

Fire alarm cables for highest safety requirements



Daetwyler

Daetwyler Cables

We are a provider of high-grade quality system solutions and services in the areas of structured data cabling, telecom carriers, safety cabling, building automation, cabling for the elevator industry, as well as for cable harnessing.

We are a market leader in many areas with our innovative and high-performing products and system solutions.


We achieve revenues of approximately 180 million Euros deploying around 780 staff members.

Daetwyler Group

The Daetwyler Group is an internationally-oriented multiniche player, active as an industrial supplier and distributor of technical and electronic components. Within these activities, the group focuses on attractive markets and niches with a potential for increasing its added value and achieving profitable growth. Through its four group divisions - Cables, Rubber, Pharmaceutical Packaging and Technical Components - the Daetwyler Group serves its core markets for the automotive, telecom and pharmaceutical as well as the construction and machine manufacturing industries.

The Daetwyler Group, based in Altdorf (Switzerland), employs 4 400 staff and has sales of approximately 800 million Euros; two thirds of which is achieved abroad.

Innovation and Tradition

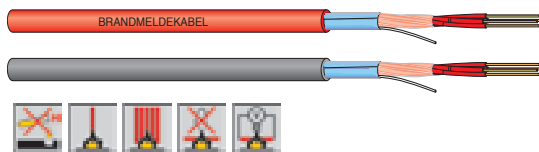
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- | | | | |
|------|--|------|--|
| 1915 | Adolf Dätwyler establishes the company, and launches the production of electric cables made of aluminum. | 1987 | Introduction of uninet® data copper cables, and the future-oriented conception of the structured data cabling. |
| 1926 | The manufacture of telephone cables is launched. | 1991 | pyrofil® safety cables are successfully certified for E90 in accordance with DIN 4102-12 for the first time |
| 1944 | The manufacture of high-frequency cables is launched. | 1992 | Establishment of Dätwyler System und Netzwerk GmbH headquartered in Neufahrn near Munich, Germany worldwide. |
| 1945 | For the first time in the history of high-voltage cables, Dätwyler isolates power cables accommodating over 15 kV capacity by using polyethylene material. | 1995 | Merger of both German subsidiaries to the company Dätwyler Kabel+Systeme GmbH. |
| 1956 | Manufacturing start-up of transmitter and receiver cables for televisions. | 1996 | Establishment of Dätwyler Kabel+Systeme GmbH head-quartered in Vienna, Austria. |
| 1975 | The flameproof cable "Pyrofil250" is well accepted by the market. | 1997 | Establishment of Dätwyler Cables+Systems Pte Ltd., Singapore. |
| 1977 | "IXOSIL" end pieces supplement our high-voltage cable product line accommodating up to 60 kV capacity. | 1998 | Establishment of Datwyler Cables+Systems Co. Ltd Shanghai, China. |
| 1980 | Establishment of Dätwyler Elektro GmbH headquartered in Hattersheim near Frankfurt, Germany. | 2000 | Dätwyler AG Altdorf sells the business area for high-voltage technology to Alcatel Cable Suisse SA. |
| 1981 | The manufacture of high-voltage cables with built-in fibre optic represents a novelty on a worldwide basis. | 2002 | optofil® Safety is the first metalfree fibre optic cable with circuit integrity E30 according to DIN 4102-12. |
| 1984 | Establishment of Dätwyler (UK) Ltd. | 2004 | Opening of the central EU-warehouse in Hattersheim near Frankfurt, Germany. |
| 1986 | Production start-up of fibre optic cables. As first-to-do manufacturer of cables. Dätwyler certifies halogen-free safety cables over a period of 90 minutes by employing the uniform temperature time curve. | 2005 | Dätwyler presents FloorLink, the economical wiring system for elevator shafts. |
| | | 2006 | Dun & Bradstreet Swiss Business Award 2005 for Dätwyler. |

pyrofil®

Cable technology for highest safety requirements

Safety cables with improved characteristics in case of fire

Wiring and fire alarm cable up to 300 V



Applications

Safety cables to maintain power supplies and data transmission to fire alarm system, public address and voice alarm systems.

Product range

Single or multi quad, screened cables

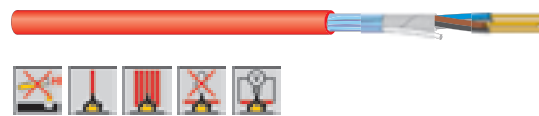
Standards/Approvals

IEC, EN, DIN VDE, GOST-R

Safety cables with insulation integrity

Fire alarm cables 300/500 V

BS 6387 CWZ; FE180; BS EN 50200 and Annex E; BS 8434-2; IEC 60331 (FE180)



Applications

Safety cables with insulation integrity to maintain power supplies and data transmission to fire alarm systems emergency lighting.

Product range

Screened multi core cables from 1.0 mm² to 4 mm². Also available with mechanical protection.

Standards/Approvals

BS, EN, CENELEC, LPCB, GOST-R, BASEC

Armoured, fire alarm cables 300/500 V

BS 6387 CWZ, BS EN 50200, IEC 60331 (FE180)



with mechanical protection

Applications

Safety cables with insulation integrity to maintain power supplies and data transmission to fire alarm systems emergency lighting.

Product range

Armoured, screened multicore cable from 1.0 mm² to 2.5 mm²

Standards/Approvals

IEC, EN, CENELEC, BS

Safety cables with circuit integrity

Wiring and Fire alarm cables up to 225 V

E30-E90; FE180; BS 6387 CWZ, EN 50200



armoured version

Applications

Safety cables with circuit integrity to maintain power supplies and data transmission to fire alarm systems, public address and voice alarm systems.

Product range

Single or multi pair screened cables. Also available as fire alarm cable and in armoured version.

Standards/Approvals

IEC, EN, DIN VDE, NBN, GOST-R

optofil®-Safety fibre optic safety cables according to DIN 4102-12 30 Min. (E30); IEC 60331-25



Applications

Universal fibre optic cables with circuit integrity for indoor and outdoor applications.

Product range

Loose tube construction with up to 12 SM-/MM-fibres with non-metallic rodent protection.

Standards/Approvals

IEC, EN, CENELEC, DIN VDE

The most important test procedures



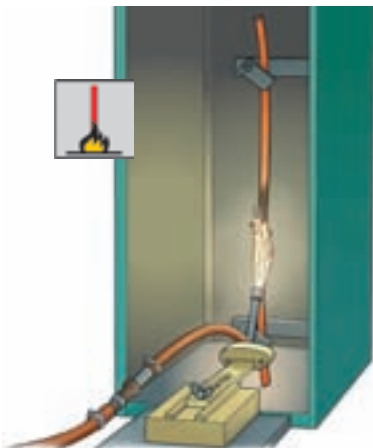
Corrosive fire gases

This test procedure provides information if the insulation material of the sheath material of cable creates corrosive gases in the event of fire.

Halogen parts or other material in small quantities can be easily identified with this test due to the strong change of pH-value and the conductivity. The conductivity is $< 10\text{mS/mm}$

Corrosion test of fire gases

- IEC 60754-1/-2,
- EN 50267-2-1/-2-2,
- VDE 0482-267-2-1/-2-2



Burning behaviour of a single cable

This test method tests a 60 cm long cable sample for burning behaviour.

This means that the flame must extinguish itself and the burn damage must not reach the upper end of sample.

Test of Burning behaviour of a single tube or cable

- IEC 60332-1-1/-2,
- EN 60332-1-1/-2,
- VDE 0482-332-1-1/-2

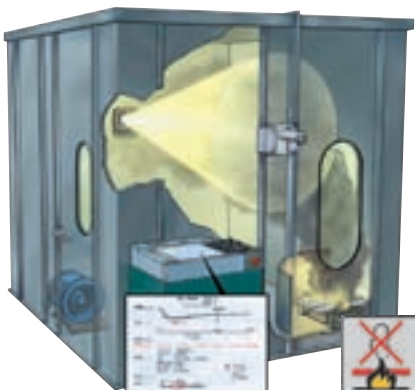
Burning behaviour of a cable bundle

This test method tests a 360 cm long cable bundle with regard to fire propagation.

This means that flames must extinguish themselves and burn damage must not exceed a defined height.

