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VINA

MEDIUM VOLTAGE CABLE
CÁP TRUNG THẾ

WE CONNECT THE FUTURE

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BEYOND THE FIRST, TOWARDS THE TOP - TAIHAN KEEPS MOVING FORWARD.

Starting as the first cable company in Korea in 1955, Taihan has pioneered in the fields of power and communication cable and base metal. By constantly challenging and innovating, holding the titles of 'the first in Korea and the first in the world' repeatedly.

A history of growth spanning 70 years.
Taihan has established subsidiaries and branch offices in major Markets across Asia, the Middle East and Oceania, Europe, the Americas, and Africa. Taihan is raising its position as a global leading company by demonstrating world-class technology and quality.

And now
Taihan begins a new century in Hoban Group, and strives to pave the way for creating a better future of the cable & solution industry, completely renewing its image by focusing on commitment for contribution to customer value, and developing stronger technology and network.

GIỚI THIỆU TẬP ĐOÀN TAIHAN CABLE & SOLUTION

PHÁ VỠ MỌI RANH GIỚI, VƯỢT XA MỌI GIỚI HẠN - TAIHAN KHÔNG NGỪNG TIẾN VỀ PHÍA TRƯỚC.

Taihan là công ty cáp điện đầu tiên ở Hàn Quốc được thành lập vào năm 1955, tiên phong trong lĩnh vực cáp điện, cáp thông tin và kim loại cơ bản. Bằng cách không ngừng thử thách và đổi mới, Taihan liên tục giữ vững danh hiệu công ty cáp điện hàng đầu ở Hàn Quốc và thế giới.

Trong lịch sử 70 năm phát triển, Taihan đã không ngừng mở rộng thị phần bằng việc thành lập hàng loạt các công ty con và văn phòng chi nhánh tại các Thị trường lớn trên khắp Châu Á, Trung Đông , Châu Đại Dương, Châu Âu, Châu Mỹ và Châu Phi. Taihan đang ngày càng nâng cao vị thế của một công ty hàng đầu toàn cầu bằng cách chứng minh chất lượng và công nghệ đẳng cấp thế giới.

Và hiện nay
Taihan đang bước vào một giai đoạn mới khi trở thành thành viên của tập đoàn Hoban và không ngừng phấn đấu cho việc tạo ra một tương lai tốt đẹp hơn cho ngành cáp điện và các giải pháp liên quan đến cáp điện. Taihan Đổi mới, xây dựng hình ảnh của mình bằng việc tập trung và cam kết đóng góp mang lại giá trị cho khách hàng đồng thời phát triển mạnh mẽ hơn về công nghệ và mạng lưới của mình trên toàn cầu.

GIỚI THIỆU VỀ CÔNG TY TNHH CÁP TAIHAN VINA

In December 2005, Taihan solidified its position in the Vietnamese market through a strategic partnership with Sacom, resulting in the establishment of Taihan Sacom Cable Joint Venture Company. With state-of-the-art production facilities spanning 150,000m2 in Long Thanh IP, Dong Nai province, this marked a crucial advancement in Taihan's market expansion.

In 2016, the partnership underwent a transformative rebranding, proudly emerging as Taihan Cable Vina under Taihan's 100% ownership.

Benefiting from the advanced technologies and streamlined management practices from Taihan, Taihan Vina has continually broadened its market footprint.

Delivering an extensive product portfolio, Taihan Vina serves not only the Vietnamese market but also extends its offerings to discerning markets in advanced economies like the United States, Australia, Japan, and Singapore.

With a nimble and responsive approach, Taihan Vina swiftly adjusts to global market dynamics and meets the evolving needs of customers worldwide.

Tháng 12 năm 2005, Taihan củng cố vị thế của mình tại thị trường Việt Nam thông qua quan hệ đối tác chiến lược với Sacom, thành lập Công ty Liên doanh Cáp Taihan Sacom với vài trò là cổ đông chính.

Với cơ sở sản xuất hiện đại rộng 150.000m2 tọa lạc tại Khu công nghiệp Long Thành, tỉnh Đồng Nai đã đánh dấu bước tiến quan trọng trong việc mở rộng thị trường của Taihan. Vào năm 2016, Taihan tự hào sở hữu 100% cổ phần và chính thức đổi tên thành công ty cáp Taihan Vina.

'Thừa hưởng công nghệ tiên tiến và quy trình quản trị được chuyển giao từ tập đoàn mẹ Taihan , Taihan Vina đang không ngừng mở rộng thị trường của mình.

Taihan Vina cung cấp đa dạng sản phẩm không chỉ phục vụ cho thị trường Việt Nam mà còn mở rộng thị phần sang các thị trường khó tính như Hoa Kỳ, Úc, Nhật Bản và Singapore.

Với cách tiếp cận nhạy bén, Taihan Vina nhanh chóng thích nghi với những biến động của thị trường toàn cầu và đáp ứng đa dạng nhu cầu ngày càng tăng của khách hàng trên toàn thế giới.

CÔNG NGHỆ SẢN XUẤT

Nhà máy cáp điện của Taihan Cable Vina được trang bị hệ thống dây chuyền sản xuất khép kín hiện đại nhất nhập khẩu từ Châu Âu. Việc áp dụng công nghệ chế tạo cáp điện hiện đại nhất của thế giới nhằm tạo ra các sản phẩm có chất lượng đạt các tiêu chuẩn quốc tế.

+ Công nghệ chuỗi lưu hóa liên tục CCV (Catenary Continuous Vulcalnize): đảm bảo chính xác độ dày các lớp vỏ bọc, độ đồng tâm giữa lõi và vỏ bọc.

+ Hệ thống lưu hóa khô và làm nguội hoàn toàn CDCC (Completely Dry Curing and Cooling) là một phát minh của tập đoàn Nokia giúp tối ưu hóa sự trao đổi nhiệt trong quá trình lưu hóa, đảm bảo độ tinh khiết và độ bền vững kết cấu hóa học của lớp bọc cáp. Đặc biệt quan trọng đối với các loại cáp bọc trung và cao thế.

+ Hệ thống tự động kiểm soát quá trình lưu hóa được thực hiện thông qua chương trình chuyên dụng NCC giúp cài đặt và kiểm soát các thông sô' với từng cấu trúc cáp riêng biệt.

TECHNOLOGY PROCESS

The Power cable factory Is equipped the modernist self-contained manufacturing CCV line imported from Europe. This technology offers the best possibility for Power cables to meet the extremely tough technical and quality cable specifications very well following International standards.

Our CCV (Catenary Continuous Vulcanize) line makes the XLPE (Cross-linked Polyethylene insulation to be accurately and no eccentricity.

CDCC (Completely Dry Curing and Cooling) process Invented by Nokia-Malllefer Machinery is applied for optimal heat transfer in high curing performance.

The Autocure control system plays a key role In simulation, monitoring and controlling of the curing process. NCC curing calculation program takes the guesswork out of determining the process parameters for a particular cable construction.

GIỚI THIỆU CÁP CÁCH ĐIỆN XLPE

PROPERTIES OF CROSS-LINKED POLYETHYLENE INSULATED CABLES (XLPE)

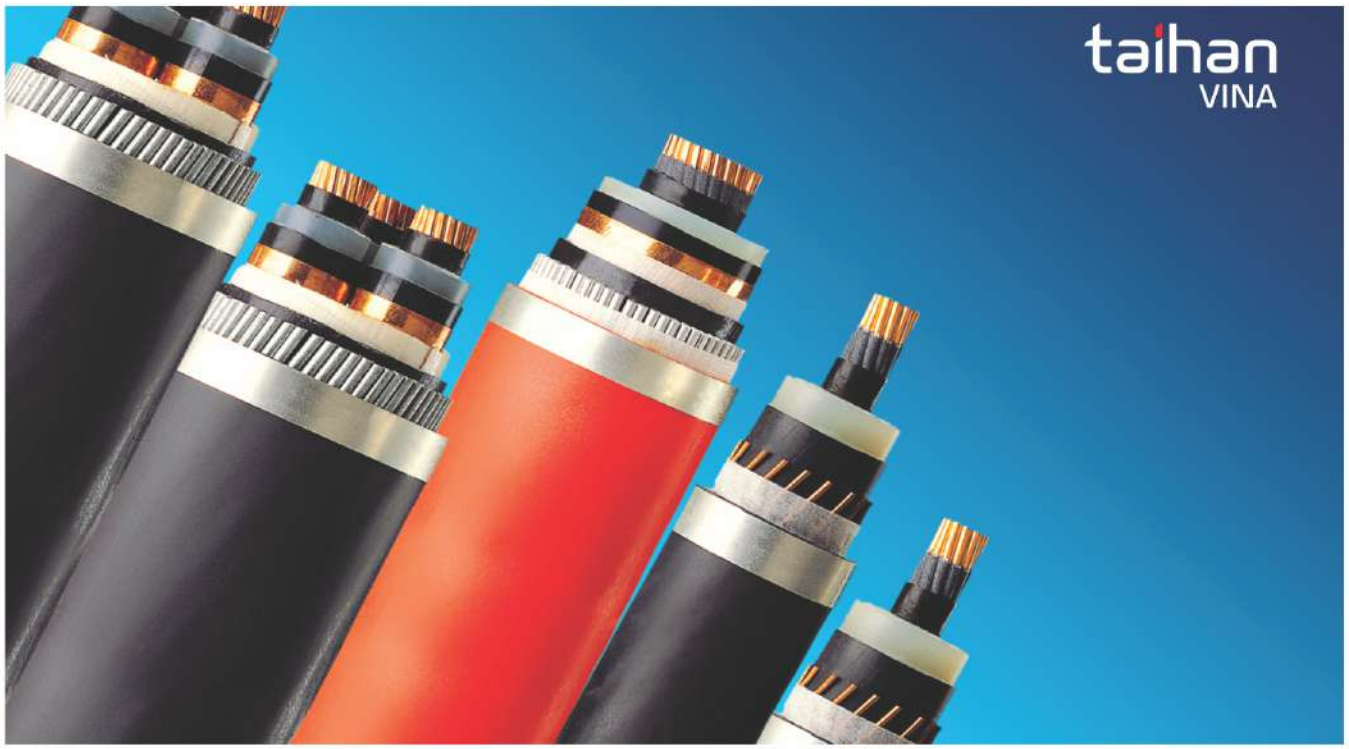
XLPE, Polyethylene liên kết chéo, là sự liên kết giữa các phân tử Polyethylene tạo nên trong quá trình hóa nhiệt.

XLPE có đặc tính điện tương tự Polyethylene , tuy nhiên do có kết cấu các phân tử liên kết chéo chặt chẽ với nhau, khả năng chịu nhiệt và lực cơ khí cao hơn. Đặc tính này giúp XLPE có khả năng làm việc liên tục với lõi dẫn điện ở 90°C, trong khi cáp bọc polyethylene chỉ có thể làm việc tối đa ở nhiệt độ 75°C.

Đây là một đặc tính vô cùng quan trọng trong việc nâng cao khả năng tải dòng điện định mức cho cáp điện và đặc biệt hữu ích trong trường hợp ứng dụng tại các khu vực có nhiệt độ môi trường cao và cần tính đến hệ số gia nhiệt cho dây dẫn.

Cáp cách điện XLPE là một sản phẩm nổi bật của TAIHAN VINA CABLE. Với công nghệ, thiết bị tiên tiến của MAILLEFER-PHẦN LAN kết hợp với kinh nghiệm hơn 50 năm trong thiết kế và sản xuất của TAIHAN-HÀN QUỐC, nhà máy sản xuất cáp của TAIHAN VINA CABLE có khả năng cung cấp cáp cách điện các loại với cấp điện áp lên đến 230kV.

- Trong phạm vi catalogue này TAIHAN VINA CABLE chỉ trình bày các thông số của các loại cáp sử dụng cho các cấp điện áp từ 0.6/1 kV đến 12/20(24)kV và 18/30(36)kV. Cấu tạo và thông số kỹ thuật được nêu trong catalogue phù hợp với tiêu chuẩn quốc tế IEC 60502 (qui định cho các loại cáp điện động lực có cách điện bằng chất điện môi rắn thực hiện bằng phương pháp đùn với điện áp từ 1kV đến 30kV).



XLPE, Cross-linked Polyethylene, has stable intermolecular bonds between Polyethylene particles created by thermo-chemical action, due to the presence of organic peroxide,

XLPE has the same electrical properties as the conventional Polyethylene and, as a result of stable intermolecular bonds, has much better thermal and mechanical properties .

This provides XLPE insulated cables to be used at maximum continuous conductor temperature of 90°C while conventional polyethylene insulated cables to be used at that of 75°C. This provides an important advantage in cable ratings and is of special significance in countries or situations where the ambient temperature is high and derating factors have to be applied.

XLPE insulated cables are one of specific products manufactured by TVC. The incessant effort of manufacturing techniques, modern equipments from MAILLEFER-Finland and over 50 years experiences of TAIHAN-Korea in cable designing developments enables TVC to supply insulated cables for voltages up to 230kV.

This catalog provides constructional and technical information on cables for the voltages Uo/U(Um) from 0.6/1 kV to 12/20(24)kV and 18/30(36)kV. The structure of XLPE insulated cables, listed in tables hereinafter, is the representative one from I EC 60502 (Extruded solid dielectric insulated power cables for rate voltages from 1kV up to 30kV).

CẤU TẠO VÀ VẬT LIỆU
CONSTRUCTION & MATERIAL

1. Ruột dẫn

Ruột dẫn của cáp bọc thường gồm 2 loại nén tròn hoặc xoắn tròn và làm bằng vật liệu đồng hoặc nhôm.

2. Màng chắn ruột dẫn

Tất cả loại cáp bọc có cấp điện áp từ 3,6/6(7.2)kV đều được chế tạo lớp màng chắn ruột dẫn bằng vật liệu phi kim loại và gồm 2 dạng: lớp bán dẫn dạng dải băng hoặc lớp hỗn hợp chất bán dẫn định hình bằng phương pháp đùn hay có thể là sự kết hợp cả 2 loại trên..

3. Cách điện

Cách điện là lớp polyethylene khâu mạch (XLPE) được định hình bằng phương pháp đùn.

4. Màn chắn lớp bọc cách điện

Đối với các loại cáp bọc có cấp cách điện từ 3,6/6(7.2)kV trở lên, lớp màn chắn vỏ cách điện bao gồm phần hỗn hợp bán dẫn phi kim loại kết hợp với phần kim loại.

Phần phi kim loại phải được áp sát trực tiếp lên lớp cách điện dưới dạng dải băng hoặc lớp hỗn hợp chất bán dẫn định hình bằng phương pháp đùn. Lớp màn chắn định hình bằng phương pháp đùn thường dễ bóc tách, tuy nhiên lớp này có thể được chế tạo dính chặt với lớp cách điện (không bóc tách được) theo yêu cầu.

Phần kim loại được áp sát trên từng lõi cáp riêng biệt đối với các loại cáp có cấp cách điện từ 3,6/6(7.2)kV trở lên và bao gồm một lớp băng bằng đồng. Ngoài ra, tùy theo yêu cầu lớp băng đồng có thể được thay thế bằng lớp hợp kim hoặc nhôm dập gợn sóng.

5. Lớp bọc bên trong (ứng dụng cho cáp có giáp bảo vệ)

Đối với loại cáp bọc có giáp bảo vệ, nếu không sử dụng lớp mà chắn thì có thể thay thế bằng một lớp bọc bằng vật liệu PVC. Trong trường hợp lớp màn chắn kim loại và lớp giáp bảo vệ được làm bằng các vật liệu kim loại khác nhau, lớp bọc bằng vật liệu PVC có tác dụng ngăn cách giữa các vật liệu kim loại này.

6. Giáp bảo vệ bằng kim loại

Lớp giáp bảo vệ cáp, tùy theo yêu cầu, có thể là lớp giáp bằng dây tròn bao bọc xung quanh dây dẫn hoặc là lớp băng quấn kép và được chế tạo bằng vật liệu thép tráng kẽm hoặc nhôm. Riêng đối với loại cáp 1 lõi, lớp giáp bảo vệ thường được làm bằng vật liệu nhôm do đặc tính không bị từ hóa của lớp giáp bọc khi sử dụng cáp một lõi trong hệ thống điện xoay chiều.

7. Lớp vỏ bọc bên ngoài

Tất cả các loại cáp thường được bọc bên ngoài bằng một lớp vỏ bọc PVC màu đen và thực hiện bằng phương pháp đùn. Ngoài ra, vỏ bọc bên ngoài còn có thể được làm bằng các loại vật liệu và màu sắc khác như Polyethylene, nhựa PVC chống cháy ...



1. Conductor

Cables are supplied normally with class 2 of compacted circular or circular stranded conductors in copper, or aluminium.

2. Conductor Screening

All cables of rated voltages above 3,6/6(7.2)kV are supplied with conductor screening which is non-metallic and consists of either semi-conducting tape or a layer of extruded semi-conducting compound, or a combination of the two.

3. Insulation

Insulation is a layer of extruded cross-linked polyethylene (XLPE).

4. Insulation Screening

For cables at rated voltages above 3,6/6(7.2)kV, insulation screening consists of a non-metallic semi-conducting part in combination with a metallic part and for unarmored cables at rated voltages 3,6/6(7.2)kV insulation screening consists of metallic screen.

The non-metallic part is applied directly on the insulation and consists of either semi-conducting tape or a layer of extruded semi-conducting compound. The extruded insulation screen is normally free strippable (easy removable) type but can be provided with bonded one upon request.

