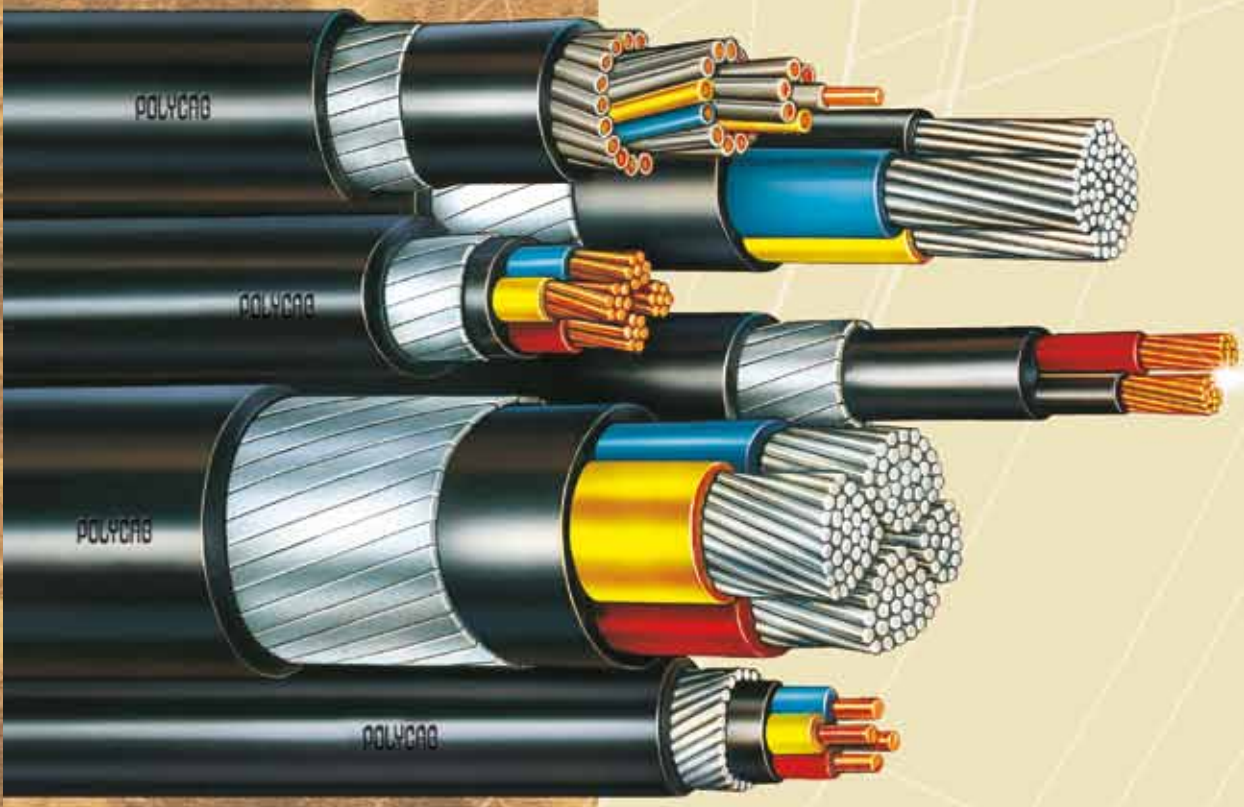
POLYCAB

PVC INSULATED HEAVY DUTY CABLES

1100 V.



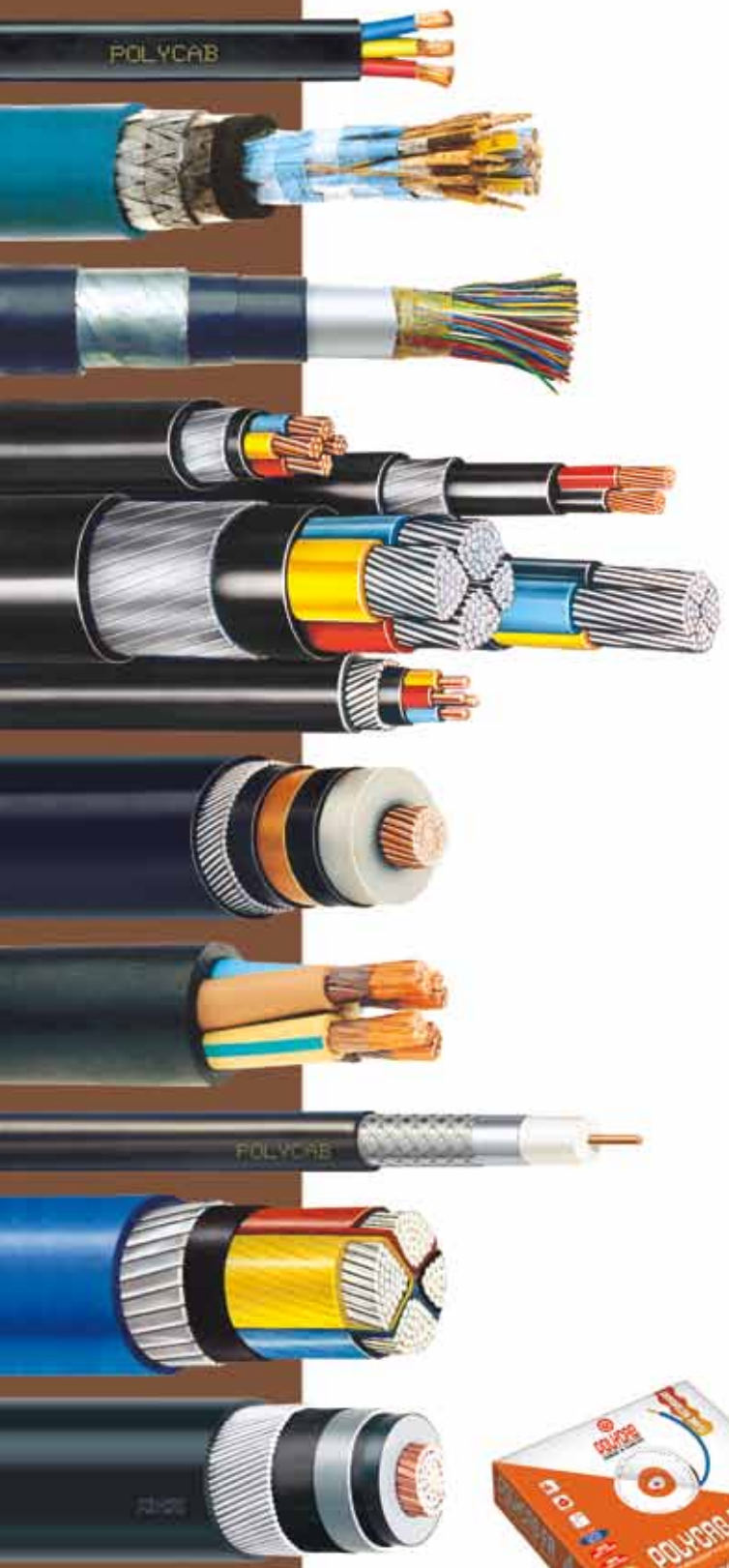
ISO 9001:2008

ISO 14001:2004

OHSAS 18001:2007

IS 1554 (Part I)

Details make the Difference



PRODUCT RANGE

- L.V. PVC & XLPE POWER CABLES WITH COPPER AND ALUMINIUM CONDUCTOR
- L.V. PVC & XLPE CONTROL CABLES WITH COPPER CONDUCTOR
- M.V. POWER CABLES UPTO 33 kV
- EHV CABLES FROM 66kV TO 220kV
- M.V. / L.V. AERIAL BUNCHED CABLES (ABC)
- ZERO HALOGEN CABLES
- FIRE SURVIVAL CABLES (FS)
- INSTRUMENTATION CABLES SCREENED / UNSCREENED
- INDUSTRIAL BRAIDED CABLES
- THERMO COUPLE / COMPENSATING CABLES
- LEAD SHEATHED CABLES
- RUBBER CABLES
- RAILWAY SIGNALLING CABLES
- TELEPHONE CABLES – DRY & JELLY FILLED
- BUILDING WIRES – FR / FRLS / FRZH / FRLF / FRFS
- SINGLE CORE INDUSTRIAL FLEXIBLES – PVC / FR / FRLS / FRZH / HRFR / HR / HR-FRLS / FRLF / FRFS
- MULTI CORE INDUSTRIAL FLEXIBLE CABLES
- SUBMERSIBLE FLAT AND ROUND CABLES
- SUBMERSIBLE WRAPPED WINDING WIRES
- COAXIAL CABLES
- LAN CAT-5E / CAT 6 CABLES
- WELDING CABLES
- SOLAR AC / DC CABLES
- STEEL BRAIDED CABLES
- SPECIALITY CABLES – SUITED FOR MARINE / OIL & GAS / EXTREME FIRE CONDITIONS / HIGHLY CORROSIVE ENVIRONMENT / TRAFFIC / AIRCRAFT / SPACE STATION / AUTOMOBILES

Contents

THE COMPANY

POLYCAB, an ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007 company is the largest Wire & Cable manufacturer in India with a proven track record of over three decades. The fastest growing company in the Indian Cable Industry with consistent growth. Polycab group has crossed Rs. 3600 crore turnover in the year 2010-11 and is set to achieve Rs. 4000 crore turnover in the year 2011–12.

From a modest beginning with Wires and Cables, over three decades ago Polycab set up State of Art manufacturing facilities at Daman in 1996.The last 3 decades have seen the core business develop along different product lines: - Low Voltage Cables, Medium Voltage Cables, Extra High Voltage Cables, Fire Survival & Fire Resistant Cables, Telecommunication Cables, Instrumentation Cables and Aerial Bunched Cables. In the manufacture of cables, a competitive edge lies not so much in product innovation as in providing consistent quality, guaranteeing reliability and ready availability. Polycab's Daman factory was created to address these key market determinants. The manufacturing set up is sourced out from the world renowned Machinery and Technology suppliers with constant upgradation and expansions.

CUSTOMER SATISFACTION

In an on going process to improve Customer Satisfaction Polycab offers a variety of services:

- Commercially competitive prices.
- Reliable & consistent quality.
- Reliable & just in time delivery.
- Product development for a changing market.
- A targeted stocking policy.
- Technical Support for Applications/ Projects

CUSTOMER FOCUSED

POLYCAB derives its strength from its customers. The growth of the latter is a prerequisite to the growth of the company and hence customers' satisfaction is its prime objective. Over the years sincere service and dedication to its Customers has earned the Company distinguished Customers which includes demanding leaders in Sectors like Utilities, Power Generation, Transmission & Distribution, Petroleum & Oil Refineries, Oem's, EPC contractors, Steel & Metal, Cement, Chemical, Atomic Energy, Nuclear Power, Consultants & Specifiers etc.

POLYCAB has highly experienced qualified and dedicated professionals with strong adherence to the quality management system. Polycab has offices all over the country and also has a wide network of authorized distributors and dealers to cater to all the customer segments in India and abroad.

POLYCAB has earned the trust and reputation in India and abroad by winning the customers' confidence. Several thousands kilometers of LT PVC Cables in the voltage range of 1.1KV have been manufactured and are in operation in India and abroad.

Polycab LT PVC Cables are preferred choice in Power Plants, Distribution Systems, Heavy Industries, Various Utilities, The Titans of Indian Industry & Consultants / Specifiers.

DETAILS MAKE THE DIFFERENCE

More than 3 decades of experience have enabled POLYCAB to develop a specific know how for each individual productline. Attention to details allows the company to apply optimum technical solutions and material selections to each and every different project or application.

Other available Catalogues:

Flexible Cables

LT XLPE Power & Control.

HT Cables upto 45KV

EHV Cables upto 132Kv

Fire Survival Cables.

