Finolex

Selected Superbrand INDIA 2006-07 Consumer Validated

An IS / ISO 9001 Company

Single and Multicore Flexible Cables

PVC compound insulated single core and multi core flexible cables have a wide range of application in machine tools, appliances, control panels, machinery and industries of every nature.

The conductors, drawn from 99.97% bright electrolytic grade copper with more than 100% conductivity, are annealed and bunched together. The conductors are insulated with a PVC compound with high insulation resistance and dielectric strength, formulated and manufactured in-house.

In case of multicore cables, the insulated cores are laid up to form the core assembly. The inner cores are coded for ease of identification as per National/International coding practices. The sheathing is provided with a specially formulated PVC compound to facilitate not only ease in stripping but also to withstand mechanical abrasion while in use. These PVC compounds used for insulation and sheathing have a high oxygen and temperature index. These properties help in restricting the spread of fire even at very high temperatures.

The single core and multicore sheathed cables are manufactured as per IS 694 : 1990, in sizes from 0.5 sq. mm. to 50 sq. mm. in single core, and in sizes 0.5 sq.mm. to 4.0 sq. mm. upto 5 cores. These sizes carry the prestigious ISI mark and are duly approved by FIA/TAC. The rest of the sizes generally conform to IS 694 : 1990.

Cables as per BS 6004 and BS 6500 are also available for the export market. Special purpose cables in screened construction can also be made available.

TABLE 1 : SINGLE CORE / MULTICORE FLEXIBLE CABLES AS PER IS 694 : 1990
VOLTAGE GRADE UPTO 1100 VOLTS

			AREA Sq.mm.	0.5	0.75	1.0	1.5	2.5	4.0	6.0	10.0	16.0	25.0	35.0	50.0
CONDUCTOR	NO. & SIZE OF WIRE (Nom.)	No./mm		16/.2	24/.2	32/.2	30/.25 OR 48/.2	50/.25 OR 80/.2	56/.3	84/0.3	80/.4 OR 140/.3	126/.4	196/.4	276/.4	396/.4
	RESISTANCE (MAX.) @ 20°C	Ohms/km		39.0	26.0	19.5	13.3	7.98	4.95	3.30	1.91	1.21	0.780	0.554	0.386
	CURRENT RATING DC or AC	Amps		4	7	12	15	20	27	35	46	62	80	102	138
INSULATION	THICKNESS (Nom.)	mm		0.6	0.6	0.6	0.6	0.7	0.8	0.8	1.0	1.0	1.2	1.2	1.4
SINGLE CORE UNSHEATHED	OVERALL DIAMETER (Approx.)	mm		2.00	2.30	2.45	2.75	3.50	4.10	4.75	6.30	7.25	8.80	10.35	12.25
SINGLE CORE SHEATHED	SHEATH THICKNESS (Nom.)	mm		0.9	0.9	0.9	0.9	1.0	1.0						
	OVERALL DIAMETER (Approx.)	mm		4.00	4.25	4.50	4.80	5.45	6.30						
TWIN FLAT SHEATHED	OVERALL WIDTH (Approx.)	mm		6.2	6.7	–	–	–	–						
	OVERALL HEIGHT (Approx.)	mm		4.0	4.25	–	–	–	–						
2 CORE	SHEATH THICKNESS (Nom.)	mm		0.9	0.9	0.9	0.9	1.0	1.0						
	OVERALL DIAMETER (Approx.)	mm		6.1	6.7	7.0	7.6	9.1	10.5						
3 CORE	SHEATH THICKNESS (Nom.)	mm		0.9	0.9	0.9	0.9	1.0	1.0						
	OVERALL DIAMETER (Approx.)	mm		6.4	7.1	7.4	8.0	9.6	11.4						
4 CORE	SHEATH THICKNESS (Nom.)	mm		0.9	0.9	0.9	1.0	1.0	1.0						
	OVERALL DIAMETER (Approx.)	mm		6.9	7.7	8.1	9.2	10.7	12.4						
5 CORE	SHEATH THICKNESS (Nom.)	mm		0.9	0.9	1.0	1.0	1.0	1.1						
	OVERALL DIAMETER (Approx.)	mm		7.5	8.3	9.1	9.9	11.7	13.8						

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 and IS 8130 are met.

