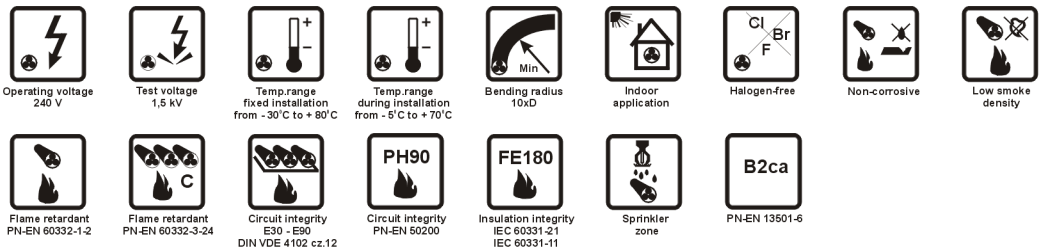
TECHNOKABEL®
Connecting since 1982

# TECHNOFLAME
# HTKSHekw FE180 PH90/E30-E90





## APPLICATIONS

**HTKSHekw FE180 PH90/E30-E90** fire resistant and halogen free screened cables are intended for installation in alarm, signalling, transmission, sound warning and similar systems, also for data processing systems and for analogue or digital data transmission in industrial electronics and control applications in objects of sharp fire protection requirements, particularly in fire alarm and fire automatic control systems.

The cables are certified by **Scientific and Research Development Centre for Fire Protection** (Centrum Naukowo-Badawcze Ochrony Przeciwpożarowej - PIB) at Józefów.

Cable circuits are protected by an overall electrostatic shield against external electric field interferences.

Halogen free cables are applied in locations where, in case of fire, higher safety for human beings and expensive electronic equipment is required.

**Functions of the cables are maintained** – data are transmitted and power is supplied to equipment which must operate in fire conditions and during fire fighting (e.g. emergency lighting). The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are resistant to water in accordance with the standard PN-EN 50200 Annex E and can be used in fire protected rooms with fixed pressure water spraying fire extinguishing systems **(sprinkler zones)**.

The cables are suitable for indoor installations.

## CONSTRUCTION

- **conductor** – bare copper, solid,
- **insulation** – mica tape and halogen free compound insulation - colours in accordance with IEC 60189-2 and PN-92/T-90321 standards,
- **pair** – insulated conductors twisted into pairs,
- **cable core** – pairs laid-up into a cable core,
- **separator** – polyester tape,
- **shielding** – overall electrostatic shield incorporating a plastic laminated metal foil and a tinned copper drain wire,
- **sheath** – red, cable sheath made of halogen free compound according to EN 50290-2-27 and VDE 0250-214 – HM2.

TECHNOKABEL®
Connecting since 1982

## CHARACTERISTICS

| Cable type | | | HTKSHekw FE180 PH90/E30-E90 | | | | | |
|---|---|---|---|---|---|---|---|---|
| Conductor diameter | | mm | 0.8 | 1.0 | 1.4 | 1.8 | 2.3 | 2.8 |
| Conductor cross-section | | $mm^2$ | 0.5 | 0.75 | 1.5 | 2.5 | 4 | 6 |
| DC loop resistance at 20°C, maximum | | Ω/km | 75 | 48 | 24.5 | 14.9 | 9.3 | 6.3 |
| Capacitance between conductors at 1 kHz | maximum | nF/km | 100 | 100 | 130 | 130 | 130 | 140 |
| | avarage | | 80 | 90 | 110 | 120 | 120 | 130 |

**Cable installation** – should be carried out on a certified cable fastening system, in accordance with the National Technical Assessments (KOT) issued for fastening manufacturers. Only certified cable fixing systems, tested according to DIN 4102 part 12, should be used.

| | |
|---|---|
| Operating voltage Uo/U | 240 V |
| Voltage test | 1500 V rms |
| Insulation resistance, minimum | 500 MΩ · km |
| Inductance, approximate | 0.7 mH/km |
| Corrosivity of emitted gases per | PN-EN 60754-1,<br>PN-EN 60754-2,<br>IEC 60754-2 |
| pH | >4.3 |
| conductivity | <2.5 µS/mm |
| Smoke density | PN-EN 61034-2,<br>IEC 61034-2 |
| Light transmittance, minimum | 80% |
| Operating temperature range | |
| during operation | from - 30 to + 80°C |
| during installation | from - 5 to + 70°C |
| Minimum bending radius | 10 x cable diameter |
| Cable combustibillity | flame retardant |

| | |
|---|---|
| Combustibillity tests | PN-EN 60332-1-2,<br>IEC 60332-1-2,<br>PN-EN 60332-3-24,<br>IEC 60332-3-24 |
| Circuit integrity: | |
| E30–E90 | DIN 4102-12 |
| PH90 | PN-EN 50200<br>+ Annex E |
| Insulation integrity FE180 | IEC 60331-21, IEC 60331-11 |
| Reference standards | CNBOP-PIB-<br>KOT-2021/0296-3701<br>edition 1,<br>WT-TK-43 |
| Class reaction to fire<br>(PN-EN 13501-6) | B2ca-s1a,d0,a1 |
| DoP declarations are available at | technokabel.com.pl |