The cables are suitable for use on AC single phase or three phase (earthed or unearthed) systems for rated voltage up to and including 1100 volts. These cables can be used on DC systems for rated voltage up to and including 1500 volts to earth.

CONDUCTOR

The most acceptable metals for conductors are copper and aluminium due to their higher conductivity and ductility.

As copper has got higher affinity for sulphur, it corrodes in the atmosphere where sulphur fumes are present. In these conditions tinned copper should be used. Aluminium oxide film which is always present on Aluminium conductor surface acts as barrier and it protects the Aluminium conductor from corrosion in fumes laden atmosphere.

CONDUCTOR CONSTRUCTION

The most economical construction for conductor is solid conductor i.e. conductor is made of one single wire. As the area of conductor increase, solid conductor becomes more stiff and hence difficult to handle. In this case stranded construction is adopted. Here the conductor is made of number of strands. The strands are arranged in spiral layers in 1+6+12+18+…….. formations. This construction provides more flexibility. Where crimping of lugs are required, the conductor has to be of stranded construction only.

To economise in insulating material, weight and overall diameter, shaped conductors are employed in bigger sized cables. Here the stranded conductor is shaped in to a segment of a circle so that when all the cores are laid, they form a complete circle. These segments are identified as 2 Core – 180 degree, 3 Core – 120 degree, 4 Core – 90 degree and 3.5 Core – 100/60 degree.

I.S. 1554 permits solid conductor construction upto 10 sq.mm in Aluminium and upto 6 sq.mm in copper. It permits the use of shaped conductors for sizes from 16 sq.mm onwards.

INSULATION

The PVC covering over conductor is called insulation and is provided by extrusion process only. The insulated conductor is called core.

I.S. 1554 permits two types of PVC insulation as follows :

1) Insulation with TYPE A PVC compound as per I.S. 5831 which is suitable for 70 deg.C continuous operation.
2) Insulation with TYPE C PVC compound as per I.S. 5831 which is suitable for 85 deg.C continuous operation.

The following colour code is used for identification :

Single Core	: Red, Black, Yellow or Blue.
Two Cores	: Red and Black
Three Cores	: Red, Yellow and Blue.
Three & Half	: Red, Yellow, Blue and Reduced neutral Black.
Four Core	: Red, Yellow, Blue and Black.
Five Core	: Red, Yellow, Blue, Black, & Grey
Six Cores	: Two adjacent cores. Blue and Yellow (Counting and direction core) And remaining Grey in each layer. OR By printing numbers on each core.

LAYING UP

The cores are laid up with suitable lay. The final layer always has a right hand lay i.e. if you look along the cable, the cores move to your right hand.

INNERSHEATH

Innersheath is provided over the laid up cores. It is provided to give circular shape to the cable and it provides bedding for the armouring.

I.S. 1554 permits following two methods of applying the innersheath of any thermoplastic material i.e. PVC, Polyethylene, etc.

a) EXTRUDED INNERSHEATH: Here the innersheath is provided by extrusion of Thermoplastic over the laid up cores. This type of the innersheath is generally provided in cables having round cores i.e in control cables and in power cables upto 10 sq.mm size. This type of the innersheath also acts as a water barrier between cores

and outersheath. In case of a puncture in the outersheath the water can not reach to the cores and hence we recommend that cables for outdoor underground uses should have extruded innersheath.

b) **TAPPED INNERSHEATH:** Here the innersheath is provided by wrapping a thermoplastic tape over the laid up cores. It is generally employed in cables having sector shaped cored i.e. multicore cables of 16 sq.mm and above.

This method saves a process and hence manufacturers always provide this type of innersheath unless the purchase specifications ask for extruded innersheath.

ARMOURING

In case of armoured cables, generally galvanized steel wire / strip armouring is provided over the innersheath in multi-core cables and Aluminium Round Wire or Aluminium Strip over the insulation in single core cables. It provides mechanical protection to inside cores and it carries earth return current in case of a short circuit of a core with armour.

As per I.S. 1554 (Part I) 1988, round wire armouring is provided in cable, where calculated diameter under armour is upto 13 mm. Above this the armouring is either with round wire or strip of size 4 mm x 0.80 mm. As strip construction is economical, the manufacturers always provide steel strip armouring unless wire armouring is specially specified.

In long run of cables and in case of mines, round wire armouring is must, as strip construction provides higher resistance to earth fault current and sometimes this current may not be sufficient to operate the circuit breaker in case of earth fault.

In mines, the resistance of the armour in no case should exceed the resistance of the main core by more than 33% for safety reasons. To achieve this, sometimes tinned hard drawn copper wires are required to be used along with galvanized steel wires. Sometimes two layers of Round Steel Wire or Steel Strip are applied in opposite direction with barrier tape in between are provided to give extra protection.

In case of single core armoured cables for use in AC circuits, the material for armouring has to be non magnetic, as in this case the return current is not passing through the same cable and hence it will not cancel the magnetic lines produced by the current. These magnetic lines which are oscillating in case of AC current will give rise to eddy current in magnetic armouring and hence armouring will become hot, and this may lead to the failure of the cable. Generally hard drawn aluminium wires / strip are used for armouring in this case.

OUTERSHEATH

The PVC covering over the armouring in case of armoured cables and over the innersheath in case of unarmoured cables is called outersheath.

I.S. 1554 specifies nominal and minimum thicknesses of outer sheath for unarmoured cables and only minimum thickess of outer sheath for armoured cables.

It permits the following types of outer sheath PVC compounds.

1) Outer sheath with type ST1 PVC compound as per IS-5831, which is suitable for 70°C continuous operation.
2) Outer sheath with Type ST2 PVC compound as per IS-5831, which is suitable for 85°C continuous operation.

PVC has got fire retardant properties due to its halogen content. The fire in the cable gets extinguished immediately on removal of the fire source.

In the modern Power, Chemical, Fertilizer and Cement Plants many PVC cables are bunched in the cable shaft or on cable trays. In case of fire in these cables, the fire becomes self sustaining. Moreover due to the burning of PVC a dense corrosive

smoke is emitted which makes fire fighting very difficult, due to poor visibility and toxic nature of the smoke. HCL content of the smoke, not only damages other costly equipment lying nearby, but also penetrates the RCC and corrodes the steel reinforcement. Due to this there is an extensive damage to the property.

To overcome these deficiencies FRLS i.e. Fire Retardant Low Smoke PVC was developed.

If required, we can provide Fire Retardant Low Smoke (FRLS) PVC Inner sheath and / or outer sheath. This PVC compound, apart from meeting the requirements of Type ST2 as per IS-5831, has got better fire retardant properties and it emits lower smoke and acid fumes when it catches fire. (For more information please refer our catalogue on FRLS cables).

CABLE CODE

The following codes are used for designating the cables as per IS-1554.

CONSTITUENT	CODE LETTER
COPPER CONDUCTOR	—
ALUMINIUM CONDUCTOR	A
PVC INSULATION	Y
STEEL ROUND WIRE ARMOUR	W
STEEL STRIP ARMOUR	F
STEEL DOUBLE ROUND WIRE ARMOUR	WW
STEEL DOUBLE STRIP ARMOUR	FF
PVC OUTER SHEATH	Y

YWY means Copper conductor, PVC insulated, round wire armoured and PVC sheathed cable.
AYFY means Aluminium conductor, PVC insulated, steel strip armoured and PVC sheathed cable.

EXAMPLES

3 Core x 2.50 sq.mm YWY : Plain Copper conductor, PVC insulated, laid up, innersheathed, G.I. wire armoured and PVC sheathed cable having 3 cores of 2.50 sq.mm conductor size.

4 core x 4.0 sq.mm AYWY: Aluminium conductor, PVC insulated, laid up, innersheathed, G.I. wire armoured and PVC sheathed cable having 4 cores of 4.0 sq.mm conductor size.

3 ½ core x 50 sq.mm AYFY: Aluminium conductor, PVC insulated, laid up, innersheathed, Steel strip armoured and PVC sheathed cable having 3 cores of 50 sq.mm and 1 core of 25 sq.mm conductor size.

The following tables give construction details of Polycab cables as per IS: 1554 ({Part I) 1988.

For current rating of Polycab cables with H.R. insulation increase the rating given in the following tables by 15%.

The weights of the cables mentioned in the following tables are approximate and given for guidance only. They should never be used as criteria to check the lengths of the cables supplied. The best way to check the length of the supplied cable is by resistance method. Take the resistance of the full drum and divide the reading by the resistance of 1 mtr. length.

To decide the size of the conductor, particularly that of the sector shaped conductor, we recommend the following method.

Take weight of a small conductor piece and measure its weight in grams. Then find out the weight of the conductor in gms per meter length. Divide it by 2.7 in case of Aluminium and by 8.9 in case of copper. It will give the area of the conductor in sq.mm.

TABLE-1 "POLYCAB" 1.1 KV SINGLE CORE, ALUMINIUM CONDUCTOR, PVC INSULATED ALUMINIUM WIRE / STRIP

ARMOURED & PVC SHEATHED CABLES CONFORMING TO IS:1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Armour		Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings					
		Aluminium Wire Dia	Aluminium Strip Thickness					Direct In Ground		In Duct		In Air	
								2 Cables	3 Cables	2 Cables	3 Cables	2 Cables	3 Cables
Sq.mm	mm	mm	mm	mm	mm	kg/mm	Ohm/Km	Amps	Amps	Amps	Amps	Amps	Amps
*4	1.3	1.4	-	1.24	11.0	155	7.410	36	31	33	30	32	27
*6	1.3	1.4	-	1.24	12.0	175	4.610	44	39	42	37	41	35
*10	1.3	1.4	-	1.24	13.0	205	3.080	50	51	56	51	56	47
16	1.3	1.4	-	1.24	14.0	230	1.910	75	66	71	65	72	64
25	1.5	1.4	-	1.24	15.0	300	1.200	97	86	93	84	99	84
35	1.5	1.4	-	1.24	16.0	350	0.868	97	100	110	100	120	105
50	1.7	1.4	-	1.24	18.0	430	0.641	120	120	130	115	150	130
70	1.7	1.4	-	1.40	20.0	530	0.443	145	140	155	135	185	155
95	1.9	-	4 x 0.80	1.40	21.0	610	0.320	170	175	180	155	215	190
120	1.9	-	4 x 0.80	1.40	22.0	710	0.253	205	195	200	170	240	220
150	2.1	-	4 x 0.80	1.40	24.0	840	0.206	230	220	220	190	270	250
185	2.3	-	4 x 0.80	1.40	26.0	1020	0.164	265	240	240	210	305	290
240	2.5	-	4 x 0.80	1.40	29.0	1250	0.125	300	270	270	225	350	335
300	2.7	-	4 x 0.80	1.56	32.0	1500	0.100	335	295	295	245	395	380
400	3.0	-	4 x 0.80	1.56	36.0	1910	0.078	370	325	335	275	455	435
500	3.4	-	4 x 0.80	1.56	40.0	2350	0.061	410	345	355	295	490	480
630	3.9	-	4 x 0.80	1.72	44.0	2920	0.047	435	390	395	320	560	550
800	3.9	-	4 x 0.80	1.88	48.0	3510	0.037	525	440	420	350	650	640
1000	3.9	-	4 x 0.80	2.04	53.0	4300	0.029	570	490	445	380	735	720

