KEI Industries Limited

REGISTERED AND CORPORATE OFFICE:
D-90, OKHLA INDUSTRIAL AREA PHASE-I, NEW DELHI-110020, TEL: +91-11-26818840/8642/0242 FAX: 26817225, 26811959
E-MAIL: info@kei-ind.com WEBSITE: www.kei-ind.com CIN NO: L74899DL1992PLC051527

Manufacturing Units

Bhiwadi
KEI Industries Limited
SP-919/920/922, Ricco Industrial Area,
Phase-III, Bhiwadi, Distt. Alwar-301019 Rajasthan
Tel: +91-1493-220106/221731
Fax: 221731 E-Mail: bhiwadi@kei-ind.com

Silvassa
KEI Industries Limited
99/2/7, Madhuban Industrial Estate, Rakholi,
Silvassa-396230 Dadra & Nagar Haveli
Tel: +91-260-2644404/2630944
Fax: 2645896 E-Mail: silvassa@kei-ind.com

Chopanki
KEI Industries Limited
A-280/281/282/283/284, Ricco Industrial Area
(Chopanki) Distt. Alwar-301019 Rajasthan
Tel: +91-1493-260202/06 Fax: 260203
E-mail: chopanki@kei-ind.com

Pathredi
KEI Industries Limited
Plot No.SP2-874, Ind. Area Pathredi - 301019
Bhiwadi (Alwar) Rajasthan (India)

Chinchapada
KEI Industries Limited
Survey No1/1/2/5 Village Chinchapada,
Silvassa - 396230(D.&N.H) Ph.: 7574881215

Marketing Offices (India)

WEST

Marketing Office-Mumbai
KEI Industries Limited
Nirvan Corporate, 7th Floor, Opposite Aghadi Nagar,
Pump House, Jijamata Road, Andheri East,
Mumbai – 400093
Tel: +91-22-28239673, 28375642
Fax: +91-22-28258277 E-mail: mumbai@kei-ind.com

Vapi/Silvassa/Daman
KEI Industries Limited
A1/302, Karmabhumi Residency,
Behind Golden Bakery, Nanakwada, Halar,
Valsad- 396001.
Mr. Harsh Desai, Mob: 9723455316
E-Mail: harsh.desai@kei-ind.com

Nasik
KEI Industries Limited
4, Sanket Apartment, Tidake Colony,
Behind Hyundai Showroom, Nashik,
Maharashtra – 422002
Mob. 8805369705 / 8291918949

Baroda
KEI Industries Limited
803-804, Siddharth Complex, Near
Hotel Express R.C. Dutt Road, Baroda-390007
Tel: +91-265-6539719, 2341831,
9824087943 /9824676443
E-Mail: baroda@kei-ind.com

Ahmedabad
KEI Industries limited
301, Sarthik Complex, Opp. ISCKON BRTS,
Satellitte Road, Ahmedabad-380015, Mob: 9825795673
E-Mail: dharmin.maniar@kei-ind.com,
ahmedabad@kei-ind.com

Raipur
KEI Industries Limited
206, 2nd Floor, Harshit Corporate, Amanaka,
G.E. Road, Raipur, Chhattisgarh - 492001
Mr. Sumit Ganguly - 7581809898
Email: Chhatisgarh@kei-ind.com

Pune
KEI Industries Limited
Vasudha Equinox, Office No. 104, 1st Floor, Mouje
Bopodi, Near Khadki Railway Station, Pune-411003
Tel: 020-65600891 / 65600892
Mob. +91-9850526730/9823295878/ 9922226699
E-Mail: pune@kei-ind.com

Goa
KEI Industries Limited
House no:617, Housing Board Colony,
CamurlimMapusa Goa 403507.
Mr. NileshParab Ph.: 9890452484
E-Mail: goa@kei-ind.com

Surat
KEI Industries Limited
703, Royal Trade Centre. Opposite Star Bazar,
Adajan-Hazira Road, Adajan, Surat-395009
Mob:09879018448, +91-261-2793279
E-Mail: rakesh.patel@kei-ind.com

Nagpur
KEI Industries Limited
103, Misal Layout, Near Maharashtra School
Nagpur - 440014
Mr. Saranjeet S. Kohli, Mob: +91-9822473774
E-Mail: nagpur@kei-ind.com

Solapur
KEI Industries Limited
Niranjan V. Deshpande
462, Om Namah Shivay Nagar,
Kumthe Road, Near Shastri Math,
Hatture Vasti, Solapur. 413005

Aurangabad
KEI Industries Limited
Mahesh Pandurang Akalekar, Flat No. 11,
Padmini Housing Society, Nakshtra Park,
Beside Walmi Naka, Paithan Road,
Aurangabad Pin: 431 005
Mob. No. 07045922707/706, 9075008151
E-Mail: aurangabad@kei-ind.com

Rajkot
KEI Industries Limited
Mr. Nitin Tank Mob: +91-8155044144
E-Mail: nitin.tank@kei-ind.com

Kolhapur
KEI Industries Limited
776/ 3/6 AmarnathHights Building, Near AmarnathMandir
Ganesh Colony, Kalamba Road, Kolhapur - 416007
Mr. Rajaram B. Kamble Tel: 9371104263 / 8291918940
E-Mail: kolhapur@kei-ind.com, rajaram.kamble@kei-ind.com

NORTH

Jaipur
KEI Industries Limited
Shivam Business Center, 405, 4th Floor,
Calgary Hospital Road, Pradhan Marg,
Malviya Nagar, Jaipur - 302017 (Rajasthan)
Phone No. + 91 141 5179279 Fax: +91 141 252 9404
Mob: +91 99290 93711
E-Mail : jaipur@kei-ind.com

Lucknow
KEI Industries Limited
E-79,80,81 Transport Nagar (Kanpur Road)
Lucknow (UP)-226012, Ph No.-0522-4010752
E-Mail:up@kei-ind.com

Gurgaon
KEI Industries Limited
Shop no-101 1st Floor, Radha Palace
Gurudwara Road, Gurgaon Haryana- 122001
Mob: +919873561757
E-Mail: rksingh@kei-ind.com

Indore
KEI Industries Limited
Plot No 451 Sch No 78 Industrial Area New Loha
Mandi Dewas Naka Indore 452010 (M.P)

Chandigarh
KEI Industries Limited
SCO 17, 1st Floor, Swastik Vihar, Mdc, Sector-5,
Panchkula-134109 Tel: +91-172-4416301
Fax: 4416300 E-Mail: chandigarh@kei-ind.com

Panipat
KEI Industries Limited
C/o Narinder Gupta Mob: +91-8950660777

Dehradun
KEI Industries Limited
H.No. – 329, Lane No- 13, Mohit Nagar,
Dehradun – 248001 (U.K.), Ph.: 0135 – 2762223.
Mob: 9756621171
Email: depotdehradun@kei-ind.com

SOUTH

Chennai
KEI Industries Limited
No.4, (Old. No. 23) SIR C P Ramasamy Road,
2nd Floor, Near Apollo Hospital
Alwarpet, Chennai-600018
Tel: +91-44-42009120
Fax: +91-44-42009130, 8939768405
E-Mail: victor@kei-ind.com, chennai@kei-ind.com

Bangalore
KEI Industries Limited
No 15, Sirur Park Road, Sheshadripuram,
Bangalore-560020
Tel: +91-80-23466254 +91-80-23466260/55
Ph.: 8884439333 E-Mail: bangalore@kei-ind.com

Hyderabad
KEI Industries Limited
Plot No. 76, H.No. 3-14-52/1, Shubodaya Colony,
Near M.E Reddy Function Hall, Mansoorabad,
Vanasthalipuram, Hyderabad-500070
Tel: +91-40-24024260 +91-9985522558
E-Mail: hyderabad@kei-ind.com

Secunderabad
KEI Industries Limited
5-2-510, 2nd floor, plot no:44, Beside Govt
Primary School, Near Bible House,
Hyderbasti, R.P.Road, Secunderabad,
Telangana- 500 003
Ph.: 8008000583/9963530111
E-Mail:Kiran.kumar@kei-ind.com
vasudeva.rao@kei-ind.com

Coimbatore
KEI Industries Limited
Sf.no. 581/1a, K.N.G. Pudur Road,
Kanuvai Post S.M. Palayam Village,
Coimbatore - 641 108 Ph.: 8929160629
E-Mail: manohar.s@kei-ind.com

Kochi
KEI Industries Limited
Ground Floor, 71/957 Bava Memorial Building,
Thanikkal, Keerthi Nagar Road, Elamakkara,
PO Kochi (Kerala) - 682026
Ph.: 99470 87535 E-Mail: cochin@kei-ind.com

Vijayawada
KEI Industries Limited
Venkata Ramana Enclave, D.No. 48-18-2a/1,
2nd Floor -Nagarjuna Nagar Colony, 6th Lane, Behind
Sai Baba Temple, Besides Ayush Hospital Krishna
Dist., Andhra Pradesh - 520008 Ph.: 8886063715
E-Mail: syed.mahamood@kei-ind.com

EAST

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KEI Industries Limited
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Chandrashekharpur, Bhubaneswar-751016, Odisha
Tel: +91-9903027514
E-Mail: odisha@kei-ind.com

Guwahati
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Mangalam Plaza Compound, Near North East
Weight BridgeN,H, 37 Bye Pass, Beltola,
Guwahati-781029
e-mail: rubul@kei-ind.com

Patna
KEI Industries Limited
HIG Plot No-4H/59, Bahadurpur Housing Colony,
Lohia Nagar, Agamkuan, Patna 800026, Bihar
Tel: + 91 95348 38038, 7360042598
E-Mail: bihar@kei-ind.com

Ranchi
KEI Industries Limited
Golden Camp Warehouse, Old H B Road
Kokar, Ranchi, Jharkhand - 834001
Contact : 09934011405 / 09810492658
E-Mail : jharkhand@kei-ind.com

Kolkata
KEI Industries Limited
Arihanth Benchmark, 4th Floor113-F Matheshwartola
Road Ps:Tiljala, Ko lkata: 700 046
Tel: 033 - 4062 0820/4062 0822 Fax: 033 - 40620821
E-Mail: kolkata@kei-ind.com

Marketing Office (Overseas)

Dubai
KEI Industries Limited
Post Box No. 261739,Jebel Ali Free Zone, Dubai, U.A.E.
Tel: +9714 881 2310, +971 50 2112013
Fax: +9714 881 2311 E-mail: keidubai@emirates.net.ae
Contact: Mr. Shri Tamhankar

Singapore
KEI Industries Limited
No.52, UBI Avenue 3, # 04-37 Frontier,
Singapore-408867 Tel: +65 83240193
Contact: Mr. Xavier Toh Hong Ghee
E-mail: xavier@kei-sin.com

Korea (Local Representative)
Contact: Mr. CH Han
E-mail: ch.han@kei-ind.com
Contact : +82-10-4351-8585
Mr. TH Park
E-mail: th.park@kei-ind.com
Contact : +82-10-9104-4519

South Africa
KEI Cables SA (Pty) Ltd.
1 Benoni Multi Park, 32 Van Dyk Road,
Benoni Ext 12, Gauteng, South Africa
PO Box 501, Boksburg 1460.
Mob. No.: +27 65 850 1838

Nigeria
(Marketing Representative)
E-mail: kunal.gupta@kei-ind.com
Contact : +234 809 9777786

KEI
Wires & Cables

ONE STOP SOLUTION FOR WIRES AND CABLES

TECHNICAL HANDBOOK

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Chart: Cable Selection Guide (Material Comprison Chart) Handling & Storage

KEI Wires & Cables

Corporate Information

Board of Directors

Mr. Anil Gupta, Chairman-cum-Managing Director
Mrs. Archana Gupta, Director
Mr. Pawan Kr. Bholusaria, Director
Mr. K G Somani, Director
Mr. Vijay Bhushan, Director
Mr. Vikram Bhartia, Director
Mr. Rajeev Gupta, Excutive Director & CFO (Finance)
Mr. Akshit Divij Gupta
Mr. Sadhuram Bansal

Bankers

Dena Bank
Punjab National Bank
ING Vysya Bank
State Bank of Hyderabad
ICICI Bank Ltd
Standard Chartered Bank
State Bank of Patiala
State Bank of Bikaner & Jaipur
Indian Overseas Bank
Corporation Bank
DCB Bank Limited
IDBI Bank Limited
Lakshmi Vilas Bank Ltd
State Bank of India
Bank of India

Year of Establishment

1968

Type of Company

PUBLIC LIMITED

Income Tax (PAN) No.

AAACK0251C

CIN No: L74899DL1992PLC051527

PF Regd. No:

Delhi	DL-2330
Bhiwadi	RJ/8348 Dt.26.12.1996
Silvassa	GJ/VAPI/45769 Dt.9.11.2001
Chopanki	RJ/19828 Dt. 12/09/2008
Pathredi	RJRAJ1737691000

Factory Regd. No.

Bhiwadi	RJ/ 22219
Silvassa	GJ/1472
Chopanki	RJ/28507
Pathredi	RJ 32222

Excise Regd. No.

Bhiwadi	AAACK0251CXM002
Silvassa	AAACK0251CXM003
Chopanki	AAACK0251CXM004
Pathredi	08AAACK0251C1Z7

Factory Area

Bhiwadi	52447 sq. mtrs. (Covered)
Silvassa	14595 sq. mtrs. (Covered)
Chopanki	19188 sq. mtrs. (Covered)
Pathredi	31082 Sq. mtrs. (Covered)
Total Built-up area	102260 sq. mtrs.

TIN No.

Bhiwadi	08600850088-Dt. 18/1/1996
Silvassa	26000003620-Dt. 31/12/1999
Chopanki	08600850088-Dt. 18/1/1996
Pathredi	08AAACK0251C1Z7

Organization Strength — Total Nos. 6128

Managerial	700
Supervisory	1822
Workmen	3606

KEI at a Glance

Business

Established with the vision of changing the landscape of the electrical cable & wire industry in India, KEI has been a leader in the cables and wires industry for over 50 years. With a sharp focus on quality and service, the Company has been a frontrunner in adopting latest business practices and innovations in technology to deliver maximum value to its customers. Over the years, KEI has carved a niche for itself in the market. Its superior quality and service resonates the trust that its customers have placed in the Company. Backed by state-of-the-art technology and infrastructure, KEI, today, has a vast product portfolio ranging EHV (upto 400 kV), HT, LT and specialized Power, Control and Instrumentation cables along with vast range of Rubber Cables.

History

Established in 1968 as a partnership firm under the name Krishna Electrical Industries, with the prime focus of manufacturing cables for the Department of Telecommunications (DoT), the firm was later converted into a public limited company under the abbreviated trade name KEI Industries Limited. In the following years, KEI acquired Matchless Status as a company engaged in the manufacture of stainless steel wires and other electrical wires and cables. In 2010 KEI set foot into the manufacturing of EHV cables (up to 220 kV) in collaboration with Brugg Cables, a century old Swiss company. Since then, KEI has continuously received the Superbrand Award for Industry and Consumer Validation, each year. Also, KEI has been continuously rated for good corporate governance by CARE, since 2007.

Verticals & Clientele

KEI supplies a range of cables to a number of industries such as power, petrochemical, cement, steel, infrastructure telecommunication and fertilizer industries, among others. KEI is a registered vendor for both Indian and overseas EPC contractors like ABB, Siemens, BHEL, Areva, Alstom and McDermott to name a few and is registered as a vendor for more than 200 large Indian companies encompassing almost all industrial sectors.

Services

In addition to electrical cable and wire manufacturing, KEI has diversified its operations and now has a fully established EPC Division to execute turnkey projects for various utilities. KEI offers a comprehensive range of services, including engineering, consultancy and project management, ranging from conceptualising to commissioning for core sectors like Power (including renewable energy), Railways, Refineries, Petrochemicals, Mining, Cement, Steel, etc. It provides end-to-end customer solutions from engineering to designing, supply and installation of products.

Manufacturing

KEI has created a large infrastructure by strategically locating its three manufacturing units over a built-up area of 102260 sq. mtrs. presently however further expansion plans are in pipeline. KEI has four manufacturing units located at Bhiwadi, Chopanki, Pathredi and Silvassa. The current capacity stands at 48,00,000 kg per annum for stainless steel wire division, 10,500 km per annum for HT cables, 35,000 km per annum for LT power cables, 31,000 km per annum for control cables, 11,000 km per annum for instrumentation cables, 10,000 km per annum for rubber cable and 5,50,000 km per annum for house wires/flexible wires. To meet the increased demand for its products emanating from the power, industrial, infrastructure and housing and construction sectors, the company has planned a capacity expansion program for all of its products.

Exports

The company enjoys a presence across almost over 60 countries: UAE, Oman, Kuwait, Bahrain, Qatar, Saudi Arabia, Yemen, Iraq, Syria, Jordon, Algeria, Eritrea, Sudan, Kenya, South Korea, Philippines, Japan, China, Turkmenistan, Kazakhstan, Spain, Germany, Italy, Congo, Bangladesh, Sri Lanka, Nepal, Myanmar, Uganda, Tanzania, Mozambique, Rwanda, South Africa, Zambia, Namibia, Nigeria, Ghana, Togo, South Sudan, Mali, DR Congo, Somalia, Trinidad and Tobago, Grenada, Jamaica, France, Mauritius, Australia, Singapore, PNG (Papua New Guinea), Vietnam, Indonesia, Malaysia, Canada, Cyprus, Ethiopia, Iran, Mexico, New Zealand, Switzerland, UK. USA, West Indies. . The company drives almost 20% of its revenue from the overseas market.

Financial Performance of the Company

Particulars	FY 2015-16		FY 2016-17*		FY 2017-18*	
	(INR in Millions)	($ in Millions)	(INR in Millions)	($ in Millions)	(INR in Millions)	($ in Millions)
Sales & Other Income	23309.28	332.99	28,424.92	406.07	35,057.18	500.82
Profit Before Interest, Depreciation & Taxes	2,476.04	35.37	2,790.80	39.87	3,476.94	49.67
Less : Financial Charges	1,269.74	18.14	1,244.25	17.78	1,113.04	15.90
Depreciation	252.86	3.61	284	4.06	322.30	4.60
Profit Before Tax	953.44	13.62	1,262.51	18.04	2,041.60	29.17
Provision for Taxation	331.42	4.73	324.00	4.63	596.04	8.51
Profit After Tax	622.02	8.89	938.28	13.40	1,445.56	20.65

Note: The dollar rate considered for conversion is $1 = INR 70
** The financial statements for FY 2017-18 have been prepared in accordance with the Indian Accounting Standards (Ind AS) notified under Companies (Indian Accounting Standards) Rules, 2015, accordingly for FY 2016-17, figures have been regrouped/reclassified, wherever necessary

KEI Product Range

KEI has been a pioneer in design and manufacture of high-performance cables and wires. Its vast portfolio ,apart from EHV cables up to 400 kV. MV (medium voltage) and HT cables also includes control and instrumentation cables, rubber cables, thermocouple cables, zero halogen cables, braided cables, single and multi core flexible cables, housewire and stainless steel wires. By actively responding to changing customer demands and expectations, the company has expanded its distribution network and strengthened existing industrial product vertical.

Product & Solutions

- EHV Cables up to 400 kV
- HT Cables up to 33 kV- Dry Cured Process
- LT Power Cables-Copper / Aluminium Conductor PVC, XLPE & EPR
- LT Control Cables-Copper PVC, XLPE & EPR
- Screened / Unscreened Type PVC/PE/EPR/XLPE Instrumentation Cables
- Flexible & Housewires (Single & Multicore)
- Elastomeric (Rubber) Cables
- Railway Signaling Cables
- Fire Survival, Zero Halogen Cables
- Telephone Cables
- Automation Cables
- Welding Cables
- Submersible Cables / Winding Cables
- Ship Wiring Cable
- Mining Cable
- Cables for Offshore Installation
- Cables for Defence
- AB Cables
- Solar Cables

ISO CERTIFICATES

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No:
98930-2011-AE-IND-RvA

Initial certification date:
30, June, 2011

Valid:
30, June, 2017 - 29, June, 2020

This is to certify that the management system of

KEI Industries Ltd.
919, 920 & 922, RIICO Industrial Area, Phase III, Bhiwadi - 301 019, District: Alwar, Rajasthan, India
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Environmental Management System standard:
ISO 14001:2015

This certificate is valid for the following scope:
Design, development, manufacture and services of cables, wires & conductors viz., HT/EHV/LT power, control, instrumentation, thermocouples, elastomeric cables, winding & flexible wires and stainless steel wires for wide range of applications

Place and date:
Chennai, 30, January, 2018

MGMT. SYS.
RvA C 024

The RvA is a signatory to the IAF MLA

For the issuing office:
DNV GL – Business Assurance
ROMA, No. 10, GST Road, Alandur,
Chennai - 600 016, India

Sivadasan Madiyath
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No:
1385-2007-AQ-IND-RvA

Initial certification date:
12, December, 2000

Valid:
30, June, 2017 - 29, June, 2020

This is to certify that the management system of

KEI Industries Ltd.

919, 920 & 922, RIICO Industrial Area, Phase III, Bhiwadi - 301 019, District: Alwar, Rajasthan, India
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following scope:
Design, development, manufacture and services of cables, wires & conductors viz., HT/EHV/LT power, control, instrumentation, thermocouples, elastomeric cables, winding & flexible wires and stainless steel wires for wide range of applications

Place and date:
Chennai, 30, January, 2018

MGMT. SYS.
RvA C 024

The RvA is a signatory to the IAF MLA

For the issuing office:
DNV GL – Business Assurance
ROMA, No. 10, GST Road, Alandur,
Chennai - 600 016, India

Sivadasan Madiyath
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance B.V., ZWOLSEWEG 1, 2994 LB, BARENDRECHT, NETHERLANDS. TEL:+31102922689.
assurance.dnvgl.com

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No:
98931-2011-HSO-IND-DNV

Initial certification date:
30, June, 2011

Valid:
30, June, 2017 - 29, June, 2020

This is to certify that the management system of

KEI Industries Ltd.

919, 920 & 922, RIICO Industrial Area, Phase III, Bhiwadi - 301 019, District: Alwar, Rajasthan, India
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Occupational Health and Safety Management System standard:
OHSAS 18001:2007

This certificate is valid for the following scope:
Design, development, manufacture and services of cables, wires & conductors viz., HT/EHV/LT power, control, instrumentation, thermocouples, elastomeric cables, winding & flexible wires and stainless steel wires for wide range of applications

Place and date:
Chennai, 30, January, 2018

MANAGEMENT SYSTEM CERTIFICATION
DNV·GL

For the issuing office:
DNV GL – Business Assurance
ROMA, No. 10, GST Road, Alandur,
Chennai - 600 016, India

Sivadasan Madiyath
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
CERTIFYING UNIT: DNV GL BUSINESS ASSURANCE INDIA PRIVATE LIMITED, ROMA, No. 10, GST Road, Alandur, Chennai, 600 016, India.

National Accreditation Board for Testing and Calibration Laboratories
(A Constituent Board of Quality Council of India)

CERTIFICATE OF ACCREDITATION

QUALITY ASSURANCE LABORATORY,
KEI INDUSTRIES LTD.

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2005

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

SP-919, 920, 922, RIICO Industrial Area, Bhiwadi, Alwar, Rajasthan

in the field of

TESTING

Certificate Number TC-6110 *(in lieu of T-1616)*
Issue Date 18/06/2017 **Valid Until** 17/06/2019

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Signed for and on behalf of NABL

N. Venkateswaran
Program Director

8907697010003000006

Anil Relia
Chief Executive Officer

DNV·GL

Certificate No: **E-14121**
File No: **827.20**
Job Id: **262.1-002361-2**

TYPE APPROVAL CERTIFICATE

This is to certify:
That the Low Voltage Cable

with type designation(s)
BFOU (i) S3/S7 250 V, BFOU (c) S4/S8 250 V, BFCU(i) & (c) 250V, ,

Issued to
KEI Industries Ltd.
Mumbai DELHI, India

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards
IEC 60092-376 (2003-05)
IEC 60331-21 (1999-04)
IEC 60332-3-22 (2009-02)
IEC 60754-1 (2011-11)
IEC 60754-2 (2011-11)
IEC 61034-1/2 (2013-07/2013-09)
NEK TS 606 (2009-05) (S-types only)

Application :
Instrumentation and communication.
Fire resistant. Flame retardant Cat. A. Halogen free. Low smoke. Mud resistant.

Type	Voltage class (V)	Temp. class (°C)
BFOU (i) S3/S7 250 V	250	90
BFOU (c) S4/S8 250 V	250	90
BFCU(i) & (c) 250V	250	90

This Certificate is valid until **2018-12-31**.
Issued at **Høvik** on **2015-03-23**

DNV GL local station: **Mumbai**

Approval Engineer: **Ludovico Gullifa**

for **DNV GL**
Digitally Signed By: Laumann, Marit
Location: DNV GL Høvik, Norway
Signing Date: 2015-03-25

Marit Laumann
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Form code: TA 1411a Revision: 2014-11 www.dnvgl.com Page 1 of 4

DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
E-14122
File No:
827.20
Job Id:
262.1-002361-2

This is to certify:

That the Low Voltage Cable

with type designation(s)
RFOU (i) S1/S5 250 V, RFOU (c) S2/S6 250V, RFCU(i) & (c),

Issued to
KEI Industries Ltd.
Mumbai DELHI, India

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards
IEC 60092-376 (2003-05)
IEC 60332-3-22 (2009-02)
IEC 60754-1 (2011-11)
IEC 60754-2 (2011-11)
IEC 61034-1/2 (2013-07/2013-09)
NEK TS 606 (2009-05) (S-types only)

Application :

Instrumentation and communication.
Flame retardant Cat. A. Halogen free. Low smoke. Mud resistant.

Type	Voltage class (V)	Temp. class (°C)
RFOU (i) S1/S5 250 V	250	90
RFOU (c) S2/S6 250V	250	90
RFCU(i) & (c)	250	90

This Certificate is valid until **2018-12-31**.
Issued at **Høvik** on **2015-03-23**

DNV GL local station: **Mumbai**

Approval Engineer: **Ludovico Gullifa**

for **DNV GL**
Digitally Signed By: Laumann, Marit
Location: DNV GL Høvik, Norway
Signing Date: 2015-03-25

Marit Laumann
Head of Section

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The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
E-14123
File No:
827.10
Job Id:
262.1-002361-2

This is to certify:

That the Electric Power Cable

with type designation(s)
BFOU P5/P12 0,6/1 kV, BFCU 0,6/1kV, BFOU VFD 0,6/1 kV,

Issued to
KEI Industries Ltd.
Mumbai DELHI, India

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards
IEC 60092-353 (2011-08)
IEC 60331-21 (1999-04)
IEC 60332-3-22 (2009-02)
IEC 60754-1 (2011-11)
IEC 60754-2 (2011-11)
IEC 61034-1/2 (2013-07/2013-09)
NEK TS 606 (2009-05) (P-types only)

Application :

General power and lighting.
Fire resistant. Flame retardant Cat. A. Halogen free. Low smoke. Mud resistant.

Type	Voltage class (kV)	Temp. class (°C)
BFOU P5/P12 0,6/1 kV	0,6/1	90
BFCU 0,6/1kV	0,6/1	90
BFOU VFD 0,6/1 kV	0,6/1	90

This Certificate is valid until **2018-12-31**.
Issued at **Høvik** on **2015-03-23**

DNV GL local station: **Mumbai**

Approval Engineer: **Ludovico Gullifa**

for **DNV GL**
Digitally Signed By: Laumann, Marit
Location: DNV GL Høvik, Norway
Signing Date: 2015-03-25

Marit Laumann
Head of Section

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DNV·GL

Certificate No:
E-14124
File No:
827.10
Job Id:
262.1-002361-2

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
RFOU P1/P8 0,6/1 kV, RFCU 0,6/1 kV, RFOU-VFD 0,6/1 kV,

Issued to
KEI Industries Ltd.
Mumbai DELHI, India

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards
IEC 60092-353 (2011-08)
IEC 60332-3-22 (2009-02)
IEC 60754-1 (2011-11)
IEC 60754-2 (2011-11)
IEC 61034-1/2 (2013-07/2013-09)
NEK TS 606 (2009-05) (P-types only)

Application :

General power and lighting.
Flame retardant Cat. A. Halogen free. Low smoke. Mud resistant.

Type	Voltage class (kV)	Temp. class (°C)
RFOU P1/P8 0,6/1 kV	0,6/1	90
RFCU 0,6/1 kV	0,6/1	90
RFOU-VFD 0,6/1 kV	0,6/1	90

This Certificate is valid until **2018-12-31**.
Issued at **Høvik** on **2015-03-23**

DNV GL local station: **Mumbai**

Approval Engineer: **Ludovico Gullifa**

for **DNV GL**
Digitally Signed By: Laumann, Marit
Location: DNV GL Høvik, Norway
Signing Date: 2015-03-25

Marit Laumann
Head of Section

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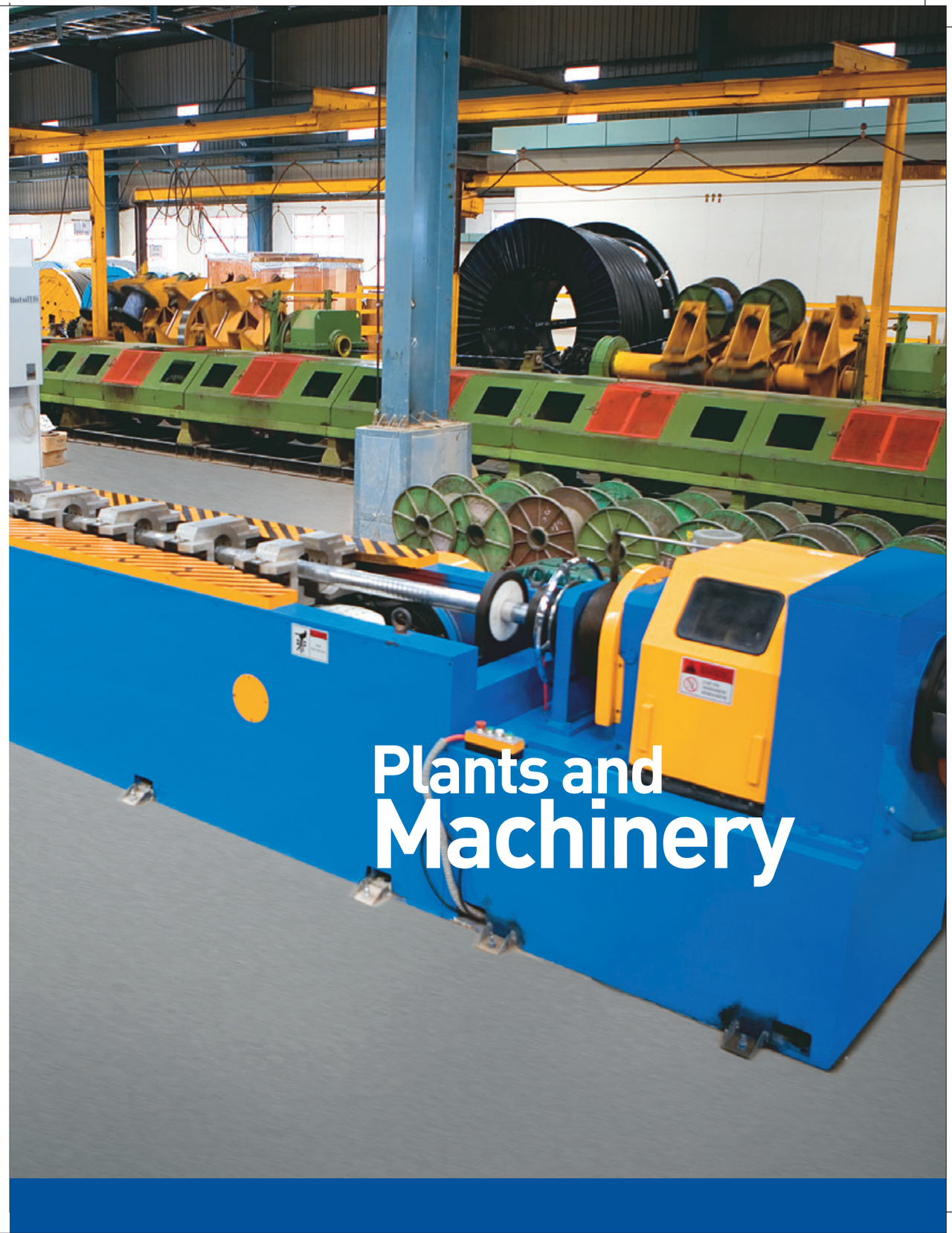


LIST OF PLANT MACHINERY, CHOPANKI

SR.	NAME OF MACHINE	MAKE/COUNTRY
1	WIRE DRAWING MACHINE WITH ONLINE NIEHOFF ANNEALER (RBD) (CU)	1/ RBD CU /NIEHOFF
2	WIRE DRAWING MACHINE(RBD) (AL.)	2/ AL/ Indian
3	DUAL HEAD WIRE DRAWING MACHINE WITH ONLINE NIEHOFF ANNEALER	1/ Dual Wire/ NIEHOFF
4	HIGH SPEED BUNCHING MACHINE WITH 630MM PAYOFF SPOOL	1/ Bunche NIEHOFF,India
5	7-BOBBIN BOW TWISTER -I	1/ Indian
6	7 BOBBIN STRANDING MACHINE	1/Indian
7	37 (1+6+12+18) BOBBIN STRANDING MACHINE	2/ 19 & 37/Indian
8	61 (1+6+12+18+24) BOBBIN STRANDING MACHINE	1/ 61/ CHINA
9	65 MM COMPLETE EXTRUSION LINE	1/Indian
10	60 B SCREENING MACHINE	1/ Indian
11	60+120 MM COMPLETE DUAL EXTRUSION LINE FOR BI-COLOUR	1/ Indian
12	100 MM COMPLETE EXTRUSION LINE	1/Indian
13	LEAD EXTRUDER	1/Sweden
14	150 MM COMPLETE EXTRUSION LINE	1/Indian
15	7 BOBBIN BOW TWISTER-II	1/Indian
16	DRUM TWISTER	1/Indian
17	3+1 LAYING UP MACHINE	1/Indian
18	1+4 LAYING UP MACHINE	1/Indian
19	48 BOBBIN ARMOURING MACHINE - I	1/Indian
20	48 BOBBIN ARMOURING MACHINE-II	1/Indian
21	60 BOBBIN ARMOURING MACHINE	1/Indian
22	96 BOBBIN ARMOURING MACHINE	1/Indian
23	SPOOLING MACHINE-I	8/ Indian
24	CABLE REWINDING MACHINE - I	5/ Indian
25	BOILER	2/ Indian
26	WATER TANK FOR CURING/HV TEST	1/Indian
27	E.O.T. CRANE - I	4/Indian
28	COMPRESSOR - I	3/Indian
29	AIR DRYER UNIT	1/Indian
30	D.G. SET - I (500 KVA)	1/Indian
31	D.G. SET - II (1110 KVA)	1/USA
32	RO SYSTEM	1/Indian
33	WATER SOFTNER	1/Indian
34	COOLING TOWERS - I	2/ Indian
35	MOBILE CRANE	1/Indian
36	FORK LIFTER	1/Indian
37	UPS	1/Indian
38	CCV LINE 90MM+200MM+90MM	1/German

