

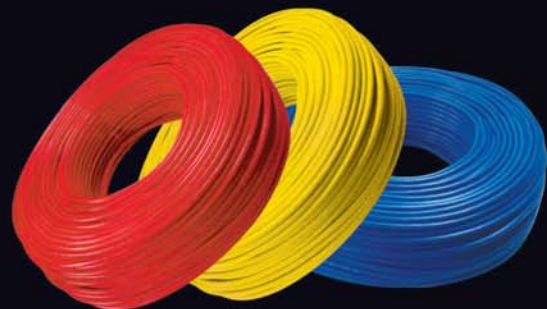


An ISO 9001:2008
Company

BENLO

A PRODUCT OF **BENTEC**

FR/FRLS PVC Wires & Cables
3-Core Flat Cables
Co-Axial TV/Telephone Cables



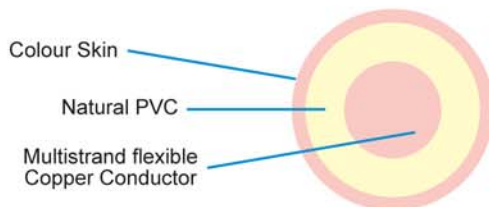
BENLO WIRES & CABLES, is produced with latest technology to give you optimum performance and durability.

BENLO BFRLS/FRLS/PVC INSULATED CABLES

Single Core, unsheathed cables in voltage grade 1100V						
Nominal area conductor	Number / no dia of wire	Thickness of insulation (Nom.)	Approx Overall Diameter	Current carrying capacity # 2 cable, single phase		Resistance (Max.) per km. @20°C
				In conduit / Trunking	Uneclosed-Clipped directly to a surface of on cable tray	
Sq.mm.	mm	mm	mm	Amps	Amps	Ohms
1.0	14/.3*	0.7	2.8	11	12	18.10
1.5	22/.3*	0.7	3.1	13	16	12.10
2.5	36/.3*	0.8	3.8	18	22	7.41
4.0	56/.3**	0.8	4.4	24	29	4.95
6.0	84/.3**	0.8	5.0	31	37	3.30
10	80/.4**	1.0	6.6	42	51	1.91
16	126/.4**	1.0	7.8	57	68	1.21
25	196/.4**	1.2	9.7	71	86	0.780
35	276/.4**	1.2	10.9	91	110	0.554
50	396/.4**	1.4	13.2	120	145	0.386

WIRE OF SPECIFICATIONS SHOWN ABOVE ARE ALSO AVAILABLE IN FR-FRLS VARIANTS
 *AS PER CONDUCTOR CLASS 2 OF IS:8130/1984 **AS PER CONDUCTOR CLASS 5 OF IS:8130 /1984
 #AS PER IS 3961 (PART-V)-1968
 STANDARD COLORS : BLACK, RED, BLUE, YELLOW,& GREEN (FOR EARTHLING)

FR-FRLS WIRES are specially formulated to retard spread of fire/or emit very little smoke if the place is on fire to ease rescue operations which gets hampered due to thick smoke & toxic gases. So it is highly recommended in wiring of multistoried buildings such as Hospital, Banks, Factories, Hotels, Commercial & Residential Complexes.



Construction :-

Conductor : Plain annealed copper conductor as per IS: 8130
 Insulation : Primary - Natural PVC
 Secondary - skin colour coated PVC Type A
 Colour : Red/Yellow/Blue/Gray/White/Green
 Any other colour on specification can also be supplied.

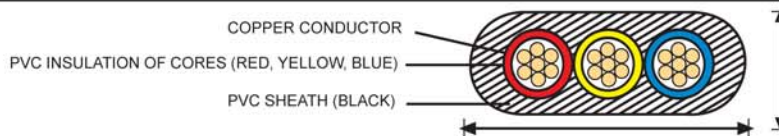
THE FLAME GUARD ADVANTAGE				
TEST	FUNCTION	SPECIFICATION	TYPICAL VALUES	
			FLAME GUARD	ORDINARY PVC INSULATED CABLES
Critical oxygen index	To determine percentage of oxygen required for supporting combustion of insulating material at room temperature	ASTM-D 2863	More than 29%	
Temperature index	To determine at what temperature normal oxygen content of 21% in air will support combustion of insulating material	ASTM-d 2863 & BICC Handbook Chp. No. 6	More than 250° C	150° C
Light Transmission (Smoke density)	To determine the visibility (Light transmission) under fire of Insulating material	ASTM-D 2843	More than 40%	10-15%
Acid gas generation	To ascertain the amount of Hydrochloric acid gas evolved from insulation of cable under fire	IEC 754-1	Less than 20%	

Other tests carried out are : Flammability test as per IEC 332-1 & IS 694:1990

3 CORE FLAT CABLES


3 core Flat Cables are manufactured keeping in mind the severe and difficult conditions in which they are required to perform. The individual conductors are made from bright electrolytic grade copper. The wires are drawn, annealed and bunched properly to ensure flexibility and uniform resistance. Each of the three copper conductors is insulated with a special BLVD. compound formulated and manufactured in-house, and the cores are laid up in flat parallel position. The outer sheath of the cable is made from a special grade of abrasion resistant PVC compound impervious to water, grease, oil, etc.

