Single and Multicore flexible Industrial Cables

BHARTIA

BCH ELECTRIC LIMITED

PVC Insulated copper conductor single core cables suitable for a Voltage grade of 1100 V. Use of 99.98% pure ETP grade copper ensures lower resistance and thus lower heat losses. RoHS PVC compounds are safer for human lives, and reduce the carbon footprint. The construction of BCH wires has been specially designed to ensure optimum use of the copper properties at the same time ensuring C.R. values remain within the defined limits.

Technical data sheet (Single core Unsheathed Flexible cable) Grade upto 1100 volts
As per I.S.. 694 (2010) with I.S. marking

Area	No. of Wire / Nominal Wire diameter	Insulation Thickness	Insulation Diameter	Conductor Resistance	Safe Current Carrying Capacity 2 wires Single Phase	
		Nom	(Approx)	at 20° C (Max)	In conduit	Unenclosed clipped directly to a surface
(Sq. mm)	No./mm	mm	mm	Ohm/Km	(Amp)	(Amp)
0.5	1	0.6	2.10	39	4	4.5
0.75	2	0.6	2.30	26	7	8
1.0	3	0.6	2.50	19.5	11	12
1.5	30	0.7	2.75	13.3	13	16
2.5	50	0.8	3.40	7.98	18	22
4.0	5	0.8	4.10	4.95	24	29
6.0	8	0.8	4.75	3.3	31	37
10.0	8	1.0	6.00	1.91	42	51
16.0	12	1.0	7.10	1.21	57	68
25.0	19	1.2	8.85	0.78	71	86
35.0	27	1.2	9.85	0.55	91	100
50.0	39	1.4	12.00	0.38	120	145
70.0	35	1.4	13.60	0.27	---	214
95.0	47	1.6	15.70	0.20	---	260
120.0	61	1.6	17.30	0.16	---	305
150.0	76	1.8	19.40	0.12	---	355
185.0	94	2.0	21.50	0.10	---	415
240.0	1222/0.5	2.2	24.35	0.080	---	500
300.0	1528/0.5	2.4	27.05	0.064	---	

Note: The strand diameter is nominal, However, construction of conductor is designed to satisfy the requirements of conductor resistance as per IS 8130:1984 class 5 conductor.

BCH PVC insulated and PVC sheathed multicore cables for Voltage grade upto 1100 Volts. Cables upto 5 core are as per I.S. 694 (2010) and printed with I.S. 694. Cables of 6 cores and above till 25 cores for cross sectional areas upto 2.50 sqmm are also conforming to I.S. 694 (2010). Other sizes of cores and cross sectional areas are generally conforming to I.S. 694 (2010). Use of ETP grade copper of 99.98% purity and RoHS PVC compounds ensures lower resistances, lower carbon footprint and safer usage of electricity.

MULTI CORE AS PER IS 694:2010 - WITH ISI MARKING

	Conductor			Insulation Thickness	2 Core		3 Core		4 Core		5 Core	
Area (Sq mm)	No. & Size of wire (Nom.) mm	Max. Resistance @ 20° C Ohm/Km	Current Rating (Amps)	(Nominal) mm	Sheath Thickness (Nom.) mm	Overall Diameter (Approx.) mm	Sheath Thickness (Nom.) mm	Overall Diameter (Approx.) mm	Sheath Thickness (Nom.) mm	Overall Diameter (Approx.) mm	Sheath Thickness (Nom.) mm	Overall Diameter (Approx.) mm
0.5	16/0.2	39	4	0.6	0.9	6.1	0.9	6.4	0.9	7.0	0.9	7.5
0.75	24/0.2	26	7	0.6	0.9	6.5	0.9	6.9	0.9	7.5	0.9	8.2
1.0	32/0.2	19.5	12	0.6	0.9	6.9	0.9	7.3	0.9	8.0	1.0	8.9
1.5	30/0.25	13.3	15	0.6	0.9	7.5	0.9	7.9	1.0	8.8	1.0	9.6
2.5	50/0.25	7.98	20	0.7	1.0	9.0	1.0	9.5	1.0	10.4	1.0	11.4
4.0	56/0.3	4.95	27	0.8	1.0	10.4	1.0	11.1	1.0	12.2	1.1	13.5
6.0	84/0.3	3.3	35	0.8	1.3	11.7	1.4	12.7	1.2	13.9	-	-
10.0	80/0.4	1.91	46	1.0	1.4	14.6	1.4	16.1	1.4	17.7	-	-
16.0	127/0.4	1.21	57	1.0	1.4	17.4	1.4	18.5	1.4	20.4	-	-
25.0	197/0.4	0.78	71	1.2	1.5	20.5	1.6	22.6	1.6	25.1	-	-
35.0	277/0.4	0.554	91	1.2	1.6	23.4	1.6	25.0	1.7	27.8	-	-
50.0	397/0.4	0.386	120	1.4	2.0	28.6	2.0	30.5	2.0	33.7	-	-
70.0	356/0.5	0.272	150	1.4	2.2	32.6	2.2	33.8	2.2	37.3	-	-
95.0	476/0.5	0.206	175	1.6	2.4	37.2	2.4	38.7	2.4	42.8	-	-
120.0	611/0.5	0.161	200	1.6	2.5	41.6	2.5	42.4	2.5	46.9	-	-
150.0	764/0.5	0.129	220	1.8	-	-	2.6	47.1	2.6	52.1	-	-
185.0	942/0.5	0.106	245	2.0	-	-	2.8	52.0	2.8	57.6	-	-
240.0	1222/0.5	0.0801	260	2.2	-	-	3.0	58.6	3.0	64.9	-	-
300.0	1528/0.5	0.0641	285	2.4	-	-	3.2	64.8	3.2	71.9	-	-