LIST OF PLANT MACHINERY, CHOPANKI

SR.	NAME OF MACHINE	MAKE/COUNTRY
39	32 B Laying up machine	1/Indian
40	80+175MM COMPLETE DUAL EXTRUSION LINE FOR BI-COLOUR	1/Indian
41	ALUMINIUM CORRUGATION	1/Imported
42	SHIELDING MACHINE	3
43	NITROGEN GENERATOR	1/Indian
44	WATER CHILLER	3/Indian
45	GOODS LIFT	2/ Indian
46	PASSENGER LIFT	1/Indian
47	EOT CRANE	3/5,6,7/ Indian
48	PORTABLE CRANE	1/Indian

LIST OF PLANT MACHINERY, (RUBBER PLANT) BHIWADI

SR.	NAME OF MACHINE	NO. OF MACHINES/ CAPACITY/ MAKE
1	KNEADER	2/ 35 LTRS./ India
2	TWO ROLL MILL	2/ 14"X36"/ India
3	TWO ROLL MILL	1/ 16"X42"/ India
4	TWO ROLL MILL	1/ 11'X22''/ India
5	HOT FEED EXTRUDER	1/ 75MM/ India
6	HOT FEED EXTRUDER	1/ 115MM/ India
7	COLD FEED EXTRUDER	1/ 120MM/ India
8	SILICONE EXTRUDER	1/ 65MM/ India
9	PVC EXTRUDER	1/ 65MM/ India
10	CV LINE	1/ 90MM/ French
11	CV LINE	1/ 60MM/ Imported
12	CCV LINE	1/ 90+120MM/ Imported
13	TAPING HEAD (HORIZONTAL)	1/ 3 HEAD/ India
14	TAPING HEAD (HORIZONTAL)	2/ 1 HEAD/ India
15	TAPING HEAD	1/ 2 HEAD/ India
16	CABLE REWINDER M/C + INKJET PRINTING M/C	2/ Willet UK
17	37 BOBBIN STRANDING /LAYING MACHINE	1/ 560MM/ India
18	7 BOBBIN MACHINE	1/ 560mm/ India
19	BUNCHER	1/ 630mm/ India
20	BUNCHER	2/ 560mm/ India
21	BUNCHER	2/ 400mm/ India
22	BRAIDING M/C	4/ 16 CARRIER/ Imported
23	BRAIDING M/C	1/ 24 CARRIER/ Imported
24	BRAIDING M/C	1/ 16 CARRIER/ India
25	BRAIDING M/C	2/ 36 CARRIER/ India
26	BRAIDING M/C	4/ 24 CARRIER/ USA
27	BRAIDING M/C	1/ 24 CARRIER/ India
28	BRAIDING M/C	1/ 16 CARRIER/ India
29	BRAIDING M/C	1/ 16 CARRIER/ Imported
30	BRAIDING M/C	1/ 24 CARRIER/ Imported
31	SPOOLING M/C	3/ 20"/24"/ India
32	SPOOLING M/C	1/ 20"/24"/25"/ India
33	SPOOLING M/C	1/ 25"/ India
34	VULCANIZING CHAMBER	1/ 8'X6'/ India
35	VULCANIZING CHAMBER	1/ 8'X12'/ India
36	VULCANIZING CHAMBER	1/ 2.7X4.5 MTR/ India
37	VERTICAL LAPPING	2/ 2HEAD/ Imported
38	VERTICAL LAPPING	1/ 3HEAD/ Imported

LIST OF PLANT MACHINERY, (RUBBER PLANT) BHIWADI

SR.	NAME OF MACHINE	NO. OF MACHINES/ CAPACITY/ MAKE
39	STEAM BOILER	1/ 2000 L/HR./ India
40	PAIR TWISTER	1/ 560MM/ India
41	SLITTING MACHINE	1/ 1MTR/ India
42	BOBBIN REWINDER WARDWELL	1/ 2 HEAD/ USA
43	BOBBIN REWINDER	1/ 2 HEAD/ Imported
44	BOBBIN REWINDER SHIDHANA	1/ 1 HEAD/ India
45	BOBBIN REWINDER-4 KEI	4/ 1 HEAD/ India
46	BANBURY INTERMIX	1/ 35 LIT/ india

LIST OF PLANT MACHINERY (SP-922) CONTROL DIVISION BHIWADI

SR.	NAME OF MACHINE	NO. OF MACHINES/ CAPACITY/ MAKE
1	Wire Drawing	1/ 2-wire/17-die/ Niehoff (Germany)
2	Wire Drawing	2/ 1-wire/17-die/ India
3	Buncher	2/ 8 bobbin/630mm/ India
4	Buncher	2/ 7 bobbin/630mm/ India
5	Buncher	6/ 7 bobbin/400mm/ India
6	Buncher	1/ 7 bobbin/250mm/ India
7	Buncher	1/ 8 bobbin/400mm/ India
8	Buncher	1/ 9 bobbin/400mm/ India
9	Buncher	1/ 10 bobbin/400mm/ India
10	Extruder-Insulation	2/ 60mm+38 Dual/ India
11	Extruder-Insulation	1/65mm/ India
11	Extruder-Insulation	1/ 50mm/ India
14	Pair Twist Buncher	4/ 630mm/ India
15	Shielding	5/ 630mm/ India
16	Laying	1/ 1+3/560mm/ India
17	Laying	1/ 1+6/400mm/ India
18	Roller Twister-630	1/ 630mm/ France
19	Laying	1/ 12+18/630mm/ India
20	Laying	1/ 19/630mm/ India
21	Laying	1/ 14/600mm/ India
22	Laying	1/ 12+18/400mm/ India
23	Drum Twister	1/ 1600mm/ India
24	Extruder	1/ 80mm/ India
25	Extruder	1/ 90mm/ India
26	Armouring	1/ 42 bobbin/400mm/ India
27	Armouring	1/ 64 bobbin/400mm/ India
28	Armouring	1/ 48 bobbin/400mm/ India

LIST OF PLANT MACHINERY (SP-922) CONTROL DIVISION BHIWADI

SR.	NAME OF MACHINE	NO. OF MACHINES/ CAPACITY/ MAKE
29	Armouring	1/ Double head taping m/c/ India
30	Armouring	1/ 24 bobbin/400mm/ India
31	Armouring	1/ 40 bobbin/400mm/ India
32	Extruder	1/ 120mm/ India
33	Extruder	1/ 80mm/ India
34	Extruder	1/ 45mm/ India
35	Extruder	1/ 50mm/ India
36	Cable Rewinder	5/ 2200mm/ India
37	Cable Rewinder (tape)	1/ 2200mm/ India
39	GI Rewinder	13/ 400mm/ India
40	Core Rewinder	10/ 630mm/ India
41	Auto Core Rewinder	4/ 630mm/ India
42	Conductor Rewinder	4/ 630mm/ India
CONDUCTOR DIVISION		
1	RBD (AL)	2/ RBD- 13 Die/ Indian
2	RBD (AL)	2/ RBD- 11 Die/ Indian
3	RBD (CU) with Annealer	1/ RBD -11 Die with Annealer CU/ Germany
4	Wire Drawing (Cu.)	1/ 16 Die/CU/ Indian
5	Wire Drawing (Cu.)	1/ 19 Die/CU/ Indian
6	Wire Drawing (Al.)	1/ 17-Die/ AL/ Indian
7	61 -Str. Machine	2/ 61-bobbin/ Indian
8	97 -Str. Machine	1/ 97-bobbin/ Indian
9	37 -Str. Machine	2/ 37-bobbin/ Indian
10	19 -Str. machine	1/ 19-bobbin/ Indian
11	Skip	1/ 7-bobbin/ Indian
12	Tubular	1/ 7-bobbin/200mm/ Indian
13	Wire Rewinder	2/ 630mm/ Indian
14	Conductor Rewinder	1/ 2200mm/ Indian
15	Tinning machine	1/ Italian
UTILITY DIVISION		
1	DG set	1/ 1110 kVA/ Cummins (India)
2	DG set	1/ 1010 kVA/ Cummins (India)
3	Compressor	3/ 18.5 kW/100 CFM/ ELGI (India)
4	Goods lift	2/ 7.5 ton/ Real (India)
5	Goods lift	1/ 2.0 ton/ Globe (India)
6	Passenger Lift	1/ 680 kg/ KONE (India)

LIST OF PLANT MACHINERY (SP-919) CONTROL CABLE BHIWADI

SR.	NAME OF MACHINE	NO. OF MACHINES/ CAPACITY/ MAKE
1	CU-Std 16"-1	3/ 400mm/ India
2	65MM EXT	1/ 65mm/ India
3	65MM EXT-2	1/ 66 mm/ India
4	Pair Twister-1	2/ 400mm/ India
5	Laying 3+1	1/ 4B/530 mm/ India
6	Sheilding 1+1	2/ 560 mm/ India
7	Laying - 12 B.	1/ 630 mm/ India
8	Laying - 19 B.	1/ 630 mm/ India
9	40B Arm	1/ 400 mm/ India
10	24B Arm	1/ 400 mm/ India
11	100 MM EXT	2/ 100 mm/ India
12	Cable Rewinder	10 Numbers

LIST OF PLANT MACHINERY, HT & EHV BHIWADI

1	CCV LINE	1/ 65+150+90 MM/ Germany
2	SIO PLAS LINE	1/ 60+120+80 MM/ India
3	COPPER TAPING MACHINE	10 Numbers
4	DOUBLE STEEL TAPE	___
5	DRUM TWISTER	1/ 3150 MM/ India
6	LAYING MACHINE	1/ 1600 MM / (3+1)/ India
7	EXTRUDER	1/ 120 MM/ India
8	ARMOURING MACHINE	1/ 66B / 560 MM/ India
9	ARMOURING MACHINE	1/ 54B / 560 MM/ India
10	ARMOURING MACHINE	1/ 80B / 560 MM/ India
11	ARMOURING MACHINE	1/ 80B / 560 MM/ Imported
12	EXTRUDER	1/ 120+45 MM/ India
13	EXTRUDER	1/ 150MM/ India
14	EXTRUDER	1/ 120MM/ India
15	LEAD EXTRUDER	1/ 4X11 Inch/ Imported
16	CABLE REWINDING MACHINE	05 Number
17	ELECTRIC OVER HEAD TRAVELLING (CRANE)	3/ 15 TON/ India
18	ELECTRIC OVER HEAD TRAVELLING (CRANE)	2/ 10 TON/ India
19	MATERIAL LIFTS	2/ 3 TON/ India
20	D.G. SET	1/ 1250 kVA/ India
21	D.G. SET	1/ 500 kVA/ India
22	BOILER	1/ 600KG/Hr/ India
23	NITROGEN GENERATOR	1/ 40 NM'3/Hr/ India
24	COMPRESSOR	3/ 57 M3/Hr/ India
25	UPS	4/ 250 kVA/ India
26	PASSENGER LIFT	1/ 650 KG/ Beacon

LIST OF PLANT MACHINERY, LT CABLE BHIWADI

SR.	NAME OF MACHINE	NO. OF MACHINES/ CAPACITY/ MAKE
1	AL WIRE DRAWING MACHINE	1/ 11 DIE/ Niehoff (India)
2	7 - TUBLLER - I	1/ 07B (500MM)/ India
3	33 - B M/C	1/ 33B (500MM)/ India
4	43 - B - M/C	1/ 43B(630MM)/ India
5	65-MM EXT. - I	2/ 65MM/ India
6	100MM EXT.	1/ 100MM/ India
7	120-MM EXT. - I	2/ 120MM/ India
8	150MM EXT.	1/ 150MM/ India
9	(3+1) - LAYING - I	1/ 3+1 , 48"/ India
10	DRUM TWISTER	1/ 3+1,64"/ India
11	36-B M/C (ARM.)	1/ 32B (500MM)/ India
12	48-B (ARM.) M/C	1/ 48B (400MM)/ India
13	54-B (ARM.) M/C	1/ 54MM (500MM)/ India
14	72-B (ARM.) M/C	1/ 72B (500MM)/ India
15	FURNACE	1/ 90KW/ India
16	WATER TANK XLPE CURRING	2/ 2.5X2.6X2.1M/ India
17	BOILER - I (KUMAR)	1/ 600KG/ India
18	PROGRESSIVE LENGTH MARKING	3/ 0000TO 9999/ India
19	E.O.T	3/ 7.5TON/ India
20	E.O.T	1/ 03TON/ India
21	E.O.T - (CARRYMORE)	1/ 05TON/ India
22	LIFT	1/ 02TON/ India
23	COMPRESSOR - I st (SCREW)	1/ 105CFM/ India
24	COMPRESSOR - II nd	2/ 80CFM/ India
25	D.G. 500 kVA	1/ 500 kVA/ India
26	UPS - I st	2/ 250 kVA/ India
27	CABLE REWIENDER	7/(2200mm/2600mm/2200mm, 500mm)/ India
28	G.I. SPOOLING M/C.	8/ 500MM/ India
29	AL. STRIP M/C	1/ 500MM/ India
M/C I N MAINTENANCE		
1	LATH M/C -I st	2/ 6FEET/ India
2	SHAPPER M/C	1/ 02FEET/ India
3	DRILLING M/C (VERTICAL)	1/ 22MM / India
4	BANCH GRIENDER M/C	1/ 215MM/ India
5	WELDING M/C -I	3/ 300AMP/ India
6	POWER HACKSAW	1/ 12"/ India
7	HAND GRIENDER M/C	1/ 7"/ India

LIST OF TESTING & MEASURING INSTRUMENTS, SILVASSA

SR.	NAME OF THE INSTRUMENT	NO. OF EQUIPMENTS	MAKE/MODEL	RANGE
1	Kelvin double Bridge	1	Osaw	0-110hms
2	Million Megohmmeter	1	Sivananda/LS-3B	10-10^6MW
3	Million Megohmmeter	1	Sivananda/LS-3BD	10-10^6MW
4	H.V. Megaohm box (IR)	1	Sigma	2MW - 20GW
5	Cold chamber	1	Audiotronics	RT to - 15deg
6	Cold chamber	1	Audiotronics	RT to - 45deg
7	Spark tester	1	RE	0 - 10 kV
8	Spark tester	3	RE	0 - 15 kV
9	H.V. Tester	1	RE	0-5Kv/0-10 kV
10	H.V. DC Tester	1	RE	0 - 3 kV
11	High Voltage Test Set	1	RE (AC)	0-6Kv / 0-12 kV
12	Tensile testing m/c.	1	Presto	0 - 2500N
13	Tensile testing m/c.	1	KMI 1.5G	0 - 50KN
14	Tensile testing m/c.	1	KMI 1.3D	0 - 200N
15	Hotset test Apparatus (Temp. Controler)	1	S.A. Associates	0-5000 C
16	Digital temp. controller (Thermal stability)	1	West	0-400 OC
17	Digital temp. controller (Water bath)	1	Narang	0-400 OC
18	Digital temp. controller (Water bath-2)	1	Audiotronics	0-199.9 OC
19	Oxygen Index / Temp. Index (Temp.controler)	1	S.A. Associates	0-400 OC
20	Weighing Balace	1	Presca/303	0-300Gr.
21	Air flow meter (Flame test -IEC-332/III)	1	S.A. Associates	0-91.19psi
22	Glass flow meter (Flame test -IEC-332/III)	1	S.A. Associates	0-11.9psi
23	Pressure Gauge (Flame test -IEC-332/III)	1	Manometer	0 to 4.2 Kg/cm2
24	Pressure Gauge (Flame test -IEC-332/III)	1	Manometer	0 to 2.1 Kg/cm2
25	Vaccum Gauge (WATER ABSORBTION TEST)	1	Manometer	(-760)mm Hg
26	Digital temp. controller (Vaccume Oven))	1	PT-100	0-200OC
27	Micro-ohmmeter	2	Agronic-53c	1999MW-19.99KW
28	Glass Thermometer	1	ZEAL	-10 to 110degC
29	Glass Thermometer	1	JRM	-10 to 360degC
30	Glass Thermometer	1	JRM	-10 to 250degC
31	Glass Thermometer	1	Venus	190 to 210degC
32	Glass Thermometer	1	JRM	-10 to 110degC
33	Ageing in Air Oven	1		0 to 300degC
34	Air Oven	1	Shivki	0 to 200degC
35	Ageing Oven (Temp. Controller)	1	West	0 to 200degC
36	Hcl gas test appratus(TEMP CONTROLER)	1	S.A. Associates	0-1000degC
37	Slip gauge	1	USSR	0.5 to 100mm
38	Vernier Caliper (DIGITAL)	1	Mitutoyo	0 - 150mm

LIST OF TESTING & MEASURING INSTRUMENTS, SILVASSA

SR.	NAME OF THE INSTRUMENT	NO. OF EQUIPMENTS	MAKE/MODEL	RANGE
38	Vernier Caliper (DIGITAL)	1	Mitutoyo	0 - 150mm
39	Digital Micrometer	1	Mitutoyo	0 - 25mm
40	Smoke Density test apparatus	1	S.A. Associates	
41	Fire Resistance Test Apparatus	1	-	-
42	Sweedish Chimmney test Apparatus	1		
43	Dumbell Cutting Die	1		-
44	Stop watch	1	Racer	0 - 15min
45	Colourfastness to Day light Exposure	1	-	-
46	Torsion testing M/C.	1	Presto	60 / 30 / 45
47	Hot Deformation test apparatus	1	S.A. Associates	-
48	Purity test	1	S.A. Associates	

LIST OF MAJOR TEST EQUIPMENT, BHIWADI

SR.	NAME OF EQUIPMENT	NO. OF EQUIPMENTS	MODEL/TYPE/YEAR OF MAKE	RANGE
1	UNIVERSAL HEATING OVEN	1	NSW, DELHI	0- 250°C
2	UNIVERSAL HEATING OVEN	1	JOHRI SCIENTIFIC	0- 250°C
3	HEATING OVEN	2	SA ASSOCIATE	0- 250°C
4	HOT SET TEST OVEN	3	SA ASSOCIATE	0- 250°C
5	VACUUM OVEN	1	JOHRI	0 -100°C / 0 -760 mmHg
6	UNIVERSAL HEATING OVEN	2	S.A. ASSOCIATE	0 to 250°C
7	VACUUM OVEN	1	S.A. ASSOCIATE	0 to 150°C / 0 - 999 mbar
8	THERMAL STABILITY TEST APP.	3	S.A. ASSOCIATE	0-300°C
9	MILLION MEGOHM METER	2	SIVANANDA	10 M-ohms to106 M-ohms
10	AGEING OVEN (4 Cell)	2	S.A. ASSOCIATE	0 -250°C
11	TENSILE TESTING MACHINE	1	KMI, AHEMD.	0 to 2500 N
12	AGEING OVEN (4 CELL)	2	S.A. ASSOCIATE	0 -400°C
13	AGEING OVEN (4 CELL)	2	S.A. ASSOCIATE	0 to 250°C
14	TENSILE TESTING MACHINE	1	KMI, AHEMD.	0 to 2500 N
15	TENSILE TESTING MACHINE	1	KMI, AHMD.	0 - 500 N
16	TENSILE TESTING MACHINE	1	KMI, AHEMD.	0 to 25000 N
17	DIGITAL WEIGHING BALANCE	1	AMAN	220 gm
18	DIGITAL WEIGHING BALANCE	1	SANSUI	6 kg
19	DIGITAL WEIGHING BALANCE	1	AFCOSET	0.00001 to 180 gms.
20	TORSION TESTING MACHINE	1	S.A. ASSOCIATE	0 To 999 turns
21	MICROMETER	1	MITUTOYO	0 to 25 mm
22	DEEP FREEZER	1	S.A. ASSOCIATE	-40 TO 30°C
23	CONDITIONING CHAMBER	1	S.A. ASSOCIATE	5 - 50°C / 0-99.9Rh %
24	WATER BATH (01)	2	JOHRI SCIENTIFIC	0 -200°C
25	WATER BATH (Big)	1	SA ASSOCIATE	0 -199.9°C
26	WATER BATH	1	S.A. ASSOCIATE	0 -100°C
27	KELVIN DOUBLE BRIDGE	1	OSAW	0.2 micro-ohm to 11 ohm
28	SENIOR KELVIN BRIDGE	1	OSAW	0.02 micro-ohm to 1.1 ohm
29	D.C.HIGH VOLTAGE TESTER	1	RE, DELHI	0-5 kV (D.C)
30	H.V. TESTER (FIRE SURVIVAL)	1	R.E.	0-1200 VOLTS
31	H.V. TESTER (A.C.) (W.I.)	1	R.E.	0-15/30 kV/22KVA
32	H.V. TESTER (A.C.) (L.T.)	1	R.E.	0-5/10 kV/50KVA
33	H.V. TESTER (A.C.) (Rubber)	1	R.E.	0-6/12 kV/ 50 kvA
34	H.V. TESTER (A.C.) (Control)	1	BILLIONIX	0-7.5/15 kV/60KVA
35	H.V. TESTER (A.C.) (H.T)	1	R.E.	0-5/10 kV/22KVA

LIST OF MAJOR TEST EQUIPMENT, BHIWADI

SR.	NAME OF EQUIPMENT	NO. OF EQUIPMENTS	MODEL/TYPE/YEAR OF MAKE	RANGE
36	DIGITAL VERNIER CALLIPER	2	MITUTOYO	0-150 mm
37	DIGITAL VERNIER CALLIPER	2	MITUTOYO	0-300 mm
38	MEG OHM BOX	1	SIGMA	20 MOHM - 200GOHM
39	DIGITAL VERNIER CALLIPER	1	MITUTOYO	0 - 150 mm
40	DIGITAL MICROMETER	1	MITUTOYO	0 - 25 mm
41	MICROMETER (Pointed)	2	MITUTOYO	0- 25 mm
42	DIGITAL MICROMETER	1	MITUTOYO	0 - 25 mm
43	MICROMETER	1	MITUTOYO	0- 25 mm
44	SMOKE DENSITY MEASUREMENT TEST APPARATUS	1	S.A. ASSOCIATES	0 - 100 %
45	THERMOMETER	2	ZEAL	10 TO 250°C
46	STANDARD CAPACITANCE BOX	1	SIGMA	0.1mPf to 3.3 uF
47	STANDARD RESISTANCE BOX	1	SIGMA	0.001 0hm to 1Kohm
48	STANDARD RESISTANCE	1	OSAW	0.1 0hm
49	02 &TEMP. INDEX TEST APPARATUS	1	S.A. ASSOCIATE	0 - 400°C
50	SMOKE DENSITY TEST APPARATUS	1	SA ASSOCIATE	0 TO 4.2 kg/cm²
51	ACID GAS GENERATION TEST APP.	1	S.A. ASSOCIATE	0-1000 degC
52	FLOWMETER FOR HCL GAS GENERATION TEST APPARATUS	1	IEPL	43 to430 sccm
53	FLAMMABILITY TEST APPARATUS	1	S.A. ASSOCIATE	---
54	FLAMMABILITY TEST APPARATUS	1	S.A. ASSOCIATE	0-1200 Deg C
55	FLAMMABILITY TEST APPARATUS (as per IEC 332-11l & IS-10810-Pl-62)	1	S.A. ASSOCIATE	1.7 TO 17.05 LPM 8.98 TO 89.77 LPM
56	SWIDISH CHIMNEY TEST APP.	1	---	0 -1200°C
57	L-C-R-Q METER	1	APLAB	L - uH to H , C - pf-uf , R- ohm to M-ohm.
58	SINE SQUARE OSCILLATOR	1	TESTRONIX	1 KHz to 1000KHz / 0.3 - 30V
59	SOLID STATE AC MICROVOLTMETER	1	SYSTRONICS	AC voltage 0 microV to 500V .-120db to 56db
60	DIGITAL D.C MICROVOLT AMMETER	1	TESTRONEX	0-1000V / 1000 mA
61	kV METER	1	SIGMA	0 -10 kV
62	OIL BATH	1	SCIENTIFIC TRADERS	0 - 400°C
63	AIR & OXY. BOMB TEST APP.	1	JOHRI SCIENTIFIC	R.Temp-180 Deg.C
64	OZONE RESISTANCE TEST APPARATUS	1	SA ASSOCIATE	0-180 Deg C
65	TEMPRATURE INDICATOR	1	AUDIOTRONICS	0-1200 Deg C
66	MEASURING TAPE	1	PLASTIKA	15 Meter
67	STEEL SCALE	1	KRISTEEL	0 - 150 mm
68	STEEL SCALE	1	KRISTEEL	0 - 300 mm
69	STEEL SCALE	1	OMEGA	0 - 1000 mm

LIST OF MAJOR TEST EQUIPMENT, BHIWADI

SR.	NAME OF EQUIPMENT	NO. OF EQUIPMENTS	MODEL/TYPE/YEAR OF MAKE	RANGE
70	IMPEDANCE METER	1	SIVANANDA	0 0hm to19.99K-ohm
71	PROFILE PROJECTOR(MICROMETER)	1	MITUTOYO	0-25MM
72	HIGH PRECISION HIGH VOLTAGE CAPACITANCE BRIDGE	1	WELLGAIN CABLE SYSTSEM LTD.	10nf to 1000pf
73	PARTIAL DISCHARGE DETECTOR	1	DIELEC-JIATE	0 pc to 250 pc with multiplier
74	H.V. TESTER	1	POWERLITE	0.1 kV TO 75 kV
75	H. V.ETESTER (Series Resonance System)	1	DIELEC-JIATE	0 - 250 kV
76	IMPULSE VOLTAGE GENERATOR	1	DIELEC-JIATE	0 - 500 kV
77	HEATING CYCLE INSTRUMENT	1	DIELEC-JIATE	0 - 110 DegC
78	DIGITAL MICRO-OHM METER	3	Agronic-53C	199.9u-ohmto19.99K-ohm
79	BURRETE	1	BOROSIL	0.1ml to 50 ml
80	MEASURING CYLINDER	1	BOROSIL	1ml to 50 ml
81	MEASURING CYLINDER	1	BOROSIL	2ml to 250 ml
82	MEASURING CYLINDER	1	BOROSIL	5ml to 500 ml
83	MEASURING CYLINDER	1	BOROSIL	10ml to 1000 ml
84	MEASURING CYLINDER	1	BOROSIL	0.5ml to 25 ml
85	MEASURING CYLINDER	1	BOROSIL	1ml to 100 ml
86	MEASURING PIPETTE	1	BOROSIL	1 ml
87	MEASURING PIPETTE	1	BOROSIL	20 ml
88	MEASURING PIPETTE	1	BOROSIL	0.1 ml to 10 ml
89	DIGITAL STOP WATCH	2	RACER	0 - 24 Hours
90	DRY & WET THERMOMETER	1	DIMPLE	-10 TO 50°C
91	UV RADIATION TEST APPARATUS	1	SA Associate	0 - 200°C

LIST OF TESTING / QUALITY CONTROL INSTRUMENT & EQUIPMENTS, CHOPANKI

SR.	DESCRIPTION OF THE INSTUMENT	NO. OF EQUIPMENTS	MFG/COUNTRY
1	UNIVERSAL HEATING OVEN	3	S.A. ASSOCIATE, INDIA
2	HOT SET TEST OVEN with Dail Indicator	1	S.A. ASSOCIATE, INDIA
3	VACUUM OVEN	1	S.A. ASSOCIATE, INDIA
4	THERMAL STABILITY TEST APP.	1	S.A. ASSOCIATE, INDIA
5	AGEING OVEN (4 Cell)	3	S.A. ASSOCIATE, INDIA
6	DEEP FREEZER	1	S.A. ASSOCIATE, INDIA
7	CONDITIONING CHAMBER	1	S.A. ASSOCIATE, INDIA
8	Oxygen &Temp. INDEX TEST (ASTM-D -2863)	1	S.A. ASSOCIATE, INDIA
9	SMOKE DENSITY TEST APPARATUS (ASTM-D -2843)	1	S.A. ASSOCIATE, INDIA
10	ACID GAS GENERATION TEST APP. (IEC-754-1 & 2)	1	S.A. ASSOCIATE, INDIA
11	FLAMMABILITY TEST APPARATUS (IEEE-383)	1	S.A. ASSOCIATE, INDIA
12	SWIDISH CHIMNEY TEST APP.(SS-4241475)	1	S.A. ASSOCIATE, INDIA
13	DIGITAL TEMPERATURE INDICATOR	1	
14	STEEL SCALE	1	NA
15	MILLION MEGOHM METER IN STEPS, 500V	2	SIVANANDA, INDIA
16	TENSILE TESTING MACHINE 500N, 1000N & 2500N	1	CANON TENSILE M/c, INDIA
17	TENSILE TESTING MACHINE 2kN 5kN, 10kN	1	CANON TENSILE M/c, INDIA
18	ROLLING BALL MILL	1	S.A. ASSOCIATE, INDIA
19	HYDRAULLIC PRESS	1	JOHRI SCIENTIFIC, INDIA
20	DUMB-BELL CUTTING PRESS	1	S.A. ASSOCIATE, INDIA
21	TENSILE TESTING MACHINE	1	CANON TENSILE M/c, INDIA
22	DIGITAL MICROHM METER	2	AGRONIC-53C, INDIA
23	VERNIER CALLIPER	3	MITUTOYO, JAPAN
24	L-C-R-Q METER	1	APLAB, INDIA
25	KELVIN DOUBLE BRIDGE WITH SPOT REFLECTING GALVANOMETER	1	OSAW, INDIA
26	DIGITAL WEIGHING BALANCE	1	PRECISA INDIA
27	DIGITAL WEIGHING BALANCE	1	SANSUI, INDIA
28	GLASS THERMOMETER (GT-01)	1	GERA, INDIA
29	GLASS THERMOMETER (GT-02)	1	GERA, INDIA
30	AC H.V.TESTER 12kV/50kVA	1	RE, INDIA
31	DIGITAL VERNIER CALLIPER	3	MITUTOYO, JAPAN
32	DIGITAL MICROMETER	2	MITUTOYO, JAPAN
33	DIAL VERNIER CALLIPER	1	MITUTOYO, JAPAN
34	BALL POINT MICROMETER	1	MITUTOYO, JAPAN
35	ANALOG MICROMETER	1	MITUTOYO, JAPAN
36	DIGITAL BALL TYPE MICROMETER	1	MITUTOYO, JAPAN
37	WATER BATH (Johri Scientific) WB-1	1	(JOHRI SCIENTIFIC), INDIA

LIST OF TESTING / QUALITY CONTROL INSTRUMENT & EQUIPMENTS, CHOPANKI

SR.	DESCRIPTION OF THE INSTUMENT	NO. OF EQUIPMENTS	MFG/COUNTRY
38	WATER BATH (S.A. ASSOCIATE) WB-II	1	S.A. ASSOCIATE, INDIA
39	PROFILE PROJECTOR	1	BANBROS, INDIA
40	TORSION TESTING MACHINE	1	S.A. ASSOCIATE, INDIA
41	FLAMMABILITY TEST APPARATUS (IEC 332-I)	1	S.A. ASSOCIATE, INDIA
42	DIGITAL WEIGHING BALANCE	1	SANSUI, INDIA
43	P.D. DETECTER (JFD-3) WITH SHIELDED ROOM	1	DIELEC - JIATE
44	SERIES RESONANCE HV TEST SET (1200kVA / 120kV)	1	DIELEC - JIATE, CHINA
45	PARTIAL DISCHARGE DETECTOR (DIELEC)	1	DIELEC - JIATE, CHINA
46	SERIES RESONANCE HV TEST SET (1200kVA / 120kV)	1	DIELEC - JIATE, CHINA
47	5 kV MEGGER and 10kV DIGITAL MEGGER	1	MEGGER, INDIA
48	PI STEEL SCALE (DIA-METRIC TAPE)	1	MICRONIX, INDIA
49	DIGITAL/ANALOUGE STOP WATCH	1	RACER
50	DIGITAL VERNIER CALLIPER	1	MITUTOYO, JAPAN
51	HVDC TESTER	1	JOHRI SCIENTIFIC, INDIA
52	WATER BATH	1	JOHRI SCIENTIFIC, INDIA
53	SERIES RESONANCE HV TEST SET (375kV/10000kVA)	1	HIPOTRONICS, USA
54	DIGITAL PARTIAL DISCHARGE DETECTOR (MTRONICX)	1	MTRONICX, HVTS, GERMANY
55	FULLY AUTOMATIC CONTROLLED TAN DELTA MEASUREMENT	1	MTRONICX, HVTS, GERMANY
56	TAN DELTA & CAPACITANCE MEASUREMENT BRIDGE QS 30A	1	WELLGAIN CABLES SYSTEMS
57	IMPULSE VOLTAGE TEST SYSTEM 2000kV/200kJ	1	WELLGAIN CABLES SYSTEMS
58	HEATING CYCLE INSTRUMENT 7000A/OPEN MOUTH TYPE	1	DIELEC - JIATE
59	HV TESTER (PROLONG HV TEST) 450 kV/225kVA	1	DIELEC - JIATE
60	HVDC & SURGE GENERATOR SET 0-32kV-400mA (4 STEPS)	1	TECHNO-INSTRUMENTS,INDIA
61	SHIELDING ROOM FOR EHV CABLES	1	DIELEC - JIATE
62	TGA (THERMOGRAVIMETRIC ANALYSER)	1	TA INSTRUMENTS, UK
63	DSC (DIFFERENTIAL SCANNING CALORIMETER)	1	TA INSTRUMENTS, UK
64	SPECTROMETER	1	PERKIN ELMERS
65	OPTICAL MICROSCOPE, MEASUREMENT SOFTWARE ASSITED (100X TO 1000X MAGNIFICATION IN FOUR STEPS)	1	DWINTER INDIA
66	ODR RHEOMETER	1	FUTURE FOUNDATIONS, INDIA
67	TAPE EXTRUSION EXTRUDER	1	SILICON, INDIA
68	GLASS THERMOMETER (GT-03) 150 deg. C	1	GERA, INDIA
69	GLASS THERMOMETER (GT-04) 250 deg. C	1	GERA, INDIA
70	TENSILE TESTING MACHINE 50KN (AUTOMATIC)	1	INSTRON, UK
71	UNIVERSAL HEATING OVEN	1	S.A. ASSOCIATE, INDIA
72	COLD ELONGATION TEST APPRATUS	1	S.A. ASSOCIATE, INDIA
73	CABLE QUICKY FOR THICKNESS MEASUREMENTS (AUTOMATIC)	1	S.A. ASSOCIATE, INDIA

Manufacture of Cables

MANUFACTURE OF EHV CABLES 66 kV TO 400 kV XLPE

KEI Industries Limited is equipped with the Cable Development Technologies to ensure manufacturing of cables up to and including 400 kV. At the Chopanki plant the company is into manufacturing of cables up to 400 kV and the Bhiwadi Plant is capable of manufacturing cables upto 132 kV by Dry Cure / Dry Cooled Process. The 400 kV cables are already Type & PQ tested at FGH Lab (Germany). KEI is equipped and accredited to manufacture cables to all national & international level.