Test of Burning behaviour of a cable bundle

- IEC 60332-3-/-22/-23 /-24/-25 Cat. A-D
- EN 50266-2-2/-3/-4/-5 Cat. A-D
- VDE 0482-266-2-2/-3 /-4/-5 Cat. A-D



Smoke density test

This test checks smoke development when burning the cable or the impairment of the visibility by burning cables.

The reduction in light transparency is measured in a standard chamber.

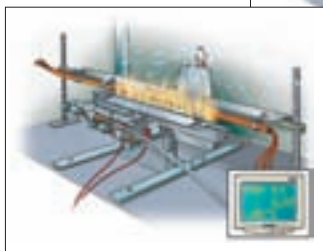
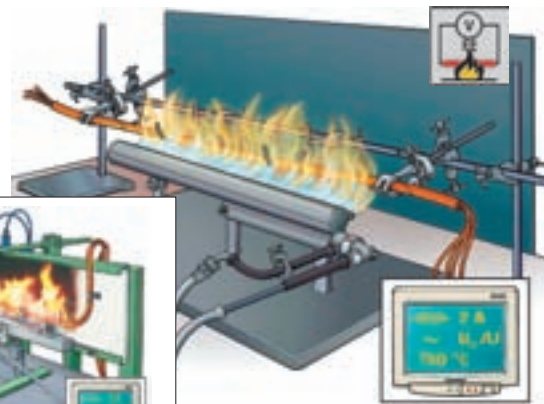
Test of smoke density

- IEC 61034-1/-2,
- EN 61034-1/-2 (EN 50268-1/-2),
- VDE 0482-1034-1/-2
- (VDE 0482-268-1/-2)

Test of circuit integrity (FE)

This test establishes whether a single cable can maintain circuit integrity during and after exposure to a fire for a time period of at least 180 minutes. Cables which fulfil the requirements of this test are marked with <<FE180>> after their type designation.

There is no obligation to test the cable for functional integrity beyond the designated period.



Test of Circuit integrity
(Fire and water)
- BS 6387 (cat.W) [650°C]
- VdS 3423 [>830°C]

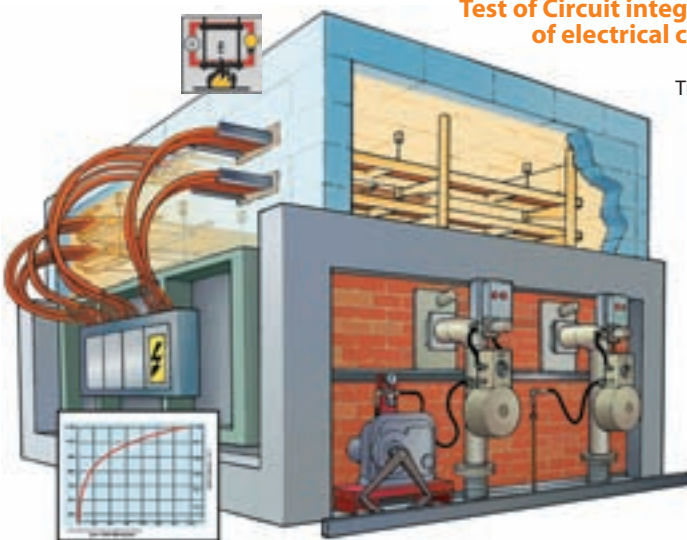
Test of Circuit integrity
(Fire and mechanical shock)
- EN 50200 [>830°C]
- EN 50362 [>830°C]
- BS 6387 (cat.Z) [950°C]

Test of Circuit integrity
(Fire alone)
- IEC 60331-11/-21/-23 /-25 [>750°C]
- BS 6387 (cat. C) [950°C]
- VDE 0472-814 [>750°C]

Remark:

This test is not equivalent to the test for functional integrity according to DIN 4102-12

Test of Circuit integrity of electrical cable installations



This standard describes the requirements and the actions for the achievement of the functional integrity of electrical cable installations in the event of fire. While the "circuit integrity FE" provides only for the test of single cables, the cables here are tested in connection with practical fixing systems. It is important to appreciate that there is no connection between the two standards, circuit integrity (FE/PH) and system circuit integrity (E).

The test is carried out and certified from state recognised institutes.

Test of circuit integrity of electrical cable installations
- DIN 4102-12 (E30-E90)
- (NBN 713.020 (Rf1, Rf1 1/2))

Better than the standard!

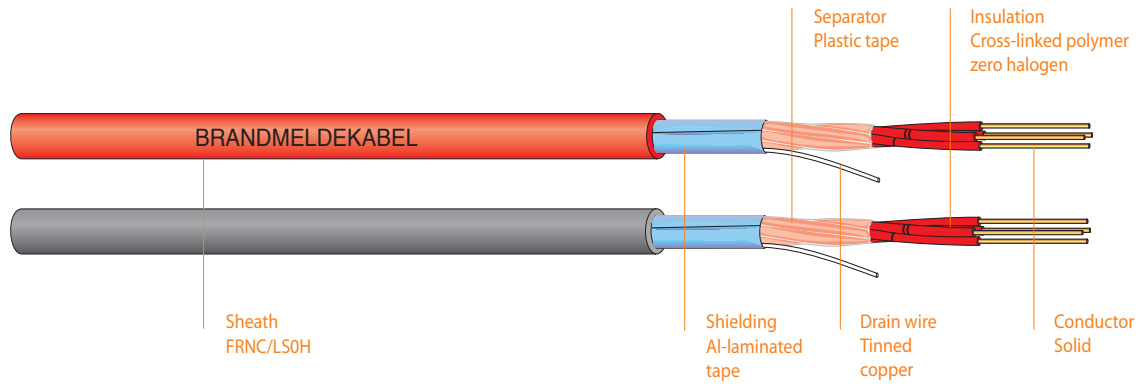
This test (E30-E90) is now the world wide standard for guaranteeing functional integrity of the complete electrical cable installation, including the fixing components, under normal operating conditions.

pyrofil® J-H(St)H...Bd

Fire alarm cable max. 300V

Halogen-free, with improved fire characteristics
VDE 0815

Dätwyler Cables



Product information

Application

Wiring cable for telecommunications and alarm systems for permanent installation in buildings. Permitted operating temperature at conductor of +70°C.

Construction

| | |
|---------------|--|
| Conductor | Bare copper, solid, 0.6 or 0.8mm diameter |
| Insulation | Crosslinked polymer VDE 819-106 (former VDE 0207-23 „HXI1“), EN 50290-2-26 |
| Separator | Plastic tape |
| Shielding | Al-laminated tape with tinned copper drain wire |
| Outer sheath | Polyolefin compound VDE 819-107 (former VDE 0207-24 „HM 2“), EN 50290-2-27 |
| Core colours | Ring marking in accordance with VDE 0815 |
| Sheath colour | grey or red |
| Imprint | DAETWYLER PYROFIL J-H(ST)H...BD „N X N X MM“ |

Technical Properties

| | |
|---------------|------------|
| Rated voltage | max. 300V |
| Test voltage | 800V, 50Hz |

