

## (N)HXH FE180 E90

### 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



- 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.

### Construction

Conductor	Bare copper, solid or stranded, IEC 60228 and EN 60228 (VDE 0295)
Core colours	CENELEC HD 308 S2, VDE 0293
Filler	Flame retardant, halogen-free thermoplastic compound
Insulation	Double insulation, cross-linked, high-performance Keram special compound, VDE 0266 "HXI1"
Outer sheath material	Flame retardant Polyolefin compound, CENELEC HD 604 S1 and VDE 0276-604 "HM4"

### General Properties

Installation temperature	-5 °C - +50 °C
Operating temperature	-45 °C - +90 °C

### Electrical properties

Nominal voltage	0.6/1kV
Test voltage 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

Circuit integrity (FE180/PH120)	IEC 60331-11/-21 (180 minutes), VDE 0472-814 (FE180), BS 6387 C/W/Z, IEC 60331-1 (PH120), IEC 60331-2 (120 minutes), EN 50200 (PH120), VDE 0482-200 (PH120), VDE 0482-362, AREI-RGIE Art.104-FR1
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 Cat. A/C, EN 60332-3-22/-24 Cat. A/C, VDE 0482-332-3-22/-24 Cat. A/C, AREI-RGIE Art.104-F2
Smoke Density	IEC 61034-1/-2, EN 61034-1/-2, VDE 0482-1034-1/-2, AREI-RGIE Art.104-SD
System circuit integrity	DIN 4102-12, VdS 3423 (more than 16.0 mm <sup>2</sup> ), AREI-RGIE Art.104-FR2

## Note

System Circuit Integrity is dependent on installation method.

## Versions

Material number	Product	Diameter mm <sup>2</sup>	Outer sheath diameter [mm]	CU rate [kg/km]	Weight [kg/km]	Fire load [kWh/m]	Conductor	Construction
186141	(N)HXH-O FE180 E90 1 x 16	16	10.2	154	243	0.35	stranded	L
186142	(N)HXH-O FE180 E90 1 x 25	25	11.7	240	347	0.43	stranded	L
186143	(N)HXH-O FE180 E90 1 x 35	35	12.8	336	449	0.49	stranded	L
186144	(N)HXH-O FE180 E90 1 x 50	50	14.3	480	589	0.58	stranded	L
186145	(N)HXH-O FE180 E90 1 x 70	70	16.1	672	801	0.67	stranded	L
186146	(N)HXH-O FE180 E90 1 x 95	95	18.5	912	1,074	0.85	stranded	L
186147	(N)HXH-O FE180 E90 1 x 120	120	19.6	1,152	1,308	0.91	stranded	L
186148	(N)HXH-O FE180 E90 1 x 150	150	21.8	1,440	1,635	1.11	stranded	L
186149	(N)HXH-O FE180 E90 1 x 185	185	24	1,776	2,011	1.32	stranded	L
186150	(N)HXH-O FE180 E90 1 x 240	240	27.2	2,304	2,619	1.63	stranded	L
186151	(N)HXH-O FE180 E90 1 x 300	300	29.6	2,880	3,111	1.91	stranded	L
188359	(N)HXH-O FE180 E90 2 x 1.5	1.5	11	29	178	0.48	solid	LN
187247	(N)HXH-O FE180 E90 2 x 2.5	2.5	11.8	48	217	0.54	solid	LN
186174	(N)HXH-J FE180 E90 3 x 1.5	1.5	11.5	43	200	0.53	solid	LNPE
186177	(N)HXH-J FE180 E90 3 x 2.5	2.5	12.4	72	250	0.60	solid	LNPE