Our Chopanki Plant which commenced its production in 2008 and equipped with state-of-art machines including testing equipments to meet Indian as well as international standards to produce cables and including 400kV.

KEI is equipped to manufacture EHV Cables using most modern machines & equipments at both the plants, received from M/s. Scholz and M/s. Troester (Germany). The plant is endowed with special features: Rotating Catapillers & Tross System for Eccentricity / Ovality Control at Chopanki.

- Single point Triple extrusion process prevents micro contaminants from outside atmosphere
- Dry cure & dry cooling process provides increased electrical stress bearing strength
- Online insulation thickness monitoring & control by Sikora X-ray unit
- Separate rooms with positive pressure for Insulation & semiconducting compound & vacuum feeding / Gravity Feeding at Chopanki for EHV
- Super clean / Tree retardant XLPE compound (Borealis, Dow, Hanwa etc)

We manufacture EHV Cables as per requirements of clients with Poly-Al tape, Corrugated Al / Corrugated Cu / Lead Alloy as well as with world renowned and tried process i.e. continuous extruder.

Some of the advantages of Lead extruded sheathed cables:

- Al Corrugated sheath has following advantages:
  - High Flexibility
  - Lesser Weight
  - Lesser Cost
  - Environment Friendly
- Lead has superior corrosion resistant properties in any environment than Aluminium
- Lead sheathed cables can follow bending with ease
- Lead sheathed cables provide radial water barrier
- Lead sheathed cables are easily solderable/welded
- Life of lead is more than 30 to 40 years
- Lead is very dense & easily fusible
- Shares the fault current with metallic screen in cable
- Chemical resistant behavior

A TYPICAL CROSS SECTION OF EHV CABLES:-

1. Stranded compacted plain Copper/Aluminium Conductor & Millikan Conductor for higher sizes above 1000 sq. mm. (Water tight conductors with water blocking tapes/yarn is an another option)
2. Semi Conducting Tape (Optional)
3. Extruded Semi-Conducting Layer (Conductor Screen)
4. XLPE Insulation (Super Clean Compound / Tree retardant)
5. Extruded Semi-conducting Layer (Insulation Screen)
6. Semi-conducting Water Blocking Tape
7. Extruded Lead Alloy E sheath / Aluminium Corrugated Sheath / Copper Corrugated Sheath / Aluminium Laminated Tapes
8. Semi-conducting Water Swellable Tape
9. Metallic Screen (Copper wires)
10. Counter open Helix with Copper Tape
11. Non-conducting water blocking tape
12. Extruded Inner Sheath
13. Aluminium Wire Armour
14. Outer Sheath
15. Graphite Coating / Exruded Semi-conductive layer

KEI offers complete solution for EHV Cables. Please send your requirements to us and we shall offer you our best solutions. Our Engineering department takes following into account:-

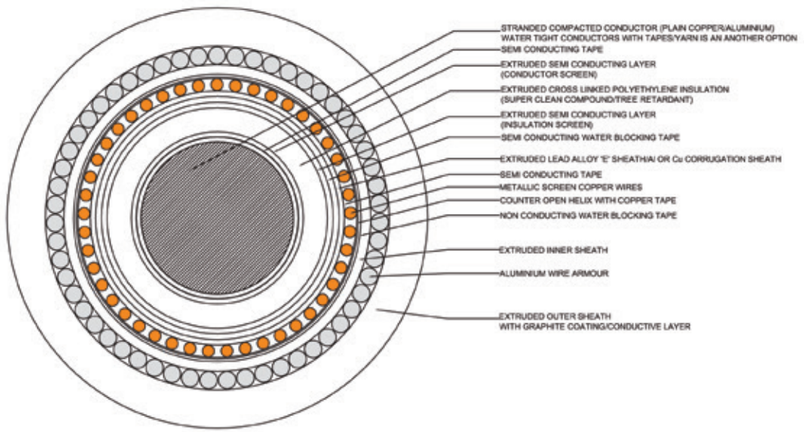
- Survey at site
- Selecting and recommending best routes for installation of the system
- Designing cables
- Manufacture of cables at their own plants (No out sourcing)
- Inspection at our plants
- Dispatch cables to site
- Take up installation of cables at site including termination and jointing etc.
- Final testing after installation & Complete Routine / Acceptance / Type testing In-house / MAH before dispatch from plant
- Charging of system
- Guarantee / warranty for the system and service after installation for many years

FOR CABLE DESIGN WE REQUIRE THE FOLLOWING:-

i. System voltage
ii. Operating frequency
iii. Type of earthing
iv. Fault current level and duration
v. Lightning Impulse level
vi. Normal loading
vii. Cyclic emergency loading with duration
viii. Max. air temperature
ix. Ground thermal resistivity
x. Route length requirements and allowable max. voltage drop per km
xi. Terminations types
xii. Site limitations & installation conditions & Drum handling System / Unloading system for longer length

Based on above and site visit, best cable solution can be designed and offered

A Typical Cross Sectional Drawing of EHV XLPE Cable



KEI INDUSTRIES LTD	EHV , Single core, XLPE Cable

HT CABLES

KEI manufactures HT XLPE cables conforming to National and International Standards at Bhiwadi plant.

KEI has State-of-the-art HT / EHV Cable plant with German technology.

We have two CCV line with a Single point triple extrusion and computerized sophisticated control and monitoring systems. The CCV line at Bhiwadi was imported from Machinenbau Scholz GMBH & Co KG, and CCV line at Chopanki supplied by paul Troester Germany. Both manufacturers are renowned in CCV line technology and have supplied more than 300 lines world over.

HT plant is complete with heavy duty machines for wire drawing and conductor making, laying up, armouring, sheathing and packing.

The process commences with a compacted circular conductor Millikan Conductor being fed from the pay off stands into the extruder on elevated platform. The conductor passes through extruder's crosshead, it is covered first with semiconducting screen layer then the XLPE insulation, followed by the outer semiconducting core screen. This crosshead is specially designed to feed three compounds from three extruders at one point described as Singe-point Triple extrusion.

Thereafter, the extruded core enters and passes through vulcanizing line known as CCV line (Continuous Catenary Vulcanising) and the XLPE insulated core is cured in the process. In CV line inert atmosphere is maintained by the Nitrogen gas which is at high pressure and high temperature.

This process is popularly known as Single-point Triple extrusion CDCC (Completely Dry Cured and Dry Cooled Curing) Process.

Over the cured core a copper screening is provided by lapping of copper tape or for special requirements a layer of copper wires is provided. Core is tested for Partial Discharge and then as per requirement; the cores are laid up with fillers, provided with inner sheath, armoured and sheathed. Sheath can be of PVC, HDPE, FRLS, ZHFR, PCP or CSP compound. Seamless Lead "Alloy E" Sheath is extruded for moisture barrier, necessary for EHV Cables and Submarine Cables before Inner Sheath.

KEI's manufacturing plant and process ensures great XLPE cables for the new age Power sector and industry. Our modern plant takes full advantage of the new generation XLPE compounds which offer fast curing and superior electrical parameters, dimensional control and higher productivity. The Sikora X-Ray limits at both the plants and Rotating Cattapiller & Tross System provides excellent eccentricity and ovality control for higher thickness.

Triple Extrusion and CDCC process ensure contamination free cores. All three layers are bonded and core has least eccentricity and ovality. Insulation itself is free of micro-voids and with negligible moisture content.

To control the manufacturing process the line has been provided with many sophisticated instruments and servo controls all monitored by the computer. Important systems are:

X-Ray Non-touch sensors of SIKORA make for thickness and dimensional control. This system continuously measures the dimensions of insulated cores. Unit has capability to measure multilayer dimensions in all directions and record and analyse the data on line.

CCV tube has a Touch Less Sag control system. This ensures no marks/lines on core unlike older lines.

For EHV Cables conductor pre-heater, core rotation and de-gasification facilities have been provided.

Computerised control system ensures optimum efficiency, fast start up, synchronized operations of compound feeds, three extruders, CCV line gas temperature zones, pay off and take-up.

Nevertheless, KEI XLPE cables compare better than those produced with older plants when checked for Micro-voids, Moisture content, PD levels, dielectric strength.

We have strict quality plan and fully-equipped testing laboratory to ensure cables of best quality are produced as per the design and specifications prescribed. Cables have been type tested as per International Standards.

Inventory and production plans are controlled by BANN ERP system. This ensures reliable and prompt delivery and operational efficiency.

KEI offers a variety of designs to suit different installations viz. Aerial Bunched cables, Water tight construction, Stainless steel armouring for Offshore and Ship installation, etc.

We have many satisfied customers from many countries and diverse industries.

CAPACITANCE

"Approximate Capacitane for Single core & Multi core cables in microfarad per Km at 50 Hz

NOMINAL SIZE OF CONDUCTOR (IN SQMM)	1.9 / 3.3kV (E) OR 3.3 / 3.3 kV (UE)		3.8 / 6.6kV(E)	6.35/11kV(E) OR 6.6/6.6 kV(UE)	11/11kV(UE)	12.7/22kV(E)	19/33kV(E)
	UNARMOURED	ARMOURED					
25	0.230	0.210	0.220	0.180	0.140	-	-
35	0.270	0.240	0.250	0.210	0.150	0.140	-
50	0.300	0.270	0.270	0.220	0.160	0.160	0.120
70	0.340	0.310	0.310	0.250	0.190	0.170	0.140
95	0.390	0.350	0.350	0.290	0.210	0.190	0.150
120	0.430	0.390	0.380	0.310	0.220	0.210	0.160
150	0.490	0.420	0.430	0.340	0.240	0.230	0.180
185	0.520	0.460	0.450	0.360	0.260	0.240	0.180
240	0.590	0.510	0.510	0.410	0.290	0.270	0.200
300	0.670	0.570	0.540	0.460	0.320	0.300	0.230
400	0.760	0.630	0.570	0.520	0.360	0.340	0.250
500	0.770	0.680	0.570	0.560	0.390	0.360	0.270
630	0.810	0.680	0.640	0.630	0.430	0.400	0.290
800	0.860	0.740	0.730	0.710	0.490	0.450	0.330
1000	0.880	0.740	0.800	0.780	0.530	0.490	0.360

REACTANCE

"Approximate Reactance for Multi core cables in Ohms per Km at 50 Hz

NOMINAL SIZE OF CONDUCTOR (IN SQMM)	1.9 / 3.3kV (E) OR 3.3 / 3.3 kV (UE)	3.8 / 6.6kV(E)	6.35/11kV(E) OR 6.6/6.6kV(UE)	11/11kV(UE)	12.7/22kV(E)	19/33kV(E)
25	0.0981	0.1090	0.1160	0.1300	-	-
35	0.0940	0.1050	0.1110	0.1240	0.1270	-
50	0.0878	0.0989	0.1050	0.1170	0.1200	0.1340
70	0.0842	0.0945	0.1000	0.1110	0.1140	0.1260
95	0.0813	0.0909	0.0959	0.1070	0.1090	0.1210
120	0.0785	0.0878	0.0925	0.1030	0.1050	0.1170
150	0.0769	0.0851	0.0894	0.0987	0.1000	0.1120
185	0.0755	0.0838	0.0879	0.0968	0.0990	0.1100
240	0.0737	0.0812	0.0850	0.0932	0.0952	0.1060
300	0.0725	0.0798	0.0823	0.0897	0.0915	0.1000
400	0.0712	0.0788	0.0799	0.0866	0.0883	0.0971

APPROXIMATE REACTANCE FOR SINGLE CORE CABLES IN OHM PER KM AT 50 Hz (CABLES LAID IN TREFOIL TOUCHING FORMATION)

	UNARMOURED						ARMOURED					
NOMINAL SIZE OF NDUCTOR (IN SQMM)	1.9/3.3 KV (E) OR 3.3/3.3 kV (UE)	3.8/6.6 kV (E)	6.35/11 kV (E) OR 6.6/6.6 kV (UE)	11/11 kV (UE)	12.7/22 kV (E)	19/33 kV (E)	1.9/3.3 kV (E) OR 3.3/3.3 kV (UE)	3.8/6.6 kV (E)	6.35/11 kV (E) OR 6.6/6.6 kV (UE)	11/11 kV (UE)	12.7/22 kV (E)	19/33 kV (E)
25	0.1170	0.1230	0.1280	0.1390	-	-	0.1300	0.1330	0.1370	0.1470	-	-
35	0.1110	0.1170	0.1220	0.1330	0.1350	-	0.1230	0.1270	0.1310	0.1400	0.1420	-
50	0.1040	0.1110	0.1160	0.1260	0.1300	0.1400	0.1170	0.1200	0.1240	0.1340	0.1360	0.1470
70	0.0988	0.1050	0.1100	0.1190	0.1290	0.1330	0.1120	0.1140	0.1180	0.1270	0.1290	0.1400
95	0.0957	0.1010	0.1050	0.1150	0.1170	0.1270	0.1060	0.1080	0.1120	0.1210	0.1240	0.1340
120	0.0920	0.1020	0.1010	0.1100	0.1120	0.1220	0.1020	0.1040	0.1090	0.1180	0.1190	0.1290
150	0.0887	0.0936	0.0973	0.1060	0.1080	0.1170	0.0979	0.1010	0.1050	0.1130	0.1150	0.1240
185	0.0871	0.0919	0.0963	0.1040	0.1060	0.1160	0.0959	0.0993	0.1040	0.1110	0.1120	0.1210
240	0.0840	0.0894	0.0926	0.1000	0.1010	0.1110	0.0929	0.0969	0.0997	0.1070	0.1080	0.1170
300	0.0815	0.0869	0.0896	0.0961	0.0977	0.1060	0.0900	0.0936	0.0936	0.1020	0.1040	0.1130
400	0.0797	0.0850	0.0860	0.0925	0.0939	0.1030	0.0880	0.0917	0.0926	0.0984	0.0997	0.1180
500	0.0788	0.0838	0.0845	0.0905	0.0918	0.0994	0.0865	0.0900	0.0884	0.0959	0.0989	0.1060
630	0.0744	0.0819	0.0826	0.0875	0.0893	0.0960	0.0851	0.0876	0.0879	0.0941	0.0953	0.1020
800	0.0762	0.0778	0.0798	0.0855	0.0866	0.0925	0.0831	0.0858	0.0844	0.9120	0.0922	0.0976
1000	0.0758	0.0769	0.0787	0.0836	0.0851	0.0907	0.0830	0.0844	0.0846	0.0890	0.0904	0.0966

CURRENT RATINGS

KEI Recommendations for Current Ratings:

The Current rating of power cables is defined by the maximum intensity of current (amperes) which can flow continuously through the cable, under permanent loading conditions, without any risk of damaging the cable or deterioration or its electrical properties.

The value given in the tables are valid for one circuit in a three phase system under conditions specified. For grouping cables rating factors must be used.

The current carrying capacities mentioned in KEI technical data are intended as a guide, to assist operating engineers in selecting cables for safety and reliability.

- Max. Conductor Temperature : 90° C
- Ambient Ground Temperature : 30° C
- Ambient Air Temperature : 40° C
- Thermal resistivity of soil : 150°C cm/W
- Depth of laying (to the highest point of the cables laid direct in the ground)
  3.3, 6.6 & 11 kV Cables : 90 cm
  22 and 33 kV Cables : 105 cm
- Max. Conductor Temperature
  for Short Circuit : 250° C

To obtain the maximum current carrying capacity of a cable operating at different conditions from the standard, various rating factors are to be multiplied, as follows :-

I a = K x I s in amperes

I a : Current rating at actual operating conditions (amperes)

I s : Current rating at standard operating conditions (amperes)

K : Rating factor, as applicable

RATING FACTORS

1) For Air And Ground Temperature

a) Rating Factors For Variation In Ambient Air Temperature

Air Temperature, 0^0C	25	30	35	40	45	50	55	60
Rating Factor (Maximum Conductor Temperature 90^0C)	1.16	1.11	1.06	1.0	0.94	0.88	0.81	0.74

b) Rating Factors For Variation In Ground Temperature For Cables Laid Direct In The Ground

Ground Temperature, 0^0C	15	20	25	30	35	40	45	50
Rating Factor (Maximum Conductor Temperature 90^0C)	1.12	1.08	1.04	1.0	0.96	0.91	0.87	0.82

2) Rating Factors For Variation In Ground Temperature For Cables In Ducts

Ground Temperature, 0^0C	15	20	25	30	35	40	45	50
Rating Factor (Maximum Conductor Temperature 90^0C)	1.12	1.08	1.04	1.0	0.96	0.91	0.87	0.82

3) Rating Factors For Depth Of Laying For Cables Laid Direct In The Ground

Depth of Laying	3.3, 6.6 & 11 kV Cables	22 & 33 kV Cables
mm		
900	1.0	-
1050	0.99	1.0
1200	0.97	0.99
1500	0.95	0.97
1800	0.94	0.95
2000	0.93	0.94
2500	0.91	0.92
3000 or above	0.90	0.91

GROUP RATING FACTORS

FOR SINGLE CORE CABLES

A) Group Rating Factors For Three Core Cables, In Horizontal Formation Laid Direct In The Ground

Number of Cables in Group	Spacing between trefoil group centres				
	Touching	200	400	600	800
2	0.79	0.86	0.90	0.92	0.94
3	0.67	0.77	0.82	0.86	0.89
4	0.61	0.72	0.79	0.83	0.87
5	0.56	0.68	0.76	0.81	0.85
6	0.53	0.65	0.74	0.80	0.84
7	0.50	0.63	0.72	0.78	0.83
8	0.48	0.61	0.71	0.78	-
9	0.46	0.60	0.70	0.77	-
10	0.44	0.59	0.69	-	-
11	0.43	0.58	0.69	-	-
12	0.42	0.57	0.68	-	-

B) Cables laid on Racks / Trays in covered trench with removable covers where air circulation is restricted, Trefoils are separated by two cable diameter horizontally and the trays are in tiers having 300 mm 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

C) As above B. but cables laid in open air.

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 Inside concrete trench with removable covers, on cable trays where air circulation is restricted. The Cables spaced by one cable diameter and trays are in tiers spaced by 300 mm. The clearance Between the wall and the cable is 25 mm.

No. of cables trays in tier	Distance between Trefoils				
	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

B) Cable laid on cable trays exposed to air, the cables spaced by one cable diameter and trays are in tiers spaced by 300 mm. The clearance of the cable from the wall is 25 mm.

No. of cables trays in tier	No. of cables				
	1	2	3	6	9
1	1	0.98	0.80	0.75	0.73
2	1	0.95	0.76	0.71	0.69
3	1	0.94	0.74	0.70	0.68
6	1	0.93	0.72	0.68	0.66

C) Cables laid on cable trays exposed to air, the cables touching and trays are in tiers spaced by 300 mm. The clearance between the wall and the cable is 25 mm.

No. of cables trays	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	15cm	30cm	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

SINGLE CORE COMPACTED ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED & ARMOURED CABLE, Al & Cu/XLPE/Al WIRE/PVC CONFIRMING TO IS: 7098 (PART-2)

Voltage Grade : 1.9/3.3 kV (Unscreened) (E)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Unarmoured Cable						Armoured Cable						Current Rating											
													Aluminium						Copper					
													Buried Direct in the Ground @ 30° C		In Single way Duct @ 30° C		In Air @ 40° C		Buried Direct in the Ground @ 30° C		In Single way Duct @ 30° C		In Air @ 40° C	
	Nom thickness of XLPE Insulation	Nom thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable		Nom thickness of XLPE Insulation	Nom diameter of Al wire	Min thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching
Sq.mm.	mm	mm	mm	Kg./Km	Kg./Km		mm	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps
25	2.2	1.8	14.6	235	385		2.5	1.4	1.24	14.2	340	475	96	99	86	89	105	105	125	130	110	115	130	135
35	2.2	1.8	15.6	275	470		2.5	1.4	1.24	15.2	375	575	115.00	120	100	105	125	130	150	150	130	135	160	165
50	2.2	1.8	16.7	325	605		2.5	1.4	1.4	16.7	460	725	135	140	120	125	150	155	175	180	155	160	195	200
70	2.2	1.8	18.3	400	800		2.5	1.6	1.4	18.3	550	950	165	170	145	150	190	195	215	220	190	195	245	250
95	2.2	2.0	20.4	515	1050		2.5	1.6	1.4	20.0	670	1200	195	205	175	180	235	240	255	260	225	235	300	310
120	2.2	2.0	21.8	600	1275		2.5	1.6	1.4	21.4	775	1450	225	230	200	205	275	280	290	295	255	265	350	360
150	2.2	2.0	23.2	695	1500		2.5	1.6	1.4	22.8	880	1700	250	260	230	230	310	320	325	335	285	295	400	410
185	2.2	2.0	25.1	825	1850		2.5	1.6	1.4	24.7	1000	2050	285	290	250	260	360	370	365	375	320	330	440	475
240	2.2	2.0	27.5	990	2350		2.5	1.6	1.56	27.5	1225	2575	330	340	285	300	430	440	420	435	370	385	550	560
300	2.2	2.0	29.6	1175	2850		2.5	1.6	1.56	29.6	1425	3100	370	380	325	335	495	570	470	485	410	430	630	650
400	2.2	2.2	33.0	1495	3750		2.6	2.0	1.56	32.8	1845	4050	420	435	370	385	580	710	530	550	465	485	740	760
500	2.4	2.2	36.4	1800	4600		2.8	2.0	1.56	36.2	2200	5000	480	500	420	435	690	830	600	620	520	540	860	890
630	2.6	2.2	40.4	2250	5750		3.0	2.0	1.72	40.6	2700	6250	550	570	470	495	800	940	670	700	580	600	980	1020
800	2.8	2.4	45.5	2800	7300		3.3	2.0	1.88	45.7	3300	7800	610	640	530	550	930	1090	740	770	640	660	1120	1160
1000	3.0	2.6	51.6	3500	9100		3.5	2.5	2.04	51.8	4200	9800	680	710	580	610	1060	1290	800	840	690	720	1250	1290

SINGLE CORE COMPACTED ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED & ARMOURED CABLE, Al & Cu/XLPE/Al WIRE/PVC CONFORMING TO IS: 7098 (PART-2)

Voltage Grade : 3.3/3.3 kV (Screened) (UE)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Unarmoured Cable					Armoured Cable						Current Rating											
												Aluminium						Copper					
												Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C		Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C	
	Nom thickness of XLPE Insulation	Nom thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom thickness of XLPE Insulation	Nom diameter of Al wire	Min thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching
Sq.mm.	mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps
25	2.2	1.8	15.6	310	450	2.5	1.6	1.40	21.6	525	675	96	99	86	89	105	105	125	130	110	115	130	135
35	2.2	1.8	16.6	350	550	2.5	1.6	1.4	22.6	575	775	115	120	100	105	125	130	150	150	130	135	160	165
50	2.2	2	17.7	425	700	2.5	1.6	1.4	23.7	650	950	135	140	120	125	150	155	175	180	155	160	195	200
70	2.2	2	19.3	500	900	2.5	1.6	1.4	25.3	750	1150	165	170	145	150	190	195	215	220	190	195	245	250
95	2.2	2.0	21.4	600	1150	2.5	1.6	1.4	27.0	875	1400	195	205	175	180	235	240	255	260	225	235	300	310
120	2.2	2.0	22.8	700	1375	2.5	1.6	1.4	28.4	975	1650	225	230	200	205	275	280	290	295	255	265	350	360
150	2.2	2.0	24.2	800	1650	2.5	1.6	1.56	30.2	1125	1950	250	260	230	230	310	320	325	335	285	295	400	410
185	2.2	2.0	26.1	925	1975	2.5	1.6	1.56	32.1	1250	2300	285	290	250	260	360	370	365	375	320	330	460	475
240	2.2	2.2	28.5	1125	2450	2.5	2.0	1.56	35.3	1550	2900	330	340	285	300	430	440	420	435	370	385	550	560
300	2.2	2.2	30.6	1350	3000	2.5	2.0	1.56	37.4	1775	3175	370	380	325	335	495	570	470	485	410	430	630	650
400	2.2	2.2	35.4	1650	3900	2.6	2.0	1.72	41.2	2175	4400	420	435	370	385	580	600	530	550	465	485	740	760
500	2.4	2.2	38.8	2000	4800	2.8	2.0	1.72	44.6	2575	5350	480	500	420	435	690	710	600	620	520	540	860	890
630	2.6	2.4	42.8	2450	6000	3.0	2.0	1.88	48.8	3075	6600	550	570	470	495	800	830	670	700	580	600	980	1020
800	2.8	2.6	47.9	3050	7500	3.3	2.5	2.04	55	3900	8400	610	640	530	550	930	960	740	770	640	660	1120	1160
1000	3.0	2.6	54	3700	9300	3.5	2.5	2.2	61	4700	10350	680	710	580	610	1060	1090	800	840	690	720	1250	1290

SINGLE CORE COMPACTED ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED & ARMOURED CABLE, Al & Cu/XLPE/Al WIRE/PVC CONFORMING TO IS: 7098 (PART-2)

Voltage Grade : 3.8/6.6 kV (E)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Unarmoured Cable					Armoured cable					Current Rating											
											Aluminium						Copper					
											Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C		Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C	
	Nom thickness of XLPE Insulation	Nom thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom diameter of Al wire	Min thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching
Sq.mm.	mm	mm	mm	Kg./Km	Kg./Km	mm	mm	Kg./Km	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps
25	2.8	1.8	18.0	340	475	1.6	1.40	20.3	450	600	99	100	87	90	115	120	125	130	110	115	150	155
35	2.8	2.0	19.4	400	600	1.6	1.4	21.6	525	700	115	120	105	105	140	145	150	155	135	140	180	185
50	2.8	2.0	20.5	475	750	1.6	1.4	22.7	600	875	140	140	120	125	170	170	180	185	155	160	215	220
70	2.8	2.0	23.1	550	950	1.6	1.4	24.3	675	1050	170	175	150	155	210	215	215	225	190	195	270	275
95	2.8	2.0	23.8	660	1200	1.6	1.4	26.0	800	1325	200	205	175	180	255	260	260	265	225	235	330	340
120	2.8	2.0	25.2	750	1425	1.6	1.4	27.4	900	1550	230	235	200	205	295	305	295	300	255	265	380	390
150	2.8	2.0	26.6	850	1700	1.6	1.56	29.2	1025	1850	255	260	220	230	335	345	325	335	285	295	430	440
185	2.8	2.0	28.5	1000	2025	1.6	1.56	31.1	1150	2200	290	295	250	260	385	395	370	380	320	330	495	510
240	2.8	2.2	31.3	1200	2550	2.0	1.56	34.3	1450	2800	330	340	290	300	455	470	425	435	370	380	580	600
300	3.0	2.2	33.8	1425	3100	2.0	1.56	36.8	1675	3350	375	385	325	335	520	540	475	490	415	425	670	680
400	3.3	2.2	37.4	1750	4000	2.0	1.72	41	2100	4350	425	440	370	380	610	630	540	550	465	480	780	790
500	3.5	2.4	41.2	2150	4950	2.0	1.72	44.4	2450	5250	485	495	415	430	720	730	600	610	520	530	900	910
630	3.5	2.4	44.8	2550	6125	2.0	1.88	48.2	2950	6450	550	560	470	480	830	840	670	680	580	580	1020	1030
800	3.5	2.6	49.5	3150	7650	2.5	2.04	53.8	3700	8150	610	620	520	530	950	960	730	740	630	630	1150	1140
1000	3.6	2.8	55.4	3850	9450	2.5	2.2	59.6	4450	10050	670	680	570	580	1070	1070	790	790	670	670	1260	1250

SINGLE CORE COMPACTED ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED & ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

Voltage Grade : 6.35 / 11kV (E), 6.6/6.6 kV (UE)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Unarmoured Cable					Round Wire Armoured Cable					Current Rating											
											Aluminium						Copper					
											Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C		Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C	
	Nom thickness of XLPE Insulation	Nom thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom diameter of Al wire	Min thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching
Sq.mm.	mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps
35	3.6	2.0	21.0	450	650	1.6	1.4	23.2	525	700	115	120	105	105	140	145	150	155	135	140	180	185
50	3.6	2.0	22.1	525	800	1.6	1.4	24.3	600	875	140	140	120	125	170	170	180	185	155	160	215	220
70	3.6	2.0	23.7	625	1000	1.6	1.4	25.9	675	1050	170	175	150	155	210	215	215	225	190	195	270	275
95	3.6	2.0	25.4	725	1250	1.6	1.4	27.6	800	1300	200	205	175	180	255	260	260	265	225	235	330	340
120	3.6	2.0	26.8	825	1500	1.6	1.56	29.4	900	1550	230	235	200	205	295	305	295	300	255	265	380	390
150	3.6	2.0	28.2	925	1750	1.6	1.56	30.8	1025	1875	255	260	220	230	335	345	325	335	285	295	430	440
185	3.6	2.2	30.2	1050	2100	2.0	1.56	33.5	1150	2200	290	295	250	260	385	395	370	380	320	330	495	510
240	3.6	2.2	32.9	1250	2600	2.0	1.56	35.9	1450	2800	330	340	290	300	455	470	425	435	370	380	580	600
300	3.6	2.2	35.0	1500	3150	2.0	1.56	38.0	1650	3350	375	385	325	335	520	540	475	490	415	425	670	680
400	3.6	2.2	38.0	1800	4050	2.0	1.72	41.6	2100	4350	425	440	370	380	610	630	540	550	465	480	780	790
500	3.6	2.4	41.4	2150	5000	2.0	1.72	44.6	2450	5250	485	495	415	430	720	730	600	610	520	530	900	910
630	3.6	2.4	45.0	2550	6125	2.0	1.88	48.6	3000	6450	550	560	470	480	830	840	670	680	580	580	1020	1030
800	3.6	2.6	49.7	3150	7650	2.5	2.04	54.1	3700	8200	610	620	520	530	950	960	730	740	630	630	1150	1140
1000	3.6	2.8	55.4	3850	9500	2.5	2.20	59.6	4450	10050	670	680	570	580	1070	1070	790	790	670	670	1260	1250

SINGLE CORE COMPACTED ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED & ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

Voltage Grade : 11/11 kV (UE)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Unarmoured Cable					Armoured cable					Current Rating											
											Aluminium						Copper					
											Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C		Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C	
	Nom thickness of XLPE Insulation	Nom thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom diameter of Al wire	Min thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching
Sq.mm.	mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps
35	5.5	2.0	25.2	600	800	1.6	1.4	27.4	750	950	115	120	105	105	140	145	150	155	135	140	180	185
50	5.5	2.0	26.3	675	950	1.6	1.56	28.8	850	1125	140	140	120	125	170	170	180	185	155	160	215	220
70	5.5	2.0	27.9	775	1150	1.6	1.56	30.4	950	1350	170	175	150	155	210	215	215	225	190	195	270	275
95	5.5	2.0	29.6	900	1425	1.6	1.56	32.1	1050	1600	200	205	175	180	255	260	260	265	225	235	330	340
120	5.5	2.2	31.4	1000	1700	2.0	1.56	34.3	1250	1950	230	235	200	205	295	305	295	300	255	265	380	390
150	5.5	2.2	32.8	1150	2000	2.0	1.56	35.7	1400	2200	255	260	220	230	335	345	325	335	285	295	430	440
185	5.5	2.2	34.7	1275	2300	2.0	1.56	37.6	1550	2600	290	295	250	260	385	395	370	380	320	330	495	510
240	5.5	2.2	37.1	1500	2850	2.0	1.72	40.3	1800	3150	330	340	290	300	455	470	425	435	370	380	580	600
300	5.5	2.2	39.2	1700	3400	2.0	1.72	42.4	2050	3700	375	385	325	335	520	540	475	490	415	425	670	680
400	5.5	2.4	42.8	2050	4300	2.0	1.88	46.0	2425	4650	425	440	370	380	610	630	540	550	465	480	780	790
500	5.5	2.4	45.8	2400	5250	2.0	1.88	49.0	2800	5600	485	495	415	430	720	730	600	610	520	530	900	910
630	5.5	2.6	49.8	2900	6450	2.5	2.04	53.9	3450	7000	550	560	470	480	830	840	670	680	580	580	1020	1030
800	5.5	2.8	54.4	3500	8000	2.5	2.2	58.5	4100	8600	610	620	520	530	950	960	730	740	630	630	1150	1140
1000	5.5	2.8	59.8	4200	9800	2.5	2.20	63.8	4850	10500	670	680	570	580	1070	1070	790	790	670	670	1260	1250

SINGLE CORE COMPACTED ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED & ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