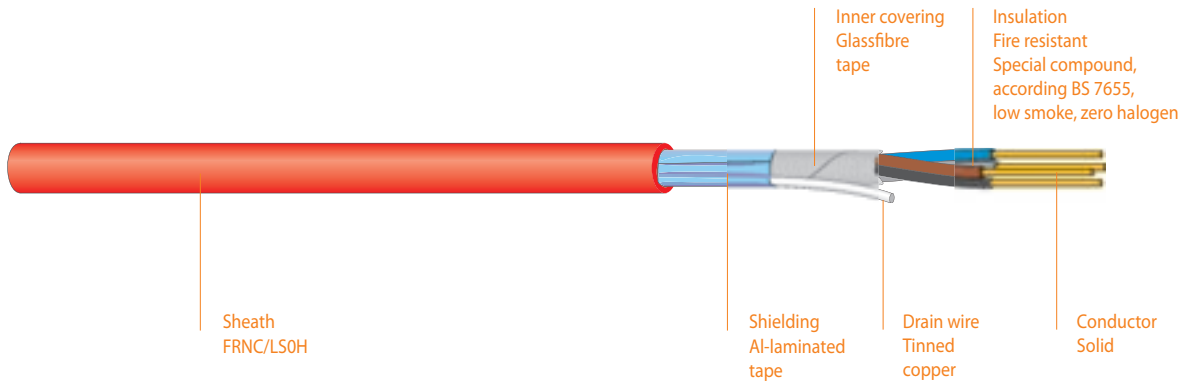
General Properties

| | | |
|---------------------------------------|------------------------|---|
| Minimum bending radius | during installation | 7,5 x D |
| | permanent installation | 2,5 x D (D = outer diameter) |
| Crush resistance | | ≥ 1000 N/10 cm |
| Impact | | ≥ 10 Impacts |
| Operating temperature | permanent installation | -30°C to +70°C |
| | during installation | -5°C to +50°C |
| Zero halogen | non corrosive gases | IEC 60754-2, EN 50267-2-2, VDE 0482-267-2-2 |
| Flame retardant | | IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2 |
| Fire resistant (no flame propagation) | | IEC 60332-3-24 Cat. C, EN 50266-2-4 Cat. C, VDE 0482-266-2-4 Cat. C |
| Minimum smoke emission | | IEC 61034-1/-2, EN 61034-1/-2 (EN 50268-1/-2), VDE 0482-1034-1/-2 (VDE 0482-268-1/-2) |

| Article No. | Colour | No. of cores x conductor diameter | | | Cu content kg/km | Total weight app. kg/km | Outer diameter app. mm | Fire load kWh/m |
|-------------|--------|-----------------------------------|---|---------|---------------------|----------------------------|---------------------------|--------------------|
| | | n | x | mm | | | | |
| 184 707 | red | 1 | x | 2 x 0,8 | 15 | 56 | 6,0 | 0,12 |
| 157 892 | red | 2 | x | 2 x 0,8 | 25 | 69 | 7,0 | 0,16 |
| 157 893 | red | 4 | x | 2 x 0,8 | 45 | 136 | 11,0 | 0,29 |
| 157 894 | red | 6 | x | 2 x 0,8 | 65 | 152 | 11,0 | 0,35 |
| 157 895 | red | 10 | x | 2 x 0,8 | 106 | 230 | 13,0 | 0,55 |
| | grey | 1 | x | 2 x 0,6 | 9 | 33 | 5,0 | 0,09 |
| 152 833 | grey | 2 | x | 2 x 0,6 | 14 | 49 | 6,0 | 0,12 |
| 152 834 | grey | 4 | x | 2 x 0,6 | 25 | 92 | 9,0 | 0,18 |
| 152 835 | grey | 6 | x | 2 x 0,6 | 37 | 101 | 9,0 | 0,23 |
| 152 836 | grey | 10 | x | 2 x 0,6 | 59 | 146 | 11,0 | 0,33 |
| 191 001 | grey | 1 | x | 2 x 0,8 | 15 | 56 | 6,0 | 0,12 |
| 152 838 | grey | 2 | x | 2 x 0,8 | 25 | 69 | 7,0 | 0,16 |
| 152 689 | grey | 4 | x | 2 x 0,8 | 45 | 136 | 11,0 | 0,29 |
| 152 839 | grey | 6 | x | 2 x 0,8 | 65 | 152 | 11,0 | 0,35 |
| 152 840 | grey | 10 | x | 2 x 0,8 | 106 | 230 | 13,0 | 0,55 |

Fire alarm cables with red sheath have the imprint "Brandmeldekabel" (fire alarm cable).

Additional dimensions available on request.



Application

Cable for fire alarm systems and emergency lighting for permanent installation in buildings.
Permitted operating temperature at conductor +90°C.

Construction

| | |
|----------------|--|
| Conductor | Bare copper, solid to IEC 60228, EN 60228 and BS 6360 |
| Insulation | Double insulation, cross-linked special compound according to EN 50363-5 (BS 7655), "EI5" |
| Core colours | 2 cores + earth: blue, brown 3 cores + earth: brown, black, grey 4 cores + earth: blue, brown, black, grey |
| Inner covering | Glasfibre tape |
| Shielding | Al-laminated tape and tinned copper drain wire according IEC 60228, BS EN 60228 (former BS 6360) |
| Separator | Plastic tape |
| Sheath | Polyolefin compound in according to BS 7655, "LTS3" |
| Sheath colour | red, white (other colours on request) |
| Imprint | on request |

Technical Properties

| | |
|-----------------|-------------|
| Nominal voltage | 300/500V |
| Test voltage | 2000V, 50Hz |

General Properties

| | | |
|------------------------|-----------------------------------|----------------------------|
| Minimum bending radius | during and permanent installation | 6 x D (D = outer diameter) |
| Operating Temperature | permanent installation | -15°C to +90°C |
| | during installation | -5°C to +50°C |

- Zero halogen IEC 60754-1/-2, EN 50267-2-1/-2-2, VDE 0482-267-2-1/-2-2
- Flame retardant IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2
- Fire resistant (no flame propagation) IEC 60332-3-22/-24 Cat. A/C, EN 50266-2-2/-4 Cat. A/C, VDE 0482-266-2-2/-4 Cat. A/C
- Minimum smoke emission IEC 61034-1/-2, EN 61034-1/-2 (EN 50268-1/-2), VDE 0482-1034-1/-2 (VDE 0482-268-1/-2)
- Circuit integrity (FE180) IEC 60331-11/-21 (180 minutes), VDE 0472 part 814, BS 6387 CWZ, BS EN 50200 (PH120) and Annex E (30 minutes), (former BS 8434-1 (30 minutes)), VDE 0482-200

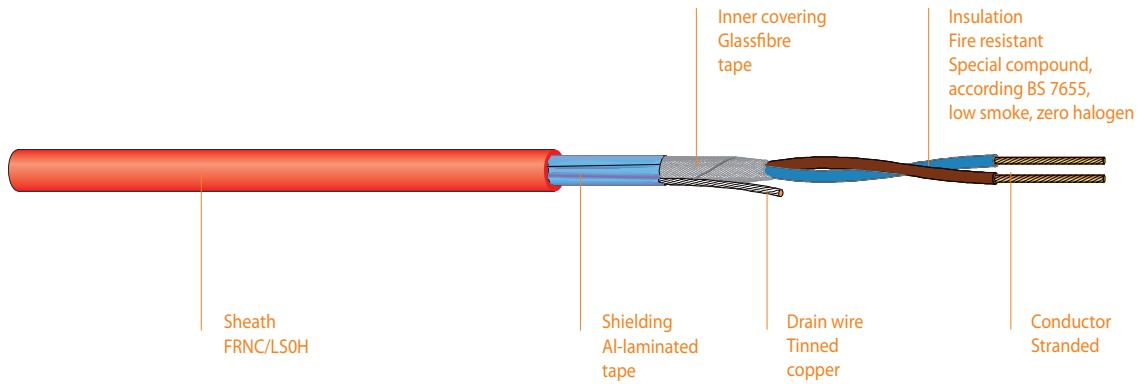
| Article No. | Colour | No. of cores x cross section | | Cu content | Total weight | Outer diameter | Fire load |
|-------------|--------|------------------------------|-------------------|------------|--------------|----------------|-----------|
| | | n | x mm ² | | | | |
| 187 204 | red | 2 | x 1,0 | 29 | 78 | 7,7 | 0,17 |
| 187 205 | white | 2 | x 1,0 | 29 | 78 | 7,7 | 0,17 |
| 187 209 | red | 2 | x 1,5 | 43 | 98 | 8,3 | 0,19 |
| 187 161 | white | 2 | x 1,5 | 43 | 98 | 8,3 | 0,19 |
| 187 214 | red | 2 | x 2,5 | 72 | 141 | 9,7 | 0,26 |
| 187 162 | white | 2 | x 2,5 | 72 | 141 | 9,7 | 0,26 |
| 187 206 | red | 3 | x 1,0 | 38 | 95 | 8,1 | 0,20 |
| 188 154 | white | 3 | x 1,0 | 38 | 95 | 8,1 | 0,20 |
| 187 210 | red | 3 | x 1,5 | 58 | 120 | 8,7 | 0,23 |
| 187 211 | white | 3 | x 1,5 | 58 | 120 | 8,7 | 0,23 |
| 187 215 | red | 3 | x 2,5 | 96 | 181 | 10,3 | 0,31 |
| 187 216 | white | 3 | x 2,5 | 96 | 181 | 10,3 | 0,31 |
| 187 207 | red | 4 | x 1,0 | 48 | 119 | 9,0 | 0,25 |
| 187 208 | white | 4 | x 1,0 | 48 | 119 | 9,0 | 0,25 |
| 187 212 | red | 4 | x 1,5 | 72 | 150 | 9,7 | 0,28 |
| 187 213 | white | 4 | x 1,5 | 72 | 150 | 9,7 | 0,28 |
| 187 217 | red | 4 | x 2,5 | 120 | 224 | 11,4 | 0,39 |
| 188 155 | white | 4 | x 2,5 | 120 | 224 | 11,4 | 0,39 |

Additional dimensions available on request.

pyrofil® Standard Fire safety Cable

Fire alarm cable 300/500V, flex

Halogen-free, with improved fire characteristics
BS 7629-1 and BS 5839-1 Standard



Product information

Application

Cable for fire alarm systems and emergency lighting for permanent installation in buildings. Permitted operating temperature at conductor +90°C.