* If required, these sizes can be offered with stranded conductors also

TABLE 2 "POLYCAB" 1.1 KV SINGLE CORE, ALUMINIUM CONDUCTOR, PVC INSULATED

UNARMOURED PVC SHEATHED CABLES CONFORMING TO IS:1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings					
						Direct In Ground		In Duct		In Air	
						2 Cables	3 Cables	2 Cables	3 Cables	2 Cables	3 Cables
Sq. mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.	Amps.	Amps.	Amps.
*1.5	0.8	1.8	7.0	55	18.100	21	17	19	17	18	15
*2.5	0.9	1.8	7.5	65	12.100	28	24	25	24	25	21
*4.0	1.0	1.8	8.0	75	7.410	36	31	33	30	32	27
*6.0	1.0	1.8	9.0	90	4.610	44	39	42	37	41	35
*10	1.0	1.8	10.0	105	3.080	54	51	56	51	56	47
16	1.0	1.8	11.0	140	1.910	75	66	71	65	72	64
25	1.2	1.8	12.5	195	1.200	97	86	93	84	99	84
35	1.2	1.8	13.5	235	0.868	120	100	110	100	120	105
50	1.4	1.8	15.0	305	0.641	145	120	130	115	150	130
70	1.4	1.8	17.0	385	0.443	170	140	155	135	185	155
95	1.6	1.8	19.0	515	0.320	205	175	180	155	215	190
120	1.6	2.0	21.0	610	0.253	230	195	200	170	240	220
150	1.8	2.0	22.5	735	0.206	265	220	220	190	270	250
185	2.0	2.0	25.0	885	0.164	300	240	240	210	305	290
240	2.2	2.0	28.0	1100	0.125	335	270	270	225	350	335
300	2.4	2.0	30.0	1335	0.100	370	295	295	245	395	380
400	2.6	2.2	34.0	1665	0.078	410	325	335	275	455	435
500	3.0	2.2	38.0	2130	0.061	435	345	355	295	490	480
630	3.4	2.4	43.0	2685	0.047	485	390	395	320	560	550
800	3.4	2.4	47.0	3255	0.037	525	440	420	350	650	640
1000	3.4	2.6	51.5	3960	0.029	570	490	445	380	735	720

* If required, these sizes can be offered with stranded conductors also

TABLE-3 "POLYCAB" 1.1 KV SINGLE CORE, COPPER CONDUCTOR, PVC INSULATED ALUMINIUM WIRE / STRIP

ARMOURED & PVC SHEATHED CABLES CONFORMING TO IS:1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Armour		Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings					
		Aluminium Wire Dia	Aluminium Strip Thickness					Direct In Ground		In Duct		In Air	
								2 Cables	3 Cables	2 Cables	3 Cables	2 Cables	3 Cables
Sq. mm	mm	mm	mm	mm	mm	Kgs/Km	Ohm/Km	Amps.	Amps.	Amps.	Amps.	Amps.	Amps.
*4	1.3	1.4	-	1.24	11.0	180	4.610	46	39	42	38	43	35
*6	1.3	1.4	-	1.24	12.0	215	3.080	57	49	54	48	54	44
*10	1.3	1.4	-	1.24	13.0	270	1.830	75	65	72	64	72	60
16	1.3	1.4	-	1.24	14.0	330	1.150	94	85	92	83	92	82
25	1.5	1.4	-	1.24	15.0	460	0.727	125	110	120	110	125	110
35	1.5	1.4	-	1.24	16.0	575	0.524	150	130	140	125	155	130
50	1.7	1.4	-	1.24	18.0	740	0.387	180	155	165	150	190	165
70	1.7	1.4	-	1.40	20.0	970	0.268	220	190	200	175	235	205
95	1.9	-	4 x 0.80	1.40	21.0	1200	0.193	265	220	230	200	275	245
120	1.9	-	4 x 0.80	1.40	22.0	1460	0.153	300	250	255	220	310	280
150	2.1	-	4 x 0.80	1.40	24.0	1770	0.124	340	280	280	245	345	320
185	2.3	-	4 x 0.80	1.40	26.0	2170	0.099	380	305	305	260	390	370
240	2.5	-	4 x 0.80	1.40	29.0	2740	0.075	420	345	340	285	445	425
300	2.7	-	4 x 0.80	1.56	32.0	3360	0.060	465	375	370	310	500	475
400	3.0	-	4 x 0.80	1.56	36.0	4400	0.047	500	400	405	335	570	550
500	3.4	-	4 x 0.80	1.56	40.0	5450	0.037	540	425	430	355	610	590
630	3.9	-	4 x 0.80	1.72	44.0	6820	0.028	590	470	465	375	680	660

* If required, these sizes can be offered with stranded conductors also

TABLE-4 "POLYCAB" 1.1 KV SINGLE CORE, COPPER CONDUCTOR, PVC INSULATED

UNARMOURED PVC SHEATHED CABLES CONFORMING TO IS:1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings					
						Direct In Ground		In Duct		In Air	
						2 Cables	3 Cables	2 Cables	3 Cables	2 Cables	3 Cables
Sq. mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.	Amps.	Amps.	Amps.
*1.5	0.8	1.8	7.0	65	12.100	25	22	23	21	24	20
*2.5	0.9	1.8	7.5	82	7.410	35	30	31	29	32	27
*4.0	1.0	1.8	8.0	100	4.610	46	39	42	38	43	35
*6.0	1.0	1.8	9.0	130	3.080	57	49	54	48	54	44
*10	1.0	1.8	10.0	170	1.830	75	65	72	64	72	60
16	1.0	1.8	11.0	240	1.150	94	85	92	83	92	82
25	1.2	1.8	12.5	350	0.727	125	110	120	110	125	110
35	1.2	1.8	13.5	455	0.524	150	130	140	125	155	130
50	1.4	1.8	15.0	620	0.387	180	155	165	150	190	165
70	1.4	1.8	17.0	820	0.268	220	190	200	175	235	205
95	1.6	1.8	19.0	1105	0.193	265	220	230	200	275	245
120	1.6	2.0	21.0	1355	0.153	300	250	255	220	310	280
150	1.8	2.0	22.5	1665	0.124	340	280	280	245	345	320
185	2.0	2.0	25.0	2040	0.099	380	305	305	260	390	370
240	2.2	2.0	28.0	2590	0.075	420	345	340	285	445	425
300	2.4	2.0	30.0	3200	0.060	465	375	370	310	500	475
400	2.6	2.2	34.0	4150	0.047	500	400	405	335	570	550
500	3.0	2.2	38.0	5230	0.370	540	425	430	355	610	590
630	3.4	2.4	43.0	6600	0.280	590	470	465	375	680	660

* If required, these sizes can be offered with stranded conductors also

TABLE-5 "POLYCAB" 1.1 KV TWIN CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, INNER SHEATHED,

ARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Armour		Minimum Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
			Galv. Round Steel Wire Nominal Dia.	Galv. Flat Steel Strip Nominal Thickness					Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.4	-	1.24	12.5	320	18.100	18	16	16
*2.5	0.9	0.3	1.4	-	1.24	13.5	380	12.100	25	21	21
*4.0	1.0	0.3	1.4	-	1.24	15.0	450	7.410	32	27	27
*6.0	1.0	0.3	1.4	-	1.24	16.0	500	4.610	40	34	35
*10	1.0	0.3	1.4	-	1.24	18.0	600	3.080	55	45	47
16	1.0	0.3	-	0.8	1.40	18.0	500	1.910	70	58	59
25	1.2	0.3	-	0.8	1.40	20.0	650	1.200	90	76	78
35	1.2	0.3	-	0.8	1.40	21.5	750	0.868	110	92	99
50	1.4	0.3	-	0.8	1.40	24.5	950	0.641	135	115	125
70	1.4	0.3	-	0.8	1.56	28.0	1150	0.443	160	140	150
95	1.6	0.4	-	0.8	1.56	31.0	1460	0.320	190	170	185
120	1.6	0.4	-	0.8	1.56	33.0	1670	0.253	210	190	210
150	1.8	0.4	-	0.8	1.72	37.0	2010	0.206	240	210	240
185	2.0	0.5	-	0.8	1.88	40.5	2450	0.164	275	240	275
240	2.2	0.5	-	0.8	2.04	45.0	2950	0.125	320	275	325
300	2.4	0.6	-	0.8	2.20	50.0	3560	0.100	355	305	365
400	2.6	0.7	-	0.8	2.36	56.0	4500	0.078	385	345	420
500	3.0	0.7	-	0.8	2.68	62.5	5600	0.061	410	370	450

* If required, these sizes can be offered with standard conductors also

TABLE-6 POLYCAB 1.1 KV TWIN CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, INNER SHEATHED,

UNARMOURED, PVC SHEATHED CABLES CONFORMING TO IS: 1554 (PART I) AMENDED UPTO DATE.

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
							Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.8	11.0	115	18.100	18	16	16
*2.5	0.9	0.3	1.8	12.0	150	12.100	25	21	21
*4.0	1.0	0.3	1.8	13.5	185	7.410	32	27	27
*6.0	1.0	0.3	1.8	14.5	220	4.610	40	34	35
*10	1.0	0.3	1.8	16.0	275	3.080	55	45	47
16	1.0	0.3	1.8	17.5	285	1.910	70	58	59
25	1.2	0.3	2.0	19.5	405	1.200	90	76	78
35	1.2	0.3	2.0	20.5	490	0.868	110	92	99
50	1.4	0.3	2.0	24.0	650	0.641	135	115	125
70	1.4	0.3	2.0	27.0	800	0.443	160	140	150
95	1.6	0.4	2.2	28.5	1065	0.320	190	170	185
120	1.6	0.4	2.2	33.0	1250	0.253	210	190	210
150	1.8	0.4	2.4	34.0	1550	0.206	240	210	240
185	2.0	0.5	2.4	37.0	1880	0.164	275	240	275
240	2.2	0.5	2.6	42.5	2400	0.125	320	275	325
300	2.4	0.6	2.8	45.5	2920	0.100	355	305	365
400	2.6	0.7	3.2	51.5	3815	0.078	385	345	420
500	3.0	0.7	3.4	57.0	4750	0.061	410	370	450

* If required, these sizes can be offered with stranded conductors also

TABLE-7 "POLYCAB" KV TWIN CORE, COPPER CONDUCTOR, PVC INSULATED, INNER SHEATHED,

ARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Armour		Minimum Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
			Galv. Round Steel Wire Nominal Dia.	Galv. Flat Steel Strip Nominal Thickness					Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.4	-	1.24	12.5	350	12.100	23	20	20
*2.5	0.9	0.3	1.4	-	1.24	13.5	415	7.410	32	27	27
*4.0	1.0	0.3	1.4	-	1.24	15.0	500	4.610	41	35	35
*6.0	1.0	0.3	1.4	-	1.24	16.0	580	3.080	50	44	45
*10	1.0	0.3	1.4	-	1.24	18.0	730	1.830	70	58	60
16	1.0	0.3	-	0.8	1.40	18.0	740	1.150	90	75	78
25	1.2	0.3	-	0.8	1.40	20.0	960	0.727	115	97	105
35	1.2	0.3	-	0.8	1.40	21.5	1200	0.524	140	120	125
50	1.4	0.3	-	0.8	1.40	24.5	1580	0.387	165	145	155
70	1.4	0.3	-	0.8	1.56	28.0	2020	0.268	205	180	195
95	1.6	0.4	-	0.8	1.56	31.0	2650	0.193	240	215	230
120	1.6	0.4	-	0.8	1.56	33.0	3160	0.153	275	235	265
150	1.8	0.4	-	0.8	1.72	37.0	3870	0.124	310	270	305
185	2.0	0.5	-	0.8	1.88	40.5	4750	0.099	350	300	350
240	2.2	0.5	-	0.8	2.04	45.0	5930	0.075	405	345	410
300	2.4	0.6	-	0.8	2.20	56.0	7300	0.060	450	385	465
400	2.6	0.7	-	0.8	2.36	55.9	9450	0.047	490	425	530

* If required, these sizes can be offered with standard conductors also

TABLE-8 POLYCAB 1.1 KV TWIN CORE, COPPER CONDUCTOR, PVC INSULATED, INNER SHEATHED

UNARMOURED, PVC SHEATHED CABLES CONFORMING TO IS: 1554 (PART I) AMENDED UPTO DATE.