TABLE 2 : SINGLE CORE FLEXIBLE CABLES GENERALLY CONFORMING TO IS 694 : 1990
VOLTAGE GRADE UPTO 1100 VOLTS

	AREA sq.mm.		70.0	95.0	120.0	150.0	185.0	240.0
	NO. & SIZE OF WIRE	No./mm	360/.5	475/.5	608/.5	750/.5	925/.5	1221/.5
CONDUCTOR	MAX RES. @20°C	Ohms/km	0.272	0.206	0.161	0.129	0.106	0.0801
	CURRENT DC/AC	Amps	214	260	305	355	415	500
INSULATION	THICKNESS (Nom.)	mm	1.4	1.6	1.6	1.8	2.0	2.2
	O.D. (Approx.)	mm	13.9	15.9	17.8	19.8	22.0	26.0

TABLE 3 : FLEXIBLE MULTICORE CABLES (6 CORES TO 19 CORES) GENERALLY CONFORMING TO IS 694 : 1990, VOLTAGE GRADE UPTO 1100 VOLTS

CORES	AREA sq.mm	0.5	0.75	1.0	1.5	2.5	4.0
6	SHEATH THICKNESS (Nom.) mm	0.9	1.0	1.0	1.0	1.1	1.2
	OVERALL DIAMETER (Approx.) mm	8.1	9.4	9.8	10.7	12.9	16.0
7	SHEATH THICKNESS (Nom.) mm	0.9	1.0	1.0	1.0	1.1	1.2
	OVERALL DIAMETER (Approx.) mm	8.1	9.4	9.8	10.7	12.9	16.0
8	SHEATH THICKNESS (Nom.) mm	1.0	1.0	1.0	1.1	1.2	1.3
	OVERALL DIAMETER (Approx.) mm	9.4	10.4	10.9	12.2	14.6	17.0
10	SHEATH THICKNESS (Nom.) mm	1.0	1.1	1.1	1.1	1.3	1.4
	OVERALL DIAMETER (Approx.) mm	10.5	11.9	12.5	13.7	16.7	19.5
12	SHEATH THICKNESS (Nom.) mm	1.0	1.1	1.1	1.1	1.3	1.4
	OVERALL DIAMETER (Approx.) mm	10.8	12.3	12.9	14.1	17.3	20.5
14	SHEATH THICKNESS (Nom.) mm	1.1	1.1	1.1	1.2	1.3	1.4
	OVERALL DIAMETER (Approx.) mm	11.5	12.8	13.5	15.0	18.1	22.5
16	SHEATH THICKNESS (Nom.) mm	1.1	1.2	1.2	1.2	1.4	1.5
	OVERALL DIAMETER (Approx.) mm	12.1	13.7	14.4	15.8	19.3	24.0
19	SHEATH THICKNESS (Nom.) mm	1.1	1.2	1.3	1.3	1.4	1.5
	OVERALL DIAMETER (Approx.) mm	12.7	14.4	15.1	16.8	20.3	25.5

TABLE 4 : THREE & FOUR CORE FLEXIBLE CABLES FOR VOLTAGE GRADE UPTO 1100 VOLTS

		AREA sq.mm.	6.0	10.0	16.0	25.0	35.0	50.0	70.0	95.0	120.0
	NO. & SIZE OF WIRE	No./mm	84/.3	140/.3 OR 80/.4	226/.3 OR 126/.4	354/.3 OR 196/.4	495/.3 OR 276/.4	703/.3 OR 396/.4	360/.5	475/.5	608/.5
CONDUCTOR	MAX. RES @20°C	Ohms/Km	3.30	1.91	1.21	0.78	0.554	0.386	0.272	0.206	0.161
	CURRENT	Amps	31	42	57	72	91	120	165	200	225
INSULATION	THICKNESS	mm	0.8	1.0	1.0	1.2	1.2	1.4	1.4	1.6	1.6
3-CORE	SHEATH THICKNESS (Nom.)	mm	1.3	1.4	1.4	1.5	1.6	2.0	2.2	2.4	2.5
	O.D. (Approx.)	mm	13.3	16.9	19.1	23.0	26.3	31.7	38.5	45.0	49.0
4-CORE	SHEATH THICKNESS (Nom.)	mm	1.4	1.4	1.4	1.6	1.7	2.0	2.2	2.4	2.5
	O.D. (Approx.)	mm	14.7	18.6	21.0	25.5	29.2	33.4	40.0	46.5	51.0

Finolex PVC insulated single core flexible cables in grey and white colour are ideal for use in cabling for UPS in establishments that have large computer networks. These unique colours can help identify the cabling for UPS wiring in the circuit and are available in sizes 0.5 sq. mm to 6.0 sq.mm. These cables conforming to IS 694 : 1990, carry the prestigious ISI mark and are duly approved by FIA/TAC. **These cables can also be made available with FR or FRLS insulating compound on request.** Technical details as per Table 1.