MULTI CORE AS PER IS 694:2010 - WITH ISI MARKING						
	Area Sq. mm	0.5	0.75	1.0	1.5	2.5
Conductor	No. & Size of wire (Nom.) mm	16/0.2	24/0.2	32/0.2	30/0.25	50/0.25
	Max. Resistance @ 20° C Ohm/Km	39	26	19.5	13.3	7.98
	Current Rating (Amps)	4	7	12	15	20
Insulation	Thickness (Nom.) mm	0.6	0.6	0.6	0.6	0.7
6 Core	Sheath Thickness (Nom.) mm	0.9	1.0	1.0	1.0	1.1
	Overall Diameter (Approx.) mm	7.8	8.7	9.2	10.0	12.0
7 Core	Sheath Thickness (Nom.) mm	0.9	1.0	1.0	1.0	1.1
	Overall Diameter (Approx.) mm	8.3	9.2	9.8	10.6	12.8
8 Core	Sheath Thickness (Nom.) mm	1.0	1.0	1.0	1.1	1.2
	Overall Diameter (Approx.) mm	8.9	9.7	10.4	11.4	13.7
10 Core	Sheath Thickness (Nom.) mm	1.0	1.1	1.1	1.1	1.3
	Overall Diameter (Approx.) mm	9.7	10.8	11.5	12.5	15.3
12 Core	Sheath Thickness (Nom.) mm	1.0	1.1	1.1	1.1	1.3
	Overall Diameter (Approx.) mm	10.5	12.0	12.4	13.4	16.5
14 Core	Sheath Thickness (Nom.) mm	1.1	1.1	1.1	1.2	1.3
	Overall Diameter (Approx.) mm	11.3	12.4	13.2	14.5	17.6
16 Core	Sheath Thickness (Nom.) mm	1.1	1.2	1.2	1.2	1.4
	Overall Diameter (Approx.) mm	12.0	13.3	14.2	15.4	18.8
18 Core	Sheath Thickness (Nom.) mm	1.1	1.2	1.3	1.3	1.4
	Overall Diameter (Approx.) mm	12.6	13.9	15.1	16.4	19.8
19 Core	Sheath Thickness (Nom.) mm	1.1	1.2	1.3	1.3	1.4
	Overall Diameter (Approx.) mm	12.8	14.2	15.4	16.7	20.3
24 Core	Sheath Thickness (Nom.) mm	1.2	1.3	1.4	1.4	1.5
	Overall Diameter (Approx.) mm	14.4	15.9	17.2	18.7	22.6
25 Core	Sheath Thickness (Nom.) mm	1.2	1.3	1.4	1.4	1.5
	Overall Diameter (Approx.) mm	14.6	16.2	17.5	19.0	23.0

