# (N)HXCH FE180/E90 0.6/1 kV

**DIN VDE 0266, DIN 4102-12**

– Halogen- free low smoke fire resistant security power cables with copper concentric conductor


**Applications:** Fire resistant security cables for installation everywhere where high safety requirements have a special significance e.g., in industrial complexes, power stations, public buildings, hotels, underground railway systems, hospitals etc

*Standard length cable packing: 500 or 1000m on drums. Other forms of packing and delivery are available on request*

## Construction

| | |
|---|---|
| Conductors | Bare copper conductor, circular solid class 1 (RE) or stranded circular or circular compacted class 2 (RM) according to EN 60228 |
| Insulation | Special cross-linked halogen-free fire resistant silicone compound |
| Inner covering | Special flame-retardant and halogen-free compound |
| Separator | Tape |
| Sheath | Thermoplastic halogen- free compound type HM4 according to DIN VDE 0276-604 |
| Colour of sheath | Orange |
| Core identification | According to DIN VDE 0293-308, HD 308 S2 or EN 50334 |
| 2-core | Blue, brown |
| 3-core | Brown, black, grey |
| 3-core* | Blue, brown, black |
| 4-core | Blue, brown, black, grey |
| 5-core | Blue, brown, black, grey, black |
| more 5-core | Black with numbering |

**For certain applications only.*

## Characteristic

| | |
|---|---|
| **Maximum conductor operating temperature** | +90°C |
| **Lowest ambient temperature for fixed installation** | -40°C |
| **Lowest installation temperature** | -15°C |
| **Maximum short-circuit conductor temperature** | +250°C |
| **Minimum bending radius** | 12D - for multicore cable (D - overall cable diameter) |
| **Maximum permissible tensile stress with cable grip for Cu** | 50 N/mm$^2$ |

## Fire performance

| | |
|---|---|
| **Insulation integrity FE 180** | DIN VDE 0472-814 (800 °C, 180 min.), IEC 60331-21 |
| **System integrity E90** | DIN 4102-12 (90 min.) |
| **Flame propagation** | DIN EN 60332-1-2, DIN EN 60332-3-24 |
| **Smoke density** | DIN EN 61034-2, VDE 0482-1034-2, IEC 61034-2 |
| **Gases evolved during combustion** | DIN EN 50267-2-2, VDE 0482-267-2-2, IEC 60754-2:<br>pH ≥ 4,3 & conductivity ≤ 10 μSmm$^{-1}$ |

## Parameters

| Number and cross- sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|---|---|---|---|
| **n x mm²** | **mm** | **kg/km** | **Ω/km** |
| 2x1,5RE/1,5 | 15,3 | 312 | 12,1 / 12,1 |
| 2x2,5RE/2,5 | 16,1 | 354 | 7,41 / 7,41 |
| 2x4RE/4 | 17,4 | 432 | 4,61 / 4,61 |
| 2x6RE/6 | 18,7 | 521 | 3,08 / 3,08 |
| 2x10RE/10 | 20,4 | 685 | 1,83 / 1,83 |
| 2x16RE/16 | 22,4 | 923 | 1,15 / 1,15 |
| 2x16RM/16 | 23,2 | 967 | 1,15 / 1,15 |
| 2x25RM/16 | 26,9 | 1252 | 0,727 / 1,15 |
| 3x1,5RE/1,5 | 16 | 340 | 12,1 / 12,1 |
| 3x2,5RE/2,5 | 16,8 | 391 | 7,41 / 7,41 |
| 3x4RE/4 | 18,2 | 484 | 4,61 / 4,61 |
| 3x6RE/6 | 19,6 | 588 | 3,08 / 3,08 |
| 3x10RE/10 | 21,4 | 789 | 1,83 / 1,83 |
| 3x16RE/16 | 23,5 | 1077 | 1,15 / 1,15 |
| 3x16RM/16 | 24,4 | 1125 | 1,15 / 1,15 |
| 3x25RM/16 | 28,4 | 1499 | 0,727 / 1,15 |
| 3x35RM/16 | 30,7 | 1853 | 0,524 / 1,15 |
| 3x50RM/25 | 35 | 2475 | 0,387 / 0,727 |
| 3x70RM/35 | 38,6 | 3323 | 0,268 / 0,524 |
| 3x95RM/50 | 44,1 | 4499 | 0,193 / 0,387 |
| 3x120RM/70 | 48 | 5549 | 0,153 / 0,268 |
| 3x150RM/70 | 53 | 6674 | 0,124 / 0,268 |
| 3x185RM/95 | 57,5 | 8245 | 0,0991 / 0,193 |
| 3x240RM/120 | 65,6 | 10647 | 0,0754 / 0,153 |
| 4x1,5RE/1,5 | 17,1 | 386 | 12,1 / 12,1 |
| 4x2,5RE/2,5 | 18 | 446 | 7,41 / 7,41 |
| 4x4RE/4 | 19,6 | 552 | 4,61 / 4,61 |
| 4x6RE/6 | 21 | 682 | 3,08 / 3,08 |
| 4x10RE/10 | 23 | 918 | 1,83 / 1,83 |
| 4x16RE/16 | 25,5 | 1282 | 1,15 / 1,15 |
| 4x16RM/16 | 26,4 | 1324 | 1,15 / 1,15 |
| 4x25RM/16 | 31 | 1865 | 0,727 / 1,15 |
| 4x35RM/16 | 33,5 | 2336 | 0,524 / 1,15 |
| 4x50RM/25 | 38,9 | 3181 | 0,387 / 0,727 |
| 4x70RM/35 | 42,4 | 4214 | 0,268 / 0,524 |
| 4x95RM/50 | 48,5 | 5704 | 0,193 / 0,387 |
| 4x120RM/70 | 53,3 | 7095 | 0,153 / 0,268 |

