

# (N)HXH FE180 E90 B2<sub>ca</sub>

Safety cable, 0.6/1kV, Keram

halogen-free, with improved fire characteristics,  
with reference to VDE 0266 and CENELEC HD 604 S1,  
circuit integrity (FE180) in accordance with VDE 0472-814, IEC 60331,  
System Circuit Integrity E90\* in accordance with DIN 4102-12  
Reaction to fire according to EN 13501-6



- 1 Conductor: solid/stranded
- 2 Fire barrier: high-performance Keram compound
- 3 Insulation: cross-linked polymer, zero halogen
- 4 Filler: flame retardant, zero halogen
- 5 Sheath: FRNC/LSZH



## Description

Cables with intrinsic fire resistance are installed in all areas that require special protection of people and equipment against fire and fire damages and where strict security requirements must be fulfilled. Suitable for indoor applications. For outdoor applications, protection must be provided against exposure to direct sunlight. The cable should only be laid directly in earth or water if a protective conduit is used. These cables correspond to the demands of System Circuit Integrity E90\* in accordance with DIN 4102-12. System Circuit Integrity is guaranteed at an operating voltage up to 400V.

Permitted operating temperature at conductor of +90°C.

Suitable according to VKF fire protection guideline in escape routes and in tunnels according to Astra guideline 13022.

## Application

For use in critical fire safety infrastructure (in compliance with VKF, ASTRA, Tunnels Directive, etc.), particularly in escape routes and emergency lines.

## Construction

Conductor	Bare copper, solid or stranded, IEC 60228 and EN 60228 (VDE 0295)
Insulation	Double insulation, cross-linked, high-performance Keram special compound, VDE 0266 "HX11"
Core colours	CENELEC HD 308 S2, VDE 0293
Filler	Flame retardant, halogen-free thermoplastic compound
Outer sheath material	Flame retardant Polyolefin compound, CENELEC HD 604 S1 and VDE 0276-604 "HM4"
Outer sheath colour	orange

## General properties

Circuit Integrity	E90
Insulation integrity	FE 180
Installation temperature	-5 °C - +50 °C
Operating temperature	-45 °C - +90 °C

## Electrical properties

Nominal voltage	0.6/1kV
Test voltage at 50Hz	4,000 V

## Mechanical properties

Minimum bending during installation (multi core)	12 x D
Minimum bending during installation (single core)	15 x D
Minimum bending radius permanent (multi core)	12 x D
Minimum bending radius permanent (single core)	15 x D
Remarks bending radius	50% reduction if installation at 30°C and with a template

## Standards

Insulation Integrity (FE180)	IEC 60331-11/-21 (180 minutes), VDE 0472-814 (FE180), IEC 60331-1 (120 minutes), IEC 60331-2 (120 minutes), EN 50200 (PH120 minutes), VDE 0482-200 (PH120), AREI-RGIE Art.104-FR1
System circuit integrity	DIN 4102-12, VdS 3423 (Single-core more than 16.0 mm <sup>2</sup> ), AREI-RGIE Art.104-FR2
Reaction to fire (Euroclasses)	EN 13501-6: B2 <sub>ca</sub> , EN 50399
Smoke density	IEC 61034-1/-2, EN 61034-1/-2, VDE 0482-1034-1/-2, AREI-RGIE Art.104-SD
Zero halogen no corrosive gases	IEC 60754-1/-2, EN 60754-1/-2, VDE 0482-754-1/-2, AREI-RGIE Art.104-SA
Flame propagation	IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2, AREI-RGIE Art.104-F1
Flame spread	IEC 60332-3-22/-24, EN 60332-3-22/-24, VDE 0482-332-3-22/-24, AREI-RGIE Art.104-F2

## Note

System Circuit Integrity is dependent on installation method.

