

## FIRE SURVIVAL

Discover New Generation  
Fire Survival Wires and Cables



QMS-ISO 9001  
EMS-ISO 14001  
OHSMS-ISO 45001



## RALLISON FIRE MASTER FIRE SURVIVAL WIRES AND CABLES



LK3  
GROUP

## Introduction

Rallison began its journey thirty five years ago with a definite purpose - to offer safe and customer-friendly electrical products that would give complete peace of mind to the customers. In twenty five years, many more things have evolved and most notable among them has been the emergence of the brand Rallison - surely a brand to reckon with in contemporary electrical products. But the objective hasn't changed a bit. Rallison state of the art facility quadruples the production capacity enable us to give better service to its customers.

Rallison is committed to providing the customer with total quality. Rallison's quality management system conforms to ISO 9001 :2015 standards and certified by British Standard Institution who are an internationally recognized authority accredited in the UK and throughout the world.

Rallison is proud to be the first cable manufacturer in the region to achieve certification to Integrated Management System PAS:99, ISO 14001, the International Environmental Management Standard and OHSMS 45001. The Occupational Health & Safety Management System by British Standard Institution.

Optimum cable performance can be provided by us, with access to the latest developments in conductor, insulation and protective materials technology. In addition, Rallison's knowledge of application requirements is an assurance of high performance.

Rallison is providing special features, like Low Smoke and Zero Halogen, reduced flame propagation characteristics, resistance against damage from rodents & termites and Fire Survival Cables as per requirement of customer.

Our experienced Technical Staff can provide guidance on cable selection and installation and can ensure that you get the right cable for the job.

## Award & Recognition

- National Award for Quality: We have received the prestigious National Award for Quality in Cables on 30.08.2003 being the first Company to get National Award from Govt. of India, Ministry of Small Scale Industries. The Award was presented by **Sh. Bharon Singh Shekhawat, Hon'ble Vice President of India.**
- Cable Man of the Year-2007: Our Managing Director **Sh. Lalit Babbar** has been awarded "Cable Man of the Year-2007" by **Dr. A.R. Kidwai, Hon'ble Governor of Haryana.**
- Outstanding Entrepreneur Award, 2008: Our Managing Director **Sh. Lalit Babbar** has been awarded prestigious "Outstanding Entrepreneur Award, 2008". The award was presented by **Dr. Manmohan Singh, Hon'ble Prime Minister of India.**
- National Award for Research & Development, 2012: Our Managing Director **Sh. Lalit Babbar** has been awarded prestigious "Research & Development Medium Enterprises, 2012" The award was presented by **Dr. Manmohan Singh, Hon'ble Prime Minister of India.**
- We have developed a Fire Survival Cable with an Aluminum conductor for the **first time in the world.**
- We are the only company in India having the **IS :16246** (Certification for Fire Survival Cables).
- **IS :16246** is mandatory as per NBC clause 2016.



## What is a fire survival cable/wire ?

A cable / wire that will continue to operate in the presence of fire keeping all critical systems running for necessary time and at the same time not propagate flame, generate very less smoke, less toxic & corrosive gases, thus saves the life of people in Tunnels & Buildings.

## Rallison Fire Master Fire Survival Wires and Cables

All modern buildings, whether they are domestic, commercial or industrial, a large quantity of wires and cables are installed for providing energy, information and control and are distributed throughout the building in ducts, tunnels and in basement and ceiling cavities, linking every part of the building

Electric cables are able to propagate fire along their length and allow rapid spreading of fire throughout the cable network and the associated buildings

In addition to the spread of fire, the generation of Smoke and gases liberated by the fire, contain toxic and corrosive elements causing harm to both people and equipment.

Rallison has designed, tested and supplied for the **first time in the world, Fire Survival Cables with Aluminum Conductor** with circuit integrity of more than three hours under fire with temperatures up to 950°C. Rallison has also developed Fire Survival Wires with circuit integrity up to 950°C and as per CWZ category of BS: 6387.

## Validation of Design

1. Central Power Research Institute (CPRI), Bangalore.
2. Building Research Establishment Ltd. (BRE Global), U.K.

## Rallison Fire Master Fire Survival Cable is designed to meet :

Fire Performance

Flame Ignition and Flame Spread

Circuit Integrity

—» Diminish the opportunity for fire to ignite and spread.