TABLE 5 : COLOUR CODING

Type	COLOURS	
	Core	Sheath
Single Core Unsheathed	Red; Yellow; Blue; Black; White & Grey	
Single Core Sheathed	Black	Black
Twin Twisted	Red & Black	
Twin Flat Sheathed	Red & Black	Black
2 Core Round Sheathed	Red & Black	Black
3 Core Round Sheathed	Red; Black & Yellow/Green for earth	Black
4 Core Round Sheathed	Red; Yellow; Blue & Yellow/Green for earth	Black
5 Core Round Sheathed	Red; Yellow; Blue; Black & Grey	Black

Note : Any required colour can be provided on specific request.

CABLES FOR OVERSEAS MARKETS

Finolex cables have been used in many countries for over two decades. Cables can be offered to British or equivalent standards. Specifications for a representative single core range are given below :

TABLE 6 : SINGLE CORE UNSHEATHED CABLES AS PER BS 6004

Nominal Cross-Sectional Area of Conductor mm²	Radial Thickness of Insulation (Nom.) mm	Cables with Rigid (Solid / Stranded) Copper Conductor				Cables with Flexible Copper Conductor			
		Cable Code	Conductor Construction (No./mm)	Conductor Resistance (Max.) at 20 °C ohm/km	Overall Diameter (Max.) mm	Cable Code	Conductor Construction (No./mm)	Conductor Resistance (Max.) at 20 °C ohm/km	Overall Diameter (Max.) mm
0.50	0.6	H05V-U	1/0.80	36.0	2.3	H05V-K	16/0.2	39.0	2.6
0.75	0.6	H05V-U	1/0.97	24.5	2.5	H05V-K	24/0.2	26.0	2.8
1.0	0.6	H05V-U	1/1.13	18.1	2.7	H05V-K	32/0.2	19.5	3.0
1.5	0.7	H07V-R	7/0.53	12.1	3.3	H07V-K	30/0.25	13.3	3.4
2.5	0.8	H07V-R	7/0.67	7.41	4.0	H07V-K	50/0.25	7.98	4.1
4	0.8	H07V-R	7/0.85	4.61	4.6	H07V-K	56/0.3	4.95	4.8
6	0.8	H07V-R	7/1.04	3.08	5.2	H07V-K	84/0.3	3.30	5.3
10	1.0	H07V-R	7/1.35	1.83	6.7	H07V-K	80/0.4	1.91	6.8
16	1.0	H07V-R	7/1.70	1.15	7.8	H07V-K	126/0.4	1.21	8.1
25	1.2	H07V-R	7/2.14	0.727	9.7	H07V-K	196/0.4	0.780	10.2
35	1.2	H07V-R	7/2.52	0.524	10.9	H07V-K	276/0.4	0.554	11.7
50	1.4	H07V-R	19/1.78	0.387	12.8	H07V-K	396/0.4	0.386	13.9
70	1.4	H07V-R	19/2.14	0.268	14.6	H07V-K	360/0.5	0.272	16.0
95	1.6	H07V-R	19/2.52	0.193	17.1	H07V-K	475/0.5	0.206	18.2
120	1.6	H07V-R	37/2.03	0.153	18.8	H07V-K	608/0.5	0.161	20.2
150	1.8	H07V-R	37/2.25	0.124	20.9	H07V-K	750/0.5	0.129	22.5
185	2.0	H07V-R	37/2.52	0.0991	23.3	H07V-K	925/0.5	0.106	24.9
240	2.2	H07V-R	61/2.25	0.0754	26.6	H07V-K	1221/0.5	0.0801	28.4

Note : The conductor construction given above is indicative only, and will be such that all requirements of BS 6360 are met.

- **Harmonized code designations are described below :**

Cable Code	Type of Conductor	Voltage Grade
H05V-U	Solid	300 / 500 V
H05V-K	Flexible	300 / 500 V
H07V-R	Stranded	450 / 750 V
H07V-K	Flexible	450 / 750 V

- Solid Conductors are as per Class 1, Stranded Conductors are as per Class 2 and Flexible Conductors are as per Class 5 according to BS 6360.
- Cables up to and including 10 mm² can be offered with Solid Conductor also (harmonized code H07V-U).

Other types of cables offered to overseas markets include :

- Multicore sheathed cables as per BS 6004 or BS 6500, with stranded (Class 2) or Flexible (Class 5) conductors.
- HR PVC Insulated winding wires for submersible pump motors
- PVC Insulated and sheathed three core flat cables and three core round double sheathed cables for submersible pumps
- HR PVC Insulated single core flexible cables as per BS 6231 Type CK
- PVC Insulated auto and battery cables as per DIN 72551, JIS C 3406, JASO D 611, ISO 6722 and IS 2465.
- PVC Insulated and sheathed power and control cables as per BS 6346 and IEC 60502
- XLPE Insulated and sheathed power cables as per BS 5467 and IEC 60502