



Eight Decades of Trust & Innovation

# FIRE SURVIVAL CABLES RATED AT 950°C



Transmission  
& Distribution



Renewable  
Energy



Power  
Generation



Exploration



Mobility



Defence



Manufacturing



Infrastructure



Harnessing

## ABOUT US

- Nicco Cables is a 80 year old brand based in India
- Nicco specializes in manufacturing wide range of Wires and Cables
- Nicco has an in-house R&D facility
- Nicco specializes in Compound manufacturing and has a dedicated team for Compounds
- Nicco is the first Company in India to install a 3 MeV Electron Beam Plant form USA for manufacturing irradiated cables
- The manufacturing plant covers an area of 450,000 sq.ft.
- NICCO has National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited Testing laboratory

## NICCO PRODUCES A WIDE RANGE OF CABLES

- Elastomeric & Silicon Cables (Upto 15 kv) for various application
- Flexible Trailing Cables - H07-RNF
- LT & HT Power & Control Cables (Upto 66 kv)
- Fire Survival Cables (For Nuclear Reactor)
- Ship Building Cables
- Medium Voltage Covered Conductors (MVCC)
- Automotive Cables
- Cable Harnessing
- Overhead transmission Conductors (AAAC, ACSR, AAC, ACAR , AL-59)
- Pressure Tight Cables
- PTFE, ETFE & FEP Cables
- Solar & Windmill Cables
- Hybrid / Composite and Underwater Cables
- TREE WIRE / SPACER Cables - 3 layer Track Resistant (upto 35kv)
- Rolling Stock Cables
- Ethernet Polyurethane Cables
- Ethernet Cables (Cat-5e, Cat-6a, Cat-7)

Fire survival cables are designed to maintain circuit integrity during a fire for a specified period. This robust design allows critical life-safety systems (e.g., fire alarms, emergency lighting, smoke ext) to continue operating, providing valuable evacuation time.



### THE TYPICAL CONSTRUCTIONAL LAYERS ARE AS FOLLOWS

- **CONDUCTOR**
  - The core consists of high-conductivity, plain annealed stranded or solid copper conductors. Copper is used for its excellent electrical properties and high melting point (950°C), which helps ensure heat resistance.
- **FIRE BARRIER (INSULATION BARRIER)**
  - A primary insulation layer, typically made of one or more layers of mica glass tape, is wrapped around the conductor. This mica tape provides exceptional thermal insulation, forming a heat barrier that maintains circuit integrity even when directly exposed to a flame.

- **INSULATION**
  - Over the mica tape, an extruded layer of high-grade insulation is applied, such as cross-linked polyethylene (XLPE), silicone rubber, EPR or a cross-linked Halogen-Free Flame Retardant (LSZH) compound. This layer offers additional heat resistance and standard electrical insulation.
- **INNER SHEATH/BEDDING (OPTIONAL)**
  - In some designs, an extruded layer of thermoplastic Low Smoke Zero Halogen (LSZH) compound or a protective tape is applied over the insulated cores to provide a barrier between the insulation and any subsequent layers, such as armouring.
- **ARMOURING (OPTIONAL)**
  - For enhanced mechanical protection and to withstand physical stress (including mechanical shock during a fire), a layer of galvanized steel wires or flat steel strips can be applied over the inner sheath. Non-magnetic wires are used for single-core cables.
- **OUTER SHEATH**
  - The outermost layer is typically made of a Low Smoke Zero Halogen (LSZH) or HFFR compound (often red or white for identification). This material minimizes the emission of dense smoke, toxic gases, and corrosive fumes when burned, which improves visibility during evacuation and reduces damage to equipment.

Fire survival cables are manufactured and tested to rigorous international standards such as BS 7846, IEC 60331, and BS 6387, which specify the performance requirements under various fire, water, and mechanical shock conditions.

## KEY APPLICATIONS

These cables are vital for systems that must remain operational in an emergency, including:

- **EMERGENCY LIGHTING**
  - Ensuring visibility along evacuation routes.
- **FIRE ALARM AND GAS DETECTION SYSTEMS**
  - Powering detectors, control panels, and alarms for early warning.

