

TECHNICAL INFORMATION

MATERIALS

INSULATION MATERIALS

XLPE

Cross-linked polyethylene compound. Excellent mechanical and electrical characteristics

PE

Polyethylene thermoplastic compound

SHEATHING MATERIALS

LSZH THERMOPLASTIC

Low smoke zero halogen thermoplastic compound. Flame retardant and self-extinguishing in the event of fire.

SHF1

LSZH thermoplastic. Low smoke zero halogen thermoplastic compound. Flame retardant and self-extinguishing in the event of fire.

SHF2

Crosslinked thermoset plastic. Low smoke zero halogen cross-linked thermoset oil-resistant compound. Flame retardant and self-extinguishing in the event of fire.

MARKING ON THE SHEATH

Lot number, Cable type, Cable size (number of cores x size of conductors mm²), Voltage, Temperature, Standards, Manufacturer's name, Production month and year, Meter marking.

TESTS AND DEFINITIONS OF TERMS

CPR CABLE CLASSIFICATION

B2ca, Cca, Dca, Eca
Analyses the reaction of electrical cables to fire. Four classes apply directly to electrical cables, classified according to their flame spread and heat release.

ADDITIONAL CLASSIFICATION LEVELS: s, d, a

Three additional CPR classification levels refer to:
s = smoke The opacity and amount of smoke produced
d = droplets The flaming droplets released by the cable during combustion
a = acidity The acidity of the smoke

HALOGEN-FREE

Halogen-free refers to the absence of halogens, such as chlorine and fluorine. Determined on the basis of the halogen content and the acidity of cable's gases.

Halogen-free IEC 60754-series consists of standards IEC 60754-1 and IEC 60754-2.

IEC 60754-1

Determines halogen content of material. Halogen content of material may not exceed 0.5% or 5 mg/g.

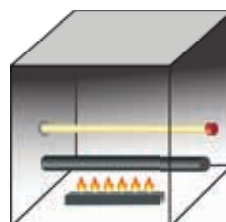
IEC 60754-2

Determines degree of acidity of combustion gases. Limit values > 4.3 for pH and < 10 µS/mm for conductivity.

SMOKE EMISSION

IEC 61034-1, IEC 61034-2

Smoke emission refers to visibility in a fire. Greater light transmittance means better visibility. Smoke Emission IEC 61034-series consists of standards IEC 61034-1 and IEC 61034-2.



27 m³ cube smoke chamber

Requirements: 60% light transmittance

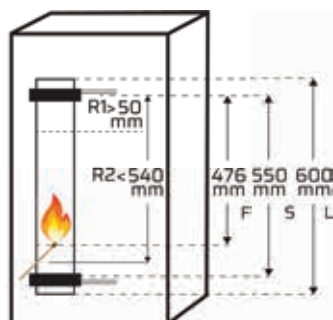
FIRE PERFORMANCE

IEC 60332-1, IEC 60332-3

Cables must withstand the test specified in IEC standard 60332-3 or IEC 60332-1. Flame-retardant cables do not propagate fire and are self-extinguishing.

IEC 60332-1

Test for single cable. Test procedure and requirements according to picture below.

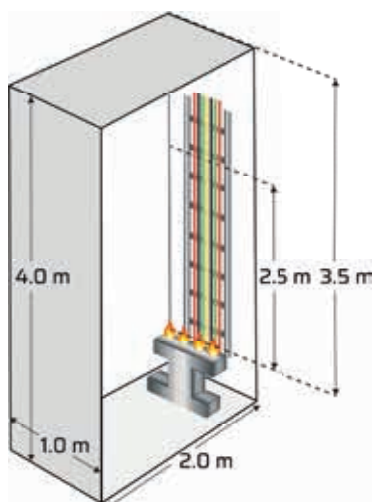


Min. 50 mm of the cable, measured from upper support, must remain unburned after specified time.

IEC 60332-3

Test for bunched cables with three categories - A, B and C. Categories are defined by different limits for flammable material and burning times. Cables must extinguish themselves once the burner has been removed.

Test procedure and requirements according to picture below.



Burning allowed up to max. 2.5 meters from the burner within specified time.

FIRE-RESISTANT

Helmacab fire-resistant cables are also flame-retardant.

IEC 60331-21

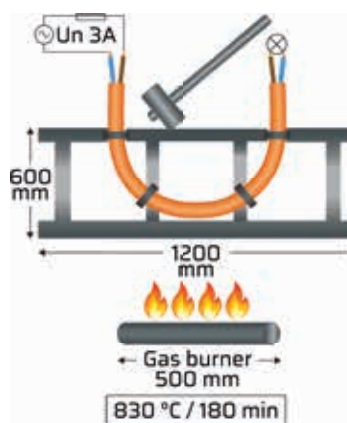
Cables must operate for min. 90 minutes while subjected to fire from burner.

IEC 60331-25

Cables must operate for min. 180 minutes while subjected to fire from burner.

IEC 60331-1

Test method for fire with shock at a temperature of min. 830 °C for 180 minutes for cables with rated voltage up to and including 0.6/1.0 kV, and with $\varnothing > 20$ mm.



IEC 60331-2

Test method for fire with shock at a temperature of min. 830 °C for 180 minutes for cables with rated voltage up to and including 0.6/1.0 kV, and with $\varnothing < 20$ mm.