Technical Data



COPPER CONDUCTOR
PVC INSULATION OF CORES (RED, YELLOW, BLUE)
PVC SHEATH (BLACK)

IS : 694



CML-7859811

3 Core Flat Cables as per IS 694:1990 with ISI mark

Conductor		Insulation	Sheath	Overall dimensions		Conductor Resistance @20° (max) ohm/km.	Current carrying capacity @40° C Amps
Area sq.mm.	No./Dia. of strands mm	Thickness (Nom) mm	Thickness (Nom) mm	Width (Approx.) 'W' mm	Height (Approx.) 'H' mm		
1.5	22/0.30*	0.6	0.9	11.0	5.0	12.10	14
2.5	63/0.30*	0.7	1.0	13.0	6.0	7.41	18
4.0	56/0.30**	0.8	1.0	15.3	6.7	4.95	26

Note:
The strand diameter is nominal. However, construction of conductor is designed to satisfy the requirements of conductor resistance as per IS 8130:1984.

*As per Conductor Class 2 of IS 8130:1984

**As per Conductor Class 5 of IS 8130:1984

3 Core Flat Cables generally conforming to IS 694:1990

Conductor		Insulation	Sheath	Overall dimensions		Conductor Resistance @20° C (max) ohms/km.	Current carrying capacity @40° C Amps
Area Sq.mm.	No./Dia. of strands mm	Thickness (Nom) mm	Thickness (Nom) mm	Width (Approx.) 'W' mm	Height (Approx.) 'H' mm		
6.0	84/0.30	1.0	1.15	18.7	7.9	3.30	31
10.0	140/0.30	1.0	1.40	23.7	9.9	1.91	42
16.0	226/0.30	1.0	1.40	28.0	11.4	1.21	57
25.0	354/0.30	1.2	2.00	35.5	14.7	0.780	72
35.0	495/0.30	1.2	2.00	39.5	16.2	0.554	90
50.0	703/0.30	1.4	2.20	45.5	18.3	0.386	115
70.0	360/0.50	1.4	2.20	51.0	20.0	0.272	143
95.0	475/0.50	1.6	2.40	60.0	23.5	0.206	165

Note:
The number of wires and strand diameter will be such as to satisfy the requirements of conductor resistance as per IS 8130 : 1984

SELECTION GUIDE FOR 3 CORE FLAT CABLES

1) HP Vs current : The full load current for submersible pump motors, 3 phase, 50 cycles, 415 -425 V.

HP	5.0	7.5	10.0	12.5	15.5	17.5	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.5	70.0	75.0	80.0
Amp	7.5	11.0	14.9	18.9	22.5	25.2	28.4	35.6	42.3	50.4	58.1	62.1	67.5	73.8	81.0	87.3	93.6	100.8	108.0

2) Deaerating Factors : Multiply the current carrying capacity of the cable by factors given below for various ambient temperatures.

Ambient Temperature °C	30	35	40	45	50
Rating Factor	1.09	1.04	1.00	0.95	0.77

CO-AXIAL CABLES

BENLO co-axial cables, used for Cable TV networks, are the best that money can buy. Each feature is specially designed to give you the benefit. The inner conductor is made of solid annealed electrolytic grade bare copper, drawn in-house on modern machines. Insulation of special imported polyethylene foam compound is used as dielectric. This is extruded with the process of gas injected physical foaming on a sophisticated machine. The double screen of bonded laminated Al tape and Al wire braid ensures low loss transmission and clear reception. This is most evident in areas with high concentration of electromagnetic signals. The double screen offers lower attenuation values than cables with single screening. It is jacketed with a special UV protected PVC compound formulated and manufactured in-house. Higher bandwidth means more than 100 channels. Excellent adhesion of dielectric to conductors, as well as uniform bonded aluminium foil provided good protection to cables against ingress of moisture. This makes it ideal for tropical conditions.



Special feature :

- high bandwidth
- Notch-free attenuation over wide band of frequencies
- Suitable for power pass application
- With sequential length markings printed for extra convenience
- Every metre tested for all parameters by imported computerised network analyser

Construction Parameters	Cable type		
	RG 11 F	RG 6 F	RG 59 F
Inner Conductor	Solid Bare Copper	Solid Bare Copper	Solid Bare Copper
Nom. Dia (mm)	1.63	1.02	0.80
Dielectric	Foam PE	Foam PE	Foam PE
Nom. Dia (mm)	7.11	4.57	3.55
Outer Conductor FIRST	Bonded Al Tape	Bonded Al Tape	Bonded Al Tape
SECOND	Al Braid	Al Braid	Al Braid
Nom. Coverage (%)	60	60	60
jacket	PVC (Black)	PVC (Black)	PVC (Black)
Nom. Dia (mm)	10.20	7.20	6.00

Electrical parameters	Cable type		
	RG 11 F	RG 6 F	RG 59 F
Inner Conductor			
Max. Resistance (Ohm/km) at 20° C	8.50	21.00	35.0
Loop Resistance (Ohm/km) at 20° C	16.80	28.50	46.43
Nom. Capacitance (pF/mtr)	53	53	53
Nom. Impedance (Ohm)	75	75	75
Nom. Velocity Ratio (%)	85	85	85
Nom. Attenuation at 25° C (dB/100m)			
at 5 MHz	1.50	1.90	2.82
55 MHz	3.60	5.25	6.73
83 MHz	4.32	6.40	8.04
187 MHz	6.40	9.35	11.81
211 MHz	6.80	9.95	12.47
250 MHz	7.37	10.82	13.45
300 MHz	8.12	11.64	14.60
350 MHz	8.77	12.63	15.75
400 MHz	9.42	13.61	16.73
450 MHz	9.95	14.43	17.72
500 MHz	10.56	15.09	18.70
550 MHz	11.00	16.05	19.52
600 MHz	11.60	16.73	20.34
750 MHz	13.05	18.54	22.87
865 MHz	14.20	20.01	24.57
1000 MHz	15.50	21.49	26.64