## Parameters

| Number and cross- sectional area of conductor | Approximate overall diameter | Approximate net weight of cables | Maximum conductor resistance at temperature 20°C |
|---|---|---|---|
| **n x mm²** | **mm** | **kg/km** | **Ω/km** |
| 4x150RM/70 | 58,2 | 8497 | 0,124 / 0,268 |
| 4x185RM/95 | 64,1 | 10606 | 0,0991 / 0,193 |
| 4x240RM/120 | 72,4 | 13640 | 0,0754 / 0,153 |
| 5x1,5RE/1,5 | 18,4 | 447 | 12,1 / 12,1 |
| 5x2,5RE/2,5 | 19,4 | 523 | 7,41 / 7,41 |
| 5x4RE/4 | 21 | 651 | 4,61 / 4,61 |
| 5x6RE/6 | 22,7 | 804 | 3,08 / 3,08 |
| 5x10RE/10 | 24,9 | 1091 | 1,83 / 1,83 |
| 5x16RE/16 | 27,5 | 1504 | 1,15 / 1,15 |
| 5x16RM/16 | 28,7 | 1574 | 1,15 / 1,15 |
| 5x25RM/16 | 33,6 | 2175 | 0,727 / 1,15 |
| 5x35RM/16 | 36,7 | 2748 | 0,524 / 1,15 |
| 5x50RM/25 | 42,6 | 3728 | 0,387 / 0,727 |
| 5x70RM/35 | 46,5 | 4973 | 0,268 / 0,524 |
| 5x95RM/50 | 53,7 | 6795 | 0,193 / 0,387 |
| 5x120RM/70 | 58,5 | 8381 | 0,153 / 0,268 |
| 5x150RM/70 | 64,9 | 10184 | 0,124 / 0,268 |
| 5x185RM/95 | 70,2 | 12523 | 0,0991 / 0,193 |
| 5x240RM/120 | 79,6 | 16115 | 0,0754 / 0,153 |
| 7x1,5RE/2,5* | 19,7 | 516 | 12,1 / 7,41 |
| 7x2,5RE/2,5* | 20,8 | 613 | 7,41 / 7,41 |
| 7x4RE/4* | 22,5 | 777 | 4,61 / 4,61 |
| 7x4RM/4* | 23,4 | 821 | 4,61 / 4,61 |
| 10x1,5RE/2,5* | 24 | 707 | 12,1 / 7,41 |
| 10x1,5RM/2,5* | 24,8 | 742 | 12,1 / 7,41 |
| 10x2,5RE/4* | 25,8 | 865 | 7,41 / 4,61 |
| 10x2,5RM/4* | 26,8 | 913 | 7,41 / 4,61 |
| 12x1,5RE/2,5* | 24,6 | 767 | 12,1 / 7,41 |
| 12x1,5RM/2,5* | 25,5 | 806 | 12,1 / 7,41 |
| 12x2,5RE/4* | 26,5 | 946 | 7,41 / 4,61 |
| 12x2,5RM/4* | 27,6 | 998 | 7,41 / 4,61 |

**without approvals and certificate*