The metallic part is normally applied on the individual cores for rated voltage above 3,6/6(7.2)kV and consists of plain annealed copper tape. Instead of copper tape screen, a layer of copper wires, a lead alloy or corrugated aluminum sheath can be provided upon request.

5. Inner Covering or Separation Sheath (for armored cables)

A layer of PVC inner covering is applied under the armor, if there is no screen. When the metallic screening and the armor are of different metals, an extruded separation sheath of PVC is provided in order to separate the different metals.

6. Metallic Armor

The armor, if required, consists of single layer of round wires, or double tapes of galvanized steel or luminum. Single core cables are normally armored with aluminum because non-magnetic armor is essential for single core cable for use on A.C circuit.

7. Outer Sheath

All cables are normally provided with an extruded PVC outer sheath, black colored (class ST2). Other materials can be available upon request, polyethylene, high flame retardant PVC and etc.

YÊU CẦU THỬ NGHIỆM
TEST REQUIREMENT

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3.6/6(7.2)KV: (2.5Uo+2)KV/15min.
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</table>

CONSTRUCTION & D.C RESISTANCE OF COPPER CONDUCTOR (CLASS 2, IEC 60228)

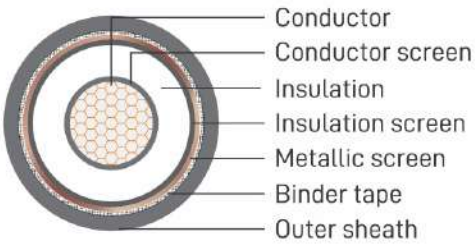
Nominal area	Minimum number wires	Shape	Nominal Diameter	Approx. weight	Max. DC conductor resistance at 20°C
mm^2	No.	-	mm	kg/km	Ω/km
25	6	C.C	5.9	222	0.727
35	6	C.C	6.9	308	0.524
50	6	C.C	8.1	416	0.387
70	12	C.C	9.8	598	0.268
95	15	C.C	11.4	830	0.193
120	18	C.C	12.9	1,046	0.153
150	18	C.C	14.4	1,292	0.124
185	30	C.C	15.9	1,615	0.0991
240	34	C.C	18.4	2,122	0.0754
300	34	C.C	20.5	2,664	0.0601
400	53	C.C	23.4	3,405	0.0470
500	53	C.C	26.5	4,372	0.0366
630	53	C.C	30.2	5,655	0.0283

C.C: Compacted circular.

Medium voltage CXV

Cu/XLPE/CTS/PVC

Unarmored type (1 core)



- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Outer sheath: PVC compound

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter							
No.	mm^2	-	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
1	25	C.C	5.9	2.5	1.8	18.0	510	0.727	12.5	1,000
	35	C.C	6.9	2.5	1.8	19.0	620	0.524		
	50	C.C	8.1	2.5	1.8	20.0	760	0.387		
	70	C.C	9.8	2.5	1.8	21.5	975	0.268		
	95	C.C	11.4	2.5	1.8	23.5	1,245	0.193		
	120	C.C	12.9	2.5	1.8	25.0	1,500	0.153		
	150	C.C	14.4	2.5	1.8	26.5	1,775	0.124		
	185	C.C	15.9	2.5	1.8	28.0	2,135	0.0991		
	240	C.C	18.4	2.6	1.9	30.5	2,730	0.0754		
	300	C.C	20.5	2.8	2.0	33.5	3,355	0.0601		
	400	C.C	23.4	3.0	2.1	37.0	4,215	0.0470		500
	500	C.C	26.5	3.2	2.2	41.0	5,305	0.0366		
	630	C.C	30.2	3.2	2.3	45.0	6,710	0.0283		

6/10(12)kV

1	25	C.C	5.9	3.4	1.8	19.5	565	0.727	21	1,000
	35	C.C	6.9		1.8	20.5	680	0.524		
	50	C.C	8.1		1.8	22.0	820	0.387		
	70	C.C	9.8		1.8	23.5	1,045	0.268		
	95	C.C	11.4		1.8	25.0	1,320	0.193		
	120	C.C	12.9		1.8	26.5	1,575	0.153		
	150	C.C	14.4		1.8	28.0	1,855	0.124		
	185	C.C	15.9		1.9	30.0	2,235	0.0991		
	240	C.C	18.4		2.0	32.5	2,825	0.0754		
	300	C.C	20.5		2.0	34.5	3,420	0.0601		
	400	C.C	23.4		2.2	38.0	4,280	0.0470		500
	500	C.C	26.5		2.2	41.5	5,335	0.0366		
	630	C.C	30.2		2.4	45.5	6,760	0.0283		

8.7/15(17.5)kV

1	25	C.C	5.9	4.5	1.8	22.0	650	0.727	30.5	1,000
	35	C.C	6.9		1.8	23.0	765	0.524		
	50	C.C	8.1		1.8	24.0	910	0.387		
	70	C.C	9.8		1.8	25.5	1,140	0.268		
	95	C.C	11.4		1.8	27.5	1,420	0.193		
	120	C.C	12.9		1.9	29.0	1,695	0.153		
	150	C.C	14.4		1.9	30.5	1,980	0.124		
	185	C.C	15.9		2.0	32.0	2,370	0.0991		
	240	C.C	18.4		2.1	35.0	2,970	0.0754		
	300	C.C	20.5		2.1	37.0	3,575	0.0601		
	400	C.C	23.4		2.2	40.5	4,425	0.0470		500
	500	C.C	26.5		2.3	43.5	5,510	0.0366		
	630	C.C	30.2		2.4	47.5	6,935	0.0283		

12.7/22(24)kV

1	35	C.C	6.9	5.5	1.8	25.0	840	0.524	44.5	500
	50	C.C	8.1		1.8	26.0	990	0.387		
	70	C.C	9.8		1.8	27.5	1,220	0.268		
	95	C.C	11.4		1.9	29.5	1,520	0.193		
	120	C.C	12.9		1.9	31.0	1,785	0.153		
	150	C.C	14.4		2.0	32.5	2,090	0.124		
	185	C.C	15.9		2.0	34.0	2,465	0.0991		
	240	C.C	18.4		2.1	37.0	3,075	0.0754		
	300	C.C	20.5		2.2	39.0	3,705	0.0601		
	400	C.C	23.4		2.3	42.5	4,570	0.0470		
	500	C.C	26.5		2.4	46.0	5,665	0.0366		
	630	C.C	30.2		2.5	50.0	7,100	0.0283		

18/30(36)kV

1	50	C.C	8.1	8.0	2.0	31.5	1,250	0.387	63	500
	70	C.C	9.8		2.0	33.0	1,510	0.268		
	95	C.C	11.4		2.1	35.0	1,810	0.193		
	120	C.C	12.9		2.1	36.5	2,090	0.153		
	150	C.C	14.4		2.2	38.0	2,410	0.124		
	185	C.C	15.9		2.2	39.5	2,800	0.0991		
	240	C.C	18.4		2.3	42.5	3,430	0.0754		
	300	C.C	20.5		2.4	44.5	4,080	0.0601		
	400	C.C	23.4		2.5	48.0	4,970	0.0470		
	500	C.C	26.5		2.6	51.5	6,095	0.0366		
	630	C.C	30.2		2.7	55.0	7,565	0.0283		

20/35(40.5)kV

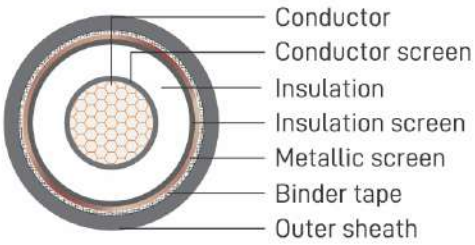
1	50	C.C	8.1	8.8	2.0	33.0	1,340	0.387	70	500
	70	C.C	9.8		2.1	35.0	1,610	0.268		
	95	C.C	11.4		2.1	36.5	1,915	0.193		
	120	C.C	12.9		2.2	38.0	2,210	0.153		
	150	C.C	14.4		2.2	39.5	2,520	0.124		
	185	C.C	15.9		2.3	41.5	2,930	0.0991		
	240	C.C	18.4		2.4	44.0	3,580	0.0754		
	300	C.C	20.5		2.4	46.0	4,220	0.0601		
	400	C.C	23.4		2.5	49.5	5,125	0.0470		
	500	C.C	26.5		2.6	53.0	6,260	0.0366		
	630	C.C	30.2		2.7	57.0	7,745	0.0283		

Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage FR-CXV

Cu/XLPE/CTS/FR-PVC

Unarmored type (1 core)



- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Outer sheath: FR-PVC compound (Flame retardant)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter							
No.	mm^2	-	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
1	25	C.C	5.9	2.5	1.8	18.0	505	0.727	12.5	1,000
	35	C.C	6.9	2.5	1.8	19.0	615	0.524		
	50	C.C	8.1	2.5	1.8	20.0	750	0.387		
	70	C.C	9.8	2.5	1.8	21.5	970	0.268		
	95	C.C	11.4	2.5	1.8	23.5	1,240	0.193		
	120	C.C	12.9	2.5	1.8	25.0	1,490	0.153		
	150	C.C	14.4	2.5	1.8	26.5	1,770	0.124		
	185	C.C	15.9	2.5	1.8	28.0	2,130	0.0991		
	240	C.C	18.4	2.6	1.9	30.5	2,720	0.0754		
	300	C.C	20.5	2.8	2.0	33.5	3,345	0.0601		
	400	C.C	23.4	3.0	2.1	37.0	4,200	0.0470		500
	500	C.C	26.5	3.2	2.2	41.0	5,290	0.0366		
	630	C.C	30.2	3.2	2.3	45.0	6,690	0.0283		

6/10(12)kV

1	25	C.C	5.9	3.4	1.8	19.5	565	0.727	21	1,000
	35	C.C	6.9		1.8	20.5	680	0.524		
	50	C.C	8.1		1.8	22.0	820	0.387		
	70	C.C	9.8		1.8	23.5	1,040	0.268		
	95	C.C	11.4		1.8	25.0	1,315	0.193		
	120	C.C	12.9		1.8	26.5	1,575	0.153		
	150	C.C	14.4		1.8	28.0	1,855	0.124		
	185	C.C	15.9		1.9	30.0	2,235	0.0991		
	240	C.C	18.4		2.0	32.5	2,820	0.0754		
	300	C.C	20.5		2.0	34.5	3,420	0.0601		
	400	C.C	23.4		2.2	38.0	4,255	0.0470		500
	500	C.C	26.5		2.2	41.5	5,325	0.0366		
	630	C.C	30.2		2.4	45.5	6,755	0.0283		

8.7/15(17.5)kV

1	25	C.C	5.9	4.5	1.8	22.0	645	0.727	30.5	1,000
	35	C.C	6.9		1.8	23.0	760	0.524		
	50	C.C	8.1		1.8	24.0	905	0.387		
	70	C.C	9.8		1.8	25.5	1,135	0.268		
	95	C.C	11.4		1.8	27.5	1,415	0.193		
	120	C.C	12.9		1.9	29.0	1,685	0.153		
	150	C.C	14.4		1.9	30.5	1,970	0.124		
	185	C.C	15.9		2.0	32.0	2,355	0.0991		
	240	C.C	18.4		2.1	35.0	2,965	0.0754		
	300	C.C	20.5		2.1	37.0	3,575	0.0601		
	400	C.C	23.4		2.2	40.5	4,430	0.0470		500
	500	C.C	26.5		2.3	43.5	5,515	0.0366		
	630	C.C	30.2		2.4	47.5	6,940	0.0283		

12.7/22(24)kV

1	35	C.C	6.9	5.5	1.8	25.0	830	0.524	44.5	500
	50	C.C	8.1		1.8	26.0	980	0.387		
	70	C.C	9.8		1.8	27.5	1,210	0.268		
	95	C.C	11.4		1.9	29.5	1,510	0.193		
	120	C.C	12.9		1.9	31.0	1,775	0.153		
	150	C.C	14.4		2.0	32.5	2,080	0.124		
	185	C.C	15.9		2.0	34.0	2,455	0.0991		
	240	C.C	18.4		2.1	37.0	3,065	0.0754		
	300	C.C	20.5		2.2	39.0	3,690	0.0601		
	400	C.C	23.4		2.3	42.5	4,550	0.0470		
	500	C.C	26.5		2.4	46.0	5,645	0.0366		
	630	C.C	30.2		2.5	50.0	7,075	0.0283		

18/30(36)kV

1	50	C.C	8.1	8.0	2.0	31.5	1,255	0.387	63	500
	70	C.C	9.8		2.0	33.0	1,495	0.268		
	95	C.C	11.4		2.1	35.0	1,810	0.193		
	120	C.C	12.9		2.1	36.5	2,085	0.153		
	150	C.C	14.4		2.2	38.0	2,405	0.124		
	185	C.C	15.9		2.2	39.5	2,790	0.0991		
	240	C.C	18.4		2.3	42.5	3,435	0.0754		
	300	C.C	20.5		2.4	44.5	4,085	0.0601		
	400	C.C	23.4		2.5	48.0	4,980	0.0470		
	500	C.C	26.5		2.6	51.5	6,105	0.0366		
	630	C.C	30.2		2.7	55.0	7,580	0.0283		

20/35(40.5)kV

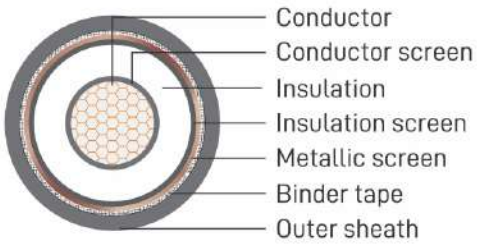
1	50	C.C	8.1	8.8	2.0	33.0	1,330	0.387	70	500
	70	C.C	9.8		2.1	35.0	1,595	0.268		
	95	C.C	11.4		2.1	36.5	1,890	0.193		
	120	C.C	12.9		2.2	38.0	2,195	0.153		
	150	C.C	14.4		2.2	39.5	2,505	0.124		
	185	C.C	15.9		2.3	41.5	2,915	0.0991		
	240	C.C	18.4		2.4	44.0	3,565	0.0754		
	300	C.C	20.5		2.4	46.0	4,200	0.0601		
	400	C.C	23.4		2.5	49.5	5,100	0.0470		
	500	C.C	26.5		2.6	53.0	6,235	0.0366		
	630	C.C	30.2		2.7	57.0	7,720	0.0283		

Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXO

Cu/XLPE/CTS/LSHF

Unarmored type (1 core)



- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Outer sheath: LSHF compound (Low smoke halogen free)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter							
No.	mm^2	-	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
1	25	C.C	5.9	2.5	1.8	18.0	500	0.727	12.5	1,000
	35	C.C	6.9	2.5	1.8	19.0	610	0.524		
	50	C.C	8.1	2.5	1.8	20.0	750	0.387		
	70	C.C	9.8	2.5	1.8	21.5	965	0.268		
	95	C.C	11.4	2.5	1.8	23.5	1,235	0.193		
	120	C.C	12.9	2.5	1.8	25.0	1,485	0.153		
	150	C.C	14.4	2.5	1.8	26.5	1,760	0.124		
	185	C.C	15.9	2.5	1.8	28.0	2,125	0.0991		
	240	C.C	18.4	2.6	1.9	30.5	2,710	0.0754		
	300	C.C	20.5	2.8	2.0	33.5	3,335	0.0601		
	400	C.C	23.4	3.0	2.1	37.0	4,190	0.0470		500
	500	C.C	26.5	3.2	2.2	41.0	5,280	0.0366		
	630	C.C	30.2	3.2	2.3	45.0	6,680	0.0283		

6/10(12)kV

1	25	C.C	5.9	3.4	1.8	19.5	555	0.727	21	1,000
	35	C.C	6.9		1.8	20.5	670	0.524		
	50	C.C	8.1		1.8	22.0	810	0.387		
	70	C.C	9.8		1.8	23.5	1,030	0.268		
	95	C.C	11.4		1.8	25.0	1,305	0.193		
	120	C.C	12.9		1.8	26.5	1,560	0.153		
	150	C.C	14.4		1.8	28.0	1,840	0.124		
	185	C.C	15.9		1.9	30.0	2,220	0.0991		
	240	C.C	18.4		2.0	32.5	2,805	0.0754		
	300	C.C	20.5		2.0	34.5	3,400	0.0601		
	400	C.C	23.4		2.2	38.0	4,255	0.0470		500
	500	C.C	26.5		2.2	41.5	5,305	0.0366		
	630	C.C	30.2		2.4	45.5	6,730	0.0283		

8.7/15(17.5)kV

1	25	C.C	5.9	4.5	1.8	22.0	635	0.727	30.5	1,000
	35	C.C	6.9		1.8	23.0	755	0.524		
	50	C.C	8.1		1.8	24.0	900	0.387		
	70	C.C	9.8		1.8	25.5	1,125	0.268		
	95	C.C	11.4		1.8	27.5	1,405	0.193		
	120	C.C	12.9		1.9	29.0	1,680	0.153		
	150	C.C	14.4		1.9	30.5	1,965	0.124		
	185	C.C	15.9		2.0	32.0	2,350	0.0991		
	240	C.C	18.4		2.1	35.0	2,950	0.0754		
	300	C.C	20.5		2.1	37.0	3,550	0.0601		
	400	C.C	23.4		2.2	40.5	4,400	0.0470		500
	500	C.C	26.5		2.3	43.5	5,480	0.0366		
	630	C.C	30.2		2.4	47.5	6,900	0.0283		