—» Assure operation of electrical system.

Products of Combustion

Smoke Generation

Corrosivity

Toxicity

—» Enable occupants to see escape path.

—» Lessen likelihood of damage to sensitive equipments.

—» Less Carbon Monoxide. Less hazardous to human life.

## Rallison Fire Master Fire and Cables are generally conforming to :

Standards IS, BS, BSEN & IEC Standards

Circuit Integrity Test Category

BS: 7846 : 2015	- Non Screened FS Power And Control Cables 600/1000v	- F2 ie F-120 , & C , W , Z
BS: 6387 : 2013	- All Cables having 20 mm Maximum overall Diameter	- C , W , Z
BS EN : 50200 : 2005	- Method of Test for Resistance to fire of unprotected small cables for use in emergency circuits. All Cables screened or unscreened having 20 mm Maximum overall Diameter.	- Duration of survival Maximum 120 Minutes 120
BS : 8491 : 2008	- Non Screened FS Power And Control Cables Having Cable Diameter Exceeding 20 Mm 600/1000v	- PH 120

<b>BS : 7629-1 : 2008</b>	- Specification for 300/500 V , fire resistant screened cables having low emission of smoke and corrosive gases when affected by fire. All Cables having 20 mm Maximum overall Diameter, Test Method BS: 50200 : 2005	<b>- PH 30</b>
<b>BS : 8434 Part-2 : 2009</b>	- Test for unprotected small cables for use in emergency circuits - BSEN 50200 with a 930°C flame and with Water spray 60 Minutes for fire and impact phase followed by additional 60 Minutes for the fire , impact and water phase.	<b>- PH 120</b>
<b>IEC : 60331 -1-2</b>	- All Cables screened or unscreened having 20 mm Maximum overall Diameter	<b>- Test Category 750°C for 2 Hours</b>
<b>IEC : 60331 -2-2</b>	- All Cables screened or unscreened having 20 mm Maximum overall Diameter	<b>- Test Category 750°C for 2 Hours</b>
<b>IS: 16246:2015</b>	- Elastomeric Insulated And Sheathed Armoured FS Cables 1.1 Kv Grade	<b>- Test Category 750°C for 3 Hours</b>
<b>IS: 17505</b>	- 1100 volts grade Non Screened Fire Survival Cables with thermosetting insulation and Low Smoke Zero Halogen sheath including mining cable circuit integrity test.	<b>- FWS , F3 , F120</b>

**ARMOURING****FIRE SURVIVAL TEST****TYPE TEST LABORATORY**

## Product Range

- Almost all types of cables can be designed for Fire Survival option:
- Power Cables with Al Conductor : Up to 1000 sqmm
- Power Cables with Cu Conductor : Up to 1000 sqmm
- Control and Instrumentation Cables : Any No. of Core/Pairs/Triads/Quads
- Building Wires : Any Size

## Rallison Fire Master Wires/Cables :

- World's first Fire Survival (FS) cable with Aluminum conductor.
- India's first Fire Survival (FS) Building Wire.
- No Overheating.
- Resistant to Fire.
- Circuit Integrity during fire, assuring operation of system.
- Minimize the Emission of toxic Fumes for safeguard of human life.
- Does not emit Corrosive Gases which lessens likelihood of damage to sensitive equipment.
- Low Smoke allows humans for rapid evacuation and breath safely for longer.
- Low Smoke improves visibility and safety for Emergency Services.
- Less flame spread diminishes spread of fire.
- Pliable - Very flexible construction that makes the installation very easy in all conditions.
- Easy to install with low cost - No special tools and special training is required.
- Customized design - Cables can be manufactured with special features according to customer requirements.