Voltage Grade : 12.7/22 kV (E)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Unarmoured Cable					Round Wire Armoured Cable					Current Rating											
											Aluminium						Copper					
											Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C		Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C	
	Nom thickness of XLPE Insulation	Nom thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom diameter of Al wire	Min thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching
Sq.mm.	mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps
35	6.0	2.0	26.2	650	850	1.6	1.4	28.2	800	1000	115	120	100	105	145	145	150	155	130	135	185	190
50	6.0	2.0	27.3	725	1000	1.6	1.56	29.6	900	1175	135	140	120	125	175	175	175	180	155	160	225	230
70	6.0	2.0	28.9	825	1225	1.6	1.56	31.2	1000	1400	165	170	145	150	215	220	215	220	185	195	275	285
95	6.0	2.2	31.0	975	1500	2.0	1.56	33.7	1125	1650	200	205	170	180	260	270	255	265	220	230	340	345
120	6.0	2.2	32.4	1050	1750	2.0	1.56	35.1	1300	2000	225	230	195	200	300	310	290	300	250	260	390	400
150	6.0	2.2	33.8	1200	2050	2.0	1.56	36.5	1450	2300	250	260	220	225	340	350	325	330	280	290	440	450
185	6.0	2.2	35.7	1350	2400	2.0	1.56	38.4	1600	2650	285	290	245	255	390	400	365	375	315	325	500	510
240	6.0	2.2	38.1	1550	2900	2.0	1.72	41.1	1900	3200	330	335	285	290	460	470	420	430	360	370	590	600
300	6.0	2.2	40.2	1775	3450	2.0	1.72	43.2	2100	3800	370	380	320	325	530	540	470	480	405	415	680	690
400	6.0	2.4	43.8	2150	4400	2.0	1.88	47.0	2425	4850	420	430	360	370	620	630	530	540	455	465	780	790
500	6.0	2.6	47.2	2550	5350	2.5	2.04	51.3	2800	5600	475	485	410	420	720	730	590	600	510	520	900	910
630	6.0	2.6	50.8	3000	6500	2.5	2.04	54.9	3450	7000	540	550	460	470	830	840	660	660	560	570	1020	1020
800	6.0	2.8	55.5	3600	8100	2.5	2.2	59.5	4100	8600	600	610	510	520	950	950	730	720	620	620	1150	1140
1000	6.0	3.0	61.2	4350	9950	2.5	2.36	65.1	4850	10500	660	660	560	560	1070	1060	780	760	660	660	1270	1240

SINGLE CORE COMPACTED ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED & ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

Voltage Grade : 19/33 kV (E)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Unarmoured Cable					Armoured cable					Current Rating											
											Aluminium						Copper					
											Buried Direct in the Ground @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C		In Single way Duct @ 30°C		In Single way Duct @ 30°C		In Air @ 40°C	
	Nom thickness of XLPE Insulation	Nom thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom diameter of Al wire	Min thickness of Outer Sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching	Trefoil Touching	Flat Touching
Sq.mm.	mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps
120	8.8	2.2	38.2	1400	2050	2.0	1.72	41.4	1700	2400	225	230	195	200	300	310	290	300	250	260	390	400
150	8.8	2.2	39.6	1500	2350	2.0	1.72	42.8	1850	2700	250	260	220	225	340	350	325	330	280	290	440	450
185	8.8	2.4	41.9	1700	2700	2.0	1.72	44.7	2000	3050	285	290	245	255	390	400	365	375	315	325	500	510
240	8.8	2.4	44.3	1900	3250	2.0	1.88	47.5	2300	3650	330	335	285	290	460	470	420	430	360	370	590	600
300	8.8	2.6	46.8	2150	3850	2.5	2.04	50.9	2750	4400	370	380	320	325	530	540	470	480	405	415	680	690
400	8.8	2.6	49.8	2600	4850	2.5	2.04	54.1	3150	5400	420	430	360	370	620	630	530	540	455	465	780	790
500	8.8	2.8	53.2	3000	5850	2.5	2.20	57.4	3600	6400	475	485	410	420	720	730	590	600	510	520	900	910
630	8.8	2.8	56.8	3500	7050	2.5	2.20	61.0	4100	7650	540	550	460	470	830	840	660	660	560	570	1020	1020
800	8.8	3.0	61.5	4150	8650	2.5	2.36	65.6	4800	9300	600	610	510	520	950	950	730	720	620	620	1150	1140
1000	8.8	3.2	67.2	4950	10600	3.15	2.52	72.5	5900	10500	660	660	560	560	1070	1060	780	760	660	660	1270	1240

THREE CORE, ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

Voltage Grade : 1.9/3.3 kV (Unscreened) (E)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Form of conductor strand	Nom thickness of XLPE Insulation	Min thickness of PVC Inner sheath	Strip Armoured Cable					Round Wire Armoured Cable					Current Rating					
														Aluminium			Copper		
				Nom Dimension of GI flat strip	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom Dimension of GI Round wire	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm.	△	mm	mm	mm x mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps
25	Shaped	2.2	0.3	4 x 0.8	1.40	26.9	950	1400	1.6	1.56	28.9	1200	1600	94	80.00	99	120	100	125
35	Shaped	2.2	0.3	4 x 0.8	1.56	28.6	1100	1700	1.6	1.56	30.2	1300	1900	115	94	120	145	120	155
50	Shaped	2.2	0.4	4 x 0.8	1.56	31.8	1300	2150	2.0	1.56	34.2	1800	2650	135	110	145	170	145	190
70	Shaped	2.2	0.4	4 x 0.8	1.56	34	1575	2750	2.0	1.56	36.4	2050	3250	165	140	185	210	175	235
95	Shaped	2.2	0.4	4 x 0.8	1.72	37.4	1900	3500	2.0	1.72	39.8	2400	4050	195	165	225	250	210	290
120	Shaped	2.2	0.5	4 x 0.8	1.72	39.6	2150	4200	2.0	1.88	42.4	2750	4750	220	185	255	285	240	330
150	Shaped	2.2	0.5	4 x 0.8	1.88	43	2500	5050	2.5	2.04	46.6	3500	6050	245	210	295	315	270	375
185	Shaped	2.2	0.5	4 x 0.8	2.04	46.2	2950	6050	2.5	2.04	49.6	4000	7100	280	235	340	355	300	435
240	Shaped	2.2	0.6	4 x 0.8	2.20	49.9	3500	7550	2.5	2.20	53.3	4600	8650	320	270	400	410	350	510
300	Shaped	2.2	0.6	4 x 0.8	2.20	55.9	4200	9300	2.5	2.36	59.7	5500	10500	360	305	460	460	390	590
400	Shaped	2.2	0.7	4 x 0.8	2.52	60.9	5250	12000	3.15	2.68	65.7	7200	13950	410	350	535	520	440	670

THREE CORE, ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

Voltage Grade : 3.3/3.3 kV (Screened) (UE)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Form of conductor strand	Nom thickness of XLPE Insulation	Min thickness of PVC Inner sheath	Strip Armoured Cable					Round Wire Armoured Cable					Current Rating					
														Aluminium			Copper		
				Nom Dimension of GI flat strip	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom Dimension of GI Round wire	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm.	0	mm	mm	mm x mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps
25	Circular	2.2	0.4	4 x 0.8	1.56	33.9	1500	1950	2.0	1.56	36.3	2000	2450	94	80	99	120	100	125
35	Circular	2.2	0.4	4 x 0.8	1.56	36.0	1700	2300	2.0	1.72	38.4	2300	2900	115	94	120	145	120	155
50	Circular	2.2	0.4	4 x 0.8	1.72	38.7	1975	2800	2.0	1.72	41.4	2550	3400	135	110	145	170	145	190
70	Circular	2.2	0.5	4 x 0.8	1.72	42.0	2350	3500	2.0	1.88	44.6	3000	4200	165	140	185	210	175	235
95	Circular	2.2	0.5	4 x 0.8	1.88	45.8	2800	4400	2.5	2.04	49.6	3900	5500	195	165	225	250	210	290
120	Circular	2.2	0.5	4 x 0.8	2.04	49.1	3350	5350	2.5	2.04	52.5	4550	6575	220	185	255	285	240	330
150	Circular	2.2	0.6	4 x 0.8	2.04	52.5	3600	6150	2.5	2.20	56.1	4900	7400	245	210	295	315	270	375
185	Circular	2.2	0.6	4 x 0.8	2.20	56.7	4200	7350	2.5	2.36	60.5	5600	8700	280	235	340	355	300	435
240	Circular	2.2	0.6	4 x 0.8	2.36	62.1	5100	9150	2.5	2.36	65.5	6550	10600	320	270	400	410	350	510
300	Circular	2.2	0.7	4 x 0.8	2.52	66.7	5900	11000	3.15	2.68	71.8	8200	13300	360	305	460	460	390	590
400	Circular	2.2	0.7	4 x 0.8	2.68	73.8	7400	14200	3.15	2.84	78.9	10000	16800	410	350	535	520	440	670

THREE CORE, ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

Voltage Grade : 3.8/6.6 kV (E)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Form of conductor strand	Nom thickness of XLPE Insulation	Min thickness of PVC Inner sheath	Strip Armoured Cable					Round Wire Armoured Cable					Current Rating					
														Aluminium			Copper		
				Nom Dimension of GI flat strip	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom Dimension of GI Round wire	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm.	0	mm	mm	mm x mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps
25	Circular	2.8	0.4	4 x 0.8	1.56	36.8	1700	2150	2.0	1.72	39.4	2300	2700	95	82	105	120	105	135
35	Circular	2.8	0.4	4 x 0.8	1.72	39.1	1900	2500	2.0	1.72	41.5	2500	3100	115	97	125	145	125	165
50	Circular	2.8	0.5	4 x 0.8	1.72	41.4	2200	3050	2.0	1.88	44.2	2850	3700	130	115	150	170	150	195
70	Circular	2.8	0.5	4 x 0.8	1.88	45.2	2525	3700	2.0	1.88	47.6	3200	4400	160	140	190	210	180	240
95	Circular	2.8	0.5	4 x 0.8	1.88	48.7	2950	4550	2.5	2.04	52.5	4150	5750	190	165	230	250	215	295
120	Circular	2.8	0.6	4 x 0.8	2.04	52.5	3550	5550	2.5	2.20	56.1	4850	6850	220	190	260	280	240	335
150	Circular	2.8	0.6	4 x 0.8	2.20	55.6	3975	6500	2.5	2.20	59.0	5250	7800	245	210	295	310	270	380
185	Circular	2.8	0.6	4 x 0.8	2.20	59.6	4550	7650	2.5	2.36	63.4	6000	9100	275	240	335	350	305	430
240	Circular	2.8	0.7	4 x 0.8	2.36	65.3	5450	9500	3.15	2.52	70.3	7725	11800	315	275	395	400	350	500
300	Circular	3.0	0.7	4 x 0.8	2.52	71.0	6375	11400	3.15	2.68	76.0	8750	13800	355	310	450	445	390	570
400	Circular	3.3	0.7	4 x 0.8	2.84	79.3	8000	14750	4.0	3.00	85.9	11875	18600	400	350	520	500	440	650

THREE CORE, ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

VOLTAGE GRADE : 6.35/11 kV (E) OR 6.6/6.6 kV (UE)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Form of conductor strand	Nom thickness of XLPE Insulation	Min thickness of PVC Inner sheath	Strip Armoured Cable					Round Wire Armoured Cable					Current Rating					
														Aluminium			Copper		
				Nom Dimension of GI flat strip	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom Dimension of GI Round wire	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Single way buried Duct @ 30°C
Sq.mm.	0	mm	mm	mm x mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps
35	Circular	3.6	0.5	4 x 0.8	1.72	42.7	2200	2800	2.0	1.88	45.3	2900	3500	115	97	125	145	125	165
50	Circular	3.6	0.5	4 x 0.8	1.88	45.2	2550	3400	2.5	2.04	48.8	3650	4500	130	115	150	170	150	195
70	Circular	3.6	0.5	4 x 0.8	1.88	48.5	2850	4050	2.5	2.04	52.1	4000	5200	160	140	190	210	180	240
95	Circular	3.6	0.6	4 x 0.8	2.04	52.5	3350	4950	2.5	2.20	56.1	4600	6250	190	165	230	250	215	295
120	Circular	3.6	0.6	4 x 0.8	2.20	56.0	3900	5950	2.5	2.20	59.4	5200	7200	220	190	260	280	240	335
150	Circular	3.6	0.6	4 x 0.8	2.20	59.0	4400	6900	2.5	2.36	62.8	5800	8350	245	210	295	310	270	380
185	Circular	3.6	0.7	4 x 0.8	2.36	63.5	4925	8050	3.15	2.52	68.3	7125	10250	275	240	335	350	305	430
240	Circular	3.6	0.7	4 x 0.8	2.52	68.8	5950	10000	3.15	2.68	73.7	8350	12400	315	275	395	400	350	500
300	Circular	3.6	0.7	4 x 0.8	2.68	73.4	6800	11900	3.15	2.84	78.3	9400	14450	355	310	450	445	390	570
400	Circular	3.6	0.7	4 x 0.8	2.84	80.5	8200	14950	4.0	3.00	87.1	12100	18800	400	350	520	500	440	650

THREE CORE, ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

VOLTAGE GRADE : 11/11 kV (UE)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Form of conductor strand	Nom thickness of XLPE Insulation	Min thickness of PVC Inner sheath	Strip Armoured Cable					Round Wire Armoured Cable					Current Rating					
														Aluminium			Copper		
				Nom Dimension of GI flat strip	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom Dimension of GI Round wire	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm.	0	mm	mm	mm x mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps
35	Circular	5.5	0.5	4 x 0.8	2.04	51.3	3000	3600	2.5	2.20	55.5	4250	4850	115	97	125	145	125	165
50	Circular	5.5	0.6	4 x 0.8	2.20	54.0	3300	4150	2.5	2.20	57.8	4600	5400	130	115	150	170	150	195
70	Circular	5.5	0.6	4 x 0.8	2.20	57.3	3750	4950	2.5	2.36	61.5	5150	6300	160	140	190	210	180	240
95	Circular	5.5	0.6	4 x 0.8	2.36	61.3	4300	5900	3.15	2.52	66.7	6450	8050	190	165	230	250	215	295
120	Circular	5.5	0.7	4 x 0.8	2.36	64.6	4850	6850	3.15	2.52	70.0	7100	9150	220	190	260	280	240	335
150	Circular	5.5	0.7	4 x 0.8	2.52	67.8	5300	7850	3.15	2.68	73.3	7600	10150	245	210	295	310	270	380
185	Circular	5.5	0.7	4 x 0.8	2.68	72.2	5975	9100	3.15	2.84	77.6	8500	11600	275	240	335	350	305	430
240	Circular	5.5	0.7	4 x 0.8	2.84	77.4	6900	10950	3.15	3.00	82.9	9600	13700	315	275	395	400	350	500
300	Circular	5.5	0.7	4 x 0.8	3.0	82.2	7850	12900	4.0	3.00	89.0	11750	16800	355	310	450	445	390	570
400	Circular	5.5	0.7	4 x 0.8	3.0	89.1	9400	16150	4.0	3.00	96.0	13650	20400	400	350	520	500	440	650

THREE CORE, ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

VOLTAGE GRADE : 12.7/22 kV (E)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Form of conductor strand	Nom thickness of XLPE Insulation	Min thickness of PVC Inner sheath	Strip Armoured Cable					Round Wire Armoured Cable					Current Rating					
														Aluminium			Copper		
				Nom Dimension of GI flat strip	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom Dimension of GI Round wire	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm.	0	mm	mm	mm x mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps
35	Circular	6.0	0.6	4 x 0.8	2.04	53.8	3150	3750	2.5	2.20	57.6	4450	5000	110	98	130	145	125	165
50	Circular	6.0	0.6	4 x 0.8	2.20	56.5	3550	4400	2.5	2.36	60.2	4900	5750	130	115	155	170	150	200
70	Circular	6.0	0.6	4 x 0.8	2.36	60.1	4100	5300	2.5	2.36	63.5	5500	6700	160	140	190	205	180	245
95	Circular	6.0	0.7	4 x 0.8	2.36	63.7	4550	6150	3.15	2.52	68.7	6750	8350	190	170	230	245	215	300
120	Circular	6.0	0.7	4 x 0.8	2.52	67.0	5100	7100	3.15	2.68	72.0	7400	9400	215	190	265	275	245	340
150	Circular	6.0	0.7	4 x 0.8	2.68	70.2	5650	8200	3.15	2.68	74.9	8100	10650	240	215	300	305	275	385
185	Circular	6.0	0.7	4 x 0.8	2.68	74.6	6300	9450	3.15	2.84	79.6	8950	12050	270	240	340	345	305	435
240	Circular	6.0	0.7	4 x 0.8	2.84	80.0	7250	11300	4.0	3.00	86.7	11200	15250	310	275	400	395	350	510
300	Circular	6.0	0.7	4 x 0.8	3.00	84.7	8200	13300	4.0	3.00	91.1	12300	17350	350	310	455	440	390	580
400	Circular	6.0	0.7	4 x 0.8	3.00	91.2	9950	16750	4.0	3.00	97.6	14350	21000	395	355	530	495	440	660

THREE CORE, ALUMINIUM & COPPER CONDUCTOR, XLPE INSULATED, ARMOURED CABLE CONFORMING TO IS: 7098 (PART-2)

Voltage Grade : 19/33 kV (E)

WEIGHT & DIMENSIONS

Nominal Size of stranded, class-2 conductor as per IS: 8130	Form of conductor strand	Nom thickness of XLPE Insulation	Min thickness of PVC Inner sheath	Strip Armoured Cable					Round Wire Armoured Cable					Current Rating					
				Nom Dimension of GI flat strip	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Nom Dimension of GI Round wire	Min Thickness of Outer sheath	Approx Overall diameter of Cable with ± 3mm tolerance	Al Approx weight of cable	Cu Approx weight of cable	Aluminium			Copper		
														Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C	Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm.	0	mm	mm	mm x mm	mm	mm	Kg./Km	Kg./Km	mm	mm	mm	Kg./Km	Kg./Km	Amps	Amps	Amps	Amps	Amps	Amps
50	Circular	8.8	0.7	4 x 0.8	2.52	68.8	5150	5950	3.15	2.68	73.9	7500	8350	130	115	155	170	150	200
70	Circular	8.8	0.7	4 x 0.8	2.68	72.6	5550	6750	3.15	2.84	77.5	8100	9250	160	140	190	205	180	245
95	Circular	8.8	0.7	4 x 0.8	2.84	76.4	6200	7850	3.15	3.00	81.5	8850	10500	190	170	230	245	215	300
120	Circular	8.8	0.7	4 x 0.8	2.84	79.3	6900	8900	4.0	3.00	86.1	10800	12850	215	190	265	275	245	340
150	Circular	8.8	0.7	4 x 0.8	3.00	83.0	7450	10000	4.0	3.00	89.4	11400	13900	240	215	300	305	275	385
185	Circular	8.8	0.7	4 x 0.8	3.00	87.0	8200	11300	4.0	3.00	93.4	12300	15450	270	240	340	345	305	435
240	Circular	8.8	0.7	4 x 0.8	3.00	92.1	9300	13300	4.0	3.00	98.5	13650	17700	310	275	400	395	350	510
300	Circular	8.8	0.7	4 x 0.8	3.00	96.5	10250	15300	4.0	3.00	102.9	14850	19900	350	310	455	440	390	580
400	Circular	8.8	0.7	4 x 0.8	3.00	103.0	11750	18500	4.0	3.00	109.4	16700	23450	395	355	530	495	440	660

PVC AND XLPE LT POWER CABLES

KEI INDUSTRIES LIMITED is manufactures LT Power Cables with PVC or XLPE insulation of voltage grade upto 3.3 kV conforming to various Indian and International Standard Specifications. KEI also manufactures other types of cables as listed at the end of this catalogue.

CROSS LINKED POLYETHYLENE (XLPE)

XLPE means cross-linked polyethylene or vulcanized polyethylene. The basic material is low density polyethylene. Polyethylene is a thermoset material consisting of long chain of hydrocarbon molecules. At elevated temperature, these molecules tend to move relative to one another so that the material becomes increasingly deformable and eventually melts at the temperature around 110^{0}C.

By means of process similar to the vulcanization of rubber, the polyethylene molecules can be cross-linked. The process of cross-linking or vulcanization consists of producing chemical bonds at interval between the long molecular chain to give a "ladder" effect which prevents slippage between molecules. As a result of cross-linking the material becomes heat resistant and does not soften at higher temperatures. Further it has better resistance to stress cracking and good resistance to ageing in hot air. With the change of structure there is no adverse effect on electrical properties.

Advantages of KEI XLPE CABLES

- ✓ Dielectric losses are very small
- ✓ Higher current carrying capacity
- ✓ Higher short circuit rating 250^{0}C as against 160 ^{0}C for PVC
- ✓ KEI XLPE can retain flexibility down upto - 40^{0}C
- ✓ Jointing and termination is easy
- ✓ Light in weight
- ✓ They are not prone to fatigue damages due to vibrations or loading cycles
- ✓ Has better resistance to most chemicals, oils, acids, etc.
- ✓ Can be installed along cable routes without elevation limitations

Comparison of main properties between PVC and XLPE Insulation

Characteristics	Unit	PVC	XLPE
Permitivity (50 Hz, 20^0 C)	----	4-6	2.3
Dielectric Loss Factor (50 Hz, 20^0 C)	----	0.05-0.07	0.0004
Volume Resistivity (Insulation Resistance) (27^0 C)	Ohm-cm (min)	10^{13}	10^{14}
Maximum Conductor Temperature during continuous operation	Deg C	70	90
Maximum Conductor Temperature during short circuit	Deg C	160	250
Tensile Strength	N/mm^2 (min)	12.5	12.5
% Elongation at break	----	Excellent	Medium
Flexibility at 10 ^{0} C	----	Poor	Good
Resistance to abrasion	----	Medium	Good

RATING FACTORS (PVC)

The current ratings in Table - 1 & 2 based on the normal conditions of installation as described below:

1. Maximum condr. temperature 70° C
2. Ambient air temperature 40° C
3. Ground temperature 30° C
4. Depth of laying (for cable laid directly in ground) 75 cm (1.1 kV)
5. Thermal resistivity of soil 150° C cm/watt
6. Thermal resistivity of cable 650° C cm/watt
7. Max. short-circuit conductor temperature 160° C
8. Max. Ambient Air Temperature 55° C
9. Min Ambient Air temperature -15° C

Installation method and Rating factors are given in tables 1 to 6

Table 1

Rating for variations in ground temperature for cables laid directly in ground and in ducts

Ground temperature (°C)	15	20	25	30	35	40	45	50	55
Rating factor	1.17	1.12	1.06	1.0	0.94	0.87	0.79	0.70	0.60

Table 2

Rating factors for variation in ambient air temperature

Air temperature (°C)	25	30	35	40	45	50	55
Rating factor	1.25	1.16	1.09	1.0	0.90	0.80	0.69

Table 3

Rating factors of groups of twin and multicore cables laid directly in ground in horizontal formation

No. of cables	Rating factor for axial spacing				
	Touching	15 cm	30 cm	45 cm	60 cm
2 cables	0.78	0.81	0.85	0.88	0.90
3 cables	0.68	0.71	0.77	0.81	0.83
4 cables	0.61	0.65	0.72	0.76	0.79
6 cables	0.53	0.58	0.66	0.71	0.76
8 cables	0.48	0.54	0.62	0.67	0.72

Table 4

Rating Factors of groups of Twin and Multicore cables laid directly in Ground in Tier formation

No. of cables	Rating factor for axial spacing				
	Touching	15 cm	30 cm	45 cm	60 cm
4 cables	0.60	0.67	0.73	0.76	0.78
6 cables	0.51	0.57	0.63	0.67	0.69
8 cables	0.45	0.51	0.57	0.59	0.61

Table 5

Rating factors for variation in depth of laying in ground

Depth of laying (cms)	75	90	105	120	150	150 & above
Rating factor upto 25 sq. mm.	1.00	0.99	0.98	0.97	0.96	0.95

Table 6

Group rating factors for cables installed in Ground, separated by more than 7 cms.

No. of cables	1	2	3	4	5	6
Single core D.C. cables & multicore power cables	1.0	0.90	0.80	0.75	0.70	0.65
Single core A.C. cables	1.0	0.80	0.75	0.70	0.65	0.60

1 CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, ARMOURED & UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

Nominal Size of stranded, class-2 conductor as per IS: 8130	Min. No. of wires	ARMOURED: Thickness of PVC Insulation (nom)	ARMOURED: Nom Dimension of Armour wire	ARMOURED: Min Thickness of PVC Outer sheath	ARMOURED: Approx Overall diameter of Cable with ± 2 mm tolerance	ARMOURED: Approx weight of cable	UNARMOURED: Thickness of PVC Insulation (nom)	UNARMOURED: Nom Thickness of Outer sheath	UNARMOURED: Approx Overall diameter of Cable with ± 2 mm tolerance	UNARMOURED: Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	ARMOURED: Approx Reactance at 50 Hz	ARMOURED: Approx Capacitance at 50 Hz	UNARMOURED: Approx Reactance at 50 Hz	UNARMOURED: Approx Capacitance at 50 Hz	CURRENT RATINGS: Buried Direct in the Ground @ 30°C: 2 Cables	CURRENT RATINGS: Buried Direct in the Ground @ 30°C: 3 Cables	CURRENT RATINGS: In Single way buried Duct @ 30°C: 2 Cables	CURRENT RATINGS: In Single way buried Duct @ 30°C: 3 Cables	CURRENT RATINGS: In Air @ 40°C: 2 Cables	CURRENT RATINGS: In Air @ 40°C: 3 Cables
		(mm)	(mm)	(mm)	(mm)	(Kg/Km)	(mm)	(mm)	(mm)	(Kg/Km)	Ohms/Km	Ohms/Km	Ohms/Km	uf/Km	Ohms/Km	uf/Km	Amps	Amps	Amps	Amps	Amps	Amps
1C x 4	3	1.3	1.4	1.24	11.1	145	1.0	1.8	8.7	85	7.41	8.89	0.158	0.47	0.137	0.58	36	31	33	30	32	27
1C x 6	3	1.3	1.4	1.24	11.6	160	1.0	1.8	9.2	100	4.61	5.53	0.148	0.56	0.127	0.68	44	39	42	37	41	35
1C x 10	7	1.3	1.4	1.24	12.6	190	1.0	1.8	10.2	120	3.08	3.70	0.138	0.67	0.118	0.83	59	51	56	51	56	47
1C x 16	6	1.3	1.4	1.24	13.3	210	1.0	1.8	10.9	140	1.91	2.29	0.128	0.81	0.110	1.01	75	66	71	65	72	64
1C x 25	6	1.5	1.4	1.24	14.9	275	1.2	1.8	12.5	200	1.20	1.44	0.120	0.87	0.105	1.05	97	86	93	84	99	84
1C x 35	6	1.5	1.4	1.24	15.9	325	1.2	1.8	13.5	225	0.868	1.04	0.114	1.0	0.100	1.22	120	100	110	100	120	105
1C x 50	6	1.7	1.4	1.24	17.4	400	1.4	1.8	15.0	300	0.641	0.769	0.110	1.03	0.098	1.22	145	120	130	115	150	130
1C x 70	12	1.7	1.4	1.40	19.4	500	1.4	1.8	16.6	375	0.443	0.532	0.103	1.21	0.091	1.43	170	140	155	135	185	155
1C x 95	15	1.9	1.6	1.40	21.9	650	1.6	1.8	18.7	490	0.320	0.384	0.101	1.27	0.088	1.47	205	175	180	155	215	190
1C x 120	15	1.9	1.6	1.40	23.3	750	1.6	2.0	20.5	575	0.253	0.304	0.096	1.42	0.086	1.62	230	195	200	170	240	220
1C x 150	15	2.1	1.6	1.40	25.1	900	1.8	2.0	22.3	700	0.206	0.247	0.094	1.42	0.085	1.62	265	220	220	190	270	250
1C x 185	30	2.3	1.6	1.40	27.4	1050	2.0	2.0	24.6	850	0.164	0.197	0.092	1.44	0.084	1.62	300	240	240	210	305	290
1C x 240	30	2.5	1.6	1.56	30.6	1325	2.2	2.0	27.4	1050	0.125	0.150	0.09	1.53	0.082	1.72	335	270	270	225	350	335
1C x 300	30	2.7	1.6	1.56	33.1	1550	2.4	2.0	29.9	1250	0.100	0.120	0.088	1.56	0.08	1.74	370	295	295	245	395	380
1C x 400	53	3.0	2.0	1.56	37.5	2000	2.6	2.2	33.7	1625	0.0778	0.093	0.088	1.56	0.08	1.81	410	325	335	275	455	435
1C x 500	53	3.4	2.0	1.72	41.7	2500	3.0	2.2	37.5	2000	0.0605	0.073	0.087	1.57	0.079	1.76	435	345	355	295	490	480
1C x 630	53	3.9	2.0	1.88	46.5	3050	3.4	2.4	42.3	2500	0.0469	0.056	0.086	1.57	0.077	1.77	485	390	395	320	560	550
1C x 800	53	3.9	2.0	1.88	50.8	3700	3.4	2.4	46.6	3050	0.0367	0.044	0.083	1.75	0.077	1.98	525	442	420	350	640	600
1C x 1000	53	3.9	2.5	2.04	57.5	4500	3.4	2.6	52.3	3700	0.0291	0.035	0.082	1.94	0.076	2.20	570	485	445	380	740	720

1 CORE, COPPER CONDUCTOR, PVC INSULATED, ARMOURED & UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

Nominal Size of stranded, class-2 conductor as per IS: 8130	Min No of wires	ARMOURED					UNARMOURED				Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	ARMOURED		UNARMOURED		CURRENT RATINGS					
		Thickness of PVC Insulation (nom)	Nom Dimension of Armour wire	Min Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Thickness of PVC Insulation (nom)	Nom Thickness of Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable			Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	Buried Direct in the Ground @ 30°C		In Single way buried Duct @ 30°C		In Air @ 40°C	
																	2 Cables	3 Cables	2 Cables	3 Cables	2 Cables	3 Cables
		(mm)	(mm)	(mm)	(mm)	(Kg/Km)	(mm)	(mm)	(mm)	(Kg/Km)	Ohms/Km	Ohms/Km	Ohms/Km	uf/Km	Ohms/Km	uf/Km	Amps	Amps	Amps	Amps	Amps	Amps
1C x 4	7	1.3	1.4	1.24	11.1	165	1.0	1.8	8.7	105	4.61	5.53	0.158	0.47	0.137	0.58	46	39	42	38	43	35
1C x 6	7	1.3	1.4	1.24	11.6	200	1.0	1.8	9.2	130	3.08	3.70	0.148	0.56	0.127	0.68	57	49	54	48	54	44
1C x 10	7	1.3	1.4	1.24	12.6	240	1.0	1.8	10.2	175	1.83	2.20	0.138	0.67	0.118	0.83	75	65	72	64	72	60
1C x 16	6	1.3	1.4	1.24	13.3	300	1.0	1.8	10.9	230	1.15	1.38	0.128	0.81	0.110	1.01	94	85	92	83	92	82
1C x 25	6	1.5	1.4	1.24	14.9	425	1.2	1.8	12.5	330	0.727	0.87	0.120	0.87	0.105	1.05	125	110	120	110	125	110
1C x 35	6	1.5	1.4	1.24	15.9	525	1.2	1.8	13.5	425	0.524	0.63	0.114	1.00	0.100	1.22	150	130	140	125	155	130
1C x 50	6	1.7	1.4	1.24	17.4	700	1.4	1.8	15.0	575	0.387	0.464	0.110	1.03	0.098	1.22	180	155	165	150	190	165
1C x 70	12	1.7	1.4	1.40	19.4	900	1.4	1.8	16.6	775	0.268	0.322	0.103	1.21	0.091	1.43	220	190	200	175	235	205
1C x 95	15	1.9	1.6	1.40	21.9	1200	1.6	1.8	18.7	1025	0.193	0.232	0.101	1.27	0.088	1.47	265	220	230	200	275	245
1C x 120	18	1.9	1.6	1.40	23.3	1400	1.6	2.0	20.5	1250	0.153	0.184	0.096	1.42	0.086	1.62	300	250	255	220	310	280
1C x 150	18	2.1	1.6	1.40	25.1	1750	1.8	2.0	22.3	1550	0.124	0.149	0.094	1.42	0.085	1.62	340	280	280	245	345	320
1C x 185	30	2.3	1.6	1.40	27.4	2100	2.0	2.0	24.6	1900	0.0991	0.119	0.092	1.44	0.084	1.62	380	305	305	260	390	370
1C x 240	34	2.5	1.6	1.56	30.6	2700	2.2	2.0	27.4	2400	0.0754	0.090	0.090	1.53	0.082	1.72	420	345	340	285	445	425
1C x 300	34	2.7	1.6	1.56	33.1	3250	2.4	2.0	29.9	2950	0.0601	0.072	0.088	1.56	0.08	1.74	465	375	370	310	500	475
1C x 400	53	3.0	2.0	1.56	37.5	4300	2.6	2.2	33.7	3900	0.047	0.056	0.088	1.56	0.08	1.81	500	400	405	335	570	550
1C x 500	53	3.4	2.0	1.72	41.7	5300	3.0	2.2	37.5	4850	0.0366	0.044	0.087	1.57	0.079	1.76	540	425	430	355	610	590
1C x 630	53	3.9	2.0	1.88	46.5	6650	3.4	2.4	42.3	6100	0.0283	0.034	0.086	1.57	0.077	1.77	590	470	465	375	680	660
1C x 800	53	3.9	2.0	1.88	50.8	8300	3.4	2.4	46.6	7600	0.0221	0.027	0.083	1.75	0.077	1.98	664	530	523	425	766	743
1C x 1000	53	3.9	2.5	2.04	57.5	10200	3.4	2.6	52.3	9400	0.0176	0.021	0.082	1.94	0.076	2.20	733	585	579	467	856	830