Construction

| | |
|----------------|--|
| Conductor | Bare copper, stranded to IEC 60228, EN 60228 and BS 6360 |
| Insulation | Double insulation, cross-linked special compound according to EN 50363-5 (BS 7655), "EI5" |
| Core colours | 2 cores + earth: blue, brown 3 cores + earth: brown, black, grey 4 cores + earth: blue, brown, black, grey |
| Inner covering | Glasfibre tape |
| Shielding | Al-laminated tape and tinned copper drain wire according IEC 60228, BS EN 60228 (former BS 6360) |
| Separator | Plastic tape |
| Sheath | Polyolefin compound in according to BS 7655, "LTS3" |
| Sheath colour | red (white or black on request) |
| Imprint | on request |

Technical Properties

| | |
|-----------------|-------------|
| Nominal voltage | 300/500V |
| Test voltage | 2000V, 50Hz |

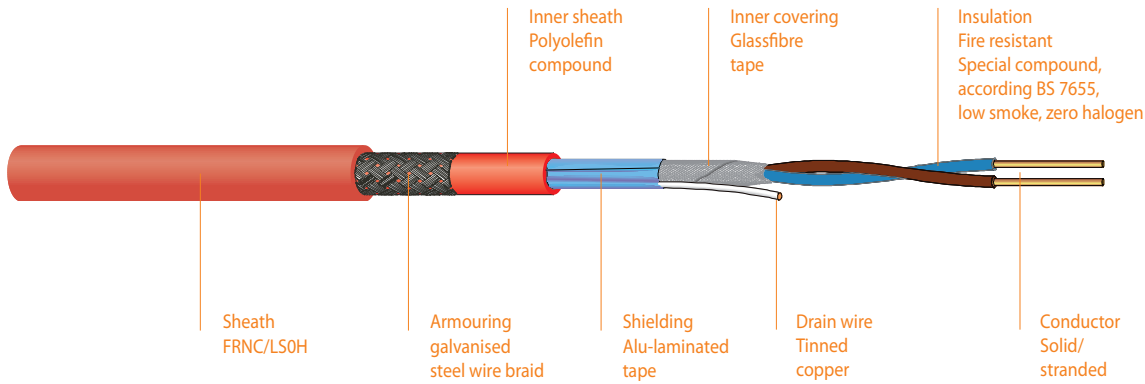
General Properties

| | | |
|------------------------|-----------------------------------|----------------------------|
| Minimum bending radius | during and permanent installation | 6 x D (D = outer diameter) |
| Operating Temperature | permanent installation | -15°C to +90°C |
| | during installation | -5°C to +50°C |

- Zero halogen non corrosive gases IEC 60754-1/-2, EN 50267-2-1/-2-2, VDE 0482-267-2-1/-2-2
- Flame retardant IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2
- Fire resistant (no flame propagation) IEC 60332-3-22/-24 Cat. A/C, EN 50266-2-2/-4 Cat. A/C, VDE 0482-266-2-2/-4 Cat. A/C
- Minimum smoke emission IEC 61034-1/-2, EN 61034-1/-2 (EN 50268-1/-2), VDE 0482-1034-1/-2 (VDE 0482-268-1/-2)
- Circuit integrity (FE180) IEC 60331-11/-21 (180 minutes), VDE 0472 part 814, BS 6387 CWZ, BS EN 50200 (PH120) and Annex E (30 minutes), (former BS 8434-1 (30 minutes)), VDE 0482-200

| Article No. | Colour | No. of cores x cross section | Cu content | | Total weight | | Outer diameter | | Fire load |
|-------------|--------|------------------------------|------------|------------|--------------|-------|----------------|--|-----------|
| | | | kg/km | app. kg/km | app. mm | kWh/m | | | |
| | | n x mm ² | | | | | | | |
| 190 438 | red | 2 x 1,0 | 29 | 83 | 8,0 | 0,20 | | | |
| 190 427 | red | 2 x 1,5 | 43 | 103 | 8,9 | 0,23 | | | |
| 190 429 | red | 2 x 2,5 | 72 | 152 | 10,4 | 0,30 | | | |
| | red | 3 x 1,0 | 38 | 101 | 8,5 | 0,24 | | | |
| 190 439 | red | 3 x 1,5 | 58 | 130 | 9,4 | 0,27 | | | |
| | red | 3 x 2,5 | 96 | 190 | 11,0 | 0,35 | | | |
| | red | 4 x 1,0 | 48 | 127 | 9,4 | 0,25 | | | |
| | red | 4 x 1,5 | 72 | 161 | 10,4 | 0,31 | | | |
| 190 440 | red | 4 x 2,5 | 120 | 235 | 12,2 | 0,44 | | | |

Additional dimensions available on request.



Application

Armoured cable for fire alarm systems and emergency lighting for permanent installation in buildings.
Permitted operating temperature at conductor of +90°C.

Construction

| | |
|----------------|--|
| Conductor | Bare copper, solid or stranded to IEC 60228 class 1 or 2, EN 60228 (BS 6360) |
| Insulation | Double insulation, cross-linked special compound acc. to EN 50363-5 (BS 7655), "EI5" |
| Core colours | 2 cores + earth: brown, blue 3 cores + earth: brown, black, grey 4 cores + earth: brown, black, grey, blue |
| Inner covering | Glasfibre tape |
| Shielding | Al-laminated tape and tinned copper drain wire acc. IEC 60228 class 1 or 2, EN 60228 (former BS 6360) |
| Inner sheath | Polyolefin compound |
| Armouring | GSWB, galvanised steel wire braid |
| Outer Sheath | Polyolefin compound acc. BS 7655 "LTS3" |
| Sheath colour | red (white or black on request) |
| Imprint | on request |

Technical Properties

| | |
|-----------------|-------------|
| Nominal voltage | 300/500V |
| Test voltage | 2000V, 50Hz |

General Properties

| | | |
|---------------------------------------|---|----------------------------|
| Minimum bending radius | during and permanent installation | 6 x D (D = outer diameter) |
| Operating Temperature | permanent installation | -15°C to +90°C |
| | during installation | -5°C to +50°C |
| Zero halogen | IEC 60754-1/-2, EN 50267-2-1/-2-2, VDE 0482-267-2-1/-2-2 | |
| Flame retardant | IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2 | |
| Fire resistant (no flame propagation) | IEC 60332-3-22/-24 Cat. A/C, EN 50266-2-2/-4 Cat. A/C, VDE 0482-266-2-2/-4 Cat. A/C | |
| Minimum smoke emission | IEC 61034-1/-2, EN 61034-1/-2 (EN 50268-1/-2), VDE 0482-1034-1/-2 (VDE 0482-268-1/-2) | |
| Circuit integrity (FE180) | IEC 60331-11/-21 (180 minutes), VDE 0472 part 814, BS 6387 CWZ, BS EN 50200 (PH120), VDE 0482-200 | |

