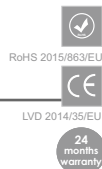
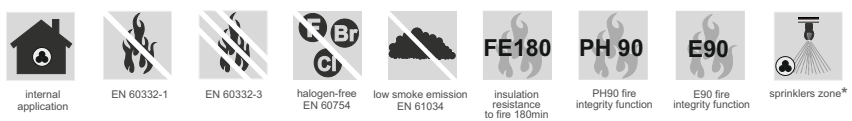


# HTKSH FE180/PH90 E90



Fire resistant cables

Fire resistant, halogen-free telecommunication cable



## Technical data:

**Temperature range:**  
 Fixed installation: -25 °C up to 70 °C  
 Min. installation temp: -5 °C  
**Operating voltage:** 225 V  
**Test voltage:**  
 AC 1500 V  
 DC 2250 V  
**Insulation resistance (minimum):** 500 MΩ\*km  
**Pair loop resistance at 20°C (maximum):**  
 0,8 mm - 75 Ω/km  
 1,0 mm - 48 Ω/km  
 1,4 mm - 26,6 Ω/km  
 1,8 mm - 14,96 Ω/km  
 2,3 mm - 9,6 Ω/km  
 2,8 mm - 6,4 Ω/km  
**Mutual capacitance of pair at 1 kHz (maximum):** 120 nF/km  
**Inductance (maximum):** 0,7 mH/km  
**Min. bending radius:** 10 x Ø

## Construction:

**Cores:** solid copper conductor class 1, acc. to EN 60228  
**Insulation:** mica tape wrapping and halogen-free compound  
**Core colors:** acc. to table „conductor insulation colour“  
**Cores arrangement:** pairs twisted together parallelly  
**Wrapping:** polyester tape  
**Outer sheath:** halogen-free polymer compound  
**Outer sheath color:** red

## Application:

Fire resistant, halogen-free telecommunication cables designed for emergency lighting installations, alarm-, signalling-, and teletransmission systems, in sound alarm systems as well as in fire warning systems, fire automation and other safety ensuring installations. Under fire conditions those cables ensure proper operation of installations for at least 90 minutes (PH90) and durability of conductors insulation for 3h (FE180). During burning cables do not emit corrosive gases or dense smoke. Cables are suitable for fixed installations inside buildings. HTKSH FE180/PH90 (E90) cables have been tested in accordance with the requirements of DIN 4102 p.12 and can be installed in E90 cable support systems as their elements (installation on clamps located every 30 cm and 60 cm).

## 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)
- installation on clamps located every 60 cm in E90 systems
- low fire load (calorific value)

## Tests:

- Flame propagation test for a single insulated cable: EN 60332-1, IEC 60332-1, VDE 0482-332-1
- Flame propagation test for vertically-mounted bunched cables: EN 60332-3-24, IEC 60332-3-24, VDE 0482-332-3-24
- 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 60331-21, VDE 0472-814
- Fire integrity function of cable support system E90: VDE 4102-12
- Fire integrity function of cable installation (PH90): EN 50200

\* Fire integrity test with water spray: EN 50200 aneks E. Water resistance (exc. cables with diameter over 20 mm)

Reaction to fire performance acc. to: EN 13501-6:

Construction	Number of pairs and quadruplets	Core diameter [mm]	Reaction to fire
HTKSH (exc. 1x2x0,8mm)	1x2; 1x4; 2x2; 3x2; 4x2; 5x2; 7x2; 8x2; 10x2	0,8; 1,0; 1,4; 1,8; 2,3	Cca, s1a, d1, a1
	1x2; 1x4; 2x2; 3x2; 4x2; 5x2; 10x2	2,8	
HTKSH	1x2;	0,8	B2ca, s1a, d1, a1

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## Conductor insulation colour:

Number of pair	conductor insulation colour		Number of pair	conductor insulation colour	
	core a	core b		core a	core b
1	white	blue	11	black	blue
2		orange	12		orange
3		green	13		green
4		brown	14		brown
5		grey	15		grey
6		blue	16		blue
7	red	orange	17	yellow	orange
8		green	18		green
9		brown	19		brown
10		grey	20		grey

No cat.	nx2xmm	Approx. outer diameter [mm]	Approx. cable weight [kg/km]	Cu [kg/km]
B10001	1x2x0,8	5,9	39	9,6
B10020	1x4x0,8	6,7	59	19,3
B10002	2x2x0,8	8,2	66	19,3
B10003	3x2x0,8	8,9	85	28,9
B10004	4x2x0,8	10,3	107	38,6
B10021	5x2x0,8	11,2	128	48,2
B10028	7x2x0,8	12,8	177	67,5
B10030	10x2x0,8	14,9	236	96,5
B10005	1x2x1,0	6,6	51	15,1
B10022	1x4x1,0	7,7	80	30,1
B10006	2x2x1,0	9,4	88	30,1
B10007	3x2x1,0	10,3	116	45,2
B10008	4x2x1,0	12,0	148	60,3
B10023	5x2x1,0	13,5	190	75,4
B10024	7x2x1,0	14,9	245	105,5
B10025	10x2x1,0	17,5	331	150,7
B10009	1x2x1,4	7,9	76	29,5
B10027	1x4x1,4	9,2	125	59,1
B10010	2x2x1,4	11,4	135	59,1
B10017	3x2x1,4	12,9	196	88,6
B10029	4x2x1,4	15,0	250	118,2
B10018	5x2x1,4	16,4	301	147,7
B10031	7x2x1,4	18,6	414	206,8
B10032	10x2x1,4	21,8	564	295,4
B10011	1x2x1,8	8,6	100	48,8
B10034	1x4x1,8	10,1	171	97,7
B10012	2x2x1,8	13,0	195	97,7

No cat.	nx2xmm	Approx. outer diameter [mm]	Approx. cable weight [kg/km]	Cu [kg/km]
B10035	3x2x1,8	14,4	266	146,5
B10036	4x2x1,8	16,7	343	195,3
B10037	5x2x1,8	18,7	433	244,2
B10038	7x2x1,8	20,7	573	341,8
B10039	10x2x1,8	24,6	800	488,3
B10013	1x2x2,3	10,0	142	79,7
B10041	1x4x2,3	11,8	249	159,5
B10014	2x2x2,3	15,2	278	159,5
B10042	3x2x2,3	16,8	386	239,2
B10043	4x2x2,3	20,0	520	318,9
B10044	5x2x2,3	22,0	632	398,7
B10045	7x2x2,3	24,6	858	558,1
B10046	10x2x2,3	29,6	1228	797,3
B10050	1x2x2,8	11,2	191	118,2
B10051	1x4x2,8	13,7	355	236,3
B10052	2x2x2,8	17,2	375	236,3

Cable Factory BITNER reserve the right to modify specifications without prior notification  
 Note: On customer's request other cross sections or number of cores can be produced