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Power of Quality & Reliability

شـــركـــة بـاور بلـــس كابل .ذ.م.م.

Power Plus Cable Co. L.L.C.

Exported World wide

fujcab®

Power of Quality & Reliability

INDEX

CHAIRMAN'S MESSAGE

Keeping our vision and mission in mind, right from the inception of the Company, our organisation has laid strong emphasis on Quality, Innovation and Technological excellence as its core differentiators. Our goal is to balance these disciplines while staying flexible enough to take advantage of opportunities as they arise.

Over a short period of time, Power Plus Cable Co. L.L.C. has established its name in the Cable Industry for its obsession for Quality and Service.

We are proud to have a unique combination of state of the art manufacturing facility and a well experienced workforce, who recognize the importance of process and systems required to maintain the highest Quality standards. I am honoured to have the opportunity to lead a team of dedicated employees who are committed to making this company, a top performing one in the industry.

Meanwhile we are grateful for the Trust and faith shown by our valued customers on us and we look forward to continue providing quality services and superior products to our customers for years to come. We promise to continuously explore, set new benchmarks and bring about changes, thus keeping our organization always ahead of the curve.

Thanking you,

H.H. Sheikh Maktoum bin Hamad bin Mohammed Al Sharqi
Chairman
Power Plus Cable Co. L.L.C.

INTRODUCTION

Power Plus Cable Co. L. L. C. is an ISO 9001:2008 certified National Company, established under the patronage of H. H. Sheikh Hamad Bin Mohammad Al Sharqi, The member of U.A.E. Supreme Council and The Ruler of Fujairah.

We manufacture:

- High voltage XLPE power cables up to 220 kV
- Medium voltage XLPE power cables
- Low voltage PVC and XLPE power & control cables
- Instrumentation Cables
- LSF cables
- Flexible cables
- House wiring cables
- Electrical conductors

We have a fully functional, state-of-the-art manufacturing facility at our Al Hayl Industrial Area in Fujairah, which occupies an area of over 110,000 sq. metres and employs a highly passionate and skilled workforce.

We follow stringent quality methods, with our cables tested at qualified labs like KEMA, The Netherlands. Our manufacturing plant is well equipped to test cables as per BS, ASTM, IEC as well as any other international standard. The company offers complete infrastructure for power cable solutions to meet the needs and scale of any project.

Designed to give better conductivity resulting in lower transmission losses, our cables are more compact thus saving on installation costs. They also offer better insulation and ageing properties for trouble free operations.

Consistency of quality is ensured as all our cables are subjected to stringent quality checks from start to finish. They are also regulated by an ISO 9001 system of quality monitoring and meet international specifications.


IMPULSE TEST

QUALITY CONTROLS

All our products are tested at every stage of the production cycle and their quality is ensured by strict monitoring, from the procurement of raw materials to the delivery of finished product. Highly advanced quality checking systems, enabled by hi-tech equipments are in place to ensure the above. Focus is on providing complete customer satisfaction by imbibing quality initiatives such as a 'zero-defect' work culture for all customer related and other activities.

Ethical standards of conduct are followed and maintained with customers & suppliers and within the company. In addition, total compliance with global and local standards is ensured. Regular steps are taken to improve employee efficiency and skill geared towards increasing the value and success of the business. Efforts are also undertaken to promote the sharing of best practices and to encourage employees to question everything and eliminate activities with no added value.

R & D SOLUTIONS

At Power Plus Cable Co. L. L. C., innovation at work is considered imperative, not just to provide quality to customers but also to stay ahead of the competition. We consider Research & Development activities to be fundamental for our growth. A dedicated team of professionals work to design products with minimal environmental abuse and maximum output. Focus is on designing technology for the future that will increase efficiency and reduce Transmission & Distribution losses.

All our R&D efforts are directed towards creating value for customers. Objectives include offering services, solutions and power cables of the highest standards, both for domestic GCC markets and international markets. The recognised quality and reliability of our products, and the reduction in the cost of materials and processes are other important goals aimed at achieving through our ongoing investment in R&D.

ESMA Certificate & License

هيئة الإمارات للمواصفات والمقاييس
Emirates Authority For Standardization & Metrology

علامة الجودة الإماراتية

شهادة مطابقة

CERTIFICATE OF CONFORMITY

EMIRATES QUALITY MARK

Certificate No. 17-02-1168/Q16-11-002100 Issue Date: 12-Feb-2017 Valid Until: 11-Feb-2020

The Emirates Authority for Standardization & Metrology (ESMA)

Hereby certify that

POWER PLUS CABLE CO. L.L.C

K-140, Al Hayl Industrial Area, P.O. Box 5070, Fujairah, U.A.E.

Has complied with the following published documents:

ESMA General Rules for Emirates Product Certification Scheme

In respect of certification scheme for the manufacture of

MEDIUM AND LOW VOLTAGE ELECTRIC CABLES AND WIRES

These rules have among other things necessitated the submission of samples of the scheduled products for examination and testing by ESMA to the Standards referred to in the schedule. Additionally, the scheme requires the firm:

(A) To permit their facilities namely at Power Plus Cable Co. L.L.C. – K-140, Al Hayl Industrial Area, P.O. Box 5070, Fujairah, United Arab Emirates to be periodically inspected by ESMA.

(B) To allow samples of the schedule products to be selected from production or from the market or independent testing and examination for assurance that conformity is being maintained.

The firm hereby agrees with ESMA to observe and comply with the requirements of the scheduled standards, the general and specific rules and with any regulations for the scheme that ESMA may establish.

Signed on behalf of ESMA

Abdulla Al Maseni
Director General

Signed on behalf of POWER PLUS CABLE CO. L.L.C

H.H. Sheikh Mukhtaar bin Hamad bin Mohammed Al Sharqi
Chairman

هيئة الإمارات للمواصفات والمقاييس
Emirates Authority For Standardization & Metrology

LICENSE FOR THE USE OF
EMIRATES QUALITY MARK (AL-ALAMA)

License No:	17-02-1168/Q16-11-002100	رقم الرخصة:
Issue Date:	12-February-2017	تاريخ الإصدار:
Valid Until:	11-February-2020	تاريخ الإنتهاء :
Issued to:	POWER PLUS CABLE CO. L.L.C. K-140, Al Hayl Industrial Area, P.O. Box 5070, Fujairah, U.A.E	أصدرت إلى:

Based on the Emirates Product Certification Scheme Agreement No. 17-02-1168/Q16-11-002100 for the following:

Product for which the License is granted: MEDIUM AND LOW VOLTAGE ELECTRIC CABLES AND WIRES

Product Description: See Attached Schedule of Certification

Standard: See Attached Schedule of Certification

Abdulla Al Maseni
Director General

ISO 9001:2015

Certificate

Standard **ISO 9001:2015**

Certificate Registr. No. **01 100 096954**

Certificate Holder: **Power Plus Cable Co L.L.C.,**
K-140, Al Hayl Ind Area,
P.O.Box-5070, Fujairah,
United Arab Emirates.

Scope: **Manufacture of Electric Cables up to 220 KV, Fire Resistant Cables, Instrumentation Cables, Wires and Conductors for Utilities, Industrial, Domestic and Commercial Applications.**

Proof has been furnished by means of an audit that the requirements of ISO 9001:2015 are met.

Validity: The certificate is valid from 2018-09-10 until 2021-09-09.

2018-10-02

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

IAF DAkkS Deutsche Akkreditierungsstelle D-ZM-16031-01-00

www.tuv.com

TÜVRheinland®
Precisely Right.

Approvals from Abu Dhabi Water & Electricity Authority

To: M/s. POWER PLUS CABLE CO. LLC Fax No. : 09- 2241808
Attn: Manager
From: Supply Department Manager Fax No. : 02-694 3294
Abu Dhabi Water & Electricity (ADWEA)
PO Box 6120 – Abu Dhabi U.A.E., Tel. (009712) 6943261

Date: 21 MAY 2012 REF: ADWEA/SDM/AAK/gm/ 0590/12
Company ID. No.: 9915019
Subject: PREQUALIFICATION STATUS OF M/S. POWER PLUS CABLE CO LLC, FUJAIRAH

Please be informed that based on the evaluation, M/s. POWER PLUS CABLE CO. LLC, FUJAIRAH Co. ID: 9915019 have been qualified as local manufacturer and included in our records as a possible source for supply of the following product:

PG No.	PG Description
0301024	CABLES – MEDIUM VOLTAGEXLPE- UP TO 11KV

Please note that at the time of release of enquiries /tenders, a further short listing takes place based on exhibited interest at that time and the specifics of material/ equipment in question as the need may be.

You are advised to quote your registration No. (9915019) in all future correspondence.

Regards,

Alia Ahmed Al Kaabi
Supply Department Manager

To: M/s. POWER PLUS CABLE CO. LLC Fax No. : 09- 2241808
Attn: Manager
From: Company Registration Section Fax No. : 02-694 3294
Abu Dhabi Water & Electricity (ADWEA)
PO Box 6120 – Abu Dhabi U.A.E., Tel. (009712) 6943261

Date: 18 JAN 2010 REF: ADWEA/BP&P/REG/AA/86/10
Company ID. No.: 9915019
Subject: PREQUALIFICATION STATUS

With reference to pre-qualification of M/s. POWER PLUS CABLE CO. LLC, Fujairah, code # 9915019, please be informed that based on the evaluation, your company have been qualified as local manufacturer and included in our records as a possible source for supply of the following product:

PG No.	PG Description
0301030	LOW VOLTAGE XLPE UP TO 1000 V/AC CABLE

Please note that at the time of release of enquiries /tenders, a further short listing takes place based on exhibited interest at that time and the specifics of material/ equipment in question as the need may be.

You are advised to quote your registration No. (9915019) in all future correspondence.

Regards,

Company Registration Section

To : M/s. POWER PLUS CABLE CO. LLC
Fax No.: 09- 2074455
ATTN.: Manager
From : CRS/Supply Department Fax No.:02 - 694 3294
Abu Dhabi Water & Electricity (ADWEA)
PO Box 6120 – Tel. (009712) 6943261 Abu Dhabi U.A.E.

Date: 30 DEC 2010 REF: ADWEA/SDM/AAK/EAA/2339/13
Co. ID No: 9915019
Subject: Pre-qualification Status of M/s. POWER PLUS CABLE CO. LLC, FUJAIRAH

With reference to the pre-qualification of **M/s. POWER PLUS CABLE CO. LLC, FUJAIRAH, code # 9915019**, please be informed that **M/s POWER PLUS CABLE CO. LLC, FUJAIRAH** have been pre-qualified and included in our records as a possible source for supply of the following products:

PG No.	PG Description
0301020	CABLES - MEDIUM VOLTAGE XLPE-UP TO 33 KV
0301022	CABLES - MEDIUM VOLTAGE XLPE-UP TO 22 KV

Please note that at the time of release of enquiries, a further short listing takes place based on exhibited interest at that time and the specifics of material/ equipment in question as the need may be.

You are advised to quote your registration No. (9915019) in all future correspondence.

Regards,

Alia Ahmed Al Kaabi
Supply Department Manager

Cc: Companies Registration Section

Contracts from Federal Electricity & Water Authority

دولة الإمارات العربية المتحدة
الهيئة الاتحادية للكهرباء والماء
Federal Electricity & Water Authority

Original
Legal Department

SL	DESCRIPTION	UNIT	QTY.	COUNTRY OF ORIGIN	UNIT PRICE	TOTAL PRICE
1.	600/1000V Cross Linked Polyethelene (XLPE) insulated armoured aluminium cable as per FEWA Spec. No. CBL 3.1 cable size 4x25mm² Al.	KM	100	PRIME CABLES, UAE		
2.	600/1000V Cross Linked Polyethelene (XLPE) insulated armoured aluminium cable as per FEWA Spec. No. CBL 3.1cable size 4x35mm² Al.	KM	100	PRIME CABLES UAE		
3.	600/1000V Cross Linked Polyethelene (XLPE) insulated armoured aluminium cable as per FEWA Spec. No. CBL 3.1cable size 4x50mm² Al.	KM	140	PRIME CABLES UAE		
4.	600/1000V Cross Linked Polyethelene (XLPE) insulated armoured aluminium cable as per FEWA Spec. No. CBL 3.1 cable size 3.5x95mm² Al.	KM	130	PRIME CABLES UAE		
5.	600/1000V Cross Linked Polyethelene (XLPE) insulated armoured aluminium cable as per FEWA Spec. No. CBL 3.1cable size 3.5x300mm² Al.	KM	300	PRIME CABLES UAE		
Dirhams Twenty Seven Million Two Hundred Eighty Seven Thousan One Hundred Twenty Only						27,287,120

دولة الإمارات العربية المتحدة
الهيئة الاتحادية للكهرباء والماء
Federal Electricity & Water Authority

Original
Legal Department

SL. NO.	ITEMS DESCRIPTION	Qty.	Unit	Country of origin	UNIT PRICE (UAE DHS.)	TOTAL PRICE (UAE DHS.)
1	33 KV CROSS LINKED POLYETHELENE (XLPE) INSULATED UNARMOURED COPPER CABLE (WITH GRAFIC COATING) AS PER FEWA SPECIFICATIONS AND CRITERIA CABLE SIZE 1X500 MM2 CU	15,000	Mtr	POWER-PLUS CABELS, FUJAIRAH, UAE		

دولة الإمارات العربية المتحدة
الهيئة الاتحادية للكهرباء والماء
Federal Electricity & Water Authority

Original
Legal Department

SL. NO.	DESCRIPTION	Qty	UNIT	COUNTRY OF ORIGIN	UNIT RATE	TOTAL AMOUNT
1	600/1000V Cross Linked Polyethelene (XLPE) insulated, steel wire armoured aluminium cable as per FEWA Spec. No. CBL 3.1 cable size 4x25mm² Al.	100,000	Mtr	UAE		
2	600/1000V Cross Linked Polyethelene (XLPE) insulated, steel wire armoured aluminium cable as per FEWA Spec. No. CBL 3.1 cable size 3.5x95mm² Al.	50,000	Mtr	UAE		
3	600/1000V Cross Linked Polyethelene (XLPE) insulated, steel wire armoured aluminium cable as per FEWA Spec. No. CBL 3.1 cable size 3.5x185mm² Al.	52,000	Mtr	UAE		
4	600/1000V Cross Linked Polyethelene (XLPE) insulated, steel wire armoured aluminium cable as per FEWA Spec. No. CBL 3.1 cable size 3.5x300mm² Al.	900,000	Mtr	UAE		
5	11KV Cross Linked Polyethelene (XLPE) insulated, steel wire armoured aluminium cable as per FEWA Spec. No. CBL 3.2 cable size 3x300mm² Al.	800,000	Mtr	UAE		
AED Ninety Nine Million Seven Hundred Ninety Eight Thousand Four Hundred Only						99,798,400.00

Approvals from Sharjah Electricity & Water Authority

Department Of Electricity Services — إدارة خدمات الكهرباء

20/04/2015 : التاريخ

M/S : power plus cable co.
Tel : +971 4 257 7888
Fax: +971 4 257 7899
Dear Sirs,

السادة / شركة باور بلس كابل ذ.م.م (الفجيرة)
هاتف : +971 4 257 7888
فاكس : +971 4 257 7899
تحية طيبة وبعد،

الموضوع : شهادة تأهيل واعتماد
Subject: Pre-qualification Certificate

Sharjah Electricity & Water Authority would like to extend its greetings and best wishes of success.
With reference to the above subject, we are pleased to advise you that M/S **power plus cable co.- fujairah** has been pre-qualified by SEWA and registered as approved Suppliers/Manufacturers for **L.V Cable (1.5mm to 630mm) 11KV Cable , 33KV Cable** , as per pre-qualification document, factory test report and according to SEWA prevailing Regulations and Rules.

Please note that this certificate is valid for one year only from its date of issue.

Best regards.

يطيب لهيئة كهرباء ومياه الشارقة ان تتقدم لكم بأطيب التحيات والتمنيات بالتوفيق..

بالاشارة الى الموضوع اعلاه.. يسرنا ان نحيطكم علماً بان شركة شركة باور بلس كابل ذ.م.م (الفجيرة) ، قد تم اعتماده وتأهيله من قبل الهيئة ليكون ضمن الشركات المعتمدة لدى الهيئة لتصنيع كابلات الجهد المنخفض (1.5mm حتى 630mm) 11 ك.ف ، 33 ك.ف ، وفقا لمستندات التأهيل المعتمدة واللوائح والنظم المتبعة لدى الهيئة

الرجاء الملاحظة بان هذه الشهادة ستكون سارية المفعول لمدة عام واحد فقط اعتبارا من تاريخ اصدارها

وتفضلوا بقبول وافر التحية والاحترام

محمد فاضل عبدالله
رئيس القسم التجاري

Sharjah Electricity & Water Authority — هيئة كهرباء ومياه الشارقة

M/S Power Plus Cables - Fujairah
Tel: +971 9 40744444
Fax: +971 9 20744455

السادة / بوصلو باور بلس للكيابل - الفجيرة
هاتف: +971 9 20744444
فاكس: +971 9 20744455

Dear Sirs,

تحية طيبة وبعد،

الموضوع: شهادة تأهيل واعتماد
Subject: Pre-Qualification Certificate

Sharjah Electricity & Water Authority would like to extend its greetings and best wishes of success.

With reference to the above subject, we are pleased to advise you that M/S Power Plus Cable Factory – UAE has been pre-qualified by SEWA and registered as approved Suppliers / Contractors for supply of electrical LV cables:

Low voltage cables up to 4C×300mm² XLPE/SWA/PVC/Cu
Low voltage cables up to 1C×630mm² XLPE/SWA/PVC/Cu
Low Voltage building wires up to 6mm²

As per pre-qualification document, factory test report and according to SEWA prevailing Regulations and Rules.

Please note that this certificate is valid for a period of three years as from its date of issue.

Best regards.

يطيب لهيئة كهرباء ومياه الشارقة ان تتقدم لكم بأطيب التحيات والتمنيات بالتوفيق..

بالاشارة إلى الموضوع أعلاه .. يسرنا ان نحيطكم علماً بأن مصنع باور بلس للكيابل قد تم اعتماده وتأهيله من قبل الهيئة ليكون ضمن الشركات المعتمدة لدى الهيئة لتوريد الكيابل الكهربائية ذات الضغط المنخفض:

Low voltage cables up to 4C×300mm² XLPE/SWA/PVC/Cu
Low voltage cables up to 1C×630mm² XLPE/SWA/PVC/Cu
Low Voltage building wires up to 6mm²

وفقاً لمستندات التأهيل المعتمدة واللوائح والنظم المتبعة لدى الهيئة.

الرجاء الملاحظة بأن هذه الشهادة ستكون سارية المفعول لمدة ثلاثة أعوام اعتباراً من تاريخ إصدارها

وتفضلوا بقبول وافر التحية والاحترام.

م. ابراهيم راشد دمثي
Eng. Ibrahim Rashid Demas
مدير عام الهيئة
Director General

Approval from Distribution Code Review Panel, Sultanate of Oman

مجلس مراجعة قواعد التوزيع
DISTRIBUTION CODE REVIEW PANEL

Date of Issue: 17 May 2010
Reg. No.: DCRP/PAWG/2010/002

PRODUCT APPROVAL CERTIFICATE

DISTRIBUTION CODE REVIEW PANEL
CERTIFIES THAT THE FOLLOWING ITEM IS REGISTERED WITH THE PANEL AS AN APPROVED PRODUCT

Electrical Material Specifications	*LV cables, Flexible wires & Control Cables*
Manufacturer	*Power Plus Cable Co. LLC*
Country of Origin	*U.A.E.*

Note: *Manufacturer is hereby informed that no changes shall be permitted in the approved Raw materials sub-suppliers and Salient features of the product without the written consent of the DCRP. In the event that the manufacturer changes those sub-suppliers and salient features without written consent of the DCRP, the approval shall be suspended, without any further notice.*

DCRP

CHAIRMAN
DISTRIBUTION CODE REVIEW PANEL

Approval from Electricity & Water Authority, Kingdom of Bahrain

EWA
هيئة الكهرباء والماء
Electricity & Water Authority
Kingdom of Bahrain

إدارة توزيع الكهرباء
Electricity Distribution Directorate

5310/6.910/10564/16/JB
June 26th, 2016

FAX

Fax: 17311019

Dear Sir,

SUBJECT: EQUIPMENTS APPROVAL
WIRES // L.V. & 11KV POWER CABLES
MAKE: POWER PLUS CABLE CO.L.L.C/ U.A.E.

Name of the Project: General

This has reference to your letter No: GP/CORR/18/05/2016/157 dated 18th May 2016 along with technical documents. We have reviewed the same and comment as follows:-

(A) Following cables shall be considered on individual project basis only:
- 11kV Cables.
- 1c CU/XLPE/AWA/PVC), 0.6/1kV cables sizes above 300mmsq.

(B) Cables above 11kV are not in EDD scope of approval.

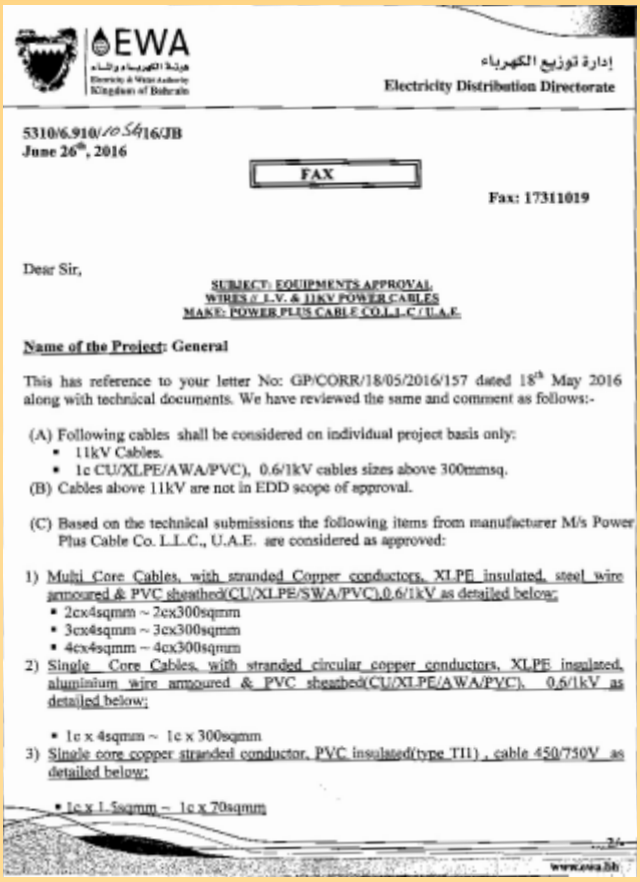
(C) Based on the technical submissions the following items from manufacturer M/s Power Plus Cable Co. L.L.C., U.A.E. are considered as approved:

1) Multi Core Cables, with stranded Copper conductors, XLPE insulated, steel wire armoured & PVC sheathed(CU/XLPE/SWA/PVC),0.6/1kV as detailed below:
- 2cx4sqmm ~ 2cx300sqmm
- 3cx4sqmm ~ 3cx300sqmm
- 4cx4sqmm ~ 4cx300sqmm

2) Single Core Cables, with stranded circular copper conductors, XLPE insulated, aluminium wire armoured & PVC sheathed(CU/XLPE/AWA/PVC), 0.6/1kV as detailed below:
- 1c x 4sqmm ~ 1c x 300sqmm

3) Single core copper stranded conductor, PVC insulated(type TI1) , cable 450/750V as detailed below:
- 1c x 1.5sqmm ~ 1c x 70sqmm

www.ewa.bh



Type Test Certificates

33kV Single Core Cable

KEMA

Type test Certificate of complete type tests

Power Plus Cable Co. LLC

Fujairah, United Arab Emirates (UAE)

has successfully passed the type test sequence on a

single-core power cable

Type: 19/33(36) kV, 1 x 500 SQ.MM CU/SC/XLPE/SC/CWS/POLYALIPE
Ratings: 18/33 (36) kV – 1 x 500 mm² – Cu – XLPE

The test object passed the required clauses of

IEC 60502-2

The test results are recorded in Certificate No.

TIC 1067-12

This Certificate is issued on 15 October 2012

KEMA Nederland B.V.

S.A.M. Verhoeven
Director Testing, Inspections & Certification The Netherlands

33kV Multi Core Cable

KEMA

Type test Certificate of complete type test

Power Plus Cable Co. L.L.C.

Fujairah, United Arab Emirates

has successfully passed the type test sequence on a

Three-core power cable

Type: 19/33 (36 kV), 3x300 mm² CU/XLPE/CUT/PE/STA/PE

The test object passed the required clauses of

IEC 60502-2

The test results are recorded in Certificate No.

TIC 1037-11

This Certificate is issued on 25 July 2011

KEMA Nederland B.V.

S.A.M. Verhoeven
Director Testing, Inspections & Certification The Netherlands

11kV Multi Core Copper Cable

DNV·GL

KEMA TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

Object Three-core power cable **1562-16**

Type 6,35/11 kV 3x300 mm² Cu/XLPE/CTS/PVC/STA/PVC Cable

Rated voltage, U0/U (Um) 6,35/11 (12) kV Conductor material Cu
Conductor cross-section 3x300 mm² Insulation material TR -XLPE

Manufacturer POWER PLUS CABLE Co. L.L.C., Fujairah, United Arab Emirates *)
Client POWER PLUS CABLE Co. L.L.C., Fujairah, United Arab Emirates
Tested by DNV GL Netherlands B.V., Arnhem, the Netherlands
Date of tests 18 November 2016 to 25 April 2017

The test object, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with

IEC 60502-2 (2014)

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above Standards and to justify the ratings assigned by the manufacturer as listed on page 5.