2 CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, ARMOURED & UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of PVC Insulation (nom)	Min thickness of PVC Inner Sheath	ARMOURED								UNARMOURED			Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx. Net Wt. of Cable		Nom Thickness of PVC Outter sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable					Buried Direct in the Ground @ 30 °C	In Single way buried Duct @ 30°C	In Air @ 40°C
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire										
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
2C x 1.5	1	0.8	0.3	—	1.4	—	1.24	—	14.0	—	390	1.8	12.2	160	18.1	21.7	0.126	0.14	18	16	16
2C x 2.5	1	0.9	0.3	—	1.4	—	1.24	—	15.2	—	450	1.8	13.0	200	12.1	14.5	0.119	0.15	25	21	21
2C x 4	3	1.0	0.3	—	1.4	—	1.24	—	16.8	—	520	1.8	15.0	250	7.41	8.89	0.116	0.16	32	27	27
2C x 6	3	1.0	0.3	—	1.4	—	1.24	—	17.8	—	600	1.8	16.0	300	4.61	5.53	0.110	0.19	40	34	35
2C x 10	7	1.0	0.3	—	1.4	—	1.24	—	19.8	—	700	1.8	18.0	350	3.08	3.70	0.100	0.22	55	45	47
2C x 16	6	1.0	0.3	4 x 0.8	1.6	1.4	1.4	18.8	20.4	525	675	1.8	18.0	320	1.91	2.29	0.097	0.29	70	58	59
2C x 25	6	1.2	0.3	4 x 0.8	1.6	1.4	1.4	20.8	22.4	650	850	2.0	20.4	450	1.20	1.44	0.097	0.32	90	76	78
2C x 35	6	1.2	0.3	4 x 0.8	1.6	1.4	1.4	21.8	23.4	750	1000	2.0	21.4	525	0.868	1.04	0.097	0.37	110	92	99
2C x 50	6	1.4	0.3	4 x 0.8	1.6	1.4	1.56	24.3	26.2	925	1200	2.0	23.9	675	0.641	0.769	0.094	0.37	135	115	125
2C x 70	12	1.4	0.3	4 x 0.8	1.6	1.56	1.56	26.7	28.3	1100	1400	2.0	26.0	825	0.443	0.532	0.090	0.44	160	140	150
2C x 95	15	1.6	0.4	4 x 0.8	2.0	1.56	1.56	30.2	32.6	1400	1900	2.2	29.9	1050	0.320	0.384	0.090	0.44	190	170	185
2C x 120	15	1.6	0.4	4 x 0.8	2.0	1.56	1.72	31.7	34.4	1600	2150	2.2	31.4	1275	0.253	0.304	0.087	0.49	210	190	210
2C x 150	15	1.8	0.4	4 x 0.8	2.0	1.72	1.72	35.4	37.8	1950	2550	2.4	35.2	1550	0.206	0.247	0.087	0.49	240	210	240
2C x 185	30	2.0	0.5	4 x 0.8	2.0	1.88	1.88	39.1	41.5	2350	2950	2.4	38.5	1850	0.164	0.197	0.087	0.49	275	240	275
2C x 240	30	2.2	0.5	4 x 0.8	2.5	2.04	2.04	42.5	45.9	2850	3900	2.6	42.0	2300	0.125	0.150	0.087	0.50	320	275	325
2C x 300	30	2.4	0.6	4 x 0.8	2.5	2.20	2.20	48.5	51.9	3500	4625	2.8	48.1	2850	0.100	0.120	0.086	0.52	355	305	365
2C x 400	53	2.6	0.7	4 x 0.8	3.15	2.36	2.52	53.4	58.1	4300	6200	3.2	52.5	3700	0.0778	0.093	0.086	0.53	385	345	420

2 CORE COPPER PVC ARMOURED & UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of PVC Insulation (nom)	Min thickness of PVC Inner Sheath	ARMOURED								UNARMOURED			Max D.C Resistance of Conductor at 20 °C	Approx A.C Resistance of Conductor at 70 °C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Nominal Dimension of Armour		Min. Thickness of PVC Outer Sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx. Net Wt. of Cable		Nom Thickness of PVC Outter sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable					Buried Direct in the Ground @ 30 °C	In Single way buried Duct @ 30 °C	In Air @ 40 °C
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire										
Sq.mm	No's	mm	mm	mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	mm	mm	Kg/Km	Ohms/Km	Ohms/Km	Ohms/Km	uF/Km	Amps	Amps	Amps
2C x 1.5	1	0.8	0.3	---	1.4	---	1.24	---	14.0	---	400	1.8	12.2	175	12.1	14.52	0.126	0.14	23	20	20
2C x 2.5	1	0.9	0.3	---	1.4	---	1.24	---	15.2	---	475	1.8	13.0	225	7.41	8.89	0.119	0.15	32	27	27
2C x 4	7	1.0	0.3	---	1.4	---	1.24	---	16.8	---	550	1.8	15.0	300	4.61	5.53	0.116	0.16	41	35	35
2C x 6	7	1.0	0.3	---	1.4	---	1.24	---	17.8	---	650	1.8	16.0	350	3.08	3.70	0.110	0.19	50	44	45
2C x 10	7	1.0	0.3	---	1.4	---	1.24	---	19.8	---	800	1.8	18.0	475	1.83	2.20	0.100	0.22	70	58	60
2C x 16	6	1.0	0.3	4 x 0.8	1.6	1.4	1.4	18.8	20.4	700	850	1.8	18.0	500	1.15	1.38	0.097	0.29	90	75	78
2C x 25	6	1.2	0.3	4 x 0.8	1.6	1.4	1.4	20.8	22.4	940	1100	2.0	20.4	725	0.727	0.872	0.097	0.32	115	97	105
2C x 35	6	1.2	0.3	4 x 0.8	1.6	1.4	1.4	21.8	23.4	1150	1400	2.0	21.4	925	0.524	0.629	0.097	0.37	140	120	125
2C x 50	6	1.4	0.3	4 x 0.8	1.6	1.4	1.56	24.3	26.2	1500	1750	2.0	23.9	1250	0.387	0.464	0.094	0.37	165	145	155
2C x 70	12	1.4	0.3	4 x 0.8	1.6	1.56	1.56	26.7	28.3	1950	2250	2.0	26.0	1600	0.268	0.322	0.090	0.44	205	180	195
2C x 95	15	1.6	0.4	4 x 0.8	2.0	1.56	1.56	30.2	32.6	2500	3000	2.2	29.9	2150	0.193	0.232	0.090	0.44	240	215	230
2C x 120	18	1.6	0.4	4 x 0.8	2.0	1.56	1.72	31.7	34.4	3000	3550	2.2	31.4	2650	0.153	0.184	0.087	0.49	275	235	265
2C x 150	18	1.8	0.4	4 x 0.8	2.0	1.72	1.72	35.4	37.8	3650	4250	2.4	35.2	3250	0.124	0.149	0.087	0.49	310	270	305
2C x 185	30	2.0	0.5	4 x 0.8	2.0	1.88	1.88	39.1	41.5	4450	5050	2.4	38.5	3950	0.0991	0.119	0.087	0.49	350	300	350
2C x 240	34	2.2	0.5	4 x 0.8	2.5	2.04	2.04	42.5	45.9	5600	6650	2.6	42.0	5050	0.0754	0.090	0.087	0.50	405	345	410
2C x 300	34	2.4	0.6	4 x 0.8	2.5	2.20	2.20	48.5	51.9	6900	8025	2.8	48.1	6250	0.0601	0.072	0.086	0.52	450	385	465
2C x 400	53	2.6	0.7	4 x 0.8	3.15	2.36	2.52	53.4	58.1	8850	10750	3.2	52.5	8250	0.0470	0.056	0.086	0.53	490	425	530

3 CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, ARMOURED & UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of PVC Insulation (nom)	Min thickness of PVC Inner Sheath	ARMOURED								UNARMOURED			Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Nom Thickness of PVC Outter sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire										
Sq.mm	No's	mm	mm	mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3C x 1.5	1	0.8	0.3	---	1.4	---	1.24	---	14.5	---	420	1.8	12.7	175	18.1	21.72	0.126	0.14	16	14	13
3C x 2.5	1	0.9	0.3	---	1.4	---	1.24	---	15.8	---	500	1.8	14.0	225	12.1	14.52	0.119	0.15	21	18	18
3C x 4	3	1.0	0.3	---	1.4	---	1.24	---	17.6	---	550	1.8	15.8	275	7.41	8.89	0.116	0.41	28	23	23
3C x 6	3	1.0	0.3	---	1.4	---	1.24	---	18.6	---	625	1.8	16.8	325	4.61	5.53	0.110	0.47	35	30	30
3C x 10	7	1.0	0.3	---	1.4	---	1.4	---	21.2	---	750	1.8	19.0	400	3.08	3.70	0.100	0.56	46	39	40
3C x 16	6	1.0	0.3	4 x 0.8	1.6	1.4	1.4	18.6	20.2	600	750	1.8	17.8	375	1.91	2.29	0.097	0.76	60	50	51
3C x 25	6	1.2	0.3	4 x 0.8	1.6	1.4	1.4	21.3	22.9	750	1000	2.0	20.9	575	1.20	1.44	0.097	0.86	76	63	70
3C x 35	6	1.2	0.3	4 x 0.8	1.6	1.4	1.4	23.1	24.7	900	1150	2.0	22.7	700	0.868	1.04	0.097	0.98	92	77	86
3C x 50	6	1.4	0.3	4 x 0.8	1.6	1.56	1.56	26.4	28.0	1150	1450	2.0	25.7	900	0.641	0.769	0.094	1.02	110	95	105
3C x 70	12	1.4	0.4	4 x 0.8	2.0	1.56	1.56	29.9	32.0	1450	2000	2.2	29.3	1150	0.443	0.532	0.090	1.18	135	115	130
3C x 95	15	1.6	0.4	4 x 0.8	2.0	1.56	1.72	33.8	36.2	1800	2450	2.2	33.3	1450	0.320	0.384	0.090	1.20	165	140	155
3C x 120	15	1.6	0.4	4 x 0.8	2.0	1.72	1.72	37.0	39.4	2150	2800	2.2	36.4	1750	0.253	0.304	0.087	1.31	185	155	180
3C x 150	15	1.8	0.5	4 x 0.8	2.0	1.88	1.88	40.1	42.5	2600	3250	2.4	39.5	2150	0.206	0.247	0.087	1.31	210	175	205
3C x 185	30	2.0	0.5	4 x 0.8	2.5	1.88	2.04	44.2	47.9	3100	4250	2.6	44.0	2650	0.164	0.197	0.087	1.31	235	200	240
3C x 240	30	2.2	0.6	4 x 0.8	2.5	2.20	2.20	50.3	53.7	4000	5150	2.8	49.9	3550	0.125	0.150	0.087	1.34	275	235	280
3C x 300	30	2.4	0.6	4 x 0.8	2.5	2.36	2.36	55.0	58.4	4800	6100	3.0	54.7	4050	0.100	0.120	0.086	1.41	305	260	315
3C x 400	53	2.6	0.7	4 x 0.8	3.15	2.52	2.68	62.6	67.7	6000	8200	3.4	62.8	5200	0.0778	0.093	0.086	1.45	335	290	375

3 CORE, COPPER CONDUCTOR, PVC INSULATED, ARMOURED & UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of PVC Insulation (nom)	Min thickness of PVC Inner Sheath	ARMOURED								UNARMOURED			Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Nom Thickness of PVC Outter sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire										
Sq.mm	No's	mm	mm	mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3C x 1.5	1	0.8	0.3	---	1.4	---	1.24	---	14.5	---	450	1.8	12.7	200	12.1	14.52	0.126	0.14	21	17	17
3C x 2.5	1	0.9	0.3	---	1.4	---	1.24	---	15.8	---	525	1.8	14.0	250	7.41	8.89	0.119	0.15	27	24	24
3C x 4	7	1.0	0.3	---	1.4	---	1.24	---	17.6	---	625	1.8	15.8	350	4.61	5.53	0.116	0.41	36	30	30
3C x 6	7	1.0	0.3	---	1.4	---	1.24	---	18.6	---	725	1.8	16.8	425	3.08	3.70	0.110	0.47	45	38	39
3C x 10	7	1.0	0.3	---	1.4	---	1.4	---	21.2	---	950	1.8	19.0	575	1.83	2.20	0.100	0.56	60	50	52
3C x 16	6	1.0	0.3	4 x 0.8	1.6	1.4	1.4	18.6	20.2	850	1050	1.8	17.8	650	1.15	1.38	0.097	0.76	77	64	66
3C x 25	6	1.2	0.3	4 x 0.8	1.6	1.4	1.4	21.3	22.9	1200	1400	2.0	20.9	1000	0.727	0.872	0.097	0.86	99	81	90
3C x 35	6	1.2	0.3	4 x 0.8	1.6	1.4	1.4	23.1	24.7	1550	1800	2.0	22.7	1300	0.524	0.629	0.097	0.98	120	99	110
3C x 50	6	1.4	0.3	4 x 0.8	1.6	1.56	1.56	26.4	28.0	2000	2300	2.0	25.7	1750	0.387	0.464	0.094	1.02	145	125	135
3C x 70	12	1.4	0.4	4 x 0.8	2.0	1.56	1.56	29.9	32.0	2700	3150	2.2	29.3	2350	0.268	0.322	0.090	1.18	175	150	165
3C x 95	15	1.6	0.4	4 x 0.8	2.0	1.56	1.72	33.8	36.2	3550	4150	2.2	33.3	3100	0.193	0.232	0.090	1.20	210	175	200
3C x 120	18	1.6	0.4	4 x 0.8	2.0	1.72	1.72	37.0	39.4	4350	5000	2.2	36.4	3800	0.153	0.184	0.087	1.31	240	195	230
3C x 150	18	1.8	0.5	4 x 0.8	2.0	1.88	1.88	40.1	42.5	5300	5950	2.4	39.5	4700	0.124	0.149	0.087	1.31	270	225	265
3C x 185	30	2.0	0.5	4 x 0.8	2.5	1.88	2.04	44.2	47.9	6450	7600	2.6	44.0	5800	0.0991	0.119	0.087	1.31	300	255	305
3C x 240	34	2.2	0.6	4 x 0.8	2.5	2.20	2.20	50.3	53.7	8200	9500	2.8	49.9	7400	0.0754	0.090	0.087	1.34	345	295	355
3C x 300	34	2.4	0.6	4 x 0.8	2.5	2.36	2.36	55.0	58.4	10000	11400	3.0	54.7	9100	0.0601	0.072	0.086	1.41	385	335	400
3C x 400	53	2.6	0.7	4 x 0.8	3.15	2.52	2.68	62.6	67.7	13050	15300	3.4	62.8	12100	0.047	0.056	0.086	1.45	425	360	455

3.5 CORE, COPPER CONDUCTOR, PVC INSULATED, ARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No. of wires (main/neutral)	Thickness of PVC Insulation (nom) (main/ neutral)	Min thickness of PVC Inner Sheath	Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3.5C x 25/16	6/6	1.2/1.0	0.3	4 x 0.8	1.6	1.4	1.4	23.8	25.4	1400	1700	0.727	0.872	0.097	0.86	99	81	90
3.5C x 35/16	6/6	1.2/1.0	0.3	4 x 0.8	1.6	1.4	1.4	24.8	26.4	1700	2000	0.524	0.629	0.097	0.98	120	99	110
3.5C x 50/25	6/6	1.4/1.2	0.3	4 x 0.8	1.6	1.56	1.56	28.4	30.0	2350	2600	0.387	0.464	0.094	1.02	145	125	135
3.5C x 70/35	12/6	1.4/1.2	0.4	4 x 0.8	2.0	1.56	1.56	32.5	34.9	3100	3650	0.268	0.322	0.09	1.18	175	150	165
3.5C x 95/50	15/6	1.6/1.4	0.4	4 x 0.8	2.0	1.56	1.72	36.2	38.9	4100	4700	0.193	0.232	0.09	1.2	210	175	200
3.5C x 120/70	18/12	1.6/1.4	0.5	4 x 0.8	2.0	1.72	1.88	39.3	42.1	5050	5700	0.153	0.184	0.087	1.31	240	195	230
3.5C x 150/70	18/12	1.8/1.4	0.5	4 x 0.8	2.0	1.88	1.88	44.0	46.4	6050	6800	0.124	0.149	0.087	1.31	270	225	265
3.5C x 185/95	30/15	2.0/1.6	0.5	4 x 0.8	2.5	2.04	2.04	48.8	52.2	7400	8600	0.0991	0.119	0.087	1.31	300	255	305
3.5C x 240/120	34/18	2.2/1.6	0.6	4 x 0.8	2.5	2.2	2.36	55.2	58.9	9450	10500	0.0754	0.090	0.087	1.34	345	295	355
3.5C x 300/150	34/18	2.4/1.8	0.6	4 x 0.8	3.15	2.36	2.52	59.7	64.7	11500	13500	0.0601	0.072	0.086	1.41	385	335	400
3.5C x 400/185	53/30	2.6/2.0	0.7	4 x 0.8	3.15	2.68	2.68	68.6	73.3	14850	17250	0.047	0.056	0.086	1.45	425	360	455

3.5 CORE, COPPER CONDUCTOR, PVC INSULATED, UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires (main/neutral)	Thickness of PVC Insulation (nom) (main/neutral)	TMin thickness of PVC Inner Sheath	Nom Thickness of PVC Outter sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	Approx Reactance at 50 Hz	Approx. Capacitance	CURRENT RATINGS		
											Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3.5C x 25/16	6/6	1.2/1.0	0.3	2.0	23.4	1150	0.727	0.872	0.097	0.86	99	81	90
3.5C x 35/16	6/6	1.2/1.0	0.3	2.0	24.4	1450	0.524	0.629	0.097	0.98	120	99	110
3.5C x 50/25	6/6	1.4/1.2	0.3	2.0	27.7	2000	0.387	0.464	0.094	1.02	145	125	135
3.5C x 70/35	12/6	1.4/1.2	0.4	2.2	32.2	2700	0.268	0.322	0.090	1.18	175	150	165
3.5C x 95/50	15/6	1.6/1.4	0.4	2.2	35.9	3600	0.193	0.232	0.090	1.2	210	175	200
3.5C x 120/70	18/12	1.6/1.4	0.5	2.4	39.1	4500	0.153	0.184	0.087	1.31	240	195	230
3.5C x 150/70	18/12	1.8/1.4	0.5	2.4	43.4	5400	0.124	0.149	0.087	1.31	270	225	265
3.5C x 185/95	30/15	2.0/1.6	0.5	2.6	48.3	6700	0.0991	0.119	0.087	1.31	300	255	305
3.5C x 240/120	34/18	2.2/1.6	0.6	3.0	55.2	8600	0.0754	0.090	0.087	1.34	345	295	355
3.5C x 300/150	34/18	2.4/1.8	0.6	3.2	59.8	10500	0.0601	0.072	0.086	1.41	385	335	400
3.5C x 400/185	53/30	2.6/2.0	0.7	3.4	68.4	13900	0.047	0.056	0.086	1.45	425	360	455

3.5 CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, ARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires (main/neutral)	Thickness of PVC Insulation (nom) (main/ neutral)	Min thickness of PVC Inner Sheath	Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3.5C x 25/16	6/6	1.2/1.0	0.3	4 x 0.8	1.6	1.40	1.40	23.8	25.4	900	1150	1.20	1.44	0.097	0.86	76	63	70
3.5C x 35/16	6/6	1.2/1.0	0.3	4 x 0.8	1.6	1.40	1.40	24.8	26.4	1000	1300	0.868	1.04	0.097	0.98	92	77	86
3.5C x 50/25	6/6	1.4/1.2	0.3	4 x 0.8	1.6	1.56	1.56	28.4	30.0	1300	1600	0.641	0.769	0.094	1.02	110	95	105
3.5C x 70/35	12/6	1.4/1.2	0.4	4 x 0.8	2.0	1.56	1.56	32.5	34.9	1650	2200	0.443	0.532	0.090	1.18	135	115	130
3.5C x 95/50	15/6	1.6/1.4	0.4	4 x 0.8	2.0	1.56	1.72	36.2	38.9	2075	2700	0.320	0.384	0.090	1.20	165	140	155
3.5C x 120/70	15/12	1.6/1.4	0.5	4 x 0.8	2.0	1.72	1.88	39.3	42.1	2500	3200	0.253	0.304	0.087	1.31	185	155	180
3.5C x 150/70	15/12	1.8/1.4	0.5	4 x 0.8	2.0	1.88	1.88	44.0	46.4	3000	3700	0.206	0.247	0.087	1.31	210	175	205
3.5C x 185/95	30/15	2.0/1.6	0.5	4 x 0.8	2.5	2.04	2.04	48.8	52.2	3600	4850	0.164	0.197	0.087	1.31	235	200	240
3.5C x 240/120	30/15	2.2/1.6	0.6	4 x 0.8	2.5	2.20	2.36	55.2	58.9	4600	5750	0.125	0.150	0.087	1.34	275	235	280
3.5C x 300/150	30/15	2.4/1.8	0.6	4 x 0.8	3.15	2.36	2.52	59.7	64.7	5400	7600	0.100	0.120	0.086	1.41	305	260	315
3.5C x 400/185	53/30	2.6/2.0	0.7	4 x 0.8	3.15	2.68	2.68	68.6	73.3	6850	9300	0.0778	0.093	0.086	1.45	335	290	375

3.5 CORE, ALUMINIUM CONDUCTOR, PVC INSULATED, UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires (main/neutral)	Thickness of PVC Insulation (nom) (main/neutral)	Min thickness of PVC Inner Sheath	Nom Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
											Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3.5C x 25/16	6/6	1.2/1.0	0.3	2.0	23.4	650	1.20	1.44	0.097	0.86	76	63	70
3.5C x 35/16	6/6	1.2/1.0	0.3	2.0	24.4	750	0.868	1.042	0.097	0.98	92	77	86
3.5C x 50/25	6/6	1.4/1.2	0.3	2.0	27.7	1025	0.641	0.769	0.094	1.02	110	95	105
3.5C x 70/35	12/6	1.4/1.2	0.4	2.2	32.2	1350	0.443	0.532	0.090	1.18	135	115	130
3.5C x 95/50	15/6	1.6/1.4	0.4	2.2	35.9	1700	0.320	0.384	0.090	1.20	165	140	155
3.5C x 120/70	15/12	1.6/1.4	0.5	2.4	39.1	2100	0.253	0.304	0.087	1.31	185	155	180
3.5C x 150/70	15/12	1.8/1.4	0.5	2.4	43.4	2500	0.206	0.247	0.087	1.31	210	175	205
3.5C x 185/95	30/15	2.0/1.6	0.5	2.6	48.3	3025	0.164	0.197	0.087	1.31	235	200	240
3.5C x 240/120	30/15	2.2/1.6	0.6	3.0	55.2	3850	0.125	0.150	0.087	1.34	275	235	280
3.5C x 300/150	30/15	2.4/1.8	0.6	3.2	59.8	4750	0.100	0.120	0.086	1.41	305	260	315
3.5C x 400/185	53/30	2.6/2.0	0.7	3.4	68.4	6050	0.0778	0.093	0.086	1.45	335	290	375

4 CORE ALUMINIUM PVC ARMOURED & UNARMOURED POWER CARLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of PVC Insulation (nom)	Min thickness of PVC Inner Sheath	ARMOURED								UNARMOURED			Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Nominal thickness of Outer Sheath	Overall Diameter (Approx) ± 2 mm	Net Weight of Cable (Approx)					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire										
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
4C x 1.5	1	0.8	0.3	-	1.4	-	1.24	-	15.4	-	450	1.8	13.6	200	18.1	21.7	0.126	0.14	16	14	13
4C x 2.5	1	0.9	0.3	-	1.4	-	1.24	-	16.8	-	550	1.8	15.0	250	12.1	14.5	0.119	0.15	21	18	18
4C x 4	3	1.0	0.3	-	1.4	-	1.24	-	18.8	-	625	1.8	17.0	325	7.41	8.89	0.116	0.41	28	23	23
4C x 6	3	1.0	0.3	-	1.4	-	1.24	-	20.0	-	750	1.8	18.2	400	4.61	5.53	0.110	0.47	35	30	30
4C x 10	7	1.0	0.3	4 x 0.8	1.6	1.4	1.4	21.6	23.0	750	950	1.8	20.6	475	3.08	3.70	0.100	0.56	46	39	40
4C x 16	6	1.0	0.3	4 x 0.8	1.6	1.4	1.4	22.2	23.8	725	950	2.0	21.8	500	1.91	2.29	0.097	0.76	60	50	51
4C x 25	6	1.2	0.3	4 x 0.8	1.6	1.4	1.4	23.6	25.2	900	1150	2.0	23.2	700	1.20	1.44	0.097	0.86	76	63	70
4C x 35	6	1.2	0.3	4 x 0.8	1.6	1.4	1.56	25.9	27.8	1100	1400	2.0	25.5	850	0.868	1.04	0.097	0.98	92	77	86
4C x 50	6	1.4	0.4	4 x 0.8	2.0	1.56	1.56	30.3	32.7	1450	1950	2.2	30.0	1150	0.641	0.769	0.094	1.02	110	95	105
4C x 70	12	1.4	0.4	4 x 0.8	2.0	1.56	1.56	33.4	35.8	1800	2350	2.2	33.1	1450	0.443	0.532	0.09	1.18	135	115	130
4C x 95	15	1.6	0.4	4 x 0.8	2.0	1.72	1.72	38.2	40.6	2300	2950	2.4	38.0	1925	0.320	0.384	0.09	1.20	165	140	155
4C x 120	15	1.6	0.5	4 x 0.8	2.0	1.88	1.88	41.7	44.1	2750	3500	2.4	41.1	2250	0.253	0.304	0.087	1.31	185	155	180
4C x 150	15	1.8	0.5	4 x 0.8	2.5	1.88	2.04	44.7	48.4	3250	4400	2.6	44.5	2800	0.206	0.247	0.087	1.31	210	175	205
4C x 185	30	2.0	0.6	4 x 0.8	2.5	2.04	2.2	50.1	53.8	4000	5250	2.8	50.0	3425	0.164	0.197	0.087	1.31	235	200	240
4C x 240	30	2.2	0.6	4 x 0.8	2.5	2.36	2.36	56.7	60.1	5000	6450	3.0	56.4	4325	0.125	0.150	0.087	1.34	275	235	280
4C x 300	30	2.4	0.7	4 x 0.8	3.15	2.52	2.68	62.9	68.0	6100	8300	3.4	63.1	5400	0.100	0.120	0.086	1.41	305	260	315
4C x 400	53	2.6	0.7	4 x 0.8	3.15	2.84	2.84	70.6	75.3	7650	10100	3.6	70.5	6850	0.0778	0.093	0.086	1.45	335	290	375

4 CORE, COPPER CONDUCTOR, PVC INSULATED, ARMOURED & UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No.of Cores & Cross sectional Area		Min No of wires	Thickness of PVC Insulation (nom)	Min thickness of PVC Inner Sheath	ARMOURED								UNARMOURED				CURRENT RATINGS		
					Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Nominal thickness of Outer Sheath	Overall Diameter [Approx] ± 2 mm	Net Weight of Cable [Approx]	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 70°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	Buried Direct in the Ground @ 30°C	In Single wayIn buried Duct @ 30°C	In Air @ 40°C
					Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire										
Sq.mm		No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
4C x 1.5		1	0.8	0.3	-	1.4	-	1.24	-	15.4	-	500	1.8	13.6	225	12.1	14.5	0.126	0.22	21	17	17
4C x 2.5		1	0.9	0.3	-	1.4	-	1.24	-	16.8	-	600	1.8	15.0	300	7.41	8.89	0.119	0.15	27	24	24
4C x 4		7	1.0	0.3	-	1.4	-	1.24	-	18.8	-	725	1.8	17.0	400	4.61	5.53	0.116	0.41	36	30	30
4C x 6		7	1.0	0.3	-	1.4	-	1.24	-	20.0	-	875	1.8	18.2	525	3.08	3.70	0.110	0.47	45	38	39
4C x 10		7	1.0	0.3	4 x 0.8	1.6	1.4	1.40	21.6	23.0	975	1150	1.8	20.6	700	1.83	2.20	0.100	0.56	60	50	52
4C x 16		6	1.0	0.3	4 x 0.8	1.6	1.4	1.40	22.2	23.8	1100	1300	2.0	21.8	850	1.15	1.38	0.097	0.76	77	64	66
4C x 25		6	1.2	0.3	4 x 0.8	1.6	1.4	1.40	23.6	25.2	1525	1775	2.0	23.2	1250	0.727	0.872	0.097	0.86	99	81	90
4C x 35		6	1.2	0.3	4 x 0.8	1.6	1.4	1.56	25.9	27.8	1950	2250	2.0	25.5	1650	0.524	0.629	0.097	0.98	120	99	110
4C x 50		6	1.4	0.4	4 x 0.8	2.0	1.56	1.56	30.3	32.7	2600	3100	2.2	30.0	2300	0.387	0.464	0.094	1.02	145	125	135
4C x 70		12	1.4	0.4	4 x 0.8	2.0	1.56	1.56	33.4	35.8	3450	4100	2.2	33.1	3050	0.268	0.322	0.09	1.18	175	150	165
4C x 95		15	1.6	0.4	4 x 0.8	2.0	1.72	1.72	38.2	40.6	4550	5200	2.4	38.0	4050	0.193	0.232	0.09	1.20	210	175	200
4C x 120		18	1.6	0.5	4 x 0.8	2.0	1.88	1.88	41.7	44.1	5550	6300	2.4	41.1	5000	0.153	0.184	0.087	1.31	240	195	230
4C x 150		18	1.8	0.5	4 x 0.8	2.5	1.88	2.04	44.7	48.4	6800	8000	2.6	44.5	6200	0.124	0.149	0.087	1.31	270	225	265
4C x 185		30	2.0	0.6	4 x 0.8	2.5	2.04	2.20	50.1	53.8	8250	9650	2.8	50.0	7600	0.0991	0.119	0.087	1.31	300	255	305
4C x 240		34	2.2	0.6	4 x 0.8	2.5	2.36	2.36	56.7	60.1	10500	12000	3.0	56.4	9700	0.0754	0.090	0.087	1.34	345	295	355
4C x 300		34	2.4	0.7	4 x 0.8	3.15	2.52	2.68	62.9	68.0	13000	15400	3.4	63.1	12200	0.0601	0.072	0.086	1.41	385	335	400
4C x 400		53	2.6	0.7	4 x 0.8	3.15	2.84	2.84	70.6	75.3	16800	19500	3.6	70.5	15900	0.047	0.056	0.086	1.45	425	360	455

RATING FACTORS (XLPE)

The current ratings in Table - 1 & 2 based on the normal conditions of installation as described below:

1. Maximum condr. temperature 90^0 C
2. Ambient air temperature 40^0 C
3. Ground temperature 30^0 C
4. Depth of laying (for cable laid directly in ground) 75 cm (1.1 kV)
5. Thermal resistivity of soil 150^0 C cm/watt
6. Max-short-circuit conductor temperaure 250^0 C cm/watt
7. Max Ambient Air temperature 55^0 C

Installation method and Rating factors are given in tables 1 to 4

Table 1

Rating for variations in ground temperature for cables laid directly in ground and in ducts

Ground temperature °C	15	20	25	30	35	40	45	50
Rating Factor	1.12	1.08	1.03	1.00	0.96	0.91	0.87	0.82

Table 2

Rating Factors for Variation in Ambient Air Temperature

Air temperature °C	25	30	35	40	45	50	55
Rating Factor	1.14	1.10	1.04	1.00	0.95	0.90	0.84

Table 3

Rating Factors of groups of cables laid directly in Ground in Horizontal formation

No. of Cables	Rating factor for Axial spacing			
	Touching	15 cm	30 cm	45 cm
2 cables	0.79	0.82	0.87	0.90
3 cables	0.69	0.75	0.79	0.83
4 cables	0.62	0.69	0.74	0.79
5 cables	0.58	0.65	0.72	0.76
6 cables	0.54	0.61	0.69	0.75

Table 4

Rating Factors for Variation in Depth of laying in Ground

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

1 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMOURED & UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

Nominal Size of stranded, class-2 conductor as per IS: 8130	Min No of wires	ARMOURED					UNARMOURED				Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	ARMOURED		UNARMOURED		CURRENT RATING					
		Thickness of XLPE Insulation (nom)	Nom Dimension of Armour wire	Min Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Thickness of XLPE Insulation (nom)	Nom Thickness of Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable			Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	Buried Direct in the Ground @ 30°C		In Single way buried Duct @ 30°C		In Air @ 40°C	
Sq.mm	No's	No's	mm	mm	Kg/Km	Kg/Km	mm	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Ohm/Km	uF/Km	2 Cables (Amps)	3 Cables (Amps)	2 Cables (Amps)	3 Cables (Amps)	2 Cables (Amps)	3 Cables (Amps)
1C x 4	1	-	-	-	-	-	0.7	1.8	7.8	70	7.41	9.48	-	-	0.132	0.29	43	37	36	34	38	33
1C x 4	6	-	-	-	-	-	0.7	1.8	8.1	70	7.41	9.48	-	-	0.132	0.29	43	37	36	34	38	33
1C x 6	1	-	-	-	-	-	0.7	1.8	8.3	85	4.61	5.90	-	-	0.123	0.34	55	47	47	43	50	43
1C x 6	6	-	-	-	-	-	0.7	1.8	8.6	85	4.61	5.90	-	-	0.123	0.34	55	47	47	43	50	43
1C x 10	1	-	-	-	-	-	0.7	1.8	9.1	100	3.08	3.94	0.134	0.32	0.114	0.43	69	59	58	54	64	55
1C x 10	6	-	-	-	-	-	0.7	1.8	9.6	100	3.08	3.94	0.134	0.32	0.114	0.43	69	59	58	54	64	55
1C x 16	6	1.0	1.4	1.24	12.7	225	0.7	1.8	10.3	125	1.91	2.44	0.125	0.38	0.108	0.51	89	76	75	69	84	72
1C x 25	6	1.2	1.4	1.24	14.3	250	0.9	1.8	11.9	170	1.20	1.54	0.116	0.40	0.102	0.52	115	98	96	89	112	98
1C x 35	6	1.2	1.4	1.24	15.3	300	0.9	1.8	12.9	200	0.868	1.11	0.110	0.47	0.097	0.60	137	116	115	106	137	119
1C x 50	6	1.3	1.4	1.24	16.6	350	1.0	1.8	14.2	250	0.641	0.820	0.103	0.50	0.092	0.63	161	137	135	124	165	145
1C x 70	12	1.4	1.4	1.24	18.4	450	1.1	1.8	16.0	325	0.443	0.567	0.099	0.55	0.088	0.68	198	168	165	151	209	185
1C x 95	15	1.4	1.6	1.40	20.9	575	1.1	1.8	17.7	425	0.320	0.410	0.097	0.64	0.085	0.79	243	202	199	181	264	235
1C x 120	15	1.5	1.6	1.40	22.5	700	1.2	1.8	19.3	500	0.253	0.324	0.093	0.67	0.082	0.79	276	230	226	206	308	276
1C x 150	15	1.7	1.6	1.40	24.3	800	1.4	2.0	21.5	625	0.206	0.264	0.091	0.67	0.082	0.79	308	256	252	229	350	314
1C x 185	30	1.9	1.6	1.40	26.6	950	1.6	2.0	23.8	750	0.164	0.210	0.090	0.67	0.082	0.79	349	290	285	258	406	366
1C x 240	30	2.0	1.6	1.40	29.2	1150	1.7	2.0	26.4	925	0.125	0.160	0.086	0.72	0.079	0.84	404	335	329	298	480	434
1C x 300	30	2.1	1.6	1.56	31.9	1400	1.8	2.0	28.7	1100	0.100	0.128	0.085	0.75	0.078	0.86	454	376	369	333	551	500
1C x 400	53	2.4	2.0	1.56	36.3	1850	2.0	2.2	32.5	1450	0.0778	0.100	0.085	0.75	0.077	0.88	518	429	421	378	647	589
1C x 500	53	2.6	2.0	1.56	39.7	2200	2.2	2.2	35.9	1800	0.0605	0.077	0.083	0.77	0.076	0.9	588	485	476	426	751	685
1C x 630	53	2.8	2.0	1.72	44.1	2700	2.4	2.2	39.9	2200	0.0469	0.060	0.082	0.81	0.075	0.94	663	546	536	477	868	793
1C x 800	53	3.1	2.0	1.88	49.4	3350	2.6	2.4	45.0	2750	0.0367	0.047	0.081	0.88	0.075	0.97	740	608	596	528	992	907
1C x 1000	53	3.3	2.5	2.04	56.3	4200	2.8	2.6	51.1	3400	0.0291	0.037	0.081	0.88	0.068	1.01	812	665	652	575	1117	1022