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight Of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
							Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.8	11.0	135	12.100	23	20	20
*2.5	0.9	0.3	1.8	12.0	185	7.410	32	27	27
*4.0	1.0	0.3	1.8	13.5	235	4.610	41	35	35
*6.0	1.0	0.3	1.8	14.5	295	3.080	50	44	45
*10	1.0	0.3	1.8	16.0	400	1.830	70	58	60
16	1.0	0.3	1.8	17.5	485	1.150	90	75	78
25	1.2	0.3	2.0	19.5	715	0.727	115	97	105
35	1.2	0.3	2.0	20.5	925	0.524	140	120	125
50	1.4	0.3	2.0	24.0	1270	0.387	165	145	155
70	1.4	0.3	2.0	27.0	1670	0.268	205	180	195
95	1.6	0.4	2.2	28.5	2250	0.193	240	215	230
120	1.6	0.4	2.2	33.0	2750	0.153	275	235	265
150	1.8	0.4	2.4	34.0	3410	0.124	310	270	305
185	2.0	0.5	2.4	37.0	4170	0.099	350	300	350
240	2.2	0.5	2.6	42.5	5370	0.075	405	345	410
300	2.4	0.6	2.8	45.5	6640	0.060	450	385	465
400	2.6	0.7	3.2	51.5	8770	0.047	490	425	530

* If required, these sizes can be offered with stranded conductors also

TABLE-9 "POLYCAB" 1.1 KV THREE CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, INNER SHEATHED,

ARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Armour		Minimum Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
			Galv. Round Steel Wire Nominal Dia.	Galv. Flat Steel Strip Nominal Thickness					Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.4	-	1.24	12.5	375	18.100	16	14	13
*2.5	0.9	0.3	1.4	-	1.24	14.0	425	12.100	21	18	18
*4.0	1.0	0.3	1.4	-	1.24	15.5	500	7.410	28	23	23
*6.0	1.0	0.3	1.4	-	1.24	17.0	575	4.610	35	30	30
*10	1.0	0.3	1.4	-	1.4	19.0	700	3.080	46	39	40
16	1.0	0.3	-	0.8	1.40	20.0	650	1.910	60	50	51
25	1.2	0.3	-	0.8	1.40	22.0	800	1.200	76	63	70
35	1.2	0.3	-	0.8	1.40	25.0	950	0.868	92	77	86
50	1.4	0.3	-	0.8	1.56	27.0	1200	0.641	110	95	105
70	1.4	0.4	-	0.8	1.56	31.0	1500	0.443	135	115	130
95	1.6	0.4	-	0.8	1.56	34.0	1900	0.320	165	140	155
120	1.6	0.4	-	0.8	1.72	38.0	2240	0.253	185	155	180
150	1.8	0.5	-	0.8	1.88	42.0	2700	0.206	210	175	205
185	2.0	0.5	-	0.8	1.88	46.0	3200	0.164	235	200	240
240	2.2	0.6	-	0.8	2.20	52.0	3990	0.125	275	235	280
300	2.4	0.6	-	0.8	2.36	56.5	4850	0.100	305	260	315
400	2.6	0.7	-	0.8	2.52	64.0	6100	0.078	335	290	375
500	3.0	0.7	-	0.8	2.84	72.0	7600	0.061	350	310	410

* If required, these sizes can be offered with standard conductors also

TABLE-10 "POLYCAB" 1.1 KV THREE CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, INNER SHEATHED

UNARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight Of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
							Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.8	11.5	130	18.100	16	14	13
*2.5	0.9	0.3	1.8	12.5	170	12.100	21	18	18
*4.0	1.0	0.3	1.8	13.5	210	7.410	28	23	23
*6.0	1.0	0.3	1.8	15.0	255	4.610	35	30	30
*10	1.0	0.3	1.8	16.5	325	3.080	46	39	40
16	1.0	0.3	1.8	17.5	360	1.910	60	50	51
25	1.2	0.3	2.0	22.0	520	1.200	76	63	70
35	1.2	0.3	2.0	23.0	640	0.868	92	77	86
50	1.4	0.3	2.0	27.0	850	0.641	110	95	105
70	1.4	0.4	2.2	31.0	1110	0.443	135	115	130
95	1.6	0.4	2.2	33.0	1425	0.320	165	140	155
120	1.6	0.4	2.2	36.0	1690	0.253	185	155	180
150	1.8	0.5	2.4	41.0	2120	0.206	210	175	205
185	2.0	0.5	2.6	45.0	2600	0.164	235	200	240
240	2.2	0.6	2.8	50.0	3290	0.125	275	235	280
300	2.4	0.6	3.0	55.5	4050	0.100	305	260	315
400	2.6	0.7	3.4	63.5	5290	0.078	335	290	375
500	3.0	0.7	3.8	71.0	6570	0.061	350	310	410

* If required, these sizes can be offered with stranded conductors also

TABLE-11 "POLYCAB" 1.1 KV THREE CORE, COPPER CONDUCTOR, PVC INSULATED, INNER SHEATHED,

ARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insula-tion	Nominal Thickness of Inner Sheath	Armour		Minimum Thickness Of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
			Galv. Round Steel Wire Nominal Dia.	Galv. Flat Steel Strip Nominal Thickness					Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.4	-	1.24	12.5	405	12.100	21	17	17
*2.5	0.9	0.3	1.4	-	1.24	14.0	475	7.410	27	24	24
*4.0	1.0	0.3	1.4	-	1.24	15.5	580	4.610	36	30	30
*6.0	1.0	0.3	1.4	-	1.24	17.0	700	3.080	45	38	39
*10	1.0	0.3	1.4	-	1.40	19.0	890	1.830	60	50	52
16	1.0	0.3	-	0.8	1.40	20.0	950	1.150	77	64	66
25	1.2	0.3	-	0.8	1.40	22.0	1270	0.727	99	81	90
35	1.2	0.3	-	0.8	1.40	25.0	1600	0.524	120	99	110
50	1.4	0.3	-	0.8	1.56	27.0	2150	0.387	145	125	135
70	1.4	0.4	-	0.8	1.56	31.0	2800	0.268	175	150	165
95	1.6	0.4	-	0.8	1.56	34.0	3670	0.193	210	175	200
120	1.6	0.4	-	0.8	1.72	38.0	4470	0.153	240	195	230
150	1.8	0.5	-	0.8	1.88	42.0	5500	0.124	270	225	265
185	2.0	0.5	-	0.8	1.88	46.0	6650	0.099	300	255	305
240	2.2	0.6	-	0.8	2.2	52.0	8450	0.075	345	295	355
300	2.4	0.6	-	0.8	2.36	56.5	10450	0.060	385	335	400
400	2.6	0.7	-	0.8	2.52	64.0	13525	0.047	425	360	455

* If required, these sizes can be offered with standard conductors also

TABLE-12 "POLYCAB" 1.1 KV THREE CORE, COPPER CONDUCTOR, PVC INSULATED, INNER SHEATHED

UNARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
							Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.8	11.5	160	12.100	21	17	17
*2.5	0.9	0.3	1.8	12.5	220	7.410	27	24	24
*4.0	1.0	0.3	1.8	13.5	290	4.610	36	30	30
*6.0	1.0	0.3	1.8	15.0	370	3.080	45	38	39
*10	1.0	0.3	1.8	16.5	510	1.830	60	50	52
16	1.0	0.3	1.8	17.5	660	1.150	77	64	66
25	1.2	0.3	2.0	22.0	990	0.727	99	81	90
35	1.2	0.3	2.0	23.0	1290	0.524	120	99	110
50	1.4	0.3	2.0	27.0	1780	0.387	145	125	135
70	1.4	0.4	2.2	31.0	2410	0.268	175	150	165
95	1.6	0.4	2.2	33.0	3190	0.193	210	175	200
120	1.6	0.4	2.2	36.0	3920	0.153	240	195	230
150	1.8	0.5	2.4	41.0	4910	0.124	270	225	265
185	2.0	0.5	2.6	45.0	6040	0.099	300	255	305
240	2.2	0.6	2.8	50.0	7750	0.075	345	295	355
300	2.4	0.6	3.0	55.5	9620	0.060	385	335	400
400	2.6	0.7	3.4	63.5	12715	0.047	425	360	455

* If required, these sizes can be offered with stranded conductors also

TABLE-13 "POLYCAB" 1.1 KV 3 $^{1}/_{2}$ CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, INNER SHEATHED,

ARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Ssectional Area		Nominal Thickness of Insulation		Minimum Thick-ness of Inner Sheath	Armour	Minimum Thick-ness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance At 20° C		Current Ratings		
Main	Neutral	Main	Neutral		Galv. Flat Steel Strip Nominal Thickness				Main	Neutral	Direct In Ground	In Ducts	In Air
Sq. mm	Sq. mm	mm	mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Ohm/Km	Amps.	Amps.	Amps.
25	16	1.2	1.0	0.3	0.8	1.40	23.5	900	1.200	1.910	76	63	70
35	16	1.2	1.0	0.3	0.8	1.40	26.0	1030	0.868	1.910	92	77	86
50	25	1.4	1.2	0.3	0.8	1.56	30.0	1350	0.641	1.200	100	95	105
70	35	1.4	1.2	0.4	0.8	1.56	32.5	1725	0.443	0.868	135	115	130
95	50	1.6	1.4	0.4	0.8	1.56	36.5	2130	0.320	0.641	165	140	155
120	70	1.6	1.4	0.5	0.8	1.72	40.5	2580	0.253	0.443	185	155	180
150	70	1.8	1.4	0.5	0.8	1.88	44.0	3050	0.206	0.443	210	175	205
185	95	2.0	1.6	0.5	0.8	2.04	50.0	3650	0.164	0.320	235	200	240
240	120	2.2	1.6	0.6	0.8	2.20	55.0	4580	0.125	0.253	275	235	280
300	150	2.4	1.8	0.6	0.8	2.36	61.0	5500	0.100	0.206	305	260	315
400	185	2.6	2.0	0.7	0.8	2.68	68.0	7000	0.078	0.164	335	290	375
500	240	3.0	2.2	0.7	0.8	2.84	75.0	8600	0.061	0.125	350	310	410

TABLE-14 "POLYCAB" 1.1 KV 3 1/2 CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, INNER SHEATHED,

UNARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area		Nominal Thickness of Insulation		Minimum Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C		Current Ratings		
Main	Neutral	Main	Neutral					Main	Neutral	Direct In Ground	In Ducts	In Air
Sq. mm	Sq. mm	Sq. mm	Sq. mm	mm	mm	mm	Kgs./Km	Ohm/Km	Ohm/Km	Amps.	Amps.	Amps.
25	16	1.2	1.0	0.3	2.0	22.5	615	1.200	1.910	76	63	70
35	16	1.2	1.0	0.3	2.0	25.0	715	0.868	1.910	92	77	86
50	25	1.4	1.2	0.3	2.2	29.0	955	0.641	1.200	110	95	105
70	35	1.4	1.2	0.4	2.2	33.0	1290	0.443	0.868	135	115	130
95	50	1.6	1.4	0.4	2.2	36.5	1640	0.320	0.641	165	140	155
120	70	1.6	1.4	0.5	2.4	39.0	2020	0.253	0.443	185	155	180
150	70	1.8	1.4	0.5	2.4	42.5	2380	0.206	0.443	210	175	205
185	95	2.0	1.6	0.5	2.6	47.0	2945	0.164	0.320	235	200	240
240	120	2.2	1.6	0.6	3.0	54.0	3800	0.125	0.253	275	235	280
300	150	2.4	1.8	0.6	3.2	58.0	4650	0.100	0.206	305	260	315
400	185	2.6	2.0	0.7	3.4	65.0	6000	0.078	0.164	335	290	375
500	240	3.0	2.2	0.7	3.8	74.0	7400	0.061	0.125	350	310	410