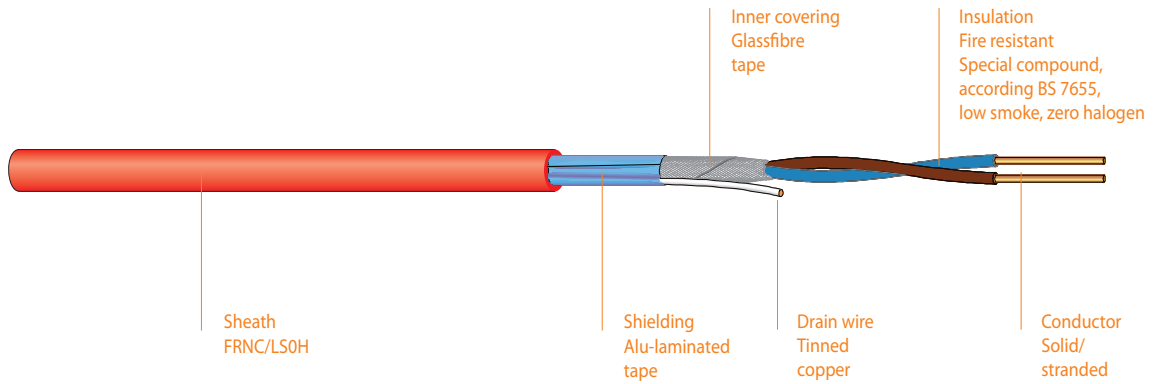
| Article No. | Colour | No. of cores x cross section | | Cu content | Total weight | Outer diameter | Fire load |
|-------------|--------|------------------------------|-------------------|------------|--------------|----------------|-----------|
| | | n | x mm ² | kg/km | app. kg/km | app. mm | kWh/m |
| 184 580 | red | 2 | x 1,5 | 48 | 190 | 12,0 | 0,40 |
| | red | 2 | x 2,5 | 72 | 250 | 13,0 | 0,50 |

Stranded versions and additional dimensions available on request.

pyrofil® Enhanced Fire Safety Cable

Fire alarm cable 300/500V

Halogen-free, with improved fire characteristics
BS 7629-1 and BS 5839-1



Product information

Application

Cable for fire alarm systems and emergency lighting for permanent installation in buildings.
Permitted operating temperature at conductor +90°C.

Construction

| | |
|----------------|---|
| Conductor | Bare copper, solid to IEC 60228, EN 60228 and BS 6360 |
| Insulation | Double insulation, cross-linked special compound according to EN 50363-5 (BS 7655), "EI5" |
| Core colours | 2 cores + earth: blue, brown |
| Inner covering | Glasfibre tape |
| Shielding | Al-laminated tape and tinned copper drain wire according IEC 60228, EN 60228 (former BS 6360) |
| Separator | Plastic tape |
| Sheath | Polyolefin compound in according to BS 7655, "LTS3" |
| Sheath colour | red (white or black on request) |
| Imprint | on request |

Technical Properties

| | |
|-----------------|-------------|
| Nominal voltage | 300/500V |
| Test voltage | 2000V, 50Hz |

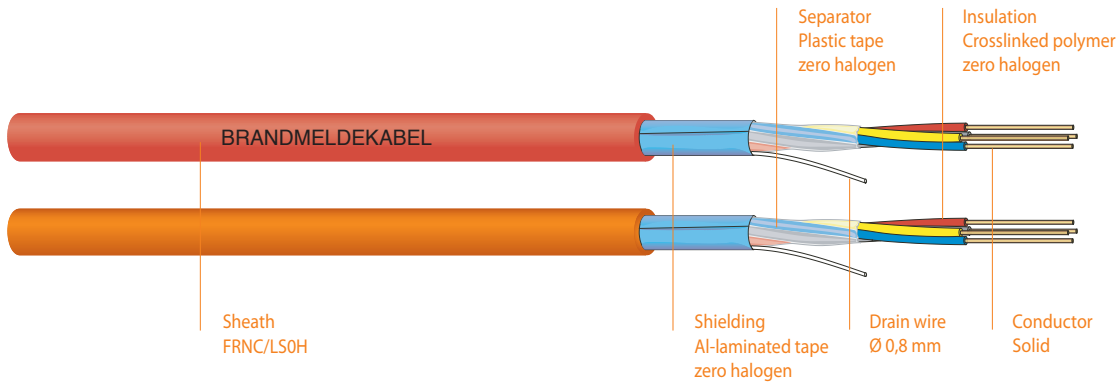
General Properties

| | |
|------------------------|--|
| Minimum bending radius | during and permanent 6 x D (D = outer diameter) |
| Operating Temperature | permanent installation -15°C to +90°C during installation -5°C to +50°C |

| | |
|---------------------------------------|--|
| Zero halogen | IEC 60754-1/-2, EN 50267-2-1/-2-2, VDE 0482-267-2-1/-2-2 |
| Flame retardant | IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2 |
| Fire resistant (no flame propagation) | IEC 60332-3-22/-24 Cat. A/C, EN 50266-2-2/-4 Cat. A/C, VDE 0482-266-2-2/-4 Cat. A/C |
| Minimum smoke emission | IEC 61034-1/-2, EN 61034-1/-2 (EN 50268-1/-2), VDE 0482-1034-1/-2 (VDE 0482-268-1/-2) |
| Circuit integrity (FE180) | IEC 60331-11/-21 (180 minutes), VDE 0472 part 814, BS 6387 CWZ, BS EN 50200 (PH120), BS 8434-2 (120 minutes), VDE 0482-200 |

| Article No. | Colour | No. of cores x cross section | Cu content | | Total weight | | Outer diameter | | Fire load | |
|-------------|--------|------------------------------|------------|------------|--------------|-------|----------------|--|-----------|--|
| | | | kg/km | app. kg/km | app. mm | kWh/m | | | | |
| | | n x mm ² | | | | | | | | |
| 188 368 | red | 2 x 1,5 | 43 | 98 | 8,3 | 0,19 | | | | |
| 188 369 | white | 2 x 1,5 | 43 | 98 | 8,3 | 0,19 | | | | |
| 188 370 | red | 2 x 2,5 | 72 | 141 | 9,7 | 0,26 | | | | |
| 188 371 | white | 2 x 2,5 | 72 | 141 | 9,7 | 0,26 | | | | |

Stranded versions and additional dimensions available on request.



Application

Safety cables are used in all situations that require special protection against fire and flame damage for people and equipment and where a high degree of safety conditions 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 E30 in accordance with DIN 4102-12. System circuit integrity is guaranteed at an operating voltage up to 110V. Permitted operating temperature at conductor +70°C.

Construction

| | |
|---------------|--|
| Conductor | Bare copper, solid, 0.8mm diameter, according to VDE 0815 |
| Insulation | Fire-resistant, crosslinked, high-performance Keram special-compound in accordance with VDE 0266 „HXI 1“ |
| Core colours | According to VDE 0815, bundles identified |
| Separator | by numbered tape |
| Shielding | PEPT "Plastic Tape" Al-laminated tape with tinned copper drain wire Ø 0.8mm |
| Outer sheath | Flame retardant polyolefin compound according to VDE 0819 part 107, EN 50290-2-27 and VDE 0250-214 „HM 2“ |
| Sheath colour | red or orange |
| Imprint | DAETWYLER PYROFIL KERAM „BRANDMELDEKABEL“ JE-H(ST)H...BD FE180 E30 L „N X 2 X MM“ VDE REG. NO.9361 „ORDER NO.“ „METRE on request |
| MARKING“ | |

Electrical Properties

| | |
|-----------------------|---|
| Insulation resistance | min. 100 MΩ x km |
| Loop resistance | max. 73.2 Ω/km at 0.80 mm |
| Capacitance unbalance | max. 120 nF/km at 800 Hz |
| Kapazitive Kopplung | K max. 200 pF/100m at 800 Hz |
| Rated volage | max. 225 V |
| Test voltage | 500 V, 50 Hz Core/Core 2000 V, 50Hz, Core/Screen |

