POLYCAB

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Tomorrow secured. Safety ensured.

Polycab introduces special cables and wires for high-rise buildings

POLYCAB Wires & Cables for High Rise Buildings are specially manufactured to cater to the needs of such structures where safety of human life is of utmost concern. During the unfortunate incidence of fire the exit path of escape is the one which should be the last to catch fire and needs to be protected with all possible elements which delay the onset of fire and fumes. In these escape paths such as open passages and emergency staircases, FS wires and cables which have extra protection inbuilt are installed to ensure functioning of lights and exhaust fans in the path to hasten evacuation of human lives. In the rooms or offices the complete wiring is done with FRZH wires which do not emit toxic gases when burnt in case of fire. The conduits in such installations are of FRLS grade. We are also developing FRZH grade PVC conduit pipes which complement the safety of the whole installation.

POLYCAB FS Wires

In case of POLYCAB Wires Mica tape is wound on the copper conductor before an insulation of Zero Halogen Flame Retardant is extruded on it to give the required function of supporting fire fighting.

The details of construction of such wires is as follows,

Conductor-

Multi-strand copper conductors which are accurately drawn in imported Fine Wire Drawing Machines and annealed on-line are uniform in resistance, softness and brightness. These conductors are then bunched on synchronous motor driven take-up drive to ensure zero tension on the conductor thus ensuring uniform resistance. Further compacting of the bunched conductors enables reduction in the overall diameter, thus improving the wiring density in the conduits.

Protective Layer -

Two mica tapes are wound spirally to cover the complete length of the conductor to sustain temperatures of 750°C and 950°C to ensure at least 90 min and 3 hrs respectively of smooth passage of current in the wire before disruption.

Insulation -

Cross Linkable Low Smoke Zero Halogen (LSOH) compound is used to outperform all other insulations on toxicity front by generating near zero toxic gases in case of fire. The smoke generated is whitish and of density as low as 20%. Low human casualties are ensured due to low, whitish and toxic free nature of smoke.

Indeed POLYCAB FS wires, the premium eco-friendly wire, fights fire on its own and thus helps save human lives much before complete damage takes place due to fire.

POLYCAB FS Cables-

In case of POLYCAB Cable Mica tapes are wound on the copper conductor of each core before insulation of XLPE is extruded on it. Such mica taped and insulated cores are laid up and then the inner sheath is extruded with Low Smoke Zero Halogen (LSOH) compound. Armouring is done with Gl Round/Strip wires and again a layer of glass fibre tape is wound on the armour on demand before outer sheathing the same with Low Smoke Zero Halogen compound. The details of construction of such cables are as follows,

Conductor-

Multi-strand copper conductors which are accurately drawn in imported RBD Wire Drawing Machines and annealed on-line for uniform resistance, softness and brightness. These conductors are then stranded and compacted to enable reduction in the overall diameter thus achieving reduction in the overall diameter of the cable.

Protective Layer -

Mica tape is wound spirally to cover the complete length of the conductor to ensure at least 1 hr to 3 hrs of smooth passage of current in the core before the disruption of current.

Insulation -

Each core is insulated with XLPE compound.

Core Laid Up -

Two or three cores are then laid up covered with Polyester tape to bind the cores in place.

Protective Layer -

On specific requirement of additional safety, glass fibre tape is wound spirally covering complete length of the laidup.

Inner Sheath -

Low Smoke Zero Halogen (LSOH) compound is used to inner sheath the laid up cores. This provides the additional protection of generation of non-toxic fumes in case of fire.

Armour-

This inner sheath is then armoured with Gl strips or round wire depending on the size of outer diameter of the inner sheath.

Outer Sheath -

Low Smoke Zero Halogen (LSOH) compound is used to outer sheath over the armour. This provides the required protection of generation of non-toxic fumes in case of fire.

Typical Applications -

All high rise buildings, hospitals multiplexes and commercial complexes where there is a large congregation of people are to be provided with safe escape routes. In these installations POLYCAB FS wires and cables need to be installed for lighting of staircases, other emergency lighting, functioning of exhaust fans and fire alarm systems.

FS Cables for High Rise Buildings

Polycab-1100 V, Twin and multicore, Stranded copper conductor, lapped with two layers of glass mica tapes. XLPE insulated, Cross linked LSOH innersheath, GS round wire armoured, overall cross linked LSOH sheathed fire survival cable generally conforming to IS: 7098 Pt(1) and tested as per IEC 60331

2 Core

Nominal area of conductor	Nominal insulation thickness	Minimum inner sheath thickness	Nominal dia of armour wire	Minimum outer sheath thickness	Approximate overall dia of cable	Max. dc resistance of conductor at 200C	Current rating at 40°C ambient temperature
mm^2	mm	mm	mm	mm	mm	ohms/km	Amps
1.5	0.7	0.3	1.4	1.24	14.5	12.1	27
2.5	0.7	0.3	1.4	1.24	15.0	7.41	36
4	0.7	0.3	1.4	1.24	16.5	4.61	48
6	0.7	0.3	1.4	1.24	17.5	3.08	61
10	0.7	0.3	1.4	1.24	19.5	1.83	83
16	0.7	0.3	1.4	1.40	19.0	1.15	108
25	0.9	0.3	4 X 0.80	1.40	20.5	0.727	140
35	0.9	0.3	4 X 0·80	1.40	22.0	0.524	172
50	1.0	0.3	4 X 0·80	1.40	24.0	0.387	208

3 Core + Earth

Nominal area of conductor	Nominal insulation thickness	Minimum inner sheath thickness	Nominal dia of armour wire	Minimum outer sheath thickness	Approximate overall dia of cable	Max. dc resistance of conductor at 200C	Current rating at 40°C ambient temperature
mm^2	mm	mm	mm	mm	mm	ohms/km	Amps
1.5	0.7	0.3	1.4	1.24	16.0	12.1	23
2.5	0.7	0.3	1.4	1.24	17.0	7.41	30
4	0.7	0.3	1.4	1.24	18.0	4.61	41
6	0.7	0.3	1.4	1.24	19.5	3.08	52
10	0.7	0.3	1.4	1.40	22.0	1.83	70
16	0.7	0.3	4 X 0.80	1.40	21.5	1.15	89
25	0.9	0.3	4 X 0.80	1.40	25.0	0.727	119
35	0.9	0.3	4 X 0.80	1.40	27.5	0.524	147
50	1.0	0.3	4 X 0.80	1.56	31.0	0.387	179

*We can also supply 4 Core cables against orders.

Building Wires for High Rise Buildings

Polycab - 1100 V, Single core, Flexible copper conductor, lapped with two layers of glass mica tapes, Cross linked LSOH insulated fire survival cable generally conforming to BSEN 50525 and tested as per IEC 60331

Single Core

Nominal area of conductor	Conductor class	Nominal Insulation thickness	Approximate Overall dia of cable	Max. DC resistance of conductor at 20°C	Current rating at 40°C ambient temperature
mm^2	mm	Type	mm	ohms/km	Amps
1	Class 5	0.7	3.5	19.5	13
1.5	Class 5	0.7	4.0	13.3	17
2.5	Class 5	0.8	4.5	7.98	23
4	Class 5	0.8	5.0	4.95	30
6	Class 5	0.8	5.5	3.30	39
10	Class 5	1.0	7.0	1.91	53
16	Class 5	1.0	8.0	1.21	70

Cables For High Rise Buildings

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