TABLE-15 "POLYCAB" 1.1 KV 3 1/2 CORE, COPPER CONDUCTOR, PVC INSULATED, INNER SHEATHED,

ARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Ssectional Area		Nominal Thickness of Insulation		Minimum Thick-ness of Inner Sheath	Armour	Minimum Thick-ness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance At 20°C		Current Ratings		
Main	Neutral	Main	Neutral		Galv. Flat Steel Strip Nominal Thickness				Main	Neutral	Direct In Ground	In Ducts	In Air
Sq. mm	Sq. mm	mm	mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Ohm/Km	Amps.	Amps.	Amps.
25	16	1.2	1.0	0.3	0.8	1.40	23.5	1465	0.727	1.150	99	81	90
35	16	1.2	1.0	0.3	0.8	1.40	26.0	1780	0.524	1.150	120	99	110
50	25	1.4	1.2	0.3	0.8	1.56	30.0	2435	0.387	0.727	145	125	135
70	35	1.4	1.2	0.4	0.8	1.56	32.5	3245	0.268	0.524	175	150	165
95	50	1.6	1.4	0.4	0.8	1.56	36.5	4210	0.193	0.387	210	175	200
120	70	1.6	1.4	0.5	0.8	1.72	40.5	5240	0.153	0.268	240	195	230
150	70	1.8	1.4	0.5	0.8	1.88	44.0	6270	0.124	0.268	270	225	265
185	95	2.0	1.6	0.5	0.8	2.04	50.0	7675	0.099	0.193	300	255	305
240	120	2.2	1.6	0.6	0.8	2.20	55.0	9780	0.075	0.153	345	295	355
300	150	2.4	1.8	0.6	0.8	2.36	61.0	12000	0.060	0.124	385	335	400
400	185	2.6	2.0	0.7	0.8	2.68	68.0	15570	0.047	0.099	425	360	455

TABLE-16 "POLYCAB" 1.1 KV 3 1/2 CORE, COPPER CONDUCTOR, PVC INSULATED, INNER SHEATHED,

UNARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area		Nominal Thickness of Insulation		Minimum Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C		Current Ratings		
Main	Neutral	Main	Neutral					Main	Neutral	Direct In Ground	In Ducts	In Air
Sq. mm	Sq. mm	Sq. mm	Sq. mm	mm	mm	mm	Kgs./Km	Ohm/Km	Ohm/Km	Amps.	Amps.	Amps.
25	16	1.2	1.0	0.3	2.0	22.5	1180	0.727	1.150	99	81	90
35	16	1.2	1.0	0.3	2.0	25.0	1465	0.524	1.150	120	99	110
50	25	1.4	1.2	0.3	2.2	29.0	2040	0.387	0.727	145	125	135
70	35	1.4	1.2	0.4	2.2	33.0	2810	0.268	0.524	175	150	165
95	50	1.6	1.4	0.4	2.2	36.5	3715	0.193	0.387	210	175	200
120	70	1.6	1.4	0.5	2.4	39.0	4680	0.153	0.268	240	195	230
150	70	1.8	1.4	0.5	2.4	42.5	5600	0.124	0.268	270	225	265
185	95	2.0	1.6	0.5	2.6	47.0	6970	0.099	0.193	300	255	305
240	120	2.2	1.6	0.6	3.0	54.0	9000	0.075	0.153	345	295	355
300	150	2.4	1.8	0.6	3.2	58.0	11150	0.060	0.124	385	335	400
400	185	2.6	2.0	0.7	3.4	65.0	14570	0.047	0.099	425	360	455

TABLE-17 "POLYCAB" 1.1 KV FOUR CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, INNER SHEATHED,

ARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insula-tion	Nominal Thickness of Inner Sheath	Armour		Minimum Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
			Galv. Round Steel Wire Nominal Dia.	Galv. Flat Steel Strip Nominal Thickness					Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.4	-	1.24	15.0	400	18.100	16	14	13
*2.5	0.9	0.3	1.4	-	1.24	16.5	480	12.100	21	18	18
*4.0	1.0	0.3	1.4	-	1.24	18.0	550	7.410	28	23	23
*6.0	1.0	0.3	1.4	-	1.24	19.5	650	4.610	35	30	30
*10	1.0	0.3	-	0.8	1.40	20.0	660	3.080	46	39	40
16	1.0	0.3	-	0.8	1.40	23.0	750	1.910	60	50	51
25	1.2	0.3	-	0.8	1.40	24.0	950	1.200	76	63	70
35	1.2	0.3	-	0.8	1.40	27.0	1165	0.868	92	77	86
50	1.4	0.4	-	0.8	1.56	31.0	1540	0.641	110	95	105
70	1.4	0.4	-	0.8	1.56	35.0	1800	0.443	135	115	130
95	1.6	0.4	-	0.8	1.72	38.0	2400	0.320	165	140	155
120	1.6	0.5	-	0.8	1.88	42.0	2800	0.253	185	155	180
150	1.8	0.5	-	0.8	1.88	46.0	3350	0.206	210	175	205
185	2.0	0.6	-	0.8	2.04	51.0	4000	0.164	235	200	240
240	2.2	0.6	-	0.8	2.36	58.0	5050	0.125	275	235	280
300	2.4	0.7	-	0.8	2.52	66.0	6200	0.100	305	260	315
400	2.6	0.7	-	0.8	2.84	72.0	7850	0.078	335	290	375
500	3.0	0.7	-	0.8	3.00	80.0	9600	0.061	350	310	410

* If required, these sizes can be offered with standard conductors also

TABLE-18 "POLYCAB" 1.1 KV FOUR CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, INNER SHEATHED,

UNARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight Of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
							Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.8	12.5	150	18.100	16	14	13
*2.5	0.9	0.3	1.8	14.0	180	12.100	21	18	18
*4.0	1.0	0.3	1.8	15.5	220	7.410	28	23	23
*6.0	1.0	0.3	1.8	17.0	260	4.610	35	30	30
*10	1.0	0.3	1.8	19.0	340	3.080	46	39	40
16	1.0	0.3	2.0	21.5	460	1.910	60	50	51
25	1.2	0.3	2.0	24.0	600	1.200	76	63	70
35	1.2	0.3	2.0	26.5	800	0.868	92	77	86
50	1.4	0.4	2.2	32.5	1100	0.641	110	95	105
70	1.4	0.4	2.2	33.5	1400	0.443	135	115	130
95	1.6	0.4	2.4	38.5	1850	0.320	165	140	155
120	1.6	0.5	2.4	41.5	2250	0.253	185	155	180
150	1.8	0.5	2.6	46.0	2750	0.206	210	175	205
185	2.0	0.6	2.6	50.5	3400	0.164	235	200	240
240	2.2	0.6	3.0	58.0	4300	0.125	275	235	280
300	2.4	0.7	3.4	64.0	5300	0.100	305	260	315
400	2.6	0.7	3.6	72.0	6900	0.078	335	290	375
500	3.0	0.7	4.0	80.0	8600	0.061	350	310	410

* If required, these sizes can be offered with stranded conductors also

TABLE-19 "POLYCAB" 1.1 KV FOUR CORE, COPPER CONDUCTOR, PVC INSULATED, INNER SHEATHED,

ARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insula-tion	Nominal Thickness of Inner Sheath	Armour		Minimum Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20°C	Current Ratings		
			Galv. Round Steel Wire Nominal Dia.	Galv. Flat Steel Strip Nominal Thickness					Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.4	-	1.24	15.0	440	12.100	21	17	17
*2.5	0.9	0.3	1.4	-	1.24	16.5	550	7.410	27	24	24
*4.0	1.0	0.3	1.4	-	1.24	18.0	650	4.610	36	30	30
*6.0	1.0	0.3	1.4	-	1.24	19.5	800	3.080	45	38	39
*10	1.0	0.3	-	0.8	1.40	20.0	910	1.830	60	50	52
16	1.0	0.3	-	0.8	1.40	23.0	1150	1.150	77	64	66
25	1.2	0.3	-	0.8	1.40	24.0	1570	0.727	99	81	90
35	1.2	0.3	-	0.8	1.40	27.0	2035	0.524	120	99	110
50	1.4	0.4	-	0.8	1.56	31.0	2780	0.387	145	125	135
70	1.4	0.4	-	0.8	1.56	35.0	3540	0.268	175	150	165
95	1.6	0.4	-	0.8	1.72	38.0	4760	0.193	210	175	200
120	1.6	0.5	-	0.8	1.88	42.0	5770	0.153	240	195	230
150	1.8	0.5	-	0.8	1.88	46.0	7065	0.124	270	225	265
185	2.0	0.6	-	0.8	2.04	51.0	8580	0.099	300	255	305
240	2.2	0.6	-	0.8	2.36	58.0	11000	0.075	345	295	355
300	2.4	0.7	-	0.8	2.52	66.0	13625	0.060	385	335	400
400	2.6	0.7	-	0.8	2.84	80.0	17750	0.047	425	360	455

* If required, these sizes can be offered with standard conductors also

TABLE-20 "POLYCAB" 1.1 KV FOUR CORE, COPPER CONDUCTOR, PVC INSULATED, INNER SHEATHED,

UNARMOURED PVC SHEATHED CABLES CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Nominal Cross Sectional Area	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Weight of Cable	Max. Dc Conductor Resistance at 20° C	Current Ratings		
							Direct In Ground	In Ducts	In Air
Sq. mm	mm	mm	mm	mm	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
*1.5	0.8	0.3	1.8	12.5	190	12.100	21	17	17
*2.5	0.9	0.3	1.8	14.0	245	7.410	27	24	24
*4.0	1.0	0.3	1.8	15.5	320	4.610	36	30	30
*6.0	1.0	0.3	1.8	17.0	410	3.080	45	38	39
*10	1.0	0.3	1.8	19.0	590	1.830	60	50	52
16	1.0	0.3	2.0	21.5	860	1.150	77	64	66
25	1.2	0.3	2.0	24.0	1220	0.727	99	81	90
35	1.2	0.3	2.0	26.5	1670	0.524	120	99	110
50	1.4	0.4	2.2	32.5	2340	0.387	145	125	135
70	1.4	0.4	2.2	33.5	3140	0.268	175	150	165
95	1.6	0.4	2.4	38.5	4210	0.193	210	175	200
120	1.6	0.5	2.4	41.5	5220	0.153	240	195	230
150	1.8	0.5	2.6	46.0	6470	0.124	270	225	265
185	2.0	0.6	2.6	50.5	7980	0.099	300	255	305
240	2.2	0.6	3.0	58.0	10250	0.075	345	295	355
300	2.4	0.7	3.4	64.0	12730	0.060	385	335	400
400	2.6	0.7	3.6	72.0	16800	0.047	425	360	455

