside buildings.

## Tests:

Flame test for a single insulated cable:	EN 60332-1-2, IEC 60332-1-2
Flame test for vertically-mounted bunched cables:	EN 60332-3-22, IEC 60332-3 cat.A
Test on corrosive gases emitted during burning:	EN 60754-2, IEC 60754-2, VDE 0482-754-2
Smoke density emission during burning:	EN 61034-2, IEC 61034-2, VDE 0482-1034-2
Insulation resistance to long term fire exposure FE180:	IEC 60331-11, IEC 60331-21, IEC 60331-23
Fire integrity function of cable support system E90:	DIN 4102-12
Fire integrity function of cable installations (PH90):	EN 50200

## Cable characteristics:

- fire resistant
- halogen-free
- flame retardant
- no corrosive gases (acidity pH ≥ 4,3; conductivity < 10 µS/mm)
- low smoke emission (light transmittance over 60%)
- increased insulation resistance (FE180)
- fire integrity function (PH90)
- low fire load (calorific value)

# BiTflame® S FE180/E90

Fire resistant, halogen-free power cable 300/500 V

## Cables without green-yellow core BiTflame® S FE180/E90

Cat. no.	n x mm <sup>2</sup>	Outer diameter* [mm]	Approximate cable weight [kg/km]	Cat. no.	n x mm <sup>2</sup>	Outer diameter* [mm]	Approximate cable weight [kg/km]
BF0360	2x1,0	6,7	54	BF0383	12x1,5	14,1	306
BF0361	2x1,5	7,5	67	BF0384	12x2,5	17,2	475
BF0362	2x2,5	9,1	103	BF0385	14x1,0	13,1	265
BF0363	2x4,0	10,0	136	BF0386	14x1,5	14,7	348
BF0364	3x1,0	7,1	69	BF0387	14x2,5	18,1	541
BF0365	3x1,5	7,9	88	BF0388	16x1,0	13,8	302
BF0366	3x2,5	9,6	136	BF0389	16x1,5	16,3	427
BF0367	3x4,0	10,8	189	BF0390	16x2,5	19,6	655
BF0368	4x1,0	8,0	90	BF0391	19x1,0	14,5	344
BF0369	4x1,5	9,2	120	BF0392	19x1,5	17,1	477
BF0370	4x2,5	10,8	176	BF0393	19x2,5	20,7	735
BF0371	4x4,0	11,9	240	BF0394	20x1,0	15,8	384
BF0372	5x1,0	8,8	116	BF0395	20x1,5	18,5	546
BF0373	5x1,5	9,9	150	BF0396	20x2,5	21,7	801
BF0374	5x2,5	11,7	223	BF0397	24x1,0	17,5	452
BF0375	5x4,0	12,9	301	BF0398	24x1,5	20,5	622
BF0376	7x1,0	9,5	143	BF0399	24x2,5	24,7	949
BF0377	7x1,5	10,9	191	BF0400	30x1,0	19,1	569
BF0378	7x2,5	12,7	278	BF0401	30x1,5	21,6	747
BF0379	10x1,0	12,1	204	BF0402	30x2,5	26,1	1144
BF0380	10x1,5	13,7	265	BF0403	37x1,0	20,5	680
BF0381	10x2,5	16,7	411	BF0404	37x1,5	23,9	929
BF0382	12x1,0	12,5	234	BF0405	37x2,5	28,1	1375

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Cat. no.	n x mm <sup>2</sup>	Outer diameter* [mm]	Approximate cable weight [kg/km]	Cat. no.	n x mm <sup>2</sup>	Outer diameter* [mm]	Approximate cable weight [kg/km]
BF0408	3x1,0	7,1	69	BF0429	14x1,0	13,1	265
BF0409	3x1,5	7,9	88	BF0430	14x1,5	14,7	348
BF0410	3x2,5	9,6	136	BF0431	14x2,5	18,1	541
BF0411	3x4,0	10,8	189	BF0432	16x1,0	13,8	302
BF0412	4x1,0	8,0	90	BF0433	16x1,5	16,3	427
BF0413	4x1,5	9,2	120	BF0434	16x2,5	19,6	655
BF0414	4x2,5	10,8	176	BF0435	19x1,0	14,5	344
BF0415	4x4,0	11,9	240	BF0436	19x1,5	17,1	477
BF0416	5x1,0	8,8	116	BF0437	19x2,5	20,7	735
BF0417	5x1,5	9,9	150	BF0438	20x1,0	15,8	384
BF0418	5x2,5	11,7	223	BF0439	20x1,5	18,5	546
BF0419	5x4,0	12,9	301	BF0440	20x2,5	21,7	801
BF0420	7x1,0	9,5	143	BF0441	24x1,0	17,5	452
BF0421	7x1,5	10,9	191	BF0442	24x1,5	20,5	622
BF0422	7x2,5	12,7	278	BF0443	24x2,5	24,7	949
BF0423	10x1,0	12,1	204	BF0444	30x1,0	19,1	569
BF0424	10x1,5	13,7	265	BF0445	30x1,5	21,6	747
BF0425	10x2,5	16,7	411	BF0446	30x2,5	26,1	1144
BF0426	12x1,0	12,5	234	BF0447	37x1,0	20,5	680
BF0427	12x1,5	14,1	306	BF0448	37x1,5	23,9	929
BF0428	12x2,5	17,2	475	BF0449	37x2,5	28,1	1375

\*Outer diameter tolerance: +/-5%

Cable Factory BITNER reserves the right to modify specifications without prior notification

Note: on customer's request other cross sections or number of cores can be produced