12.7/22(24)kV

1	35	C.C	6.9	5.5	1.8	25.0	825	0.524	44.5	500
	50	C.C	8.1		1.8	26.0	975	0.387		
	70	C.C	9.8		1.8	27.5	1,205	0.268		
	95	C.C	11.4		1.9	29.5	1,500	0.193		
	120	C.C	12.9		1.9	31.0	1,770	0.153		
	150	C.C	14.4		2.0	32.5	2,070	0.124		
	185	C.C	15.9		2.0	34.0	2,445	0.0991		
	240	C.C	18.4		2.1	37.0	3,055	0.0754		
	300	C.C	20.5		2.2	39.0	3,680	0.0601		
	400	C.C	23.4		2.3	42.5	4,540	0.0470		
	500	C.C	26.5		2.4	46.0	5,630	0.0366		
	630	C.C	30.2		2.5	50.0	7,060	0.0283		

18/30(36)kV

1	50	C.C	8.1	8.0	2.0	31.5	1,240	0.387	63	500
	70	C.C	9.8		2.0	33.0	1,485	0.268		
	95	C.C	11.4		2.1	35.0	1,800	0.193		
	120	C.C	12.9		2.1	36.5	2,075	0.153		
	150	C.C	14.4		2.2	38.0	2,395	0.124		
	185	C.C	15.9		2.2	39.5	2,780	0.0991		
	240	C.C	18.4		2.3	42.5	3,420	0.0754		
	300	C.C	20.5		2.4	44.5	4,070	0.0601		
	400	C.C	23.4		2.5	48.0	4,965	0.0470		
	500	C.C	26.5		2.6	51.5	6,090	0.0366		
	630	C.C	30.2		2.7	55.0	7,560	0.0283		

20/35(40.5)kV

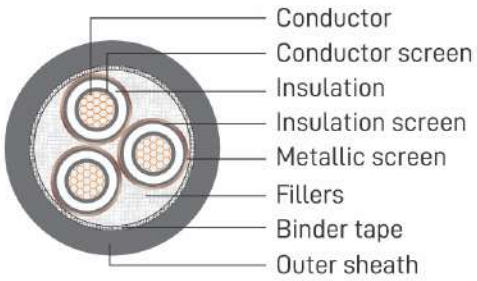
1	50	C.C	8.1	8.8	2.0	33.0	1,320	0.387	70	500
	70	C.C	9.8		2.1	35.0	1,590	0.268		
	95	C.C	11.4		2.1	36.5	1,890	0.193		
	120	C.C	12.9		2.2	38.0	2,185	0.153		
	150	C.C	14.4		2.2	39.5	2,495	0.124		
	185	C.C	15.9		2.3	41.5	2,900	0.0991		
	240	C.C	18.4		2.4	44.0	3,550	0.0754		
	300	C.C	20.5		2.4	46.0	4,185	0.0601		
	400	C.C	23.4		2.5	49.5	5,090	0.0470		
	500	C.C	26.5		2.6	53.0	6,220	0.0366		
	630	C.C	30.2		2.7	57.0	7,700	0.0283		

Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXV

Cu/XLPE/CTS/PVC

Unarmored type (3 core)



- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Outer sheath: PVC compound

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter							
No.	mm^2	-	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	25	C.C	5.9	2.5	2.0	34.0	1,525	0.727	12.5	500
	35	C.C	6.9	2.5	2.1	36.0	1,885	0.524		
	50	C.C	8.1	2.5	2.2	39.0	2,340	0.387		
	70	C.C	9.8	2.5	2.3	43.0	3,045	0.268		
	95	C.C	11.4	2.5	2.4	46.5	3,915	0.193		
	120	C.C	12.9	2.5	2.6	50.0	4,760	0.153		
	150	C.C	14.4	2.5	2.7	53.5	5,660	0.124		
	185	C.C	15.9	2.5	2.8	57.0	6,820	0.0991		
	240	C.C	18.4	2.6	3.0	63.0	8,710	0.0754		250
	300	C.C	20.5	2.8	3.2	69.0	10,710	0.0601		
	400	C.C	23.4	3.0	3.4	77.5	13,460	0.0470		
	500	C.C	26.5	3.2	3.7	85.5	16,985	0.0366		200
	630	C.C	30.2	3.2	3.9	94.0	21,435	0.0283		

6/10(12)kV

3	25	C.C	5.9	3.4	2.2	38.0	1,770	0.727	21	500
	35	C.C	6.9		2.2	40.0	2,125	0.524		
	50	C.C	8.1		2.3	43.0	2,595	0.387		
	70	C.C	9.8		2.5	47.0	3,345	0.268		
	95	C.C	11.4		2.6	51.0	4,235	0.193		
	120	C.C	12.9		2.7	54.0	5,080	0.153		
	150	C.C	14.4		2.8	57.5	6,000	0.124		
	185	C.C	15.9		2.9	61.0	7,180	0.0991		
	240	C.C	18.4		3.1	67.0	9,065	0.0754		250
	300	C.C	20.5		3.2	71.5	10,980	0.0601		
	400	C.C	23.4		3.4	78.5	13,660	0.0470		
	500	C.C	26.5		3.7	86.5	17,115	0.0366		200
	630	C.C	30.2		4.0	95.0	21,625	0.0283		

8.7/15(17.5)kV

3	25	C.C	5.9	4.5	2.4	43.0	2,080	0.727	30.5	500
	35	C.C	6.9		2.5	45.5	2,470	0.524		
	50	C.C	8.1		2.6	48.5	2,960	0.387		
	70	C.C	9.8		2.7	52.0	3,715	0.268		
	95	C.C	11.4		2.8	56.0	4,635	0.193		
	120	C.C	12.9		2.9	59.5	5,500	0.153		
	150	C.C	14.4		3.0	63.0	6,445	0.124		
	185	C.C	15.9		3.1	66.0	7,650	0.0991		
	240	C.C	18.4		3.3	72.0	9,575	0.0754		250
	300	C.C	20.5		3.5	77.0	11,560	0.0601		
	400	C.C	23.4		3.7	84.5	14,310	0.0470		
	500	C.C	26.5		3.9	91.5	17,765	0.0366		200
	630	C.C	30.2		4.1	100.0	22,285	0.0283		

12.7/22(24)kV

3	35	C.C	6.9	5.5	2.6	50.0	2,765	0.524	44.5	500
	50	C.C	8.1		2.7	53.0	3,270	0.387		
	70	C.C	9.8		2.8	57.0	4,045	0.268		
	95	C.C	11.4		3.0	60.5	5,015	0.193		
	120	C.C	12.9		3.1	64.0	5,900	0.153		
	150	C.C	14.4		3.2	67.5	6,865	0.124		
	185	C.C	15.9		3.3	71.0	8,090	0.0991		
	240	C.C	18.4		3.5	76.5	10,055	0.0754		250
	300	C.C	20.5		3.6	81.5	12,025	0.0601		
	400	C.C	23.4		3.8	89.0	14,810	0.0470		
	500	C.C	26.5		4.0	96.0	18,305	0.0366		200
	630	C.C	30.2		4.3	105.0	22,925	0.0283		

18/30(36)kV

3	50	C.C	8.1	8.0	3.1	64.5	4,270	0.387	63	500
	70	C.C	9.8		3.2	68.5	5,105	0.268		
	95	C.C	11.4		3.3	72.0	6,105	0.193		
	120	C.C	12.9		3.5	75.5	7,070	0.153		
	150	C.C	14.4		3.6	79.0	8,090	0.124		
	185	C.C	15.9		3.7	82.5	9,365	0.0991		250
	240	C.C	18.4		3.8	88.0	11,410	0.0754		
	300	C.C	20.5		4.0	93.0	13,505	0.0601		
	400	C.C	23.4		4.2	100.5	16,420	0.0470		200
	500	C.C	26.5		4.4	107.5	20,035	0.0366		
	630	C.C	30.2		4.7	116.0	24,805	0.0283		

20/35(40.5)kV

3	50	C.C	8.1	8.8	3.2	68.0	4,605	0.387	70	500
	70	C.C	9.8		3.3	72.0	5,460	0.268		
	95	C.C	11.4		3.5	76.0	6,515	0.193		
	120	C.C	12.9		3.6	79.5	7,470	0.153		
	150	C.C	14.4		3.7	83.0	8,510	0.124		
	185	C.C	15.9		3.8	86.0	9,805	0.0991		250
	240	C.C	18.4		4.0	92.0	11,890	0.0754		
	300	C.C	20.5		4.1	96.5	13,960	0.0601		

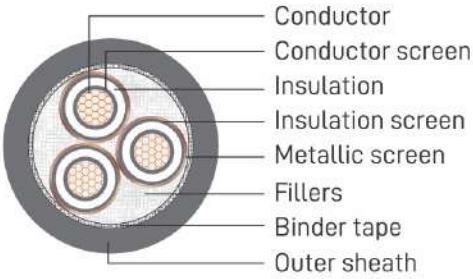
Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage FR-CXV

Cu/XLPE/CTS/FR-PVC

Unarmored type (3 core)

taihan VINA
Hotline: +84(0)28 3514 0510
www.taihancable.com.vn



- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Outer sheath: FR-PVC compound (Flame retardant)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter							
No.	mm^2	-	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	25	C.C	5.9	2.5	2.0	34.0	1,515	0.727	12.5	500
	35	C.C	6.9	2.5	2.1	36.0	1,875	0.524		
	50	C.C	8.1	2.5	2.2	39.0	2,325	0.387		
	70	C.C	9.8	2.5	2.3	43.0	3,025	0.268		
	95	C.C	11.4	2.5	2.4	46.5	3,895	0.193		
	120	C.C	12.9	2.5	2.6	50.0	4,735	0.153		
	150	C.C	14.4	2.5	2.7	53.5	5,635	0.124		
	185	C.C	15.9	2.5	2.8	57.0	6,790	0.0991		
	240	C.C	18.4	2.6	3.0	63.0	8,675	0.0754		250
	300	C.C	20.5	2.8	3.2	69.0	10,670	0.0601		
	400	C.C	23.4	3.0	3.4	77.5	13,450	0.0470		
	500	C.C	26.5	3.2	3.7	85.5	16,925	0.0366		200
	630	C.C	30.2	3.2	3.9	94.0	21,370	0.0283		

6/10(12)kV

3	25	C.C	5.9	3.4	2.2	38.0	1,740	0.727	21	500
	35	C.C	6.9		2.2	40.0	2,095	0.524		
	50	C.C	8.1		2.3	43.0	2,565	0.387		
	70	C.C	9.8		2.5	47.0	3,305	0.268		
	95	C.C	11.4		2.6	51.0	4,195	0.193		
	120	C.C	12.9		2.7	54.0	5,035	0.153		
	150	C.C	14.4		2.8	57.5	5,950	0.124		
	185	C.C	15.9		2.9	61.0	7,125	0.0991		
	240	C.C	18.4		3.1	67.0	9,005	0.0754		250
	300	C.C	20.5		3.2	71.5	10,915	0.0601		
	400	C.C	23.4		3.4	78.5	13,635	0.0470		
	500	C.C	26.5		3.7	86.5	17,030	0.0366		200
	630	C.C	30.2		4.0	95.0	21,480	0.0283		

8.7/15(17.5)kV

3	25	C.C	5.9	4.5	2.4	43.0	2,060	0.727	30.5	500
	35	C.C	6.9		2.5	45.5	2,455	0.524		
	50	C.C	8.1		2.6	48.5	2,945	0.387		
	70	C.C	9.8		2.7	52.0	3,695	0.268		
	95	C.C	11.4		2.8	56.0	4,615	0.193		
	120	C.C	12.9		2.9	59.5	5,465	0.153		
	150	C.C	14.4		3.0	63.0	6,405	0.124		
	185	C.C	15.9		3.1	66.0	7,605	0.0991		
	240	C.C	18.4		3.3	72.0	9,555	0.0754		250
	300	C.C	20.5		3.5	77.0	11,540	0.0601		
	400	C.C	23.4		3.7	84.5	14,285	0.0470		
	500	C.C	26.5		3.9	91.5	17,340	0.0366		200
	630	C.C	30.2		4.1	100.0	22,265	0.0283		

12.7/22(24)kV

3	35	C.C	6.9	5.5	2.6	50.0	2,755	0.524	44.5	500
	50	C.C	8.1		2.7	53.0	3,260	0.387		
	70	C.C	9.8		2.8	57.0	4,035	0.268		
	95	C.C	11.4		3.0	60.5	5,000	0.193		
	120	C.C	12.9		3.1	64.0	5,890	0.153		
	150	C.C	14.4		3.2	67.5	6,850	0.124		
	185	C.C	15.9		3.3	71.0	8,075	0.0991		
	240	C.C	18.4		3.5	76.5	10,030	0.0754		250
	300	C.C	20.5		3.6	81.5	12,005	0.0601		
	400	C.C	23.4		3.8	89.0	14,785	0.0470		
	500	C.C	26.5		4.0	96.0	18,275	0.0366		200
	630	C.C	30.2		4.3	105.0	22,885	0.0283		

18/30(36)kV

3	50	C.C	8.1	8.0	3.1	64.5	4,230	0.387	63	500
	70	C.C	9.8		3.2	68.5	5,065	0.268		
	95	C.C	11.4		3.3	72.0	6,065	0.193		
	120	C.C	12.9		3.5	75.5	7,020	0.153		
	150	C.C	14.4		3.6	79.0	8,035	0.124		
	185	C.C	15.9		3.7	82.5	9,310	0.0991		250
	240	C.C	18.4		3.8	88.0	11,350	0.0754		
	300	C.C	20.5		4.0	93.0	13,440	0.0601		
	400	C.C	23.4		4.2	100.5	16,340	0.0470		200
	500	C.C	26.5		4.4	107.5	19,950	0.0366		
	630	C.C	30.2		4.7	116.0	24,710	0.0283		

20/35(40.5)kV

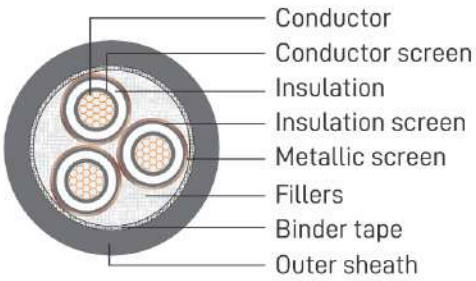
3	50	C.C	8.1	8.8	3.2	68.0	4,570	0.387	70	500
	70	C.C	9.8		3.3	72.0	5,425	0.268		
	95	C.C	11.4		3.5	76.0	6,475	0.193		
	120	C.C	12.9		3.6	79.5	7,415	0.153		
	150	C.C	14.4		3.7	83.0	8,445	0.124		
	185	C.C	15.9		3.8	86.0	9,735	0.0991		250
	240	C.C	18.4		4.0	92.0	11,845	0.0754		
	300	C.C	20.5		4.1	96.5	13,915	0.0601		

Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXO

Cu/XLPE/CTS/LSHF

Unarmored type (3 core)



- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Outer sheath: LSHF compound (Low smoke halogen free)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter							
No.	mm^2	-	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	25	C.C	5.9	2.5	2.0	34.0	1,505	0.727	12.5	500
	35	C.C	6.9	2.5	2.1	36.0	1,865	0.524		
	50	C.C	8.1	2.5	2.2	39.0	2,315	0.387		
	70	C.C	9.8	2.5	2.3	43.0	3,015	0.268		
	95	C.C	11.4	2.5	2.4	46.5	3,880	0.193		
	120	C.C	12.9	2.5	2.6	50.0	4,720	0.153		
	150	C.C	14.4	2.5	2.7	53.5	5,615	0.124		
	185	C.C	15.9	2.5	2.8	57.0	6,775	0.0991		
	240	C.C	18.4	2.6	3.0	63.0	8,655	0.0754		250
	300	C.C	20.5	2.8	3.2	69.0	10,645	0.0601		
	400	C.C	23.4	3.0	3.4	77.5	13,415	0.0470		
	500	C.C	26.5	3.2	3.7	85.5	16,890	0.0366		200
	630	C.C	30.2	3.2	3.9	94.0	21,325	0.0283		

6/10(12)kV

3	25	C.C	5.9	3.4	2.2	38.0	1,730	0.727	21	500
	35	C.C	6.9		2.2	40.0	2,085	0.524		
	50	C.C	8.1		2.3	43.0	2,550	0.387		
	70	C.C	9.8		2.5	47.0	3,290	0.268		
	95	C.C	11.4		2.6	51.0	4,180	0.193		
	120	C.C	12.9		2.7	54.0	5,020	0.153		
	150	C.C	14.4		2.8	57.5	5,930	0.124		
	185	C.C	15.9		2.9	61.0	7,105	0.0991		
	240	C.C	18.4		3.1	67.0	8,980	0.0754		250
	300	C.C	20.5		3.2	71.5	10,885	0.0601		
	400	C.C	23.4		3.4	78.5	13,600	0.0470		
	500	C.C	26.5		3.7	86.5	16,990	0.0366		200
	630	C.C	30.2		4.0	95.0	21,435	0.0283		

8.7/15(17.5)kV

3	25	C.C	5.9	4.5	2.4	43.0	2,045	0.727	30.5	500
	35	C.C	6.9		2.5	45.5	2,440	0.524		
	50	C.C	8.1		2.6	48.5	2,925	0.387		
	70	C.C	9.8		2.7	52.0	3,675	0.268		
	95	C.C	11.4		2.8	56.0	4,590	0.193		
	120	C.C	12.9		2.9	59.5	5,450	0.153		
	150	C.C	14.4		3.0	63.0	6,390	0.124		
	185	C.C	15.9		3.1	66.0	7,590	0.0991		
	240	C.C	18.4		3.3	72.0	9,505	0.0754		250
	300	C.C	20.5		3.5	77.0	11,480	0.0601		
	400	C.C	23.4		3.7	84.5	14,195	0.0470		
	500	C.C	26.5		3.9	91.5	17,655	0.0366		200
	630	C.C	30.2		4.1	100.0	22,165	0.0283		