This Certificate applies only to the object tested. The responsibility for conformity of any object having the same type reference as that tested rests with the Manufacturer.
*) as declared by the manufacturer

This Certificate consists of 43 pages in total.

DNV GL Netherlands B.V.

Executive Vice President
KEMA Laboratories

KEMA Laboratories
Arnhem, 14 June 2017

11kV Multi core Aluminium Cable

KEMA

Type test Certificate of complete type test

Power Plus Cable Co. L.L.C.

Fujairah, United Arab Emirates

has successfully passed the type test sequence on an

three-core power cable

Type: AL/XLPE/SWA/PVC
Rating: 6,35/11 (12) kV – 3x300 mm2 – AL – XLPE

The test object passed the specification of clauses of

IEC 60502-2

The test results are recorded in Certificate No.

TDT 1090-10

This Certificate is issued on 31 January 2011

KEMA Nederland B.V.

P.G.A. Bus
KEMA T&D Testing Services
Managing Director

Type Test Certificates

KEMA Type Test Certificate - LV

KEMA

REPORT OF PERFORMANCE TIC 1415-13

OBJECT 4-core power cable

TYPE 0.6/1 kV, 4x300 mm² Cu/XLPE/SWA/PVC

MANUFACTURER POWER PLUS CABLE Co., L.L.C., Fujairah, United Arab Emirates

CLIENT POWER PLUS CABLE Co., L.L.C., Fujairah, United Arab Emirates

TESTED BY KEMA HIGH-VOLTAGE LABORATORY, Arnhem, The Netherlands

DATE OF TESTS 21 March to 8 May 2013

TEST PROGRAMME Type tests in accordance with BS 5467 (1997), including Amendment 3 (2008).

SUMMARY AND CONCLUSION The object passed the tests.

This Report of Performance applies only to the object tested. The responsibility for conformity of any object having the same designations with that tested rests with the Manufacturer.

This report consists of 24 pages in total.

KEMA Nederland B.V.

Ir. B.L. Verhoeven
Director Testing, Inspections & Certification The Netherlands

Arnhem, 22 July 2013

KEMA Type Test Certificate - LV

KEMA

REPORT OF PERFORMANCE TIC 1416-13

OBJECT single-core power cable

TYPE 0.6/1 kV, 1x630 mm² Cu/XLPE/AWA/PVC

MANUFACTURER POWER PLUS CABLE Co., L.L.C., Fujairah, United Arab Emirates

CLIENT POWER PLUS CABLE Co., L.L.C., Fujairah, United Arab Emirates

TESTED BY KEMA HIGH-VOLTAGE LABORATORY, Arnhem, The Netherlands

DATE OF TESTS 21 March to 8 May 2013

TEST PROGRAMME Type tests in accordance with BS 5467 (1997), including Amendment 3 (2008).

SUMMARY AND CONCLUSION The object passed the tests.

This Report of Performance applies only to the object tested. The responsibility for conformity of any object having the same designations with that tested rests with the Manufacturer.

This report consists of 24 pages in total.

KEMA Nederland B.V.

Ir. B.L. Verhoeven
Director Testing, Inspections & Certification The Netherlands

Arnhem, 22 July 2013

KEMA Type Test Certificate - LV

KEMA

REPORT OF PERFORMANCE TIC 1417-13

OBJECT single-core PVC insulated non-sheathed cable

TYPE 450/750 V, 1x70 mm² Cu/PVC

MANUFACTURER POWER PLUS CABLE Co., L.L.C., Fujairah, United Arab Emirates

CLIENT POWER PLUS CABLE Co., L.L.C., Fujairah, United Arab Emirates

TESTED BY KEMA HIGH-VOLTAGE LABORATORY, Arnhem, The Netherlands

DATE OF TESTS 22 March to 8 May

TEST PROGRAMME Type tests in accordance BS EN 50525-2-31 (2011) (previously BS 6004 (2000))

SUMMARY AND CONCLUSION The object passed the tests.

This Report of Performance applies only to the object tested. The responsibility for conformity of any object having the same designations with that tested rests with the Manufacturer.

This report consists of 20 pages in total.

KEMA Nederland B.V.

Ir. B.L. Verhoeven
Director Testing, Inspections & Certification The Netherlands

Arnhem, 22 July 2013

KEMA Type Test Certificate - Building Wires

DEKRA

TEST CERTIFICATE

Issued to: Power Plus Cable Co. L.L.C. P.O. Box: 5078 Plot No. K-140 Al Hayl Industrial Area Fujairah, U.A.E.

For the product: PVC insulated, non-sheathed general purpose cable, 450/750 V, single core

Trade name: POWER PLUS-CABLE CO. L.L.C.

Type/Model: H07V-R (CU/PVC)

Ratings: 4 mm² and 6 mm²

Manufactured by: Power Plus Cable Co. L.L.C. P.O. Box: 5078 Plot No. K-140 Al Hayl Industrial Area Fujairah, U.A.E.

Requirements: BS 6004:2000, AMD 16636:2005, AMD 14199:2004

Remarks: The tested cables meet the requirements

This Test Certificate is granted on account of an examination by DEKRA, the results of which are laid down in a confidential file no 2144826.50 and 2144826.51.

The examination has been carried out on one single specimen of the product, submitted by the manufacturer. The Test Certificate does not include an assessment of the manufacturer's production. Conformity of his production with the specimen tested by DEKRA is not the responsibility of DEKRA.

Arnhem, 14 June 2011 Number: 2144826.01

DEKRA Certification B.V.

drs. G.J. Zoetbrood
Managing Director

H.R.M. Barends
Certification Manager

Test Reports for Fire Resistant Cables

bre

www.bre.co.uk

BRE Global Test Report

Fire testing of a Power Plus 'Cu/MGT/XLPE/LSF/SW/LSF' 4x240mm² cable

Prepared for: Power Plus Cable Co. L.L.C.
Date: 12 August 2015
Report Number: 302051-1 Issue: 1

BRE Global Ltd
Watford, Herts
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Prepared for:
Power Plus Cables Co. L.L.C.
Al Hayl Industrial Area
Plot No. K-140
P.O. Box 5070
Fujairah
United Arab Emirates

bre

www.bre.co.uk

BRE Global Test Report

Fire testing of a Power Plus 'Cu/MGT/LSF' 1x240mm² cable

Prepared for: Power Plus Cable Co. L.L.C.
Date: 12 August 2015
Report Number: 302051-2 Issue: 1

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United Arab Emirates

LV Cables

MV Cables

LSF/LSZH & Fire Resistant Cables

High Voltage Cables

Specifications	: Cables as per IEC / VDE / IEEE or any other international specifications
Grades	: 66 kV to 220 kV
Cross Sectional Area	: 95 sq. mm. to 2000 sq. mm.
Conductor	: Copper / Aluminium
Insulation	: Super clean XLPE
Armour	: Aluminium wire
Sheathing	: HDPE with extruded layer of semi-conducting material

Medium Voltage Cables

Specifications	: Cables as per BIS / BS / IEC / or any other international specifications
Grades	: 3.8 kV to 33 kV
Core	: Single & three core
Cross Sectional Area	: 35 sq. mm. to 1000 sq. mm.
Conductor	: Aluminium / Copper
Insulation	: XLPE
Armour	: Aluminium / Galvanized Steel (Wire/Tape)
Sheathing	: PVC / PE / LSF

Low Voltage Cables

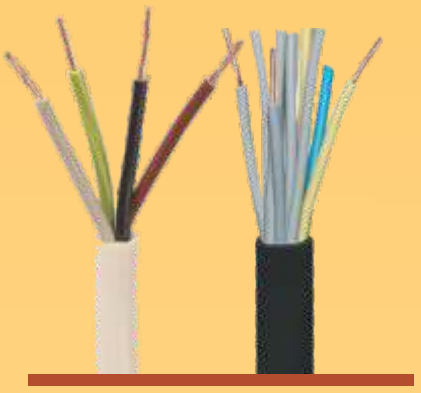
Specifications	: Cables as per BIS / BS / IEC / or any other international specifications
Grades	: 600 / 1000 V, 1.9 / 3.3kV
Core	: Single to 100
Cross Sectional Area	: 1.5 sq. mm. to 1000 sq. mm.
Conductor	: Aluminium / Copper
Insulation	: XLPE / PVC
Armour	: Aluminium / Galvanized Steel
Sheathing	: PVC / PE / LSF

Instrumentation cables

Specification	: Cables as per BS 5308 Part-1/Part-2, BS EN 50288-7 or any international standard.
Type	: Pair/Triad/Quads
No of Pair/Triad/Quads	: Up to 50 Pairs/Triads/Quads
Size	: 0.5 sq.mm to 4 sq.mm.
Conductor	: Plain / tinned copper
Insulation	: XLPE / PE / PVC
Shielding	: Al.Mylar foil screen / Braided screen
Armour	: Galvanized steel wire / tape / braid or unarmoured
Sheath	: PVC / LSF.

Wiring Cables

Specifications : Wires as per BS 6004/BS EN 50525-2-31/ IEC 60227 or other international specifications
Core : Single Core
Cross Sectional Area : 0.5 sq. mm. to 6.0 Sq.mm
Conductor : Copper Stranded (Class 2) or flexible (Class 5)
Insulation : PVC



PVC Flexible Cables

Specifications : Cables as per BS 6004/BS 6500/BS 7919/ BS EN 50525-2-11/IEC 60227
Core : Single to 5
Cross Sectional Area : 0.5 sq. mm. to 4 sq. mm.
Conductor : Copper Flexible (Class 5)
Insulation : PVC
Sheathing : PVC

LSF/LSZH Cables (MV/LV/Flexibles & Wires)

Specifications : Cables as per BS 7211/BS EN 50525-3-41/ BS 6724/ BS 7835
Core : Single to 100
Cross Sectional Area : 1.5 sq. mm. to 1000 sq. mm.
Conductor : Aluminium / Copper
Insulation : XLPE
Armour : Aluminium / Galvanized Steel
Sheathing : LSF/LSZH, Zero Halogen – no corrosive gas emission

Fire Resistant Cables

Specifications : Cables as per BS 7846/BS 6387 CWZ/IEC 60502-1/IEC 60331
Core : Single to 100
Cross Sectional Area : 1.5 Sq.mm- to 1000 sq.mm.
Conductor : Copper/Aluminium
Flame Barrier : Glass Mica Tape
Insulation : XLPE
Armour : Aluminium/Galvanized Steel.
Sheathing : LSF/LSZH, Zero Halogen- no corrosive gas emission.

Speciality Cables

To client specifications
Heat, oil, flame retardant cables
LSF/LSZH with hydro carbon resistance cables
5 kV airport lighting cables, runway signalling cables
VFD Cables

CONSTRUCTION OF LOW VOLTAGE CABLES

- **CONDUCTORS**
  Electrical grade high conductivity Copper / Aluminium wires are stranded to make stranded circular or Shaped, conductors as per BS EN 60228 or IEC 60228.

- **INSULATION**
  High quality XLPE / PVC material is used for insulating the conductors as per BS 7655 or IEC 60502-1.

- **ASSEMBLY**
  Multi-core cables of two, three, four or more insulated cores are laid-up together with non-hygroscopic fillers compatible with the insulation material and bound with suitable binder tape.

- **REGULAR COLOR CODE**
  Single core: Red
  Two cores: Red, Black
  Three cores: Red, Yellow, Blue/Brown
  Four cores: Red, Yellow, Blue/Brown, Black
  Five cores: Red, Yellow, Blue/Brown, Black, Yellow-Green
  Above Five Cores: Black numerals printed on white core insulation.
  Cables with special core colors can also be manufactured as per project requirement.

- **BEDDING**
  The assembly is bedded with an extruded layer of special grade PVC or PE compounds as per project requirement.

- **ARMOUR**
  The armour is given for the protection of cable against physical damage. Galvanised round steel wire or galvanised steel tapes are applied helically over bedding as armouring. However, single core cables are armored with Aluminium round wire or Aluminium tape.

- **OUTER SHEATH**
  The outer sheath is made of extruded Polyvinyl Chloride (PVC) type ST2 as per IEC 60502-1, Type 9 as per BS 7655 or Polyethylene PE ST7. Polyethylene outer sheath is used in case the cable requires higher impregnability to moisture. Outer sheath is of generally black /red colour or as per project requirement.

- **MARKING OVER OUTER SHEATH**
  Outer sheath is marked / embossed with Manufacturer name, no of cores, size, Voltage ratings, and year of manufacture, sequential length marking and any other desired marking for better identification at site.

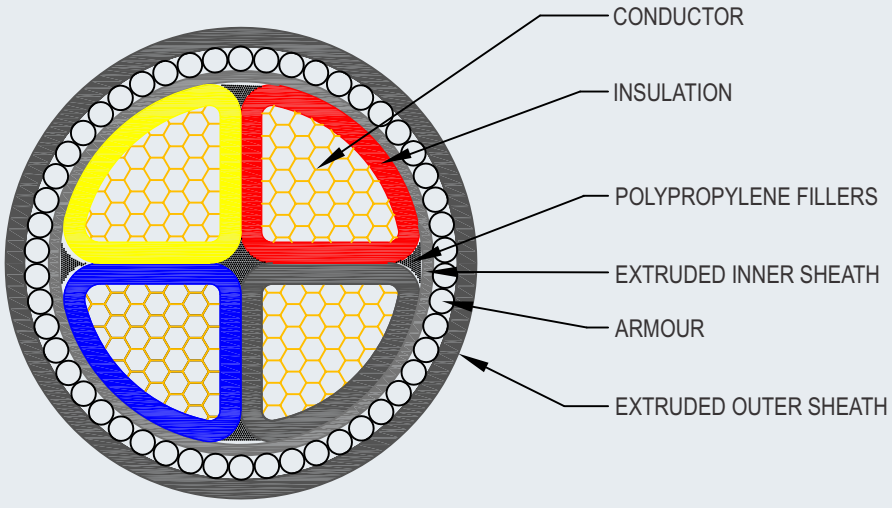
- **FLAME RETARDANT CABLE SHEATHS**
  Cables with special flame retardant PVC compounds meeting flame test requirements of IEC 60332-3-22, IEC 60332-3-23 or IEC 60332-3-24 are manufactured as per project requirement.

- **PACKING**

The cables are supplied on drums manufactured from high quality pine wood or steel. The pine wooden drums are properly seasoned and treated, with minimum painting to make them more eco-friendly. The cable ends are sealed with heat shrinkable end caps, marked with our logo, to avoid any possibility of ingress of water or dirt during transportation and storage as well as any pilferage of the cable.

Each drum is clearly marked with our name and logo, type, size, length, net and gross weight and sequential length marking details. An arrow and suitable instruction is marked on the drum indicating the direction, the drum should be rolled while laying the cable.

- **TYPICAL CROSS SECTION DRAWING OF LV CABLE**



- **TESTING**

We are equipped with state of the art testing facility capable of testing raw materials and cables as per BS, IEC or most of the international standards.

All the cables manufactured, undergo strict quality control during stage wise manufacturing process and routine test as per relevant standards are conducted on all finished drums and test certificate mentioning drum number and test results are provided against each and every drums.

Table-1

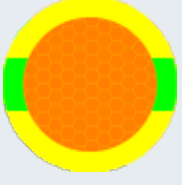
SINGLE CORE WIRES, WITH SOLID OR STRANDED COPPER CONDUCTOR, PVC INSULATED

Specification : BS 6004/ BS EN 50525-2-31
Nominal Voltage : 450/750V

Harmonized code designations
Solid Conductor : H07V-U
Stranded Condutor : H07V-R

Nominal Area of the conductor	Maximum Cable diameter	Radial thickness of Insulation	Number/ nominal diameter of wires
Sq. mm	mm	mm	No./mm
1.5	3.2	0.7	1/1.38
1.5	3.3	0.7	7/0.53
2.5	3.9	0.8	1/1.78
2.5	4.0	0.8	7/0.67
4	4.4	0.8	1/2.26
4	4.6	0.8	7/0.85
6	5.0	0.8	1/2.77
6	5.2	0.8	7/1.04
10	6.4	1.0	1/3.57
10	6.7	1.0	7
16	7.8	1.0	7
25	9.7	1.2	7
35	10.9	1.2	7
50	12.8	1.4	7
70	14.6	1.4	19
95	17.1	1.6	19
120	18.8	1.6	19
150	20.9	1.8	19
185	23.3	2.0	37
240	26.6	2.2	37
300	29.6	2.4	37
400	33.2	2.6	61
500	36.9	2.8	61
630	41.1	2.8	61

Nominal Area of the conductor	Maximum conductor resistance	Curent Rating		Weight of Cables
		Laid in conduits	Laid in Free Air (Approx.)	
Sq. mm	ohm/Km	Amps	Amps	Kg/Km
1.5	12.1	16	20	21
1.5	12.1	16	20	23
2.5	7.41	21	26	33
2.5	7.41	21	26	35
4	4.61	28	35	47
4	4.61	28	35	51
6	3.08	36	46	66
6	3.08	36	46	71
10	1.83	50	63	114
10	1.83	50	63	117
16	1.15	68	80	167
25	0.727	89	108	262
35	0.524	110	133	360
50	0.387	134	166	479
70	0.268	177	205	687
95	0.193	207	247	935
120	0.153	239	290	1162
150	0.124	262	334	1433
185	0.0991	296	388	1778
240	0.0754	346	463	2280
300	0.0601	394	540	2893
400	0.0470	401	580	3715
500	0.0366	530	620	4691
630	0.0283	611	715	6035



* Standard Packing: 100 yards/Mtrs rolls upto 16sq.mm
1000 Mtrs from 25sq.mm to 150sq.mm
500 Mtrs from 185sq.mm to 630sq.mm

Current Rating is based on the below conditions.
Amb. temp: 30°C
Conductor Operating temp: 70°C
Conductor size from 16 mm^2 to 630 mm^2 is circular compacted

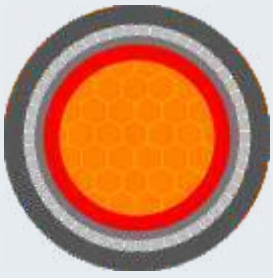


Table-2

Single core cable, Copper Conductor, XLPE insulated, Aluminium wire armoured, PVC sheathed, 600/1000V, conf. to BS: 5467

Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour wire sheath	Thickness of PVC Outer sheath	Overall diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx.	Approx.
mm^2	mm	mm	mm	mm	mm	kg/km
50	1.0	0.8	0.90	1.5	17.5	650
70	1.1	0.8	1.25	1.5	20.2	940
95	1.1	0.8	1.25	1.6	22.3	1210
120	1.2	0.8	1.25	1.6	24.2	1465
150	1.4	1.0	1.60	1.7	27.4	1920
185	1.6	1.0	1.60	1.8	30.0	2325
240	1.7	1.0	1.60	1.8	32.8	2875
300	1.8	1.0	1.60	1.9	35.6	3445
400	2.0	1.2	2.00	2.0	40.5	4480
500	2.2	1.2	2.00	2.1	44.2	5550
630	2.4	1.2	2.00	2.2	48.8	7040
800	2.6	1.4	2.50	2.4	55.4	9020
1000	2.8	1.4	2.50	2.5	60.6	11040

Area	D.C. resistance at 20° C	A.C. resistance at operating Temp. 90° C	Reactance at 50 Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx.	Approx.	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
50	0.387	0.494	0.106	208	208	203	7.15	0.88
70	0.268	0.342	0.102	262	256	260	10.01	0.62
95	0.193	0.247	0.098	313	301	319	13.6	0.46
120	0.153	0.196	0.096	355	337	370	17.2	0.38
150	0.124	0.159	0.095	397	364	425	21.5	0.32
185	0.0991	0.1280	0.092	447	402	488	26.5	0.27
240	0.0754	0.0984	0.089	514	451	576	34.3	0.23
300	0.0601	0.0795	0.090	573	492	656	42.9	0.21
400	0.0470	0.0635	0.089	648	533	749	57.2	0.19
500	0.0366	0.0512	0.088	718	577	847	71.5	0.18
630	0.0283	0.0418	0.086	790	623	954	90.1	0.17
800	0.0221	0.0349	0.086	833	649	1037	114.4	0.16
1000	0.0176	0.0302	0.084	884	690	1125	143.0	0.15

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtrs from 50sq.mm to 185sq.mm
500 Mtrs from 240sq.mm to 630sq.mm
300 Mtrs from 800sq.mm to 1000sq.mm

Operating conditions - Amb. air temp: 40° C
Ground temp: 20° C
Depth of laying: 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-3

Two core cable, Copper conductor, XLPE Insulated, Gal. steel wire armoured, PVC sheathed, 600/1000V, conf. to BS: 5467

Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of PVC Outer sheath	Overall diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx.	Approx.
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.90	1.3	12.1	255
2.5	0.7	0.8	0.90	1.4	13.6	315
4	0.7	0.8	0.90	1.4	14.7	370
6	0.7	0.8	0.90	1.4	15.9	440
10	0.7	0.8	0.90	1.5	18.0	575
16	0.7	0.8	1.25	1.5	20.4	740
25	0.9	0.8	1.25	1.6	20.4	1000
35	0.9	1.0	1.60	1.7	23.3	1425
50	1.0	1.0	1.60	1.8	25.8	1755
70	1.1	1.0	1.60	1.9	29.0	2310
95	1.1	1.2	2.00	2.0	33.1	3160
120	1.2	1.2	2.00	2.1	36.1	3750
150	1.4	1.2	2.00	2.2	39.3	4410
185	1.6	1.4	2.50	2.4	44.7	5680
240	1.7	1.4	2.50	2.5	49.0	6955
300	1.8	1.6	2.50	2.6	53.5	8400
400	2.0	1.6	2.50	2.8	59.0	10400

Area	D.C. resistance at 20° C	A.C. resistance at operating Temp. 90° C	Reactance at 50 Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx.	Approx.	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	33	27	27	0.21	26.72
2.5	7.41	9.45	0.099	42	36	36	0.36	16.37
4	4.61	5.88	0.093	57	46	48	0.57	10.18
6	3.08	3.93	0.088	70	58	62	0.86	6.80
10	1.83	2.33	0.084	96	78	84	1.43	4.04
16	1.15	1.47	0.081	124	101	111	2.29	2.54
25	0.727	0.927	0.081	164	133	144	3.58	1.61
35	0.524	0.669	0.079	196	159	178	5.01	1.17
50	0.387	0.494	0.078	232	189	215	7.15	0.87
70	0.268	0.343	0.074	286	235	269	10.01	0.61
95	0.193	0.248	0.072	344	283	333	13.6	0.45
120	0.153	0.197	0.072	395	326	385	17.2	0.36
150	0.124	0.160	0.073	443	366	439	21.5	0.30
185	0.0991	0.1291	0.072	499	415	507	26.5	0.26
240	0.0754	0.0998	0.071	576	480	598	34.3	0.21
300	0.0601	0.0812	0.071	646	540	682	42.9	0.19
400	0.0470	0.0656	0.070	744	622	785	57.2	0.17

The above data is indicative & may be changed without prior information.
Conductor upto 16mm^2 will be round.
Conductor of 25mm^2 and above will be compacted sector shaped conductor.
* Standard Packing: 1000 Mtrs upto 95sq.mm
500 Mtrs from 120sq.mm to 300sq.mm
300 Mtrs for 400sq.mm

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-4

Three core cable, Copper conductor, XLPE Insulated, Gal. steel wire armoured, PVC sheathed, 600/1000V, conf. to BS: 5467

Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of PVC Outer sheath	Overall diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx.	Approx.
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.9	1.3	12.6	280
2.5	0.7	0.8	0.9	1.4	14.1	355
4	0.7	0.8	0.9	1.4	15.3	430
6	0.7	0.8	0.9	1.4	16.6	525
10	0.7	0.8	1.25	1.5	19.5	810
16	0.7	0.8	1.25	1.6	21.6	985
25	0.9	1.0	1.6	1.7	23.6	1500
35	0.9	1.0	1.6	1.8	25.7	1905
50	1.0	1.0	1.6	1.8	28.5	2335
70	1.1	1.0	1.6	1.9	32.2	3150
95	1.1	1.2	2.0	2.1	37.0	4270
120	1.2	1.2	2.0	2.2	40.4	5160
150	1.4	1.4	2.5	2.3	45.5	6560
185	1.6	1.4	2.5	2.4	49.8	7820
240	1.7	1.4	2.5	2.6	55.1	9660
300	1.8	1.6	2.5	2.7	60.2	11845
400	2.0	1.6	2.5	2.9	66.6	14715