Material number	Product	Diameter mm <sup>2</sup>	Outer sheath diameter [mm]	CU rate [kg/km]	Weight [kg/km]	Fire load [kWh/m]	Conductor	Construction
186182	(N)HXH-J FE180 E90 3 x 4	4	13.5	115	319	0.68	solid	LNPE
186186	(N)HXH-J FE180 E90 3 x 6	6	14.6	173	403	0.77	solid	LNPE
186189	(N)HXH-J FE180 E90 3 x 10	10	16.3	288	560	0.91	solid	LNPE
186152	(N)HXH-J FE180 E90 3 x 16	16	20.2	461	878	1.29	stranded	LNPE
186153	(N)HXH-J FE180 E90 3 x 25	25	24	720	1,299	1.75	stranded	LNPE
186154	(N)HXH-J FE180 E90 3 x 35	35	26.4	1,008	1,664	2.02	stranded	LNPE
191069	(N)HXH-J FE180 E90 3 x 35+16	35+16	27.4	1,162	1,835	2.13	stranded	3LPE
186207	(N)HXH-J FE180 E90 3 x 50	50	29.8	1,440	2,183	2.51	stranded	LNPE
191002	(N)HXH-J FE180 E90 3 x 50+25	50+25	31.3	1,680	2,460	2.69	stranded	3LPE
191003	(N)HXH-J FE180 E90 3 x 70+35	70+35	35.6	2,352	3,339	3.34	stranded	3LPE
191004	(N)HXH-J FE180 E90 3 x 95+50	95+50	40.7	3,216	4,442	4.24	stranded	3LPE
191005	(N)HXH-J FE180 E90 3 x 120+70	120+70	44	4,128	5,492	4.82	stranded	3LPE
191006	(N)HXH-J FE180 E90 3 x 150+70	150+70	48	4,992	6,623	5.70	stranded	3LPE
191068	(N)HXH-J FE180 E90 3 x 185+95	185+95	53.4	6,240	8,244	7.00	stranded	3LPE
186175	(N)HXH-J FE180 E90 4 x 1.5	1.5	12.4	58	234	0.61	solid	3LPE
186178	(N)HXH-J FE180 E90 4 x 2.5	2.5	13.4	96	296	0.69	solid	3LPE
186183	(N)HXH-J FE180 E90 4 x 4	4	14.6	154	381	0.78	solid	3LPE
186187	(N)HXH-J FE180 E90 4 x 6	6	15.8	230	490	0.90	solid	3LPE
186155	(N)HXH-J FE180 E90 4 x 16	16	22.1	614	1,089	1.54	stranded	3LPE
186156	(N)HXH-J FE180 E90 4 x 25	25	26.3	960	1,618	2.05	stranded	3LPE
186157	(N)HXH-J FE180 E90 4 x 35	35	29	1,344	2,083	2.36	stranded	3LPE
186158	(N)HXH-J FE180 E90 4 x 50	50	32.8	1,920	2,745	2.97	stranded	3LPE
186159	(N)HXH-J FE180 E90 4 x 70	70	37.6	2,688	3,767	3.55	stranded	3LPE
186160	(N)HXH-J FE180 E90 4 x 95	95	43.1	3,648	5,033	4.75	stranded	3LPE
187274	(N)HXH-J FE180 E90 4 x 120	120	46	4,608	6,095	5.27	stranded	3LPE
186161	(N)HXH-J FE180 E90 4 x 150	150	51.2	5,760	7,617	6.49	stranded	3LPE
190493	(N)HXH-J FE180 E90 4 x 240	240	64.1	9,216	12,180	9.85	stranded	3LPE
196337	(N)HXH-O FE180 E90 4x6	6	15.8	230	491	0.90	solid	3LN
196338	(N)HXH-O FE180 E90 4x10	10	17.8	384	695	1.07	solid	3LN
196331	(N)HXH-O FE180 E90 4x16	16	22.1	614	1,092	1.54	solid	3LN
196332	(N)HXH-O FE180 E90 4x25	25	26.3	960	1,618	2.05	stranded	3LN

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196333	(N)HXH-O FE180 E90 4x35	35	29	1,344	2,086	2.36	stranded	3LN
196334	(N)HXH-O FE180 E90 4x50	50	32.8	1,920	2,756	2.97	stranded	3LN
196335	(N)HXH-O FE180 E90 4x70	70	37.6	2,688	3,767	3.55	stranded	3LN
196336	(N)HXH-O FE180 E90 4x95	95	43.1	3,648	5,033	4.75	stranded	3LN
196330	(N)HXH-O FE180 E90 4x120	120	46	4,608	6,100	5.27	stranded	3LN
186176	(N)HXH-J FE180 E90 5 x 1.5	1.5	13.4	72	277	0.71	solid	3LNPE
186179	(N)HXH-J FE180 E90 5 x 2.5	2.5	14.5	120	352	0.81	solid	3LNPE
186184	(N)HXH-J FE180 E90 5 x 4	4	15.8	192	457	0.93	solid	3LNPE
186188	(N)HXH-J FE180 E90 5 x 6	6	17.2	288	589	1.05	solid	3LNPE
186191	(N)HXH-J FE180 E90 5 x 10	10	19.3	480	833	1.25	solid	3LNPE
186162	(N)HXH-J FE180 E90 5 x 16	16	24.8	768	1,361	1.86	stranded	3LNPE
186163	(N)HXH-J FE180 E90 5 x 25	25	28.8	1,200	1,960	2.42	stranded	3LNPE
186164	(N)HXH-J FE180 E90 5 x 35	35	32	1,680	2,547	2.86	stranded	3LNPE
186165	(N)HXH-J FE180 E90 5 x 50	50	36.5	2,400	3,377	3.68	stranded	3LNPE
187277	(N)HXH-J FE180 E90 5 x 70	70	41.5	3,360	4,614	4.51	stranded	3LNPE
195847	(N)HXH-J FE180 E90 5 x 95	95	47.9	4,560	6,178	5.88	stranded	3LNPE
185271	(N)HXH-J FE180 E90 7 x 1.5	1.5	14.4	101	330	0.81	solid	6LPE
186180	(N)HXH-J FE180 E90 7 x 2.5	2.5	15.6	168	425	0.92	solid	6LPE
186185	(N)HXH-J FE180 E90 7 x 4	4	17.1	269	562	1.05	solid	6LPE
186999	(N)HXH-J FE180 E90 7 x 6	6	18.6	403	730	1.17	solid	6LPE
187253	(N)HXH-J FE180 E90 10 x 2.5	2.5	19.4	240	593	1.24	solid	9LPE
185272	(N)HXH-J FE180 E90 12 x 1.5	1.5	18.3	173	511	1.20	solid	11LPE
186181	(N)HXH-J FE180 E90 12 x 2.5	2.5	20	288	672	1.37	solid	11LPE
185273	(N)HXH-J FE180 E90 24 x 1.5	1.5	24.6	346	901	1.99	solid	23LPE

Additional dimensions available on request.

Subject to technical modification

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