12.7/22(24)kV

3	35	C.C	6.9	5.5	2.6	50.0	2,725	0.524	44.5	500
	50	C.C	8.1		2.7	53.0	3,225	0.387		
	70	C.C	9.8		2.8	57.0	4,000	0.268		
	95	C.C	11.4		3.0	60.5	4,960	0.193		
	120	C.C	12.9		3.1	64.0	5,840	0.153		
	150	C.C	14.4		3.2	67.5	6,800	0.124		
	185	C.C	15.9		3.3	71.0	8,020	0.0991		
	240	C.C	18.4		3.5	76.5	9,975	0.0754		250
	300	C.C	20.5		3.6	81.5	11,940	0.0601		
	400	C.C	23.4		3.8	89.0	14,710	0.0470		
	500	C.C	26.5		4.0	96.0	18,190	0.0366		200
	630	C.C	30.2		4.3	105.0	22,790	0.0283		

18/30(36)kV

3	50	C.C	8.1	8.0	3.1	64.5	4,210	0.387	63	500
	70	C.C	9.8		3.2	68.5	5,040	0.268		
	95	C.C	11.4		3.3	72.0	6,035	0.193		
	120	C.C	12.9		3.5	75.5	6,990	0.153		
	150	C.C	14.4		3.6	79.0	8,005	0.124		
	185	C.C	15.9		3.7	82.5	9,275	0.0991		250
	240	C.C	18.4		3.8	88.0	11,310	0.0754		
	300	C.C	20.5		4.0	93.0	13,395	0.0601		
	400	C.C	23.4		4.2	100.5	16,290	0.0470		200
	500	C.C	26.5		4.4	107.5	19,895	0.0366		
	630	C.C	30.2		4.7	116.0	24,640	0.0283		

20/35(40.5)kV

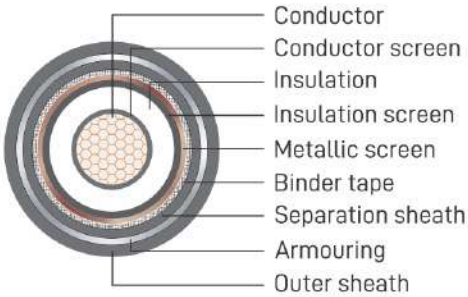
3	50	C.C	8.1	8.8	3.2	68.0	4,540	0.387	70	500
	70	C.C	9.8		3.3	72.0	5,390	0.268		
	95	C.C	11.4		3.5	76.0	6,435	0.193		
	120	C.C	12.9		3.6	79.5	7,385	0.153		
	150	C.C	14.4		3.7	83.0	8,415	0.124		
	185	C.C	15.9		3.8	86.0	9,705	0.0991		250
	240	C.C	18.4		4.0	92.0	11,780	0.0754		
	300	C.C	20.5		4.1	96.5	13,840	0.0601		

Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXV/DATA

Cu/XLPE/CTS/PVC/DATA/PVC

Aluminium tape armoured type (1 core)



- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Separation sheath: PVC Compound
Armour: Double Aluminium tape
Outer sheath: PVC compound

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Dia. of armour tape	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm²	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
1	25	C.C	5.9	2.5	1.2	0.5	1.8	22.0	735	0.727	12.5	500
	35	C.C	6.9	2.5	1.2	0.5	1.8	23.0	855	0.524		
	50	C.C	8.1	2.5	1.2	0.5	1.8	24.5	1,010	0.387		
	70	C.C	9.8	2.5	1.2	0.5	1.8	26.0	1,245	0.268		
	95	C.C	11.4	2.5	1.2	0.5	1.8	27.5	1,535	0.193		
	120	C.C	12.9	2.5	1.2	0.5	1.9	29.5	1,820	0.153		
	150	C.C	14.4	2.5	1.2	0.5	1.9	31.0	2,115	0.124		
	185	C.C	15.9	2.5	1.2	0.5	2.0	32.5	2,510	0.0991		
	240	C.C	18.4	2.6	1.2	0.5	2.1	35.5	3,135	0.0754		
	300	C.C	20.5	2.8	1.2	0.5	2.2	38.0	3,795	0.0601		
	400	C.C	23.4	3.0	1.2	0.5	2.3	42.0	4,700	0.0470		
	500	C.C	26.5	3.2	1.3	0.5	2.4	46.0	5,860	0.0366		
	630	C.C	30.2	3.2	1.4	0.5	2.5	50.0	7,340	0.0283		

6/10(12)kV

1	25	C.C	5.9	3.4	1.2	0.5	1.8	24.00	830	0.727	21	500
	35	C.C	6.9		1.2	0.5	1.8	25.00	955	0.524		
	50	C.C	8.1		1.2	0.5	1.8	26.0	1,115	0.387		
	70	C.C	9.8		1.2	0.5	1.8	28.0	1,355	0.268		
	95	C.C	11.4		1.2	0.5	1.9	29.5	1,665	0.193		
	120	C.C	12.9		1.2	0.5	1.9	31.0	1,940	0.153		
	150	C.C	14.4		1.2	0.5	2.0	33.0	2,255	0.124		
	185	C.C	15.9		1.2	0.5	2.1	34.5	2,660	0.0991		
	240	C.C	18.4		1.2	0.5	2.1	37.0	3,270	0.0754		
	300	C.C	20.5		1.2	0.5	2.2	39.5	3,910	0.0601		
	400	C.C	23.4		1.3	0.5	2.3	43.0	4,815	0.0470		
	500	C.C	26.5		1.3	0.5	2.4	46.5	5,935	0.0366		
	630	C.C	30.2		1.4	0.5	2.5	50.5	7,420	0.0283		

8.7/15(17.5)kV

1	25	C.C	5.9	3.4	1.2	0.5	1.8	26.0	935	0.727	30.5	500
	35	C.C	6.9		1.2	0.5	1.8	27.0	1,065	0.524		
	50	C.C	8.1		1.2	0.5	1.9	28.5	1,240	0.387		
	70	C.C	9.8		1.2	0.5	1.9	30.0	1,490	0.268		
	95	C.C	11.4		1.2	0.5	2.0	32.0	1,805	0.193		
	120	C.C	12.9		1.2	0.5	2.0	33.5	2,085	0.153		
	150	C.C	14.4		1.2	0.5	2.1	35.0	2,405	0.124		
	185	C.C	15.9		1.2	0.5	2.1	36.5	2,800	0.0991		
	240	C.C	18.4		1.2	0.5	2.2	39.5	3,445	0.0754		
	300	C.C	20.5		1.2	0.5	2.3	41.5	4,100	0.0601		
	400	C.C	23.4		1.3	0.5	2.4	45.5	5,020	0.0470		
	500	C.C	26.5		1.4	0.5	2.5	49.0	6,180	0.0366		
	630	C.C	30.2		1.4	0.5	2.6	53.0	7,665	0.0283		

12/22(24) kV

1	35	C.C	6.9	5.5	1.2	0.5	1.9	29.5	1,175	0.524	44.5	500
	50	C.C	8.1		1.2	0.5	1.9	30.5	1,340	0.387		
	70	C.C	9.8		1.2	0.5	2.0	32.5	1,610	0.268		
	95	C.C	11.4		1.2	0.5	2.0	34.0	1,915	0.193		
	120	C.C	12.9		1.2	0.5	2.1	35.5	2,220	0.153		
	150	C.C	14.4		1.2	0.5	2.1	37.0	2,530	0.124		
	185	C.C	15.9		1.2	0.5	2.2	39.0	2,940	0.0991		
	240	C.C	18.4		1.2	0.5	2.3	41.5	3,585	0.0754		
	300	C.C	20.5		1.3	0.5	2.4	44.0	4,265	0.0601		
	400	C.C	23.4		1.3	0.5	2.5	47.5	4,170	0.0470		
	500	C.C	26.5		1.4	0.5	2.6	51.0	6,345	0.0366		
	630	C.C	30.2		1.5	0.5	2.7	55.0	7,860	0.0283		

18/30(36) kV

1	50	C.C	8.1		1.2	0.5	2.1	36.0	1,680	0.387	63	500
	70	C.C	9.8		1.2	0.5	2.2	38.0	1,970	0.268		
	95	C.C	11.4		1.2	0.5	2.2	39.5	2,285	0.193		
	120	C.C	12.9		1.2	0.5	2.3	41.0	2,600	0.153		
	150	C.C	14.4		1.3	0.5	2.3	43.0	2,945	0.124		
	185	C.C	15.9		1.3	0.5	2.4	44.5	3,375	0.0991		
	240	C.C	18.4		1.3	0.5	2.5	47.0	4,055	0.0754		
	300	C.C	20.5		1.4	0.5	2.5	49.5	4,735	0.0601		
	400	C.C	23.4		1.4	0.5	2.6	53.0	5,685	0.0470		
	500	C.C	26.5		1.5	0.5	2.7	56.5	6,885	0.0366		
	630	C.C	30.2		1.6	0.5	2.9	61.0	8,475	0.0283		

20/35(40.5) kV

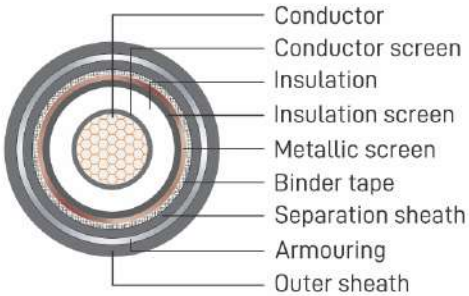
1	50	C.C	8.1	8.8	1.2	0.5	2.2	37.5	1,800	0.387	70	500
	70	C.C	9.8		1.2	0.5	2.2	39.5	2,070	0.268		
	95	C.C	11.4		1.2	0.5	2.3	41.0	2,420	0.193		
	120	C.C	12.9		1.3	0.5	2.3	43.0	2,740	0.153		
	150	C.C	14.4		1.3	0.5	2.4	44.5	3,085	0.124		
	185	C.C	15.9		1.3	0.5	2.4	46.0	3,500	0.0991		
	240	C.C	18.4		1.4	0.5	2.5	49.0	4,200	0.0754		
	300	C.C	20.5		1.4	0.5	2.6	51.5	4,885	0.0601		
	400	C.C	23.4		1.5	0.5	2.7	55.0	5,865	0.0470		
	500	C.C	26.5		1.5	0.5	2.8	58.5	7,045	0.0366		
	630	C.C	30.2		1.6	0.5	2.9	62.5	8,610	0.0283		

Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage FR-CXV/DATA

Cu/XLPE/CTS/PVC/DATA/FR-PVC

Aluminium tape armoured type (1 core)



- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Separation sheath: PVC Compound
Armour: Double Aluminium tape
Outer sheath: FR-PVC compound (Flame retardant)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Dia. of armour tape	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm²	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
1	25	C.C	5.9	2.5	1.2	0.5	1.8	22.0	725	0.727	12.5	500
	35	C.C	6.9	2.5	1.2	0.5	1.8	23.0	850	0.524		
	50	C.C	8.1	2.5	1.2	0.5	1.8	24.5	1,000	0.387		
	70	C.C	9.8	2.5	1.2	0.5	1.8	26.0	1,235	0.268		
	95	C.C	11.4	2.5	1.2	0.5	1.8	27.5	1,525	0.193		
	120	C.C	12.9	2.5	1.2	0.5	1.9	29.5	1,810	0.153		
	150	C.C	14.4	2.5	1.2	0.5	1.9	31.0	2,105	0.124		
	185	C.C	15.9	2.5	1.2	0.5	2.0	32.5	2,495	0.0991		
	240	C.C	18.4	2.6	1.2	0.5	2.1	35.5	3,125	0.0754		
	300	C.C	20.5	2.8	1.2	0.5	2.2	38.0	3,800	0.0601		
	400	C.C	23.4	3.0	1.2	0.5	2.3	42.0	4,685	0.0470		
	500	C.C	26.5	3.2	1.3	0.5	2.4	46.0	5,840	0.0366		
	630	C.C	30.2	3.2	1.4	0.5	2.5	50.0	7,320	0.0283		

6/10(12)kV

1	25	C.C	5.9	3.4	1.2	0.5	1.8	24.0	825	0.727	21	500
	35	C.C	6.9		1.2	0.5	1.8	25.0	950	0.524		
	50	C.C	8.1		1.2	0.5	1.8	26.0	1,105	0.387		
	70	C.C	9.8		1.2	0.5	1.8	28.0	1,345	0.268		
	95	C.C	11.4		1.2	0.5	1.9	29.5	1,655	0.193		
	120	C.C	12.9		1.2	0.5	1.9	31.0	1,930	0.153		
	150	C.C	14.4		1.2	0.5	2.0	33.0	2,245	0.124		
	185	C.C	15.9		1.2	0.5	2.1	34.5	2,645	0.0991		
	240	C.C	18.4		1.2	0.5	2.1	37.0	3,255	0.0754		
	300	C.C	20.5		1.2	0.5	2.2	39.5	3,895	0.0601		
	400	C.C	23.4		1.3	0.5	2.3	43.0	4,800	0.0470		
	500	C.C	26.5		1.3	0.5	2.4	46.5	5,915	0.0366		
	630	C.C	30.2		1.4	0.5	2.5	50.5	7,395	0.0283		

8.7/15(17.5)kV

1	25	C.C	5.9	4.5	1.2	0.5	1.8	26.0	930	0.727	30.5	500
	35	C.C	6.9		1.2	0.5	1.8	27.0	1,055	0.524		
	50	C.C	8.1		1.2	0.5	1.9	28.5	1,230	0.387		
	70	C.C	9.8		1.2	0.5	1.9	30.0	1,480	0.268		
	95	C.C	11.4		1.2	0.5	2.0	32.0	1,795	0.193		
	120	C.C	12.9		1.2	0.5	2.0	33.5	2,075	0.153		
	150	C.C	14.4		1.2	0.5	2.1	35.0	2,395	0.124		
	185	C.C	15.9		1.2	0.5	2.1	36.5	2,785	0.0991		
	240	C.C	18.4		1.2	0.5	2.2	39.5	3,430	0.0754		
	300	C.C	20.5		1.2	0.5	2.3	41.5	4,080	0.0601		
	400	C.C	23.4		1.3	0.5	2.4	45.5	5,005	0.0470		
	500	C.C	26.5		1.4	0.5	2.5	49.0	6,160	0.0366		
	630	C.C	30.2		1.4	0.5	2.6	53.0	7,640	0.0283		

12/22(24) kV

1	35	C.C	6.9	5.5	1.2	0.5	1.9	29.5	1,170	0.524	44.5	500
	50	C.C	8.1		1.2	0.5	1.9	30.5	1,335	0.387		
	70	C.C	9.8		1.2	0.5	2.0	32.5	1,605	0.268		
	95	C.C	11.4		1.2	0.5	2.0	34.0	1,910	0.193		
	120	C.C	12.9			0.5	2.1	35.5	2,210	0.153		
	150	C.C	14.4		1.2	0.5	2.1	37.0	2,520	0.124		
	185	C.C	15.9		1.2	0.5	2.2	39.0	2,935	0.0991		
	240	C.C	18.4		1.2	0.5	2.3	41.5	3,580	0.0754		
	300	C.C	20.5		1.3	0.5	2.4	44.0	4,255	0.0601		
	400	C.C	23.4		1.3	0.5	2.5	47.5	5,165	0.0470		
	500	C.C	26.5		1.4	0.5	2.6	51.0	6,330	0.0366		
	630	C.C	30.2		1.5	0.5	2.7	55.0	7,845	0.0283		

18/30(36) kV

1	50	C.C	8.1	8.0	1.2	0.5	2.1	36.0	1,665	0.387	63	500
	70	C.C	9.8		1.2	0.5	2.2	38.0	1,945	0.268		
	95	C.C	11.4		1.2	0.5	2.2	39.5	2,265	0.193		
	120	C.C	12.9		1.2	0.5	2.3	41.0	2,585	0.153		
	150	C.C	14.4		1.3	0.5	2.3	43.0	2,925	0.124		
	185	C.C	15.9		1.3	0.5	2.4	44.5	3,355	0.0991		
	240	C.C	18.4		1.3	0.5	2.5	47.0	4,025	0.0754		
	300	C.C	20.5		1.4	0.5	2.5	49.5	4,700	0.0601		
	400	C.C	23.4		1.4	0.5	2.6	53.0	5,630	0.0470		
	500	C.C	26.5		1.5	0.5	2.7	56.5	6,835	0.0366		
	630	C.C	30.2		1.6	0.5	2.9	61.0	8,415	0.0283		

20/35(40.5) kV

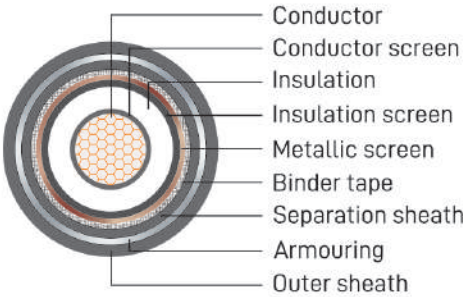
1	50	C.C	8.1	8.8	1.2	0.5	2.2	37.5	1,785	0.387	70	500
	70	C.C	9.8		1.2	0.5	2.2	39.5	2,053	0.268		
	95	C.C	11.4		1.2	0.5	2.3	41.0	2,400	0.193		
	120	C.C	12.9		1.3	0.5	2.3	43.0	2,720	0.153		
	150	C.C	14.4		1.3	0.5	2.4	44.5	3,070	0.124		
	185	C.C	15.9		1.3	0.5	2.4	46.0	3,480	0.0991		
	240	C.C	18.4		1.4	0.5	2.5	49.0	4,175	0.0754		
	300	C.C	20.5		1.4	0.5	2.6	51.5	4,860	0.0601		
	400	C.C	23.4		1.5	0.5	2.7	55.0	5,830	0.0470		
	500	C.C	26.5		1.5	0.5	2.8	58.5	7,015	0.0366		
	630	C.C	30.2		1.6	0.5	2.9	62.5	8,580	0.0283		

Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXO/DATA

Cu/XLPE/CTS/LSHF/DATA/LSHF

Aluminium tape armoured type (1 core)



- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Separation sheath: PVC Compound
Armour: Double Aluminium tape
Outer sheath: LSHF compound (Low smoke halogen free)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Dia. of armour tape	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm²	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
1	25	C.C	5.9	2.5	1.2	0.5	1.8	22.0	715	0.727	12.5	500
	35	C.C	6.9	2.5	1.2	0.5	1.8	23.0	840	0.524		
	50	C.C	8.1	2.5	1.2	0.5	1.8	24.5	990	0.387		
	70	C.C	9.8	2.5	1.2	0.5	1.8	26.0	1,225	0.268		
	95	C.C	11.4	2.5	1.2	0.5	1.8	27.5	1,510	0.193		
	120	C.C	12.9	2.5	1.2	0.5	1.9	29.5	1,795	0.153		
	150	C.C	14.4	2.5	1.2	0.5	1.9	31.0	2,085	0.124		
	185	C.C	15.9	2.5	1.2	0.5	2.0	32.5	2,480	0.0991		
	240	C.C	18.4	2.6	1.2	0.5	2.1	35.5	3,105	0.0754		
	300	C.C	20.5	2.8	1.2	0.5	2.2	38.0	3,760	0.0601		
	400	C.C	23.4	3.0	1.2	0.5	2.3	42.0	4,655	0.0470		
	500	C.C	26.5	3.2	1.3	0.5	2.4	46.0	5,815	0.0366		
	630	C.C	30.2	3.2	1.4	0.5	2.5	50.0	7,285	0.0283		

6/10(12)kV

1	25	C.C	5.9	3.4	1.2	0.5	1.8	24.0	800	0.727	21	500
	35	C.C	6.9		1.2	0.5	1.8	25.0	920	0.524		
	50	C.C	8.1		1.2	0.5	1.8	26.0	1,075	0.387		
	70	C.C	9.8		1.2	0.5	1.8	28.0	1,315	0.268		
	95	C.C	11.4		1.2	0.5	1.9	29.5	1,620	0.193		
	120	C.C	12.9		1.2	0.5	1.9	31.0	1,895	0.153		
	150	C.C	14.4		1.2	0.5	2.0	33.0	2,210	0.124		
	185	C.C	15.9		1.2	0.5	2.1	34.5	2,605	0.0991		
	240	C.C	18.4		1.2	0.5	2.1	37.0	3,210	0.0754		
	300	C.C	20.5		1.2	0.5	2.2	39.5	3,845	0.0601		
	400	C.C	23.4		1.3	0.5	2.3	43.0	4,800	0.0470		
	500	C.C	26.5		1.3	0.5	2.4	46.5	5,855	0.0366		
	630	C.C	30.2		1.4	0.5	2.5	50.5	7,330	0.0283		

8.7/15(17.5)kV

1	25	C.C	5.9	4.5	1.2	0.5	1.8	26.0	915	0.727	30.5	500
	35	C.C	6.9		1.2	0.5	1.8	27.0	1,045	0.524		
	50	C.C	8.1		1.2	0.5	1.9	28.5	1,215	0.387		
	70	C.C	9.8		1.2	0.5	1.9	30.0	1,465	0.268		
	95	C.C	11.4		1.2	0.5	2.0	32.0	1,780	0.193		
	120	C.C	12.9		1.2	0.5	2.0	33.5	2,055	0.153		
	150	C.C	14.4		1.2	0.5	2.1	35.0	2,375	0.124		
	185	C.C	15.9		1.2	0.5	2.1	36.5	2,765	0.0991		
	240	C.C	18.4		1.2	0.5	2.2	39.5	3,405	0.0754		
	300	C.C	20.5		1.2	0.5	2.3	41.5	4,055	0.0601		
	400	C.C	23.4		1.3	0.5	2.4	45.5	4,975	0.0470		
	500	C.C	26.5		1.4	0.5	2.5	49.0	6,125	0.0366		
	630	C.C	30.2		1.4	0.5	2.6	53.0	7,605	0.0283		

12/22(24) kV

1	35	C.C	6.9	5.5	1.2	0.5	1.9	29.5	1,150	0.524	44.5	500
	50	C.C	8.1		1.2	0.5	1.9	30.5	1,315	0.387		
	70	C.C	9.8		1.2	0.5	2.0	32.5	1,580	0.268		
	95	C.C	11.4		1.2	0.5	2.0	34.0	1,885	0.193		
	120	C.C	12.9			0.5	2.1	35.5	2,185	0.153		
	150	C.C	14.4		1.2	0.5	2.1	37.0	2,495	0.124		
	185	C.C	15.9		1.2	0.5	2.2	39.0	2,905	0.0991		
	240	C.C	18.4		1.2	0.5	2.3	41.5	3,545	0.0754		
	300	C.C	20.5		1.3	0.5	2.4	44.0	4,220	0.0601		
	400	C.C	23.4		1.3	0.5	2.5	47.5	5,120	0.0470		
	500	C.C	26.5		1.4	0.5	2.6	51.0	6,285	0.0366		
	630	C.C	30.2		1.5	0.5	2.7	55.0	7,795	0.0283		

18/30(36) kV

1	50	C.C	8.1	8.0	1.2	0.5	2.1	36.0	1,645	0.387	63	500
	70	C.C	9.8		1.2	0.5	2.2	38.0	1,930	0.268		
	95	C.C	11.4		1.2	0.5	2.2	39.5	2,250	0.193		
	120	C.C	12.9		1.2	0.5	2.3	41.0	2,560	0.153		
	150	C.C	14.4		1.3	0.5	2.3	43.0	2,900	0.124		
	185	C.C	15.9		1.3	0.5	2.4	44.5	3,330	0.0991		
	240	C.C	18.4		1.3	0.5	2.5	47.0	4,010	0.0754		
	300	C.C	20.5		1.4	0.5	2.5	49.5	4,680	0.0601		
	400	C.C	23.4		1.4	0.5	2.6	53.0	5,620	0.0470		
	500	C.C	26.5		1.5	0.5	2.7	56.5	6,815	0.0366		
	630	C.C	30.2		1.6	0.5	2.9	61.0	8,395	0.0283		

20/35(40.5) kV

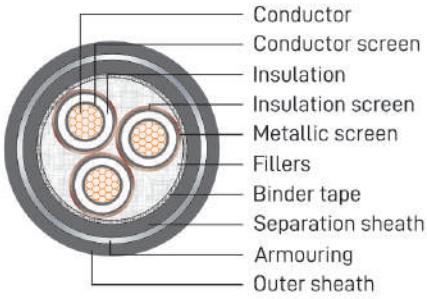
1	50	C.C	8.1	8.8	1.2	0.5	2.2	37.5	1,765	0.387	70	500
	70	C.C	9.8		1.2	0.5	2.2	39.5	2,035	0.268		
	95	C.C	11.4		1.2	0.5	2.3	41.0	2,375	0.193		
	120	C.C	12.9		1.3	0.5	2.3	43.0	2,695	0.153		
	150	C.C	14.4		1.3	0.5	2.4	44.5	3,040	0.124		
	185	C.C	15.9		1.3	0.5	2.4	46.0	3,450	0.0991		
	240	C.C	18.4		1.4	0.5	2.5	49.0	4,145	0.0754		
	300	C.C	20.5		1.4	0.5	2.6	51.5	4,830	0.0601		
	400	C.C	23.4		1.5	0.5	2.7	55.0	5,800	0.0470		
	500	C.C	26.5		1.5	0.5	2.8	58.5	6,975	0.0366		
	630	C.C	30.2		1.6	0.5	2.9	62.5	8,530	0.0283		

Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXV/DSTA

Cu/XLPE/CTS/PVC/DSTA/PVC

Steel tape armoured type (3 core)



- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Separation sheath: PVC Compound
Armour: Double Galvanized steel tape
Outer sheath: PVC compound

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal thickness of steel tape	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm²	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	25	C.C	5.9	2.5	1.2	0.5	2.2	38.5	2,395	0.727	12.5	500
	35	C.C	6.9	2.5	1.3	0.5	2.3	41.0	2,835	0.524		
	50	C.C	8.1	2.5	1.3	0.5	2.4	44.0	3,360	0.387		
	70	C.C	9.8	2.5	1.4	0.5	2.5	48.0	4,185	0.268		
	95	C.C	11.4	2.5	1.4	0.5	2.6	51.5	5,150	0.193		
	120	C.C	12.9	2.5	1.5	0.5	2.8	55.5	6,115	0.153		
	150	C.C	14.4	2.5	1.6	0.5	2.9	59.0	7,135	0.124		
	185	C.C	15.9	2.5	1.6	0.5	3.0	62.5	8,385	0.0991		250
	240	C.C	18.4	2.6	1.7	0.5	3.2	69.0	10,475	0.0754		
	300	C.C	20.5	2.8	1.8	0.5	3.4	75.0	12,675	0.0601		
	400	C.C	23.4	3.0	2.0	0.8	3.7	85.0	16,655	0.0470		
	500	C.C	26.5	3.2	2.1	0.8	3.9	93.0	20,500	0.0366		200

6/10(12)kV

3	25	C.C	5.9	3.4	1.3	0.5	2.4	43.0	2,750	0.727		500
	35	C.C	6.9		1.3	0.5	2.4	45.0	3,165	0.524		
	50	C.C	8.1		1.4	0.5	2.6	48.5	3,750	0.387		
	70	C.C	9.8		1.5	0.5	2.7	52.5	4,605	0.268		
	95	C.C	11.4		1.5	0.5	2.8	56.0	5,590	0.193		
	120	C.C	12.9		1.6	0.5	2.9	60.0	6,555	0.153		
	150	C.C	14.4		1.6	0.5	3.0	63.0	7,565	0.124		
	185	C.C	15.9		1.7	0.5	3.1	67.0	8,870	0.0991		250
	240	C.C	18.4		1.8	0.5	3.3	73.0	10,950	0.0754		
	300	C.C	20.5		1.9	0.5	3.5	78.0	13,070	0.0601		
	400	C.C	23.4		2.0	0.8	3.7	87.0	16,935	0.0470		200
	500	C.C	26.5		2.1	0.8	3.9	94.0	20,670	0.0366		

8.7/15(17.5)kV

3	25	C.C	5.9	4.5	1.4	0.5	2.5	48.0	3,205	0.727	30.5	500
	35	C.C	6.9		1.4	0.5	2.6	50.5	3,660	0.524		
	50	C.C	8.1		1.5	0.5	2.7	53.5	4,250	0.387		
	70	C.C	9.8		1.5	0.5	2.8	57.5	5,105	0.268		
	95	C.C	11.4		1.6	0.5	3.0	61.5	6,180	0.193		
	120	C.C	12.9		1.7	0.5	3.1	65.0	7,160	0.153		
	150	C.C	14.4		1.7	0.5	3.2	68.5	8,195	0.124		250
	185	C.C	15.9		1.8	0.5	3.3	72.0	9,525	0.0991		
	240	C.C	18.4		1.9	0.5	3.5	78.0	11,685	0.0754		
	300	C.C	20.5		2.0	0.5	3.7	84.5	14,720	0.0601		
	400	C.C	23.4		2.1	0.8	3.9	92.0	17,815	0.0470		200
	500	C.C	26.5		2.2	0.8	4.1	99.5	21,615	0.0366		

12/22(24)kV

3	35	C.C	6.9	5.5	1.5	0.5	2.8	55.5	4,120	0.524	44.5	500
	50	C.C	8.1		1.6	0.5	2.9	58.5	4,725	0.387		
	70	C.C	9.8		1.6	0.5	3.0	62.5	5,605	0.268		
	95	C.C	11.4		1.7	0.5	3.1	66.0	6,680	0.193		
	120	C.C	12.9		1.8	0.5	3.2	70.0	7,690	0.153		
	150	C.C	14.4		1.8	0.5	3.3	73.5	8,750	0.124		250
	185	C.C	15.9		1.9	0.5	3.5	77.0	10,145	0.0991		
	240	C.C	18.4		2.0	0.8	3.7	84.5	13,180	0.0754		
	300	C.C	20.5		2.1	0.8	3.8	89.5	15,385	0.0601		
	400	C.C	23.4		2.2	0.8	4.1	96.5	18,515	0.0470		200
	500	C.C	26.5		2.3	0.8	4.3	104.5	22,400	0.0366		150

18/30(36)kV

3	50	C.C	8.1	8.0	1.8	0.5	3.3	70.5	6,080	0.387	63	500
	70	C.C	9.8		1.8	0.5	3.4	74.5	7,020	0.268		
	95	C.C	11.4		1.9	0.5	3.5	78.0	8,160	0.193		250
	120	C.C	12.9		2.0	0.8	3.7	83.0	10,130	0.153		
	150	C.C	14.4		2.0	0.8	3.8	86.5	11,285	0.124		
	185	C.C	15.9		2.1	0.8	3.9	90.5	12,745	0.0991		
	240	C.C	18.4		2.2	0.8	4.1	96.5	15,080	0.0754		200
	300	C.C	20.5		2.3	0.8	4.2	101.5	17,370	0.0601		

20/35(40.5)kV

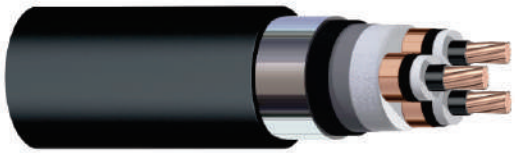
3	50	C.C	8.1	8.8	1.9	0.5	3.4	74.5	6,560	0.387	70	500
	70	C.C	9.8		1.9	0.5	3.5	78.0	7,520	0.268		
	95	C.C	11.4		2.0	0.8	3.7	83.5	9,575	0.193		250
	120	C.C	12.9		2.0	0.8	3.8	87.0	10,670	0.153		
	150	C.C	14.4		2.1	0.8	3.9	90.5	11,885	0.124		
	185	C.C	15.9		2.2	0.8	4.0	94.0	13,370	0.0991		
	240	C.C	18.4		2.3	0.8	4.2	100.0	15,735	0.0754		200
	300	C.C	20.5		2.4	0.8	4.3	105.0	18,050	0.0601		

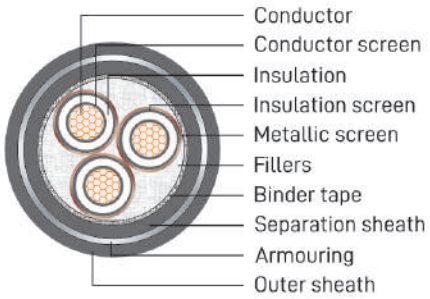
Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage FR-CXV/DSTA

Cu/XLPE/CTS/PVC/DSTA/FR-PVC

Steel tape armoured type (3 cores)





- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Separation sheath: PVC Compound
Armour: Double Galvanized steel tape
Outer sheath: FR-PVC compound (Flame retardant)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60502-2)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Dia. of armour tape	Nominal thickness of steel tape	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm²	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	25	C.C	5.9	2.5	1.2	0.5	2.2	38.5	2,380	0.727	12.5	500
	35	C.C	6.9	2.5	1.3	0.5	2.3	41.0	2,820	0.524		
	50	C.C	8.1	2.5	1.3	0.5	2.4	44.0	3,340	0.387		
	70	C.C	9.8	2.5	1.4	0.5	2.5	48.0	4,165	0.268		
	95	C.C	11.4	2.5	1.4	0.5	2.6	51.5	5,125	0.193		
	120	C.C	12.9	2.5	1.5	0.5	2.8	55.5	6,085	0.153		
	150	C.C	14.4	2.5	1.6	0.5	2.9	59.0	7,105	0.124		
	185	C.C	15.9	2.5	1.6	0.5	3.0	62.5	8,355	0.0991		250
	240	C.C	18.4	2.6	1.7	0.5	3.2	69.0	10,440	0.0754		
	300	C.C	20.5	2.8	1.8	0.5	3.4	75.0	12,625	0.0601		
	400	C.C	23.4	3.0	2.0	0.8	3.7	85.0	16,595	0.0470		
	500	C.C	26.5	3.2	2.1	0.8	3.9	93.0	20,435	0.0366		200

6/10(12)kV

3	25	C.C	5.9	3.4	1.3	0.5	2.4	43.0	2,740	0.727		500
	35	C.C	6.9		1.3	0.5	2.4	45.0	3,150	0.524		
	50	C.C	8.1		1.4	0.5	2.6	48.5	3,735	0.387		
	70	C.C	9.8		1.5	0.5	2.7	52.5	4,585	0.268		
	95	C.C	11.4		1.5	0.5	2.8	56.0	5,575	0.193		
	120	C.C	12.9		1.6	0.5	2.9	60.0	6,520	0.153		
	150	C.C	14.4		1.6	0.5	3.0	63.0	7,525	0.124		
	185	C.C	15.9		1.7	0.5	3.1	67.0	8,825	0.0991		250
	240	C.C	18.4		1.8	0.5	3.3	73.0	10,930	0.0754		
	300	C.C	20.5		1.9	0.5	3.5	78.0	13,050	0.0601		
	400	C.C	23.4		2.0	0.8	3.7	87.0	16,885	0.0470		200
	500	C.C	26.5		2.1	0.8	3.9	94.0	20,620	0.0366		

