



HOUSE WIRE
(FR, FRLSH)

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HOUSE / BUILDING PVC WIRES

ELECTRICAL WIRES

Zenium offers PVC Insulated Single Core Unsheathed Wires using more than 99.9% pure Electrolytic grade Copper within 100% conductivity. These electrolytic grade copper conductors are annealed and bunched together, as multiple strands, which offers great flexibility to make it more ideal for conduit wiring. These wires are being insulated with a Flame Retardant (FR) & Flame Retardant Low Smoke & Halogen Free (FRLSH) PVC Compound with high insulation resistance. The insulation process is carried out on highly efficient and speedy extrusion lines, for higher accuracy in performance. These wires are as per IS : 694 : 2010

FLAME RETARDANT (FR)

ZENIUM-FR wires have high oxygen and temperature index, that prevents the spreading of fire even at high temperatures. ZENIUM-FR wires are manufactured using 99.97% pure, electrolytic grade, bright annealed bare copper within 100% conductivity. These wires are insulated with flame retardant-FR PVC compound with a high oxygen and temperature index, specially formulated and manufactured in house.

FLAME RETARDANT LOW SMOKE & HALOGEN FREE (FRLSH)

In case of fire, conventional PVC insulated wires give out thick black smoke and toxic fumes of hydrochloric acid gas. This impairs visibility and hampers rescue operations. ZENIUM FRLSH on the contrary, not only emits very little smoke and toxic gases, but also retards the spreading of fire. It is thus ideal of concealed and conduit wiring in multi-storied high rise buildings such as hotels, banks, hospitals, factories, commercial complexes and residential apartments etc.,

TABLE 1.1

FR, FRLS, HFFR MULTI STRAND, SINGLE CORE, UNSHEATHED WIRES IN VOLTAGE 1100 V

Nominal Area of Copper Conductor	Number / Nominal Diameter of Strands	Thickness of Insulation (Nominal)	Approx. Overall Diameter of Wire	Current Carrying Capacity		D. C. Resistance 20° C
				In Conduit/ Trunking	Unenclosed - clipped directly or on Cable Tray	
Sq.mm	mm	mm	mm	Amps	Amps	Ohms / km
0.5	16/0.20	0.6	2.2	4	4	39
0.75	24/0.20	0.6	2.5	7	7	26
1	14/0.30	0.7	2.7	11	12	18
1.5	22/0.30	0.7	3.1	13	16	12.1
2.5	36/0.30	0.8	3.7	18	22	7.41
4	56/0.30	0.8	4.3	24	29	4.95
6	84/0.30	0.8	4.8	31	37	3.3
10	140/0.30	1.0	6.7	48	51	1.91
16	126/0.40	1.0	8.2	62	68	1.21
25	196/0.40	1.2	10	80	86	0.78
35	276/0.40	1.2	11.3	101	110	0.554

Standard Colours : Red, Yellow, Blue, Black & Green (For Earthing). Packed in 90 / 180 Mts. Length.

TYPICAL PROPERTIES OF FR, FRLSH

Tests	Significance	Specification	Specified Value	Typical Values	
				FR	FRLSH
Critical Oxygen Index	To determine % of Oxygen required for Combustion at room temperature of Insulating material	ASTM - D 2863	MIN. 29%	> 29%	> 32%
Temperature Index	To determine at what temperature Normal oxygen content of 21% in air will Support combustion of Insulating material	ASTM - D 2863	MIN. 250°C	> 250°C	> 250°C
Smoke density (light Transmission)	To determine the Visibility (light transmission) Under fire of insulating material	ASTM - D 2843	MIN. 40%	< 20%	> 40%
Acid gas	To determine the % of release of hydrochloric acid gas from the Insulating material under fire	IEC 754 - 1	MAX. 20%	< 40%	< 20%

The above data is approximate and subject to manufacturing tolerance