1 CORE, COPPER CONDUCTOR, XLPE INSULATED, ARMOURED & UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

Nominal Size of stranded, class-2 conductor as per IS: 8130	Min No of wires	ARMOURED					UNARMOURED				Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	ARMOURED		UNARMOURED		CURRENT RATING					
		Thickness of XLPE Insulation (nom)	Nom Dimension of Armour wire	Min Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Thickness of XLPE Insulation (nom)	Nom Thickness of Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable			Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	Buried Direct in the Ground @ 30°C		In Single way buried Duct @ 30°C		In Air @ 40°C	
Sq.mm	No's	mm	mm	mm	Kg/Km	Kg/Km	mm	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Ohm/Km	uF/Km	2 Cables (Amps)	3 Cables (Amps)	2 Cables (Amps)	3 Cables (Amps)	2 Cables (Amps)	3 Cables (Amps)
1C x 4	1	-	-	-	-	-	0.7	1.8	7.8	95	4.61	5.90	-	-	0.132	0.29	54	47	46	43	48	41
1C x 4	7	-	-	-	-	-	0.7	1.8	8.1	100	4.61	5.90	-	-	0.132	0.29	54	47	46	43	48	41
1C x 6	1	-	-	-	-	-	0.7	1.8	8.3	115	3.08	3.94	-	-	0.123	0.34	67	58	57	53	61	52
1C x 6	7	-	-	-	-	-	0.7	1.8	8.6	125	3.08	3.94	-	-	0.123	0.34	67	58	57	53	61	52
1C x 10	7	1.0	1.4	1.24	12.0	225	0.7	1.8	9.6	170	1.83	2.34	0.134	0.32	0.114	0.43	90	77	76	70	83	71
1C x 16	6	1.0	1.4	1.24	12.7	300	0.7	1.8	10.3	210	1.15	1.47	0.125	0.38	0.108	0.51	115	98	97	89	108	94
1C x 25	6	1.2	1.4	1.24	14.3	375	0.9	1.8	11.9	300	0.727	0.931	0.116	0.40	0.102	0.52	148	126	124	114	144	126
1C x 35	6	1.2	1.4	1.24	15.3	450	0.9	1.8	12.9	400	0.524	0.671	0.110	0.47	0.097	0.60	177	150	148	136	176	154
1C x 50	6	1.3	1.4	1.24	16.6	625	1.0	1.8	14.2	550	0.387	0.495	0.103	0.50	0.092	0.63	208	177	174	160	212	187
1C x 70	12	1.4	1.4	1.24	18.4	825	1.1	1.8	16.0	725	0.268	0.343	0.099	0.55	0.088	0.68	255	216	213	195	269	238
1C x 95	15	1.4	1.6	1.40	20.9	1100	1.1	1.8	17.7	950	0.193	0.247	0.097	0.64	0.085	0.79	312	260	256	233	340	303
1C x 120	18	1.5	1.6	1.40	22.5	1350	1.2	1.8	19.3	1200	0.153	0.196	0.093	0.67	0.082	0.79	355	295	291	264	396	354
1C x 150	18	1.7	1.6	1.40	24.3	1650	1.4	2.0	21.5	1450	0.124	0.159	0.091	0.67	0.082	0.79	396	329	324	294	450	403
1C x 185	30	1.9	1.6	1.40	26.6	2000	1.6	2.0	23.8	1800	0.0991	0.127	0.090	0.67	0.082	0.79	447	371	365	330	519	468
1C x 240	34	2.0	1.6	1.40	29.2	2500	1.7	2.0	26.4	2300	0.0754	0.097	0.086	0.72	0.079	0.84	515	427	420	379	613	553
1C x 300	34	2.1	1.6	1.56	31.9	3000	1.8	2.0	28.7	2800	0.0601	0.077	0.085	0.75	0.078	0.86	576	477	469	422	700	634
1C x 400	53	2.4	2.0	1.56	36.3	4100	2.0	2.2	32.5	3750	0.0470	0.060	0.085	0.75	0.077	0.88	651	537	528	473	813	737
1C x 500	53	2.6	2.0	1.56	39.7	5000	2.2	2.2	35.9	4600	0.0366	0.047	0.083	0.77	0.076	0.90	727	598	589	525	930	844
1C x 630	53	2.8	2.0	1.72	44.1	6200	2.4	2.2	39.9	5800	0.0283	0.036	0.082	0.81	0.075	0.94	806	661	651	578	1056	961
1C x 800	53	3.1	2.0	1.88	49.4	7850	2.6	2.4	45.0	7300	0.0221	0.028	0.081	0.88	0.075	0.97	877	721	707	626	1179	1077
1C x 1000	53	3.3	2.5	2.04	56.3	9900	2.8	2.6	51.1	9100	0.0176	0.023	0.081	0.88	0.068	1.01	935	772	751	668	1288	1188

2 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
2C x 4	1	0.7	0.3	---	1.4	---	1.24	---	14.9	---	400	7.41	9.48	0.0927	0.065	42	36	38
2C x 4	3	0.7	0.3	---	1.4	---	1.24	---	15.6	---	400	7.41	9.48	0.0927	0.065	42	36	38
2C x 6	1	0.7	0.3	---	1.4	---	1.24	---	15.9	---	450	4.61	5.90	0.0884	0.071	55	46	50
2C x 6	3	0.7	0.3	---	1.4	---	1.24	---	16.6	---	450	4.61	5.90	0.0884	0.081	55	46	50
2C x 10	1	0.7	0.3	---	1.4	---	1.24	---	17.6	---	550	3.08	3.94	0.0837	0.081	68	57	64
2C x 10	7	0.7	0.3	---	1.4	---	1.24	---	18.6	---	550	3.08	3.94	0.0837	0.088	68	57	64
2C x 16	6	0.7	0.3	---	1.4	---	1.4	---	18.8	---	600	1.91	2.44	0.0808	0.089	89	74	83
2C x 25	6	0.9	0.3	4 x 0.8	1.6	1.4	1.4	19.6	21.2	550	750	1.20	1.54	0.08	0.096	114	95	109
2C x 35	6	0.9	0.3	4 x 0.8	1.6	1.4	1.4	20.6	22.2	650	875	0.868	1.11	0.08	0.098	136	113	133
2C x 50	6	1.0	0.3	4 x 0.8	1.6	1.4	1.4	22.7	24.3	800	1050	0.641	0.820	0.078	0.10	161	134	162
2C x 70	12	1.1	0.3	4 x 0.8	1.6	1.56	1.56	25.5	27.1	1000	1250	0.443	0.567	0.077	0.11	197	164	204
2C x 95	15	1.1	0.4	4 x 0.8	2.0	1.56	1.56	28.4	30.8	1250	1700	0.320	0.410	0.074	0.11	235	196	251
2C x 120	15	1.2	0.4	4 x 0.8	2.0	1.56	1.56	30.3	32.7	1450	2000	0.253	0.324	0.072	0.11	266	222	287
2C x 150	15	1.4	0.4	4 x 0.8	2.0	1.72	1.72	33.8	36.2	1750	2300	0.206	0.264	0.072	0.11	296	248	328
2C x 185	30	1.6	0.5	4 x 0.8	2.0	1.72	1.88	37.1	39.9	2100	2700	0.164	0.210	0.072	0.11	335	281	379
2C x 240	30	1.7	0.5	4 x 0.8	2.5	1.88	2.04	40.2	43.9	2550	3500	0.125	0.160	0.072	0.11	385	324	448
2C x 300	30	1.8	0.6	4 x 0.8	2.5	2.04	2.20	45.8	49.5	3050	4200	0.100	0.128	0.071	0.12	432	364	513
2C x 400	53	2.0	0.6	4 x 0.8	2.5	2.36	2.36	50.0	53.9	3900	5100	0.0778	0.100	0.07	0.12	487	412	593

2 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nom Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	Buried Direct in the Ground @ 30°C	CURRENT RATINGS	
												In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm	(mm)	Kg/Km	Ohm/Km	Ohms/Km	Ohms/Km	uF/Km	Amps	Amps	Amps
2C x 4	1	0.7	0.3	1.8	13.1	175	7.41	9.48	0.0927	0.065	42	36	38
2C x 4	3	0.7	0.3	1.8	13.8	175	7.41	9.48	0.0927	0.065	42	36	38
2C x 6	1	0.7	0.3	1.8	14.1	200	4.61	5.90	0.0884	0.071	55	46	50
2C x 6	3	0.7	0.3	1.8	14.8	200	4.61	5.90	0.0884	0.081	55	46	50
2C x 10	1	0.7	0.3	1.8	15.8	250	3.08	3.94	0.0837	0.081	68	57	64
2C x 10	7	0.7	0.3	1.8	16.8	250	3.08	3.94	0.0837	0.088	68	57	64
2C x 16	6	0.7	0.3	1.8	16.8	260	1.91	2.44	0.0808	0.089	89	74	83
2C x 25	6	0.9	0.3	2.0	19.2	375	1.20	1.54	0.08	0.096	114	95	109
2C x 35	6	0.9	0.3	2.0	20.2	450	0.868	1.11	0.08	0.098	136	113	133
2C x 50	6	1.0	0.3	2.0	22.3	575	0.641	0.820	0.078	0.10	161	134	162
2C x 70	12	1.1	0.3	2.0	24.8	725	0.443	0.567	0.077	0.11	197	164	204
2C x 95	15	1.1	0.4	2.2	28.1	950	0.320	0.410	0.074	0.11	235	196	251
2C x 120	15	1.2	0.4	2.2	30.0	1100	0.253	0.324	0.072	0.11	266	222	287
2C x 150	15	1.4	0.4	2.2	33.2	1400	0.206	0.264	0.072	0.11	296	248	328
2C x 185	30	1.6	0.5	2.4	36.9	1650	0.164	0.210	0.072	0.11	335	281	379
2C x 240	30	1.7	0.5	2.6	40.0	2050	0.125	0.160	0.072	0.11	385	324	448
2C x 300	30	1.8	0.6	2.8	45.7	2500	0.100	0.128	0.071	0.12	432	364	513
2C x 400	53	2.0	0.6	3.0	50.2	3250	0.0778	0.100	0.07	0.12	487	412	593

2 CORE, COPPER CONDUCTOR, XLPE INSULATED, ARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
2C x 4	1	0.7	0.3	---	1.4	---	1.24	---	14.9	---	450	4.61	5.90	0.0927	0.065	54	45	48
2C x 4	7	0.7	0.3	---	1.4	---	1.24	---	15.6	---	450	4.61	5.90	0.0927	0.065	54	45	48
2C x 6	1	0.7	0.3	---	1.4	---	1.24	---	15.9	---	525	3.08	3.94	0.0884	0.071	67	56	61
2C x 6	7	0.7	0.3	---	1.4	---	1.24	---	16.6	---	525	3.08	3.94	0.0884	0.071	67	56	61
2C x 10	7	0.7	0.3	---	1.4	---	1.24	---	18.6	---	675	1.83	2.34	0.0837	0.081	89	75	83
2C x 16	6	0.7	0.3	---	1.4	---	1.4	---	18.8	---	775	1.15	1.47	0.0808	0.088	115	96	108
2C x 25	6	0.9	0.3	4 x 0.8	1.6	1.4	1.4	19.6	21.2	850	1025	0.727	0.931	0.08	0.089	147	122	140
2C x 35	6	0.9	0.3	4 x 0.8	1.6	1.4	1.4	20.6	22.2	1050	1250	0.524	0.671	0.08	0.096	176	146	172
2C x 50	6	1.0	0.3	4 x 0.8	1.6	1.4	1.4	22.7	24.3	1400	1600	0.387	0.495	0.078	0.098	208	173	208
2C x 70	12	1.1	0.3	4 x 0.8	1.6	1.56	1.56	25.5	27.1	1825	2050	0.268	0.343	0.077	0.10	253	211	262
2C x 95	15	1.1	0.4	4 x 0.8	2.0	1.56	1.56	28.4	30.8	2300	2800	0.193	0.247	0.074	0.11	302	252	322
2C x 120	18	1.2	0.4	4 x 0.8	2.0	1.56	1.56	30.3	32.7	2850	3350	0.153	0.196	0.072	0.11	340	284	368
2C x 150	18	1.4	0.4	4 x 0.8	2.0	1.72	1.72	33.8	36.2	3450	4000	0.124	0.159	0.072	0.11	379	317	419
2C x 185	30	1.6	0.5	4 x 0.8	2.0	1.72	1.88	37.1	39.9	4200	4850	0.0991	0.127	0.072	0.11	425	357	482
2C x 240	34	1.7	0.5	4 x 0.8	2.5	1.88	2.04	40.2	43.9	5300	6300	0.0754	0.097	0.072	0.11	486	409	566
2C x 300	34	1.8	0.6	4 x 0.8	2.5	2.04	2.20	45.8	49.5	6450	7600	0.0601	0.077	0.071	0.12	541	456	644
2C x 400	53	2.0	0.6	4 x 0.8	2.5	2.36	2.36	50.0	53.9	8400	9650	0.0470	0.060	0.07	0.12	602	508	734

2 CORE, COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nom Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
											Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm	mm	Kg/Km	(Kg/Km)	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
2C x 4	1	0.7	0.3	1.8	13.1	225	4.61	5.90	0.0927	0.065	54	45	48
2C x 4	7	0.7	0.3	1.8	13.8	225	4.61	5.90	0.0927	0.065	54	45	48
2C x 6	1	0.7	0.3	1.8	14.1	275	3.08	3.94	0.0884	0.071	67	56	61
2C x 6	7	0.7	0.3	1.8	14.8	275	3.08	3.94	0.0884	0.071	67	56	61
2C x 10	7	0.7	0.3	1.8	16.8	375	1.83	2.34	0.0837	0.081	89	75	83
2C x 16	6	0.7	0.3	1.8	16.8	425	1.15	1.47	0.0808	0.088	115	96	108
2C x 25	6	0.9	0.3	2.0	19.2	650	0.727	0.93	0.08	0.089	147	122	140
2C x 35	6	0.9	0.3	2.0	20.2	850	0.524	0.67	0.08	0.096	176	146	172
2C x 50	6	1.0	0.3	2.0	22.3	1150	0.387	0.495	0.078	0.098	208	173	208
2C x 70	12	1.1	0.3	2.0	24.8	1500	0.268	0.343	0.077	0.10	253	211	262
2C x 95	15	1.1	0.4	2.2	28.1	2000	0.193	0.247	0.074	0.11	302	252	322
2C x 120	18	1.2	0.4	2.2	30.0	2500	0.153	0.196	0.072	0.11	340	284	368
2C x 150	18	1.4	0.4	2.2	33.2	3100	0.124	0.159	0.072	0.11	379	317	419
2C x 185	30	1.6	0.5	2.4	36.9	3750	0.0991	0.127	0.072	0.11	425	357	482
2C x 240	34	1.7	0.5	2.6	40.0	4800	0.0754	0.097	0.072	0.11	486	409	566
2C x 300	34	1.8	0.6	2.8	45.7	5950	0.0601	0.077	0.071	0.12	541	456	644
2C x 400	53	2.0	0.6	3.0	50.2	7700	0.0470	0.060	0.07	0.12	602	508	734

3 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3C x 4	3	0.7	0.3	---	1.4	---	1.24	---	16.3	---	450	7.41	9.48	0.0927	0.22	35	30	32
3C x 6	1	0.7	0.3	---	1.4	---	1.24	---	16.6	---	500	4.61	5.90	0.0884	0.25	46	38	42
3C x 6	3	0.7	0.3	---	1.4	---	1.24	---	17.3	---	500	4.61	5.90	0.0884	0.25	46	38	42
3C x 10	1	0.7	0.3	---	1.4	---	1.24	---	18.4	---	625	3.08	3.94	0.0837	0.31	57	48	54
3C x 10	7	0.7	0.3	---	1.4	---	1.24	---	19.5	---	625	3.08	3.94	0.0837	0.31	57	48	54
3C x 16	6	0.7	0.3	4 x 0.8	1.6	1.24	1.4	17.8	19.7	530.0	725	1.91	2.44	0.0808	0.36	74	61	69
3C x 25	6	0.9	0.3	4 x 0.8	1.6	1.4	1.4	20.1	21.7	725	900	1.20	1.54	0.08	0.41	95	79	93
3C x 35	6	0.9	0.3	4 x 0.8	1.6	1.4	1.4	22.2	23.8	850	1025	0.868	1.11	0.08	0.47	114	94	114
3C x 50	6	1.0	0.3	4 x 0.8	1.6	1.4	1.56	24.6	26.5	1050	1250	0.641	0.820	0.078	0.50	134	112	138
3C x 70	12	1.1	0.4	4 x 0.8	2.0	1.56	1.56	28.9	31.3	1375	1800	0.443	0.567	0.077	0.53	164	137	175
3C x 95	15	1.1	0.4	4 x 0.8	2.0	1.56	1.56	31.1	33.5	1600	2100	0.320	0.410	0.074	0.61	197	164	216
3C x 120	15	1.2	0.4	4 x 0.8	2.0	1.56	1.72	35.7	38.4	1980	2550	0.253	0.324	0.072	0.63	223	187	249
3C x 150	15	1.4	0.5	4 x 0.8	2.0	1.72	1.88	39.2	42.0	2300	3050	0.206	0.264	0.072	0.63	249	209	284
3C x 185	30	1.6	0.5	4 x 0.8	2.5	1.88	2.04	43.3	47.0	2800	3950	0.164	0.210	0.072	0.63	282	238	329
3C x 240	30	1.7	0.6	4 x 0.8	2.5	2.04	2.20	46.3	50.0	3450	4600	0.125	0.160	0.072	0.63	327	276	392
3C x 300	30	1.8	0.6	4 x 0.8	2.5	2.20	2.36	51.6	53.3	4170	5500	0.100	0.128	0.071	0.67	369	312	452
3C x 400	53	2.0	0.7	4 x 0.8	3.15	2.52	2.68	58.4	63.3	5250	7600	0.0778	0.100	0.07	0.67	420	356	526

3 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nom Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
											Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm	(mm)	Kg/Km	Ohm/Km	Ohms/Km	Ohms/Km	uF/Km	Amps	Amps	Amps
3C x 4	1	0.7	0.3	1.8	13.7	200	7.41	9.48	0.0927	0.22	35	30	32
3C x 4	3	0.7	0.3	1.8	14.5	200	7.41	9.48	0.0927	0.22	35	30	32
3C x 6	1	0.7	0.3	1.8	14.8	225	4.61	5.90	0.0884	0.25	46	38	42
3C x 6	3	0.7	0.3	1.8	15.5	225	4.61	5.90	0.0884	0.25	46	38	42
3C x 10	1	0.7	0.3	1.8	16.6	300	3.08	3.94	0.0837	0.31	57	48	54
3C x 10	7	0.7	0.3	1.8	17.7	300	3.08	3.94	0.0837	0.31	57	48	54
3C x 16	6	0.7	0.3	1.8	17.3	325	1.91	2.44	0.0808	0.36	74	61	69
3C x 25	6	0.9	0.3	2.0	19.7	500	1.20	1.54	0.08	0.41	95	79	93
3C x 35	6	0.9	0.3	2.0	21.8	600	0.868	1.11	0.08	0.47	114	94	114
3C x 50	6	1.0	0.3	2.0	24.2	750	0.641	0.820	0.078	0.50	134	112	138
3C x 70	12	1.1	0.4	2.2	28.6	1025	0.443	0.567	0.077	0.53	164	137	175
3C x 95	15	1.1	0.4	2.2	30.8	1250	0.320	0.410	0.074	0.61	197	164	216
3C x 120	15	1.2	0.4	2.2	35.4	1550	0.253	0.324	0.072	0.63	223	187	249
3C x 150	15	1.4	0.5	2.4	39.0	1975	0.206	0.264	0.072	0.63	249	209	284
3C x 185	30	1.6	0.5	2.6	43.1	2350	0.164	0.210	0.072	0.63	282	238	329
3C x 240	30	1.7	0.6	2.8	46.2	2950	0.125	0.160	0.072	0.63	327	276	392
3C x 300	30	1.8	0.6	3.0	51.6	3600	0.100	0.128	0.071	0.67	369	312	452
3C x 400	53	2.0	0.7	3.2	58.2	4650	0.0778	0.100	0.07	0.67	420	356	526

3 CORE, COPPER CONDUCTOR, XLPE INSULATED, ARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3C x 4	1	0.7	0.3	---	1.4	---	1.24	---	15.5	---	500	4.61	5.90	0.0927	0.22	45	38	41
3C x 4	7	0.7	0.3	---	1.4	---	1.24	---	16.3	---	500	4.61	5.90	0.0927	0.22	45	38	41
3C x 6	1	0.7	0.3	---	1.4	---	1.24	---	16.6	---	625	3.08	3.94	0.0884	0.25	56	47	52
3C x 6	7	0.7	0.3	---	1.4	---	1.24	---	17.3	---	625	3.08	3.94	0.0884	0.25	56	47	52
3C x 10	7	0.7	0.3	---	1.4	---	1.24	---	19.5	---	800	1.83	2.34	0.0837	0.31	74	62	70
3C x 16	6	0.7	0.3	4 x 0.8	1.6	1.24	1.40	17.8	19.7	825	1000	1.15	1.47	0.0808	0.36	95	79	89
3C x 25	6	0.9	0.3	4 x 0.8	1.6	1.40	1.40	20.1	21.7	1150	1350	0.727	0.931	0.080	0.41	122	102	119
3C x 35	6	0.9	0.3	4 x 0.8	1.6	1.40	1.40	22.2	23.8	1450	1650	0.524	0.671	0.080	0.47	146	122	147
3C x 50	6	1.0	0.3	4 x 0.8	1.6	1.40	1.56	24.6	26.5	1900	2200	0.387	0.495	0.078	0.50	173	144	179
3C x 70	12	1.1	0.4	4 x 0.8	2.0	1.56	1.56	28.9	31.3	2550	3050	0.268	0.343	0.077	0.53	212	177	226
3C x 95	15	1.1	0.4	4 x 0.8	2.0	1.56	1.56	31.1	33.5	3250	3800	0.193	0.247	0.074	0.61	254	212	279
3C x 120	18	1.2	0.4	4 x 0.8	2.0	1.56	1.72	35.7	38.4	4000	4650	0.153	0.196	0.072	0.63	287	240	320
3C x 150	18	1.4	0.5	4 x 0.8	2.0	1.72	1.88	39.2	42.0	4950	5650	0.124	0.159	0.072	0.63	321	269	365
3C x 185	30	1.6	0.5	4 x 0.8	2.5	1.88	2.04	43.3	47.0	6000	7100	0.0991	0.127	0.072	0.63	362	304	422
3C x 240	34	1.7	0.6	4 x 0.8	2.5	2.04	2.20	46.3	50.0	7600	8850	0.0754	0.097	0.072	0.63	418	352	500
3C x 300	34	1.8	0.6	4 x 0.8	2.5	2.20	2.36	51.6	53.3	9350	10750	0.0601	0.077	0.071	0.67	469	396	574
3C x 400	53	2.0	0.7	4 x 0.8	3.15	2.52	2.68	58.4	63.3	12200	14400	0.0470	0.060	0.070	0.67	528	447	662

3 CORE, COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nom Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
											Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm	(mm)	Kg/Km	Ohm/Km	Ohms/Km	Ohms/Km	uF/Km	Amps	Amps	Amps
3C x 4	1	0.7	0.3	1.8	13.7	275	4.61	5.90	0.0927	0.22	45	38	41
3C x 4	7	0.7	0.3	1.8	14.5	275	4.61	5.90	0.0927	0.22	45	38	41
3C x 6	1	0.7	0.3	1.8	14.8	350	3.08	3.94	0.0884	0.25	56	47	52
3C x 6	7	0.7	0.3	1.8	15.5	350	3.08	3.94	0.0884	0.25	56	47	52
3C x 10	7	0.7	0.3	1.8	17.7	475	1.83	2.34	0.0837	0.31	74	62	70
3C x 16	6	0.7	0.3	1.8	17.3	600	1.15	1.47	0.0808	0.36	95	79	89
3C x 25	6	0.9	0.3	2.0	19.7	900	0.727	0.93	0.080	0.41	122	102	119
3C x 35	6	0.9	0.3	2.0	21.8	1200	0.524	0.67	0.080	0.47	146	122	147
3C x 50	6	1.0	0.3	2.0	24.2	1600	0.387	0.495	0.078	0.50	173	144	179
3C x 70	12	1.1	0.4	2.2	28.6	2200	0.268	0.343	0.077	0.53	212	177	226
3C x 95	15	1.1	0.4	2.2	30.8	2900	0.193	0.247	0.074	0.61	254	212	279
3C x 120	18	1.2	0.4	2.2	35.4	3600	0.153	0.196	0.072	0.63	287	240	320
3C x 150	18	1.4	0.5	2.4	39.0	4500	0.124	0.159	0.072	0.63	321	269	365
3C x 185	30	1.6	0.5	2.6	43.1	5500	0.0991	0.127	0.072	0.63	362	304	422
3C x 240	34	1.7	0.6	2.8	46.2	7000	0.0754	0.097	0.072	0.63	418	352	500
3C x 300	34	1.8	0.6	3.0	51.6	8700	0.0601	0.077	0.071	0.67	469	396	574
3C x 400	53	2.0	0.7	3.2	58.2	11400	0.0470	0.060	0.070	0.67	528	447	662

3.5 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires (Main/Neutral)	Thickness of XLPE Insulation (nom) (Main/Neutral)	Min thickness of PVC Inner Sheath	Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3.5C x 25/16	6/6	0.9/0.7	0.3	4 x 0.8	1.6	1.40	1.40	22.2	23.8	750	1000	1.20	1.54	0.080	0.41	95	79	93
3.5C x 35/16	6/6	0.9/0.7	0.3	4 x 0.8	1.6	1.40	1.40	23.9	25.5	875	1200	0.868	1.11	0.080	0.47	114	94	114
3.5C x 50/25	6/6	1.0/0.9	0.3	4 x 0.8	1.6	1.40	1.56	27.1	29.0	1110	1500	0.641	0.820	0.078	0.50	134	112	138
3.5C x 70/35	12/6	1.1/0.9	0.4	4 x 0.8	2.0	1.56	1.56	31.6	34.0	1475	2000	0.443	0.567	0.077	0.53	164	137	175
3.5C x 95/50	15/6	1.1/1.0	0.4	4 x 0.8	2.0	1.56	1.56	35.2	37.6	1825	2450	0.320	0.410	0.074	0.61	197	164	216
3.5C x 120/70	15/12	1.2/1.1	0.4	4 x 0.8	2.0	1.72	1.72	37.8	40.2	2200	2900	0.253	0.324	0.072	0.63	223	187	249
3.5C x 150/70	15/12	1.4/1.1	0.5	4 x 0.8	2.0	1.72	1.88	42.4	45.2	2625	3350	0.206	0.264	0.072	0.63	249	209	284
3.5C x 185/95	30/15	1.6/1.1	0.5	4 x 0.8	2.5	1.88	2.04	46.0	49.7	3175	4350	0.164	0.210	0.072	0.63	282	238	329
3.5C x 240/120	30/15	1.7/1.2	0.6	4 x 0.8	2.5	2.04	2.20	51.7	55.4	4000	5300	0.125	0.160	0.072	0.63	327	276	392
3.5C x 300/150	30/15	1.8/1.4	0.6	4 x 0.8	2.5	2.20	2.36	55.6	59.3	4750	6175	0.100	0.128	0.071	0.67	369	312	452
3.5C x 400/185	53/30	2.0/1.6	0.7	4 x 0.8	3.15	2.52	2.68	64.1	69.2	6000	8350	0.0778	0.100	0.070	0.67	420	356	526

3.5 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires (Main/Neutral)	Thickness of XLPE Insulation (nom) (Main/Neutral)	Min thickness of PVC Inner Sheath	Nom Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
											Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm	(mm)	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3.5C x 25/16	6/6	0.9/0.7	0.3	2.0	21.8	550	1.20	1.54	0.080	0.41	95	79	93
3.5C x 35/16	6/6	0.9/0.7	0.3	2.0	23.5	675	0.868	1.11	0.080	0.47	114	94	114
3.5C x 50/25	6/6	1.0/0.9	0.3	2.0	26.7	875	0.641	0.820	0.078	0.50	134	112	138
3.5C x 70/35	12/6	1.1/0.9	0.4	2.2	31.3	1150	0.443	0.567	0.077	0.53	164	137	175
3.5C x 95/50	15/6	1.1/1.0	0.4	2.2	34.9	1450	0.320	0.410	0.074	0.61	197	164	216
3.5C x 120/70	15/12	1.2/1.1	0.4	2.2	37.2	1800	0.253	0.324	0.072	0.63	223	187	249
3.5C x 150/70	15/12	1.4/1.1	0.5	2.4	42.2	2200	0.206	0.264	0.072	0.63	249	209	284
3.5C x 185/95	30/15	1.6/1.1	0.5	2.6	45.8	2700	0.164	0.210	0.072	0.63	282	238	329
3.5C x 240/120	30/15	1.7/1.2	0.6	2.8	51.6	3400	0.125	0.160	0.072	0.63	327	276	392
3.5C x 300/150	30/15	1.8/1.4	0.6	3.0	55.6	4150	0.100	0.128	0.071	0.67	369	312	452
3.5C x 400/185	53/30	2.0/1.6	0.7	3.4	64.3	5400	0.0778	0.100	0.070	0.67	420	356	526

3.5 CORE, COPPER CONDUCTOR, XLPE INSULATED, ARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires (Main/Neutral)	Thickness of XLPE Insulation (nom) (Main/Neutral)	Min thickness of PVC Inner Sheath	Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3.5C x 25/16	6/6	0.9/0.7	0.3	4 x 0.8	1.6	1.40	1.40	22.2	23.8	1300	1550	0.727	0.931	0.080	0.41	122	102	119
3.5C x 35/16	6/6	0.9/0.7	0.3	4 x 0.8	1.6	1.40	1.40	23.9	25.5	1625	1850	0.524	0.671	0.080	0.47	146	122	147
3.5C x 50/25	6/6	1.0/0.9	0.3	4 x 0.8	1.6	1.40	1.56	27.1	29.0	2150	2500	0.387	0.495	0.078	0.50	173	144	179
3.5C x 70/35	12/6	1.1/0.9	0.4	4 x 0.8	2.0	1.56	1.56	31.6	34.0	2900	3450	0.268	0.343	0.077	0.53	212	177	226
3.5C x 95/50	15/6	1.1/1.0	0.4	4 x 0.8	2.0	1.56	1.56	35.2	37.6	3800	4350	0.193	0.247	0.074	0.61	254	212	279
3.5C x 120/70	18/12	1.2/1.1	0.4	4 x 0.8	2.0	1.72	1.72	37.8	40.2	4750	5400	0.153	0.196	0.072	0.63	287	240	320
3.5C x 150/70	18/12	1.4/1.1	0.5	4 x 0.8	2.0	1.72	1.88	42.4	45.2	5650	6400	0.124	0.159	0.072	0.63	321	269	365
3.5C x 185/95	30/15	1.6/1.1	0.5	4 x 0.8	2.5	1.88	2.04	46.0	49.7	6975	8200	0.0991	0.127	0.072	0.63	362	304	422
3.5C x 240/120	34/18	1.7/1.2	0.6	4 x 0.8	2.5	2.04	2.20	51.7	55.4	8800	10100	0.0754	0.097	0.072	0.63	418	352	500
3.5C x 300/150	34/18	1.8/1.4	0.6	4 x 0.8	2.5	2.20	2.36	55.6	59.3	10800	12350	0.0601	0.077	0.071	0.67	469	396	574
3.5C x 400/185	53/30	2.0/1.6	0.7	4 x 0.8	3.15	2.52	2.68	64.1	69.2	14050	16450	0.0470	0.060	0.070	0.67	528	447	662