Area	D.C. resistance at 20° C	A.C. resistance at operating Temp. 90° C	Reactance at 50 Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx.	Approx.	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	25	22	23	0.21	26.72
2.5	7.41	9.45	0.099	32	30	31	0.36	16.37
4	4.61	5.88	0.093	42	39	41	0.57	10.18
6	3.08	3.93	0.088	52	49	52	0.86	6.80
10	1.83	2.33	0.084	71	66	72	1.43	4.04
16	1.15	1.47	0.081	105	84	94	2.29	2.54
25	0.727	0.927	0.081	136	111	123	3.58	1.61
35	0.524	0.669	0.079	163	133	151	5.01	1.17
50	0.387	0.494	0.078	194	158	184	7.15	0.87
70	0.268	0.343	0.074	241	197	231	10.01	0.61
95	0.193	0.248	0.072	288	237	285	13.6	0.45
120	0.153	0.197	0.072	331	273	331	17.2	0.36
150	0.124	0.160	0.073	370	309	378	21.5	0.30
185	0.0991	0.1291	0.072	418	348	436	26.5	0.26
240	0.0754	0.0998	0.071	483	403	514	34.3	0.21
300	0.0601	0.0812	0.071	540	452	586	42.9	0.19
400	0.0470	0.0656	0.070	621	530	674	57.2	0.17

The above data is indicative & may be changed without prior information.
Conductor upto 16mm^2 will be round.
Conductor of 25mm^2 and above will be compacted sector shaped conductor.
* Standard Packing: 1000 Mtrs upto 95sq.mm
500 Mtrs from 120sq.mm to 300sq.mm
300 Mtrs for 400sq.mm

Operating conditions - Amb. air temp: 40° C
Ground temp: 20° C
Depth of laying: 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-5

Four core cable, Copper conductor, XLPE Insulated, Gal. steel wire armoured, PVC sheathed, 600/1000V, conf. to BS: 5467

Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of PVC Outer sheath	Overall diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx.	Approx.
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.9	1.3	13.3	335
2.5	0.7	0.8	0.9	1.4	15.0	430
4	0.7	0.8	0.9	1.4	16.4	535
6	0.7	0.8	1.25	1.5	18.7	770
10	0.7	0.8	1.25	1.5	21.1	960
16	0.7	0.8	1.25	1.6	23.4	1200
25	0.9	1.0	1.6	1.7	26.1	1855
35	0.9	1.0	1.6	1.8	28.6	2370
50	1.0	1.0	1.6	1.9	32.0	2950
70	1.1	1.2	2.0	2.1	37.7	4355
95	1.1	1.2	2.0	2.2	41.7	5445
120	1.2	1.4	2.5	2.3	47.1	7010
150	1.4	1.4	2.5	2.4	51.4	8365
185	1.6	1.4	2.5	2.6	56.6	10050
240	1.7	1.6	2.5	2.7	63.0	12450
300	1.8	1.6	2.5	2.9	68.8	15300
400	2.0	1.8	3.15	3.2	78.1	20100

Area	D.C. resistance at 20° C	A.C. resistance at operating Temp. 90° C	Reactance at 50 Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx.	Approx.	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	25	22	23	0.21	26.72
2.5	7.41	9.45	0.099	32	30	31	0.36	16.37
4	4.61	5.88	0.093	42	39	41	0.57	10.18
6	3.08	3.93	0.088	52	49	52	0.86	6.80
10	1.83	2.33	0.084	71	66	72	1.43	4.04
16	1.15	1.47	0.081	105	84	94	2.29	2.54
25	0.727	0.927	0.081	136	111	123	3.58	1.61
35	0.524	0.669	0.079	163	133	151	5.01	1.17
50	0.387	0.494	0.078	194	158	184	7.15	0.87
70	0.268	0.343	0.074	241	197	231	10.01	0.61
95	0.193	0.248	0.072	288	237	285	13.6	0.45
120	0.153	0.197	0.072	331	273	331	17.2	0.36
150	0.124	0.160	0.073	370	309	378	21.5	0.30
185	0.0991	0.1291	0.072	418	348	436	26.5	0.26
240	0.0754	0.0998	0.071	483	403	514	34.3	0.21
300	0.0601	0.0812	0.071	540	452	586	42.9	0.19
400	0.0470	0.0656	0.070	621	530	674	57.2	0.17

The above data is indicative & may be changed without prior information.
Conductor upto 16mm^2 will be round.
Conductor of 25mm^2 and above will be compacted sector shaped conductor.
* Standard Packing: 1000 Mtrs upto 70sq.mm
500 Mtrs from 95sq.mm to 300sq.mm
200 Mtrs for 400sq.mm

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-6

Five core cable, Copper conductor, XLPE Insulated, Gal. steel wire armoured, PVC sheathed, 600/1000V, conf. to BS: 5467

Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of PVC Outer sheath	Overall diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx.	Approx.
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.9	1.4	14.3	385
2.5	0.7	0.8	0.9	1.4	16.1	495
4	0.7	0.8	0.9	1.5	17.8	620
6	0.7	0.8	1.25	1.5	20.0	845
10	0.7	0.8	1.25	1.6	22.9	1130
16	0.7	1.0	1.6	1.7	26.6	1685
25	0.9	1.0	1.6	1.8	31.5	2330
35	0.9	1.0	1.6	1.9	34.8	2965
50	1.0	1.2	2.0	2.0	40.4	4075
70	1.1	1.2	2.0	2.2	46.3	5475

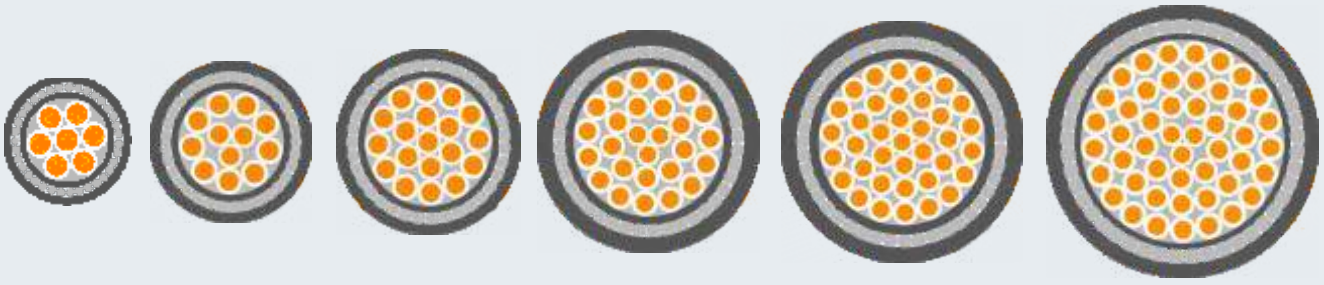
Area	D.C. resistance at 20° C	A.C. resistance at operating Temp. 90° C	Reactance at 50 Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx.	Approx.	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	25	22	23	0.21	26.72
2.5	7.41	9.45	0.099	32	30	31	0.36	16.37
4	4.61	5.88	0.093	42	39	41	0.57	10.18
6	3.08	3.93	0.088	52	49	52	0.86	6.80
10	1.83	2.33	0.084	71	66	72	1.43	4.04
16	1.15	1.47	0.081	105	84	94	2.29	2.54
25	0.727	0.927	0.081	136	111	123	3.58	1.61
35	0.524	0.669	0.079	163	133	151	5.01	1.17
50	0.387	0.494	0.078	194	158	184	7.15	0.87
70	0.268	0.343	0.074	241	197	231	10.01	0.61

The above data is indicative & may be changed without prior information.
Conductor upto $10mm^2$ will be round, non-compacted.
Conductor above $10mm^2$ will be round, compacted.
* Standard Packing: 1000Mtr Drums

Operating conditions - Amb. Air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table - 7

Auxillary (Control) cable, 1.5mm^2, Copper conductor, XLPE insulated, Gal. steel wire armoured, PVC sheathed, 600/1000V, conf. to BS: 5467



Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of PVC Outer sheath	Overall diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx.	Approx.
mm^2	mm	mm	mm	mm	mm	kg/km
7 x 1.5	0.6	0.8	0.9	1.4	15.2	440
12 x 1.5	0.6	0.8	1.25	1.5	19.4	745
19 x 1.5	0.6	0.8	1.25	1.6	22.2	965
27 x 1.5	0.6	1.0	1.6	1.7	26.7	1425
37 x 1.5	0.6	1.0	1.6	1.7	29.0	1710
48 x 1.5	0.6	1.0	1.6	1.8	32.7	2070

Area	D.C. resistance at 20° C	A.C. resistance at operating Temp. 90° C	Reactance at 50 Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx.	Approx.	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
7 x 1.5	12.1	15.43	0.105	21	17	17	0.215	26.73
12 x 1.5	12.1	15.43	0.105	18	14	14	0.215	26.73
19 x 1.5	12.1	15.43	0.105	15	12	12	0.215	26.73
27 x 1.5	12.1	15.43	0.105	13	10	10	0.215	26.73
37 x 1.5	12.1	15.43	0.105	11	9	9	0.215	26.73
48 x 1.5	12.1	15.43	0.105	10	8	8	0.215	26.73

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtr Drums

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table - 8

Auxillary (Control) cable, 2.5mm^2, Copper conductor, XLPE insulated, Gal. steel wire armoured, PVC sheathed, 600/1000V, conf. to BS: 5467

Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of PVC Outer sheath	Overall diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx.	Approx.
mm^2	mm	mm	mm	mm	mm	kg/km
7 x 2.5	0.7	0.8	0.9	1.4	17.1	570
12 x 2.5	0.7	0.8	1.25	1.6	22.4	980
19 x 2.5	0.7	1.0	1.6	1.7	26.6	1485
27 x 2.5	0.7	1.0	1.6	1.8	30.7	1905
37 x 2.5	0.7	1.0	1.6	1.8	33.8	2320
48 x 2.5	0.7	1.0	1.6	2.0	39.3	3165

Area	D.C. resistance at 20° C	A.C. resistance at operating Temp. 90° C	Reactance at 50 Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx.	Approx.	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
7 x 2.5	7.41	9.45	0.099	27	22	23	0.358	16.37
12 x 2.5	7.41	9.45	0.099	22	19	19	0.358	16.37
19 x 2.5	7.41	9.45	0.099	19	16	16	0.358	16.37
27 x 2.5	7.41	9.45	0.099	16	14	13	0.358	16.37
37 x 2.5	7.41	9.45	0.099	14	12	12	0.358	16.37
48 x 2.5	7.41	9.45	0.099	13	11	11	0.358	16.37

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtr Drums

Operating conditions - Amb. Air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table - 9

Auxillary (Control) cable, 4mm^2, Copper conductor, XLPE insulated, Gal. steel wire armoured, PVC sheathed, 600/1000V, conf. to BS: 5467

Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of PVC Outer sheath	Overall diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx.	Approx.
mm^2	mm	mm	mm	mm	mm	kg/km
7 x 4	0.7	0.8	1.25	1.5	19.7	840
12 x 4	0.7	1.0	1.25	1.6	25.7	1400
19 x 4	0.7	1.0	1.6	1.7	29.3	1900
27 x 4	0.7	1.0	1.6	1.9	34.4	2485
37 x 4	0.7	1.2	2.0	2.0	39.2	3410
48 x 4	0.7	1.2	2.0	2.1	44.1	4150

Area	D.C. resistance at 20° C	A.C. resistance at operating Temp. 90° C	Resistance at 50 Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx.	Approx.	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
7 x 4	4.61	5.88	0.093	36	29	30	0.572	10.18
12 x 4	4.61	5.88	0.093	30	24	25	0.572	10.18
19 x 4	4.61	5.88	0.093	25	20	21	0.572	10.18
27 x 4	4.61	5.88	0.093	22	17	18	0.572	10.18
37 x 4	4.61	5.88	0.093	19	16	16	0.572	10.18
48 x 4	4.61	5.88	0.093	18	14	15	0.572	10.18

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtr Drums

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Tables - 10 to 23

Group Rating Factors for Circuits for Three Single Core Cables in Trefoil formation

Table 10: Touching Horizontal Formation laid Direct in Ground

No. of Circuits	Spacing (Between Centres of Circuits)				
	Touching	15 cm	30 cm	45 cm	60 cm
2	0.78	0.81	0.85	0.88	0.90
3	0.68	0.71	0.77	0.81	0.83
4	0.61	0.65	0.72	0.76	0.79
5	0.56	0.61	0.68	0.73	0.78

Table 11: Cables laid in Trefoil Ducts in horizontal formation

No. of Circuits	Spacing (Between Centres of Circuits)		
	Touching	45 cm	60 cm
2	0.87	0.90	0.91
3	0.79	0.83	0.86
4	0.74	0.79	0.82
5	0.71	0.76	0.79

Table 12: Cables laid on Racks/Trays in covered trench with removable covers where air circulation is restricted. Trefoils are seperated by two cable dia horizontally and the trays are in tiers with 30 cm. gap between them.

No. of Racks Trays intiers	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

Table 13: Cables laid as in 'C' but open air

No. of Racks	No. of Cables per Rack		
	1	2	3
1	1	0.98	0.96
2	1	0.95	0.93
3	1	0.94	0.92
6	1	0.93	0.90

Group Rating Factors for Circuits for Multi-core Cables

Table 14: Cables laid inside concrete trench with removable coves, on cable trays where air circulation is restricted. The cables spaced by one cable diameter and trays in tiers by 300 mm. The clearance of the cable from the Wall is 25 mm.

No. of Cables trays in Tier	Number of cables				
	1	2	3	6	9
1	0.95	0.9	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

Table 15: Cables laid on cable trays exposed to air, the cables spaced by one cable diameter and trays in tiers by 300 mm. The clearance between the Wall and the cable is 25 mm.

No. of Cables Trays in Tier	Number of cables per Rack			
	2	3	6	9
1	0.98	0.96	0.93	0.92
2	0.95	0.93	0.90	0.89
3	0.94	0.92	0.89	0.88
6	0.93	0.90	0.87	0.86

Table 16: Cables laid on cable trays exposed to air, the cables are touching and trays in tiers by 300 mm. The clearance between the wall and the cable is 25 mm.

No. of Cables Trays in Tier	Number of cables per Rack			
	2	3	6	9
1	0.84	0.80	0.75	0.73
2	0.80	0.76	0.71	0.69
3	0.78	0.74	0.70	0.68
6	0.76	0.72	0.68	0.66

Table 17: Cables laid Direct in Ground in horizontal formation.

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

Table 18: Cables laid Direct in single way ducts/pipes in horizontal formation.

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

Table 19: Rating Factor for Variation in Dept. of laying in

Dept. of Laying (cm)	50	80	100	125	150	200 & above
Rating Factor upto 50 mm^2	1	0.97	0.95	0.94	0.93	0.91
Rating Factor 70 mm^2 to 300 mm^2	1	0.96	0.94	0.92	0.91	0.88
Rating Factor above 300 mm^2	1	0.94	0.92	0.9	0.89	0.86

Table 20: Rating Factors for Variation in Ambient Air Temperature

Air Temp. ° C	15	20	25	30	35	40	45	50	55
Rating Factor	1.22	1.18	1.14	1.1	1.05	1.0	0.95	0.89	0.84

Table 21: Rating Factors for Variation in Ambient Ground Temperature

Group Temp.°C	15	20	25	30	35	40	45	50	55
Rating Factor	1.04	1	0.96	0.9	0.89	0.85	0.8	0.76	0.71

Table 22: Rating Factors for Variation in thermal resistivity of soil (multicore cables laid direct in the ground) - Average values

Nominal area of conductor mm^2	For values of thermal resistivity of Soil in °C-cm/W					
	80	90	100	150	200	250
Up to 16	1.09	1.06	1.04	0.95	0.86	0.79
25 to 150	1.14	1.10	1.07	0.93	0.84	0.76
185 & above	1.16	1.11	1.07	0.92	0.82	0.74

Table 23: Rating Factors for Variation in thermal resistivity of soil, three single core cables laid direct in the ground (three cables in trefoil touching) : Average Values

Nominal area of conductor mm^2	For values of thermal resistivity of Soil in °C-cm/W					
	80	90	100	150	200	250
Up to 150	1.16	1.11	1.07	0.91	0.81	0.73
185 to 400	1.17	1.12	1.07	0.90	0.80	0.72
500 & above	1.18	1.13	1.08	0.90	0.79	0.71

- **CONDUCTOR**

  Electrical grade, high conductivity Copper / Aluminium wires are stranded to make compacted circular conductors as per IEC 60228.

- **SEMI-CONDUCTING LAYER OVER CONDUCTOR**

  Extruded semi-conducting compound is applied over the conductor, in tandem with insulation.

- **INSULATION**

  High quality super clean XLPE insulating compound is used for insulating the cores on 'Maillefer' CCV line equipped with online x-ray analyser to maintain the desired thicknesses of insulation and semiconducting layer as per the relevant standards.

- **SEMI-CONDUCTING LAYER OVER INSULATION**

  Shield consisting of a layer of bonded or strippable, extruded semi-conducting compound applied in tandem over the insulation.

- **METALLIC SHIELD**

  Copper tape / copper wires is helically applied over the cores, of cross section suitable as per the standard or as per the system fault current requirement. Colour marking tape is applied longitudinally below the metallic sheath for core identification.

- **SEPARATION SHEATH**

  Separation sheath of ST-2 PVC along with polypropylene [PP] fillers, is provided.

- **ARMOUR**

  The armour is given for the protection of cable against physical damage. Galvanised round steel wire or galvanised steel tapes are applied helically over bedding as armouring. However, single core cables are armored with Aluminium round wire or Aluminium tape.

- **OUTER SHEATH**

  The outer sheath shall be of extruded Polyvinyl Chloride (PVC) type ST2 as per IEC 60502-2, Type 9 as per BS 7655 or LSF/LSZH Type LTS1 / ST 8. Polyethylene outer sheath is used in case the cable requires higher impregnability to moisture. Outer sheath is of generally black/ red colour or as per project requirement.

- **MARKING OVER OUTER SHEATH**

  Outer sheath shall be marked / embossed with Manufacturer name, no of cores, size, Voltage ratings, and year of manufacture, sequential length marking and any other desired marking for better identification at site.

- **FIRE RETARDANT CABLE SHEATHS**

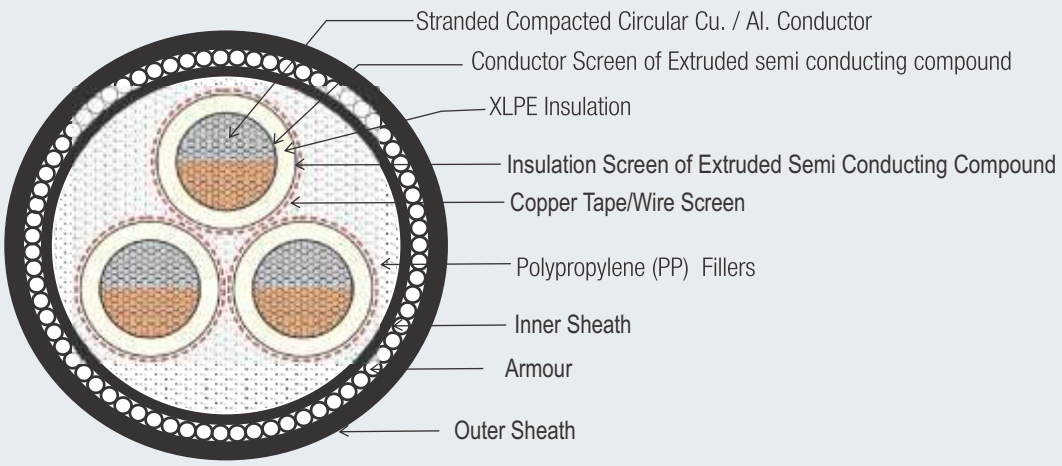
  Cables with special flame retardant PVC compounds meeting flame test requirements of IEC 60332-3-22, IEC 60332-3-23 or IEC 60332-3-24 are manufactured as per project requirement.

- **PACKING**

  The cables are supplied on drums manufactured from high quality pine wood or steel. The pine wooden drums are properly seasoned and treated, with minimum painting to make them more eco-friendly. The cable ends are sealed with heat shrinkable end caps, marked with our logo, to avoid any possibility of ingress of water or dirt during transportation and storage as well as any pilferage of the cable.

  Each drum is clearly marked with our name and logo, type, size, length, net and gross weight and sequential length marking details. An arrow and suitable instruction is marked on the drum indicating the direction, the drum should be rolled while laying the cable.

- **TYPICAL CROSS SECTION DRAWING OF MV CABLE**



- **Voltage designations Uo/U (Urn) and Categories**

1) 3.6/6.0 (7.2) kV 2) 6.0/10(12) kV 3) 8.7/15(17.5) kV 4) 12/20 (24) kV 5) 18/30 (36) kV

Uo is the rated power frequency voltage between conductor and earth or metallic screen for which the cable is designed.

U is the rated power frequency voltage between conductors for which the cable is designed.

Urn is the maximum value of the "highest system voltage" for which the equipment may be used.

The rated voltage of the cable for a given application shall be suitable for the operating conditions in the system in which the cable is used. To facilitate the selection of the cable, systems are divided into three categories:

Category A: this category comprises those systems in which any phase conductor that comes in contact with earth or an earth conductor is disconnected from the system within 1 min.

Category B: this category comprises those systems which, under fault conditions, are operated for a short time with one phase earthed. This period, according to IEC 60183, should not exceed 1 hr. For cables covered by this standard, a longer period, not exceeding 8 hr. on any occasion, can be tolerated. The total duration of earth faults in any year should not exceed 125 hr.

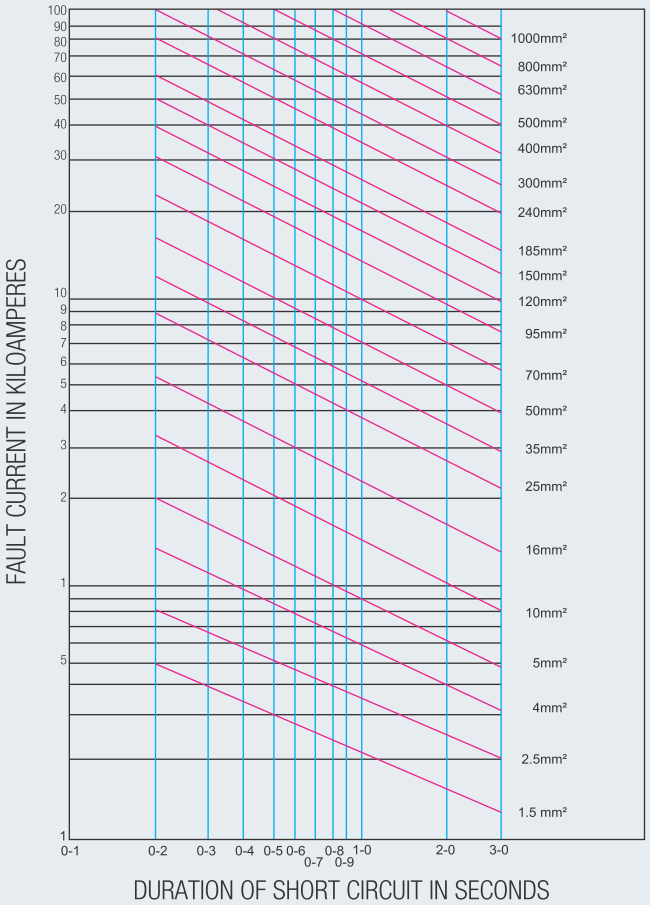
Category C: this category comprises all systems which do not fall into category Aor B.

NOTE: It should be realized that in a system where an earth fault is not automatically and promptly isolated, the extra stresses on the insulation of cables during the earth fault reduce the life of the cables to a certain degree. If the system is expected to be operated fairly often with a permanent earth fault, it may be advisable to classify the system in category C.

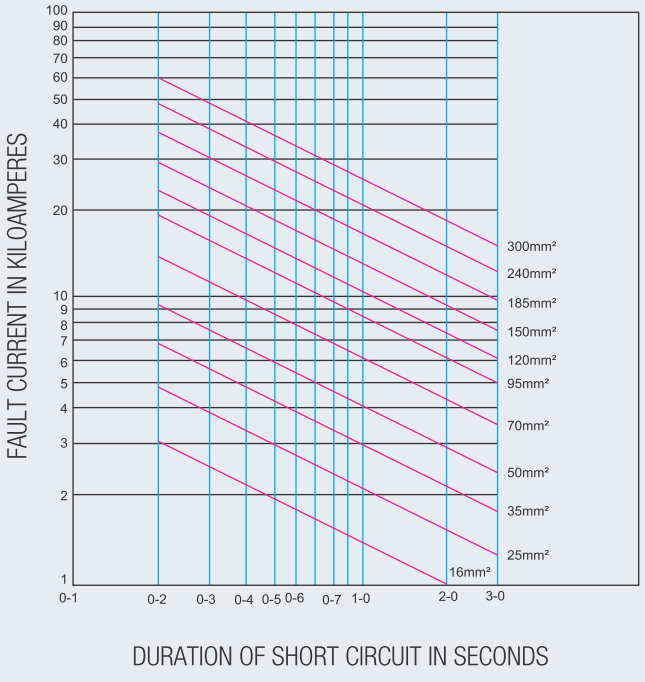
- **SHORT CIRCUIT RATINGS OF CONDUCTORS**

The values of fault current given in the graph beloware based on the cable being fully loaded at the start of the short circuit (conductor temperature 90°C) and a final conductor temperature of 250°C. It should be ensured that the accessories associated with the cables are also capable of operation at these values of fault current and temperature.