* If required, these sizes can be offered with stranded conductors also

TABLE-21 "POLYCAB" 1.1 KV, ANNEALED HIGH CONDUCTIVITY SOLID COPPER CONDUCTOR, 1.5 SQ.MM

PVC INSULATED, INNER SHEATHED, ARMOURED / UNARMOURED PVC SHEATHED CONTROL CABLES
CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Number of Cores	Nominal Thickness of Insula-tion	Min. Thick-ness of Inner Sheath	Armour		Nominal Sheath Thickness Unar-moured	Minimum Sheath Thickness Armoured	Approx. Overall Diameter		Approx. Weight of Cable		Max. Dc Conductor Resistance at 20°C	Current Ratings		
			Galv. Round Steel Wire Nom. Dia	Galv. Flat Steel Strip Nom. Thick			Unar-moured	Ar-moured	Unar-moured	Ar-moured		Direct In Ground	In Ducts	In Air
	mm	mm	mm	mm	mm	mm	mm	mm	Kgs./Km	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
2	0.8	0.3	1.4	-	1.80	1.24	10.50	13.50	130	350	12.1	23	20	20
3	0.8	0.3	1.4	-	1.80	1.24	11.00	14.00	160	400	12.1	21	17	17
4	0.8	0.3	1.4	-	1.80	1.24	11.50	15.00	190	450	12.1	21	17	17
5	0.8	0.3	1.4	-	1.80	1.24	12.50	15.50	225	500	12.1	21	17	17
6	0.8	0.3	1.4	-	1.80	1.24	13.00	16.00	250	550	12.1	15	13	13
7	0.8	0.3	1.4	-	1.80	1.24	13.50	16.50	265	565	12.1	14	13	13
10	0.8	0.3	1.4	-	1.80	1.40	16.50	19.00	350	750	12.1	13	11	11
12	0.8	0.3	-	0.8	1.80	1.24	17.50	19.50	400	650	12.1	12	10	10
14	0.8	0.3	-	0.8	1.80	1.40	18.00	20.00	450	760	12.1	11	10	10
16	0.8	0.3	-	0.8	1.80	1.40	19.50	21.00	500	800	12.1	11	9	9
19	0.8	0.3	-	0.8	2.00	1.40	20.00	22.00	600	850	12.1	10	9	9
24	0.8	0.3	-	0.8	2.00	1.40	23.00	25.00	725	1050	12.1	9	8	8
30	0.8	0.3	-	0.8	2.00	1.40	24.50	26.50	860	1200	12.1	9	7	7
37	0.8	0.3	-	0.8	2.00	1.40	26.00	28.00	1050	1400	12.1	8	7	7
61	0.8	0.4	-	0.8	2.20	1.56	33.00	35.00	1650	2100	12.1	7	6	6

TABLE-22 "POLYCAB" 1.1 KV, ANNEALED HIGH CONDUCTIVITY SOLID COPPER CONDUCTOR, 2.5 SQ.MM

PVC INSULATED, INNER SHEATHED, ARMOURED / UNARMOURED PVC SHEATHED CONTROL CABLES
CONFORMING TO IS : 1554 (PART I) AMENDED UPTO DATE

Number of Cores	Nominal Thickness of Insula-tion	Min. Thick-ness of Inner Sheath	Armour		Nominal Sheath Thickness Unar-moured	Minimum Sheath Thickness Armoured	Approx. Overall Diameter		Approx. Weight of Cable		Max. Dc Conductor Resistance At 20°C	Current Ratings		
			Galv. Round Steel Wire Nom. Dia	Galv. Flat Steel Strip Nom. Thick			Unar-moured	Ar-moured	Unar-moured	Ar-moured		Direct In Ground	In Ducts	In Air
	mm	mm	mm	mm	mm	mm	mm	mm	Kgs./Km	Kgs./Km	Ohm/Km	Amps.	Amps.	Amps.
2	0.9	0.3	1.4	-	1.8	1.24	11.00	14.50	160	425	7.41	32	27	27
3	0.9	0.3	1.4	-	1.8	1.24	11.50	15.50	225	475	7.41	27	24	24
4	0.9	0.3	1.4	-	1.8	1.24	11.50	16.50	250	530	7.41	27	24	24
5	0.9	0.3	1.4	-	1.8	1.24	14.00	17.50	300	600	7.41	27	24	24
6	0.9	0.3	1.4	-	1.8	1.24	15.50	18.50	340	675	7.41	20	18	18
7	0.9	0.3	1.4	-	1.8	1.24	15.50	18.50	375	700	7.41	20	17	17
10	0.9	0.3	-	0.8	1.8	1.40	19.00	21.00	500	780	7.41	18	15	15
12	0.9	0.3	-	0.8	2.0	1.40	20.00	22.00	600	850	7.41	17	14	14
14	0.9	0.3	-	0.8	2.0	1.40	21.00	23.00	650	950	7.41	16	13	13
16	0.9	0.3	-	0.8	2.0	1.40	22.00	24.00	750	1050	7.41	15	13	13
19	0.9	0.3	-	0.8	2.0	1.40	23.00	25.00	850	1150	7.41	14	12	12
24	0.9	0.3	-	0.8	2.0	1.40	27.00	29.00	1050	1400	7.41	13	11	11
30	0.9	0.3	-	0.8	2.0	1.56	28.50	30.50	1250	1700	7.41	12	10	10
37	0.9	0.4	-	0.8	2.2	1.56	31.00	33.00	1550	2000	7.41	11	10	10
61	0.9	0.4	-	0.8	2.2	1.56	38.50	41.00	2450	3100	7.41	9	8	8

TABLE-23 CONDUCTOR RESISTANCE OF PLAIN COPPER CONDUCTORS

USED FOR HEAVY DUTY CABLES AS PER IS : 8130-1984

Size in sq.mm	Conductor Construction	Max.cond. resistance in Ohm/Km at 20°C Single Core & Multi Core	Size in sq.mm	Conductor Construction	Max. cond. resistance in Ohm/Km at 20°C Single Core & Multi Core
1.5*	1/1.38	12.100	120	37/2.03	0.153
2.5*	1/1.78	7.410	150	37/2.24	0.124
4.0*	1/2.24	4.610	185	37/2.50	0.099
6.0*	1/2.76	3.080	240	61/2.24	0.075
10.0	7/1.35	1.830	300	61/2.50	0.060
16.0	7/1.70	1.150	400	61/2.85	0.047
25.0	7/2.14	0.727	500	61/3.20	0.037
35.0	7/2.50	0.524	630	91/3.00	0.028
50.0	7/3.00	0.387	-	-	-
70.0	19/2.14	0.268	800	127/2.83	0.022
95.0	19/2.50	0.193	1000	127/3.16	0.018

TABLE-24 CURRENT RATING OF '"POLYCAB" COPPER ARMOURED / UNARMOURED CABLES

650 / 1100 V GRADE IN AIR.

Area	Twin Core	3, 3 $^{1}/_{2}$, 4 Core	Area	Twin Core	3, 3 $^{1}/_{2}$, 4 Core
sq.mm	Amp.	Amp.	sq.mm	Amp.	Amp.
1.5	20	17	70	195	165
2.5	27	24	95	230	200
4.0	35	30	120	265	235
6.0	45	39	150	305	265
10.0	60	52	185	350	305
16.0	78	66	240	410	355
25.0	105	90	300	465	400
35.0	125	110	400	530	455
50.0	155	135	-	-	-

TABLE-25 ESTIMATED A.C RESISTANCE, REACTANCE, CAPACITANCE, IMPEDANCE, VOLTAGE DROP AND SHORTCIRCUIT RATING FOR PVC INSULATED, ALUMINIUM CONDUCTOR, ARMOURED SINGLE CORE CABLES.

Nominal area of Conductor	A.C Resistance at 70°C	Reactance at 50 Hz	Capacitance	Impedance at 70°C	Voltage Drop	Short circuit ratings of conductor for 1 second thickness of Outersheath
mm²	Ohm/Km	Ohm/Km	µF/Km	Ohm/Km	V/Km/A	kA
16	2.3000	0.1250	0.81	2.3000	3.980	1.22
25	1.4400	0.1200	0.83	1.4500	2.510	1.90
35	1.0400	0.1140	0.95	1.0500	1.820	2.66
50	0.7700	0.1120	0.95	0.7780	1.350	3.80
70	0.5330	0.1040	1.13	0.5430	0.940	5.32
95	0.3850	0.0970	1.17	0.3970	0.688	7.22
120	0.3050	0.0926	1.32	0.3180	0.552	9.12
150	0.2480	0.0916	1.30	0.2650	0.459	11.41
185	0.1980	0.0895	1.35	0.2170	0.377	14.07
240	0.1520	0.0876	1.40	0.1750	0.303	18.25
300	0.1220	0.0863	1.44	0.1500	0.259	22.81
400	0.0961	0.0845	1.48	0.1280	0.222	30.41
500	0.0761	0.0835	1.47	0.1130	0.196	38.02
630	0.0606	0.0833	1.45	0.1030	0.178	47.90
800	0.0495	0.0816	1.61	0.0954	0.165	60.83
1000	0.0416	0.0797	1.81	0.0899	0.156	76.03

TABLE-26 ESTIMATED A.C RESISTANCE, REACTANCE, CAPACITANCE, IMPEDANCE, VOLTAGE DROP AND SHORT CIRCUIT RATING FOR PVC INSULATED, ALUMINIUM CONDUCTOR, ARMOURED MULTI CORE CABLES.

Nominal area of Conductor	A.C Resistance at 70°C	Reactance at 50 Hz	Capacitance	Impedance at 70°C	Voltage Drop	Short circuit ratings of conductor for 1 second thickness of Outersheath
mm²	Ohm/Km	Ohm/Km	µF/Km	ohm/Km	V/Km/A	kA
1.5	21.7000	0.1120	0.38	21.700	37.700	0.11
2.5	14.5000	0.1100	0.41	14.500	25.200	0.19
4.0	8.9000	0.1050	0.45	8.900	15.400	0.30
6.0	5.5400	0.0988	0.52	5.540	9.600	0.46
10.0	3.7000	0.0938	0.60	3.700	6.410	0.76
16.0	2.3000	0.0862	0.80	2.300	3.980	1.22
25.0	1.4400	0.0854	0.84	1.440	2.500	1.90
35.0	1.0400	0.0827	0.96	1.050	1.810	2.66
50.0	0.7700	0.0825	0.98	0.775	1.340	3.80
70.0	0.5330	0.0771	1.12	0.538	0.932	5.32
95.0	0.3850	0.0767	1.16	0.393	0.680	7.22
120.0	0.3050	0.0744	1.28	0.314	0.543	9.12
150.0	0.2490	0.0745	1.26	0.259	0.449	11.41
185.0	0.1980	0.0744	1.28	0.212	0.367	14.07
240.0	0.1520	0.0740	1.31	0.169	0.293	18.25
300.0	0.1220	0.0732	1.35	0.142	0.247	22.81
400.0	0.0961	0.0727	1.40	0.121	0.209	30.41

TABLE-27 ESTIMATED A.C RESISTANCE, REACTANCE, CAPACITANCE, IMPEDANCE, VOLTAGE DROP AND SHORT CIRCUIT RATING FOR HR PVC INSULATED, ALUMINIUM CONDUCTOR, ARMOURED SINGLE CORE CABLES.

Nominal area of Conductor	A.C Resistance at 85°C	Reactance at 50 Hz	Capacitance	Impedance at 85°C	Voltage Drop	Short circuit ratings of conductor for 1 second thickness of Outersheath
mm²	Ohm/Km	Ohm/Km	µF/Km	Ohm/Km	V/Km/A	kA
16	2.4100	0.1250	0.81	2.4100	4.180	1.01
25	1.5100	0.1200	0.83	1.5200	2.630	1.72
35	1.0100	0.1140	0.95	1.1000	1.910	2.40
50	0.8090	0.1120	0.95	0.8170	1.410	3.43
70	0.5590	0.1040	1.13	0.5690	0.985	4.80
95	0.4040	0.0970	1.17	0.4160	0.720	6.52
120	0.3200	0.0926	1.32	0.3330	0.577	8.23
150	0.2610	0.0916	1.30	0.2760	0.479	10.29
185	0.2080	0.0895	1.35	0.2260	0.392	12.69
240	0.1590	0.0876	1.40	0.1820	0.315	16.46
300	0.1280	0.0863	1.44	0.1540	0.267	20.58
400	0.1010	0.0845	1.48	0.1310	0.228	27.44
500	0.0796	0.0835	1.47	0.1150	0.200	34.30
630	0.0632	0.0833	1.45	0.1050	0.181	43.21
800	0.0515	0.0816	1.61	0.0964	0.167	54.88
1000	0.0431	0.0797	1.81	0.0906	0.157	68.59

TABLE-28 ESTIMATED A.C RESISTANCE, REACTANCE, CAPACITANCE, IMPEDANCE, VOLTAGE DROP AND SHORT CIRCUIT RATING FOR HR PVC INSULATED, ALUMINIUM CONDUCTOR, ARMOURED MULTI CORE CABLES.