3.5 CORE, COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires (Main/Neutral)	Thickness of XLPE Insulation (nom) (Main/Neutral)	Min thickness of PVC Inner Sheath	Nom Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
											Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
3.5C x 25/16	6/6	0.9/0.7	0.3	2.0	21.8	1050	0.727	0.931	0.080	0.41	122	102	119
3.5C x 35/16	6/6	0.9/0.7	0.3	2.0	23.5	1350	0.524	0.671	0.080	0.47	146	122	147
3.5C x 50/25	6/6	1.0/0.9	0.3	2.0	26.7	1850	0.387	0.495	0.078	0.50	173	144	179
3.5C x 70/35	12/6	1.1/0.9	0.4	2.2	31.3	2550	0.268	0.343	0.077	0.53	212	177	226
3.5C x 95/50	15/6	1.1/1.0	0.4	2.2	34.9	3550	0.193	0.247	0.074	0.61	254	212	279
3.5C x 120/70	18/12	1.2/1.1	0.4	2.2	37.2	4250	0.153	0.196	0.072	0.63	287	240	320
3.5C x 150/70	18/12	1.4/1.1	0.5	2.4	42.2	5150	0.124	0.159	0.072	0.63	321	269	365
3.5C x 185/95	30/15	1.6/1.1	0.5	2.6	45.8	6400	0.0991	0.127	0.072	0.63	362	304	422
3.5C x 240/120	34/18	1.7/1.2	0.6	2.8	51.6	8150	0.0754	0.097	0.072	0.63	418	352	500
3.5C x 300/150	34/18	1.8/1.4	0.6	3.0	55.6	10100	0.0601	0.077	0.071	0.67	469	396	574
3.5C x 400/185	53/30	2.0/1.6	0.7	3.4	64.3	13250	0.0470	0.060	0.070	0.67	528	447	662

4 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
4C x 4	3	0.7	0.3	---	1.4	---	1.24	---	17.3	---	500	7.41	9.48	0.0927	0.22	35	30	32
4C x 6	1	0.7	0.3	---	1.4	---	1.24	---	17.7	---	550	4.61	5.90	0.0884	0.25	46	38	42
4C x 6	3	0.7	0.3	---	1.4	---	1.24	---	18.5	---	550	4.61	5.90	0.0884	0.25	46	38	42
4C x 10	1	0.7	0.3	---	1.4	---	1.40	---	20.1	---	725	3.08	3.94	0.0837	0.31	57	48	54
4C x 10	7	0.7	0.3	---	1.4	---	1.40	---	21.4	---	725	3.08	3.94	0.0837	0.31	57	48	54
4C x 16	6	0.7	0.3	4 x 0.8	1.6	1.4	1.40	21.2	22.8	675	850	1.91	2.44	0.0808	0.36	74	61	69
4C x 25	6	0.9	0.3	4 x 0.8	1.6	1.4	1.40	22.2	23.8	825	1050	1.20	1.54	0.080	0.41	95	79	93
4C x 35	6	0.9	0.3	4 x 0.8	1.6	1.4	1.40	24.4	26.0	1000	1300	0.868	1.11	0.080	0.47	114	94	114
4C x 50	6	1.0	0.3	4 x 0.8	1.6	1.56	1.56	27.9	29.5	1300	1550	0.641	0.820	0.078	0.50	134	112	138
4C x 70	12	1.1	0.4	4 x 0.8	2.0	1.56	1.56	31.7	34.1	1650	2200	0.443	0.567	0.077	0.53	164	137	175
4C x 95	15	1.1	0.4	4 x 0.8	2.0	1.56	1.72	35.2	37.9	2000	2650	0.320	0.410	0.074	0.61	197	164	216
4C x 120	15	1.2	0.5	4 x 0.8	2.0	1.72	1.88	39.1	41.9	2450	3200	0.253	0.324	0.072	0.63	223	187	249
4C x 150	15	1.4	0.5	4 x 0.8	2.5	1.88	2.04	42.6	46.3	2900	4100	0.206	0.264	0.072	0.63	249	209	284
4C x 185	30	1.6	0.5	4 x 0.8	2.5	2.04	2.20	47.8	51.5	3600	4800	0.164	0.210	0.072	0.63	282	238	329
4C x 240	30	1.7	0.6	4 x 0.8	2.5	2.20	2.36	53.8	57.5	4500	5900	0.125	0.160	0.072	0.63	327	276	392
4C x 300	30	1.8	0.7	4 x 0.8	3.15	2.36	2.52	59.5	64.5	5400	7600	0.100	0.128	0.071	0.67	369	312	452
4C x 400	53	2.0	0.7	4 x 0.8	3.15	2.68	2.84	67.1	72.1	6800	9200	0.0778	0.100	0.070	0.67	420	356	526

4 CORE, ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nom Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
											Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm	(mm)	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
4C x 4	1	0.7	0.3	1.8	14.7	225	7.41	9.48	0.0927	0.22	35	30	32
4C x 4	3	0.7	0.3	1.8	15.5	225	7.41	9.48	0.0927	0.22	35	30	32
4C x 6	1	0.7	0.3	1.8	15.9	260	4.61	5.90	0.0884	0.25	46	38	42
4C x 6	3	0.7	0.3	1.8	16.7	260	4.61	5.90	0.0884	0.25	46	38	42
4C x 10	1	0.7	0.3	1.8	17.9	350	3.08	3.94	0.0837	0.31	57	48	54
4C x 10	7	0.7	0.3	1.8	19.2	350	3.08	3.94	0.0837	0.31	57	48	54
4C x 16	6	0.7	0.3	1.8	20.4	425	1.91	2.44	0.0808	0.36	74	61	69
4C x 25	6	0.9	0.3	2.0	21.8	600	1.20	1.54	0.080	0.41	95	79	93
4C x 35	6	0.9	0.3	2.0	24.0	750	0.868	1.11	0.080	0.47	114	94	114
4C x 50	6	1.0	0.3	2.0	27.2	975	0.641	0.820	0.078	0.50	134	112	138
4C x 70	12	1.1	0.4	2.2	31.8	1300	0.443	0.567	0.077	0.53	164	137	175
4C x 95	15	1.1	0.4	2.2	34.9	1600	0.320	0.410	0.074	0.61	197	164	216
4C x 120	15	1.2	0.5	2.4	38.9	2050	0.253	0.324	0.072	0.63	223	187	249
4C x 150	15	1.4	0.5	2.6	42.4	2500	0.206	0.264	0.072	0.63	249	209	284
4C x 185	30	1.6	0.5	2.8	47.7	3050	0.164	0.210	0.072	0.63	282	238	329
4C x 240	30	1.7	0.6	3.0	53.8	3850	0.125	0.160	0.072	0.63	327	276	392
4C x 300	30	1.8	0.7	3.2	59.6	4800	0.100	0.128	0.071	0.67	369	312	452
4C x 400	53	2.0	0.7	3.6	67.3	6175	0.0778	0.100	0.07	0.67	420	356	526

4 CORE, COPPER CONDUCTOR, XLPE INSULATED, ARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nominal Dimension of Armour		Min Thickness of PVC Outer sheath		Approx Overall diameter of Cable with ± 2 mm tolerance		Approx weight of cable		Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
				Strip	Wire	Strip	Wire	Strip	Wire	Strip	Wire					Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm x mm	mm	mm	mm	mm	mm	(Kg/Km)	(Kg/Km)	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
4C x 4	1	0.7	0.3	---	1.4	---	1.24	---	16.5	---	600	4.61	5.90	0.0927	0.22	45	38	41
4C x 4	7	0.7	0.3	---	1.4	---	1.24	---	17.3	---	600	4.61	5.90	0.0927	0.22	45	38	41
4C x 6	1	0.7	0.3	---	1.4	---	1.24	---	17.7	---	700	3.08	3.94	0.0884	0.25	56	47	52
4C x 6	7	0.7	0.3	---	1.4	---	1.24	---	18.5	---	700	3.08	3.94	0.0884	0.25	56	47	52
4C x 10	7	0.7	0.3	---	1.4	---	1.40	---	21.4	---	950	1.83	2.34	0.0837	0.31	74	62	70
4C x 16	6	0.7	0.3	4 x 0.8	1.6	1.40	1.40	21.2	22.8	1050	1200	1.15	1.47	0.0808	0.36	95	79	89
4C x 25	6	0.9	0.3	4 x 0.8	1.6	1.40	1.40	22.2	23.8	1450	1650	0.727	0.931	0.080	0.41	122	102	119
4C x 35	6	0.9	0.3	4 x 0.8	1.6	1.40	1.40	24.4	26.0	1850	2100	0.524	0.671	0.080	0.47	146	122	147
4C x 50	6	1.0	0.3	4 x 0.8	1.6	1.56	1.56	27.9	29.5	2475	2750	0.387	0.495	0.078	0.50	173	144	179
4C x 70	12	1.1	0.4	4 x 0.8	2.0	1.56	1.56	31.7	34.1	3300	3850	0.268	0.343	0.077	0.53	212	177	226
4C x 95	15	1.1	0.4	4 x 0.8	2.0	1.56	1.72	35.2	37.9	4200	4850	0.193	0.247	0.074	0.61	254	212	279
4C x 120	18	1.2	0.5	4 x 0.8	2.0	1.72	1.88	39.1	41.9	5250	6000	0.153	0.196	0.072	0.63	287	240	320
4C x 150	18	1.4	0.5	4 x 0.8	2.5	1.88	2.04	42.6	46.3	6450	7650	0.124	0.159	0.072	0.63	321	269	365
4C x 185	30	1.6	0.5	4 x 0.8	2.5	2.04	2.20	47.8	51.5	7850	9200	0.0991	0.127	0.072	0.63	362	304	422
4C x 240	34	1.7	0.6	4 x 0.8	2.5	2.20	2.36	53.8	57.5	10000	11400	0.0754	0.097	0.072	0.63	418	352	500
4C x 300	34	1.8	0.7	4 x 0.8	3.15	2.36	2.52	59.5	64.5	12350	14500	0.0601	0.077	0.071	0.67	469	396	574
4C x 400	53	1.9	0.7	4 x 0.8	3.15	2.68	2.84	67.1	72.1	16000	18500	0.0470	0.060	0.070	0.67	528	447	662

4 CORE, COPPER CONDUCTOR, XLPE INSULATED, UNARMOURED POWER CABLES

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Min No of wires	Thickness of XLPE Insulation (nom)	Min thickness of PVC Inner Sheath	Nom Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Max D.C Resistance of Conductor at 20°C	Approx A.C Resistance of Conductor at 90°C	Approx Reactance at 50 Hz	Approx Capacitance at 50 Hz	CURRENT RATINGS		
											Buried Direct in the Ground @ 30°C	In Single way buried Duct @ 30°C	In Air @ 40°C
Sq.mm	No's	mm	mm	mm	(mm)	Kg/Km	Ohm/Km	Ohm/Km	Ohm/Km	uF/Km	Amps	Amps	Amps
4C x 4	1	0.7	0.3	1.8	14.8	300	4.61	5.90	0.0927	0.22	45	38	41
4C x 4	7	0.7	0.3	1.8	15.5	300	4.61	5.90	0.0927	0.22	45	38	41
4C x 6	1	0.7	0.3	1.8	16.0	400	3.08	3.94	0.0884	0.25	56	47	52
4C x 6	7	0.7	0.3	1.8	16.7	400	3.08	3.94	0.0884	0.25	56	47	52
4C x 10	7	0.7	0.3	1.8	19.6	575	1.83	2.34	0.0837	0.31	74	62	70
4C x 16	6	0.7	0.3	1.8	21.0	775	1.15	1.47	0.0808	0.36	95	79	89
4C x 25	6	0.9	0.3	2.0	22.4	1150	0.727	0.93	0.080	0.41	122	102	119
4C x 35	6	0.9	0.3	2.0	24.6	1550	0.524	0.67	0.080	0.47	146	122	147
4C x 50	6	1.0	0.3	2.0	27.8	2100	0.387	0.495	0.078	0.50	173	144	179
4C x 70	12	1.1	0.4	2.2	32.0	2900	0.268	0.343	0.077	0.53	212	177	226
4C x 95	15	1.1	0.4	2.2	35.5	3800	0.193	0.247	0.074	0.61	254	212	279
4C x 120	18	1.2	0.5	2.4	39.5	4775	0.153	0.196	0.072	0.63	287	240	320
4C x 150	18	1.4	0.5	2.6	43.0	5900	0.124	0.159	0.072	0.63	321	269	365
4C x 185	30	1.6	0.5	2.8	48.3	7250	0.0991	0.127	0.072	0.63	362	304	422
4C x 240	34	1.7	0.6	3.0	54.6	9300	0.0754	0.097	0.072	0.63	418	352	500
4C x 300	34	1.8	0.7	3.2	60.6	11600	0.0601	0.077	0.071	0.67	469	396	574
4C x 400	53	2.0	0.7	3.6	68.3	15250	0.0470	0.060	0.070	0.67	528	447	662

PVC INSULATED, ARMOURED CONTROL CABLES AS PER IS: 1554 (P-1)

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Thickness of PVC Insulation (nom)	Min thickness of PVC Inner Sheath	STRIP ARMOURED CABLE				WIRE ARMOURED CABLE				Standard Delivery/ DrumLength	Current Rating	
			Nominal size of strip	Min Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Nominal diameter of wire	Min Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable		Buried Direct in the Ground @ 30°C	In Air/Duct @ 40°C
Sq.mm	mm	mm	mm x mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	meters	Amps	Amps
2C x 1.5	0.8	0.3	---	---	---	---	1.4	1.24	14.0	375	1000	23	20
3C x 1.5	0.8	0.3	---	---	---	---	1.4	1.24	14.5	400	1000	21	17
4C x 1.5	0.8	0.3	---	---	---	---	1.4	1.24	15.4	450	1000	21	17
5C x 1.5	0.8	0.3	---	---	---	---	1.4	1.24	16.3	500	1000	16	14
6C x 1.5	0.8	0.3	---	---	---	---	1.4	1.24	17.3	550	1000	15	13
7C x 1.5	0.8	0.3	---	---	---	---	1.4	1.24	17.3	575	1000	14	13
10C x 1.5	0.8	0.3	---	---	---	---	1.4	1.4	20.0	750	1000	13	11
12C x 1.5	0.8	0.3	4 x 0.8	1.24	19.4	675	1.6	1.4	21.4	900	1000	12	10
14C x 1.5	0.8	0.3	4 x 0.8	1.4	21.2	775	1.6	1.4	22.8	975	1000	11	10
16C x 1.5	0.8	0.3	4 x 0.8	1.4	22.1	850	1.6	1.4	23.7	1050	1000	11	9
19C x 1.5	0.8	0.3	4 x 0.8	1.4	23.1	925	1.6	1.4	24.7	1150	1000	10	9
24C x 1.5	0.8	0.3	4 x 0.8	1.4	26.4	1150	1.6	1.4	28.0	1375	1000	9	8
27C x 1.5	0.8	0.3	4 x 0.8	1.4	26.9	1200	1.6	1.4	28.5	1450	1000	9	8
30C x 1.5	0.8	0.3	4 x 0.8	1.4	27.8	1300	1.6	1.4	29.4	1550	1000	9	7
37C x 1.5	0.8	0.3	4 x 0.8	1.4	29.7	1500	1.6	1.4	31.3	1750	1000	8	7
2C x 2.5	0.9	0.3	---	---	---	---	1.4	1.24	15.2	425	1000	32	27
3C x 2.5	0.9	0.3	---	---	---	---	1.4	1.24	15.8	500	1000	27	24
4C x 2.5	0.9	0.3	---	---	---	---	1.4	1.24	16.8	550	1000	27	24
5C x 2.5	0.9	0.3	---	---	---	---	1.4	1.24	17.9	625	1000	23	19
6C x 2.5	0.9	0.3	---	---	---	---	1.4	1.24	19.1	700	1000	21	18
7C x 2.5	0.9	0.3	---	---	---	---	1.4	1.24	19.1	725	1000	20	17
10C x 2.5	0.9	0.3	4 x 0.8	1.4	21.0	850	1.6	1.4	22.6	975	1000	18	15
12C x 2.5	0.9	0.3	4 x 0.8	1.4	22.2	900	1.6	1.4	23.8	1100	1000	17	14
14C x 2.5	0.9	0.3	4 x 0.8	1.4	23.8	1000	1.6	1.4	25.4	1225	1000	16	13
16C x 2.5	0.9	0.3	4 x 0.8	1.4	24.9	1100	1.6	1.4	26.5	1325	1000	15	13
19C x 2.5	0.9	0.3	4 x 0.8	1.4	26.10	1250	1.6	1.4	27.7	1500	1000	14	12
24C x 2.5	0.9	0.3	4 x 0.8	1.4	30.0	1500	1.6	1.56	32.0	1800	1000	13	11
27C x 2.5	0.9	0.3	4 x 0.8	1.4	30.6	1625	1.6	1.56	32.6	1950	1000	12	10
30C x 2.5	0.9	0.3	4 x 0.8	1.56	32.0	1775	1.6	1.56	33.6	2050	1000	12	10
37C x 2.5	0.9	0.4	4 x 0.8	1.56	34.5	2050	2.0	1.56	36.9	2600	1000	11	9

Construction

1. Solid/Stranded annealed copper conductor & Tinned/Bare
2. General Purpose PVC-A/HR PVC-C Insulation
3. Cores laid up (filled if needed)
4. FR/FRLS/HR/General Purpose PVC ST-1 or 2 inner sheath
5. Armouring round Galvanized steel wires/strips
6. FR/FRLS/HR/General Purpose PVC ST-1 or 2 outer sheath

Max. Conductor D.C. Resistance at 20^{0}C - Conductor Size :

1.5 sq.mm - 12.1 Ohm/Km (bare), 12.2 Ohm/Km (tinned)
2.5 sq.mm - 7.41 Ohm/Km (bare), 7.56 Ohm/Km (tinned)
* Dimensions specified are with stranded conductor

Approx Reactance at 50 Hz

1.5 sq.mm - 0.126 Ohm/Km, 2.5 sq.mm - 0.119 Ohm/Km

Approx Capacitance at 50 Hz

1.5 sq.mm - 0.14 uF/Km, 2.5 sq.mm - 0.15 uF/Km

PVC INSULATED, UNARMOURED CONTROL CABLES AS PER IS: 1554 (P-1)

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Thickness of PVC Insulation (nom)	Min thickness of PVC Inner Sheath	Nom. Thickness of PVC Outer Sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Standard Delivery/ Drum length	Current Rating	
							Buried Direct in the Ground @ 30°C	In Air/Duct @ 40°C
Sq.mm	mm	mm	mm	mm	Kg/Km	meters	Amps	Amps
2C x 1.5	0.8	0.3	1.8	12.2	150	1000	23	20
3C x 1.5	0.8	0.3	1.8	12.7	175	1000	21	17
4C x 1.5	0.8	0.3	1.8	13.6	200	1000	21	17
5C x 1.5	0.8	0.3	1.8	14.5	250	1000	16	14
6C x 1.5	0.8	0.3	1.8	15.5	275	1000	15	13
7C x 1.5	0.8	0.3	1.8	15.5	300	1000	14	13
10C x 1.5	0.8	0.3	1.8	17.8	400	1000	13	11
12C x 1.5	0.8	0.3	1.8	18.8	450	1000	12	10
14C x 1.5	0.8	0.3	1.8	20.2	500	1000	11	10
16C x 1.5	0.8	0.3	1.8	21.1	560	1000	11	9
19C x 1.5	0.8	0.3	2.0	22.5	660	1000	10	9
24C x 1.5	0.8	0.3	2.0	25.8	800	1000	9	8
27C x 1.5	0.8	0.3	2.0	26.3	875	1000	9	8
30C x 1.5	0.8	0.3	2.0	27.2	950	1000	9	7
37C x 1.5	0.8	0.3	2.0	29.1	1125	1000	8	7
2C x 2.5	0.9	0.3	1.8	13.4	200	1000	32	27
3C x 2.5	0.9	0.3	1.8	14.0	225	1000	27	24
4C x 2.5	0.9	0.3	1.8	15.0	275	1000	27	24
5C x 2.5	0.9	0.3	1.8	16.1	325	1000	23	19
6C x 2.5	0.9	0.3	1.8	17.3	375	1000	21	18
7C x 2.5	0.9	0.3	1.8	17.3	400	1000	20	17
10C x 2.5	0.9	0.3	1.8	20.0	550	1000	18	15
12C x 2.5	0.9	0.3	2.0	21.6	650	1000	17	14
14C x 2.5	0.9	0.3	2.0	23.2	725	1000	16	13
16C x 2.5	0.9	0.3	2.0	24.3	800	1000	15	13
19C x 2.5	0.9	0.3	2.0	25.5	900	1000	14	12
24C x 2.5	0.9	0.3	2.0	29.4	1125	1000	13	11
27C x 2.5	0.9	0.3	2.0	30.0	1225	1000	12	10
30C x 2.5	0.9	0.3	2.0	31.0	1350	1000	12	10
37C x 2.5	0.9	0.4	2.2	33.9	1600	1000	11	9

Construction

1. Solid/Stranded annealed copper conductor & Tinned/Bare
2. General Purpose PVC-A/HR PVC-C Insulation
3. Cores laid up (filled if needed)
4. FR/FRLS/HR/General Purpose PVC ST-1 or 2 inner sheath
5. FR/FRLS/HR/General Purpose PVC ST-1 or 2outer sheath

Max. Conductor D.C Resistance at 20^{0}C - Conductor Size :

1.5 sq.mm - 12.1 Ohm/Km (bare), 12.2 Ohm/Km (tinned)
2.5 sq.mm - 7.41 Ohm/Km (bare), 7.56 Ohm/Km (tinned)
* Dimensions specified are with stranded conductor.

Approx Reactance at 50 Hz

1.5 sq.mm - 0.126 Ohm/Km, 2.5 sq.mm - 0.119 Ohm/Km

Approx Capacitance at 50 Hz

1.5 sq.mm - 0.14 uF/Km, 2.5 sq.mm - 0.15 uF/Km

XLPE INSULATED, ARMOURED CONTROL CABLES AS PER IS: 7098 (P-1)

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Thickness of PVC Insulation (nom)	Min thickness of PVC Inner Sheath	STRIP ARMOURED CABLE				WIRE ARMOURED CABLE				Standard Delivery/ DrumLength	Current Rating	
			Nominal size of strip	Min Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Nominal diameter of wire	Min Thickness of PVC Outer sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable		Buried Direct in the Ground @ 30°C	In Air/Duct @ 40°C
Sq.mm	mm	mm	mm x mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	meters	Amps	Amps
2C x 1.5	0.7	0.3	---	---	---	---	1.4	1.24	13.6	350	1000	33	29
3C x 1.5	0.7	0.3	---	---	---	---	1.4	1.24	14.1	375	1000	25	22
4C x 1.5	0.7	0.3	---	---	---	---	1.4	1.24	14.9	425	1000	25	22
5C x 1.5	0.7	0.3	---	---	---	---	1.4	1.24	15.8	475	1000	24	21
6C x 1.5	0.7	0.3	---	---	---	---	1.4	1.24	16.7	525	1000	22	19
7C x 1.5	0.7	0.3	---	---	---	---	1.4	1.24	16.7	550	1000	21	18
10C x 1.5	0.7	0.3	---	---	---	---	1.4	1.24	18.9	700	1000	18	16
12C x 1.5	0.7	0.3	---	---	---	---	1.4	1.24	19.8	750	1000	17	15
14C x 1.5	0.7	0.3	---	---	---	---	1.4	1.4	21.5	825	1000	16	14
16C x 1.5	0.7	0.3	4 x 0.8	1.4	21.2	750	1.6	1.4	22.8	950	1000	16	14
19C x 1.5	0.7	0.3	4 x 0.8	1.4	22.1	850	1.6	1.4	23.7	1025	1000	15	13
24C x 1.5	0.7	0.3	4 x 0.8	1.4	25.2	1000	1.6	1.4	26.8	1250	1000	13	12
27C x 1.5	0.7	0.3	4 x 0.8	1.4	25.7	1050	1.6	1.4	27.3	1300	1000	13	11
30C x 1.5	0.7	0.3	4 x 0.8	1.4	26.5	1150	1.6	1.4	28.1	1400	1000	12	11
37C x 1.5	0.7	0.3	4 x 0.8	1.4	28.3	1300	1.6	1.4	29.9	1550	1000	11	10
44C x 1.5	0.7	0.3	4 x 0.8	1.4	31.4	1500	1.6	1.56	33.4	1850	1000	11	9
52C x 1.5	0.7	0.3	4 x 0.8	1.56	33.1	1700	1.6	1.56	34.7	2000	1000	10	9
61C x 1.5	0.7	0.4	4 x 0.8	1.56	34.9	1950	2.0	1.56	37.3	2450	1000	9	8
2C x 2.5	0.7	0.3	---	---	---	---	1.4	1.24	14.4	400	1000	39	32
3C x 2.5	0.7	0.3	---	---	---	---	1.4	1.24	15.0	425	1000	34	30
4C x 2.5	0.7	0.3	---	---	---	---	1.4	1.24	15.9	500	1000	34	30
5C x 2.5	0.7	0.3	---	---	---	---	1.4	1.24	16.9	550	1000	31	28
6C x 2.5	0.7	0.3	---	---	---	---	1.4	1.24	17.9	600	1000	29	26
7C x 2.5	0.7	0.3	---	---	---	---	1.4	1.24	17.9	625	1000	27	25
10C x 2.5	0.7	0.3	4 x 0.8	1.24	19.6	725	1.6	1.4	21.2	925	1000	24	21
12C x 2.5	0.7	0.3	4 x 0.8	1.4	20.6	800	1.6	1.4	22.2	1000	1000	22	20
14C x 2.5	0.7	0.3	4 x 0.8	1.4	22.0	875	1.6	1.4	23.6	1050	1000	21	19
16C x 2.5	0.7	0.3	4 x 0.8	1.4	23.1	950	1.6	1.4	24.7	1150	1000	20	18
19C x 2.5	0.7	0.3	4 x 0.8	1.4	24.1	1050	1.6	1.4	25.7	1300	1000	19	17
24C x 2.5	0.7	0.3	4 x 0.8	1.4	27.6	1300	1.6	1.4	29.2	1550	1000	17	16
27C x 2.5	0.7	0.3	4 x 0.8	1.4	28.1	1375	1.6	1.4	29.7	1650	1000	16	16
30C x 2.5	0.7	0.3	4 x 0.8	1.4	29.0	1500	1.6	1.4	30.6	1750	1000	16	14
37C x 2.5	0.7	0.3	4 x 0.8	1.4	31.1	1700	1.6	1.56	33.1	2050	1000	15	13
44C x 2.5	0.7	0.4	4 x 0.8	1.56	35.4	2050	2.0	1.56	37.8	2600	1000	14	12
52C x 2.5	0.7	0.4	4 x 0.8	1.56	36.8	2300	2.0	1.56	39.2	2850	1000	13	12
61C x 2.5	0.7	0.4	4 x 0.8	1.56	38.9	2575	2.0	1.56	41.3	3200	1000	12	11

Construction

1. Solid/Stranded annealed copper conductor & Tinned/Bare
2. Cross Linked Polyethylene (XLPE) Insulation
3. Cores laid up (filled if needed)
4. FR/FRLS/HR PVC Type ST-2 inner sheath outer sheath
5. Armouring round Galvanized steel wires/strips
6. FR/FRLS/HR PVC Type ST-2

Max. Conductor D.C Resistance at 20^0C - Conductor Size :

1.5 sq.mm - 12.1 Ohm/Km (bare), 12.2 Ohm/Km (tinned) 2.5 sq.mm - 7.41 Ohm/Km (bare), 7.56 Ohm/Km (tinned) * Dimensions specified are with stranded conductor

Approx Reactance at 50 Hz 1.5 sq.mm - 0.107 Ohm/Km, 2.5 sq.mm - 0.0985 Ohm/Km

Approx Capacitance at 50 Hz 1.5 sq.mm - 0.15 uF/Km, 2.5 sq.mm - 0.18 uF/Km

XLPE INSULATED, UNARMOURED CONTROL CABLES AS PER IS: 7098 (P-1)

FOR WORKING VOLTAGES UP TO AND INCLUDING 1100 V

No of Cores & Cross sectional Area	Thickness of PVC Insulation (nom)	Min thickness of PVC Inner Sheath	Nom. Thickness of PVC Outer Sheath	Approx Overall diameter of Cable with ± 2 mm tolerance	Approx weight of cable	Standard Delivery/ Drum length	Current Rating	
							Buried Direct in the Ground @ 30°C	In Air/Duct @ 40°C
Sq.mm	mm	mm	mm	mm	Kg/Km	meters	Amps	Amps
2C x 1.5	0.7	0.3	1.8	11.8	140	1000	33	29
3C x 1.5	0.7	0.3	1.8	12.3	160	1000	25	22
4C x 1.5	0.7	0.3	1.8	13.1	200	1000	25	22
5C x 1.5	0.7	0.3	1.8	14.0	225	1000	24	21
6C x 1.5	0.7	0.3	1.8	14.9	250	1000	22	19
7C x 1.5	0.7	0.3	1.8	14.9	260	1000	21	18
10C x 1.5	0.7	0.3	1.8	17.1	340	1000	18	16
12C x 1.5	0.7	0.3	1.8	18.0	400	1000	17	15
14C x 1.5	0.7	0.3	1.8	19.3	430	1000	16	14
16C x 1.5	0.7	0.3	1.8	20.2	475	1000	16	14
19C x 1.5	0.7	0.3	1.8	21.1	540	1000	15	13
24C x 1.5	0.7	0.3	2.0	24.6	665	1000	13	12
27C x 1.5	0.7	0.3	2.0	25.1	750	1000	13	11
30C x 1.5	0.7	0.3	2.0	25.9	820	1000	12	11
37C x 1.5	0.7	0.3	2.0	27.7	975	1000	11	10
44C x 1.5	0.7	0.3	2.0	30.8	1100	1000	11	9
52C x 1.5	0.7	0.3	2.0	32.1	1275	1000	10	9
61C x 1.5	0.7	0.4	2.2	34.5	1500	1000	9	8
2C x 2.5	0.7	0.3	1.8	12.6	175	1000	39	32
3C x 2.5	0.7	0.3	1.8	13.2	200	1000	34	30
4C x 2.5	0.7	0.3	1.8	14.1	250	1000	34	30
5C x 2.5	0.7	0.3	1.8	15.1	275	1000	31	28
6C x 2.5	0.7	0.3	1.8	16.1	325	1000	29	26
7C x 2.5	0.7	0.3	1.8	16.1	350	1000	27	25
10C x 2.5	0.7	0.3	1.8	18.6	475	1000	24	21
12C x 2.5	0.7	0.3	1.8	19.6	525	1000	22	20
14C x 2.5	0.7	0.3	1.8	21.0	600	1000	21	19
16C x 2.5	0.7	0.3	2.0	22.5	675	1000	20	18
19C x 2.5	0.7	0.3	2.0	23.5	775	1000	19	17
24C x 2.5	0.7	0.3	2.0	27.0	950	1000	17	16
27C x 2.5	0.7	0.3	2.0	27.5	1025	1000	16	16
30C x 2.5	0.7	0.3	2.0	28.4	1125	1000	16	14
37C x 2.5	0.7	0.3	2.0	30.5	1300	1000	15	13
44C x 2.5	0.7	0.4	2.2	34.8	1600	1000	14	12
52C x 2.5	0.7	0.4	2.2	36.2	1825	1000	13	12
61C x 2.5	0.7	0.4	2.2	38.3	2050	1000	12	11

Construction

1. Solid/Stranded annealed copper conductor & Tinned/Bare
2. Cross Linked Polyethylene (XLPE) Insulation
3. Cores laid up (filled if needed)
4. FR/FRLS/HR PVC Type ST-2 inner sheath
5. FR/FRLS/HR PVC Type ST-2 outer sheath

Max. Conductor D.C Resistance at 20^0C - Conductor Size :

1.5 sq.mm - 12.1 Ohm/Km (bare), 12.2 Ohm/Km (tinned) 2.5 sq.mm - 7.41 Ohm/Km (bare), 7.56 Ohm/Km (tinned) * Dimensions specified are with stranded conductor **Approx Reactance at 50 Hz**

1.5 sq.mm - 0.107 Ohm/Km, 2.5 sq.mm - 0.0985 Ohm/Km

Approx Capacitance at 50 Hz

1.5 sq.mm - 0.15 uF/Km, 2.5 sq.mm - 0.18 uF/Km

Instrumentation Cables

KEI Industries Limited manufactures a wide variety of cables suitable for process instrumentation. In the projects related to power generation & distribution, chemical & fertilizer industries and various other types of engineering industries, the process instrumentation plays a vital role in measurement, supervision and control of the process. Introduction of microprocessor based/computerised instrumentation has demanded stringent quality requirements alongwith special electrical parameters for instrumentation cables. Very low level electrical signals pass between measuring end and display units/controllers which are situated far off. These low level signals are prone to external noise pickups and heavy silenuation during transmission.

All this means that the cables to be used for instrumentation should be designed and manufactured very carefully. KEI, with its meticulous efforts in maintaining quality, stringent in process control during manufacture and the knowledge of cable designing, is proud to say that it is capable of supplying instrumentation cables meeting any Indian/ International standard or a specific requirement desired by project authority. The efforts done by KEI are regarded by acceptance of our quality by the country's prime organisations such as NTPC, PDIL, EIL, BHEL, TATA's, IOCL, L&T, ABB, KRUPP Ind, BPCL, HPCL, ESSAR, SIEMENS, Electricity Boards, Reliance, IOTL, Mukand, Honeywell, etc.

Range of Instrumentation Cables :-

Conductor : 0.4 mm dia (0.126 sq.mm) to 2.5 sq.mm. or higher sizes of electrolytic copper wire, Tinned/untinned, solid/ stranded copper conductors.

Insulation : 70^0 C/85^0 C. Grade PVC, Polyethylene, Halogen Free FRLS Polymeric Compounds.

Elements : Pairs/Triples/Quads, colour coded/number printed ring marked/dual colour extruded.

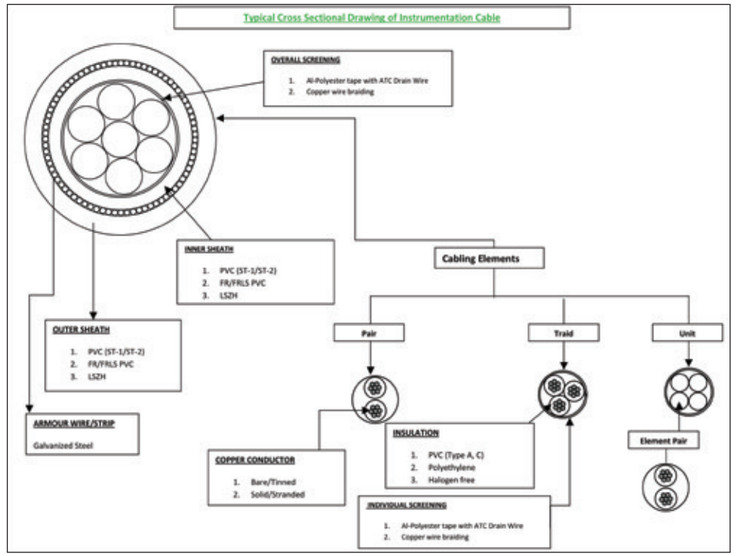
Shields : Aluminimum Polyester tape screen with Copper drain wire or alternately with with Copper wire braiding. Individual element or overall shielding as specified.