COPPER CONDUCTORS



ALUMINIUM CONDUCTORS



FOLLOWING TESTS ARE CARRIED OUT ON THE CABLES:

ROUTINE TESTS

a) Conductor resistance test

b) Partial discharge test [for screened cables only]

[To be carried out on full drum length]

c) High voltage test

SAMPLE TESTS

a) Conductor examination

b) Check of dimensions

c) Voltage test for 4 hr.

d) Hot set test

SPECIAL TESTS FOR FRLS CABLES

i) Oxygen Index Test as per ASTM-D-2863

ii) Temp. Index Test as per ASTM-D-2863

iii) Acid Gas Generation test (HCL) as per IEC-754(1)

iv) Smoke Density test as per ASTM-D-2843

v) Flammability tests

a. As per IEC 332-I

b. As per IEC 332-3

c. Swedish Chimney as per SS-424-14-75 (Class F 3)

d. IEEE - 383

TYPE TESTS

ELECTRICAL

1) Bending test followed by partial discharge test

2) Tan E. measurement

3) Heating cycle test followed by partial discharge test

4) Impulse test followed by voltage test

5) Voltage test of 4 hr.

6) Resistivity of semi-conducting screen

7) Insulation resistance measurement

NON-ELECTRICAL

1) Measurement of Insulation thickness

2) Measurement of thickness of non-metallic sheaths

3) Determination of mechanical properties of Insulation before & after ageing

4) Determination of mechanical properties of Non-metallic sheaths before & after ageing

5) Ageing test on pieces of completed cable

6) Loss of mass for PVC sheath

7) Pressure test at high temperature

8) Tests at low temperatures on PVC sheath

9) Heat shock test

10) Hot set test

11) Water absorption test on insulation

12) Flame spread test for PVC sheathed cables

13) Shrinkage for XLPE insulation

PARTIAL DISCHARGE TEST

This test is conducted for detection and measurement of partial discharge in screened cables. Partial discharges in voids remain unnoticed in the normal HV test and could be harmful for the life of insulation.

Extruded di-electric tends to deteriorate very fast due to the discharges in small voids and cavities. It is therefore necessary that such voids should as far as possible be avoided in the extrusion process.

Still certain minute voids are unavoidable and these remain in the insulation. The magnitude of discharge in such voids is measured so as to determine whether these are within permissible limits.

This test is performed on such extruded di-electric in order to ensure that the insulation is free from partial discharges in excess of certain limits.

IMPULSE TEST

Insulating material used in M.V. cables is subjected to transient over voltages resulting from nearby lightening strokes. The ability of insulating material to withstand these transient voltages is important in establishing the reliability of the cable insulation and the design of cable.

Table-24
3.6/6.0 (7.2) kV

Single core XLPE Insulated Screened Armoured cable with Aluminium/Copper conductor Conf. to IEC:60502-2

Area	Thickness of XLPE Insulation	Thickness of Seperation Sheath	Dimension of Armour Wire	Thickness of Outer sheath		Approx. Overall diameter	Approx. Net Wt. of Cable	
mm^2	mm	mm	mm	mm	mm	mm	kg/km	kg/km
	Nom	Nom		Nom	Min		Al	Cu
25	2.5	1.2	1.6	1.80	1.24	23	670	820
35	2.5	1.2	1.6	1.80	1.24	24	735	950
50	2.5	1.2	1.6	1.80	1.24	25	815	1100
70	2.5	1.2	1.6	1.80	1.24	27	930	1355
95	2.5	1.2	1.6	1.90	1.32	29	1080	1650
120	2.5	1.2	1.6	1.90	1.32	30	1200	1930
150	2.5	1.2	1.6	2.00	1.40	32	1330	2235
185	2.5	1.2	2.0	2.00	1.40	34	1600	2725
240	2.6	1.2	2.0	2.10	1.48	38	1925	3350
300	2.8	1.2	2.0	2.20	1.56	40	2225	4065
400	3.0	1.2	2.0	2.30	1.64	44	2660	5030
500	3.2	1.3	2.5	2.50	1.80	49	3365	6350
630	3.2	1.4	2.5	2.60	1.88	53	3980	7890
800	3.2	1.4	2.5	2.70	1.96	58	4715	9665
1000	3.2	1.5	2.5	2.90	2.12	63	5600	11775

Area	Max D.C. resistance at 20°C		Approx. A.C. resistance at operating temp 90°C		Approx. reactance at 50 Hz	Approx. Capaci-tance	Current Rating as per IEC 60 502-2						Short circuit rating for 1 Sec.	
							Direct in Ground		In duct		In Air			
	Ohm/km	Ohm/km	Ohm/km	Ohm/km	Ohm/km	μf/km	Amps	Amps	Amps	Amps	Amps	Amps	kA(rms)	
mm^2	Al	Cu	Al	Cu			Al	Cu	Al	Cu	Al	Cu	Al	Cu
25	1.20	0.727	1.54	0.927	0.148	0.263	108	140	102	132	127	163	2.35	3.58
35	0.868	0.524	1.113	0.668	0.141	0.292	129	166	122	157	154	198	3.29	5.01
50	0.641	0.387	0.822	0.494	0.134	0.326	152	196	144	186	184	238	4.70	7.15
70	0.443	0.268	0.568	0.342	0.124	0.371	186	239	176	227	230	296	6.58	10.01
95	0.320	0.193	0.411	0.247	0.118	0.418	221	285	210	271	280	361	8.93	13.6
120	0.253	0.153	0.325	0.196	0.114	0.460	252	323	240	308	324	417	11.28	17.2
150	0.206	0.124	0.265	0.159	0.111	0.494	281	361	267	343	368	473	14.1	21.5
185	0.164	0.0991	0.211	0.1276	0.107	0.550	317	406	303	387	424	543	17.4	26.5
240	0.125	0.0754	0.161	0.0979	0.105	0.601	367	469	351	447	502	641	22.6	34.3
300	0.100	0.0601	0.130	0.0789	0.102	0.617	414	526	397	504	577	735	28.2	42.9
400	0.0778	0.0470	0.1016	0.0629	0.098	0.655	470	590	451	564	673	845	37.6	57.2
500	0.0605	0.0366	0.0800	0.0504	0.098	0.686	533	669	511	639	763	958	47.0	71.5
630	0.0469	0.0283	0.0633	0.0409	0.095	0.766	605	760	581	727	867	1089	59.2	90.1
800	0.0367	0.0221	0.0512	0.0342	0.091	0.862	684	860	657	822	980	1232	75.2	114.4
1000	0.0291	0.0176	0.0425	0.0294	0.090	0.949	768	964	737	922	1100	1381	94.0	143.0

The above data is indicative & may be changed without prior information.
All conductors will be compacted circular shaped
Cables can be supplied in multiples of 500 mtrs or as per customer requirement.

Operating conditions - Amb. air temp. 30° C
Ground temp: 20° C
Depth of laying : 80 cm
Thermal resistivity of soil: 1.50 K-m/W
Thermal resistivity of duct: 1.20 K-m/W

Table-25
3.6/6.0 (7.2) kV

Three core XLPE Insulated Screened Armoured cable with Aluminium/Copper conductor Conf. to IEC:60502-2

Area	Thickness of XLPE Insulation	Thickness of Seperation Sheath	Dimension of Armour Wire	Thickness of Outer sheath		Approx. Overall diameter	Approx. Net Wt. of Cable	
mm^2	mm	mm	mm	mm	mm	mm	kg/km	kg/km
	Nom	Nom		Nom	Min		Al	Cu
25	2.5	1.2	2.00	2.30	1.64	39	2500	2955
35	2.5	1.2	2.00	2.30	1.64	42	3090	3745
50	2.5	1.3	2.50	2.50	1.80	46	3935	4800
70	2.5	1.4	2.50	2.60	1.88	50	4575	5865
95	2.5	1.4	2.50	2.70	1.96	54	5225	6985
120	2.5	1.5	2.50	2.80	2.04	57	5865	8075
150	2.5	1.5	2.50	2.90	2.12	60	6465	9210
185	2.5	1.6	2.50	3.00	2.20	65	7430	10810
240	2.6	1.7	2.50	3.20	2.36	72	8945	13265
300	2.8	1.8	3.15	3.50	2.60	79	11275	16840
400	3.0	2.0	3.15	3.80	2.84	88	13615	20795

Area	Max D.C. resistance at 20°C		Approx. A.C. resistance at operating temp 90°C		Approx. reactance at 50 Hz	Approx. Capaci-tance	Current Rating as per IEC 60 502-2						Short circuit rating for 1 Sec.	
							Direct in Ground		In duct		In Air			
	Ohm/km	Ohm/km	Ohm/km	Ohm/km	Ohm/km	µf/km	Amps	Amps	Amps	Amps	Amps	Amps	kA(rms)	
mm^2	Al	Cu	Al	Cu			Al	Cu	Al	Cu	Al	Cu	Al	Cu
25	1.20	0.727	1.54	0.927	0.118	0.263	100	129	87	112	111	143	2.35	3.58
35	0.868	0.524	1.113	0.668	0.113	0.292	119	154	104	134	133	172	3.29	5.01
50	0.641	0.387	0.822	0.494	0.180	0.326	140	181	123	158	159	205	4.70	7.15
70	0.443	0.268	0.568	0.342	0.099	0.371	171	220	150	194	196	253	6.58	10.01
95	0.320	0.193	0.411	0.247	0.095	0.418	204	263	180	232	238	307	8.93	13.60
120	0.253	0.153	0.325	0.196	0.092	0.460	232	298	206	264	274	352	11.28	17.20
150	0.206	0.124	0.265	0.160	0.090	0.494	259	332	231	296	309	397	14.10	21.50
185	0.164	0.0991	0.211	0.1286	0.0863	0.550	293	374	262	335	354	453	17.40	26.50
240	0.125	0.0754	0.162	0.0987	0.0858	0.601	338	431	304	387	415	529	22.60	34.30
300	0.100	0.0601	0.130	0.0799	0.084	0.617	380	482	343	435	472	599	28.20	42.90
400	0.0778	0.0470	0.1024	0.0642	0.0821	0.655	432	541	393	492	545	683	37.60	57.20

The above data is indicative & may be changed without prior information.
All conductors will be compacted circular shaped
Cables can be supplied in multiples of 250/500 mtrs or as per customer requirement.

Operating conditions - Amb. air temp. 30° C
Ground temp: 20° C
Depth of laying : 80 cm
Thermal resistivity of soil: 1.50 K-m/W
Thermal resistivity of duct: 1.20 K-m/W

Table-26
6/10 (12) kV

Single core XLPE Insulated Screened Armoured cable with Aluminium/Copper conductor Conf. to IEC:60502-2

Area	Thickness of XLPE Insulation	Thickness of Seperation Sheath	Dimension of Armour Wire	Thickness of Outer sheath		Approx. Overall diameter	Approx. Net Wt. of Cable	
mm^2	mm	mm	mm	mm	mm	mm	kg/km	kg/km
	Nom	Nom		Nom	Min		Al	Cu
25	3.4	1.2	1.6	1.80	1.24	25	750	905
35	3.4	1.2	1.6	1.80	1.24	26	820	1040
50	3.4	1.2	1.6	1.80	1.24	27	900	1190
70	3.4	1.2	1.6	1.90	1.32	29	1040	1465
95	3.4	1.2	1.6	1.90	1.32	30	1180	1765
120	3.4	1.2	1.6	2.00	1.40	32	1320	2050
150	3.4	1.2	2.0	2.10	1.48	34	1550	2455
185	3.4	1.2	2.0	2.10	1.48	36	1740	2860
240	3.4	1.2	2.0	2.20	1.56	39	2060	3485
300	3.4	1.2	2.0	2.20	1.56	43	2320	4155
400	3.4	1.2	2.0	2.40	1.72	45	2745	5115
500	3.4	1.3	2.5	2.50	1.80	50	3395	6380
630	3.4	1.4	2.5	2.60	1.88	54	4030	7935
800	3.4	1.4	2.5	2.70	1.96	58	4765	9710
1000	3.4	1.5	2.5	2.90	2.12	63	5655	11800

Area	Max D.C. resistance at 20°C		Approx. A.C. resistance at operating temp 90°C		Approx. reactance at 50 Hz	Approx. Capaci-tance	Current Rating as per IEC 60 502-2						Short circuit rating for 1 Sec.	
							Direct in Ground		In duct		In Air			
	Ohm/km	Ohm/km	Ohm/km	Ohm/km	Ohm/km	μf/km	Amps	Amps	Amps	Amps	Amps	Amps	kA(rms)	
mm^2	Al	Cu	Al	Cu			Al	Cu	Al	Cu	Al	Cu	Al	Cu
25	1.20	0.727	1.54	0.927	0.153	0.209	108	140	102	132	127	163	2.35	3.58
35	0.868	0.524	1.113	0.668	0.146	0.230	129	166	122	157	154	198	3.29	5.01
50	0.641	0.387	0.822	0.494	0.138	0.255	152	196	144	186	184	238	4.70	7.15
70	0.443	0.268	0.568	0.342	0.129	0.289	186	239	176	227	230	296	6.58	10.01
95	0.320	0.193	0.411	0.247	0.122	0.324	221	285	210	271	280	361	8.93	13.6
120	0.253	0.153	0.325	0.196	0.118	0.355	252	323	240	308	324	417	11.28	17.2
150	0.206	0.124	0.265	0.159	0.116	0.380	281	361	267	343	368	473	14.1	21.5
185	0.164	0.0991	0.211	0.1276	0.111	0.421	317	406	303	387	424	543	17.4	26.5
240	0.125	0.0754	0.161	0.0978	0.108	0.475	367	469	351	447	502	641	22.6	34.3
300	0.100	0.0601	0.130	0.0788	0.104	0.520	414	526	397	504	577	735	28.2	42.9
400	0.0778	0.0470	0.1016	0.0628	0.100	0.585	470	590	451	564	673	845	37.6	57.2
500	0.0605	0.0366	0.0799	0.0504	0.098	0.649	533	669	511	639	763	958	47.0	71.5
630	0.0469	0.0283	0.0633	0.0408	0.095	0.725	605	760	581	727	867	1089	59.2	90.1
800	0.0367	0.0221	0.0512	0.0341	0.092	0.815	684	860	657	822	980	1232	75.2	114.4
1000	0.0291	0.0176	0.0425	0.0294	0.090	0.897	768	964	737	922	1100	1381	94.0	143.0

The above data is indicative & may be changed without prior information.
All conductors will be compacted circular shaped
Cables can be supplied in multiples of 500 mtrs or as per customer requirement.

Operating conditions - Amb. air temp. 30° C
Ground temp: 20° C
Depth of laying : 80 cm
Thermal resistivity of soil: 1.50 K-m/W
Thermal resistivity of duct: 1.20 K-m/W

Table-27
6/10 (12) kV

Three core XLPE Insulated Screened Armoured cable with Aluminium/Copper conductor Conf. to IEC:60502-2

Area	Thickness of XLPE Insulation	Thickness of Seperation Sheath	Dimension of Armour Wire	Thickness of Outer sheath		Approx. Overall diameter	Approx. Net Wt. of Cable	
mm^2	mm	mm	mm	mm	mm	mm	kg/km	kg/km
	Nom	Nom		Nom	Min		Al	Cu
25	3.4	1.3	2.50	2.40	1.72	45	3335	3790
35	3.4	1.3	2.50	2.50	1.80	47	3600	4260
50	3.4	1.4	2.50	2.60	1.88	51	4080	4950
70	3.4	1.4	2.50	2.70	1.96	54	4530	5820
95	3.4	1.5	2.50	2.90	2.12	58	5215	6980
120	3.4	1.6	2.50	3.00	2.20	62	5845	8060
150	3.4	1.6	2.50	3.10	2.28	64	6335	9075
185	3.4	1.7	2.50	3.20	2.36	69	7155	10535
240	3.4	1.8	3.15	3.40	2.52	77	9340	13655
300	3.4	1.9	3.15	3.60	2.68	82	10430	16000
400	3.4	2.0	3.15	3.80	2.84	90	12185	19365

Area	Max D.C. resistance at 20°C		Approx. A.C. resistance at operating temp 90°C		Approx. reactance at 50 Hz	Approx. Capaci-tance	Current Rating as per IEC 60 502-2						Short circuit rating for 1 Sec.	
							Direct in Ground		In duct		In Air			
	Ohm/km	Ohm/km	Ohm/km	Ohm/km	Ohm/km	µf/km	Amps	Amps	Amps	Amps	Amps	Amps	kA(rms)	
mm^2	Al	Cu	Al	Cu			Al	Cu	Al	Cu	Al	Cu	Al	Cu
25	1.20	0.727	1.54	0.927	0.126	0.209	100	129	87	112	111	143	2.35	3.58
35	0868	0.524	1.113	0.668	0.120	0.230	119	154	104	134	133	172	3.29	5.01
50	0.641	0.387	0.822	0.494	0.114	0.255	140	181	123	158	159	205	4.70	7.15
70	0.443	0.268	0.568	0.342	0.106	0.289	171	220	150	194	196	253	6.58	10.01
95	0.320	0.193	0.411	0.247	0.101	0.324	204	263	180	232	238	307	8.93	13.6
120	0.253	0.153	0.325	0.196	0.097	0.355	232	298	206	264	274	352	11.28	17.2
150	0.206	0.124	0.265	0.159	0.095	0.380	259	332	231	296	309	397	14.1	21.5
185	0.164	0.0991	0.211	0.1281	0.0910	0.421	293	374	262	335	354	453	17.4	26.5
240	0.125	0.0754	0.162	0.0985	0.0895	0.475	338	431	304	387	415	529	22.6	34.3
300	0.100	0.0601	0.130	0.0797	0.0870	0.520	380	482	343	435	472	599	28.2	42.9
400	0.0778	0.0470	0.1024	0.0641	0.0836	0.585	432	541	393	492	545	683	37.6	57.2

The above data is indicative & may be changed without prior information.
All conductors will be compacted circular shaped
Cables can be supplied in multiples of 250/500 mtrs or as per customer requirement.

Operating conditions - Amb. air temp. 30° C
Ground temp: 20° C
Depth of laying : 80 cm
Thermal resistivity of soil: 1.50 K-m/W
Thermal resistivity of duct: 1.20 K-m/W

Table-28
8.7/15 (17.5) kV

Single core XLPE Insulated Screened Armoured cable with Aluminium/Copper conductor Conf. to IEC:60502-2

Area	Thickness of XLPE Insulation	Thickness of Seperation Sheath	Dimension of Armour Wire	Thickness of Outer sheath		Approx. Overall diameter	Approx. Net Wt. of Cable	
mm^2	mm	mm	mm	mm	mm	mm	kg/km	kg/km
	Nom	Nom		Nom	Min		Al	Cu
25	4.5	1.2	1.60	1.80	1.24	27	865	1020
35	4.5	1.2	1.60	1.90	1.32	28	950	1170
50	4.5	1.2	1.60	1.90	1.32	29	1040	1325
70	4.5	1.2	1.60	1.90	1.32	31	1165	1595
95	4.5	1.2	2.00	2.00	1.40	34	1420	2000
120	4.5	1.2	2.00	2.10	1.48	35	1575	2305
150	4.5	1.2	2.00	2.10	1.48	37	1700	2605
185	4.5	1.2	2.00	2.20	1.56	39	1915	3030
240	4.5	1.2	2.00	2.30	1.64	42	2240	3665
300	4.5	1.2	2.00	2.30	1.64	44	2510	4250
400	4.5	1.3	2.50	2.50	1.80	49	3135	5500
500	4.5	1.3	2.50	2.60	1.88	52	3630	6615
630	4.5	1.4	2.50	2.70	1.96	56	4265	8175
800	4.5	1.5	2.50	2.80	2.04	61	5075	10020
1000	4.5	1.6	2.50	3.00	2.20	66	5970	12130

Area	Max D.C. resistance at 20°C		Approx. A.C. resistance at operating temp 90°C		Approx. reactance at 50 Hz	Approx. Capaci-tance	Current Rating as per IEC 60 502-2						Short circuit rating for 1 Sec.	
							Direct in Ground		In duct		In Air			
	Ohm/km	Ohm/km	Ohm/km	Ohm/km	Ohm/km	µf/km	Amps	Amps	Amps	Amps	Amps	Amps	kA(rms)	
mm^2	Al	Cu	Al	Cu			Al	Cu	Al	Cu	Al	Cu	Al	Cu
25	1.20	0.727	1.54	0.927	0.158	0.171	108	140	102	132	127	163	2.35	3.58
35	0.868	0.524	1.113	0.668	0.151	0.187	129	166	122	157	154	198	3.29	5.01
50	0.641	0.387	0.822	0.494	0.144	0.207	152	196	144	186	184	238	4.70	7.15
70	0.443	0.268	0.568	0.342	0.133	0.232	186	239	176	227	230	296	6.58	10.01
95	0.320	0.193	0.411	0.247	0.128	0.259	221	285	210	271	280	361	8.93	13.6
120	0.253	0.153	0.325	0.196	0.124	0.283	252	323	240	308	324	417	11.28	17.2
150	0.206	0.124	0.265	0.159	0.120	0.302	281	361	267	343	368	473	14.1	21.5
185	0.164	0.0991	0.211	0.1275	0.115	0.333	317	406	303	387	424	543	17.4	26.5
240	0.125	0.0754	0.161	0.0977	0.112	0.374	367	469	351	447	502	641	22.6	34.3
300	0.100	0.0601	0.129	0.0787	0.108	0.408	414	526	397	504	577	735	28.2	42.9
400	0.0778	0.0470	0.1014	0.0626	0.105	0.458	470	590	451	564	673	845	37.6	57.2
500	0.0605	0.0366	0.0798	0.0502	0.101	0.506	533	669	511	639	763	958	47.0	71.5
630	0.0469	0.0283	0.0631	0.0406	0.098	0.564	605	760	581	727	867	1089	59.2	90.1
800	0.0367	0.0221	0.0510	0.0338	0.095	0.632	684	860	657	822	980	1232	75.2	114.4
1000	0.0291	0.0176	0.0422	0.0291	0.092	0.6941	768	964	737	922	1100	1381	94.0	143.0

The above data is indicative & may be changed without prior information.
All conductors will be compacted circular shaped
Cables can be supplied in multiples of 500 mtrs or as per customer requirement.

Operating conditions - Amb. air temp. 30° C
Ground temp: 20° C
Depth of laying : 80 cm
Thermal resistivity of soil: 1.50 K-m/W
Thermal resistivity of duct: 1.20 K-m/W

Table-29
8.7/15 (17.5) kV

Three core XLPE Insulated Screened Armoured cable with Aluminium/Copper conductor Conf. to IEC:60502-2

Area	Thickness of XLPE Insulation	Thickness Seperation Sheath	Dimension of Armour Wire	Thickness of Outer sheath		Approx. Overall diameter	Approx. Net Wt. of Cable	
mm^2	mm	mm	mm	mm	mm	mm	kg/km	kg/km
	Nom	Nom		Nom	Min		Al	Cu
25	4.5	1.4	2.50	2.60	1.88	50	3950	4405
35	4.5	1.4	2.50	2.70	1.96	52	4230	4890
50	4.5	1.5	2.50	2.80	2.04	55	4625	5490
70	4.5	1.5	2.50	2.90	2.12	59	5210	6505
95	4.5	1.6	2.50	3.00	2.20	63	5895	7655
120	4.5	1.7	2.50	3.10	2.28	67	6490	8705
150	4.5	1.7	2.50	3.20	2.36	70	7025	9765
185	4.5	1.8	3.15	3.40	2.52	76	8780	12160
240	4.5	1.9	3.15	3.60	2.68	82	10135	14455
300	4.5	2.0	3.15	3.70	2.76	87	11300	16860
400	4.5	2.1	3.15	4.00	3.00	95	13715	20355

Area	Max D.C. resistance at 20°C		Approx. A.C. resistance at operating temp 90°C		Approx. reactance at 50 Hz	Approx. Capaci-tance	Current Rating as per IEC 60 502-2						Short circuit rating for 1 Sec.	
							Direct in Ground		In duct		In Air			
	Ohm/km	Ohm/km	Ohm/km	Ohm/km	Ohm/km	µf/km	Amps	Amps	Amps	Amps	Amps	Amps	kA(rms)	
mm^2	Al	Cu	Al	Cu			Al	Cu	Al	Cu	Al	Cu	Al	Cu
25	1.20	0.727	1.540	0.927	0.134	0.171	100	129	87	112	111	143	2.35	3.58
35	0.868	0.524	1.113	0.668	0.128	0.187	119	154	104	134	134	172	3.29	5.01
50	0.641	0.387	0.822	0.494	0.122	0.207	140	181	123	158	159	205	4.70	7.15
70	0.443	0.268	0.568	0.342	0.113	0.232	171	220	150	194	196	253	6.58	10.01
95	0.320	0.193	0.411	0.247	0.107	0.259	204	263	180	232	238	307	8.93	13.6
120	0.253	0.153	0.325	0.196	0.103	0.283	232	298	206	264	274	352	11.28	17.2
150	0.206	0.124	0.265	0.159	0.101	0.302	259	332	231	296	309	397	14.1	21.5
185	0.164	0.0991	0.211	0.128	0.0963	0.333	293	374	262	335	354	453	17.4	26.5
240	0.125	0.0754	0.162	0.0978	0.0942	0.374	338	431	304	387	415	529	22.6	34.3
300	0.100	0.0601	0.130	0.0795	0.0914	0.408	380	482	343	435	472	599	28.2	42.9
400	0.0778	0.0470	0.1021	0.0637	0.0876	0.458	432	541	393	492	545	683	37.6	57.2

The above data is indicative & may be changed without prior information.
All conductors will be compacted circular shaped
Cables can be supplied in multiples of 250/500 mtrs or as per customer requirement.