General Properties

| | | |
|------------------------|------------------------|------------------------------|
| Minimum bending radius | during installation | 7,5 x D (D = outer diameter) |
| | permanent installation | 2,5 x D |
| Crush resistance | | ≥ 1000 N/10 cm |
| Impact | | ≥ 10 Impacts |
| Operating temperature | permanent installation | -30°C to +70°C |
| | during installation | -5°C to +50°C |

| | |
|---------------------------------------|---|
| Zero halogen | IEC 60754-2, EN 50267-2-2, VDE 0482-267-2-2 |
| Flame retardant | IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2 |
| Fire resistant (no flame propagation) | IEC 60332-3-22/-24 Cat. A/C, EN 50266-2-2/-4 Cat. A/C, VDE 0482-266-2-2/-4 Cat. A/C |
| Minimum smoke emission | IEC 61034-1/-2, EN 61034-1/-2 (EN 50268-1/-2), VDE 0482-1034-1/-2 (VDE 0482-268-1/-2) |
| Circuit integrity (FE180) | IEC 60331-11/-23 (180 minutes), VDE 0472 part 814, EN 50200, VDE 0482-200 |
| System Circuit integrity E30 | DIN 4102 part 12, NBN 713.020 |

| Article No. | Colour | No. of cores x conductor diameter | Cu content | Total weight | Outer diameter | Fire load |
|-------------|--------|-----------------------------------|------------|--------------|----------------|-----------|
| | | | | | | |
| 188 377 | red | 1 x 2 x 0.80 | 15 | 40 | 5.5 | 0.095 |
| 188 374 | red | 2 x 2 x 0.80 | 25 | 56 | 6.0 | 0.123 |
| 188 375 | red | 4 x 2 x 0.80 | 45 | 96 | 8.7 | 0.21 |
| 188 376 | orange | 1 x 2 x 0.80 | 15 | 40 | 5.5 | 0.095 |
| 188 318 | orange | 2 x 2 x 0.80 | 25 | 56 | 6.0 | 0.123 |
| 188 325 | orange | 4 x 2 x 0.80 | 45 | 96 | 8.7 | 0.21 |

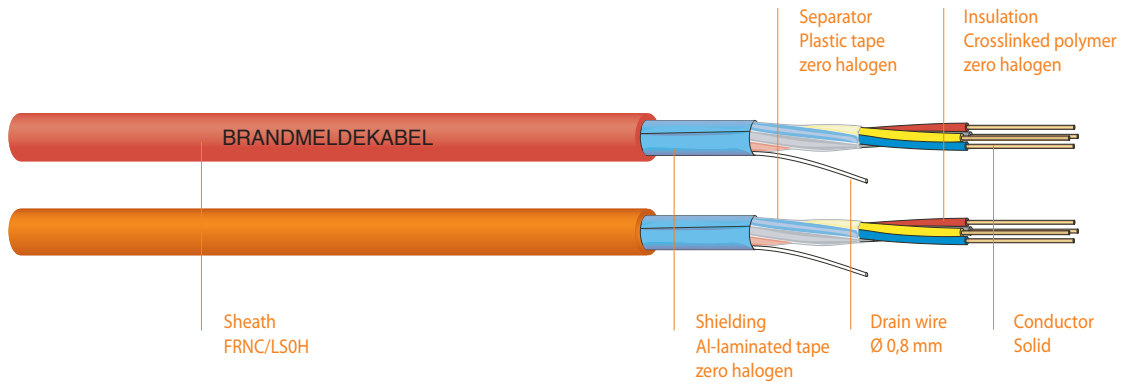
Additional dimensions available on request.

pyrofil® Keram JE-H(St)H...Bd FE180 E30-E90

Fire alarm cable max. 225V

Halogen-free, with improved fire characteristics, with reference to VDE 0815
 Circuit integrity (FE180) in accordance with VDE 0472-814, IEC 60331, EN 50200
 System Circuit integrity E30-E90* in accordance with DIN 4102-12

Dätwyler Cables



Product information

Application

Safety cables are used in all situations that require special protection against fire and flame damage for people and equipment and where a high degree of safety conditions 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 E30-E90* in accordance with DIN 4102-12. System circuit integrity is guaranteed at an operating voltage up to 110V. Permitted operating temperature at conductor +70°C.

Construction

| | |
|---------------|--|
| Conductor | Bare copper, solid, 0.8mm diameter, according to VDE 0815 |
| Insulation | Fire-resistant, crosslinked, high-performance Keram special-compound in accordance with VDE 0266 „HXI 1“ |
| Core colours | According to VDE 0815, bundles identified by numbered tape |
| Separator | PEPT "Plastic Tape" |
| Shielding | Al-laminated tape with tinned copper drain wire Ø 0.8mm |
| Outer sheath | Flame retardant polyolefin compound according to VDE 0819 part 107, EN 50290-2-27 and VDE 0250-214 „HM 2“ |
| Sheath colour | red or orange |
| Imprint | DAETWYLER PYROFIL KERAM „BRANDMELDEKABEL“ JE-H(ST)H...BD FE180 E30-E90 „N X 2 X MM“ VDE REG. NO.9361 „ORDER NO.“ „METRE MARKING“ |

Electrical Properties

| | |
|-----------------------|---|
| Insulation resistance | min. 100 MΩ x km |
| Loop resistance | max. 73.2 Ω/km at 0.80 mm |
| Capacitance unbalance | max. 120 nF/km at 800 Hz |
| Kapazitive Kopplung | K max. 200 pF/100m at 800 Hz |
| Rated volage | max. 225 V |
| Test voltage | 500 V, 50 Hz Core/Core 2000 V, 50Hz, Core/Screen |

General Properties

| | | |
|------------------------|------------------------|------------------------------|
| Minimum bending radius | during installation | 7,5 x D (D = outer diameter) |
| | permanent installation | 2,5 x D |
| Crush resistance | | ≥ 1000 N/10 cm |
| Impact | | ≥ 10 Impacts |
| Operating temperature | permanent installation | -30°C to +70°C |
| | during installation | -5°C to +50°C |

| | | |
|--|---------------------------------------|---|
| | Zero halogen | IEC 60754-2, EN 50267-2-2, non corrosive gases |
| | Flame retardant | VDE 0482-267-2-2, IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2 |
| | Fire resistant (no flame propagation) | IEC 60332-3-22/-24 Cat. A/C, EN 50266-2-2/-4 Cat. A/C, VDE 0482-266-2-2/-4 Cat. A/C |
| | Minimum smoke emission | IEC 61034-1/-2, EN 61034-1/-2 (EN 50268-1/-2), VDE 0482-1034-1/-2 (VDE 0482-268-1/-2) |
| | Circuit integrity (FE180) | IEC 60331-11/-23 (180 minutes), VDE 0472 part 814, EN 50200, VDE 0482-200 |
| | System Circuit integrity E30-E90* | DIN 4102 part 12, NBN 713.020 (Rf 11/2) |

* Circuit integrity is dependent on installation method.

| Article No. | Colour | No. of cores x conductor diameter | Cu content | | Total weight | | Outer diameter | Fire load |
|-------------|--------|-----------------------------------|------------|------------|--------------|-------|----------------|-----------|
| | | | kg/km | app. kg/km | app. mm | kWh/m | | |
| 188 093 | red | 1 x 2 x 0.80 | 15 | 40 | 5.5 | 0.095 | | |
| 188 098 | red | 2 x 2 x 0.80 | 25 | 56 | 6.0 | 0.123 | | |
| 188 101 | red | 4 x 2 x 0.80 | 45 | 96 | 8.7 | 0.21 | | |
| 188 103 | red | 8 x 2 x 0.80 | 85 | 218 | 13.7 | 0.52 | | |
| 188 105 | red | 12 x 2 x 0.80 | 126 | 270 | 14.6 | 0.58 | | |
| 188 109 | red | 20 x 2 x 0.80 | 206 | 403 | 18.0 | 0.80 | | |
| 188 092 | orange | 1 x 2 x 0.80 | 15 | 40 | 5.5 | 0.095 | | |
| 188 097 | orange | 2 x 2 x 0.80 | 25 | 56 | 6.0 | 0.123 | | |
| 188 099 | orange | 4 x 2 x 0.80 | 45 | 96 | 8.7 | 0.21 | | |
| 188 102 | orange | 8 x 2 x 0.80 | 85 | 218 | 13.7 | 0.52 | | |
| 188 104 | orange | 12 x 2 x 0.80 | 126 | 270 | 14.6 | 0.58 | | |
| 188 108 | orange | 20 x 2 x 0.80 | 206 | 403 | 18.0 | 0.80 | | |

Additional dimensions available on request.