The cable meets requirements of the low voltage direction 2014/35/EU

| Product No. | Number of pairs x conductor diameter | Cable outer diameter (appr.) | Copper index | Cable weight (appr.) | Fire load | Class reaction to fire |
|---|---|---|---|---|---|---|
| | mm | mm | kg/km | kg/km | kWh/m | |
| 1639 001 | 1 x 2 x 0,8 | 5.1 | 10.9 | 32 | 0.09 | B2ca-s1a,d0,a1 |
| 1639 017 | 1 x 4 x 0,8 | 5.7 | 20.5 | 53 | 0.12 | B2ca-s1a,d0,a1 |
| 1639 006 | 2 x 2 x 0,8 | 7.7 | 20.5 | 60 | 0.17 | B2ca-s1a,d0,a1 |
| 1639 010 | 3 x 2 x 0,8 | 8.1 | 30.2 | 76 | 0.20 | B2ca-s1a,d0,a1 |
| 1639 007 | 4 x 2 x 0,8 | 8.9 | 39.8 | 94 | 0.23 | B2ca-s1a,d0,a1 |

| Product No. | Number of pairs x conductor diameter | Cable outer diameter (appr.) | Copper index | Cable weight (appr.) | Fire load | Class reaction to fire |
|---|---|---|---|---|---|---|
| | mm | mm | kg/km | kg/km | kWh/m | |
| 1639 022 | 5 x 2 x 0,8 | 9.8 | 49.5 | 112 | 0.27 | B2ca-s1a,d0,a1 |
| 1639 025 | 6 x 2 x 0,8 | 10.8 | 59.1 | 135 | 0.33 | B2ca-s1a,d0,a1 |
| 1639 038 | 7 x 2 x 0,8 | 10.8 | 68.8 | 149 | 0.35 | B2ca-s1a,d0,a1 |
| 1639 030 | 8 x 2 x 0,8 | 11.5 | 78.4 | 166 | 0.38 | B2ca-s1a,d0,a1 |
| 1639 013 | 10 x 2 x 0,8 | 13.1 | 97.7 | 202 | 0.45 | B2ca-s1a,d0,a1 |

| Product No. | Number of pairs x conductor diameter | Cable outer diameter (appr.) | Copper index | Cable weight (appr.) | Fire load | Class reaction to fire |
|---|---|---|---|---|---|---|
| | mm | mm | kg/km | kg/km | kWh/m | |
| 1639 036 | 12 x 2 x 0,8 | 13.7 | 117.0 | 233 | 0.50 | B2ca-s1a,d0,a1 |
| 1639 032 | 14 x 2 x 0,8 | 14.7 | 136.3 | 266 | 0.56 | B2ca-s1a,d0,a1 |
| 1639 037 | 20 x 2 x 0,8 | 17.4 | 194.2 | 372 | 0.77 | B2ca-s1a,d0,a1 |
| 1639 004 | 1 x 2 x 1,0 | 5.4 | 16.3 | 39 | 0.10 | B2ca-s1a,d0,a1 |
| 1639 039 | 1 x 4 x 1,0 | 6.2 | 31.4 | 66 | 0.13 | B2ca-s1a,d0,a1 |
| 1639 012 | 2 x 2 x 1,0 | 8.3 | 31.4 | 74 | 0.19 | B2ca-s1a,d0,a1 |
| 1639 011 | 3 x 2 x 1,0 | 8.8 | 46.4 | 96 | 0.22 | B2ca-s1a,d0,a1 |
| 1639 020 | 4 x 2 x 1,0 | 9.7 | 61.5 | 120 | 0.25 | B2ca-s1a,d0,a1 |
| 1639 023 | 5 x 2 x 1,0 | 10.8 | 76.6 | 149 | 0.32 | B2ca-s1a,d0,a1 |
| 1639 040 | 6 x 2 x 1,0 | 11.8 | 91.7 | 173 | 0.36 | B2ca-s1a,d0,a1 |
| 1639 029 | 7 x 2 x 1,0 | 11.8 | 106.8 | 193 | 0.38 | B2ca-s1a,d0,a1 |
| 1639 027 | 8 x 2 x 1,0 | 12.6 | 121.8 | 217 | 0.42 | B2ca-s1a,d0,a1 |
| 1639 014 | 10 x 2 x 1,0 | 14.3 | 152.0 | 264 | 0.50 | B2ca-s1a,d0,a1 |
| 1639 035 | 12 x 2 x 1,0 | 15.0 | 182.2 | 307 | 0.56 | B2ca-s1a,d0,a1 |
| 1639 002 | 1 x 2 x 1,4 | 6.1 | 30.8 | 56 | 0.12 | B2ca-s1a,d0,a1 |
| 1639 041 | 1 x 4 x 1,4 | 7.1 | 60.3 | 99 | 0.16 | B2ca-s1a,d0,a1 |
| 1639 009 | 2 x 2 x 1,4 | 9.6 | 60.3 | 108 | 0.22 | B2ca-s1a,d0,a1 |
| 1639 028 | 3 x 2 x 1,4 | 10.2 | 89.9 | 144 | 0.26 | B2ca-s1a,d0,a1 |
| 1639 021 | 4 x 2 x 1,4 | 11.4 | 119.4 | 188 | 0.33 | B2ca-s1a,d0,a1 |
| 1639 024 | 5 x 2 x 1,4 | 12.6 | 149 | 228 | 0.38 | B2ca-s1a,d0,a1 |
| 1639 026 | 6 x 2 x 1,4 | 13.7 | 178.5 | 266 | 0.43 | B2ca-s1a,d0,a1 |