Element laying : Concentric formation or unit & group formation as per applicable specification.

Amounting : Galvanised steel wire/strip amount.

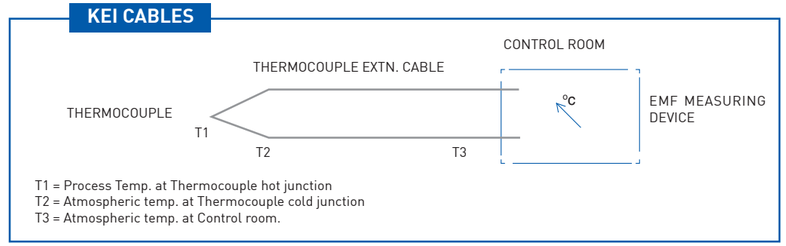
Sheathing : PVC 70^0 C/90^0 C grade, PVC FRLS, ZHFR, CSP, PCP, EVA, etc.

Specification : BS:5308 (1 & 2), iec-189 (1 & 2), VDE 0815, ENI 0181.00 and customers specifications.



Thermocouple Extension/Compensating Cables

These cables can also be termed as instrumentation cables, since they are used for process temperature measurement. The construction is similar to paired instrumentation cable but the conductor material is different. Thermocouples are used in processes to sense temperature and is connected to the pyrometers for indication and control. The thermocouple and pyrometers are electrically conducted by thermocouple extension/compensating cables. The conductors used for these cables are required to have similar thermo-electric (emf) properties as that of the thermocouple used for sensing the temperature. The cables are manufactured as per IS:8784, ANSI-MC 96. 1, B.S., ENI, DIN and customers specification.



Range of Thermocouple Extension/Compensation cables :-

Extension Cables	Conductor Material	
	Positive	Negative
KX (NiCr/Nia)	Chromel	Alumel
JX (Fe/CuNi)	Iron	Constantan
EX (NiCr/CuNi)	Chromel	Constantan
TX (Cu/CuNi)	Copper	Constantan
Compensating Cables		
KX (A)/VX (NiCr/NiAl)	Copper	Constantan
SX/RX (PtRh-Pt)	Copper	Constantan

COLOUR CODES as per various standard specifications

STANDARDS REFERRED									
ANSI MC-96.1 ENI - 163.00				IS : 8784			B. S.		
	+ve	-ve	overall	+ve	-ve	overall	+ve	-ve	overall
EXTENSION CABLES									
KX	Yellow	Red	Yellow	Red	Green	Green	Brown	Blue	Red
JX	White	Red	Black	Red	Blue	Blue	Yellow	Blue	Black
TX	Blue	Red	Blue	Red	Black	Black	White	Blue	Blue
EX	Purple	Red	Purple	Red	Violet	Violet	Brown	Blue	Brown
COMPENSATING CABLES									
KX(A)/VX	—	—	—	Red	Green	Green	White	Blue	Red
SX/RX	Black	Red	Green	Red	White	White	White	Blue	Green

KEI FRLS And Halogen Free Cables

Test	Function	Specification	Typical Values of FRLS Compound	Typical Values of Halogen Free Compound	Typical Values of Ordinary PVC Compound
Critical Oxygen Index	To Determine Percentage of Oxygen Required for Supporting Combustion of Insulating Material at room temprature.	ASTM-D-2863	More than 29	More than 29	23
Temprature Index	To Determine at What Temprature Normal Oxygen Content of 21% in Air will Support Combustion of Insulating Material	ASTM-D-2863 & BICC Handbook Chapter No.6	More than 250 Deg.C	More than 250 Deg.C	150 Deg.C
SMOKE DENSITY RATING	To Determine the visibility (Light Transmission) under Fire of Insulating Material	ASTM-D-2843	More than 40%	More than 80%	10-15%
	Smoke Density Rating	ASTM-D-2843	Mox 60%	Max 20%	85-90%
Acid Gas	To acertian the amount of Hydrocloric Acid Gas	IEC-754-I	Less than 20%	Less than 0.5%	45-50%
Generation	Evolved from Insulation of Cable Under Fire.				

Following additional test is offered on these cables:

1) FLAMMABILITY TEST
   - A) IEEE 383
   - B) IEC 332(PART-I)
   - C) IEC 332 (PART-III)
2) SWEDISH CHIMNEY TEST
   - A) SS 4241475 (F3)

Single Core PVC/ HR PVC / FRLS / ZHFR Insulated Copper Conductor (Unsheathed) House Wires in Voltage Grade upto & including 1100 Volts as per IS 694.

Basic Code	Nominal Cross Section Area of Conductor	Number / Nom. Dia of wires* (Nom.)	Thickness of Insulation (Nom.)	Overall diameter Max.	Current Carrying Capacity in (Amps)				Resistance (Max) at 20°C.
	Sq. Mm	Number / mm	mm	mm	PVC	HR PVC	FRLS	ZHFR	Ohm / Km
KSF - 2420	0.75	24 / 0.20	0.60	2.8	7	8	7	8	26.00
KSF - 1430	1.00	14 / 0.30	0.70	3.2	11	13	11	13	18.10
KSF - 2230	1.50	22 / 0.30	0.70	3.4	13	16	13	16	12.10
KSF - 3630	2.50	36 / 0.30	0.80	4.2	18	20	18	20	7.41
KSF - 5630	4.00	56 / 0.30	0.80	4.8	24	26	24	26	4.95
KSF - 8430	6.00	84 / 0.30	0.80	5.6	31	36	31	36	3.30

Comparitive Properties of House Wires

Feature	Normal PVC Wire	Heat Resistant HR PVC	Fire Retardant FR - PVC	Flame Retardant Low Smoke FRLS	Zero Halogen Low Smoke
Insulation Material	PVC	PVC	Spl. PVC	Spl. PVC	Spl. Polymer
Insulation Property	Normal	Good	Good	Good	Very Good
Temperature Rating	70°C	85°C	70°C	70°C	85°C
Thermal Stability	Normal	Very Good	Good	Good	Very Good
Flame Retardancy	Good	Good	Very Good	Very Good	Excellent
Safety During Burning	Average	Average	Good	Good	Excellent
Requirement of Oxygen to Catch Fire (% in air)	→21	→ 21	→ 30	→ 30	→ 35
Temperature Required to Catch Fire (with 21% oxygen)	Room Temp.	Room Temp.	→ 250°C	→ 250°C.	→ 300°C
Visibility during Cable Burning (%)	←20	← 20	← 35	→ 40	→ 80
Release of Halogen Gas during Burning (% by weight)	←20	← 20	← 20	← 20	ZERO
Abrasion Resistance during Installation	Good	Good	Good	Good	Good

Winding Wires / 3 Core Flat Cables For Submersible Pumps

HR PVC Insulated Winding Wires as per IS:8783 (Part 4/Sec I)

Basic Code	Conductor Diameter (Nom) mm	Thickness of Insulation (Min) mm	Overall Diameter (Approx.) mm	Conductor Resistance at 200°C (Max) Ohms/Km
KWS-0060	0.6	0.25	1.17	62.20
KWS-0070	0.7	0.30	1.37	45.70
KWS-0080	0.8	0.30	1.47	35.00
KWS-0090	0.9	0.30	1.57	27.60
KWS-0100	1.0	0.30	1.67	22.40
KWS-0110	1.1	0.30	1.77	18.50
KWS-0120	1.2	0.30	1.87	15.50
KWS-0130	1.3	0.30	1.97	13.20
KWS-0140	1.4	0.35	2.17	11.40
KWS-0150	1.5	0.35	2.27	9.95
KWS-0160	1.6	0.35	2.37	8.75
KWS-0170	1.7	0.35	2.47	7.75
KWS-0180	1.8	0.35	2.62	6.91
KWS-0190	1.9	0.35	2.72	6.20
KWS-0200	2.0	0.45	3.02	5.60
KWS-0210	2.1	0.45	3.12	5.08
KWS-0220	2.2	0.45	3.22	4.63
KWS-0230	2.3	0.45	3.32	4.23
KWS-0240	2.4	0.50	3.52	3.89
KWS-0250	2.5	0.50	3.62	3.58
KWS-0260	2.6	0.50	3.72	3.31
KWS-0270	2.7	0.50	3.82	3.07
KWS-0280	2.8	0.55	4.02	2.86
KWS-0290	2.9	0.55	4.12	2.66
KWS-0300	3.0	0.55	4.22	2.49

3 Core Flat Cables

Basic Code	Area (Nom.) sq.	Number/ size of Wire	Insulation Thickness (Nom.)	Sheath Thickness (Nom.)	Width 'W' (Approx)	Thickness 'T' (Approx)	Resistance at 20°C (Max.)	Current carrying capacity at 40°C
	mm	No./mm	mm	mm	mm	mm	ohm/Km	Amps
K3FL-2230	1.5	22/0.3	0.6	0.90	11.0	5.0	12.10	14
K3FL-3630	2.5	36/0.3	0.7	1.00	13.0	6.0	7.40	18
K3FL-5630	4.0	56/0.3	0.8	1.00	15.3	6.7	4.95	26
K3FL-8430	6.0	84/0.3	1.0	1.15	18.7	7.9	3.30	31
K3FL-14030	10.0	140/0.3	1.0	1.40	23.7	9.9	1.91	42
K3FL-22630	16.0	226/0.3	1.0	1.40	28.0	11.4	1.21	57
K3FL-35430	25.0	354/0.3	1.2	2.00	35.5	14.7	0.780	72
K3FL-49530	35.0	495/0.3	1.2	2.00	39.5	16.2	0.554	90
K3FL-70330	50.0	703/0.3	1.4	2.20	45.5	18.3	0.386	115
K3FL-36050	70.0	360/0.5	1.4	2.20	51.0	20.0	0.272	143
K3FL-47550	95.0	475/0.5	1.6	2.40	60.0	23.5	0.206	165

Rubber Cables

In keeping with the company's commitment to technological advancement, elastomer materials such as Polychloroprene (PCP), Chloro-Sulphoneted Polyethelene (CSP), Nitrile Rubber / PVC blends, Ethylene Propelene Rubber (EPR), Ethylene Vinyle Acetate (EVA) and Silicone have been specially compounded to meet numerous heat oil and fire resisting requirements. In the recent years KEI has also developed special Elastomeric Fire Survival Cables for power, control and instrumentation wiring.

Elastomeric compounds for insulating and sheathing of cables are formulated to meet the requirement of IS 6380, BS 6899, IEC 60502 and other international specification.

GENERAL CONSTRUCTION (Conforming to IS 9968 Part 1 & II)

Conductor – Annealed tinned Copper wires Solid (Class 1), Stranded (Class 2), flexible (Class 5) complying with the requirement of IS 8130

Seperator Tape – Suitable material seperator tape may be applied over the conductor

Insulation – General service elastomer compound Type IE1 of IS 6380
Heat Resisting elastomer compound Type IE2 of IS 6380
Silicone Rubber Type IE 5 of IS 6380

Core Identification – Coloured insulation, Nos. PE tape, Coloured proofed tape, Nos. printing

Fillers – Natural or synthetic fibres or elastomer suitable for the operating temperature and compatible with the insulating material

Sheath – General service sheath Type SE1/SE2 of IS 6380
Heavy Duty Sheath Type SE3/SE4 of IS 6380

Working Temperature of Commonly used Elastomeric Insulating and Sheathing Materials

Material	Max. Cond. Temp. for continuous opertation °C.	Max. Cond. Temp. for short circuit °C.	Min. Working Temp. °C.
Ethylene Propylene Rubber (EPR)	90	250	-50
Polychloroprene (PCP)	70	200	-40
Chlorosupphonated Polyethylene (CSP)	90	200	-35
Silicone Rubber	150/180	350	55
Chloropropylene Ethylene (CPE)	90	250	-30
Styrene Butaolence Rubber	60	200	-55
NBR PVC	90	250	-30

Rubber Cables

Current carrying capacities for Multicore Flexible Trailing cables Armoured / Unarmoured, insulated with EPR for all Voltage Grades

Nominal Cross-sectional Area Of conductor	Max. Resistance at 20°C for tinned flexible conductor(class 5)	Current Rating upto 10 kV E2(EPR)	Current Rating Above 10 kV EPR
mm²	ohms/km	(A)	(A)
2.5	8.21	32	-
4	5.09	43	-
6	3.39	56	-
10	1.95	78	-
16	1.24	104	110
25	0.795	138	146
35	0.595	171	181
50	0.393	213	226
70	0.277	263	279
95	0.21	317	336
120	0.164	370	391
150	0.132	425	450
185	0.108	485	514

Note:

1) This table covers current rating of flexible trailing cable armoured / unarmoured conforming to IS:9968 I & II, IS 14494, VDE 0250 , NCB & other equivalent international specifications for flexible cables.

2) The rating is given above are based on ambient temp.30°C for higher temp. please refer to the following table of correction factors.

Temp.°C	EPR
25	1.05
30	1.00
35	0.93
40	0.86
45	0.80
50	0.72
55	0.63
60	0.54
70	0.31

3) Rating factor for 'MONOSPIRAL' reeling drum winding duty is 0.85 .

4) For reeling-unreeling operation rating factors are as follows :

No. of Times	1	2	3	4
Derating Factors	0.76	0.58	0.47	0.40

*Current rating for higher sizes upon request.

Rubber Cables

Elaslomenc Cables Range	Application
Cables up to 11 kV	Machine Trailling. Mining, Power
Flexible Trailing Cables	Reeling unreeling, Trailing. Festooning. Mobile Machines Cranes, Coal Handling and Conveyors
Mining Cables	FT or Pliable Armoured or Landline type as per IS 14494, NCB. SABS specs tor UG, Open cast Coal or other mines and mining machines
Thermal Power Plants	For coal handling plants, flexible power and control application
Cables for Steel Plants	Flexible and high temp withstanding cables tor tumace. melting shops, material handling
Wind Energy	Flexible cables lor power and control lor Wind Mill generator connection
Fire Survival Cables	Fire Survival lor 3 Hrs or 20 Min
Ship Wiring	As per IEC specs and Naval specs DGS of DEFSTAN, NES
Offshore and Onshore	For platforms and Ring as per IEC. BS and NEK Specs
Shore Supply & Generator Cables	For charging of ship batteries and supply from mobile generators
Motor Coil Leads	Elaslomeric and Silicon as per IS. BS, or OEM Specs
High Temp Cables	Silicon insulated, glass fiber braided or unbraided
Pump Cables	For water, submersible and sewerage pumps
Cables for Railway	Coach wiring, Metro railway
Wire	HFFR Low toxic emission under fire
Panel Wiring	For flexible, high power high temp zone, polluted or moist atmospheres
Battery Cables	For High current and long life
Low Temperature installations	Suitable tor subzero temp installations and operations
Misc Applications	outdoor high mast lighting site power supply, while goods, oil or chemical resistant
Type	Power and Control cables up to 61 Crores Instrumentation Pairs 30 pairs, triads, quad Wires, flat cables
Voltage Grades	11 kV, 6.6 kV, 3.3 kV, 1.1 kV, 750 V, 250 V, 110 V, 60 V
Conductor Range	0.5 to 630 sq. mm
Polymers Processed Compounds	EPR, EPDM, PCP, CSP, CPE, SILICONE, EVA HALOGEN FREE AND FIRE RESISTANT NONTOXIC COMPOUNDS
Braiding Offered	ATC, Gl wire braid. Synthetics or Textile Yarn. Glass Fiber
Armouring	Pliable armour or Steel / Copper Wires / Stainless steel

Conductor Data

Conductor Technical data for Single Core and Multicore cables confirming to IS: 8130 (Stranded-Class-2) Aluminium Conductor or Annealed Copper conductor, compacted circular or shaped

Nominal Size of Conductor	Minimum no of wires					Max DC Resistance at 20°C				Approx. AC Resistance at 70°C				Approx. AC Resistance at 85°C				Approx. AC Resistance at 90°C			
	Non-compacted				Compacted																
	COPPER		ALUMINIUM		COPPER		ALUMINIUM		Plain Copper		Aluminium		Plain Copper		Aluminium		Plain Copper		Aluminium		
	No's		No's		No's		No's		PLAIN COPPER		ALUMINIUM		PLAIN COPPER		ALUMINIUM		PLAIN COPPER		ALUMINIUM	
No's									Ohm/Km		Ohm/Km		Ohm/Km		Ohm/Km		Ohm/Km		Ohm/Km	
1.0		3		-		-		-	18.1		-		21.7		-		22.8		-		23.2	
1.5		3		3		-		-	12.1		18.1		14.5		21.7		15.2		22.8		15.5	
2.5		3		3		-		-	7.41		12.1		8.89		14.5		9.34		15.2		9.48	
4		7		3		-		-	4.61		7.41		5.53		8.89		5.81		9.3		5.90	
6		7		3		-		-	3.08		4.61		3.70		5.53		3.88		5.8		3.94	
10		7		7		6		-	1.83		3.08		2.20		3.70		2.31		3.9		2.34	
16		7		7		6		6	1.15		1.91		1.38		2.29		1.45		2.41		1.47	
25		7		7		6		6	0.727		1.20		0.872		1.44		0.916		1.51		1.54	
35		7		7		6		6	0.524		0.868		0.629		1.04		0.660		1.09		1.11	
50		19		19		6		6	0.387		0.641		0.464		0.769		0.488		0.808		0.820	
70		19		19		12		12	0.268		0.443		0.322		0.532		0.338		0.558		0.567	
95		19		19		15		15	0.193		0.320		0.232		0.384		0.243		0.403		0.410	
120		37		37		18		15	0.153		0.253		0.184		0.304		0.193		0.319		0.324	
150		37		37		18		15	0.124		0.206		0.149		0.247		0.156		0.260		0.264	
185		37		37		30		30	0.0991		0.164		0.119		0.197		0.125		0.207		0.210	
240		61		37		34		30	0.0754		0.125		0.090		0.150		0.095		0.158		0.160	
300		61		61		34		30	0.0601		0.100		0.072		0.120		0.076		0.126		0.128	
400		61		61		53		53	0.0470		0.0778		0.056		0.093		0.059		0.098		0.100	
500		61		61		53		53	0.0366		0.0605		0.044		0.073		0.046		0.076		0.077	
630		91		91		53		53	0.0283		0.0469		0.034		0.056		0.036		0.059		0.060	
800		91		91		53		53	0.0221		0.0367		0.027		0.044		0.028		0.046		0.047	
1000		91		91		53		53	0.0176		0.0291		0.021		0.035		0.022		0.037		0.037	
1200		-		-		-		-	0.0151		0.0247		-		-		-		-		0.032	
1400		-		-		-		-	0.0129		0.0212		-		-		-		-		0.027	
1600		-		-		-		-	0.0113		0.0186		-		-		-		-		0.024	

* Shape of Conductor shall be Circular (from 1.0 sq mm upto 10 sq. mm)
* * Shape of Conductor shall be Circular/Sector (from 16 sq. mm upto 1000 sq. mm)
* * Shape of Conductor may be Circular/Milliken (from 1000 sq. mm and above)

SHORT CIRCUIT CURRENT RATINGS FOR XLPE/PVC CABLES

Short Circuit Rating for 1 second duration for XLPE & PVC Insulated Cables with Copper and Aluminium Conductor (Isc Current in kAmps)

Nominal Size of Conductor	XLPE Insulated (90°C)		PVC-A Insulated (70°C)		PVC-C Insulated (85°C)	
Sq.mm	COPPER	ALUMINIUM	COPPER	ALUMINIUM	COPPER	ALUMINIUM
1.0	0.143	-	0.115	-	0.104	-
1.5	0.215	-	0.173	-	0.156	-
2.5	0.358	-	0.288	-	0.260	-
4	0.572	0.376	0.46	0.304	0.416	0.276
6	0.86	0.564	0.69	0.456	0.624	0.414
10	1.43	0.94	1.15	0.760	1.04	0.690
16	2.29	1.50	1.84	1.22	1.66	1.10
25	3.58	2.35	2.88	1.90	2.60	1.73
35	5.01	3.29	4.03	2.66	3.64	2.42
50	7.15	4.70	5.75	3.80	5.20	3.45
70	10.0	6.58	8.05	5.32	7.28	4.83
95	13.6	8.93	10.9	7.22	9.88	6.56
120	17.2	11.3	13.8	9.12	12.5	8.28
150	21.5	14.1	17.3	11.4	15.6	10.4
185	26.5	17.4	21.3	14.1	19.2	12.8
240	34.3	22.6	27.6	18.2	25.0	16.6
300	42.9	28.2	34.5	22.8	31.2	20.7
400	57.2	37.6	46.0	30.4	41.6	27.6
500	71.5	47.0	57.5	38.0	52.0	34.5
630	90.1	59.2	72.5	47.9	65.5	43.5
800	114.4	75.2	92.0	60.8	83.2	55.2
1000	143.0	94.0	115.0	76.0	104.0	69.0

Rating for any other duration :

1) Max. Initial Conductor Temperature during operation : XLPE 90°C, PVC-A 70°C, PVC-C 85°C

1) Max. Final Conductor Temperature during short circuit : XLPE 250°C, PVC-A 160°C, PVC-C 160°C

Formula relating short Circuit Rating with t second duration

Where, A = Area of cross section
Isc = Short circuit rating for 1 second
t = duration in seconds.
k = a constant depends on Conductor & Insulation material
k = 0.094 for Al conductor & XLPE Insulation
k = 0.143 for Cu conductor & XLPE Insulation
k = 0.076 for Al conductor & PVC-A Insulation
k = 0.115 for Cu conductor & PVC-A Insulation
k = 0.069 for Al conductor & PVC-C Insulation
k = 0.104 for Cu conductor & PVC-C Insulation

Comparative Current Rating of 650/1100 Volts multicore heavy duty PVC Insulated Cable & XLPE Insulated Cables, 3, 3.5 & 4 cores Unarmoured/Armoured PVC Sheathed cables with Aluminium Conductor.

Nominal Size of Conductor	3, 3.5 & 4 Core PVC Insulated & Sheathed cables as per IS: 1554 (P-1)				3, 3.5 & 4 Core XLPE Insulated & Sheathed cables as per IS: 7098 (P-1)		
	In Ground	In Air	Approx Voltage Drop	Approx Voltage Drop	In Ground	In Air	Approx Voltage Drop
Sq.mm	Amps	Amps	V/Amps/Km	V/Amps/Km	Amps	Amps	V/Amps/Km
16	60	51	4.0	4.0	73	70	4.24
25	76	70	2.5	2.5	95	93	2.67
35	92	86	1.8	1.8	114	114	1.94
50	110	105	1.3	1.3	134	138	1.44
70	135	130	0.94	0.94	164	175	1.00
95	165	155	0.68	0.68	197	216	0.70
120	185	180	0.55	0.55	223	249	0.56
150	210	205	0.46	0.46	249	284	0.48
185	235	240	0.37	0.37	282	329	0.40
240	275	280	0.30	0.30	327	392	0.30
300	305	315	0.26	0.26	369	452	0.26
400	335	375	0.22	0.22	420	526	0.21

Comparative Current Rating Of 650/1100 Volts Multicore Heavy Duty PVC Insulated Cable & XLPE Insulated Cables, 3, 3.5 & 4 Cores Unarmoured/Armoured PVC Sheathed Cables with Aluminium Conductor

Nominal Size of cable	3, 3.5 & 4 Core PVC Insulated & Sheathed cables as per IS: 1554 (P-1)			3, 3.5 & 4 Core XLPE Insulated & Sheathed cables as per IS: 7098 (P-1)		
	In Ground	In Air	Approx Voltage Drop	Inground	In Air	Approx Voltage Drop
sq. mm	Amp	Amp	V/Amps/Km	Amp	Amp	V/Amps/Km
16	60	51	4.0	73	70	4.24
25	76	70	2.5	95	93	2.67
35	92	86	1.8	114	114	1.94
50	110	105	1.3	134	138	1.44
70	135	130	0.94	164	175	1.00
95	165	155	0.68	197	216	0.70
120	185	180	0.55	223	249	0.56
150	210	205	0.46	249	284	0.48
185	235	240	0.37	282	329	0.40
240	275	280	0.30	327	392	0.30
300	305	315	0.26	369	452	0.26
400	335	375	0.22	420	526	0.21

COMPARATIVE CHARACTERISTICS OF TYPICAL ELASTOMERIC AND THERMOPLASTIC INSULATING AND SHEATHING MATERIALS (I)

MATERIAL	NATURAL RUBBER BLENDED WITH SBR	EPR	CSP	PCP	NBR/PVC	SILICONE	EVA	CROSS LINKED PE.	POLY-ETHYLENE	POLY-PROPYLENE	NYLON	ETFE	FEP	PFA	POLYESTER RUBBER (HYTREL)	POLYIMIDE (KAPTON)	POLY-URETHENE
USED AS INSULATION	GENERAL PURPOSE	GENERAL PURPOSE HEAT RESISTING	HEAT, OIL & FLAME RESISTANT	SPECIAL CASES		HEAT RESISTING	HEAT RESISTING LOW SMOKE, LOW HALOGEN, FIRE RESISTANT (MFSL) OIL RESISTANT	LOW VOLTAGE UPTO 1.1 KV	GENERAL PURPOSE	GENERAL PURPOSE		HEAT RESISTING	HEAT RESISTING	HEAT RESISTING	HEAT RESISTING	HIGH TEMPERATURE CONTAMINATED ATMOSPHERE (VMI WALL APPLICATION	
USED AS SHEATH	GENERAL PURPOSE AND HEAVY DUTY	APPLICABLE AS INNER SHEATH	GENERAL PURPOSE & HEAVY DUTY, HEAT, OIL & FLAME RESISTANT	GENERAL PURPOSE & HEAVY DUTY, HEAT, OIL & FLAME RESISTANT	GENERAL PURPOSE & HEAVY DUTY, HEAT, OIL & FLAME RESISTANT	SPECIAL CASES	HEAT, LIMITED OIL RESISTANT				HARD THIN WALL						HIGH RESISTING HYDROLYTICALLY STABLE, EXCELLENT MECH PROPERTIES
CONDUCTOR TEMPERATURE (°C) MAX. CONTINUOUS OPERATION	60	90	90	90	90	150	110/120	90	70	70	105	150	200	260	120 (Intermittent 150)	200	90
CONDUCTOR TEMPERATURE (°C) MAX. SHORT CIRCUIT	200	250	250	250	250	350	250	250	160	160	150	300[1]	400[1]	450[1]	300[1]	450-550	220
MATERIAL LIMITING TEMPERATURE (°C) MIN. FLEXING DUTY	-55	-40	-30	-30	-20	-50	-45	-30	-60	-15	-40	-160	-160	-180	-45	-50	-25
MATERIAL LIMITING TEMPERATURE (°C) MIN. FOR INSTALLATION	-55	-50	-30	-45	-30	-55	-50	-40	-60	-20	-40	-150	-150	-170	-51	-75	-30
RESISTANT TO : WEATHER																	
: WATER																	
: OIL																	
: CHEMICAL																	
: SOLVENT																	
: CORONA																	
: OZONE																	
: ABRASION																	
: FLAME																	
ELECTRICAL INSULATION RESISTANCE																	
BREAKDOWN VOLTAGE																	
A. C. LOSSES																	
INDIAN STANDARD	IS-6380	IS-6380	IS-6380	IS-6380	IS-6380	IS-6380	NONE	IS-7098(I)	IS-6474	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
BRITISH STANDARD	BS-6899	BS-6899	BS-6899	BS-6899	BS-6899	BS-6899	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE

VERY GOOD GOOD FAIR POOR NOT APPLICABLE

NOTE : (1) GENERAL GUIDANCE ONLY, IN SPECIFIC CASES CONSULT THE MANUFACTURER.
(2) THESE ARE USED IN INSTRUMENTATION CABLES, HENCE SHORT CIRCUIT TEMP. ARE NOT RELEVANT. VALUES ARE GIVEN FOR REFERENCE ONLY.

SBR : STYRENE BUTADIENE RUBBER
PCP : POLYCHLOROPRENE
NBR/PVC : ACRYLONITRILE BUTADIENE RUBBER / POLY VINYL CHLORIDE
EPR : ETHYLENE PROPYLENE RUBBER
CSP : CHLOROSULPHONATED POLYETHYLENE
EVA : ETHYLENE VINYL ACETATE
PFA : COPOLYMER OF TETRAFLUORO ETHYLENE AND PERFLUORO ALKYL VINYL ETHER.
FEP : FLOURINATED ETHYLENE PROPYLENE
ETFE : ETHYLENE TETRA FLUORO ETHYLENE

COMPARATIVE CHARACTERISTICS OF TYPICAL POLY VINYL CHLORIDE INSULATING AND SHEATHING MATERIALS (I)

MATERIAL	PVC TYPE 'A'	PVC TYPE 'B'	PVC TYPE 'C'	PVC TYPE 'D'	PVC TYPE 'ST1'	PVC TYPE 'ST2'	PVC TYPE 'ST3'	PVC TYPE 'ST2-FRLS' (2)	PVC TYPE 'ST2-FR' (2)	PVC TYPE 'LOW PERMITIVITY'	PVC TYPE 'LOW TEMP'
USED AS INSULATION	GENERAL PURPOSE	GENERAL PURPOSE (HIGH VOLTAGE >3.3 KV)	HEAT RESISTING	GENERAL PURPOSE FLEXIBLE						INSULATION FOR INSTRUMENTATION CABLE	INSULATION FOR VERY LOW TEMP. APPLICATION
USED AS SHEATH					GENERAL PURPOSE	HEAT RESISTING	FLEXIBLE GENERAL PURPOSE	HIGH RESISTING LOW SMOKE LOW HALOGEN FIRE RESISTING	HEAT RESISTANT, HIGHLY FIRE RESISTANT		SHEATHING FOR VERY LOW TEMP. APPLICATION
CONDUCTOR TEMPERATURE (°C) MAX. CONTINUOUS OPERATION	70	70	85	70	70	85/90	70	85/90	85/90	85	70
CONDUCTOR TEMPERATURE (°C) MAX. SHORT CIRCUIT	160	160	160	160	160	160	160	160	160	160	120
MATERIAL LIMITING TEMPERATURE (°C) MIN. FLEXING DUTY	-20	+15	-15	-25	-30	-15	-20	-15	-15	-15	-40
MATERIAL LIMITING TEMPERATURE (°C) MIN. FOR INSTALLATION	0	+10	0	-10	-10	0	-10	+10	+10	0	-30
RESISTANT TO : WEATHER											
: WATER											
: OIL											
: CHEMICAL											
: SOLVENT											
: CORONA											
: OZONE											
: ABRASION											
: FLAME											
ELECTRICAL INSULATION RESISTANCE											
BREAKDOWN VOLTAGE											
A. C. LOSSES											
INDIAN STANDARD	IS-5831	IS-5831	IS-5831	IS-5831	IS-5831	IS-5831	IS-5831	IS-5831 (3)	IS-5831 (3)	NONE	NONE
BRITISH STANDARD	BS-6746	BS-6746	BS-6746	NONE	BS-6746	BS-6746	NONE	NONE	NONE	NONE	NONE

VERY GOOD GOOD FAIR POOR NOT APPLICABLE

NOTE :
(1) GENERAL GUIDANCE ONLY, IN SPECIFIC CASES CONSULT THE MANUFACTURER.
(2) ALSO SUITABLE FOR ST1 - FRLS & ST1-FR.
(3) FRLS & FR PROPERTIES AS PER IS-1554 (PT 1&2) 1988.

Handling & Storage

Handling (Unloading at Site)

On receipt of the cable drum, visual inspection of the drum should be made. While unloading the drums from the lorry/trailer, a crane or suitable derrick system with chain pulley arrangement should be used and the drums carefully lifted and deposited on the ground. When lifting the drums with a crane, it is recommended that the lagging should be kept in place to prevent the flanges from crushing on to the cable. If the crane is not availabe, a ramp should be prepared with approximate inclination of 1:3 or 1:4. The cable drum should be rolled over the ramp by means of ropes and winches. Under no circumstances should the drums be dropped on the ground as the shock may cause serious damage to the inner layer of the cables. Cables should not be dragged along the earth surface.

Cable ends should always be sealed by means of suitable end sealing materials to prevent miniaturization of cores and armour Drums should be rolled in the direction of arrows marked on the drums.

Storage

The site chosen for the storage for the cable drums should be dry and covered to prevent exposure to climatic conditions and wear & tear of wooden drum. It should be preferably on a concrete / consolidated surface which will not cause the drum to sink and thus lead to flange and extremely difficult in moving the drums. The drum should be stored in such a manner as to leave sufficient space between them for air circulation. It is desirable for the drums to stand on battens placed directly under flanges. In no case shall the drums be stored flat i.e. with flanges horixontal.

Minimum Permissible Bending Radius

While installing the cables, the following minimum bending radius should be observed in order so that the cables, especially insulation, may not undergo damage. Whenever possible larger bending radius should be used.

VOLTAGE RATING	PVC & XLPE Cables	
kV	SIngle Core	Multicore
Upto 1.1	10D	12D
Above 1.1 to 11	15D	15D
Above 22 & 33 kV	20D	20D

Where D is outer diameter of cable

Cable Selection Guide

Materials Comparison Chart

KEI offer a wide range of materials for the purpose of insulation and sheathing. KEI is pitting their effort to design the cables by careful balancing the properties of selected materials in combination with a view to meet the specific environmental and installation conditions.

Any material does not possess universal properties which is suitable for all conditions. This will be evident from the comparison chart.

Although this chart does not provide the detailed information of all the materials and combinations of them with every pertinent characteristics, it serves as a guideline of information which a cable specialist requires to ensure most appropriate design to meet specific needs.

Please do consult our experts from the Technical Services Department of KEI Industries Limited, Cable Division.

KEI
Wires and Cables

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