



Application:

Mainly used for interconnections for control circuits, communication systems, electrical panels, machine tools as well as lighting at lower loads.

Types & Sizes:

Typically up to 61 cores from 1.0 sq.mm to 2.5 sq.mm with voltage grade up to 1.1 kV

Conductor:

Copper – Solid, Stranded (Circular) or Flexible – Bare or Tinned

Insulation:

PVC, PE, XLPE, LSZH, EPR

Screening:

Aluminium Mylar Tape with Copper Drain Wire, Copper Tape/ Tinned Copper Braid

Armour:

Galvanized Steel or Aluminium Round Wire/ Flat Strip/ Tape or GI/ Tinned Copper Braid

Inner & Outer Sheath:

PVC, PE, Thermoplastic or Thermoset LSZH, Rubber, EVA

Specifications:

Generally conforming to IS: 694, IS: 1554 (Pt-I), IS: 7098 (Pt-I), IEC: 60502-1, BS: 5467, BS: 6346, AS/NZS 5000.1 and designed to meet the customer's requirements

Note

- ⦿ The technical data provided is for stranded (Class 2) conductor and PVC. Details given are for reference only and may be revised without notice. Other details can be provided on request.
- ⦿ Max. Conductor D.C. Resistance at 20°C - Conductor Size: 1.5 sq.mm - 12.1 Ω/km (Bare), 12.2 Ω/km (Tinned) and 2.5 sq.mm - 7.41 Ω/km (Bare), 7.56 Ω/km (Tinned)
- ⦿ The current ratings are given for Air Temperature @ 40°C, Ground/Duct Temperature @ 30°C, Thermal Resistivity of soil 1.5 km/W, Depth of laying 900 mm and may vary if the site conditions are different.

Technical Data for PVC Control Cables

1.1 kV Control Cables with PVC Insulation & Sheathing as per IS: 1554 (Pt-1)