## Versions

Material number	Product	Reaction to fire	Outer sheath colour	Outer sheath diameter [mm]	CU rate [kg/km]	Weight [kg/km]	Fire load [kWh/m]	Conductor	Construction	Packing unit	GTIN / EAN
18614100BZ	(N)HXH-O FE180 E90 1 x 16	B2ca-s1a,d1,a1	orange	10.2	154	243	0.326	stranded	L	by the metre	
18614200BZ	(N)HXH-O FE180 E90 1 x 25	B2ca-s1a,d1,a1	orange	11.7	240	347	0.406	stranded	L	by the metre	
18614300BZ	(N)HXH-O FE180 E90 1 x 35	B2ca-s1a,d1,a1	orange	12.8	336	449	0.457	stranded	L	by the metre	
18614400BZ	(N)HXH-O FE180 E90 1 x 50	B2ca-s1a,d1,a1	orange	14.3	480	589	0.545	stranded	L	by the metre	
18614500BZ	(N)HXH-O FE180 E90 1 x 70	B2ca-s1a,d1,a1	orange	16.1	672	801	0.633	stranded	L	by the metre	
18614600BZ	(N)HXH-O FE180 E90 1 x 95	B2ca-s1a,d1,a1	orange	18.5	912	1,074	0.801	stranded	L	by the metre	
18614700BZ	(N)HXH-O FE180 E90 1 x 120	B2ca-s1a,d1,a1	orange	19.6	1,152	1,308	0.854	stranded	L	by the metre	
18614800BZ	(N)HXH-O FE180 E90 1 x 150	B2ca-s1a,d1,a1	orange	21.8	1,440	1,635	1.043	stranded	L	by the metre	

Material number	Product	Reaction to fire	Outer sheath colour	Outer sheath diameter [mm]	CU rate [kg/km]	Weight [kg/km]	Fire load [kWh/m]	Conductor	Construction	Packing unit	GTIN / EAN
18614900BZ	(N)HXH-O FE180 E90 1 x 185	B2ca-s1a,d1,a1	orange	24	1,776	2,011	1.252	stranded	L	by the metre	
18615000BZ	(N)HXH-O FE180 E90 1 x 240	B2ca-s1a,d1,a1	orange	27.2	2,304	2,619	1.539	stranded	L	by the metre	
18615100BZ	(N)HXH-O FE180 E90 1 x 300	B2ca-s1a,d1,a1	orange	29.6	2,880	3,112	1.802	stranded	L	by the metre	
18835900BZ	(N)HXH-O FE180 E90 2 x 1.5	B2ca-s1a,d1,a1	orange	11	29	174	0.441	solid	LN	by the metre	
19256300BZ	(N)HXH-O FE180 E90 2 x 1.5	B2ca-s1a,d1,a1	orange	11	29	174	0.441	solid	2L	by the metre	
18724700BZ	(N)HXH-O FE180 E90 2 x 2.5	B2ca-s1a,d1,a1	orange	11.8	48	212	0.495	solid	LN	by the metre	
19397400BZ	(N)HXH-O FE180 E90 2 x 2.5	B2ca-s1a,d1,a1	orange	11.8	48	212	0.495	solid	2L	by the metre	
18617400BZ	(N)HXH-J FE180 E90 3 x 1.5	B2ca-s1a,d1,a1	orange	11.5	43	196	0.488	solid	LNPE	by the metre	
18617700BZ	(N)HXH-J FE180 E90 3 x 2.5	B2ca-s1a,d1,a1	orange	12.4	72	245	0.551	solid	LNPE	by the metre	
18618200BZ	(N)HXH-J FE180 E90 3 x 4	B2ca-s1a,d1,a1	orange	13.5	115	315	0.63	solid	LNPE	by the metre	
18618600BZ	(N)HXH-J FE180 E90 3 x 6	B2ca-s1a,d1,a1	orange	14.6	173	395	0.71	solid	LNPE	by the metre	
18618900BZ	(N)HXH-J FE180 E90 3 x 10	B2ca-s1a,d1,a1	orange	16.3	288	549	0.836	solid	LNPE	by the metre	
18615200BZ	(N)HXH-J FE180 E90 3 x 16	B2ca-s1a,d1,a1	orange	20.2	461	870	1.155	stranded	LNPE	by the metre	
18615300BZ	(N)HXH-J FE180 E90 3 x 25	B2ca-s1a,d1,a1	orange	24	720	1,286	1.556	stranded	LNPE	by the metre	
18615400BZ	(N)HXH-J FE180 E90 3 x 35	B2ca-s1a,d1,a1	orange	26.4	1,008	1,648	1.791	stranded	LNPE	by the metre	
19106900BZ	(N)HXH-J FE180 E90 3 x 35+16	B2ca-s1a,d1,a1	orange	27.4	1,162	1,820	1.92	stranded	3LPE	by the metre	
18620700BZ	(N)HXH-J FE180 E90 3 x 50	B2ca-s1a,d1,a1	orange	29.8	1,440	2,169	2.234	stranded	LNPE	by the metre	
19100200BZ	(N)HXH-J FE180 E90 3 x 50+25	B2ca-s1a,d1,a1	orange	31.3	1,680	2,444	2.436	stranded	3LPE	by the metre	
19100300BZ	(N)HXH-J FE180 E90 3 x 70+35	B2ca-s1a,d1,a1	orange	35.6	2,352	3,313	3.02	stranded	3LPE	by the metre	
19100400BZ	(N)HXH-J FE180 E90 3 x 95+50	B2ca-s1a,d1,a1	orange	40.7	3,216	4,408	3.787	stranded	3LPE	by the metre	
19100500BZ	(N)HXH-J FE180 E90 3 x 120+70	B2ca-s1a,d1,a1	orange	44	4,128	5,454	4.283	stranded	3LPE	by the metre	
19100600BZ	(N)HXH-J FE180 E90 3 x 150+70	B2ca-s1a,d1,a1	orange	48	4,992	6,578	5.088	stranded	3LPE	by the metre	
19106800BZ	(N)HXH-J FE180 E90 3 x 185+95	B2ca-s1a,d1,a1	orange	53.4	6,240	8,189	6.236	stranded	3LPE	by the metre	
18617500BZ	(N)HXH-J FE180 E90 4 x 1.5	B2ca-s1a,d1,a1	orange	12.4	58	230	0.572	solid	3LPE	by the metre	
18617800BZ	(N)HXH-J FE180 E90 4 x 2.5	B2ca-s1a,d1,a1	orange	13.4	96	290	0.634	solid	3LPE	by the metre	
18618300BZ	(N)HXH-J FE180 E90 4 x 4	B2ca-s1a,d1,a1	orange	14.6	154	377	0.724	solid	3LPE	by the metre	
18618700BZ	(N)HXH-J FE180 E90 4 x 6	B2ca-s1a,d1,a1	orange	15.8	230	481	0.831	solid	3LPE	by the metre	
18615500BZ	(N)HXH-J FE180 E90 4 x 16	B2ca-s1a,d1,a1	orange	22.1	614	1,083	1.367	stranded	3LPE	by the metre	