8.7/15(17.5)kV

3	25	C.C	5.9	4.5	1.4	0.5	2.5	48.0	3,185	0.727	30.5	500
	35	C.C	6.9		1.4	0.5	2.6	50.5	3,635	0.524		
	50	C.C	8.1		1.5	0.5	2.7	53.5	4,225	0.387		
	70	C.C	9.8		1.5	0.5	2.8	57.5	5,075	0.268		
	95	C.C	11.4		1.6	0.5	3.0	61.5	6,150	0.193		
	120	C.C	12.9		1.7	0.5	3.1	65.0	7,125	0.153		
	150	C.C	14.4		1.7	0.5	3.2	68.5	8,155	0.124		250
	185	C.C	15.9		1.8	0.5	3.3	72.0	9,485	0.0991		
	240	C.C	18.4		1.9	0.5	3.5	78.0	11,635	0.0754		
	300	C.C	20.5		2.0	0.5	3.7	84.5	14,655	0.0601		
	400	C.C	23.4		2.1	0.8	3.9	92.0	17,750	0.0470		200
	500	C.C	26.5		2.2	0.8	4.1	99.5	21,540	0.0366		

12/22(24)kV

3	35	C.C	6.9	5.5	1.5	0.5	2.8	55.5	4,110	0.524	44.5	500
	50	C.C	8.1		1.6	0.5	2.9	58.5	4,715	0.387		
	70	C.C	9.8		1.6	0.5	3.0	62.5	5,590	0.268		
	95	C.C	11.4		1.7	0.5	3.1	66.0	6,660	0.193		
	120	C.C	12.9		1.8	0.5	3.2	70.0	7,675	0.153		
	150	C.C	14.4		1.8	0.5	3.3	73.5	8,730	0.124		250
	185	C.C	15.9		1.9	0.5	3.5	77.0	10,120	0.0991		
	240	C.C	18.4		2.0	0.8	3.7	84.5	13,150	0.0754		
	300	C.C	20.5		2.1	0.8	3.8	89.5	15,355	0.0601		
	400	C.C	23.4		2.2	0.8	4.1	96.5	18,530	0.0470		200
	500	C.C	26.5		2.3	0.8	4.3	104.5	22,360	0.0366		150

18/30(36)kV

3	50	C.C	8.1	8.0	1.8	0.5	3.3	70.5	6,060	0.387	63	500
	70	C.C	9.8		1.8	0.5	3.4	74.5	7,000	0.268		
	95	C.C	11.4		1.9	0.5	3.5	78.0	8,135	0.193		250
	120	C.C	12.9		2.0	0.8	3.7	83.0	10,100	0.153		
	150	C.C	14.4		2.0	0.8	3.8	86.5	11,250	0.124		
	185	C.C	15.9		2.1	0.8	3.9	90.5	12,710	0.0991		
	240	C.C	18.4		2.2	0.8	4.1	96.5	15,040	0.0754		200
	300	C.C	20.5		2.3	0.8	4.2	101.5	17,325	0.0601		

20/35(40.5)kV

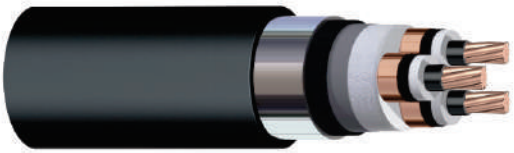
3	50	C.C	8.1	8.8	1.9	0.5	3.4	74.5	6,515	0.387	70	500
	70	C.C	9.8		1.9	0.5	3.5	78.0	7,470	0.268		
	95	C.C	11.4		2.0	0.8	3.7	83.5	9,520	0.193		250
	120	C.C	12.9		2.0	0.8	3.8	87.0	10,610	0.153		
	150	C.C	14.4		2.1	0.8	3.9	90.5	11,825	0.124		
	185	C.C	15.9		2.2	0.8	4.0	94.0	13,300	0.0991		
	240	C.C	18.4		2.3	0.8	4.2	100.0	15,660	0.0754		200
	300	C.C	20.5		2.4	0.8	4.3	105.0	17,970	0.0601		

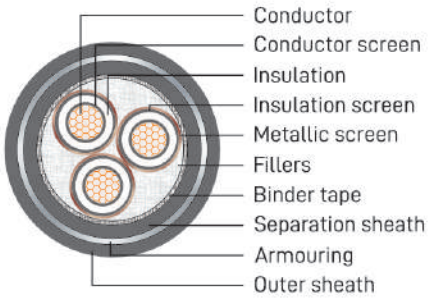
Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXO/DSTA

Cu/XLPE/CTS/LSHF/DSTA/LSHF

Steel tape armoured type (3 cores)





- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Separation sheath: LSHF compound (Low smoke halogen free)
Armour: Double Galvanized steel tape
Outer sheath: LSHF compound (Low smoke halogen free)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal thickness of steel tape	Nominal thickness of steel tape	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm²	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	25	C.C	5.9	2.5	1.2	0.5	2.2	38.5	2,360	0.727	12.5	500
	35	C.C	6.9	2.5	1.3	0.5	2.3	41.0	2,795	0.524		
	50	C.C	8.1	2.5	1.3	0.5	2.4	44.0	3,310	0.387		
	70	C.C	9.8	2.5	1.4	0.5	2.5	48.0	4,130	0.268		
	95	C.C	11.4	2.5	1.4	0.5	2.6	51.5	5,090	0.193		
	120	C.C	12.9	2.5	1.5	0.5	2.8	55.5	6,045	0.153		
	150	C.C	14.4	2.5	1.6	0.5	2.9	59.0	7,060	0.124		
	185	C.C	15.9	2.5	1.6	0.5	3.0	62.5	8,305	0.0991		250
	240	C.C	18.4	2.6	1.7	0.5	3.2	69.0	10,380	0.0754		
	300	C.C	20.5	2.8	1.8	0.5	3.4	75.0	12,560	0.0601		
	400	C.C	23.4	3.0	2.0	0.8	3.7	85.0	16,480	0.0470		
	500	C.C	26.5	3.2	2.1	0.8	3.9	93.0	20,340	0.0366		200

6/10(12)kV

3	25	C.C	5.9	3.4	1.3	0.5	2.4	43.0	2,705	0.727	21	500
	35	C.C	6.9		1.3	0.5	2.4	45.0	3,115	0.524		
	50	C.C	8.1		1.4	0.5	2.6	48.5	3,695	0.387		
	70	C.C	9.8		1.5	0.5	2.7	52.5	4,540	0.268		
	95	C.C	11.4		1.5	0.5	2.8	56.0	5,525	0.193		
	120	C.C	12.9		1.6	0.5	2.9	60.0	6,480	0.153		
	150	C.C	14.4		1.6	0.5	3.0	63.0	7,480	0.124		
	185	C.C	15.9		1.7	0.5	3.1	67.0	8,775	0.0991		250
	240	C.C	18.4		1.8	0.5	3.3	73.0	10,840	0.0754		
	300	C.C	20.5		1.9	0.5	3.5	78.0	12,945	0.0601		
	400	C.C	23.4		2.0	0.8	3.7	87.0	16,680	0.0470		200
	500	C.C	26.5		2.1	0.8	3.9	94.0	20,505	0.0366		

8.7/15(17.5)kV

3	25	C.C	5.9	4.5	1.4	0.5	2.5	48.0	3,155	0.727	30.5	500
	35	C.C	6.9		1.4	0.5	2.6	50.5	3,600	0.524		
	50	C.C	8.1		1.5	0.5	2.7	53.5	4,185	0.387		
	70	C.C	9.8		1.5	0.5	2.8	57.5	5,035	0.268		
	95	C.C	11.4		1.6	0.5	3.0	61.5	6,100	0.193		
	120	C.C	12.9		1.7	0.5	3.1	65.0	7,070	0.153		
	150	C.C	14.4		1.7	0.5	3.2	68.5	8,100	0.124		250
	185	C.C	15.9		1.8	0.5	3.3	72.0	9,420	0.0991		
	240	C.C	18.4		1.9	0.5	3.5	78.0	11,560	0.0754		
	300	C.C	20.5		2.0	0.5	3.7	84.5	14,580	0.0601		
	400	C.C	23.4		2.1	0.8	3.9	92.0	17,655	0.0470		200
	500	C.C	26.5		2.2	0.8	4.1	99.5	21,430	0.0366		

12/22(24)kV

3	35	C.C	6.9	5.5	1.5	0.5	2.8	55.5	4,050	0.524	44.5	500
	50	C.C	8.1		1.6	0.5	2.9	58.5	4,650	0.387		
	70	C.C	9.8		1.6	0.5	3.0	62.5	5,525	0.268		
	95	C.C	11.4		1.7	0.5	3.1	66.0	6,585	0.193		
	120	C.C	12.9		1.8	0.5	3.2	70.0	7,590	0.153		
	150	C.C	14.4		1.8	0.5	3.3	73.5	8,640	0.124		250
	185	C.C	15.9		1.9	0.5	3.5	77.0	10,025	0.0991		
	240	C.C	18.4		2.0	0.8	3.7	84.5	13,040	0.0754		
	300	C.C	20.5		2.1	0.8	3.8	89.5	15,235	0.0601		
	400	C.C	23.4		2.2	0.8	4.1	96.5	18,385	0.0470		200
	500	C.C	26.5		2.3	0.8	4.3	104.5	22,200	0.0366		150

18/30(36)kV

3	50	C.C	8.1	8.0	1.8	0.5	3.3	70.5	6,000	0.387	63	500
	70	C.C	9.8		1.8	0.5	3.4	74.5	6,940	0.268		
	95	C.C	11.4		1.9	0.5	3.5	78.0	8,060	0.193		250
	120	C.C	12.9		2.0	0.8	3.7	83.0	10,020	0.153		
	150	C.C	14.4		2.0	0.8	3.8	86.5	11,165	0.124		
	185	C.C	15.9		2.1	0.8	3.9	90.5	12,615	0.0991		
	240	C.C	18.4		2.2	0.8	4.1	96.5	14,935	0.0754		200
	300	C.C	20.5		2.3	0.8	4.2	101.5	17,210	0.0601		

20/35(40.5)kV

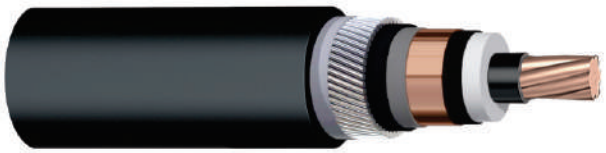
3	50	C.C	8.1	8.8	1.9	0.5	3.4	74.5	6,445	0.387	70	500
	70	C.C	9.8		1.9	0.5	3.5	78.0	7,400	0.268		
	95	C.C	11.4		2.0	0.8	3.7	83.5	9,440	0.193		250
	120	C.C	12.9		2.0	0.8	3.8	87.0	10,525	0.153		
	150	C.C	14.4		2.1	0.8	3.9	90.5	11,730	0.124		
	185	C.C	15.9		2.2	0.8	4.0	94.0	13,200	0.0991		
	240	C.C	18.4		2.3	0.8	4.2	100.0	15,545	0.0754		200
	300	C.C	20.5		2.4	0.8	4.3	105.0	17,850	0.0601		

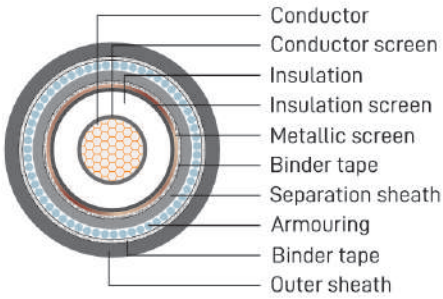
Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXV/AWA

Cu/XLPE/CTS/PVC/AWA/PVC

Aluminium wire armoured type (1 core)





- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper wire
Separation sheath: PVC Compound
Armour: Aluminium wire
Outer sheath: PVC compound

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 600228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Dia. of armour wire	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm^2	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
1	25	C.C	5.9	2.5	1.2	1.6	1.8	24.0	845	0.727	12.5	500
	35	C.C	6.9	2.5	1.2	1.6	1.8	25.0	975	0.524		
	50	C.C	8.1	2.5	1.2	1.6	1.8	26.0	1,130	0.387		
	70	C.C	9.8	2.5	1.2	1.6	1.8	28.0	1,375	0.268		
	95	C.C	11.4	2.5	1.2	1.6	1.9	29.5	1,690	0.193		
	120	C.C	12.9	2.5	1.2	1.6	1.9	31.0	1,970	0.153		
	150	C.C	14.4	2.5	1.2	1.6	2.0	33.0	2,290	0.124		
	185	C.C	15.9	2.5	1.2	2.0	2.1	35.5	2,780	0.0991		
	240	C.C	18.4	2.6	1.2	2.0	2.1	38.0	3,415	0.0754		
	300	C.C	20.5	2.8	1.2	2.0	2.2	40.5	4,095	0.0601		
	400	C.C	23.4	3.0	1.2	2.0	2.4	45.0	5,050	0.0470		
	500	C.C	26.5	3.2	1.3	2.5	2.5	50.0	6,420	0.0366		
	630	C.C	30.2	3.2	1.4	2.5	2.6	54.5	7,950	0.0283		

6/10(12)kV

1	25	C.C	5.9	3.4	1.2	1.6	1.8	25.5	970.0	0.727	21	500
	35	C.C	6.9		1.2	1.6	1.8	26.5	1,065	0.524		
	50	C.C	8.1		1.2	1.6	1.8	28.0	1,230	0.387		
	70	C.C	9.8		1.2	1.6	1.9	30.0	1,490	0.268		
	95	C.C	11.4		1.2	1.6	1.9	31.5	1,795	0.193		
	120	C.C	12.9		1.2	2.0	2.0	34.0	2,175	0.153		
	150	C.C	14.4		1.2	2.0	2.1	35.5	2,500	0.124		
	185	C.C	15.9		1.2	2.0	2.1	37.0	2,905	0.0991		
	240	C.C	18.4		1.2	2.0	2.2	40.0	3,545	0.0754		
	300	C.C	20.5		1.2	2.0	2.3	42.0	4,210	0.0601		
	400	C.C	23.4		1.3	2.5	2.4	46.5	5,270	0.0470		
	500	C.C	26.5		1.3	2.5	2.5	50.5	6,465	0.0366		
	630	C.C	30.2		1.4	2.5	2.6	54.5	7,985	0.0283		

8.7/15(17.5)kV

1	25	C.C	5.9	4.5	1.2	1.6	1.8	28.0	1,055	0.727	30.5	500
	35	C.C	6.9		1.2	1.6	1.9	29.0	1,205	0.524		
	50	C.C	8.1		1.2	1.6	1.9	30.0	1,370	0.387		
	70	C.C	9.8		1.2	1.6	2.0	32.0	1,645	0.268		
	95	C.C	11.4		1.2	2.0	2.0	35.5	2,035	0.193		
	120	C.C	12.9		1.2	2.0	2.1	36.0	2,350	0.153		
	150	C.C	14.4		1.2	2.0	2.1	37.5	2,665	0.124		
	185	C.C	15.9		1.2	2.0	2.2	39.5	3,085	0.0991		
	240	C.C	18.4		1.2	2.0	2.3	42.0	3,745	0.0754		
	300	C.C	20.5		1.2	2.0	2.3	44.0	4,390	0.0601		
	400	C.C	23.4		1.3	2.5	2.5	49.5	5,540	0.0470		
	500	C.C	26.5		1.4	2.5	2.6	53.0	6,735	0.0366		
	630	C.C	30.2		1.4	2.5	2.7	57.0	8,255	0.0283		

12/22(24)kV

1	35	C.C	6.9	5.5	1.2	1.6	1.9	31.0	1,315	0.524	44.5	500
	50	C.C	8.1		1.2	1.6	2.0	32.5	1,505	0.387		
	70	C.C	9.8		1.2	2.0	2.1	35.0	1,870	0.268		
	95	C.C	11.4		1.2	2.0	2.1	36.5	2,185	0.193		
	120	C.C	12.9		1.2	2.0	2.2	38.5	2,510	0.153		
	150	C.C	14.4		1.2	2.0	2.2	40.0	2,830	0.124		
	185	C.C	15.9		1.2	2.0	2.3	41.5	3,255	0.0991		
	240	C.C	18.4		1.2	2.0	2.3	44.0	3,900	0.0754		
	300	C.C	20.5		1.3	2.5	2.5	48.5	4,790	0.0601		
	400	C.C	23.4		1.3	2.5	2.6	52.0	5,745	0.0470		
	500	C.C	26.5		1.4	2.5	2.7	55.5	6,950	0.0366		
	630	C.C	30.2		1.5	2.5	2.8	59.5	8,520	0.0283		250

18/30(36)kV

1	50	C.C	8.1	8.0	1.2	2.0	2.2	38.5	1,960	0.387	63	500
	70	C.C	9.8		1.2	2.0	2.2	40.5	2,235	0.268		
	95	C.C	11.4		1.2	2.0	2.3	42.0	2,590	0.193		
	120	C.C	12.9		1.2	2.0	2.3	43.5	2,900	0.153		
	150	C.C	14.4		1.3	2.5	2.4	47.0	3,450	0.124		
	185	C.C	15.9		1.3	2.5	2.5	49.0	3,900	0.0991		
	240	C.C	18.4		1.3	2.5	2.6	51.5	4,600	0.0754		
	300	C.C	20.5		1.4	2.5	2.6	54.0	5,300	0.0601		
	400	C.C	23.4		1.4	2.5	2.7	57.0	6,275	0.0470		
	500	C.C	26.5		1.5	2.5	2.8	61.0	7,520	0.0366		
	630	C.C	30.2		1.6	2.5	3.0	65.0	9,155	0.0283		250