No. of cores & cross sectional area	Thickness of PVC insulation	Thickness of inner sheath (Extruded)	Unarmoured		Flat strip armoured		Round wire armoured		Current rating		Reactance of cable at 50 Hz	Capacitance of cable
			Thickness of outer sheath	Outer dia.	Thickness of outer sheath	Outer dia.	Thickness of outer sheath	Outer dia.	Direct in ground	In air/ duct		
No. X	Nom.	Min.	Nom.	Approx.	Min.	Approx.	Min.	Approx.	Amps.		Approx.	Approx.
sq.mm	mm	mm	mm	mm	mm	mm	mm	mm			Ω/km	µf/km
2 x 1.5	0.8	0.3	1.8	11.5	—	—	1.24	13.0	23	20	0.112	0.20
3 x 1.5	0.8	0.3	1.8	12.0	—	—	1.24	13.5	21	17	0.112	0.20
4 x 1.5	0.8	0.3	1.8	12.5	—	—	1.24	14.5	21	17	0.112	0.20
5 x 1.5	0.8	0.3	1.8	13.5	—	—	1.24	15.5	21	17	0.112	0.20
6 x 1.5	0.8	0.3	1.8	14.6	—	—	1.24	16.5	15	13	0.112	0.20
7 x 1.5	0.8	0.3	1.8	14.5	—	—	1.24	16.5	14	13	0.112	0.20
10 x 1.5	0.8	0.3	1.8	18.0	—	—	1.40	20.0	13	11	0.112	0.20
12 x 1.5	0.8	0.3	1.8	18.5	1.24	19.5	1.40	21.0	12	10	0.112	0.20
14 x 1.5	0.8	0.3	1.8	19.0	1.40	20.5	1.40	22.0	11	10	0.112	0.20
16 x 1.5	0.8	0.3	1.8	20.0	1.40	21.0	1.40	22.5	11	9	0.112	0.20
19 x 1.5	0.8	0.3	2.0	21.5	1.40	22.0	1.40	23.5	10	9	0.112	0.20
24 x 1.5	0.8	0.3	2.0	24.5	1.40	25.5	1.40	27.0	9	8	0.112	0.20
27 x 1.5	0.8	0.3	2.0	25.0	1.40	26.0	1.40	27.5	9	8	0.112	0.20
30 x 1.5	0.8	0.3	2.0	26.0	1.40	26.5	1.40	28.0	9	7	0.112	0.20
37 x 1.5	0.8	0.3	2.0	28.0	1.40	28.5	1.40	30.0	8	7	0.112	0.20
61 x 1.5	0.8	0.4	2.2	35.0	1.56	35.0	1.56	38.0	6	6	0.112	0.20
2 x 2.5	0.9	0.3	1.8	12.5	—	—	1.24	14.5	32	27	0.107	0.22
3 x 2.5	0.9	0.3	1.8	13.0	—	—	1.24	15.0	27	24	0.107	0.22
4 x 2.5	0.9	0.3	1.8	14.0	—	—	1.24	16.0	27	24	0.107	0.22
5 x 2.5	0.9	0.3	1.8	15.0	—	—	1.24	17.0	23	19	0.107	0.22
6 x 2.5	0.9	0.3	1.8	16.5	—	—	1.24	18.5	21	18	0.107	0.22
7 x 2.5	0.9	0.3	1.8	16.5	—	—	1.24	18.5	20	17	0.107	0.22
10 x 2.5	0.9	0.3	1.8	20.5	1.40	21.5	1.40	23.0	18	15	0.107	0.22
12 x 2.5	0.9	0.3	2.0	21.5	1.40	22.0	1.40	23.5	17	14	0.107	0.22
14 x 2.5	0.9	0.3	2.0	22.5	1.40	23.0	1.40	24.5	16	13	0.107	0.22
16 x 2.5	0.9	0.3	2.0	23.5	1.40	24.0	1.40	25.5	15	13	0.107	0.22
19 x 2.5	0.9	0.3	2.0	24.5	1.40	25.0	1.40	26.5	14	12	0.107	0.22
24 x 2.5	0.9	0.3	2.0	28.5	1.40	29.0	1.56	31.0	13	11	0.107	0.22
27 x 2.5	0.9	0.3	2.0	29.0	1.40	29.5	1.56	31.5	12	10	0.107	0.22
30 x 2.5	0.9	0.3	2.0	30.0	1.56	30.5	1.56	32.5	12	10	0.107	0.22
37 x 2.5	0.9	0.4	2.2	32.5	1.56	33.5	1.56	36.0	11	9	0.107	0.22
61 x 2.5	0.9	0.4	2.2	41.0	1.56	41.0	1.72	44.0	8	8	0.107	0.22

INSTRUMENTATION & SIGNAL CABLES



Application:

These cables are designed to transmit signal without interference and find wide application in measurement, control and supervision in process instruments, communication, data systems, etc.

Types & Sizes:

Pair/triad formation (up to 25 pairs, triads) from 0.50 sq.mm to 2.50 sq.mm for voltage grade up to 11 kV

Conductor:

Copper - Solid, Stranded (Circular) or Flexible - Bare or Tinned

Insulation:

PVC, PE, XLPE, Thermoplastic or Thermoset LSZH

Screening:

Individual & Overall or Overall screening - Polyester Tape, Aluminium Mylar Tape, with Copper Drain Wire, Copper Tape or Tinned Copper Braiding

Armour:

Galvanized Steel Round Wire/ Flat Strip/ Tape or GI/ Tinned Copper Braid

Inner & Outer Sheath:

PVC, PE, Thermoplastic or Thermoset LSZH, Rubber, EVA

Specifications:

Generally conforming to IS:1554 (Pt-1), BS: 5308 (Pt-1 & 2), IEC: 60189 (Pt 1 & 2), IEC: 60227, VDE: 0815 & 0816, BS EN: 50288-7

Note

- ⦿ The technical data provided is for Solid (Class 1) conductor and PVC-GP (General purpose). Details given are for reference only and may be revised without notice.
- ⦿ Other details can be provided on request.