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18615600BZ	(N)HXH-J FE180 E90 4 x 25	B2ca-s1a,d1,a1	orange	26.3	960	1,604	1.843	stranded	3LPE	by the metre	
18615700BZ	(N)HXH-J FE180 E90 4 x 35	B2ca-s1a,d1,a1	orange	29	1,344	2,068	2.131	stranded	3LPE	by the metre	
18615800BZ	(N)HXH-J FE180 E90 4 x 50	B2ca-s1a,d1,a1	orange	32.8	1,920	2,734	2.679	stranded	3LPE	by the metre	
18615900BZ	(N)HXH-J FE180 E90 4 x 70	B2ca-s1a,d1,a1	orange	37.6	2,688	3,739	3.169	stranded	3LPE	by the metre	
18616000BZ	(N)HXH-J FE180 E90 4 x 95	B2ca-s1a,d1,a1	orange	43.1	3,648	4,996	4.241	stranded	3LPE	by the metre	
18727400BZ	(N)HXH-J FE180 E90 4 x 120	B2ca-s1a,d1,a1	orange	46	4,608	6,054	4.691	stranded	3LPE	by the metre	
18616100BZ	(N)HXH-J FE180 E90 4 x 150	B2ca-s1a,d1,a1	orange	51.2	5,760	7,566	5.787	stranded	3LPE	by the metre	
19049300BZ	(N)HXH-J FE180 E90 4 x 240	B2ca-s1a,d1,a1	orange	64.1	9,216	12,100	8.784	stranded	3LPE	by the metre	
19633700BZ	(N)HXH-O FE180 E90 4x6	B2ca-s1a,d1,a1	orange	15.8	230	482	0.831	solid	3LN	by the metre	
19633800BZ	(N)HXH-O FE180 E90 4x10	B2ca-s1a,d1,a1	orange	17.8	384	682	0.992	solid	3LN	by the metre	
19633100BZ	(N)HXH-O FE180 E90 4x16	B2ca-s1a,d1,a1	orange	22.1	614	1,083	1.367	solid	3LN	by the metre	
19633200BZ	(N)HXH-O FE180 E90 4x25	B2ca-s1a,d1,a1	orange	26.3	960	1,604	1.843	stranded	3LN	by the metre	
19633300BZ	(N)HXH-O FE180 E90 4x35	B2ca-s1a,d1,a1	orange	29	1,344	2,068	2.131	stranded	3LN	by the metre	
19633400BZ	(N)HXH-O FE180 E90 4x50	B2ca-s1a,d1,a1	orange	32.8	1,920	2,734	2.679	stranded	3LN	by the metre	
19633500BZ	(N)HXH-O FE180 E90 4x70	B2ca-s1a,d1,a1	orange	37.6	2,688	3,739	3.169	stranded	3LN	by the metre	
19633600BZ	(N)HXH-O FE180 E90 4x95	B2ca-s1a,d1,a1	orange	43.1	3,648	4,996	4.241	stranded	3LN	by the metre	
19633000BZ	(N)HXH-O FE180 E90 4x120	B2ca-s1a,d1,a1	orange	46	4,608	6,054	4.691	stranded	3LN	by the metre	
18617600BZ	(N)HXH-J FE180 E90 5 x 1.5	B2ca-s1a,d1,a1	orange	13.4	72	273	0.665	solid	3LNPE	by the metre	
18617900BZ	(N)HXH-J FE180 E90 5 x 2.5	B2ca-s1a,d1,a1	orange	14.5	120	346	0.754	solid	3LNPE	by the metre	
18618400BZ	(N)HXH-J FE180 E90 5 x 4	B2ca-s1a,d1,a1	orange	15.8	192	453	0.863	solid	3LNPE	by the metre	
18618800BZ	(N)HXH-J FE180 E90 5 x 6	B2ca-s1a,d1,a1	orange	17.2	288	578	0.983	solid	3LNPE	by the metre	
18619100BZ	(N)HXH-J FE180 E90 5 x 10	B2ca-s1a,d1,a1	orange	19.3	480	819	1.164	solid	3LNPE	by the metre	
18616200BZ	(N)HXH-J FE180 E90 5 x 16	B2ca-s1a,d1,a1	orange	24.8	768	1,357	1.717	stranded	3LNPE	by the metre	
18616300BZ	(N)HXH-J FE180 E90 5 x 25	B2ca-s1a,d1,a1	orange	28.8	1,200	1,951	2.216	stranded	3LNPE	by the metre	
18616400BZ	(N)HXH-J FE180 E90 5 x 35	B2ca-s1a,d1,a1	orange	32	1,680	2,539	2.63	stranded	3LNPE	by the metre	
18616500BZ	(N)HXH-J FE180 E90 5 x 50	B2ca-s1a,d1,a1	orange	36.5	2,400	3,370	3.347	stranded	3LNPE	by the metre	
18727700BZ	(N)HXH-J FE180 E90 5 x 70	B2ca-s1a,d1,a1	orange	41.5	3,360	4,585	4.08	stranded	3LNPE	by the metre	