Nominal area of Conductor	A.C Resistance at 85°C	Reactance at 50 Hz	Capacitance	Impedance at 85°C	Voltage Drop	Short circuit ratings of conductor for 1 second thickness of Outersheath
mm²	Ohm/Km	Ohm/Km	µF/Km	Ohm/Km	V/Km/A	kA
1.5	22.800	0.1120	0.38	22.800	39.600	0.10
2.5	15.300	0.1100	0.41	15.300	26.400	0.17
4.0	9.350	0.1050	0.45	9.350	16.200	0.27
6.0	5.820	0.0988	0.52	5.820	10.100	0.41
10.0	3.890	0.0938	0.60	3.890	6.730	0.69
16.0	2.410	0.0862	0.80	2.410	4.180	1.01
25.0	1.510	0.0854	0.84	1.520	2.630	1.72
35.0	1.010	0.0827	0.96	1.010	1.900	2.40
50.0	0.809	0.0825	0.98	0.813	1.41	3.43
70.0	0.559	0.0771	1.12	0.565	0.978	4.80
95.0	0.404	0.0767	1.16	0.412	0.713	6.52
120.0	0.320	0.0744	1.28	0.329	0.569	8.23
150.0	0.261	0.0745	1.26	0.271	0.470	10.29
185.0	0.208	0.0744	1.28	0.221	0.383	12.69
240.0	0.159	0.0740	1.31	0.176	0.304	16.46
300.0	0.128	0.0732	1.35	0.148	0.256	20.58
400.0	0.101	0.0727	1.40	0.124	0.215	27.44

TABLE-29 ESTIMATED A.C RESISTANCE, REACTANCE, CAPACITANCE, IMPEDANCE, VOLTAGE DROP AND SHORT CIRCUIT RATING FOR PVC INSULATED, COPPER CONDUCTOR, ARMOURED SINGLE CORE CABLES.

Nominal area of Conductor	A.C Resistance at 70°C	Reactance at 50 Hz	Capacitance	Impedance at 70°C	Voltage Drop	Short circuit ratings of conductor for 1 second thickness of Outersheath
mm²	Ohm/Km	Ohm/Km	µF/Km	Ohm/Km	V/Km/A	kA
16	1.3800	0.1250	0.81	1.3800	2.390	1.84
25	0.8700	0.1200	0.83	0.8780	1.520	2.88
35	0.6270	0.1140	0.95	0.6380	1.100	4.03
50	0.4630	0.1120	0.95	0.4770	0.830	5.75
70	0.3210	0.1040	1.13	0.3370	0.585	8.05
95	0.2320	0.0970	1.17	0.2510	0.435	10.93
120	0.1840	0.0926	1.32	0.2060	0.357	13.80
150	0.1500	0.0916	1.30	0.1760	0.304	17.25
185	0.1200	0.0895	1.35	0.1500	0.260	21.28
240	0.0928	0.0876	1.40	0.1280	0.221	27.60
300	0.0751	0.0863	1.44	0.1140	0.198	34.50
400	0.0604	0.0845	1.48	0.1040	0.180	46.00
500	0.0490	0.0835	1.47	0.0968	0.168	57.50
630	0.0401	0.0833	1.45	0.0925	0.160	72.45
800	0.0339	0.0816	1.61	0.0883	0.153	92.00
1000	0.0297	0.0797	1.81	0.0850	0.147	115.00

TABLE-30 ESTIMATED A.C RESISTANCE, REACTANCE, CAPACITANCE, IMPEDANCE, VOLTAGE DROP AND SHORT CIRCUIT RATING FOR PVC INSULATED, COPPER CONDUCTOR, ARMOURED MULTI CORE CABLES.

Nominal area of Conductor	A.C Resistance at 70°C	Reactance at 50 Hz	Capacitance	Impedance at 70°C	Voltage Drop	Short circuit ratings of conductor for 1 second thickness of Outersheath
mm²	Ohm/Km	Ohm/Km	µF/Km	Ohm/Km	V/Km/A	kA
1.5	14.5000	0.1140	0.37	14.500	25.100	0.17
2.5	8.9000	0.1100	0.40	8.900	15.400	0.29
4.0	5.5200	0.1060	0.44	5.520	9.560	0.46
6.0	3.6900	0.1001	0.51	3.690	6.390	0.69
10.0	2.1900	0.0907	0.67	2.190	3.800	1.15
16.0	1.3800	0.0862	0.80	1.380	2.390	1.84
25.0	0.8700	0.0854	0.84	0.870	1.510	2.88
35.0	0.6300	0.0827	0.96	0.630	1.010	4.03
50.0	0.4640	0.0825	0.98	0.471	0.815	5.75
70.0	0.3210	0.0771	1.12	0.331	0.572	8.05
95.0	0.2320	0.0767	1.16	0.244	0.423	10.93
120.0	0.1840	0.0744	1.28	0.199	0.344	13.80
150.0	0.1500	0.0745	1.26	0.168	0.290	17.25
185.0	0.1210	0.0744	1.28	0.142	0.246	21.28
240.0	0.0930	0.0740	1.31	0.119	0.206	27.60
300.0	0.0750	0.0732	1.35	0.105	0.182	34.50
400.0	0.0604	0.0727	1.40	0.095	0.164	46.00

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TABLE-31 ESTIMATED A.C RESISTANCE, REACTANCE, CAPACITANCE, IMPEDANCE, VOLTAGE DROP AND SHORT CIRCUIT RATING FOR HR PVC INSULATED, COPPER CONDUCTOR, ARMOURED SINGLE CORE CABLES.

Nominal area of Conductor	A.C Resistance at 85°C	Reactance at 50 Hz	Capacitance	Impedance at 85°C	Voltage Drop	Short circuit ratings of conductor for 1 second thickness of Outersheath
mm²	Ohm/Km	Ohm/Km	µF/Km	Ohm/Km	V/Km/A	kA
16	1.4400	0.1250	0.81	1.4500	2.510	1.66
25	0.9130	0.1200	0.83	0.9210	1.590	2.59
35	0.6580	0.1140	0.95	0.6680	1.160	3.63
50	0.4860	0.1120	0.95	0.4990	0.864	5.19
70	0.3370	0.1040	1.13	0.3530	0.611	7.26
95	0.2430	0.0970	1.17	0.2620	0.453	9.86
120	0.1930	0.0926	1.32	0.2140	0.371	12.45
150	0.1570	0.0916	1.30	0.1820	0.315	15.57
185	0.1260	0.0895	1.35	0.1550	0.268	19.20
240	0.0971	0.0876	1.40	0.1310	0.226	24.91
300	0.0785	0.0863	1.44	0.1170	0.202	31.13
400	0.0630	0.0845	1.48	0.1050	0.183	41.51
500	0.0509	0.0835	1.47	0.0978	0.169	51.89
630	0.0416	0.0833	1.45	0.0931	0.161	65.38
800	0.0351	0.0816	1.61	0.0888	0.154	83.02
1000	0.0306	0.0797	1.81	0.0853	0.148	103.78

TABLE-32 ESTIMATED A.C RESISTANCE, REACTANCE, CAPACITANCE, IMPEDANCE, VOLTAGE DROP AND SHORT CIRCUIT RATING FOR HR PVC INSULATED, COPPER CONDUCTOR, ARMOURED MULTI CORE CABLES.

Nominal area of Conductor	A.C Resistance at 85°C	Reactance at 50 Hz	Capacitance	Impedance at 85°C	Voltage Drop	Short circuit ratings of conductor for 1 second thickness of Outersheath
mm²	Ohm/Km	Ohm/Km	µF/Km	Ohm/Km	V/Km/A	kA
1.5	15.2000	0.1140	0.37	15.2000	26.300	0.16
2.5	9.3000	0.1100	0.40	9.3000	16.100	0.26
4.0	5.7900	0.1060	0.44	5.7900	10.000	0.42
6.0	3.8700	0.1001	0.51	3.8700	6.700	0.62
10.0	2.3000	0.0907	0.67	2.3000	3.980	1.04
16.0	1.4400	0.0862	0.80	1.4500	2.510	1.66
25.0	0.9130	0.0854	0.84	0.9170	1.590	2.59
35.0	0.6580	0.0827	0.96	0.6630	1.150	3.63
50.0	0.4860	0.0825	0.98	0.4930	0.854	5.19
70.0	0.3370	0.0771	1.12	0.3460	0.599	7.26
95.0	0.2430	0.0767	1.16	0.2550	0.442	9.86
120.0	0.1930	0.0744	1.28	0.2070	0.359	12.45
150.0	0.1570	0.0745	1.26	0.1740	0.301	15.57
185.0	0.1260	0.0744	1.28	0.1470	0.254	19.20
2400.	0.0972	0.0740	1.31	0.1220	0.212	24.91
300.0	0.0787	0.0732	1.35	0.1070	0.186	31.13
400.0	0.0630	0.0727	1.40	0.0962	0.167	41.51

1) FOR AIR AND GROUND TEMPERATURE

A. Rating factors for variation in ambient air temperature						
Ambient Temp (°C)	25	30	35	40	45	50
Rating Factors	1.25	1.16	1.09	1.00	0.90	0.80

B. Rating factors for variation in ground temperature							
Ground Temp (°C)	15	20	25	30	35	40	45
Rating Factors	1.17	1.12	1.06	1.00	0.94	0.87	0.79

C. Rating factors for variation in ground temperature (for Cables in Ducts)							
Ground Temp (°C)	15	20	25	30	35	40	45
Rating Factors	1.17	1.12	1.06	1.00	0.94	0.87	0.79

2) FOR DEPTH OF LAYING (CABLES LAID DIRECT IN THE GROUND).

Depth of laying	Size		
Cm	Upto 25 mm^2	Above 25 mm2 Upto 300 mm^2	Above 300 mm^2
75	1.00	1.00	1.00
90	0.99	0.98	0.97
105	0.98	0.97	0.96
120	0.97	0.96	0.95
150	0.96	0.94	0.92
180 or more	0.95	0.93	0.91

3) FOR VARIATION IN THERMAL RESISTIVITY OF SOIL (TWO AND THREE AND MULTICORE CABLES LAID DIRECT IN THE GROUND).

Nominal area of conductor mm^2	Two cables touching for values of Thermal Resistivity of soil in °C cm / W					
	100	120	150	200	250	300
1.5	1.10	1.05	1.00	0.92	0.86	0.81
2.5	1.10	1.05	1.00	0.92	0.86	0.81
4.0	1.10	1.05	1.00	0.92	0.86	0.81
6.0	1.10	1.05	1.00	0.92	0.86	0.81
10.0	1.10	1.06	1.00	0.92	0.85	0.80
16.0	1.12	1.06	1.00	0.91	0.84	0.79
25.0	1.14	1.08	1.00	0.91	0.84	0.78
35.0	1.15	1.08	1.00	0.91	0.84	0.77
50.0	1.15	1.08	1.00	0.91	0.84	0.77
70.0	1.15	1.08	1.00	0.90	0.83	0.76
95.0	1.15	1.08	1.00	0.90	0.83	0.76
120.0	1.17	1.09	1.00	0.90	0.82	0.76
150.0	1.17	1.09	1.00	0.90	0.82	0.75
185.0	1.18	1.09	1.00	0.89	0.81	0.75
240.0	1.18	1.09	1.00	0.89	0.81	0.75
300.0	1.18	1.09	1.00	0.89	0.81	0.75
400.0	1.19	1.10	1.00	0.89	0.81	0.75

FOR SINGLE CORE CABLES

A) Cables laid direct in the ground in horizontal formation.

No. of Trefoils in Group	Distance between Trefoils			
	Touching	15 cm	30 cm	45 cm
2	0.78	0.81	0.85	0.88
3	0.68	0.71	0.77	0.81
4	0.61	0.65	0.72	0.76
5	0.56	0.61	0.68	0.73

B) Cables laid in ducts in horizontal formation.