Technical Data for XLPE/PE Instrumentation Cables

500 Volts, XLPE/PE Insulated, Instrumentation Cables Conforming to EN: 50288-7 Individual Pair Screened & Overall Screened

1.0 Sq.mm									
No. of pair		2		4		8		12	
Cable type		Unarmd.	Arm d.	Unarmd.	Arm d.	Unarmd.	Arm d.	Unarmd.	Arm d.
Conductor diameter	(mm)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Insulation thickness	(min.)(mm)	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Thickness of sheath / bedding	(Nom.)(mm)	—	1.0	—	1.1	—	1.3	—	1.4
Thickness of outer sheath	(Nom.)(mm)	1.0	1.4	1.0	1.5	1.3	1.6	1.4	1.7
Overall diameter	(For reference only)(mm)	10.5	15.0	12.0	17.0	16.5	22.0	19.5	25.5

1.5 Sq.mm									
No. of pair		2		4		8		12	
Cable type		Unarmd.	Arm d.	Unarmd.	Arm d.	Unarmd.	Arm d.	Unarmd.	Arm d.
Conductor diameter	(mm)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Insulation thickness	(min.)(mm)	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Thickness of sheath / bedding	(Nom.)(mm)	—	1.1	—	1.1	—	1.3	—	1.5
Thickness of outer sheath	(Nom.)(mm)	1.1	1.5	1.1	1.5	1.3	1.7	1.5	1.8
Overall diameter	(For reference only)(mm)	11.5	16.0	13.5	18.5	18.5	24.0	22.0	28.0

500 Volts, XLPE/PE Insulated, Instrumentation Cables Conforming to EN: 50288-7 Overall Screened

1.0 Sq.mm									
No. of pair		2		4		8		12	
Cable Type		Unarmd.	Arm d.	Unarmd.	Arm d.	Unarmd.	Arm d.	Unarmd.	Arm d.
Conductor diameter	(mm)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Insulation thickness	(min.)(mm)	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Thickness of sheath / bedding	(Nom.)(mm)	—	1.0	—	1.0	—	1.2	—	1.3
Thickness of outer sheath	(Nom.)(mm)	1.0	1.4	1.0	1.4	1.2	1.5	1.3	1.6
Overall diameter	(For reference only)(mm)	9.0	13.5	10.5	15.0	14.0	19.0	16.5	22.5

1.5 Sq.mm									
No. of pair		2		4		8		12	
Cable Type		Unarmd.	Arm d.	Unarmd.	Arm d.	Unarmd.	Arm d.	Unarmd.	Arm d.
Conductor diameter	(mm)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Insulation thickness	(min.)(mm)	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Thickness of sheath / bedding	(Nom.)(mm)	—	1.0	—	1.1	1.1	1.2	—	1.3
Thickness of outer sheath	(Nom.)(mm)	1.0	1.4	1.1	1.5	1.5	1.6	1.3	1.7
Overall diameter	(For reference only)(mm)	10.0	14.5	11.5	16.5	16.5	21.5	18.5	24.5

General Electrical Characteristics

Particular	Units	0.5 Sq.mm	1.0 Sq.mm	1.5 Sq.mm
Maximum D.C. resistance of bare copper conductor at 20 Deg C	Ω/km	36.5	18.1	12.1
Maximum D.C. resistance of tinned copper conductor at 20 Deg C	Ω/km	37.2	18.2	12.2
Min. insulation resistance (PVC insulated cables)	MΩ/km	10	10	10
Maximum mutual capacitance (PVC insulated cables)	nF/km	250	250	250
XLPE/PE insulated cables	nF/km	1000	1000	1000
L/R ratio maximum	μH/ohm	25	25	40



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