Operating conditions - Amb. air temp. 30° C
Ground temp: 20° C
Depth of laying : 80 cm
Thermal resistivity of soil: 1.50 K-m/W
Thermal resistivity of duct: 1.20 K-m/W

Table-30
12/20 (24) kV

Single core XLPE Insulated Screened Armoured cable with Aluminium/Copper conductor Conf. to IEC:60502-2

Area	Thickness of XLPE Insulation	Thickness of Seperation Sheath	Dimension of Armour Wire	Thickness of Outer sheath		Approx. Overall diameter	Approx. Net Wt. of Cable	
mm^2	mm	mm	mm	mm	mm	mm	kg/km	kg/km
	Nom	Nom		Nom	Min		Al	Cu
35	5.5	1.2	1.6	1.90	1.32	30	1060	1280
50	5.5	1.2	1.6	2.00	1.40	32	1165	1455
70	5.5	1.2	2.0	2.00	1.40	34	1390	1820
95	5.5	1.2	2.0	2.10	1.48	36	1560	2145
120	5.5	1.2	2.0	2.10	1.48	37	1715	2445
150	5.5	1.2	2.0	2.20	1.56	39	1860	2765
185	5.5	1.2	2.0	2.20	1.56	41	2065	3180
240	5.5	1.2	2.0	2.30	1.64	44	2400	3825
300	5.5	1.3	2.5	2.40	1.72	47	2885	4720
400	5.5	1.3	2.5	2.50	1.80	51	3315	5680
500	5.5	1.4	2.5	2.60	1.88	54	3840	6830
630	5.5	1.4	2.5	2.80	2.04	59	4525	8430
800	5.5	1.5	2.5	2.90	2.12	63	5335	10280
1000	5.5	1.6	2.5	3.00	2.20	68	6200	12365

Area	Max D.C. resistance at 20°C		Approx. A.C. resistance at operating temp 90°C		Approx. reactance at 50 Hz	Approx. Capaci-tance	Current Rating as per IEC 60 502-2						Short circuit rating for 1 Sec.	
							Direct in Ground		In duct		In Air			
	Ohm/km	Ohm/km	Ohm/km	Ohm/km	Ohm/km	µf/km	Amps	Amps	Amps	Amps	Amps	Amps	kA(rms)	
mm^2	Al	Cu	Al	Cu			Al	Cu	Al	Cu	Al	Cu	Al	Cu
35	0868	0.524	1.113	0.668	0.155	0.150	129	166	122	157	154	198	3.29	5.01
50	0.641	0.387	0.822	0.494	0.148	0.163	152	196	144	186	184	238	4.70	7.15
70	0.443	0.268	0.568	0.342	0.142	0.179	186	239	176	227	230	296	6.58	10.01
95	0.320	0.193	0.411	0.247	0.132	0.200	221	285	210	271	280	361	8.93	13.6
120	0.253	0.153	0.325	0.196	0.127	0.223	252	323	240	308	324	417	11.28	17.2
150	0.206	0.124	0.265	0.159	0.124	0.242	281	361	267	343	368	473	14.1	21.5
185	0.164	0.0991	0.211	0.1275	0.119	0.258	317	406	303	387	424	543	17.4	26.5
240	0.125	0.0754	0.161	0.0976	0.115	0.283	367	469	351	447	502	641	22.6	34.3
300	0.100	0.0601	0.129	0.0785	0.112	0.317	414	526	397	504	577	735	28.2	42.9
400	0.0778	0.0470	0.1014	0.0625	0.108	0.345	470	590	451	564	673	845	37.6	57.2
500	0.0605	0.0366	0.0797	0.0500	0.104	0.386	533	667	511	638	763	956	47.0	71.5
630	0.0469	0.0286	0.0630	0.0404	0.100	0.426	604	756	580	723	865	1083	59.2	90.1
800	0.0367	0.0221	0.0508	0.0336	0.097	0.473	686	860	659	822	983	1231	75.2	114.4
1000	0.0291	0.0176	0.0420	0.0289	0.094	0.529	776	973	744	930	1111	1393	94.0	143.0

The above data is indicative & may be changed without prior information.
All conductors will be compacted circular shaped
Cables can be supplied in multiples of 500 mtrs or as per customer requirement.

Operating conditions - Amb. air temp. 30° C
Ground temp: 20° C
Depth of laying : 80 cm
Thermal resistivity of soil: 1.50 K-m/W
Thermal resistivity of duct: 1.20 K-m/W

Table-31
12/20 (24) kV

Three core XLPE Insulated Screened Armoured cable with Aluminium/Copper conductor Conf. to IEC:60502-2

Area	Thickness of XLPE Insulation	Thickness of Seperation Sheath	Dimension of Armour Wire	Thickness of Outer sheath		Approx. Overall diameter	Approx. Net Wt. of Cable	
mm^2	mm	mm	mm	mm	mm	mm	kg/km	kg/km
	Nom	Nom		Nom	Min		Al	Cu
35	5.5	1.5	2.50	2.80	2.04	57	4775	5435
50	5.5	1.6	2.50	2.90	2.12	60	5245	6110
70	5.5	1.6	2.50	3.10	2.28	64	5350	6645
95	5.5	1.7	2.50	3.20	2.36	68	6575	8340
120	5.5	1.7	3.15	3.30	2.44	73	7975	10190
150	5.5	1.8	3.15	3.40	2.52	76	8610	11350
185	5.5	1.9	3.15	3.60	2.68	80	9520	12900
240	5.5	2.0	3.15	3.70	2.76	87	10950	15265
300	5.5	2.0	3.15	3.90	2.92	92	12190	17755
400	5.5	2.2	3.15	4.10	3.08	100	14035	21215

Area	Max D.C. resistance at 20°C		Approx. A.C. resistance at operating temp 90°C		Approx. reactance at 50 Hz	Approx. Capaci-tance	Current Rating as per IEC 60 502-2						Short circuit rating for 1 Sec.	
							Direct in Ground		In duct		In Air			
	Ohm/km	Ohm/km	Ohm/km	Ohm/km	Ohm/km	µf/km	Amps	Amps	Amps	Amps	Amps	Amps	kA(rms)	
mm^2	Al	Cu	Al	Cu			Al	Cu	Al	Cu	Al	Cu	Al	Cu
35	0868	0.524	1.113	0.668	0.135	0.150	119	154	104	134	133	172	3.29	5.01
50	0.641	0.387	0.822	0.494	0.128	0.163	140	181	123	158	159	205	4.70	7.15
70	0.443	0.268	0.568	0.342	0.121	0.179	171	220	150	194	196	253	6.58	10.01
95	0.320	0.193	0.411	0.247	0.113	0.200	204	263	180	232	238	307	8.93	13.6
120	0.253	0.153	0.325	0.196	0.108	0.223	232	298	206	264	274	352	11.28	17.2
150	0.206	0.124	0.265	0.159	0.106	0.242	259	332	231	296	309	397	14.1	21.5
185	0.164	0.0991	0.211	0.1278	0.1015	0.258	293	374	262	335	354	453	17.4	26.5
240	0.125	0.0754	0.162	0.0982	0.0983	0.283	338	431	304	387	415	529	22.6	34.3
300	0.100	0.0601	0.130	0.0793	0.0952	0.317	380	482	343	435	472	599	28.2	42.9
400	0.0778	0.0470	0.102	0.0635	0.0915	0.345	432	541	393	492	545	683	37.6	57.2

The above data is indicative & may be changed without prior information.
All conductors will be compacted circular shaped
Cables can be supplied in multiples of 250/500 mtrs or as per customer requirement.

Operating conditions - Amb. air temp. 30° C
Ground temp: 20° C
Depth of laying : 80 cm
Thermal resistivity of soil: 1.50 K-m/W
Thermal resistivity of duct: 1.20 K-m/W

Table-32
18/30 (36) kV

Single core XLPE Insulated Screened Armoured cable with Aluminium/Copper conductor Conf. to IEC:60502-2

Area	Thickness of XLPE Insulation	Thickness of Seperation Sheath	Dimension of Armour Wire	Thickness of Outer sheath		Approx. Overall diameter	Approx. Net Wt. of Cable	
mm^2	mm	mm	mm	mm	mm	mm	kg/km	kg/km
	Nom	Nom		Nom	Min		Al	Cu
50	8.0	1.2	2.0	2.20	1.56	38	1625	1910
70	8.0	1.2	2.0	2.20	1.56	39	1770	2200
95	8.0	1.2	2.0	2.30	1.64	41	1960	2540
120	8.0	1.2	2.0	2.30	1.64	43	2120	2850
150	8.0	1.3	2.5	2.40	1.72	45	2460	3365
185	8.0	1.3	2.5	2.50	1.80	48	2705	3825
240	8.0	1.3	2.5	2.50	1.80	50	3055	4480
300	8.0	1.4	2.5	2.60	1.88	53	3415	5250
400	8.0	1.4	2.5	2.70	1.96	56	3875	6240
500	8.0	1.5	2.5	2.80	2.04	60	4465	7450
630	8.0	1.5	2.5	2.90	2.12	64	5125	9035
800	8.0	1.6	2.5	2.10	2.28	69	6000	10945
1000	8.0	1.7	2.5	3.20	2.36	73	6920	13080

Area	Max D.C. resistance at 20°C		Approx. A.C. resistance at operating temp 90°C		Approx. reactance at 50 Hz	Approx. Capaci-tance	Current Rating as per IEC 60 502-2						Short circuit rating for 1 Sec.	
							Direct in Ground		In duct		In Air			
	Ohm/km	Ohm/km	Ohm/km	Ohm/km	Ohm/km	µf/km	Amps	Amps	Amps	Amps	Amps	Amps	kA(rms)	
mm^2	Al	Cu	Al	Cu			Al	Cu	Al	Cu	Al	Cu	Al	Cu
50	0.641	0.387	0.822	0.494	0.160	0.150	152	196	144	186	184	238	4.70	7.15
70	0.443	0.268	0.568	0.342	0.151	0.163	186	239	176	227	230	296	6.58	10.01
95	0.320	0.193	0.411	0.247	0.144	0.179	221	285	210	271	280	361	8.93	13.6
120	0.253	0.153	0.325	0.196	0.136	0.200	252	232	240	308	324	417	11.28	17.2
150	0.206	0.124	0.265	0.159	0.134	0.223	281	361	267	343	368	473	14.10	21.5
185	0.164	0.0991	0.211	0.1273	0.129	0.242	317	406	303	387	424	543	17.40	26.5
240	0.125	0.0754	0.161	0.0975	0.124	0.258	367	469	351	447	502	641	22.60	34.3
300	0.100	0.0601	0.129	0.0784	0.119	0.283	414	526	397	504	577	735	28.20	42.9
400	0.0778	0.0470	0.1012	0.0623	0.114	0.317	470	590	451	564	673	845	37.60	57.2
500	0.0605	0.0366	0.0795	0.0497	0.111	0.345	533	667	511	638	763	956	47.00	71.5
630	0.0469	0.0283	0.0627	0.0401	0.106	0.386	604	756	580	723	865	1083	59.20	90.1
800	0.0367	0.0221	0.0505	0.0322	0.102	0.426	686	860	659	822	983	1231	75.20	114.4
1000	0.0291	0.0176	0.0416	0.0284	0.099	0.473	776	973	744	930	1111	1393	94.00	143.0

The above data is indicative & may be changed without prior information.
All conductors will be compacted circular shaped
Cables can be supplied in multiples of 500 mtrs or as per customer requirement.

Operating conditions - Amb. air temp. 30° C
Ground temp: 20° C
Depth of laying : 80 cm
Thermal resistivity of soil: 1.50 K-m/W
Thermal resistivity of duct: 1.20 K-m/W

Table-33
18/30 (36) kV

Three core XLPE Insulated Screened Armoured cable with Aluminium/Copper conductor Conf. to IEC:60502-2

Area	Thickness of XLPE Insulation	Thickness of Seperation Sheath	Dimension of Armour Wire	Thickness of Outer sheath		Approx. Overall diameter	Approx. Net Wt. of Cable	
mm^2	mm	mm	mm	mm	mm	mm	kg/km	kg/km
	Nom	Nom		Nom	Min		Al	Cu
50	8.0	1.8	3.15	3.4	2.52	74	7760	8625
70	8.0	1.8	3.15	3.5	2.60	77	8465	9760
95	8.0	1.9	3.15	3.6	2.68	81	9080	10840
120	8.0	2.0	3.15	3.7	2.76	85	9960	12175
150	8.0	2.0	3.15	3.8	2.84	88	10650	13395
185	8.0	2.1	3.15	4	3.00	93	11680	15060
240	8.0	2.2	3.15	4.1	3.08	99	13175	17495
300	8.0	2.3	3.15	4.3	3.24	104	14365	19930
400	8.0	2.4	3.15	4.5	3.40	111	16270	23450

Area	Max D.C. resistance at 20°C		Approx. A.C. resistance at operating temp 90°C		Approx. reactance at 50 Hz	Approx. Capaci-tance	Current Rating as per IEC 60 502-2						Short circuit rating for 1 Sec.	
							Direct in Ground		In duct		In Air			
	Ohm/km	Ohm/km	Ohm/km	Ohm/km	Ohm/km	μf/km	Amps	Amps	Amps	Amps	Amps	Amps	kA(rms)	
mm^2	Al	Cu	Al	Cu			Al	Cu	Al	Cu	Al	Cu	Al	Cu
50	0.641	0.387	0.822	0.494	0.141	0.150	140	181	123	158	159	205	4.70	7.15
70	0.443	0.268	0.568	0.342	0.133	0.163	171	220	150	194	196	253	6.58	10.01
95	0.320	0.193	0.411	0.247	0.127	0.179	204	263	180	232	238	307	8.93	13.60
120	0.253	0.153	0.325	0.196	0.119	0.200	232	298	206	264	274	352	11.28	17.20
150	0.206	0.124	0.265	0.159	0.116	0.223	259	332	231	296	309	397	14.10	21.50
185	0.164	0.0991	0.211	0.1276	0.1114	0.242	293	374	262	335	354	453	17.40	26.50
240	0.125	0.0754	0.162	0.0979	0.1082	0.258	338	431	304	387	415	529	22.60	34.30
300	0.100	0.0601	0.130	0.0789	0.1038	0.283	380	482	342	435	472	599	28.20	42.90
400	0.0778	0.047	0.1017	0.0630	0.0994	0.317	432	541	393	492	545	683	37.60	57.20

The above data is indicative & may be changed without prior information.
All conductors will be compacted circular shaped
Cables can be supplied in multiples of 250/500 mtrs or as per customer requirement.

Operating conditions - Amb. air temp. 30° C
Ground temp: 20° C
Depth of laying : 80 cm
Thermal resistivity of soil: 1.50 K-m/W
Thermal resistivity of duct: 1.20 K-m/W

Tables - 34 to 45

Group Rating Factors for Circuits for Three Single Core Cables in Trefoil formation

Table 34: Horizontal Formation laid Direct in Ground

No. of Circuits in group	Spacing between Trefoil group centres (cm)			
	Touching	20	40	60
2	0.85	0.88	0.92	0.94
3	0.75	0.8	0.85	0.88
4	0.69	0.75	0.82	0.86
5	0.65	0.72	0.79	0.84
6	0.62	0.69	0.77	0.83

Table 35: Cables Laid in Air on Preforated trays with 2D apart from other Trefoil group.

No. of Trays	No. of 3 phase circuits		
	1	2	3
1	1	0.98	0.96
2	0.97	0.93	0.89
3	0.96	0.92	0.86

Group Rating Factors for Circuits for Multi-core Cables

Table 36: Cables laid on perforated trays touching each other.

No. of Cable trays	Number of cables				
	2	3	4	6	9
1	0.88	0.82	0.79	0.76	0.73
2	0.87	0.8	0.77	0.73	0.68
3	0.86	0.79	0.76	0.71	0.66

Table 37: Cables laid on perforated trays exposed to air, the

No. of Cable Trays	Number of cables per Rack			
	2	3	6	9
1	1	0.98	0.95	0.91
2	0.99	0.96	0.92	0.87
3	0.98	0.95	0.91	0.85

Table 38: Cables laid Direct in Ground in horizontal formation

No. of circuits in group	Spacing of cables (cm)			
	Touching	20	40	60
2	0.8	0.86	0.9	0.92
3	0.69	0.77	0.82	0.86
4	0.62	0.72	0.79	0.83
5	0.57	0.68	0.76	0.81
6	0.54	0.65	0.74	0.8

Table 39: Recommended Minimum bending Radius.

Type of Cable	During Installation	During Termination
(A) SINGLE CORE		
Unarmoured	20 x D	15 X D
Armoured	15 X D	12 X D
(B) THREE CORE		
Unarmoured	15 x D	12 X D

Table 40: D.C. Test Voltage after Installation.*

Voltage Grade kV	D.C. Voltage kV
3.6/6	15
(06/10)	25
8.7/15	37
(12/20)	50
18/30	76

Table 41: Rating factor for variation in laying in Dept. Of laying in

Dept. of laying (cm)	50	60	100	125	150	175	200	250	300
Single core <=185 mm^2	1.04	1.02	0.98	0.96	0.95	0.94	0.93	0.91	0.90
Single core >=185 mm^2	1.06	1.06	0.97	0.95	0.93	0.91	0.90	0.88	0.86
Three core cables	1.04	1.03	0.98	0.96	0.95	0.94	0.93	0.91	0.90

Table 42: Rating Factors for Variation in Ambient Air Temperature

Air Temp. ° C	20	25	30	35	40	45	50	55	60
Rating Factor	1.08	1.04	1	0.96	0.91	0.9	0.82	0.76	0.71

Table 43: Rating Factors for Variation in Ground Temperature

Group Temp.°C	10	15	20	25	30	35	40	45	50
Rating Factor	1.07	1.04	1	1	0.93	0.89	0.85	0.8	0.76

Table 44: Rating factors for variation in thermal resistivity of soil (multicore cables laid direct in the ground)

Nominal area of conductor mm^2	For values of thermal resistivity of soil in K-m/W					
	0.8	0.9	1	2	2.5	3
25	1.2	1.16	1.13	0.91	0.84	0.78
35	1.21	1.17	1.13	0.91	0.83	0.78
50	1.21	1.17	1.14	0.91	0.83	0.77
70	1.21	1.18	1.14	0.9	0.83	0.77
95	1.22	1.18	1.14	0.9	0.83	0.77
120	1.22	1.18	1.14	0.9	0.83	0.77
150	1.22	1.18	1.15	0.9	0.83	0.77
185	1.23	1.18	1.15	0.9	0.83	0.77
240	1.23	1.19	1.15	0.9	0.83	0.77
300	1.23	1.19	1.15	0.9	0.82	0.77
400	1.23	1.19	1.15	0.9	0.82	0.76

Table 45: Rating factors for variation in thermal resistivity of soil three single core cables laid direct in the ground (three cables in trefoil touching)

Nominal area of conductor mm^2	For values of thermal resistivity of soil in K-m/W					
	0.8	0.9	1	2	2.5	3
25	1.25	1.2	1.16	0.89	0.81	0.75
35	1.25	1.21	1.16	0.89	0.81	0.75
50	1.26	1.21	1.16	0.89	0.81	0.74
70	1.27	1.22	1.17	0.89	0.81	0.74
95	1.28	1.22	1.18	0.89	0.8	0.74
120	1.28	1.22	1.18	0.88	0.8	0.74
150	1.28	1.23	1.18	0.88	0.8	0.74
185	1.29	1.23	1.18	0.88	0.8	0.74
240	1.29	1.23	1.18	0.88	0.8	0.73
300	1.3	1.24	1.19	0.88	0.8	0.73
400	1.3	1.24	1.19	0.88	0.79	0.73

INTRODUCTION

The risk of fire is always present in any buildings and structures. An incident of fire posses serious threat to the life of inhabitants and loss of property.

Apart from burning caused by flame, fatality occurs due to the inhalation of acidic gases evolved from burning materials and due to the thick dark smoke generated which obscures vision. Dark smoke is generated from normal cables within the first few seconds of a fire. This hampers the visibility of exits and causes panic. The acidic gases (HCl) evolved reacts with water in mouth, eye and lungs of human beings forming hydrochloric acid. This causes suffocation and prolonged inhalation results in fatality. As a result, rescue and evacuation operations are hampered.

Further, the acidic gases generated in a fire can even cause damage to the structural reinforcements and electronic gadgets even though direct flame has not caused any damage.

Normal cables in a fire burns and acts as channels for propagating fire and fire travels from one place to another through these cables.

Using Fujcab Brand Low Smoke and Fume wires and cables inside buildings significantly reduce the damages to life and property caused by fire. This is achieved as these cables burn very slowly and do not propagate fire. They emit very low smoke, fumes and do not produce acid gases during a fire.

Fujcab Brand Low Smoke and Fume wires and cables being flame retardant, slows down the spread of fire. This extra time is very critical for the fire fighters for putting down the fire and for rescuing the occupants trapped.

While burning Fujcab Brand Low Smoke and Fume wires and cables, the secondary damages caused by fire being very minimal, it prevents loss of human life by panic and suffocation and do not cause permanent damages to the building materials and equipments.

Fujcab Brand Low Smoke and Fume wires and cables are highly recommended in the following premises.

Housing apartments, Hotels, Hospitals, multistoried commercial buildings, shopping malls, Movie theaters, Air ports, Educational institutions etc.

These cables are also designated as LSF/LSZH/LSHF/LSOH/HFFR etc. High quality non-halogenated compounds are used in sheathing and insulation of these cables. These cables pass smoke cube test and acid emission test as detailed below.

Fire Resistant cables are suitable for emergency applications. During fire the circuit integrity maintained for sufficient time so that vital life safety systems such as emergency lighting, fire alarm, voice alarm, sprinkler pumps can work.

TESTING OF LSF/LSZH & FIRE RESISTANT CABLES

Flame Propagation on Single Cable: This test is carried out as per BS EN 50265-1 and IEC 60332-1 to check the resistance of cable to flame propagation.

Flame Propagation on Multiple Cables: This test is carried out as per BS EN 50266 and IEC 60332-3 to determine the ability of bunched cables to restrain flame propagation.

Smoke Emission: This test is carried out as per BS EN 50268 and IEC 61034.The light transmittance shall not fall below 70% during the test.

Oxygen and Temperature Index: This test is carried out as per ASTM D 2863 to determine the minimum oxygen Concentration to support candle-like combustion of LSF/LSZH Materials.

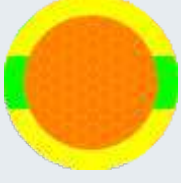
Acidic (Corrosive) gas evolved (HCL level <0.5%): This test is conducted to measure the amount of acidic gases evolved during Combustion of materials from Cables. This test is conducted as per IEC 60754-1.

Measurement of Ph and Conductivity: This test is conducted to determine degree of acidity of gases evolved during combustion of electric cables by measuring pH-value and conductivity. This test is conducted as per IEC 60754–2.