## COMPARATIVE PROPERTIES ARE EXPLAINED BY THE FOLLOWING CHART:

Component	Normal PVC Sheathed Cables	Fire Retardant (FR) PVC Sheathed Cables	Flame Retardant with Reduced Halogen and Smoke (FR-LSH) or (FRLS) PVC Sheathed Cables	Low Smoke Zero Halogen (LSZH) Cables	Fire Survival (FS) Cables
Oxygen index of O/S (ASTM - D2863)	21 to 24	29 to 32	29 to 32	34 to 36	34 to 36
Flame Retardancy (ASTM - D 2863)	Poor	Good	Good	Very Good	Very Good
Temp. Required to catch Fire (with 21% Oxygen) (ASTM - D 2843)	<150°C	<250°C	<250°C	<300°C	<300°C
Visibility During Burning (%) (ASTM - D 2863)	5 to 10	5 to 10	>40	>96	>96
Visibility During Burning ( 3 Meter Cute) (%) as Per IES 61034 Part-I & BS 7622	3 to 4	3 to 4	40 to 45	80 to 85	80 to 85
Halogen Content (%)	30 to 37	30 to 37	<18	<0.5	<0.5
Circuit Integrity (BS : 6387)	No	No	No	No	Yes
Toxic Index (NEC 713)	>30	>30	>15	<5	<5
Carbon Mono Oxide (%)	High	High	High	Low	Low

## Rallison Fire Survival/Fire Performance Test Laboratory

### Fire Performance

#### Flame Ignition

Oxygen Index and Temperature Index as per ASTM D-2863, IS 10810 Part 58 & Part 64, NES 715 and BICC Electrical Cables Handbook



#### Flame Spread

Flame Retardancy as per IEC 332 Part-III and IS 10810 Part 62



## Product of Combustion

### Smoke Generation

Visibility during burning as per ASTM D 2843



Visibility during burning (3m<sup>3</sup> Test) as per IEC 61034 Part-I & BS 7622



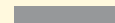
**TIME DURATION:**  
40 Minutes

% Light Transmission (Min)	
FS/LSZH Cable	83.71
FRLS Cables	41.00
PVC Cables	3.86

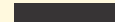
**FIRE MASTER CABLE**



FR-LSH CABLE



NORMAL PVC CABLE



### Corrosivity

Release of Halogen Gas during burning as per IEC 754 Part-I & IS 10810 Part-59

#### Corrosivity of Different Materials

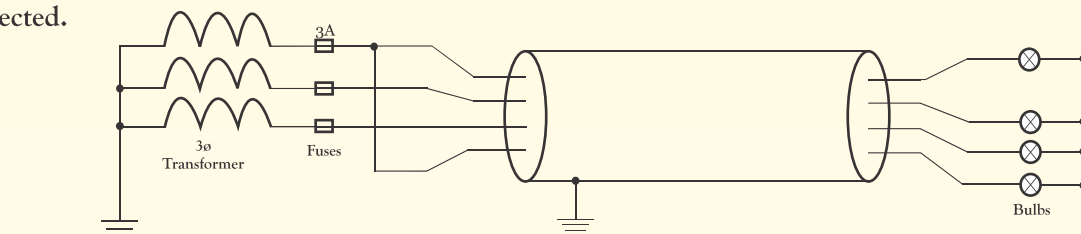
CORROSIVITY TEST AS PER IEC-754 Part-I	
Material	SPECIFIED HALOGEN CONTENTS 0.5% MAX
PVC	30 to 37
FRLS	18
LSZH	<5

#### Circuit integrity

PERFORMANCE TABLE AS PER BS:6387

TEST	CATEGORY
Resistance to Fire alone	
650°C for 3 hours	A
750°C for 3 hours	B
950°C for 3 hours	C
950°C for 20 minutes	S
Resistance to Fire with Water Spray	
650°C	W
Resistance to Fire with Mechanical Shock	
650°C	X
750°C	Y
950°C	Z

Test voltage between core: 1100 volts AC applied between phase conductors and a load carrying of 0.25 A was connected.



### Category C - Exposure to Fire alone at 950°C as per BS 6387



### Category W - Exposure to Fire with Water Spray at 650° C as per BS 6387



### Category Z - Exposure to Fire with Mechanical Shock at 950° C as per BS 6387



### Third Party validation of the Design

Central Power Research  
Institute (CPRI), Bangalore



Building Research  
Establishment Ltd.  
(BRE Global), U.K.



### IS Certification

IS 16246





# RALLISON

DRIVEN BY DESIRE

An ISO 9001:2015 Certified Co.



## Our Network

### East :

Assam | Kolkata | Lucknow | Patna | Cuttak | Ranchi

### North :

New Delhi | Haryana | Punjab | J&K | Himachal | UP West

### West :

Mumbai | Rajasthan

### South :

Bangalore | Chennai | Cochin

**WIRES • CABLES • GEYSERS • PVC CONDUIT PIPE  
E V CHARGING CABLE • SOLAR CABLE**



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