Generally conforming to IS 694 : 2010						
	Area Sq. mm	0.50	0.75	1.00	1.50	2.50
30 Core	Sheath Thickness (Nom.) mm	1.3	1.4	1.5	1.5	1.6
	Overall Diameter (Approx.) mm	16.0	17.7	19.1	20.8	25.1
36 Core	Sheath Thickness (Nom.) mm	1.3	1.4	1.5	1.5	1.6
	Overall Diameter (Approx.) mm	17.5	19.3	20.9	22.4	27.4

Generally conforming to IS 694 : 2010													
4.0 Sq. mm	6 Core	7 Core	8 Core	10 Core	12 Core	14 Core	16 Core	18 Core	19 Core	24 Core	25 Core	30 Core	36 Core
Insulation Thickness (Nom.) mm	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Sheath Thickness (Nom.) mm	1.2	1.2	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.7	1.7
Overall Diameter (Approx.) mm	14.2	15.2	16.3	18.1	19.5	20.9	22.3	23.5	24.0	26.8	27.3	29.0	32.4

Note: The conductor construction given above is indicative only and will be such that all requirements of strand diameter and conductor resistance as per IS 694:2010 and IS 8130:1984 are met.

Derating Factor	Multiply the current capacity of the cable by the factor below for various ambient temperatures.				
Ambient Temperature deg	30	35	40	45	50
Derating Factors	1.09	1.04	1.00	0.95	0.77

Technical data sheet (FR, Single core Unsheathed Flexible cable) Grade upto 1100 volts
As per IS 694:2010 with ISI Marking

Area	No. of Wire/ Nominal Wire Diameter	Insulation Thickness	Insulation Diameter	Conductor Resistance	Safe Current Carrying Capacity 2 wires Single Phase	
		(Nom)	(Approx)	at 20° C (Max)	In conduit/ Trunking	Unenclosed clipped directly to a surface or on cable tray
(Sq. mm)	No./mm	Mm	mm	Ohm/Km	(Amp)	(Amp)
0.5	16/0.2	0.6	2.10	39	4	4.5
0.75	24/0.2	0.6	2.30	26	7	8
1.0	32/0.2	0.6	2.50	19.5	11	12
1.5	30/0.25	0.7	2.75	13.3	13	16
2.5	50/0.25	0.8	3.40	7.98	18	22
4.0	56/0.3	0.8	4.10	4.95	24	29
6.0	84/0.3	0.8	4.75	3.3	31	37
10.0	80/0.4	1.0	6.00	1.91	42	51
16.0	127/0.4	1.0	7.10	1.21	57	68
25.0	197/0.4	1.2	8.85	0.78	71	86
35.0	277/0.4	1.2	9.85	0.554	91	100
50.0	397/0.4	1.4	12.00	0.386	120	145

TESTING DATA : BCH FR Wires

Test	Test Method Specified	Specification values
Critical Oxygen Index	IS:10810 Part 58	Oxygen Index Minimum 29%
Temperature Index	IS:10810 Part 64	Temperature Index Minimum 250°C
Also meets requirements of Flammability test as per IS 694:1990		

Working Voltage : Upto 1100 Volts
Temperature Range : -15 deg C to + 70 deg C

Sizes : 0.50 sqmm to 50 sqmm with I.S.I. mark
Color code : Black , Red , Yellow, Green, Blue, Grey, White, Yellow / Green.
Specification : I.S. 694 (2010)

BCH Flame Retardant Low Smoke & Halogen Free Electrical Wires and Cables

BCH Electric Limited introduces a safe, hygienic and life- guarding cable - Flame Retardant Low Smoke and Halogen free (FR-LSH) cable. Our FR LSH cables are manufactured using individual conductors drawn from 99.98% bright electrolytic grade copper with more than 101 % conductivity & insulated with FR-LSH Grade PVC compound. These wires have special flame retardant, toxic fumes suppressing and low smoke emitting properties, with improved fire performance which satisfies the conditions of category FR-LSH (IS 694:2010).In addition, BCH FR LSH cables have negligible Lead and Mercury in the insulation and sheath, as we use only RoHS PVC. BCH FR LSH WIRES AND CABLES are therefore, the natural preferred choice where health and safety of humans is of primary concern. In case of a fire, normal PVC insulated wires give out thick black smoke and toxic fumes of HCL gas which diminishes visibility and interrupt the rescue operations. Contrary to that, BCH FR-LSH Wires emit very negligible amount of smoke and toxic gases and also retard the spreading of fire. It is thus, ideal for public premises such as Cinemas, Multiplexes, Airports, Hospitals & Homes where risk to human life due to fire and smoke is more. The BCH FR-LSH cables are also used for special applications like control panels, industries and buildings etc., where increased fire safety is desired. PVC compounds used for insulation of BCH FR-LSH Wires have high oxygen and temperature index. These properties help in restricting spread of fire even at very high temperatures. RoHS feature further ensures hygiene and cleaniness. BCH wires & cables are made only using RoHS compliant PVC. RoHS PVC cables are environment friendly and hygienic as it does not contains the restricted materials that are hazardous to the environment and pollute landfills, and are dangerous in terms of occupational exposure during manufacturing and disposal. Hence, decreases the health hazards to people and environment and ensures good health and a clean environment.