Fire Resistant test on cables: This test is carried out as per BS 7846 & BS 6387 'CWZ' & IEC 60331-21

Table-46

Single Core Wires, solid or stranded copper conductor, LSF/LSZH insulated 450/750V, conf. to BS 7211 / BS EN 50525-3-41



Nominal Area of the conductor	Maximum Cable diameter	Radial thickness of Insulation	Number/ nominal diameter of wires
Sq. mm	mm	mm	No./mm
1.5	3.2	0.7	1/1.38
1.5	3.3	0.7	7/0.53
2.5	3.9	0.8	1/1.78
2.5	4.0	0.8	7/0.67
4	4.4	0.8	1/2.26
4	4.6	0.8	7/0.85
6	4.9	0.8	1/2.77
6	5.2	0.8	7/1.04
10	6.4	1.0	1/3.57
10	6.7	1.0	7
16	7.8	1.0	7
25	9.7	1.2	7
35	10.9	1.2	7
50	12.8	1.4	7
70	14.6	1.4	19
95	17.1	1.6	19
120	18.8	1.6	19
150	20.9	1.8	19
185	23.3	2.0	37
240	26.5	2.2	37
300	29.5	2.4	37
400	33.2	2.6	61
500	36.9	2.8	61
630	41.0	2.8	61

Nominal Area of the conductor	Maximum conductor resistance	Curent Rating		Weight of Cables
		Laid in conduits	Laid in Free Air (Approx.)	
Sq. mm	ohm/Km	Amps	Amps	Kg/Km
1.5	12.1	16	20	21
1.5	12.1	16	20	23
2.5	7.41	21	26	33
2.5	7.41	21	26	35
4	4.61	28	35	47
4	4.61	28	35	51
6	3.08	36	46	66
6	3.08	36	46	71
10	1.83	50	63	114
10	1.83	50	63	117
16	1.15	68	80	167
25	0.727	89	108	262
35	0.524	110	133	360
50	0.387	134	166	479
70	0.268	177	205	687
95	0.193	207	247	935
120	0.153	239	290	1162
150	0.124	262	334	1433
185	0.0991	296	388	1778
240	0.0754	346	463	2280
300	0.0601	394	540	2893
400	0.0470	401	580	3715
500	0.0366	530	620	4691
630	0.0283	611	715	6035

* Standard Packing: 100 yards/Mtrs rolls upto 16sq.mm
1000 Mtrs from 25sq.mm to 150sq.mm
500 Mtrs from 185sq.mm to 630sq.mm

Current Rating is based on the below conditions.
Amb. temp: 30°C
Conductor Operating temp: 90°C
Conductor size from 16 mm^2 to 630 mm^2 is circular compacted

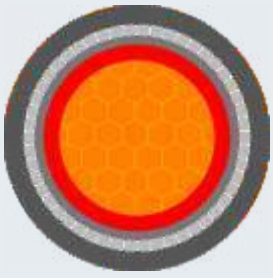


Table-47

Single core cable, Copper Conductor, XLPE insulated, Aluminium wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 6724

Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of LSF Outer sheath	Overall diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
50	1.0	0.8	0.90	1.5	17.5	650
70	1.1	0.8	1.25	1.5	20.2	940
95	1.1	0.8	1.25	1.6	22.3	1210
120	1.2	0.8	1.25	1.6	24.2	1465
150	1.4	1.0	1.60	1.7	27.4	1920
185	1.6	1.0	1.60	1.8	30.0	2325
240	1.7	1.0	1.60	1.8	32.8	2875
300	1.8	1.0	1.60	1.9	35.6	3445
400	2.0	1.2	2.00	2.0	40.5	4480
500	2.2	1.2	2.00	2.1	44.2	5550
630	2.4	1.2	2.00	2.2	48.8	7040
800	2.6	1.4	2.50	2.4	55.4	9020
1000	2.8	1.4	2.50	2.5	60.6	11040

Area	D.C. resistance at 20 °C	A.C. resistance at operating Temp. 90 °C.	Reactance at 50 Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
50	0.387	0.494	0.106	208	208	203	7.15	0.88
70	0.268	0.342	0.102	262	256	260	10.01	0.62
95	0.193	0.247	0.098	313	301	319	13.59	0.46
120	0.153	0.196	0.096	355	337	370	17.16	0.38
150	0.124	0.159	0.095	397	364	425	21.45	0.32
185	0.0991	0.128	0.092	447	402	488	26.46	0.27
240	0.0754	0.098	0.089	514	451	576	34.32	0.23
300	0.0601	0.079	0.090	573	492	656	42.90	0.21
400	0.047	0.063	0.089	648	533	749	57.20	0.19
500	0.0366	0.051	0.088	718	577	847	71.50	0.18
630	0.0283	0.042	0.086	790	623	954	90.09	0.17
800	0.0221	0.035	0.086	833	649	1037	114.40	0.16
1000	0.0176	0.030	0.084	884	690	1125	143.00	0.15

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtrs from 50sq.mm to 185sq.mm
500 Mtrs from 240sq.mm to 630sq.mm
300 Mtrs from 800sq.mm to 1000sq.mm

Operating conditions - Amb. air temp: 40° C
Ground temp: 20° C
Depth of laying: 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-48

Two core cable, Copper conductor, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 6724

Area	Thickness of XLPE Insulation	Thick. of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.90	1.3	12.1	255
2.5	0.7	0.8	0.90	1.4	13.6	315
4	0.7	0.8	0.90	1.4	14.7	370
6	0.7	0.8	0.90	1.4	15.9	440
10	0.7	0.8	0.90	1.5	18.0	575
16	0.7	0.8	1.25	1.5	20.4	740
25	0.9	0.8	1.25	1.6	20.4	1000
35	0.9	1.0	1.60	1.7	23.3	1425
50	1.0	1.0	1.60	1.8	25.8	1755
70	1.1	1.0	1.60	1.9	29.0	2310
95	1.1	1.2	2.00	2.0	33.1	3160
120	1.2	1.2	2.00	2.1	36.1	3750
150	1.4	1.2	2.00	2.2	39.3	4410
185	1.6	1.4	2.50	2.4	44.7	5680
240	1.7	1.4	2.50	2.5	49.0	6955
300	1.8	1.6	2.50	2.6	53.5	8400
400	2.0	1.6	2.50	2.8	59.0	10400

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp.90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	33	27	27	0.21	26.72
2.5	7.41	9.45	0.099	42	36	36	0.36	16.37
4	4.61	5.88	0.093	57	46	48	0.57	10.18
6	3.08	3.93	0.088	70	58	62	0.86	6.80
10	1.83	2.33	0.084	96	78	84	1.43	4.04
16	1.15	1.47	0.081	124	101	111	2.29	2.54
25	0.727	0.93	0.081	164	133	144	3.58	1.61
35	0.524	0.67	0.079	196	159	178	5.01	1.17
50	0.387	0.49	0.078	232	189	215	7.15	0.87
70	0.268	0.34	0.074	286	235	269	10.01	0.61
95	0.193	0.25	0.072	344	283	333	13.59	0.45
120	0.153	0.20	0.072	395	326	385	17.16	0.36
150	0.124	0.16	0.073	443	366	439	21.45	0.30
185	0.0991	0.13	0.072	499	415	507	26.46	0.26
240	0.0754	0.10	0.071	576	480	598	34.32	0.21
300	0.0601	0.08	0.071	646	540	682	42.90	0.19
400	0.047	0.06	0.070	744	622	785	57.20	0.16

The above data is indicative & may be changed without prior information.
Conductor upto 16mm^2 will be round.
Conductor of 25mm^2 and above will be compacted sector shaped conductor.
* Standard Packing: 1000 Mtrs upto 95sq.mm
500 Mtrs from 120sq.mm to 300sq.mm
300 Mtrs for 400sq.mm

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-49

Three core cable, Copper conductor, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 6724

Area	Thickness of XLPE Insulation	Thick. of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.9	1.3	12.6	280
2.5	0.7	0.8	0.9	1.4	14.1	355
4	0.7	0.8	0.9	1.4	15.3	430
6	0.7	0.8	0.9	1.4	16.6	525
10	0.7	0.8	1.25	1.5	19.5	810
16	0.7	0.8	1.25	1.6	21.6	985
25	0.9	1.0	1.6	1.7	23.6	1500
35	0.9	1.0	1.6	1.8	25.7	1905
50	1.0	1.0	1.6	1.8	28.5	2335
70	1.1	1.0	1.6	1.9	32.2	3150
95	1.1	1.2	2.0	2.1	37	4270
120	1.2	1.2	2.0	2.2	40.4	5160
150	1.4	1.4	2.5	2.3	45.5	6560
185	1.6	1.4	2.5	2.4	49.8	7820
240	1.7	1.4	2.5	2.6	55.1	9660
300	1.8	1.6	2.5	2.7	60.2	11845
400	2.0	1.6	2.5	2.9	66.6	14715

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp.90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	25	22	23	0.21	26.72
2.5	7.41	9.45	0.099	32	30	31	0.36	16.37
4	4.61	5.88	0.093	42	39	41	0.57	10.18
6	3.08	3.93	0.088	52	49	52	0.86	6.80
10	1.83	2.33	0.084	71	66	72	1.43	4.04
16	1.15	1.47	0.081	105	84	94	2.29	2.54
25	0.727	0.93	0.081	136	111	123	3.58	1.61
35	0.524	0.67	0.079	163	133	151	5.01	1.17
50	0.387	0.49	0.078	194	158	184	7.15	0.87
70	0.268	0.34	0.074	241	197	231	10.01	0.61
95	0.193	0.25	0.072	288	237	285	13.59	0.45
120	0.153	0.20	0.072	331	273	331	17.16	0.36
150	0.124	0.16	0.073	370	309	378	21.45	0.30
185	0.0991	0.13	0.072	418	348	436	26.46	0.26
240	0.0754	0.10	0.071	483	403	514	34.32	0.21
300	0.0601	0.08	0.071	540	452	586	42.90	0.19
400	0.047	0.07	0.070	621	530	674	57.20	0.17

The above data is indicative & may be changed without prior information.
Conductor upto 16mm^2 will be round.
Conductor of 25mm^2 and above will be compacted sector shaped conductor.
* Standard Packing: 1000 Mtrs upto 95sq.mm
500 Mtrs from 120sq.mm to 300sq.mm
300 Mtrs for 400sq.mm

Operating conditions - Amb. air temp: 40° C
Ground temp: 20° C
Depth of laying: 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-50

Four core cable, Copper conductor, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 6724

Area	Thickness of XLPE Insulation	Thick. Of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.90	1.3	13.3	335
2.5	0.7	0.8	0.90	1.4	15.0	430
4	0.7	0.8	0.90	1.4	16.4	535
6	0.7	0.8	1.25	1.5	18.7	770
10	0.7	0.8	1.25	1.5	21.1	960
16	0.7	0.8	1.25	1.6	23.4	1200
25	0.9	1.0	1.60	1.7	26.1	1855
35	0.9	1.0	1.60	1.8	28.6	2370
50	1.0	1.0	1.60	1.9	32.0	2950
70	1.1	1.2	2.00	2.1	37.7	4355
95	1.1	1.2	2.00	2.2	41.7	5445
120	1.2	1.4	2.50	2.3	47.1	7010
150	1.4	1.4	2.50	2.4	51.4	8365
185	1.6	1.4	2.50	2.6	56.6	10050
240	1.7	1.6	2.50	2.7	63.0	12450
300	1.8	1.6	2.50	2.9	68.8	15300
400	2.0	1.8	3.15	3.2	78.1	20100

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp.90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	25	22	23	0.21	26.72
2.5	7.41	9.45	0.099	32	30	31	0.36	16.37
4	4.61	5.88	0.093	42	39	41	0.57	10.18
6	3.08	3.93	0.088	52	49	52	0.86	6.80
10	1.83	2.33	0.084	71	66	72	1.43	4.04
16	1.15	1.47	0.081	105	84	94	2.29	2.54
25	0.727	0.93	0.081	136	111	123	3.58	1.61
35	0.524	0.67	0.079	163	133	151	5.01	1.17
50	0.387	0.49	0.078	194	158	184	7.15	0.87
70	0.268	0.34	0.074	241	197	231	10.01	0.61
95	0.193	0.25	0.072	288	237	285	13.59	0.45
120	0.153	0.20	0.072	331	273	331	17.16	0.36
150	0.124	0.16	0.073	370	309	378	21.45	0.30
185	0.0991	0.13	0.072	418	348	436	26.46	0.26
240	0.0754	0.10	0.071	483	403	514	34.32	0.21
300	0.0601	0.08	0.071	540	452	586	42.90	0.19
400	0.047	0.07	0.070	621	530	674	57.20	0.17

The above data is indicative & may be changed without prior information.
Conductor upto 16mm^2 will be round.
Conductor of 25mm^2 and above will be compacted sector shaped conductor.
* Standard Packing: 1000 Mtrs upto 70sq.mm
500 Mtrs from 95sq.mm to 300sq.mm
200 Mtrs for 400sq.mm

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-51

Five core cable, Copper conductor, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 6724

Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.9	1.4	14.3	385
2.5	0.7	0.8	0.9	1.4	16.1	495
4	0.7	0.8	0.9	1.5	17.8	620
6	0.7	0.8	1.25	1.5	20.0	845
10	0.7	0.8	1.25	1.6	22.9	1130
16	0.7	1.0	1.6	1.7	26.6	1685
25	0.9	1.0	1.6	1.8	31.5	2330
35	0.9	1.0	1.6	1.9	34.8	2965
50	1.0	1.2	2.0	2.0	40.4	4075
70	1.1	1.2	2.0	2.2	46.3	5475

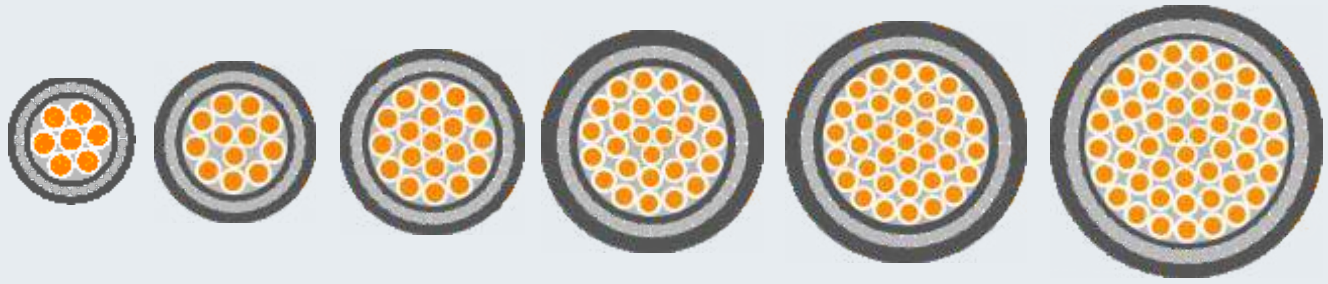
Area	D.C. resistance at 20 °C	A.C. resistance at operating temp. 90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	25	22	23	0.21	26.72
2.5	7.41	9.45	0.099	32	30	31	0.36	16.37
4	4.61	5.88	0.093	42	39	41	0.57	10.18
6	3.08	3.93	0.088	52	49	52	0.86	6.80
10	1.83	2.33	0.084	71	66	72	1.43	4.04
16	1.15	1.47	0.081	105	84	94	2.29	2.54
25	0.727	0.93	0.081	136	111	123	3.58	1.61
35	0.524	0.67	0.079	163	133	151	5.01	1.17
50	0.387	0.49	0.078	194	158	184	7.15	0.87
70	0.268	0.34	0.074	241	197	231	10.01	0.61

The above data is indicative & may be changed without prior information.
Conductor upto $10mm^2$ will be round, non compacted.
Conductor above $10mm^2$ will be round, compacted.
* Standard Packing: 1000 Mtr Drums

Operating conditions - Amb. Air temp. 40^0 C
Ground temp: 20^0 C
Depth of laying : 50 cm
Thermal resistivity of soil: 120^0 C-cm/W

Table-52

Auxillary (Control) cable, 1.5mm^2, Copper conductor, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 6724



Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
7 x 1.5	0.6	0.8	0.90	1.4	15.2	440
12 x 1.5	0.6	0.8	1.25	1.5	19.4	745
19 x 1.5	0.6	0.8	1.25	1.6	22.2	965
27 x 1.5	0.6	1.0	1.60	1.7	26.7	1425
37 x 1.5	0.6	1.0	1.60	1.7	29.0	1710
48 x 1.5	0.6	1.0	1.60	1.8	32.7	2070

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp. 90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
7 x 1.5	12.1	15.43	0.105	21	17	17	0.215	26.73
12 x 1.5	12.1	15.43	0.105	18	14	14	0.215	26.73
19 x 1.5	12.1	15.43	0.105	15	12	12	0.215	26.73
27 x 1.5	12.1	15.43	0.105	13	10	10	0.215	26.73
37 x 1.5	12.1	15.43	0.105	11	9	9	0.215	26.73
48 x 1.5	12.1	15.43	0.105	10	8	8	0.215	26.73

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtr Drums

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table - 53

Auxillary (Control) cable, 2.5mm², Copper conductor, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 6724

Area	Thickness of XLPE Insulation	Thick. Of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm²	mm	mm	mm	mm	mm	kg/km
7 x 2.5	0.7	0.8	0.90	1.4	17.1	570
12 x 2.5	0.7	0.8	1.25	1.6	22.4	980
19 x 2.5	0.7	1.0	1.60	1.7	26.6	1485
27 x 2.5	0.7	1.0	1.60	1.8	30.7	1905
37 x 2.5	0.7	1.0	1.60	1.8	33.8	2320
48 x 2.5	0.7	1.2	2.00	2.0	39.3	3165

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp.90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm²	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
7 x 2.5	7.41	9.45	0.099	27	22	23	0.358	16.37
12 x 2.5	7.41	9.45	0.099	22	19	19	0.358	16.37
19 x 2.5	7.41	9.45	0.099	19	16	16	0.358	16.37
27 x 2.5	7.41	9.45	0.099	16	14	13	0.358	16.37
37 x 2.5	7.41	9.45	0.099	14	12	12	0.358	16.37
48 x 2.5	7.41	9.45	0.099	13	11	11	0.358	16.37

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtr Drums

Operating conditions - Amb. Air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table - 54

Auxillary (Control) cable, 4mm², Copper conductor, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 6724

Area	Thickness of XLPE Insulation	Thick. Of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm²	mm	mm	mm	mm	mm	kg/km
7 x 4	0.7	0.8	1.25	1.5	19.7	840
12 x 4	0.7	1.0	1.60	1.6	25.7	1400
19 x 4	0.7	1.0	1.60	1.7	29.3	1900
27 x 4	0.7	1.0	1.60	1.9	34.4	2485
37 x 4	0.7	1.2	2.00	2.0	39.2	3410
48 x 4	0.7	1.2	2.00	2.1	44.1	4150

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp.90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm²	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
7 x 4	4.61	5.88	0.093	36	29	30	0.572	10.18
12 x 4	4.61	5.88	0.093	30	24	25	0.572	10.18
19 x 4	4.61	5.88	0.093	25	20	21	0.572	10.18
27 x 4	4.61	5.88	0.093	22	17	18	0.572	10.18
37 x 4	4.61	5.88	0.093	19	16	16	0.572	10.18
48 x 4	4.61	5.88	0.093	18	14	15	0.572	10.18

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtr Drums

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

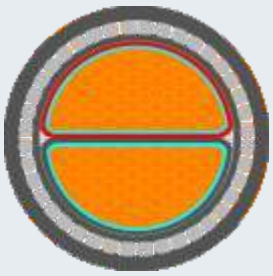


Table-55

Two core Fire resistant cable, Copper conductor, Glass mica taped, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 7846

Area	Thickness of XLPE Insulation	Thick. of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.90	1.3	13.0	280
2.5	0.7	0.8	0.90	1.4	14.5	345
4	0.7	0.8	0.90	1.4	15.5	405
6	0.7	0.8	0.90	1.4	16.5	480
10	0.7	0.8	0.90	1.5	19.0	625
16	0.7	0.8	1.25	1.5	21.5	865
25	0.9	0.8	1.25	1.6	21.5	1070
35	0.9	1.0	1.60	1.7	24.5	1470
50	1.0	1.0	1.60	1.8	26.5	1800
70	1.1	1.0	1.60	1.9	30.0	2350
95	1.1	1.2	2.00	2.0	34.0	3195
120	1.2	1.2	2.00	2.1	37.0	3805
150	1.4	1.2	2.00	2.2	40.0	4430
185	1.6	1.4	2.50	2.4	46.0	5725
240	1.7	1.4	2.50	2.5	50.0	7005
300	1.8	1.6	2.50	2.6	55.0	8445
400	2.0	1.6	2.50	2.8	60.0	10485

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp.90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	33	27	27	0.21	26.72
2.5	7.41	9.45	0.099	42	36	36	0.36	16.37
4	4.61	5.88	0.093	57	46	48	0.57	10.18
6	3.08	3.93	0.088	70	58	62	0.86	6.80
10	1.83	2.33	0.084	96	78	84	1.43	4.04
16	1.15	1.47	0.081	124	101	111	2.29	2.54
25	0.727	0.93	0.081	164	133	144	3.58	1.61
35	0.524	0.67	0.079	196	159	178	5.01	1.17
50	0.387	0.49	0.078	232	189	215	7.15	0.87
70	0.268	0.34	0.074	286	235	269	10.01	0.61
95	0.193	0.25	0.072	344	283	333	13.59	0.45
120	0.153	0.20	0.072	395	326	385	17.16	0.36
150	0.124	0.16	0.073	443	366	439	21.45	0.30
185	0.0991	0.13	0.072	499	415	507	26.46	0.26
240	0.0754	0.10	0.071	576	480	598	34.32	0.21
300	0.0601	0.08	0.071	646	540	682	42.90	0.19
400	0.047	0.06	0.070	744	622	785	57.20	0.16

The above data is indicative & may be changed without prior information.
Conductor upto 16mm^2 will be round.
Conductor of 25mm^2 and above will be compacted sector shaped conductor.
* Standard Packing: 1000 Mtrs upto 95sq.mm
500 Mtrs from 120sq.mm to 300sq.mm
300 Mtrs for 400sq.mm

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

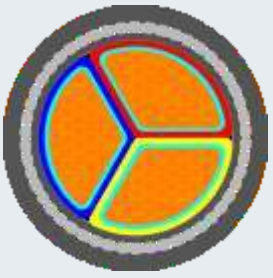


Table-56

Three core Fire resistant cable, Copper conductor, Glass mica taped, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 7846

Area	Thickness of XLPE Insulation	Thick. of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.9	1.3	13.5	315
2.5	0.7	0.8	0.9	1.4	15	390
4	0.7	0.8	0.9	1.4	16.5	460
6	0.7	0.8	0.9	1.4	17.5	565
10	0.7	0.8	1.25	1.5	20.5	850
16	0.7	0.8	1.25	1.6	22.5	1055
25	0.9	1.0	1.6	1.7	24.5	1570
35	0.9	1.0	1.6	1.8	26.5	1935
50	1.0	1.0	1.6	1.8	30.0	2400
70	1.1	1.0	1.6	1.9	33.0	3175
95	1.1	1.2	2.0	2.1	38.0	4325
120	1.2	1.2	2.0	2.2	42.0	5195
150	1.4	1.4	2.5	2.3	47.0	6600
185	1.6	1.4	2.5	2.4	51.0	7850
240	1.7	1.4	2.5	2.6	56.0	9770
300	1.8	1.6	2.5	2.7	61.0	11895
400	2.0	1.6	2.5	2.9	68.0	14785

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp.90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	25	22	23	0.21	26.72
2.5	7.41	9.45	0.099	32	30	31	0.36	16.37
4	4.61	5.88	0.093	42	39	41	0.57	10.18
6	3.08	3.93	0.088	52	49	52	0.86	6.80
10	1.83	2.33	0.084	71	66	72	1.43	4.04
16	1.15	1.47	0.081	105	84	94	2.29	2.54
25	0.727	0.93	0.081	136	111	123	3.58	1.61
35	0.524	0.67	0.079	163	133	151	5.01	1.17
50	0.387	0.49	0.078	194	158	184	7.15	0.87
70	0.268	0.34	0.074	241	197	231	10.01	0.61
95	0.193	0.25	0.072	288	237	285	13.59	0.45
120	0.153	0.20	0.072	331	273	331	17.16	0.36
150	0.124	0.16	0.073	370	309	378	21.45	0.30
185	0.0991	0.13	0.072	418	348	436	26.46	0.26
240	0.0754	0.10	0.071	483	403	514	34.32	0.21
300	0.0601	0.08	0.071	540	452	586	42.90	0.19
400	0.047	0.07	0.070	621	530	674	57.20	0.17

The above data is indicative & may be changed without prior information.
Conductor upto 16mm^2 will be round.
Conductor of 25mm^2 and above will be compacted sector shaped conductor.
* Standard Packing: 1000 Mtrs upto 95sq.mm
500 Mtrs from 120sq.mm to 300sq.mm
300 Mtrs for 400sq.mm

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-57

Four core Fire resistant cable, Copper conductor, Glass mica taped, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 7846

Area	Thickness of XLPE Insulation	Thick. Of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.90	1.3	14.5	350
2.5	0.7	0.8	0.90	1.4	16.0	445
4	0.7	0.8	0.90	1.4	17.5	540
6	0.7	0.8	1.25	1.5	20.0	780
10	0.7	0.8	1.25	1.5	22.5	995
16	0.7	0.8	1.25	1.6	24.5	1275
25	0.9	1.0	1.60	1.7	27.5	1930
35	0.9	1.0	1.60	1.8	30.0	2400
50	1.0	1.0	1.60	1.9	33.0	3000
70	1.1	1.2	2.00	2.1	39.0	4320
95	1.1	1.2	2.00	2.2	43.0	5485
120	1.2	1.4	2.50	2.3	48.0	7050
150	1.4	1.4	2.50	2.4	53.0	8410
185	1.6	1.4	2.50	2.6	58.0	10100
240	1.7	1.6	2.50	2.7	64.0	12595
300	1.8	1.6	2.50	2.9	70.0	15395
400	2.0	1.8	3.15	3.2	79.0	20200

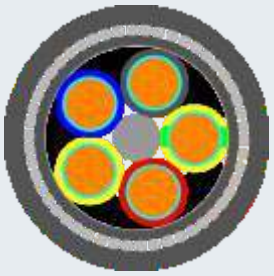
Area	D.C. resistance at 20 °C	A.C. resistance at operating temp.90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	25	22	23	0.21	26.72
2.5	7.41	9.45	0.099	32	30	31	0.36	16.37
4	4.61	5.88	0.093	42	39	41	0.57	10.18
6	3.08	3.93	0.088	52	49	52	0.86	6.80
10	1.83	2.33	0.084	71	66	72	1.43	4.04
16	1.15	1.47	0.081	105	84	94	2.29	2.54
25	0.727	0.93	0.081	136	111	123	3.58	1.61
35	0.524	0.67	0.079	163	133	151	5.01	1.17
50	0.387	0.49	0.078	194	158	184	7.15	0.87
70	0.268	0.34	0.074	241	197	231	10.01	0.61
95	0.193	0.25	0.072	288	237	285	13.59	0.45
120	0.153	0.20	0.072	331	273	331	17.16	0.36
150	0.124	0.16	0.073	370	309	378	21.45	0.30
185	0.0991	0.13	0.072	418	348	436	26.46	0.26
240	0.0754	0.10	0.071	483	403	514	34.32	0.21
300	0.0601	0.08	0.071	540	452	586	42.90	0.19
400	0.047	0.07	0.070	621	530	674	57.20	0.17

The above data is indicative & may be changed without prior information.
Conductor upto 16mm^2 will be round.
Conductor of 25mm^2 and above will be compacted sector shaped conductor.
* Standard Packing: 1000 Mtrs upto 95sq.mm
500 Mtrs from 120sq.mm to 300sq.mm
300 Mtrs for 400sq.mm