20/35(40.5)kV

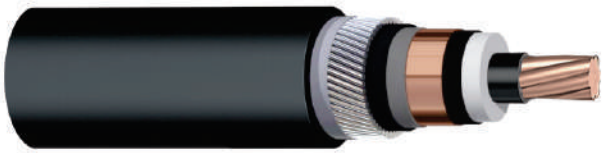
1	50	C.C	8.1	8.8	1.2	2.0	2.2	40.5	2,075	0.387	70	500
	70	C.C	9.8		1.2	2.0	2.3	42.0	2,385	0.268		
	95	C.C	11.4		1.2	2.0	2.3	44.0	2,715	0.193		
	120	C.C	12.9		1.3	2.5	2.4	47.0	3,240	0.153		
	150	C.C	14.4		1.3	2.5	2.5	49.0	3,615	0.124		
	185	C.C	15.9		1.3	2.5	2.5	50.5	4,030	0.0991		
	240	C.C	18.4		1.4	2.5	2.6	53.5	4,785	0.0754		
	300	C.C	20.5		1.4	2.5	2.7	55.5	5,495	0.0601		
	400	C.C	23.4		1.5	2.5	2.8	59.5	6,515	0.0470		
	500	C.C	26.5		1.5	2.5	2.9	62.5	7,745	0.0366		
	630	C.C	30.2		1.6	2.5	3.0	66.5	9,370	0.0283		250

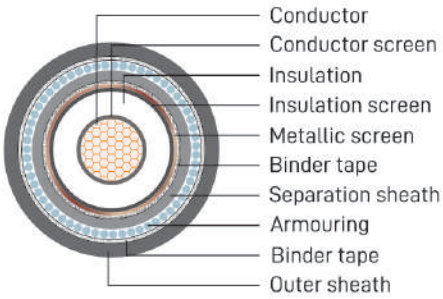
Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage FR-CXV/AWA

Cu/XLPE/CTS/PVC/AWA/FR-PVC

Aluminium wire armoured type (1 core)





- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper wire
Separation sheath: PVC Compound
Armour: Aluminium wire
Outer sheath: FR-PVC compound (Flame retardant)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 600228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Dia. of armour tape	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm^2	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
1	25	C.C	5.9	2.5	1.2	1.6	1.8	24.0	840	0.727	12.5	500
	35	C.C	6.9	2.5	1.2	1.6	1.8	25.0	965	0.524		
	50	C.C	8.1	2.5	1.2	1.6	1.8	26.0	1,125	0.387		
	70	C.C	9.8	2.5	1.2	1.6	1.8	28.0	1,365	0.268		
	95	C.C	11.4	2.5	1.2	1.6	1.9	29.5	1,680	0.193		
	120	C.C	12.9	2.5	1.2	1.6	1.9	31.0	1,960	0.153		
	150	C.C	14.4	2.5	1.2	1.6	2.0	33.0	2,275	0.124		
	185	C.C	15.9	2.5	1.2	2.0	2.1	35.5	2,765	0.0991		
	240	C.C	18.4	2.6	1.2	2.0	2.1	38.0	3,400	0.0754		
	300	C.C	20.5	2.8	1.2	2.0	2.2	40.5	4,080	0.0601		
	400	C.C	23.4	3.0	1.2	2.0	2.4	45.0	5,010	0.0470		
	500	C.C	26.5	3.2	1.3	2.5	2.5	50.0	6,395	0.0366		
	630	C.C	30.2	3.2	1.4	2.5	2.6	54.5	7,925	0.0283		

6/10(12)kV

1	25	C.C	5.9	3.4	1.2	1.6	1.8	25.5	935	0.727	21	500
	35	C.C	6.9		1.2	1.6	1.8	26.5	1,060	0.524		
	50	C.C	8.1		1.2	1.6	1.8	28.0	1,225	0.387		
	70	C.C	9.8		1.2	1.6	1.9	30.0	1,490	0.268		
	95	C.C	11.4		1.2	1.6	1.9	31.5	1,790	0.193		
	120	C.C	12.9		1.2	2.0	2.0	34.0	2,170	0.153		
	150	C.C	14.4		1.2	2.0	2.1	35.5	2,495	0.124		
	185	C.C	15.9		1.2	2.0	2.1	37.0	2,900	0.0991		
	240	C.C	18.4		1.2	2.0	2.2	40.0	3,535	0.0754		
	300	C.C	20.5		1.2	2.0	2.3	42.0	4,200	0.0601		
	400	C.C	23.4		1.3	2.5	2.4	46.5	5,275	0.0470		
	500	C.C	26.5		1.3	2.5	2.5	50.5	6,455	0.0366		
	630	C.C	30.2		1.4	2.5	2.6	54.5	7,975	0.0283		

8.7/15(17.5)kV

1	25	C.C	5.9	4.5	1.2	1.6	1.8	28.0	1,050	0.727	30.5	500
	35	C.C	6.9		1.2	1.6	1.9	29.0	1,195	0.524		
	50	C.C	8.1		1.2	1.6	1.9	30.0	1,360	0.387		
	70	C.C	9.8		1.2	1.6	2.0	32.0	1,635	0.268		
	95	C.C	11.4		1.2	2.0	2.0	35.5	2,025	0.193		
	120	C.C	12.9		1.2	2.0	2.1	36.0	2,335	0.153		
	150	C.C	14.4		1.2	2.0	2.1	37.5	2,650	0.124		
	185	C.C	15.9		1.2	2.0	2.2	39.5	3,070	0.0991		
	240	C.C	18.4		1.2	2.0	2.3	42.0	3,735	0.0754		
	300	C.C	20.5		1.2	2.0	2.3	44.0	4,385	0.0601		
	400	C.C	23.4		1.3	2.5	2.5	49.5	5,535	0.0470		
	500	C.C	26.5		1.4	2.5	2.6	53.0	6,735	0.0366		
	630	C.C	30.2		1.4	2.5	2.7	57.0	8,250	0.0283		

12/22(24)kV

1	35	C.C	6.9	5.5	1.2	1.6	1.9	31.0	1,305	0.524	44.5	500
	50	C.C	8.1		1.2	1.6	2.0	32.5	1,495	0.387		
	70	C.C	9.8		1.2	2.0	2.1	35.0	1,855	0.268		
	95	C.C	11.4		1.2	2.0	2.1	36.5	2,170	0.193		
	120	C.C	12.9		1.2	2.0	2.2	38.5	2,495	0.153		
	150	C.C	14.4		1.2	2.0	2.2	40.0	2,815	0.124		
	185	C.C	15.9		1.2	2.0	2.3	41.5	3,235	0.0991		
	240	C.C	18.4		1.2	2.0	2.3	44.0	3,880	0.0754		
	300	C.C	20.5		1.3	2.5	2.5	48.5	4,770	0.0601		
	400	C.C	23.4		1.3	2.5	2.6	52.0	5,715	0.0470		
	500	C.C	26.5		1.4	2.5	2.7	55.5	6,925	0.0366		
	630	C.C	30.2		1.5	2.5	2.8	59.5	8,490	0.0283		250

18/30(36)kV

1	50	C.C	8.1	8.0	1.2	2.0	2.2	38.5	1,945	0.387	63	500
	70	C.C	9.8		1.2	2.0	2.2	40.5	2,220	0.268		
	95	C.C	11.4		1.2	2.0	2.3	42.0	2,575	0.193		
	120	C.C	12.9		1.2	2.0	2.3	43.5	2,880	0.153		
	150	C.C	14.4		1.3	2.5	2.4	47.0	3,430	0.124		
	185	C.C	15.9		1.3	2.5	2.5	49.0	3,880	0.0991		
	240	C.C	18.4		1.3	2.5	2.6	51.5	4,580	0.0754		
	300	C.C	20.5		1.4	2.5	2.6	54.0	5,275	0.0601		
	400	C.C	23.4		1.4	2.5	2.7	57.0	6,255	0.0470		
	500	C.C	26.5		1.5	2.5	2.8	61.0	7,490	0.0366		
	630	C.C	30.2		1.6	2.5	3.0	65.0	9,120	0.0283		250

20/35(40.5)kV

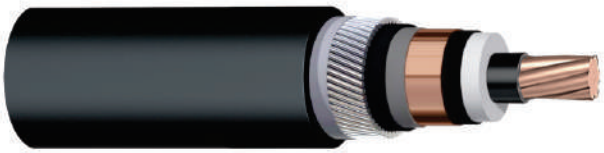
1	50	C.C	8.1	8.8	1.2	2.0	2.2	40.5	2,055	0.387	70	500
	70	C.C	9.8		1.2	2.0	2.3	42.0	2,365	0.268		
	95	C.C	11.4		1.2	2.0	2.3	44.0	2,700	0.193		
	120	C.C	12.9		1.3	2.5	2.4	47.0	3,220	0.153		
	150	C.C	14.4		1.3	2.5	2.5	49.0	3,590	0.124		
	185	C.C	15.9		1.3	2.5	2.5	50.5	4,010	0.0991		
	240	C.C	18.4		1.4	2.5	2.6	53.5	4,760	0.0754		
	300	C.C	20.5		1.4	2.5	2.7	55.5	5,470	0.0601		
	400	C.C	23.4		1.5	2.5	2.8	59.5	6,490	0.0470		
	500	C.C	26.5		1.5	2.5	2.9	62.5	7,710	0.0366		
	630	C.C	30.2		1.6	2.5	3.0	66.5	9,330	0.0283		250

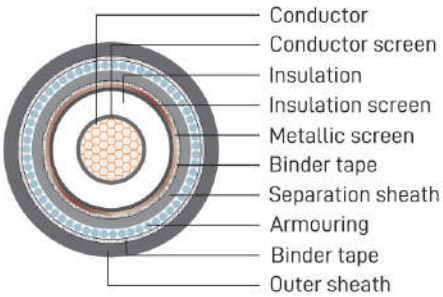
Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXO/AWA

Cu/XLPE/CTS/LSHF/AWA/LSHF

Aluminium wire armoured type (1 core)





- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper wire
Separation sheath: LSHF compound (Low smoke halogen free)
Armour: Aluminium wire
Outer sheath: LSHF compound (Low smoke halogen free)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 600228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Dia. of armour wire	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm^2	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
1	25	C.C	5.9	2.5	1.2	1.6	1.8	24.0	830	0.727	12.5	500
	35	C.C	6.9	2.5	1.2	1.6	1.8	25.0	955	0.524		
	50	C.C	8.1	2.5	1.2	1.6	1.8	26.0	1,110	0.387		
	70	C.C	9.8	2.5	1.2	1.6	1.8	28.0	1,355	0.268		
	95	C.C	11.4	2.5	1.2	1.6	1.9	29.5	1,665	0.193		
	120	C.C	12.9	2.5	1.2	1.6	1.9	31.0	1,945	0.153		
	150	C.C	14.4	2.5	1.2	1.6	2.0	33.0	2,260	0.124		
	185	C.C	15.9	2.5	1.2	2.0	2.1	35.5	2,750	0.0991		
	240	C.C	18.4	2.6	1.2	2.0	2.1	38.0	3,380	0.0754		
	300	C.C	20.5	2.8	1.2	2.0	2.2	40.5	4,060	0.0601		
	400	C.C	23.4	3.0	1.2	2.0	2.4	45.0	4,985	0.0470		
	500	C.C	26.5	3.2	1.3	2.5	2.5	50.0	6,365	0.0366		
	630	C.C	30.2	3.2	1.4	2.5	2.6	54.5	7,890	0.0283		

6/10(12)kV

1	25	C.C	5.9	3.4	1.2	1.6	1.8	25.5	920	0.727	21	500
	35	C.C	6.9		1.2	1.6	1.8	26.5	1,040	0.524		
	50	C.C	8.1		1.2	1.6	1.8	28.0	1,205	0.387		
	70	C.C	9.8		1.2	1.6	1.9	30.0	1,470	0.268		
	95	C.C	11.4		1.2	1.6	1.9	31.5	1,770	0.193		
	120	C.C	12.9		1.2	2.0	2.0	34.0	2,145	0.153		
	150	C.C	14.4		1.2	2.0	2.1	35.5	2,470	0.124		
	185	C.C	15.9		1.2	2.0	2.1	37.0	2,870	0.0991		
	240	C.C	18.4		1.2	2.0	2.2	40.0	3,505	0.0754		
	300	C.C	20.5		1.2	2.0	2.3	42.0	4,170	0.0601		
	400	C.C	23.4		1.3	2.5	2.4	46.5	5,225	0.0470		
	500	C.C	26.5		1.3	2.5	2.5	50.5	6,440	0.0366		
	630	C.C	30.2		1.4	2.5	2.6	54.5	7,955	0.0283		

8.7/15(17.5)kV

1	25	C.C	5.9	4.5	1.2	1.6	1.8	28.0	1,035	0.727	30.5	500
	35	C.C	6.9		1.2	1.6	1.9	29.0	1,180	0.524		
	50	C.C	8.1		1.2	1.6	1.9	30.0	1,345	0.387		
	70	C.C	9.8		1.2	1.6	2.0	32.0	1,615	0.268		
	95	C.C	11.4		1.2	2.0	2.0	35.5	2,005	0.193		
	120	C.C	12.9		1.2	2.0	2.1	36.0	2,320	0.153		
	150	C.C	14.4		1.2	2.0	2.1	37.5	2,630	0.124		
	185	C.C	15.9		1.2	2.0	2.2	39.5	3,050	0.0991		
	240	C.C	18.4		1.2	2.0	2.3	42.0	3,705	0.0754		
	300	C.C	20.5		1.2	2.0	2.3	44.0	4,345	0.0601		
	400	C.C	23.4		1.3	2.5	2.5	49.5	5,490	0.0470		
	500	C.C	26.5		1.4	2.5	2.6	53.0	6,680	0.0366		
	630	C.C	30.2		1.4	2.5	2.7	57.0	8,185	0.0283		

12/22(24)kV

1	35	C.C	6.9	5.5	1.2	1.6	1.9	31.0	1,290	0.524	44.5	500
	50	C.C	8.1		1.2	1.6	2.0	32.5	1,475	0.387		
	70	C.C	9.8		1.2	2.0	2.1	35.0	1,840	0.268		
	95	C.C	11.4		1.2	2.0	2.1	36.5	2,150	0.193		
	120	C.C	12.9		1.2	2.0	2.2	38.5	2,475	0.153		
	150	C.C	14.4		1.2	2.0	2.2	40.0	2,790	0.124		
	185	C.C	15.9		1.2	2.0	2.3	41.5	3,215	0.0991		
	240	C.C	18.4		1.2	2.0	2.3	44.0	3,855	0.0754		
	300	C.C	20.5		1.3	2.5	2.5	48.5	4,740	0.0601		
	400	C.C	23.4		1.3	2.5	2.6	52.0	5,685	0.0470		
	500	C.C	26.5		1.4	2.5	2.7	55.5	6,890	0.0366		
	630	C.C	30.2		1.5	2.5	2.8	59.5	8,450	0.0283		250

18/30(36)kV

1	50	C.C	8.1	8.0	1.2	2.0	2.2	38.5	1,920	0.387	63	500
	70	C.C	9.8		1.2	2.0	2.2	40.5	2,195	0.268		
	95	C.C	11.4		1.2	2.0	2.3	42.0	2,550	0.193		
	120	C.C	12.9		1.2	2.0	2.3	43.5	2,855	0.153		
	150	C.C	14.4		1.3	2.5	2.4	47.0	3,400	0.124		
	185	C.C	15.9		1.3	2.5	2.5	49.0	3,850	0.0991		
	240	C.C	18.4		1.3	2.5	2.6	51.5	4,545	0.0754		
	300	C.C	20.5		1.4	2.5	2.6	54.0	5,240	0.0601		
	400	C.C	23.4		1.4	2.5	2.7	57.0	6,210	0.0470		
	500	C.C	26.5		1.5	2.5	2.8	61.0	7,445	0.0366		
	630	C.C	30.2		1.6	2.5	3.0	65.0	9,070	0.0283		250

20/35(40.5)kV

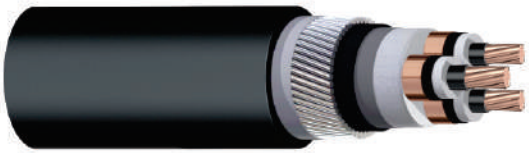
1	50	C.C	8.1	8.8	1.2	2.0	2.2	40.5	2,035	0.387	70	500
	70	C.C	9.8		1.2	2.0	2.3	42.0	2,345	0.268		
	95	C.C	11.4		1.2	2.0	2.3	44.0	2,675	0.193		
	120	C.C	12.9		1.3	2.5	2.4	47.0	3,195	0.153		
	150	C.C	14.4		1.3	2.5	2.5	49.0	3,560	0.124		
	185	C.C	15.9		1.3	2.5	2.5	50.5	3,980	0.0991		
	240	C.C	18.4		1.4	2.5	2.6	53.5	4,725	0.0754		
	300	C.C	20.5		1.4	2.5	2.7	55.5	5,430	0.0601		
	400	C.C	23.4		1.5	2.5	2.8	59.5	6,445	0.0470		
	500	C.C	26.5		1.5	2.5	2.9	62.5	7,665	0.0366		
	630	C.C	30.2		1.6	2.5	3.0	66.5	9,280	0.0283		250

