SZ1-K (AS+) / RZ1-K (AS+)
FIRE RESISTANT ENERGY CABLES

Safety Solutions With The High Quality

erse

SZ1-K (AS+) / RZ1-K (AS+)
FIRE RESISTANT ENERGY CABLES

Application

The first way of preventing and minimizing the loss of life and property costs, passes by eliminating or reducing facts that can cause fires. It shouldn't be forgotten that the golden rule of fire protection is preventing fire eruption rather than extinguishing it.

The reaction and resistance to fire characteristics of the materials which are used in cables in construction products and the one that is basic of electrical systems, came into prominence.

Cables keep operating at possible fire moment, providing continuity and minimizing the emission of harmful, poisonous gases which negatively affect human health as much as possible, producing the reaction and resistance to fire class with high grade materials, become even more important for safety of life and property.

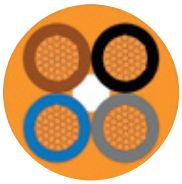
SZ1-K (AS+) and RZ1-K (AS+) cables are used as a power cable;

* Machine and equipment that are required to continue its function during a fire, (emergency elevators, fire water pumps etc.)
* Ventilation systems are which are connected to fire alarm system,
* In emergency lighting at fire escape exits,
* Emergency power supplies,
* In places where human life and valuable materials and equipment need to be protected: hospitals, schools, museums, airport, bus terminals, shops in general, tunnels, the underground, etc., as well as in calculation centres, offices, production plants, laboratories, etc.

Standards and Approvals

- SZ1-K (AS+) and RZ1-K (AS+) cables are designed as 0,6/1 kV low voltage energy cables according to IEC 60502-1 standard with performance of fire reaction of Cca class according to EN 50575 and fire resistance of EN 50200 - PH120.
- EN 50200/EN 60331-1 Class PH120 and IEC 60331-21 fire resistance tests and EN/IEC 60332-3 Part 24 (Cat. C) flame retardant test are approved and certified by CEIS Laboratory.
- The cables are certified for fire reaction according to EN 50575 under CPR by AENOR. Euro Class: Cca-s1a,d1,a1 (EN 50399, EN 60332-1-2, EN 61034-2, EN 60754-2)

SZ1-K (AS+) FIRE RESISTANT ENERGY CABLES



THE REACTION AND RESISTANCE TO FIRE CHARACTERISTIC / LOW SMOKE EMISSION / WITHOUT POISONED AND CORROSIVE GASES / CIRCUIT INTEGRITY 180 MINUTES / CIRCUIT INTEGRITY WITH MECHANICAL SHOCK PH120 / FIRE REACTION CLASS Cca-s1a,d1,a1

CPR CE

CONSTRUCTION

Conductor	EN 60228 Class 5 Stranded Electrolytic Plain Copper
Insulation	Special, Fire Resistant Silicone Rubber Type EI2 to EN 50363-1
Insulation Colour	HD 308 S2
Stranding	In Layers of Optimum Pitch
Sheath	HFFR Compound According to IEC 60502-1
Sheath Colour	RAL2003 Orange
Available Sections	from 1,5 to 50 mm²

COLOUR CODED ACC. TO HD 308 S2

1 Cores		Black					
2 Cores		Blue	Brown				
3 Cores	**JB**	Yellow / Green	Blue	Brown			
	OB	Brown	Black	Grey			
4 Cores	**JB**	Yellow / Green	Brown	Black	Grey		
	OB	Blue	Brown	Black	Grey		
5 Cores	**JB**	Yellow / Green	Blue	Brown	Black	Grey	
	OB	Blue	Brown	Black	Grey	Black	

TECHNICAL CHARACTERISTICS

Working Voltage	0,6/1 kV
Test Voltage	4000 V
Minimum Bending Radius	12 x Ø
Working Temperature	-40°C ~+90°C (Fixed Laying)
Short Circuit Temperature	+250ºC
Insulation Resistance	100 MΩ x km

RZ1-K (AS+) FIRE RESISTANT ENERGY CABLES

THE REACTION AND RESISTANCE TO FIRE CHARACTERISTIC / LOW SMOKE EMISSION / WITHOUT POISONED AND CORROSIVE GASES / CIRCUIT INTEGRITY 180 MINUTES / CIRCUIT INTEGRITY WITH MECHANICAL SHOCK PH120 / FIRE REACTION CLASS Cca-s1a,d1,a1

CPR CE

CONSTRUCTION

Conductor	EN 60228 Class 5 Stranded Electrolytic Plain Copper
Insulation	Mica Tape Wrapping and Cross-linked HFFR Compound
Insulation Colour	HD 308 S2
Stranding	In Layers of Optimum Pitch
Sheath	HFFR Compound According to IEC 60502-1
Sheath Colour	RAL2003 Orange
Available Sections	70 mm² and Above