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-58

Five core Fire resistant cable, Copper conductor, Glass mica taped, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS: 7846



Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
1.5	0.6	0.8	0.9	1.4	15.5	415
2.5	0.7	0.8	0.9	1.4	17.5	525
4	0.7	0.8	0.9	1.5	19.0	645
6	0.7	0.8	1.25	1.5	21.5	910
10	0.7	0.8	1.25	1.6	24.0	1210
16	0.7	1.0	1.6	1.7	27.5	1705
25	0.9	1.0	1.6	1.8	32.5	2430
35	0.9	1.0	1.6	1.9	36.0	3025
50	1.0	1.2	2.0	2.0	42.0	4155
70	1.1	1.2	2.0	2.2	48.0	5480

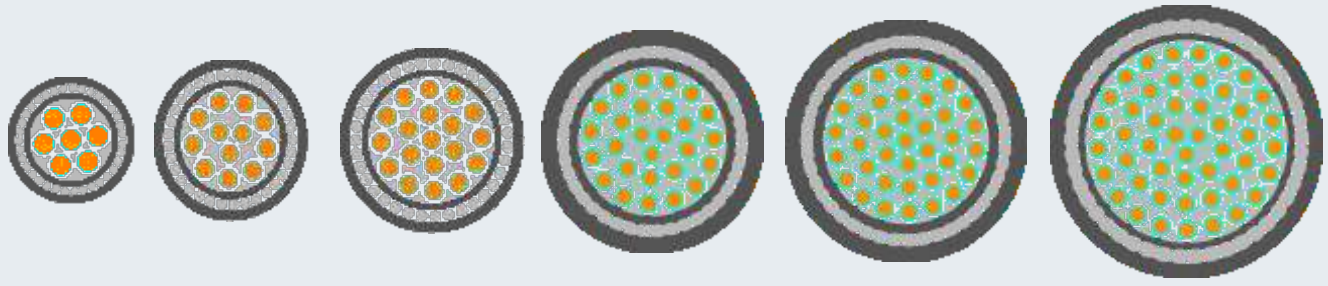
Area	D.C. resistance at 20 °C	A.C. resistance at operating temp. 90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
1.5	12.1	15.43	0.105	25	22	23	0.21	26.72
2.5	7.41	9.45	0.099	32	30	31	0.36	16.37
4	4.61	5.88	0.093	42	39	41	0.57	10.18
6	3.08	3.93	0.088	52	49	52	0.86	6.80
10	1.83	2.33	0.084	71	66	72	1.43	4.04
16	1.15	1.47	0.081	105	84	94	2.29	2.54
25	0.727	0.93	0.081	136	111	123	3.58	1.61
35	0.524	0.67	0.079	163	133	151	5.01	1.17
50	0.387	0.49	0.078	194	158	184	7.15	0.87
70	0.268	0.34	0.074	241	197	231	10.01	0.61

The above data is indicative & may be changed without prior information.
Conductor upto 16mm^2 will be round.
Conductor of 25mm^2 and above will be compacted sector shaped conductor.
* Standard Packing: 1000 Mtrs upto 95sq.mm
500 Mtrs from 120sq.mm to 300sq.mm
300 Mtrs for 400sq.mm

Operating conditions - Amb. air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-59

Auxiliary (Control) - Fire resistant cable, 1.5mm^2, Copper conductor, Glass mica taped, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS:7846



Area	Thickness of XLPE Insulation	Thickness of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm^2	mm	mm	mm	mm	mm	kg/km
7 x 1.5	0.6	0.8	0.90	1.4	16.5	470
12 x 1.5	0.6	0.8	1.25	1.5	21.5	785
19 x 1.5	0.6	0.8	1.25	1.6	24.5	1025
27 x 1.5	0.6	1.0	1.60	1.7	29.5	1505
37 x 1.5	0.6	1.0	1.60	1.7	33.0	1815

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp. 90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm^2	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
7 x 1.5	12.1	15.43	0.105	21	17	17	0.215	26.73
12 x 1.5	12.1	15.43	0.105	18	14	14	0.215	26.73
19 x 1.5	12.1	15.43	0.105	15	12	12	0.215	26.73
27 x 1.5	12.1	15.43	0.105	13	10	10	0.215	26.73
37 x 1.5	12.1	15.43	0.105	11	9	9	0.215	26.73

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtr Drums

Operating conditions - Amb. Air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-60

Auxiliary (Control) - Fire resistant cable, 2.5mm², Copper conductor, Glass mica taped, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS:7846

Area	Thickness of XLPE Insulation	Thick. Of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm²	mm	mm	mm	mm	mm	kg/km
7 x 2.5	0.7	0.8	0.90	1.4	18.5	595
12 x 2.5	0.7	0.8	1.25	1.6	24.5	1010
19 x 2.5	0.7	1	1.60	1.7	29	1535
27 x 2.5	0.7	1.0	1.60	1.8	34	1960
37 x 2.5	0.7	1.0	1.60	1.8	36.0	2395

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp.90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm²	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
7 x 2.5	7.41	9.448	0.099	27	22	23	0.358	16.37
12 x 2.5	7.41	9.448	0.099	22	19	19	0.358	16.37
19 x 2.5	7.41	9.448	0.099	19	16	16	0.358	16.37
27 x 2.5	7.41	9.448	0.099	16	14	13	0.358	16.37
37 x 2.5	7.41	9.448	0.099	14	12	12	0.358	16.37

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtr Drums

Operating conditions - Amb. Air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Table-61

Auxiliary (Control) - Fire resistant cable, 4mm², Copper conductor, Glass mica taped, XLPE insulated, Gal. steel wire armoured, LSF/LSZH sheathed, 600/1000V, conf. to BS:7846

Area	Thickness of XLPE Insulation	Thick. Of Bedding	Dimension of Armour Wire	Thickness of LSF Outersheath	Over all diameter	Net Wt. of Cable
	Nominal	Nominal	Nominal	Nominal	Approx	Approx
mm²	mm	mm	mm	mm	mm	kg/km
7 x 4	0.7	0.8	1.25	1.5	21	860
12 x 4	0.7	1	1.60	1.6	27.5	1435
19 x 4	0.7	1	1.60	1.7	32	1940
27 x 4	0.7	1.0	1.60	1.9	38	2495
37 x 4	0.7	1.2	2.00	2	43.0	3475

Area	D.C. resistance at 20 °C	A.C. resistance at operating temp.90 °C	Reactance at 50Hz	Current Rating			Short circuit rating for 1 Sec.	Voltage Drop
	Max	Approx	Approx	Ground	Duct	Air		
mm²	Ohm/km	Ohm/km	Ohm/km	Amps	Amps	Amps	kA(rms)	V/A/km
7 x 4	4.61	5.878	0.093	36	29	30	0.572	10.18
12 x 4	4.61	5.878	0.093	30	24	25	0.572	10.18
19 x 4	4.61	5.878	0.093	25	20	21	0.572	10.18
27 x 4	4.61	5.878	0.093	22	17	18	0.572	10.18
37 x 4	4.61	5.878	0.093	19	16	16	0.572	10.18

The above data is indicative & may be changed without prior information.
* Standard Packing: 1000 Mtr Drums

Operating conditions - Amb. Air temp. 40° C
Ground temp: 20° C
Depth of laying : 50 cm
Thermal resistivity of soil: 120° C-cm/W

Tables - 62 to 75

Group Rating Factors for Circuits of Three Single Core Cables in Trefoil formation

Table 62: Touching Horizontal Formation laid Direct in Ground

No. of Circuits	Spacing (Between Centres of Circuits)				
	Touching	15 cm	30 cm	45 cm	60 cm
2	0.78	0.81	0.85	0.88	0.90
3	0.68	0.71	0.77	0.81	0.83
4	0.61	0.65	0.72	0.76	0.79
5	0.56	0.61	0.68	0.73	0.78

Table 63: Cables laid in Trefoil Ducts in horizontal formation

No. of Circuits	Spacing (Between Centres of Circuits)		
	Touching	45 cm	60 cm
2	0.87	0.90	0.91
3	0.79	0.83	0.86
4	0.74	0.79	0.82
5	0.71	0.76	0.79

Table 64: Cables laid on Racks/Trays in covered trench with removable covers where air circulation is restricted, Trefoils are separated by two cable dia horizontally and the trays are in tiers with 30 cm. gap between them.

No. of Racks/ Trays in tiers	No. of Trefoils in horizontal formaiton		
	1	2	3
1	0.95	0.90	0.88
2	0.9	0.85	0.83
3	0.88	0.83	0.81
6	0.86	0.81	0.79

Table 65: Cables laid as in 'C' but open air

No. of Racks	No. of Cables per Rack		
	1	2	3
1	1	0.98	0.96
2	1	0.95	0.93
3	1	0.94	0.92
6	1	0.93	0.9

Group Rating Factors for Circuits of Multi-core Cables

Table 66: 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 in tiers by 300 mm. The clearance of the cable from the Wall is 25 mm.

No. of Cable trays in Tier	Number of cables				
	1	2	3	6	9
1	0.95	0.9	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

Table 67: Cables laid on cable trays exposed to air, the cables spaced by one cable diameter and trays in tiers by 300 mm. The clearance between the wall and the cable is 25 mm.

No. of Cable trays in Tier	No. of Cables per Rack			
	2	3	6	9
1	0.98	0.96	0.93	0.92
2	0.95	0.93	0.9	0.89
3	0.94	0.92	0.89	0.88
6	0.93	0.9	0.87	0.86

Table 68: Cables laid on cable trays exposed to air, the cables are touching and trays in tiers by 300 mm. The clearance between the wall and the cable is 25 mm.

No. of Cable trays in Tier	No. of Cables per Rack			
	2	3	6	9
1	0.84	0.8	0.75	0.73
2	0.8	0.76	0.71	0.69
3	0.78	0.74	0.7	0.68
6	0.76	0.72	0.68	0.66

Table 69: Cables laid Direct in Ground in horizontal formation.

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

Table 70: Cables laid Direct in single way ducts/pipes in horizontal formation.

No. of Cables in group	Spacing of cables			
	Touching	30 cm	45 cm	60 cm
2	0.88	0.9	0.92	0.94
3	0.82	0.84	0.87	0.89
4	0.77	0.8	0.84	0.87
5	0.74	0.78	0.82	0.85
6	0.71	0.76	0.81	0.84

Table 71: Rating Factor for Variation in Dept. of laying in Ground

Dept. of Laying (cm)	50	80	100	125	150	200 & above
Rating Factor upto 50 mm²	1	0.97	0.95	0.94	0.93	0.91
Rating Factor 70 mm² to 300 mm²	1	0.96	0.94	0.92	0.91	0.88
Rating Factor above 300 mm²	1	0.94	0.92	0.9	0.89	0.86

Table 72: Rating Factors for Variation in Ambient Air Temperature

Air Temp. °C	15	20	25	30	35	40	45	50	55
Rating Factor	1.22	1.18	1.14	1.10	1.05	1.00	0.95	0.89	0.84

Table 73: Rating Factors for Variation in Ground Temperature

Group Temp.	15	20	25	30	35	40	45	50	55
Rating Factor	1.04	1.00	0.96	0.93	0.89	0.85	0.80	0.76	0.71

Table 74: Rating Factors for variation in thermal resistivity of soil (multicore cables laid direct in the ground) - Average values

Nominal area of conductor mm²	For values of thermal reistivity of Soil in °C-cm/W					
	80	90	100	150	200	250
Up to 16	1.09	1.06	1.04	0.95	0.86	0.79
25 to 150	1.14	1.1	1.07	0.93	0.84	0.76
185 & above	1.16	1.11	1.07	0.92	0.82	0.74

Table 75: Rating Factors for variation in thermal resistivity of soil, three single core cables laid direct in the ground (three cables in trefoil touching) : Average Values

Nominal area of conductor mm²	For values of thermal reistivity of Soil in °C-cm/W					
	80	90	100	150	200	250
Up to 150	1.16	1.11	1.07	0.91	0.81	0.73
185 to 400	1.17	1.12	1.07	0.9	0.8	0.72
500 & above	1.18	1.13	1.08	0.9	0.79	0.71

SUB INDEX

INTRODUCTION

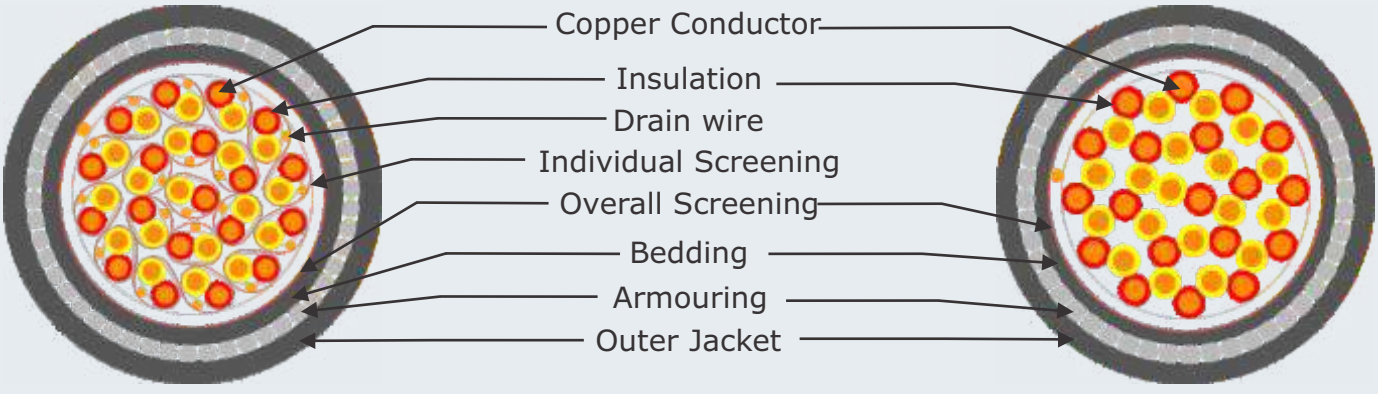
Power Plus cable, manufacturer of Power, control cables and wiring cables, offers a wide range of Instrumentation cables for various applications including Petrochemical, Oil & Gas, Smelters, cement plants, power plants, industrial automation, etc. Our cables are designed to carry communication and control signals of analog, voice or data type. Screened cables are used where electromagnetic interference into the cable is anticipated. Individual elements of a cable like pair or triad are screened when cross-interference with other adjacent elements needs to be avoided.

These cables are used for transmitting signals from process control devices and measurement equipments to drive sensors, control valves etc. The unarmoured types of cables are intended for indoor use or installations in conduit, cable tray, etc., whereas armoured cables are suitable for extra mechanical protection and direct burial in ground. These cables shall not be directly connected to a low impedance sources like main electricity power supply.

The manufacturing process for typical screened instrumentation cable is described below.

With overall screening
With individual screening

With overall screening
Without individual screening



CONDUCTOR

Annealed Plain or Tinned, high conductivity electrolytic grade Solid, Stranded or Flexible Copper Conductors of Class 1, 2 or 5, complying to BS EN 60228.

INSULATION

The Conductors are insulated with Polyethylene, XLPE, general purpose or Heat Resistant PVC or LSF material as per requirement.

CORE IDENTIFICATION

The Cores are identified with coloured insulation or printed numerals as per customer requirement.

PAIR/TRIAD

Two or Three cores are uniformly twisted together to form a Pair or Triad. The lay length is chosen to minimize cross talk in the cable.

INDIVIDUAL SHIELDING

If required, Individual Shielding of Pair or Triad by Polyester laminated Aluminium tape (thin Layer of Aluminium bonded to polyester Film tape is termed as a Foil screen) in contact with annealed Tinned copper drain wire. The drain wire can be of solid or flexible type.

LAYING OF CORES, PAIR or TRIAD

Cores, Pair or Triad are assembled in concentric form with suitable lay length. A binder tape of plastic material is provided over the laid up assembly.

OVERALL SHIELDING

Overall Shielding of annealed bare or tinned copper braid or laminated Aluminium tape with tinned copper drain wire is provided as per requirement. Braided shield has higher tensile strength and is suitable for flexible applications. The overall shielding reduces cross talk and electromagnetic interference in the cable.

INNER SHEATH

The shielded cable assembly is provided with an extruded inner sheath of PVC, Polyethylene or LSF compound as per requirement.

ARMOURING

The armouring over inner sheath consisting of galvanized Round steel wires or galvanized Steel Tape is provided as per customer requirements/specification.

OUTER SHEATH

An outer sheath of PVC, FR-PVC or LSF material is provided over armour in case of armoured cable or directly over collective screen in case of unarmoured cable. The color of outer sheath is generally Black, Grey, Blue, or Orange as required by customer.

RIP CORD

For an easy jacket removal, high tensile strength nylon Rip Cord can be provided over laid up cores, pairs or triads if requested.

APPLICABLE STANDARDS

BS: 5308 (Part-1& 2), BS EN 50288-7 or customer's specifications.

Single / Multi Pair, Polyethylene Insulated Individual / Overall Shielded, Armoured / Unarmoured PVC sheathed cables as per BS: 5308 (Part 1)

CONSTRUCTION

1. Conductor : Plain Annealed Copper to BS EN 60228.
2. Insulation : Polyethylene as per BS:6234
3. Wrapping : Polyester tape
4. Pair / Overall Shielding : Aluminium foil in contact with solid/stranded tinned copper drain wire
5. Core / Pair Identification : Blue & white coloured cores with pair numbers printed on white core.
6. Wrapping : Polyester tape
7. Inner Sheath : Polyethylene as per BS:6234
8. Armour : Galvanised steel round wire (for Type 2 cables only)
9. Outer Sheath : Polyvinyl Chloride (PVC) Type TM1, in accordance with BS:7655

TECHNICAL INFORMATION

1. Maximum Operating Temperature	: 70^0C
2. Working Voltage	: 300/500 Volt
3. Test voltage	: 1000 Volt for 1 minute between conductor, and between conductors and screen / armour
4. Max DC Conductor Resistance at 20^0C	
Conductor Size	: Multipair
0.5 mm^2 (Solid)	: 36.72 Ω/Km
0.5 mm^2 (Flexible)	: 39.78 Ω/Km
1.0 mm^2	: 18.46 Ω/Km
1.5 mm^2	: 12.34 Ω/Km
5. Minimum insulation Resistance at 20^0C	
Between individual conductor	: 5 G Ω.Km
Between individual Screens	: 1 M Ω.Km
6. Capacitance	
Max. mutual capacitance (IS & OS)	: 115 pF/m at 1 kHz
Maximum capacitance unbalance	: 250 nF/250m at 1 kHz
7. Maximum L/R ratio	
0.5 mm^2	: 25 µH/Ω
1.0 mm^2	: 25 µH/Ω
1.5 mm^2	: 40 µH/Ω
OPTIONAL FEATURES :	
- Annealed tinned copper conductor on request	
- Flame retardant to IEC 60332-1/IEC 60332-3	
- FR PVC / LSF sheathed cables also available	
BENDING RADIUS :	
Unarmoured cable : 6 X Overall Diameter	
Armoured cable : 8 X Overall Diameter	

Table-76

POLYETHYLENE INSULATED OVERALL SHIELDED UNARMOURED CABLES, 300/500V AS PER BS:5308 (Part 1) (Type 1)

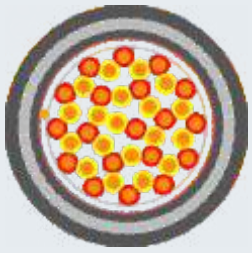
No. of Pairs	Cross Sectional Area (mm^2)	Conductor No./ Dia. of Wire (No./mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Approx. Overall Diameter (mm)
1	0.5	1/0.8	0.5	0.8	5.8
2	0.5	1/0.8	0.5	0.8	6.6
5	0.5	1/0.8	0.5	1.1	11.1
10	0.5	1/0.8	0.5	1.2	14.5
15	0.5	1/0.8	0.5	1.2	16.6
20	0.5	1/0.8	0.5	1.3	18.9
30	0.5	1/0.8	0.5	1.3	22.5
50	0.5	1/0.8	0.5	1.5	28.4
1	0.5	16/0.2	0.6	0.8	6.5
2	0.5	16/0.2	0.6	0.8	7.4
5	0.5	16/0.2	0.6	1.1	12.6
10	0.5	16/0.2	0.6	1.2	16.7
15	0.5	16/0.2	0.6	1.3	19.3
20	0.5	16/0.2	0.6	1.3	21.8
30	0.5	16/0.2	0.6	1.5	26.4
50	0.5	16/0.2	0.6	1.7	33.4
1	1	1/1.13	0.6	0.8	6.9
2	1	1/1.13	0.6	0.8	7.9
5	1	1/1.13	0.6	1.2	13.7
10	1	1/1.13	0.6	1.2	17.9
15	1	1/1.13	0.6	1.3	20.8
20	1	1/1.13	0.6	1.5	23.9
30	1	1/1.13	0.6	1.5	28.5
50	1	1/1.13	0.6	2	36.8
1	1.5	7/0.53	0.6	0.8	7.8
2	1.5	7/0.53	0.6	0.9	9.2
5	1.5	7/0.53	0.6	1.2	15.9
10	1.5	7/0.53	0.6	1.3	21.1
15	1.5	7/0.53	0.6	1.5	24.7
20	1.5	7/0.53	0.6	1.5	28
30	1.5	7/0.53	0.6	1.7	33.8
50	1.5	7/0.53	0.6	2	43.1

Table-77

POLYETHYLENE INSULATED INDIVIDUAL & OVERALL SHIELDED UNARMOURED CABLES, 300/500V AS PER BS:5308 (Part 1) (Type 1)

No. of Pairs	Cross Sectional Area (mm^2)	Conductor No./ Dia. of Wire (No./mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Approx. Overall Diameter (mm)
2	0.5	1/0.8	0.5	0.9	9.3
5	0.5	1/0.8	0.5	1.2	12.5
10	0.5	1/0.8	0.5	1.2	17.3
15	0.5	1/0.8	0.5	1.3	20.1
20	0.5	1/0.8	0.5	1.3	22.5
30	0.5	1/0.8	0.5	1.5	26.9
50	0.5	1/0.8	0.5	2	35.1
2	0.5	16/0.2	0.6	1.1	11
5	0.5	16/0.2	0.6	1.2	14.2
10	0.5	16/0.2	0.6	1.3	20.1
15	0.5	16/0.2	0.6	1.5	23.5
20	0.5	16/0.2	0.6	1.5	26.3
30	0.5	16/0.2	0.6	1.7	31.3
50	0.5	16/0.2	0.6	2.2	40.7
2	1	1/1.13	0.6	1.1	11.8
5	1	1/1.13	0.6	1.2	15.2
10	1	1/1.13	0.6	1.3	21.6
15	1	1/1.13	0.6	1.5	25.2
20	1	1/1.13	0.6	1.7	28.8
30	1	1/1.13	0.6	2	34.4
50	1	1/1.13	0.6	2.2	43.9
2	1.5	7/0.53	0.6	1.2	13.7
5	1.5	7/0.53	0.6	1.3	17.8
10	1.5	7/0.53	0.6	1.5	25.5
15	1.5	7/0.53	0.6	1.7	29.8
20	1.5	7/0.53	0.6	1.7	33.4
30	1.5	7/0.53	0.6	2	40
50	1.5	7/0.53	0.6	2.2	51.2

Table-78



POLYETHYLENE INSULATED OVERALL SHIELDED ARMOURED CABLES, 300/500 VOLT AS PER BS:5308 (Part 1) (Type 2)

No. of Pairs	Cross Sectional Area (mm ^{2})	Conductor No./ Dia. Of Wire (No./mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Nom. Armour wire Dia. (mm)	Nom. Outer sheath Thickness (mm)	Approx. overall Diameter (mm)
1	0.5	1/0.8	0.5	0.8	0.9	1.3	10.2
2	0.5	1/0.8	0.5	0.8	0.9	1.3	11
5	0.5	1/0.8	0.5	1.1	0.9	1.4	15.7
10	0.5	1/0.8	0.5	1.2	1.25	1.6	20.2
15	0.5	1/0.8	0.5	1.2	1.25	1.6	22.3
20	0.5	1/0.8	0.5	1.3	1.6	1.7	25.5
30	0.5	1/0.8	0.5	1.3	1.6	1.8	29.3
50	0.5	1/0.8	0.5	1.5	1.6	2	35.6
1	0.5	16/0.2	0.6	0.8	0.9	1.3	10.9
2	0.5	16/0.2	0.6	0.8	0.9	1.3	11.8
5	0.5	16/0.2	0.6	1.1	0.9	1.5	17.4
10	0.5	16/0.2	0.6	1.2	1.25	1.6	22.4
15	0.5	16/0.2	0.6	1.3	1.6	1.7	25.9
20	0.5	16/0.2	0.6	1.3	1.6	1.8	28.6
30	0.5	16/0.2	0.6	1.5	1.6	1.9	33.4
50	0.5	16/0.2	0.6	1.7	2	2.1	41.6
1	1	1/1.13	0.6	0.8	0.9	1.3	11.3
2	1	1/1.13	0.6	0.8	0.9	1.4	12.5
5	1	1/1.13	0.6	1.2	1.25	1.5	19.2
10	1	1/1.13	0.6	1.2	1.25	1.7	23.8
15	1	1/1.13	0.6	1.3	1.6	1.8	27.6
20	1	1/1.13	0.6	1.5	1.6	1.8	30.7
30	1	1/1.13	0.6	1.5	1.6	2	35.7
50	1	1/1.13	0.6	2	2	2.2	45.2
1	1.5	7/0.53	0.6	0.8	0.9	1.4	12.4
2	1.5	7/0.53	0.6	0.9	0.9	1.4	13.8
5	1.5	7/0.53	0.6	1.2	1.25	1.6	21.6
10	1.5	7/0.53	0.6	1.3	1.6	1.8	27.9
15	1.5	7/0.53	0.6	1.5	1.6	1.9	31.7
20	1.5	7/0.53	0.6	1.5	2	2	36
30	1.5	7/0.53	0.6	1.7	2	2.1	42
50	1.5	7/0.53	0.6	2	2.5	2.4	52.9

