



# Caledonian

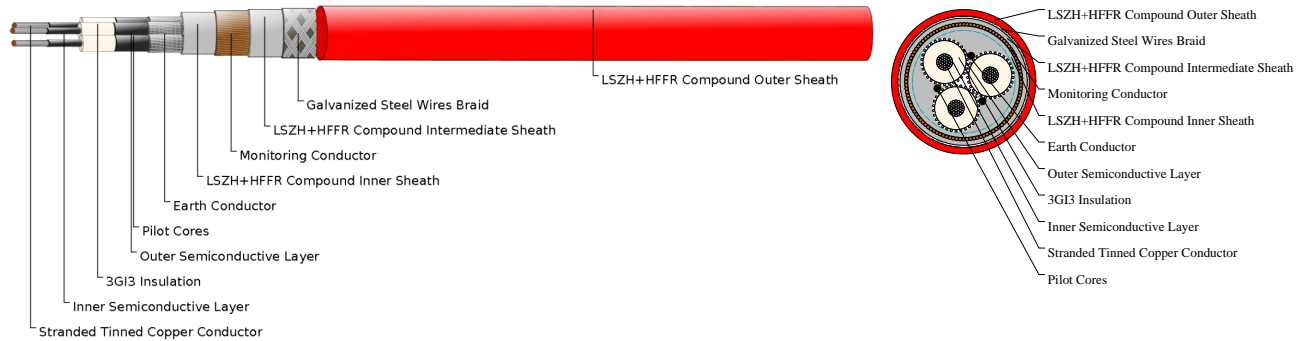
## Tunnel Cables

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### Tunnel Cable

(N)3GHSSHCH 3x35+3x16/3E+3x2.5ST+ÜL



### APPLICATIONS

These cables are used for the connection of mobile operating equipments in mines and underground excavations with hazardous environments. In stationary operation, e.g. high voltage transformers in mining and tunnelling.

### STANDARDS

Construction: DIN VDE 0250-605 & IEC 60502-2

General Requirements: DIN VDE 0250-1

Guide Use: DIN VDE 0298-3

Electrical Tests: DIN VDE 0472-501, 503, 508

Non-Electrical Tests: DIN VDE 0472-401, 402, 602, 303, 615

Flame Retardant: VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1

### VOLTAGE RATING

12/20kV

### CABLE CONSTRUCTION

Conductors: Flexible electrolytic stranded tinned copper wire DIN VDE 0295 Class 5.

Insulation:

Main Cores: 3GI3 type EPR compound.

Pilot Control Cores: 3GI3 type EPR compound.

Electrical Field Control: Extruded inner and outer rubber semiconductive layer.

Protective Conductor: Made of plain copper wires or copper wire braiding laid up concentrically around each main core.

Lay Up: Three main conductors laid-up with three pilot control cores in the outer interstice. Protective cores are concentrically wrapped over insulation of power cores.

Inner Sheath: Special Halogen free and flame retardant HFFR compound.

Monitoring Conductor: Semiconductive tape + overall concentric lay of copper wires and synthetic tape over wires.

Intermediate Sheath: Special Halogen free and flame retardant HFFR compound.

Armour: Galvanized steel wire braiding, coverage minimum 75%.



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Outer Sheath: Special Halogen free and flame retardant HFFR compound, Red or Black.

## COLOUR CODE

Core Identification:

Main Cores: Natural coloring, design acc to DIN VDE 0250 Part 1

Pilot Cores: Black colored and number coded

## PHYSICAL AND THERMAL PROPERTIES

Rated Voltage: 12/20 KV

AC Test Voltage: 29 KV

Max. Permissible Operating Voltage AC: 13.9/24 KV

Max. Permissible Operating Voltage DC: 18/36 KV

Min Bending Radius: DIN VDE 0298-3

Current Carrying Capacities: DIN VDE 0298-4

Working Temperature:

Fixed: -40°C - +80°C

Mobile: +5°C - +80°C

Max. Tensile Load of Cable: 20N/mm<sup>2</sup>

Max. Torsion: 25°/m

Trawl Speed For Tunnelling App: Max. 30 m/min

Minimum Distance For Change Of Direction: 20×D

## DIMENSION AND PARAMETERS

Nominal Cross-sectional Area	Overall Diameter (min.)	Overall Diameter (max.)	Approx. Weight	Conductor Resistance at 20 °C
mm <sup>2</sup>	mm	mm	kg/km	Ω/km
3x35+3x16/3E +3x2.5ST+ÜL	65.3	69.3	5400	0.554