Dätwyler Cables

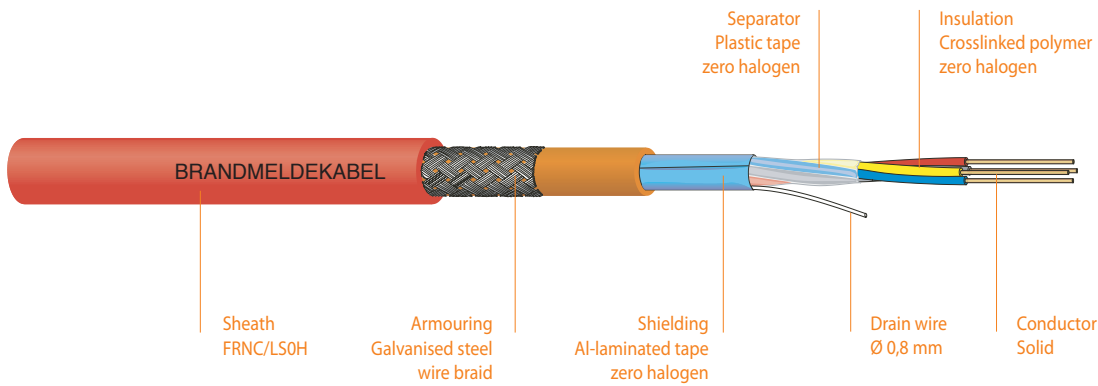
pyrofil® Keram JE-H(St)HRH...Bd FE180 E30-E90

Fire alarm cable with steel wire braiding max. 225V

Halogen-free, with improved fire characteristics, with reference to VDE 0815

Circuit integrity (FE180) in accordance with VDE 0472-814, IEC 60331, EN 50200

System Circuit integrity E30-E90* in accordance with DIN 4102-12



Application

Safety cables are used in all situations that require special protection against fire and flame damage for people and equipment and where a high degree of safety conditions must be fulfilled. Suitable for indoor applications. For outdoor applications, protection must be provided against exposure to direct sunlight.

The fire alarm cables correspond to the demands of system circuit integrity E30-E90* in accordance with DIN 4102-12. System circuit integrity is guaranteed at an operating voltage up to 110V.

The steel wire braiding serves as a form of mechanical protection. Permitted operating temperature at conductor of +70°C.

Construction

| | |
|---------------|--|
| Conductor | Bare copper, solid, 0.8mm diameter, according to VDE 0815 |
| Insulation | Fire-resistant, crosslinked, high-performance Keram special-compound in accordance with VDE 0266 „HXI 1“ |
| Core colours | According to VDE 0815, bundles identified by numbered tape |
| Separator | PEPT "Plastic Tape" |
| Shielding | Al-laminated tape with tinned copper drain wire Ø 0.8mm |
| Inner sheath | Flame retardant polyolefin compound according to VDE 0819 part 107, EN 50290-2-27 and VDE 0250-214 „HM2“ |
| Armouring | Galvanised steel wire braid |
| Outer sheath | Flame retardant polyolefin compound according to VDE 0819 part 107, EN 50290-2-27 and VDE 0250-214 „HM 2“ |
| Sheath colour | red |
| Imprint | DAETWYLER PYROFIL KERAM „BRANMELDEKABEL“ JE-H(ST)HRH...BD FE180 E30-E90 „N X 2 X MM“ „ORDER NO.“ „METRE MARKING“ |

Electrical Properties

| | |
|-----------------------|---|
| Insulation resistance | min. 100 MΩ x km |
| Loop resistance | max. 73.2 Ω/km at 0.80 mm |
| Capacitance unbalance | max. 120 nF/km bei 800 Hz |
| Kapazitive Kopplung | K max. 200 pF/100m at 800 Hz |
| Rated volage | max. 225 V |
| Test voltage | 500 V, 50 Hz Core/Core 2000 V, 50Hz, Core/Screen |

General Properties

| | | |
|------------------------|------------------------|------------------------------|
| Minimum bending radius | during installation | 7,5 x D (D = outer diameter) |
| | permanent installation | 2,5 x D |
| Crush resistance | | ≥ 1000 N/10 cm |
| Impact | | ≥ 10 Impacts |
| Operating temperature | permanent installation | -30°C to +70°C |
| | during installation | -5°C to +50°C |

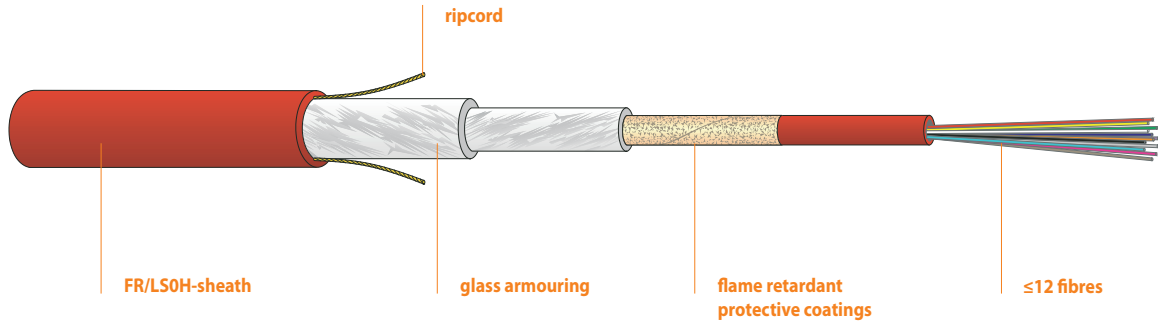
| | |
|---------------------------------------|---|
| Zero halogen | IEC 60754-2, EN 50267-2-2, VDE 0482-267-2-2 |
| Flame retardant | IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2 |
| Fire resistant (no flame propagation) | IEC 60332-3-22/-24 Kat. A/C, EN 50266-2-2/-4 Kat. A/C, VDE 0482-266-2-2/-4 Kat. A/C |
| Minimum smoke emission | IEC 61034-1/-2, EN 61034-1/-2 (EN 50268-1/-2), VDE 0482-1034-1/-2 (VDE 0482-268-1/-2) |
| Circuit integrity (FE180) | IEC 60331-11/-23 (180 minutes), VDE 0472 Teil 814, EN 50200, VDE 0482-200 |
| System Circuit integrity E30-E90* | DIN 4102 Teil 12 |

* Circuit integrity is dependent on installation method.

| Article No. | No. of cores x conductor diameter | | | Cu content | Total weight | Outer diameter | Fire load |
|-------------|-----------------------------------|---|----------|------------|--------------|----------------|-----------|
| | n | x | x mm | | | | |
| 191 598 | 1 | x | 2 x 0.80 | 15 | 94 | 8.3 | 0.23 |
| 188 119 | 2 | x | 2 x 0.80 | 25 | 117 | 9.0 | 0.26 |
| 188 120 | 4 | x | 2 x 0.80 | 45 | 179 | 11.7 | 0.39 |
| 188 127 | 8 | x | 2 x 0.80 | 85 | 404 | 18.0 | 0.93 |
| 188 128 | 12 | x | 2 x 0.80 | 126 | 466 | 18.9 | 1.01 |
| 191 070 | 16 | x | 2 x 0.80 | 166 | 550 | 20.3 | 1.16 |
| 188 129 | 20 | x | 2 x 0.80 | 206 | 640 | 22.3 | 1.32 |
| 188 346 | 32 | x | 2 x 0.80 | 326 | 877 | 26.5 | 1.72 |

Additional dimensions available on request.

optofil®-ZGGFR-Safety / U-DQ(ZN)BH
 Life safety cable for indoor and outdoor use
 nonmetallic, water resistant, rodent protected,
flame redardant to IEC 60332.1 and IEC 60332.3 C
functional integrity according to DIN 4102-12 30 Min. (E30)



Product information

Features

Fibre-optic safety cable in metal-free central tube design with up to twelve fibres.
 The optimum matching of fibre coating and flame-inhibiting stabilizing elements ensures functional integrity for 30 minutes.