Table-79

POLYETHYLENE INSULATED INDIVIDUAL & OVERALL SHIELDED ARMOURED CABLES, 300/500V AS PER BS:5308 (Part 1) (Type 2)

No. of Pairs	Cross Sectional Area (mm^2)	Conductor No./ Dia. Of Wire (No/mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Nom. Armour wire dia. (mm)	Nom. Outer sheath thickness (mm)	Approx. Overall Diameter (mm)
2	0.5	1/0.8	0.5	0.9	0.9	1.4	13.9
5	0.5	1/0.8	0.5	1.2	1.25	1.5	18
10	0.5	1/0.8	0.5	1.2	1.25	1.7	23.2
15	0.5	1/0.8	0.5	1.3	1.6	1.7	26.7
20	0.5	1/0.8	0.5	1.3	1.6	1.8	29.3
30	0.5	1/0.8	0.5	1.5	1.6	1.9	33.9
50	0.5	1/0.8	0.5	2	2	2.2	43.5
2	0.5	16/0.2	0.6	1.1	0.9	1.5	15.8
5	0.5	16/0.2	0.6	1.2	1.25	1.6	19.9
10	0.5	16/0.2	0.6	1.3	1.6	1.8	26.9
15	0.5	16/0.2	0.6	1.5	1.6	1.8	30.3
20	0.5	16/0.2	0.6	1.5	1.6	1.9	33.3
30	0.5	16/0.2	0.6	1.7	2	2.1	39.5
50	0.5	16/0.2	0.6	2.2	2.5	2.4	50.5
2	1	1/1.13	0.6	1.1	0.9	1.5	16.6
5	1	1/1.13	0.6	1.2	1.25	1.6	20.9
10	1	1/1.13	0.6	1.3	1.6	1.8	28.4
15	1	1/1.13	0.6	1.5	1.6	1.9	32.2
20	1	1/1.13	0.6	1.7	2	2	36.8
30	1	1/1.13	0.6	2	2	2.2	42.8
50	1	1/1.13	0.6	2.2	2.5	2.5	53.9
2	1.5	7/0.53	0.6	1.2	1.25	1.6	19.4
5	1.5	7/0.53	0.6	1.3	1.6	1.7	24.4
10	1.5	7/0.53	0.6	1.5	1.6	1.9	32.5
15	1.5	7/0.53	0.6	1.7	2	2	37.8
20	1.5	7/0.53	0.6	1.7	2	2.1	41.6
30	1.5	7/0.53	0.6	2	2.5	2.5	49.8
50	1.5	7/0.53	0.6	2.2	2.5	2.7	61.6

Single / Multi Pair, XLPE Insulated Individual / Overall Shielded, Armoured / Unarmoured LSF sheathed cables generally as per BS: 5308 (Part 1)

CONSTRUCTION

1. Conductor : Plain Annealed Copper to BS EN 60228.
2. Insulation : XLPE as per BS:7655-1.3
3. Wrapping : Polyester tape
4. Pair / Overall Shielding : Aluminium foil in contact with solid/stranded tinned copper drain wire
5. Core / Pair Identification : Blue & White coloured cores with pair numbers printed on white core.
6. Wrapping : Polyester tape
7. Inner Sheath : LSF as per BS: 7655-6.1
8. Armour : Galvanised steel round wire (for Type 2 cables only)
9. Outer Sheath : LSF as per BS:7655-6.1

TECHNICAL INFORMATION

1. Maximum Operating Temperature	: 90^0C
2. Working Voltage	: 300/500 Volt
3. Test voltage	: 1000 Volt for 1 minute between conductor, and between conductors and screen / armour
4. Max DC Conductor Resistance at 20^0C	
Conductor Size	: Multipair
0.5 mm^2 (Solid)	: 36.72 Ω/Km
0.5 mm^2 (Flexible)	: 39.78 Ω/Km
1.0 mm^2	: 18.46 Ω/Km
1.5 mm^2	: 12.34 Ω/Km
5. Minimum insulation Resistance at 20^0C	
Between individual conductor	: 5 G Ω.Km
Between individual Screens	: 1 M Ω.Km
6. Capacitance	
Max. mutual capacitance (IS & OS)	: 115 pF/m at 1 kHz
Maximum capacitance unbalance	: 250 nF/250m at 1 kHz
7. Maximum L/R ratio	
0.5 mm^2	: 25 µH/Ω
1.0 mm^2	: 25 µH/Ω
1.5 mm^2	: 40 µH/Ω
OPTIONAL FEATURES :	
- Annealed tinned copper conductor on request	
- Flame retardant to IEC 60332-1/IEC 60332-3	
BENDING RADIUS :	
Unarmoured cable : 6 X Overall Diameter	
Armoured cable : 8 X Overall Diameter	

Table-80

XLPE INSULATED OVERALL SHIELDED UNARMOURED LSF CABLES, 300/500V GENERALLY AS PER BS:5308 (Part 1) (Type 1)

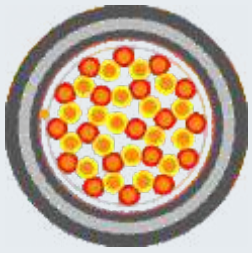
No. of Pairs	Cross Sectional Area (mm^2)	Conductor No./ Dia. of Wire (No./mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Approx. Overall Diameter (mm)
1	0.5	1/0.8	0.5	0.8	5.8
2	0.5	1/0.8	0.5	0.8	6.6
5	0.5	1/0.8	0.5	1.1	11.1
10	0.5	1/0.8	0.5	1.2	14.5
15	0.5	1/0.8	0.5	1.2	16.6
20	0.5	1/0.8	0.5	1.3	18.9
30	0.5	1/0.8	0.5	1.3	22.5
50	0.5	1/0.8	0.5	1.5	28.4
1	0.5	16/0.2	0.6	0.8	6.5
2	0.5	16/0.2	0.6	0.8	7.4
5	0.5	16/0.2	0.6	1.1	12.6
10	0.5	16/0.2	0.6	1.2	16.7
15	0.5	16/0.2	0.6	1.3	19.3
20	0.5	16/0.2	0.6	1.3	21.8
30	0.5	16/0.2	0.6	1.5	26.4
50	0.5	16/0.2	0.6	1.7	33.4
1	1	1/1.13	0.6	0.8	6.9
2	1	1/1.13	0.6	0.8	7.9
5	1	1/1.13	0.6	1.2	13.7
10	1	1/1.13	0.6	1.2	17.9
15	1	1/1.13	0.6	1.3	20.8
20	1	1/1.13	0.6	1.5	23.9
30	1	1/1.13	0.6	1.5	28.5
50	1	1/1.13	0.6	2	36.8
1	1.5	7/0.53	0.6	0.8	7.8
2	1.5	7/0.53	0.6	0.9	9.2
5	1.5	7/0.53	0.6	1.2	15.9
10	1.5	7/0.53	0.6	1.3	21.1
15	1.5	7/0.53	0.6	1.5	24.7
20	1.5	7/0.53	0.6	1.5	28
30	1.5	7/0.53	0.6	1.7	33.8
50	1.5	7/0.53	0.6	2	43.1

Table-81

XLPE INSULATED INDIVIDUAL & OVERALL SHIELDED UNARMOURED LSF CABLES, 300/500V GENERALLY AS PER BS:5308 (Part 1) (Type 1)

No. of Pairs	Cross Sectional Area (mm^2)	Conductor No./ Dia. of Wire (No./mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Approx. Overall Diameter (mm)
2	0.5	1/0.8	0.5	0.9	9.3
5	0.5	1/0.8	0.5	1.2	12.5
10	0.5	1/0.8	0.5	1.2	17.3
15	0.5	1/0.8	0.5	1.3	20.1
20	0.5	1/0.8	0.5	1.3	22.5
30	0.5	1/0.8	0.5	1.5	26.9
50	0.5	1/0.8	0.5	2	35.1
2	0.5	16/0.2	0.6	1.1	11
5	0.5	16/0.2	0.6	1.2	14.2
10	0.5	16/0.2	0.6	1.3	20.1
15	0.5	16/0.2	0.6	1.5	23.5
20	0.5	16/0.2	0.6	1.5	26.3
30	0.5	16/0.2	0.6	1.7	31.3
50	0.5	16/0.2	0.6	2.2	40.7
2	1	1/1.13	0.6	1.1	11.8
5	1	1/1.13	0.6	1.2	15.2
10	1	1/1.13	0.6	1.3	21.6
15	1	1/1.13	0.6	1.5	25.2
20	1	1/1.13	0.6	1.7	28.8
30	1	1/1.13	0.6	2	34.4
50	1	1/1.13	0.6	2.2	43.9
2	1.5	7/0.53	0.6	1.2	13.7
5	1.5	7/0.53	0.6	1.3	17.8
10	1.5	7/0.53	0.6	1.5	25.5
15	1.5	7/0.53	0.6	1.7	29.8
20	1.5	7/0.53	0.6	1.7	33.4
30	1.5	7/0.53	0.6	2	40
50	1.5	7/0.53	0.6	2.2	51.2

Table-82



XLPE INSULATED OVERALL SHIELDED ARMOURED LSF CABLES, 300/500 V GENERALLY AS PER BS:5308 (Part 1) (Type 2)

No. of Pairs	Cross Sectional Area (mm^2)	Conductor No./ Dia. Of Wire (No/mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Nom. Armour wire dia. (mm)	Nom. Outer sheath thickness (mm)	Approx. Overall Diameter (mm)
1	0.5	1/0.8	0.5	0.8	0.9	1.3	10.2
2	0.5	1/0.8	0.5	0.8	0.9	1.3	11
5	0.5	1/0.8	0.5	1.1	0.9	1.4	15.7
10	0.5	1/0.8	0.5	1.2	1.25	1.6	20.2
15	0.5	1/0.8	0.5	1.2	1.25	1.6	22.3
20	0.5	1/0.8	0.5	1.3	1.6	1.7	25.5
30	0.5	1/0.8	0.5	1.3	1.6	1.8	29.3
50	0.5	1/0.8	0.5	1.5	1.6	2	35.6
1	0.5	16/0.2	0.6	0.8	0.9	1.3	10.9
2	0.5	16/0.2	0.6	0.8	0.9	1.3	11.8
5	0.5	16/0.2	0.6	1.1	0.9	1.5	17.4
10	0.5	16/0.2	0.6	1.2	1.25	1.6	22.4
15	0.5	16/0.2	0.6	1.3	1.6	1.7	25.9
20	0.5	16/0.2	0.6	1.3	1.6	1.8	28.6
30	0.5	16/0.2	0.6	1.5	1.6	1.9	33.4
50	0.5	16/0.2	0.6	1.7	2	2.1	41.6
1	1	1/1.13	0.6	0.8	0.9	1.3	11.3
2	1	1/1.13	0.6	0.8	0.9	1.4	12.5
5	1	1/1.13	0.6	1.2	1.25	1.5	19.2
10	1	1/1.13	0.6	1.2	1.25	1.7	23.8
15	1	1/1.13	0.6	1.3	1.6	1.8	27.6
20	1	1/1.13	0.6	1.5	1.6	1.8	30.7
30	1	1/1.13	0.6	1.5	1.6	2	35.7
50	1	1/1.13	0.6	2	2	2.2	45.2
1	1.5	7/0.53	0.6	0.8	0.9	1.4	12.4
2	1.5	7/0.53	0.6	0.9	0.9	1.4	13.8
5	1.5	7/0.53	0.6	1.2	1.25	1.6	21.6
10	1.5	7/0.53	0.6	1.3	1.6	1.8	27.9
15	1.5	7/0.53	0.6	1.5	1.6	1.9	31.7
20	1.5	7/0.53	0.6	1.5	2	2	36
30	1.5	7/0.53	0.6	1.7	2	2.1	42
50	1.5	7/0.53	0.6	2	2.5	2.4	52.9

Table-83

XLPE INSULATED INDIVIDUAL & OVERALL SHIELDED ARMOURED LSF CABLES, 300/500V GENERALLY AS PER BS:5308 (Part 1) (Type 2)

No. of Pairs	Cross Sectional Area (mm^2)	Conductor No./ Dia. Of Wire (No/mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Nom. Armour wire dia. (mm)	Nom. Outer sheath thickness (mm)	Approx. Overall Diameter (mm)
2	0.5	1/0.8	0.5	0.9	0.9	1.4	13.9
5	0.5	1/0.8	0.5	1.2	1.25	1.5	18
10	0.5	1/0.8	0.5	1.2	1.25	1.7	23.2
15	0.5	1/0.8	0.5	1.3	1.6	1.7	26.7
20	0.5	1/0.8	0.5	1.3	1.6	1.8	29.3
30	0.5	1/0.8	0.5	1.5	1.6	1.9	33.9
50	0.5	1/0.8	0.5	2	2	2.2	43.5
2	0.5	16/0.2	0.6	1.1	0.9	1.5	15.8
5	0.5	16/0.2	0.6	1.2	1.25	1.6	19.9
10	0.5	16/0.2	0.6	1.3	1.6	1.8	26.9
15	0.5	16/0.2	0.6	1.5	1.6	1.8	30.3
20	0.5	16/0.2	0.6	1.5	1.6	1.9	33.3
30	0.5	16/0.2	0.6	1.7	2	2.1	39.5
50	0.5	16/0.2	0.6	2.2	2.5	2.4	50.5
2	1	1/1.13	0.6	1.1	0.9	1.5	16.6
5	1	1/1.13	0.6	1.2	1.25	1.6	20.9
10	1	1/1.13	0.6	1.3	1.6	1.8	28.4
15	1	1/1.13	0.6	1.5	1.6	1.9	32.2
20	1	1/1.13	0.6	1.7	2	2	36.8
30	1	1/1.13	0.6	2	2	2.2	42.8
50	1	1/1.13	0.6	2.2	2.5	2.5	53.9
2	1.5	7/0.53	0.6	1.2	1.25	1.6	19.4
5	1.5	7/0.53	0.6	1.3	1.6	1.7	24.4
10	1.5	7/0.53	0.6	1.5	1.6	1.9	32.5
15	1.5	7/0.53	0.6	1.7	2	2	37.8
20	1.5	7/0.53	0.6	1.7	2	2.1	41.6
30	1.5	7/0.53	0.6	2	2.5	2.5	49.8
50	1.5	7/0.53	0.6	2.2	2.5	2.7	61.6

Single / Multi Pair, PVC Insulated Individual / Overall Shielded, Armoured / Unarmoured PVC sheathed cables BS: 5308 (Part 2)

CONSTRUCTION

1 Conductor	: Plain Annealed Copper to BS EN 60228.
2 Insulation	: Polyvinyl chloride (PVC) Type TI 1 to BS 7655
3 Wrapping	: Polyester tape
4 Pair / Overall Shielding	: Aluminium foil in contact with stranded tinned copper drain wire
5 Core / Pair Identification	: Blue & Black coloured cores with pair numbers printed on blue core.
6 Wrapping	: Polyester tape
7 Inner Sheath	: Polyvinyl Chloride(PVC), Type TM 1 to BS 7655
8 Armour	: Galvanised steel round wire (for Type 2 cables only)
9 Outer Sheath	: Polyvinyl Chloride(PVC), Type TM 1 to BS 7655

TECHNICAL INFORMATION

1. Maximum Operating Temperature	: 70^0C
2. Working Voltage	: 300/500 Volt
3. Test voltage	: 1000 Volt for 1 minute between conductor, and between conductors and screen / armour
4. Max DC Conductor Resistance at 20^0C	
Conductor Size	: Multipair
0.5 mm^2	: 39.78 Ω/Km
0.75 mm^2	: 26.52 Ω/Km
1.5 mm^2	: 12.34 Ω/Km
5. Minimum insulation Resistance at 20^0C	
Between individual conductor	: 25 MΩ.Km
Between individual Screen	: 1 MΩ.Km
6. Capacitance	
Maximum mutual capacitance	: 250 pF/m at 1 kHz
Maximum capacitance unbalance	: 400 nF/Km at 1 kHz
7. Maximum L/R ratio	
0.5 mm^2	: 25 µH/Ω
1.0 mm^2	: 25 µH/Ω
1.5 mm^2	: 40 µH/Ω
OPTIONAL FEATURES :	
- Annealed tinned copper conductor on request	
- Flame retardant to IEC 60332-1/IEC 60332-3	
- FR PVC sheathed cables also available	
BENDING RADIUS :	
Unarmoured cable : 6 X Overall Diameter	
Armoured cable : 8 X Overall Diameter	

Table-84

PVC INSULATED OVERALL SHIELDED UNARMOURED CABLES, 300/500V AS PER BS:5308 (Part 2) (Type 1)

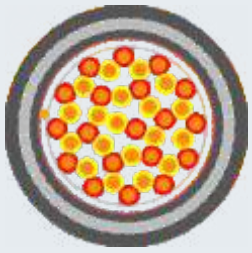
No. of Pairs	Cross Sectional Area (mm ^{2})	Conductor No./ Dia. Of Wire (No/mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Approx. Overall Diameter (mm)
1	0.5	16/0.2	0.6	0.8	6.5
2	0.5	16/0.2	0.6	0.8	7.4
5	0.5	16/0.2	0.6	1.1	12.6
10	0.5	16/0.2	0.6	1.2	16.7
15	0.5	16/0.2	0.6	1.3	19.3
20	0.5	16/0.2	0.6	1.3	21.8
30	0.5	16/0.2	0.6	1.5	27.4
50	0.5	16/0.2	0.6	1.7	33.4
1	0.75	24/0.2	0.6	0.8	6.8
2	0.75	24/0.2	0.6	0.8	7.8
5	0.75	24/0.2	0.6	1.2	13.8
10	0.75	24/0.2	0.6	1.3	18.2
15	0.75	24/0.2	0.6	1.3	21
20	0.75	24/0.2	0.6	1.5	24
30	0.75	24/0.2	0.6	1.7	29
50	0.75	24/0.2	0.6	2	36.9
1	1.5	7 / 0.53	0.6	0.8	7.8
2	1.5	7 / 0.53	0.6	0.9	9.2
5	1.5	7 / 0.53	0.6	1.2	15.9
10	1.5	7 / 0.53	0.6	1.3	21.1
15	1.5	7 / 0.53	0.6	1.5	24.7
20	1.5	7 / 0.53	0.6	1.5	28
30	1.5	7 / 0.53	0.6	1.7	33.8
50	1.5	7 / 0.53	0.6	2	43.1

Table-85

PVC INSULATED INDIVIDUAL & OVERALL SHIELDED UNARMOURED CABLES, 300/500 V AS PER BS:5308 (Part 2) (Type 1)

No. of Pairs	Cross Sectional Area (mm ^{2})	Conductor No./ Dia. Of Wire (No/mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Approx. Overall Diameter (mm)
2	0.5	16/0.2	0.6	1.1	11
5	0.5	16/0.2	0.6	1.2	14.2
10	0.5	16/0.2	0.6	1.3	20.1
15	0.5	16/0.2	0.6	1.5	23.5
20	0.5	16/0.2	0.6	1.5	26.3
30	0.5	16/0.2	0.6	1.7	31.3
50	0.5	16/0.2	0.6	2.2	40.7
2	0.75	24 / 0.2	0.6	1.1	11.8
5	0.75	24 / 0.2	0.6	1.2	15.3
10	0.75	24 / 0.2	0.6	1.3	21.7
15	0.75	24 / 0.2	0.6	1.5	25.4
20	0.75	24 / 0.2	0.6	1.7	28.8
30	0.75	24 / 0.2	0.6	2	34.5
50	0.75	24 / 0.2	0.6	2.2	44
2	1.5	7 / 0.53	0.6	1.2	13.7
5	1.5	7 / 0.53	0.6	1.3	17.8
10	1.5	7 / 0.53	0.6	1.5	25.5
15	1.5	7 / 0.53	0.6	1.7	29.8
20	1.5	7 / 0.53	0.6	1.7	33.4
30	1.5	7 / 0.53	0.6	2	40
50	1.5	7 / 0.53	0.6	2.2	51.2

Table-86



PVC INSULATED OVERALL SHIELDED ARMOURED CABLES, 300/500V AS PER BS:5308 (Part 2) (Type 2)

No. of Pairs	Cross Sectional Area (mm^2)	Conductor No./ Dia. Of Wire (No/mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Nom. Armour wire dia. (mm)	Nom Outer sheath thickness (mm)	Approx. Overall Diameter (mm)
1	0.5	16/0.2	0.6	0.8	0.9	1.3	10.9
2	0.5	16/0.2	0.6	0.8	0.9	1.3	11.8
5	0.5	16/0.2	0.6	1.1	0.9	1.6	17.4
10	0.5	16/0.2	0.6	1.2	1.25	1.6	22.4
15	0.5	16/0.2	0.6	1.3	1.6	1.7	25.9
20	0.5	16/0.2	0.6	1.3	1.6	1.8	28.6
30	0.5	16/0.2	0.6	1.5	1.6	1.9	33.4
50	0.5	16/0.2	0.6	1.7	2	2.1	41.6
1	0.75	24/0.2	0.6	0.8	0.9	1.3	11.2
2	0.75	24/0.2	0.6	0.8	0.9	1.4	12.4
5	0.75	24/0.2	0.6	1.2	1.25	1.5	19.3
10	0.75	24/0.2	0.6	1.3	1.6	1.7	24.8
15	0.75	24/0.2	0.6	1.3	1.6	1.8	27.7
20	0.75	24/0.2	0.6	1.5	1.6	1.8	30.8
30	0.75	24/0.2	0.6	1.7	2	2	37
50	0.75	24/0.2	0.6	2	2.5	2.3	46.5
1	1.5	7 / 0.53	0.6	0.8	0.9	1.4	12.4
2	1.5	7 / 0.53	0.6	0.9	0.9	1.4	13.8
5	1.5	7 / 0.53	0.6	1.2	1.25	1.6	21.6
10	1.5	7 / 0.53	0.6	1.3	1.6	1.8	27.9
15	1.5	7 / 0.53	0.6	1.5	1.6	1.9	31.7
20	1.5	7 / 0.53	0.6	1.5	1.6	2	35.2
30	1.5	7 / 0.53	0.6	1.7	2	2.1	42
50	1.5	7 / 0.53	0.6	2	2.5	2.4	52.9

Table-87

PVC INSULATED INDIVIDUAL & OVERALL SHIELDED ARMOURED CABLES, 300/500V AS PER BS:5308 (Part 2) (Type 2)

No. of Pairs	Cross Sectional Area (mm ^{2})	Conductor No./ Dia. of Wire (No/mm)	Nom. Insulation Thickness (mm)	Nom. Sheath Thickness (mm)	Nom. Armour wire dia. (mm)	Nom. Outer sheath thickness (mm)	Approx. Overall Diameter (mm)
2	0.5	16/0.2	0.6	1.1	0.9	1.5	15.8
5	0.5	16/0.2	0.6	1.2	1.25	1.6	19.9
10	0.5	16/0.2	0.6	1.3	1.6	1.8	26.9
15	0.5	16/0.2	0.6	1.5	1.6	1.8	30.3
20	0.5	16/0.2	0.6	1.5	1.6	1.9	33.3
30	0.5	16/0.2	0.6	1.7	2	2.1	39.5
50	0.5	16/0.2	0.6	2.2	2.5	2.4	50.5
2	0.75	24 / 0.2	0.6	1.1	0.9	1.5	16.6
5	0.75	24 / 0.2	0.6	1.2	1.25	1.6	21
10	0.75	24 / 0.2	0.6	1.3	1.6	1.8	28.5
15	0.75	24 / 0.2	0.6	1.5	1.6	1.9	32.4
20	0.75	24 / 0.2	0.6	1.7	2	2	36.8
30	0.75	24 / 0.2	0.6	2	2	2.2	42.9
50	0.75	24 / 0.2	0.6	2.2	2.5	2.5	54
2	1.5	7 / 0.53	0.6	1.2	1.25	1.6	19.4
5	1.5	7 / 0.53	0.6	1.3	1.6	1.7	24.4
10	1.5	7 / 0.53	0.6	1.5	1.6	1.9	32.5
15	1.5	7 / 0.53	0.6	1.7	2	2	37.8
20	1.5	7 / 0.53	0.6	1.7	2	2.1	41.8
30	1.5	7 / 0.53	0.6	2	2.5	2.4	49.8
50	1.5	7 / 0.53	0.6	2.2	2.5	2.7	61.6

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The department also has internal systems in place to evaluate the potential of employees, thus ensuring that the right people are in the right position. In addition, systems for skills-mapping and to identify key people, those who are capable of leading change, achieving strategic objectives, and holding key positions due to their abilities, commitment and aspirations, are also in place.


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