COLOUR CODED ACC. TO HD 308 S2

1 Cores		Black					
2 Cores		Blue	Brown				
3 Cores	**JB**	Yellow / Green	Blue	Brown			
	OB	Brown	Black	Grey			
4 Cores	**JB**	Yellow / Green	Brown	Black	Grey		
	OB	Blue	Brown	Black	Grey		
5 Cores	**JB**	Yellow / Green	Blue	Brown	Black	Grey	
	OB	Blue	Brown	Black	Grey	Black	

TECHNICAL CHARACTERISTICS

Working Voltage	0,6/1 kV
Test Voltage	4000 V
Minimum Bending Radius	12 x Ø
Working Temperature	-40°C ~+90°C (Fixed Laying)
Short Circuit Temperature	+250ºC
Insulation Resistance	100 MΩ x km

FIRE PERFORMANCE TEST TECHNICAL INFORMATION

FIRE RESISTANCE TESTS

EN 50200 & EN 60331-1 (PH120)

A single piece of cable is attached to a special fibre glass wall with cable at the minimum bending radius. It is burned with the min. test temperature 830 °C propane burner. The rated tension values of the cable are applied on the conductors during the test. Every five minutes a mechanical shock of 25 kg is applied to the wall the cable is attached to. The tension values must be preserved during the test for at least 120 minute.

IEC 60331-21 (FE180)

It covers the test process and performance features, including the recommended flame application time for the cables, which are laid horizontally and are required to maintain the integrity of the circuit under a flame at 750 °C. Flame application time should be as specified in the relevant cable standard. It is generally requested as 180 minutes. Maintaining the voltage, e.g. no fuse blows or circuit breaker cut; It is considered to have the characteristics of ensuring circuit integrity provided that the conductor does not break, e.g. the lamp does not go out. If both are eligible, the experiment must be considered successful.

FLAME RETARDANT TESTS

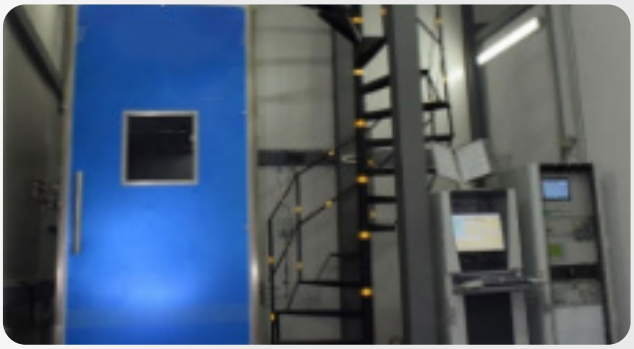
EN 60332-1-2

A sample cable of 600 mm will be fixed vertically in a metal chamber with exposed front side. A propane gas burner will be mounted in order to obtain a 45° angle with axis of the sample cable. The test time is dependent on the cable diameter. If the sample does not burn, or if the flame extinguishes itself, the test shall be deemed as successful.

EN IEC 60332-3-24 (Cat. C)

The test samples are mounted on a steel ladder. The total number of test pieces in the test sample shall be that number required to provide a nominal total volume of non-metallic material of 1,5 l/m of test sample. The steel ladder is placed on the rear part of a test chamber having a with of 1 m, a depth of 2 m and a height of 4 m. The test chamber should be ventilated by an air vent. The test flame is applied on the sample cable for 20 min. The test is passed if the flames extinguish on their own and no part of the samples is damaged over a length of 2,5 m.

FIRE REACTION TEST



EN 50399

The cable is exposed to a burner for a test time of 20 minutes. During this time the flame spread (FS) and burning droplets/particles (d) are observed and when the test is finished, fire damaged length is measured. Flue gases emitted during testing are collected for analysis and from these data the emitted fire effect and smoke formation can be calculated. (HRR-Heat release rate, THR-Total heat release, SPR-Smoke production rate, TSP-Total smoke production, FIGRA-Fire growth rate index) The burner's output is 20.5 or 30 kW, depending on which fire class the cable is expected to achieve. The cable to be tested is mounted in 3.5-meter lengths on a test ladder. During the fire test, the ladder with the cables is placed vertically against a wall in a combustion chamber.

ACID GAS EMISSION

EN 60754-2

This test indirectly allows measuring emission of corrosive gas by insulation and sheath compounds. It is possible to measure small quantities of halogens during measurement of the pH-value and the conductivity. In a 500-600 mm long furnace, at least 1g of insulation or sheath compound should be heated up to a temperature of 935 °C. Air flow will ensure that combustion gases pass through a bottle filled with purified water. The test is passed if the pH-values is lower than 4,3 and the electrical conductivity does not exceed 100 S/cm.