No. of Trefoils in Group	Distance between Trefoils		
	Touching	45 cm	60 cm
2	0.87	0.90	0.91
3	0.79	0.83	0.86
4	0.74	0.79	0.82
5	0.71	0.76	0.80

C) Cables laid on racks / Trays in covered trench with having restricted air circulation, Trefoils are separated by two cable diameter horizontally and the trays are in tiers having 30 cm distance.

No. racks / trays in tiers	No. of Trefoils in Horizontal Formation		
	1	2	3
1	0.95	0.90	0.88
2	0.90	0.85	0.83
3	0.88	0.83	0.81
6	0.86	0.81	0.79

D) as above C. but cables laid in open air.

No. racks / trays in tiers	No. of Trefoils in Horizontal Formation		
	1	2	3
1	1	0.98	0.96
2	1	0.95	0.93
3	1	0.94	0.92
6	1	0.93	0.90

FOR MULTI CORE CABLES

A) Cables laid on cable trays exposed to air, the cables spaced by one cable diameter and trays are in tiers spaced by 30 cm. The clearance between the wall and the cable is 25 mm.

No. of cables trays in tier	No. of Cables per Tray				
	1	2	3	6	9
1	1	0.98	0.96	0.93	0.92
2	1	0.95	0.93	0.90	0.89
3	1	0.94	0.92	0.89	0.88
6	1	0.93	0.90	0.87	0.86

B) Cables laid inside concrete trench with removable covers on cable trays having restricted circulation. The cables spaced by one cable diameter and trays are in tiers spaced by 30 cm. The clearance of the cable from the wall is 25 mm.

No. of cables trays in tier	No. of Cables per Tray				
	1	2	3	6	9
1	0.95	0.90	0.88	0.85	0.84
2	0.90	0.85	0.83	0.81	0.80
3	0.88	0.83	0.81	0.79	0.78
6	0.86	0.81	0.79	0.77	0.76

C) Cables laid on cable trays exposed to air, the cable touching and trays are in tiers spaced by 30 cm. The clearance between the wall and the cable is 25 mm.

No. of cables trays in tier	No. of Cables per Tray				
	1	2	3	6	9
1	1	0.84	0.80	0.75	0.73
2	1	0.80	0.76	0.71	0.69
3	1	0.78	0.74	0.70	0.68
6	1	0.76	0.72	0.68	0.66

D) Cables laid direct in ground in horizontal formation.

No. of cables in Group	Distance of Cables			
	Touching	15 cm	30 cm	45 cm
2	0.79	0.82	0.87	0.90
3	0.69	0.75	0.79	0.83
4	0.62	0.69	0.74	0.79
5	0.58	0.65	0.72	0.76
6	0.54	0.61	0.69	0.75

E) Cables laid in single way ducts / pipes in horizontal formation.

No. of cables in Group	Distance of Cables			
	Touching	30 cm	45 cm	60 cm
2	0.88	0.90	0.92	0.94
3	0.82	0.84	0.87	0.89
4	0.77	0.80	0.84	0.87
5	0.74	0.78	0.82	0.85
6	0.71	0.76	0.81	0.84

Power Cables are generally selected considering the application. However, following factors are important for selection of suitable cable construction required to transport electrical energy from one end to the other.

1) Maximum operating voltage,
2) Fault Level,
3) Load to be carried,
4) Possible overloading duration & magnitude,
5) Route length and voltage drop.
6) Mode of installation considering install-lation environment such as ambient & ground temperature chemical & physical properties of soil.
7) Flame retardant properties.

All sizes of POLYCAB PVC cables are designed to standard operating conditions in India and abroad. The standards adopted are considering the geographical/ climatical conditions and general applications of power for utilities, distribution and generation purposes.

The cables are manufactured conforming to Indian & International cables specifications for PVC Insulated cables. Customer specific requirements can also be met.

Flame Retardant Low Smoke Cables

The behaviour of Electric Cables in presence of fire has been a matter of great concern to all Electrical Engineers involved in Generation, Transmission and Utilisation of electric power. Normally all XLPE / PVC Cables have an outer sheath of PVC. Although PVC by itself is flame retarding, it does produce highly toxic and corrosive fumes in the event of fire.

As a matter of fact, in closed and crowded places such as power stations, subways, railways with long sections in tunnels, road tunnels, ships, hospitals, schools, hotels, cinema theatres, museums and public premises in general, besides the obvious danger represented by fire propagation, also fume toxicity and opacity are particularly important as they may cause, with equally serious consequences for human safety, suffocation intoxication and panic due to reduced visibility.

FRLS PVC compound should ensure the following :

1) Minimum smoke emission.
2) Very low toxic and corrosive fumes emission.
3) Fire Retardant characteristics.

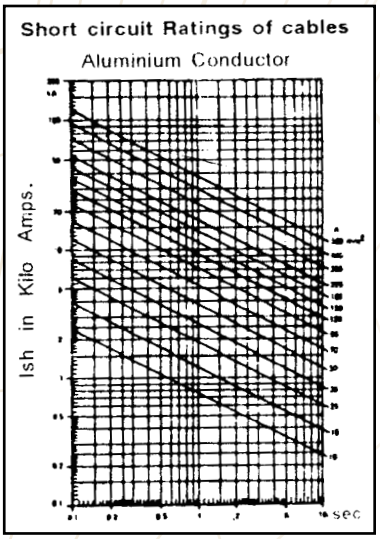
Our laboratory is well equipped with latest test equipments to carry out following test requirements.

a) The oxygen index and temperature index of sheath as per ASTM-D 2863.
b) Flammability characteristics of cable as per IEC-332 (Pt. I) & IEC-332 (Pt. III)
c) Flammability characteristics of cables as per Swedish Standard SS 424 14 75, Class F3.
d) Determination of the amount of halogen acid gas evolved during combustion of outersheath materials as per per IEC 754 (Pt. I).
e) Determination of smoke generation of outersheath material under fire as per ASTM-D 2843
f) The measurement of smoke density as per IEC 61034.

Normal current rating of POLYCAB cable as given in the tables takes into account temporary overloading which often occurs in use. However, to safeguard against excessive thermal damage, it is essential that protective switchgear of a proper rating is used in circuit.

Cables laid in air or in ducts can safely be overloaded to 1.5 times the amount given in the current rating tables for four hours provided the protective system uses a class P fuse designed to operate at a 50% overload.

In case the protective circuit has a different fuse rating, select a cable by multiplying the tripping current by 0.67 to arrive at a suitable size of cable. For example, for carrying 200 amps current in the air 70 sq.mm. single core cable is suitable (current rating is 230 amps.) This cable can therefore be overloaded to the extent of 230 x 1.5 = 345 amp. provided that the protective fuse rating is 230 x 1.5 = 345. However, if the protective fuse rating is 400 amps. normal rating 400 x .67 = 268 amps., 95 sq. mm cable should be used. Similarly current rating for cables in the ground can safely used for an overload factor of 1.3 for four hours. It is essential that the protection is designed to operate at a 30% overload. In case this is different, select a cable to carry 0.77 times the current at which protection is designed to operate.



SHORT CIRCUIT RATING FOR ALUMINIUM CONDUCTOR CABLES

With a high increase in KVA capacity of the power distribution system, cable are expected to carry short circuit currents of high magnitude. Normally rated at 70° C, our insulating materials permit a short circuit temperature of 160° C. With the high interrupting capacity expected of a cable under short circuit, it is essential that protective fuses in the system are designed to minimise the duration as far as possible. Short circuit rating of a cable can be calculated as under

$$\text{Where Ish} = \frac{75.8 \times A}{\sqrt{t}}$$

Ish : Short circuit current in r. m. s. amps.
t : Duration of short circuit in seconds.
A : Area of conductor in sq. mm

Constants are tabulated below for different duration of short circuit.

Duration of short circuit in seconds	1 cycle =0.02 seconds	2 cycle =0.04 seconds	5 cycle =0.01 seconds	10 cycle =0.02 seconds	25 cycle =0.02 seconds	50 cycle =0.02 seconds	2 seconds	3 seconds	4 seconds	5 seconds
Short circuits constant per unit area	536	378	239	169	107	75.7	53.0	43.6	37.8	34.0

Example : Short circuit rating of 150 sq.mm. conductor area with a short circuit duration of 0.5 seconds = 150 x 107 = 16050 amps.

SHORT CIRCUIT RATING FOR COPPER CONDUCTOR CABLES

The following formula gives the Short Circuit Rating of Copper conductor, PVC insulated cables

$$\text{Where Ish} = \frac{113 \times A}{\sqrt{t}}$$

Ish : Short circuit current in r. m. s. amps.
t : Duration of short circuit in seconds.
A : Area of conductor in sq. mm

A. CABLE INSPECTION

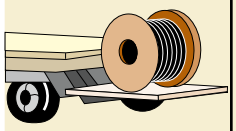
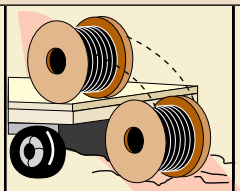
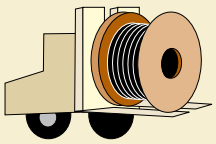
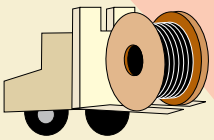
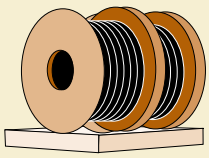
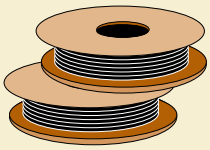
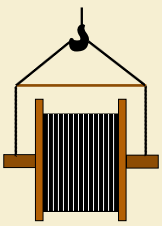
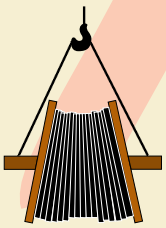
Inspect every cable reel for damage before accepting the shipment.Be particularly alert for cable damage if:

1. A reel is lying flat on its side
2. Several reels are stacked
3. Other freight is stacked on a reel
4. Nails have been driven into reel flanges to secure shipping blocks
5. A reel flange is damaged
6. A cable covering is removed, stained or damaged
7. A cable end seal is removed or damaged. A reel has been dropped (hidden damage likely)

B. CABLE HANDLING & STORAGE

Damage to cables can occur due to the incorrect handling to which the drums and cables may be subjected; causing breakdown of the drum flanges and in exceptional cases, movement of the drum barrel takes place. Once this breakdown of the drum occurs, the cable is immediately exposed to damage. Cables damaged during handling & storage can cause service failures when the subject cable is put to use.

Thus the following is a list of Do's and Don'ts that should be followed while handling and storing the cables before it is put to use.

Do's		Don'ts	
	When off loading reels from a truck, lower reels carefully using a hydraulic gate, hoist or forklift truck		Never drop reels. If reels must be rolled, roll in opposite direction of the cable wraps to keep cable from loosening on the reel.
	If a fork lift is used, approach the reel from the flange side. Position the forks such that the reel is lifted by both reel flanges. Also Consideration should be given to, Traffic patterns during off-loading & damage during the time in storage		Do not allow the lift forks to contact the cable. Care must be taken by the fork lift operator not to make sudden turns or stops.
	Cable reels should be stored on hard surfaces resting on the flanges edge (flanges vertical). Align reels flange to flange and, if possible, arrange so that first in is first out.		Multiple reels stacked on top of each other ("Pancake" storage) is not recommended for cable drums. The weight of the stack can total thousands of kgs. creating an enormous load on the bottom reel. Also, damage to the reel and/or cable will likely occur when the reel is flipped for transit. A concentration of stress on the reel flange may cause it to break and subsequently damage the cable.
	When using a hoist, install a mandrel through the reel arbor holes and attach a sling. Use a spreader bar approximately 6 inches longer than the overall reel width placed between the sling ends just above the reel flanges.		This may lead to the bending of the reel flanges and mashing the cable