

FLAME RETARDANT LOW SMOKE CABLE (FRLS) - an Introduction

Necessity is the mother of invention. Due to growing fire hazards in various Industries, High-rise buildings, Hospitals, Community Halls, Warehouses, Power Stations, Data Processing Centres etc. it was found that conventional cables are not entirely adequate. On the contrary, it assists in spreading fire rapidly, causing extensive damage to property and loss of human life. This has paved the way for FLAME RETARDANT LOW SMOKE CABLES, with its manifold advantages to make its entrance in the industrial scenario.

SPECIAL FEATURES OF FRLS CABLES

High resistance to fire and flame propagation. Low emission of smoke and acid fumes. High critical Oxygen Index. High temperature Index.

PLANT FACILITIES

Backed up by a modern factory, a motivated R&D department and a testing laboratory fully equipped with all necessary equipment and quality control techniques, Crystal Cable Industries Limited is in a position to produce FRLS cables, with a quality, which can match the best in the country.

POWER & CONTROL CABLES - an Introduction

APPLICATION

Power Cables are suitable for generating stations, distribution systems, industrial installations, cables for railway signaling, control purposes of measuring circuits. Being armoured these cables can withstand rough installations and rigid operation condition and tensile stresses. These cables can be buried direct in ground, laid in water and installed indoor & outdoor in air or in cable ducts.

A later development on PVC, is the introduction of heat resistant PVC commonly known as HR PVC. It has a distinct advantage since it allows a higher conductor operating temperature of 85°C as against 70°C in the case of normal PVC, this allows 15% higher current rating with HR PVC insulation.

SPECIFICATION

Manufactured to Indian Standard Specification 1554 (part-1) with latest amendments with High conductivity electrolytic grade aluminium/copper conductor, insulated with PVC compound having excellent dielectric properties, cores are laid up, inner sheathed with non-hygroscopic thermoplastic material either by extrusion or wrapping (for twin and multi core cables only), armoured (when required) and outer sheathed with PVC compound having high level of ageing resistance and good surface finish.

These cables are tested for working voltage upto and including 1100 volts and packed in drums having cable length of 250/500/1000 mtrs. as agreed between the supplier and the customer.

PVC POWER & CONTROL CABLES - CURRENT RATINGS

CURRENT RATINGS (AC)

ALUMINIUM CONDUCTOR PVC INSULATED ARMoured/UNARMoured & PVC SHEATHED CABLES

For Working Voltage UPTO 1100 volts (Maximum Conductor Temperature 70°C)

Normal Area of Conductor	LAID DIRECT IN GROUND			IN SINGLE WAY DUCT			IN AIR		
	Single Core (3 Nos.)	Twin (Single)	3,3 ^{1/2} or 4 Core (Single)	Single Core (3 Nos.)	Twin (Single)	3,3 ^{1/2} or 4 Core (Single)	Single Core (3 Nos.)	Twin (Single)	3,3 ^{1/2} or 4 Core (Single)
sq. mm	amp.	amp.	amp.	amp.	amp.	amp.	amp.	amp.	amp.
1.5	17	18	16	17	16	14	15	16	13
2.5	24	25	21	24	21	18	21	21	18
4	31	32	28	30	27	23	27	27	23
6	39	40	35	37	34	30	35	35	30
10	51	55	46	51	45	39	47	47	40
16	66	70	60	65	58	50	64	59	51
25	86	90	76	84	76	63	84	78	70
35	100	110	92	100	92	77	105	99	86
50	120	135	110	115	115	95	130	125	105
70	140	160	135	135	140	115	155	150	130
95	175	190	165	155	170	140	190	185	155
120	195	210	185	170	190	155	220	210	180
150	220	240	210	190	210	175	250	240	205
185	240	275	235	210	240	200	290	275	240
225	260	305	260	220	260	220	320	305	265
240	270	320	275	225	275	235	335	325	280
300	295	355	305	245	305	260	380	365	315
400	325	385	335	275	345	290	435	420	375

The above figures are based on I S: 3961(Part II)/1967 in general

Conditions of Installation: Ground Temperature : 30°C: Ambient Air Temperature: 40°C: Soil Thermal Resistivity: 150°C cm/w: PVC Thermal Resistivity: 650°C cm/w: Depth of Laying: 75 cm

COPPER CONDUCTOR CURRENT RATING IN AMPS.

Nominal area of conductor Conductor	Laid direct in Ground		In Air	
	Twin Core	3 & 4 Core	Twin Core	3 & 4 Core
1.5 sq. mm	23	21	20	17
2.5 sq. mm	32	27	27	24

MULTI CORE CABLES (to be applied to current ratings of twin core as given above)

No. of Loaded Cores	5	6	7	10	12	14	16	19	24	27	30	37	44
Rating Factors	0.72	0.67	0.63	0.55	0.52	0.49	0.47	0.44	0.40	0.38	0.37	0.34	0.32