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19584700BZ	(N)HXH-J FE180 E90 5 x 95	B2ca-s1a,d1,a1	orange	47.9	4,560	6,140	5.228	stranded	3LNPE	by the metre	
18527100BZ	(N)HXH-J FE180 E90 7 x 1.5	B2ca-s1a,d1,a1	orange	14.4	101	326	0.758	solid	6LPE	by the metre	
18618000BZ	(N)HXH-J FE180 E90 7 x 2.5	B2ca-s1a,d1,a1	orange	15.6	168	419	0.857	solid	6LPE	by the metre	
18618500BZ	(N)HXH-J FE180 E90 7 x 4	B2ca-s1a,d1,a1	orange	17.1	269	559	0.986	solid	6LPE	by the metre	
18699900BZ	(N)HXH-J FE180 E90 7 x 6	B2ca-s1a,d1,a1	orange	18.6	403	721	1.112	solid	6LPE	by the metre	
18725300BZ	(N)HXH-J FE180 E90 10 x 2.5	B2ca-s1a,d1,a1	orange	19.4	240	582	1.163	solid	9LPE	by the metre	
18527200BZ	(N)HXH-J FE180 E90 12 x 1.5	B2ca-s1a,d1,a1	orange	18.3	173	506	1.128	solid	11LPE	by the metre	
18618100BZ	(N)HXH-J FE180 E90 12 x 2.5	B2ca-s1a,d1,a1	orange	20	288	663	1.288	solid	11LPE	by the metre	

Additional dimensions available on request.

Subject to technical modification

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