SMOKE DENSITY

EN 61034-2

The volume of test chamber is 27 m^3. The measurement system consists of a light source (a standard 100w halogen lamp) and a selenium or silicon photo-electric cell, both installed at a height of 2,15 m. A rectangular tray will be filled with alcohol. A ventilator is used to ensure the distribution of smoke. The length of the test samples is 1m. The number of test samples depends on the outer diameter. The samples should be attached horizontally above the tray which is filled with alcohol. The ventilator is started and the alcohol is ignited. Light intensity is recorded by a plotter which is connected to the photocell. The test is passed if the level of light transmission does not exceed the values of 80% (because of the CPR class "s1a") during the test.

AENOR

Certificate of constancy of performance

CE
0099

0099/CPR/B85/0754

In compliance with Construction Products Regulation 305/2011/EU of the European Parliament and of the Council, of 9 March 2011, the notified body AENOR (n. 0099) has issued this certificate to

ERSE KABLO SANAYI VE TICARET A.S.

registered office	HALIL RIFAT PASA MAHALLESI YÜZER HAVUZ SOKAK NO:5-9 34384 ISTANBUL (Sisli - Turkey)
Certified performance	Reaction to Fire of power electric cables for general applications in construction Works.
Harmonised Standard	EN 50575:2014 EN 50575:2014/A1:2016
Designation	SZ1-K (AS+)
Trade Mark	ERSE
Reaction to Fire Class	Cca-s1a,d1,a1
	See annex for more information.
Production site	ORTAKÖY SANAYI BÖLGESI, ELIF SOKAK NO:12 34592 ISTANBUL (Silviri - Turkey)
Certification scheme	This certificate attests that all provisions under system 1+ concerning the assessment and verification of performance of the declared reaction to fire and its constancy described in Annex ZZ of the harmonised standard are applied.
	This certificate will remain valid until its validity date, provided that the test methods and/or factory production control requirements included in the harmonised standard, used to assess the performance of the declared characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly.
First issued on	2021-09-21
Validity date	2024-09-21

Rafael GARCÍA MEIRO
Chief Executive Officer

Original Electronic Certificate

AENOR INTERNACIONAL S.A.U.
Génova, 6. 28004 Madrid. España
Tel. 91 432 60 00.- www.aenor.com

Control body accredited by ENAC. Accreditation number: 1/C-PR356

AENOR

Certificate of constancy of performance

0099/CPR/B85/0754

Annex to Certificate

Designation	SZ1-K (AS+)
Trade Mark	ERSE
Reaction to Fire Class	Cca-s1a,d1,a1

Cross-sectional Range	Rated Voltage	Generic Power Cable Family
From 2x1,5 mm^2 to 2x50 mm^2; From 3x1,5 mm^2 to 3x50 mm^2; From 4x1,5 mm^2 to 4x50 mm^2; From 5x1,5 mm^2 to 5x50 mm^2.	0,6/1 kV	Multicore sheathed (unarmoured)
1x16 mm^2; 1x25 mm^2; 1x35 mm^2; 1x50 mm^2.	0,6/1 kV	Single core sheathed (unarmoured)

First issued on	2021-09-21
Validity date	2024-09-21

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Génova, 6. 28004 Madrid. España
Tel. 91 432 60 00.- www.aenor.com

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AENOR

Certificate of constancy of performance

CE
0099

0099/CPR/B85/0753

In compliance with Construction Products Regulation 305/2011/EU of the European Parliament and of the Council, of 9 March 2011, the notified body AENOR (n. 0099) has issued this certificate to

ERSE KABLO SANAYI VE TICARET A.S.

registered office	HALIL RIFAT PASA MAHALLESI YÜZER HAVUZ SOKAK NO:5-9 34384 ISTANBUL (Sisli - Turkey)
Certified performance	Reaction to Fire of power electric cables for general applications in construction Works.
Harmonised Standard	EN 50575:2014 EN 50575:2014/A1:2016
Designation	RZ1-K (AS+)
Trade Mark	ERSE
Reaction to Fire Class	Cca-s1a,d1,a1
Cross-sectional Range	1x70 mm^2; 1x95 mm^2; 1x120 mm^2; 1x150 mm^2; 1x185 mm^2; 1x240 mm^2; 1x300 mm^2.
Rated Voltage	0,6/1 kV
Generic Power Cable Family	Single core sheathed (unarmoured)
Production site	ORTAKÖY SANAYI BÖLGESI, ELIF SOKAK NO:12 34592 ISTANBUL (Silviri - Turkey)
Certification scheme	This certificate attests that all provisions under system 1+ concerning the assessment and verification of performance of the declared reaction to fire and its constancy described in Annex ZZ of the harmonised standard are applied. This certificate will remain valid until its validity date, provided that the test methods and/or factory production control requirements included in the harmonised standard, used to assess the performance of the declared characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly.
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