| Product No. | Number of pairs x conductor diameter | Cable outer diameter (appr.) | Copper index | Cable weight (appr.) | Fire load | Class reaction to fire |
|---|---|---|---|---|---|---|
| | mm | mm | kg/km | kg/km | kWh/m | |
| 1639 033 | 7 x 2 x 1,4 | 13.7 | 208.1 | 300 | 0.46 | B2ca-s1a,d0,a1 |
| 1639 031 | 8 x 2 x 1,4 | 14.6 | 237.7 | 339 | 0.51 | B2ca-s1a,d0,a1 |
| 1639 015 | 10 x 2 x 1,4 | 16.7 | 296.8 | 417 | 0.64 | B2ca-s1a,d0,a1 |
| 1639 016 | 12 x 2 x 1,4 | 17.7 | 355.9 | 496 | 0.72 | B2ca-s1a,d0,a1 |
| 1639 003 | 1 x 2 x 1,8 | 7.9 | 50.1 | 89 | 0.19 | B2ca-s1a,d0,a1 |
| 1639 042 | 1 x 4 x 1,8 | 9.2 | 98.9 | 160 | 0.28 | B2ca-s1a,d0,a1 |
| 1639 018 | 2 x 2 x 1,8 | 12.4 | 98.9 | 175 | 0.36 | B2ca-s1a,d0,a1 |
| 1639 043 | 3 x 2 x 1,8 | 13.2 | 147.8 | 238 | 0.44 | B2ca-s1a,d0,a1 |
| 1639 044 | 4 x 2 x 1,8 | 14.6 | 196.6 | 303 | 0.53 | B2ca-s1a,d0,a1 |
| 1639 051 | 5 x 2 x 1,8 | 16.1 | 245.5 | 368 | 0.62 | B2ca-s1a,d0,a1 |
| 1639 033 | 7 x 2 x 1,8 | 13.7 | 208.1 | 300 | 0.81 | B2ca-s1a,d0,a1 |
| 1639 045 | 8 x 2 x 1,8 | 19.1 | 392.1 | 566 | 0.90 | B2ca-s1a,d0,a1 |
| 1639 005 | 1 x 2 x 2,3 | 8.8 | 81.0 | 122 | 0.22 | B2ca-s1a,d0,a1 |
| 1639 046 | 1 x 4 x 2,3 | 10.3 | 160.7 | 224 | 0.32 | B2ca-s1a,d0,a1 |
| 1639 019 | 2 x 2 x 2,3 | 14.0 | 160.7 | 244 | 0.42 | B2ca-s1a,d0,a1 |
| 1639 047 | 3 x 2 x 2,3 | 14.9 | 240.5 | 337 | 0.50 | B2ca-s1a,d0,a1 |
| 1639 048 | 4 x 2 x 2,3 | 16.5 | 320.3 | 432 | 0.61 | B2ca-s1a,d0,a1 |
| 1639 049 | 5 x 2 x 2,3 | 18.5 | 400.1 | 538 | 0.76 | B2ca-s1a,d0,a1 |
| 1639 008 | 1 x 2 x 2,8 | 9.8 | 119.4 | 163 | 0.25 | B2ca-s1a,d0,a1 |
| 1639 050 | 1 x 4 x 2,8 | 11.7 | 237.7 | 310 | 0.39 | B2ca-s1a,d0,a1 |
| 1639 034 | 2 x 2 x 2,8 | 16.3 | 237.7 | 355 | 0.57 | B2ca-s1a,d0,a1 |