Application

Safety application in tunnels, underground railways, banks, insurance companies, large scale industry LAN Backbone
 Indoor and outdoor use can be laid on cable platforms, parapet ducts and vertical shafts can be spliced in cable terminal distributors

Optical characteristics

The cables are available with different types of Optofil-Safety fibre (see fibre data sheets)

Mechanical characteristics

| | | |
|---------------------|------------|-------------------|
| temperature range | storage | -25 / +70°C |
| | | IEC 60794-1-2 F1 |
| | pulling in | -10 / +50°C |
| | operation | -25 / +60°C |
| tensile performance | | IEC 60794-1-2 E1 |
| crush resistance | | IEC 60794-1-2 E3 |
| repeated bending | | IEC 60794-1-2 E6 |
| torsion | | IEC 60794-1-2 E7 |
| bend | | IEC 60794-1-2 E11 |
| water penetration | | IEC 60794-1-2 F5 |

General characteristics

Printing example DÄTWYLER OPTOFIL SAFETY 12E9
 G.652D FR/LSOH
 K-Nr. 10865 ~ ~ 2480 m ~ ~

- Zero halogen, non corrosive gases IEC 60754-1/-2, EN 50267-2-1/-2-2, VDE 0482-267-2-1/-2-2
- Flame retardant IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2
- Fire resistant (no flame propagation) IEC 60332.3 C, EN 50266-2-4, VDE 0482-266-2-4
- Minimum smoke emission IEC 61034-1/-2, EN 61034-1/-2 (EN 50268-1/-2), VDE 0482-1034-1/-2 (VDE 0482-268-1/-2)
- Circuit integrity (FE180) IEC 60331, VDE 0472 part 814, EN 50200, EN 50362, VDE 0482-200, VDE 0482-362
- System Circuit integrity E30* IEC 60794-1-2 E11 according to DIN 4102 part 12
 *Circuit integrity is dependent on installation method.

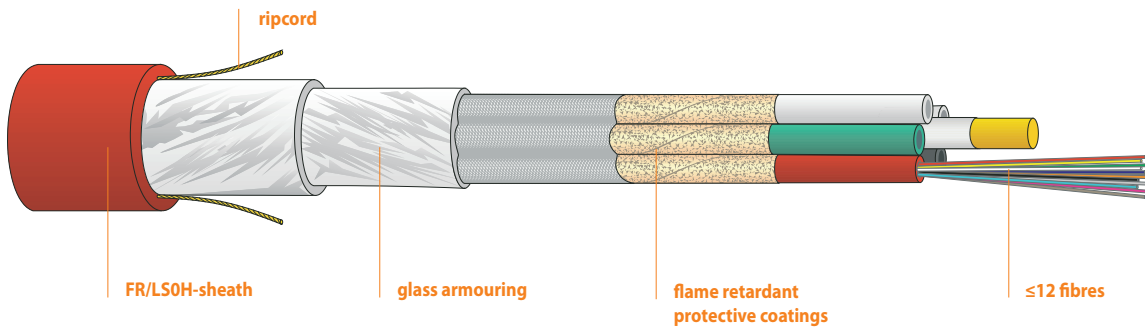
| description | no. of fibres | loose tube | cableØ | weight | bending radius | tensile load | crush resistance | | Fire load | |
|----------------|---------------|------------|--------|--------|----------------|--------------|------------------|-----------------|-----------|-------|
| | | | | | | | continuous N/cm | short term N/cm | kWh/km | MJ/km |
| U-DQ(ZN)BH 1xm | max. | max. | mm | kg/km | mm | N | | | | |
| ZGGFR-Safety | 1x12 | 12 | 7.8 | 72 | 120 | 1000 | 200 | 500 | 301 | 1084 |

| U-DQ(ZN)BH 1xm | fibre | Article No. | Article No. | Article No. | Article No. |
|----------------|--------|----------------|-------------|-------------|---------------|
| description | number | E9/125 G.652.D | G50/125 OM2 | G50/125 OM3 | G62.5/125 OM1 |
| ZGGFR-Safety | 1x4 | 187 288 | 186 363 | 190 604 | 186 638 |
| ZGGFR-Safety | 1x6 | on request | 186 639 | on request | 190 792 |
| ZGGFR-Safety | 1x8 | on request | 190 621 | on request | on request |
| ZGGFR-Safety | 1x12 | 190 719 | 187 293 | on request | 187 305 |

Dätwyler Cables

optofil®-wbGGFR-Safety / U-DQ(ZN)BH

Life safety cable for indoor and outdoor use
 nonmetallic, water resistant, rodent protected,
 flame retardant to IEC 60332.1 and IEC 60332.3 C
 functional integrity according to DIN 4102-12 30 Min. (E30)



Features

Fibre-optic safety cable in metal-free central tube design with up to twelve fibres. The optimum matching of fibre coating and flame-inhibiting stabilizing elements ensures functional integrity for 30 minutes.

Application

Safety application in tunnels, underground railways, banks, insurance companies, large scale industry LAN Backbone
 Indoor and outdoor use can be laid on cable platforms, parapet ducts and vertical shafts can be spliced in cable terminal distributors

Optical characteristics

The cables are available with different types of Optofil-Safety fibre (see fibre data sheets)

Mechanical characteristics

| | | |
|---------------------|----------------------|---------------------------------|
| temperature range | storage | -25 / +70°C IEC 60794-1-2 F1 |
| | pulling in operation | -10 / +50°C -25 / +60°C |
| tensile performance | | IEC 60794-1-2 E1 |
| crush resistance | | IEC 60794-1-2 E3 |
| repeated bending | | IEC 60794-1-2 E6 |
| torsion | | IEC 60794-1-2 E7 |
| bend | | IEC 60794-1-2 E11 |
| water penetration | | IEC 60794-1-2 F5 |

General characteristics

Printing example DÄTWYLER OPTOFIL SAFETY
 60E9 G.652D FR/LSOH
 K-Nr. 10865 ~ ~ 2480 m ~ ~

| | |
|---------------------------------------|--|
| Zero halogen, non corrosive gases | IEC 60754-1/-2, EN 50267-2-1/-2-2, VDE 0482-267-2-1/-2-2 |
| Flame retardant | IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2 |
| Fire resistant (no flame propagation) | IEC 60332.3 C, EN 50266-2-4, VDE 0482-266-2-4 |
| Minimum smoke emission | IEC 61034-1/-2, EN 61034-1/-2 (EN 50268-1/-2), VDE 0482-1034-1/-2 (VDE 0482-268-1/-2) |
| Circuit integrity (FE180) | IEC 60331, VDE 0472 part 814, EN 50200, EN 50362, VDE 0482-200, VDE 0482-362 |
| System Circuit integrity E30* | according to DIN 4102 part 12 *Circuit integrity is dependent on installation method. |

| description | U-DQ(ZN)BH nxm | no. of fibres | loose tube | cableØ | weight | bending radius | tensile load | crush resistance | | Fire load | |
|------------------------|----------------|---------------|------------|--------|--------|----------------|--------------|------------------|-------|-----------|------|
| | | | | | | | | mm | kg/km | mm | N |
| optofil®-wbGGFR-Safety | 2x12 | 24 | 2 | 12.5 | 166 | 190 | 6000 | 300 | 500 | 733 | 2639 |
| optofil®-wbGGFR-Safety | 3x12 | 36 | 3 | 12.5 | 168 | 190 | 6000 | 300 | 500 | 733 | 2639 |
| optofil®-wbGGFR-Safety | 4x12 | 48 | 4 | 12.5 | 170 | 190 | 6000 | 300 | 500 | 733 | 2639 |
| optofil®-wbGGFR-Safety | 5x12 | 60 | 5 | 12.5 | 166 | 190 | 6000 | 300 | 500 | 733 | 2639 |

| description | U-DQ(ZN)BH nxm | fibre | Article No. | Article No. | Article No. | Article No. |
|------------------------|----------------|-------|-------------|-------------|-------------|-------------|
| | | | | | | |
| optofil®-wbGGFR-Safety | 2 x 12 | 24 | 190 223 | 187 294 | 187 360 | on request |
| optofil®-wbGGFR-Safety | 3 x 12 | 36 | 190 224 | on request | on request | on request |
| optofil®-wbGGFR-Safety | 4 x 12 | 48 | 190 225 | on request | 191 191 | on request |
| optofil®-wbGGFR-Safety | 5 x 12 | 60 | 190 226 | on request | 190 605 | on request |

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