Technical data sheet (FR-LSH, Single core Unsheathed Flexible cable) Grade upto 1100 volts As per I.S. 694 (2010) with marking

Area	No. of Wire/ Nominal Wire Diameter	Insulation Thickness	Insulation Diameter	Conductor Resistance	Safe Current Carrying Capacity 2 wires Single	
		(Nom)	(Approx)	at 20° C (Max)	In conduit/ Trunking	Unenclosed clipped directly to a surface or on cable tray
(Sq. mm)	No./mm	mm	mm	Ohm/Km	(Amp)	(Amp)
0.5	16/0.2	0.6	2.10	39	4	4.5
0.75	24/0.2	0.6	2.30	26	7	8
1.0	32/0.2	0.6	2.50	19.5	11	12
1.5	30/0.25	0.7	2.75	13.3	13	16
2.5	50/0.25	0.8	3.40	7.98	18	22
4.0	56/0.3	0.8	4.10	4.95	24	29
6.0	84/0.3	0.8	4.75	3.3	31	37
10.0	80/0.4	1.0	6.00	1.91	42	51
16.0	127/0.4	1.0	7.10	1.21	57	68
25.0	197/0.4	1.2	8.85	0.78	71	86
35.0	277/0.4	1.2	9.85	0.554	91	100
50.0	397/0.4	1.4	12.00	0.386	120	145

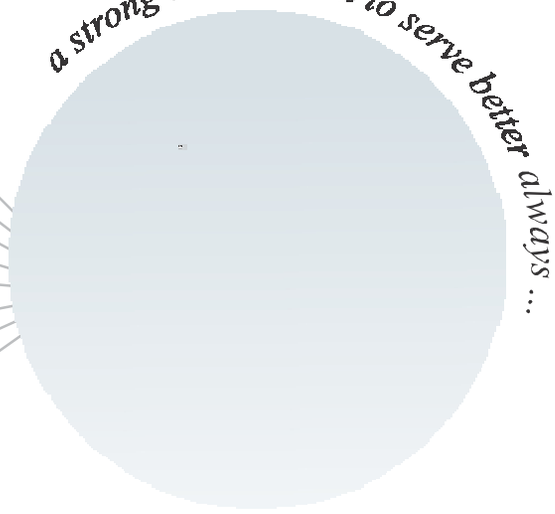
TEST	FUNCTION	TEST METHOD SPECIFICATION	TYPICAL VALUES	
			FR LSH WIRES	PVC INSULATED WIRES
Critical Oxygen Index	To determine percentage of oxygen required for supporting combustion of insulating material at room temperature	IS 10810 Part 58	More than 29%	23%
Temperature Index	To determine at what temperature normal oxygen content of	IS 10810 Part 64	More than 250°C	150°C
Acid gas generation	To ascertain the amount of Hydrochloric acid gas evolved from insulation of wire under fire	IS 10810 Part 59	Less than 20%	45-50%

Also meets the requirements of Flammability test as per IS 694:2010

Technical Data BCH FR-LSH SINGLE CORES

Working Voltage	:	Upto 1100 Volts
Temperature Range	:	-15 deg C to + 70 deg C
Sizes	:	0.50 sqmm to 50 sqmm with I.S.I. mark
Color code	:	Black, Red , Yellow, Green, Blue, Grey.
Specification	:	I.S. 694 (2010)

- Switchgear & Control Gear
- Automation
- Enclosures
- Electric Motors
- Wires & Cables
- Reactive Power Management
- Brakes and Crane Control
- Custom Build Products



BCH ELECTRIC LIMITED

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