- **EMERGENCY VOICE ALARM COMMUNICATION (EVAC) SYSTEMS**
  - Providing clear instructions for evacuation
- **FIRE SUPPRESSION SYSTEMS**
  - Supplying power to water pumps and sprinklers
- **SMOKE MANAGEMENT**
  - Ensuring functionality of smoke extraction systems, dampers, and ventilation fans (HVAC)
- **CRITICAL INFRASTRUCTURE**
  - Maintaining power and control systems for elevators, fire doors, and data centers.
- **INDUSTRIAL AND HIGH-RISK ENVIRONMENTS**
  - Facilitating the safe and controlled shutdown of machinery in oil & gas, petrochemical plants, and manufacturing facilities.

## COMMON INSTALLATION AREAS

Fire survival cables are mandated or highly recommended in public and high-occupancy areas due to safety regulations and building codes, such as:

- High-rise buildings
- Hospitals and healthcare facilities
- Airports and train stations
- Underground metro and rail tunnels
- Shopping malls and theaters
- Power plants and industrial units

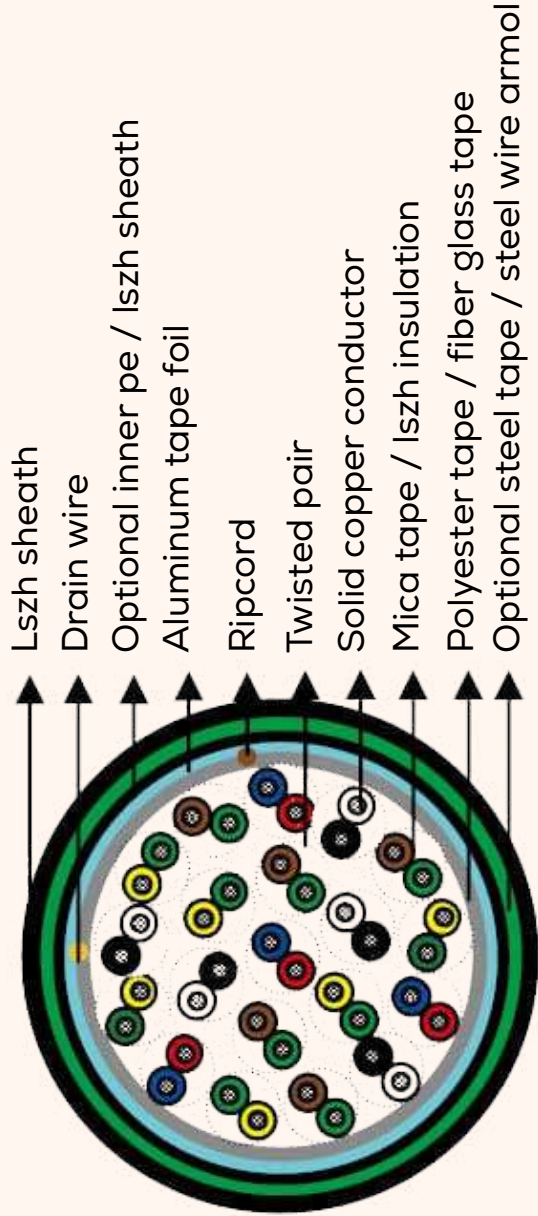
## PROPERTIES OF FS CABLES

These cables are designed to withstand extreme conditions and meet specific international standards (BS 6387, IEC 60331, IS 17505):

- **CIRCUIT INTEGRITY**
  - Designed to operate under direct flame at temperatures up to 950°C for a minimum of 3 hours, often with resistance to water spray and mechanical shock.
- **LOW SMOKE ZERO HALOGEN (LSZH)**
  - The materials used produce minimal smoke and no toxic, corrosive gases when burned, which enhances visibility for evacuation and protects sensitive equipment.

- **ROBUST CONSTRUCTION**

- Typically feature a fire-resisting barrier (often mica tape) and robust insulation (such as XLPE or silicone rubber), sometimes with an armored layer for mechanical protection



## **EXISTING CERTIFICATIONS**

ISO 9001 / 14001 / 45001

Directorate of Quality Assurance (Navy) [DQAN] Registration Certificate

Defense Research and Development Laboratory (DRDL) Registration Certificate

Integrated Headquarters of Ministry of Defence (IHQ/DEE/MOD)

Research Designs and Standards Organization (RDSO)

American Bureau of Shipping (ABS)

Indian Register of Shipping (IRS)

Underwriters Laboratories (UL)

Central Power Research Institute (CPRI)

Bureau of Indian Standards (BIS)

International Railway Industry Standard (IRIS)

National Accreditation Board for Testing and Calibration Laboratories (NABL)

Det Norske Veritas (DNV)



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