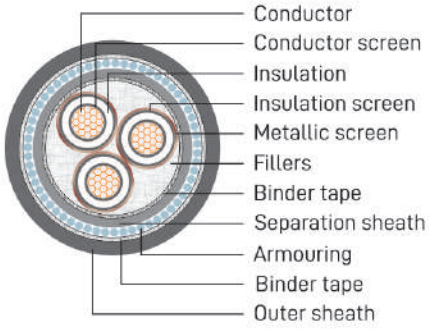
Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXV/SWA

Cu/XLPE/CTS/PVC/SWA/PVC

Steel wire armoured type (3 cores)





- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Separation sheath: PVC Compound
Armour: Double Galvanized steel wire
Outer sheath: PVC compound

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Dia. of steel wire	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm²	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	25	C.C	5.9	2.5	1.2	2.0	2.3	41.5	3,140	0.727	12.5	500
	35	C.C	6.9	2.5	1.3	2.0	2.3	43.5	3,605	0.524		
	50	C.C	8.1	2.5	1.3	2.5	2.5	48.0	4,655	0.387		
	70	C.C	9.8	2.5	1.4	2.5	2.6	52.0	5,580	0.268		
	95	C.C	11.4	2.5	1.4	2.5	2.7	56.0	6,690	0.193		
	120	C.C	12.9	2.5	1.5	2.5	2.9	59.5	7,760	0.153		
	150	C.C	14.4	2.5	1.6	2.5	3.0	63.5	8,885	0.124		
	185	C.C	15.9	2.5	1.6	2.5	3.1	67.0	10,245	0.0991		250
	240	C.C	18.4	2.6	1.7	3.15	3.3	75.0	13,390	0.0754		
	300	C.C	20.5	2.8	1.8	3.15	3.5	81.0	15,820	0.0601		
	400	C.C	23.4	3.0	2.0	4.0	3.8	91.5	20,600	0.0470		
	500	C.C	26.5	3.2	2.1	4.0	4.1	99.5	24,795	0.0366		200

6/10(12)kV

3	25	C.C	5.9	3.4	1.3	2.5	2.4	47.0	4,020	0.727	21	500
	35	C.C	6.9		1.3	2.5	2.5	49.5	4,500	0.524		
	50	C.C	8.1		1.4	2.5	2.6	52.5	5,180	0.387		
	70	C.C	9.8		1.5	2.5	2.7	56.5	6,105	0.268		
	95	C.C	11.4		1.5	2.5	2.9	60.5	7,250	0.193		
	120	C.C	12.9		1.6	2.5	3.0	64.0	8,360	0.153		250
	150	C.C	14.4		1.6	2.5	3.1	67.5	9,435	0.124		
	185	C.C	15.9		1.7	3.15	3.3	73.0	11,750	0.0991		
	240	C.C	18.4		1.8	3.15	3.4	79.0	14,030	0.0754		
	300	C.C	20.5		1.9	3.15	3.6	84.0	16,400	0.0601		200
	400	C.C	23.4		2.0	4.0	3.9	93.5	21,000	0.0470		
	500	C.C	26.5		2.1	4.0	4.1	101.0	25,060	0.0366		

8.7/15(17.5)kV

3	25	C.C	5.9	4.5	1.4	2.5	2.6	52.5	4,640	0.727	30.5	500
	35	C.C	6.9		1.4	2.5	2.7	55.0	5,140	0.524		
	50	C.C	8.1		1.5	2.5	2.8	58.0	5,845	0.387		
	70	C.C	9.8		1.5	2.5	2.9	61.5	6,795	0.268		
	95	C.C	11.4		1.6	2.5	3.1	65.5	7,975	0.193		250
	120	C.C	12.9		1.7	2.5	3.2	69.5	9,110	0.153		
	150	C.C	14.4		1.7	2.5	3.3	74.5	11,130	0.124		
	185	C.C	15.9		1.8	3.15	3.4	78.0	12,605	0.0991		
	240	C.C	18.4		1.9	3.15	3.6	84.0	14,965	0.0754		
	300	C.C	20.5		2.0	4.0	3.8	91.5	18,765	0.0601		200
	400	C.C	23.4		2.1	4.0	4.1	98.5	22,125	0.0470		

12/22(24)kV

3	35	C.C	6.9	5.5	1.5	2.5	2.9	59.5	5,765	0.524	44.5	500
	50	C.C	8.1		1.6	2.5	3.0	62.5	6,450	0.387		
	70	C.C	9.8		1.6	2.5	3.1	66.5	7,430	0.268		
	95	C.C	11.4		1.7	2.5	3.2	70.5	8,640	0.193		250
	120	C.C	12.9		1.8	3.15	3.4	76.0	10,695	0.153		
	150	C.C	14.4		1.8	3.15	3.5	79.5	11,895	0.124		
	185	C.C	15.9		1.9	3.15	3.6	83.0	13,390	0.0991		
	240	C.C	18.4		2.0	3.15	3.8	89.0	15,790	0.0754		
	300	C.C	20.5		2.1	4.0	4.0	96.5	19,680	0.0601		200
	400	C.C	23.4		2.2	4.0	4.2	103.5	23,110	0.0470		

18/30(36)kV

3	50	C.C	8.1	8.0	1.8	3.15	3.4	76.5	9,040	0.387	63	250
	70	C.C	9.8		1.8	3.15	3.5	80.5	10,180	0.268		
	95	C.C	11.4		1.9	3.15	3.7	84.5	11,490	0.193		
	120	C.C	12.9		2.0	3.15	3.8	88.0	12,710	0.153		
	150	C.C	14.4		2.0	4.0	3.9	93.5	15,395	0.124		200
	185	C.C	15.9		2.1	4.0	4.1	97.5	17,120	0.0991		
	240	C.C	18.4		2.2	4.0	4.2	103.5	19,670	0.0754		
	300	C.C	20.5		2.3	4.0	4.4	108.5	22,300	0.0601		150

20/35(40.5)kV

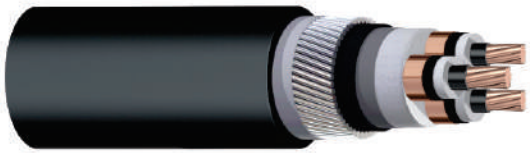
3	50	C.C	8.1	8.8	1.9	3.15	3.6	80.5	9,755	0.387	70	250
	70	C.C	9.8		1.9	3.15	3.7	84.5	10,850	0.268		
	95	C.C	11.4		2.0	3.15	3.8	88.5	12,210	0.193		
	120	C.C	12.9		2.0	4.0	3.9	94.0	14,775	0.153		
	150	C.C	14.4		2.1	4.0	4.0	97.5	16,210	0.124		200
	185	C.C	15.9		2.2	4.0	4.2	101.5	17,960	0.0991		
	240	C.C	18.4		2.3	4.0	4.4	107.5	20,595	0.0601		150

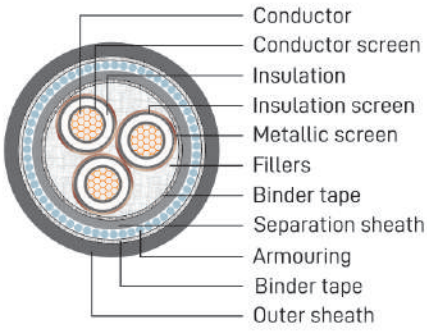
Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage FR-CXV/SWA

Cu/XLPE/CTS/PVC/SWA/FR-PVC

Steel wire armoured type (3 cores)





- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Separation sheath: PVC Compound
Armour: Galvanized steel wire
Outer sheath: FR-PVC compound (Flame retardant)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Dia. of steel wire	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm²	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	25	C.C	5.9	2.5	1.2	2.0	2.3	41.5	3,120	0.727	12.5	500
	35	C.C	6.9	2.5	1.3	2.0	2.3	43.5	3,585	0.524		
	50	C.C	8.1	2.5	1.3	2.5	2.5	48.0	4,635	0.387		
	70	C.C	9.8	2.5	1.4	2.5	2.6	52.0	5,555	0.268		
	95	C.C	11.4	2.5	1.4	2.5	2.7	56.0	6,665	0.193		
	120	C.C	12.9	2.5	1.5	2.5	2.9	59.5	7,730	0.153		250
	150	C.C	14.4	2.5	1.6	2.5	3.0	63.5	8,850	0.124		
	185	C.C	15.9	2.5	1.6	2.5	3.1	67.0	10,210	0.0991		
	240	C.C	18.4	2.6	1.7	3.15	3.3	75.0	12,475	0.0754		
	300	C.C	20.5	2.8	1.8	3.15	3.5	81.0	15,770	0.0601		
	400	C.C	23.4	3.0	2.0	4.0	3.8	91.5	20,540	0.0470		
	500	C.C	26.5	3.2	2.1	4.0	4.1	99.5	24,725	0.0366		200

6/10(12)kV

3	25	C.C	5.9	3.4	1.3	2.5	2.4	47.0	4,000	0.727	21	500
	35	C.C	6.9		1.3	2.5	2.5	49.5	4,475	0.524		
	50	C.C	8.1		1.4	2.5	2.6	52.5	5,155	0.387		
	70	C.C	9.8		1.5	2.5	2.7	56.5	6,075	0.268		
	95	C.C	11.4		1.5	2.5	2.9	60.5	7,220	0.193		
	120	C.C	12.9		1.6	2.5	3.0	64.0	8,325	0.153		250
	150	C.C	14.4		1.6	2.5	3.1	67.5	9,400	0.124		
	185	C.C	15.9		1.7	3.15	3.3	73.0	11,710	0.0991		
	240	C.C	18.4		1.8	3.15	3.4	79.0	13,980	0.0754		
	300	C.C	20.5		1.9	3.15	3.6	84.0	16,345	0.0601		200
	400	C.C	23.4		2.0	4.0	3.9	93.5	20,930	0.0470		
	500	C.C	26.5		2.1	4.0	4.1	101.0	24,985	0.0366		

8.7/15(17.5)kV

3	25	C.C	5.9	4.5	1.4	2.5	2.6	52.5	4,620	0.727	30.5	500
	35	C.C	6.9		1.4	2.5	2.7	55.0	5,115	0.524		
	50	C.C	8.1		1.5	2.5	2.8	58.0	5,820	0.387		
	70	C.C	9.8		1.5	2.5	2.9	61.5	6,770	0.268		
	95	C.C	11.4		1.6	2.5	3.1	65.5	7,945	0.193		250
	120	C.C	12.9		1.7	2.5	3.2	69.5	9,065	0.153		
	150	C.C	14.4		1.7	2.5	3.3	74.5	11,080	0.124		
	185	C.C	15.9		1.8	3.15	3.4	78.0	12,550	0.0991		
	240	C.C	18.4		1.9	3.15	3.6	84.0	14,930	0.0754		
	300	C.C	20.5		2.0	4.0	3.8	91.5	18,730	0.0601		200
	400	C.C	23.4		2.1	4.0	4.1	98.5	22,085	0.0470		

12/22(24)kV

3	35	C.C	6.9	5.5	1.5	2.5	2.9	59.5	5,735	0.524	44.5	500
	50	C.C	8.1		1.6	2.5	3.0	62.5	6,415	0.387		
	70	C.C	9.8		1.6	2.5	3.1	66.5	7,390	0.268		
	95	C.C	11.4		1.7	2.5	3.2	70.5	8,600	0.193		250
	120	C.C	12.9		1.8	3.15	3.4	76.0	10,645	0.153		
	150	C.C	14.4		1.8	3.15	3.5	79.5	11,840	0.124		
	185	C.C	15.9		1.9	3.15	3.6	83.0	13,335	0.0991		
	240	C.C	18.4		2.0	3.15	3.8	89.0	15,730	0.0754		
	300	C.C	20.5		2.1	4.0	4.0	96.5	18,120	0.0601		200
	400	C.C	23.4		2.2	4.0	4.2	103.5	21,450	0.0470		

18/30(36)kV

3	50	C.C	8.1	8.0	1.8	3.15	3.4	76.5	9,025	0.387	63	250
	70	C.C	9.8		1.8	3.15	3.5	80.5	10,160	0.268		
	95	C.C	11.4		1.9	3.15	3.7	84.5	11,470	0.193		
	120	C.C	12.9		2.0	3.15	3.8	88.0	12,685	0.153		
	150	C.C	14.4		2.0	4.0	3.9	93.5	15,370	0.124		200
	185	C.C	15.9		2.1	4.0	4.1	97.5	17,095	0.0991		
	240	C.C	18.4		2.2	4.0	4.2	103.5	19,645	0.0754		
	300	C.C	20.5		2.3	4.0	4.4	108.5	22,270	0.0601		150

20/35(40.5)kV

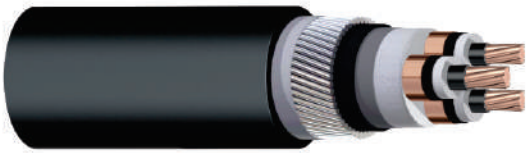
3	50	C.C	8.1	8.8	1.9	3.15	3.6	80.5	9,700	0.387	70	250
	70	C.C	9.8		1.9	3.15	3.7	84.5	10,795	0.268		
	95	C.C	11.4		2.0	3.15	3.8	88.5	12,150	0.193		
	120	C.C	12.9		2.0	4.0	3.9	94.0	14,705	0.153		
	150	C.C	14.4		2.1	4.0	4.0	97.5	16,140	0.124		200
	185	C.C	15.9		2.2	4.0	4.2	101.5	17,880	0.0991		
	240	C.C	18.4		2.3	4.0	4.4	107.5	20,510	0.0601		150

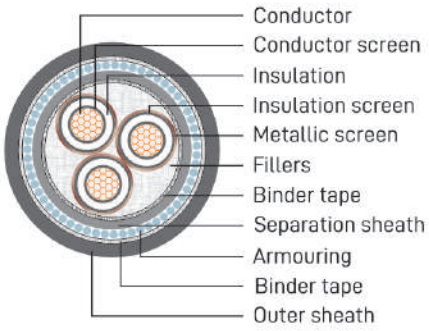
Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXO/SWA

Cu/XLPE/CTS/LSHF/SWA/LSHF

Steel wire armoured type (3 cores)





- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Separation sheath: LSHF compound (Low smoke halogen free)
Armour: Galvanized steel wire
Outer sheath: LSHF compound (Low smoke halogen free)

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

3.6/6(7.2)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Dia. of steel wire	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm²	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	25	C.C	5.9	2.5	1.2	2.0	2.3	41.5	3,100	0.727	12.5	500
	35	C.C	6.9	2.5	1.3	2.0	2.3	43.5	3,560	0.524		
	50	C.C	8.1	2.5	1.3	2.5	2.5	48.0	4,605	0.387		
	70	C.C	9.8	2.5	1.4	2.5	2.6	52.0	5,525	0.268		
	95	C.C	11.4	2.5	1.4	2.5	2.7	56.0	6,625	0.193		
	120	C.C	12.9	2.5	1.5	2.5	2.9	59.5	7,690	0.153		250
	150	C.C	14.4	2.5	1.6	2.5	3.0	63.5	8,805	0.124		
	185	C.C	15.9	2.5	1.6	2.5	3.1	67.0	10,155	0.0991		
	240	C.C	18.4	2.6	1.7	3.15	3.3	75.0	13,285	0.0754		
	300	C.C	20.5	2.8	1.8	3.15	3.5	81.0	15,695	0.0601		
	400	C.C	23.4	3.0	2.0	4.0	3.8	91.5	19,080	0.0470		
	500	C.C	26.5	3.2	2.1	4.0	4.1	99.5	24,620	0.0366		200

6/10(12)kV

3	25	C.C	5.9	3.4	1.3	2.5	2.4	47.0	3,960	0.727	21	500
	35	C.C	6.9		1.3	2.5	2.5	49.5	4,435	0.524		
	50	C.C	8.1		1.4	2.5	2.6	52.5	5,110	0.387		
	70	C.C	9.8		1.5	2.5	2.7	56.5	6,025	0.268		
	95	C.C	11.4		1.5	2.5	2.9	60.5	7,160	0.193		
	120	C.C	12.9		1.6	2.5	3.0	64.0	8,260	0.153		250
	150	C.C	14.4		1.6	2.5	3.1	67.5	9,330	0.124		
	185	C.C	15.9		1.7	3.15	3.3	73.0	11,630	0.0991		
	240	C.C	18.4		1.8	3.15	3.4	79.0	13,895	0.0754		
	300	C.C	20.5		1.9	3.15	3.6	84.0	16,245	0.0601		200
	400	C.C	23.4		2.0	4.0	3.9	93.5	19,380	0.0470		
	500	C.C	26.5		2.1	4.0	4.1	101.0	24,860	0.0366		

8.7/15(17.5)kV

3	25	C.C	5.9	4.5	1.4	2.5	2.6	52.5	4,585	0.727	30.5	500
	35	C.C	6.9		1.4	2.5	2.7	55.0	5,075	0.524		
	50	C.C	8.1		1.5	2.5	2.8	58.0	5,775	0.387		
	70	C.C	9.8		1.5	2.5	2.9	61.5	6,720	0.268		
	95	C.C	11.4		1.6	2.5	3.1	65.5	7,890	0.193		250
	120	C.C	12.9		1.7	2.5	3.2	69.5	9,015	0.153		
	150	C.C	14.4		1.7	2.5	3.3	74.5	11,025	0.124		
	185	C.C	15.9		1.8	3.15	3.4	78.0	12,490	0.0991		
	240	C.C	18.4		1.9	3.15	3.6	84.0	14,835	0.0754		
	300	C.C	20.5		2.0	4.0	3.8	91.5	18,615	0.0601		200
	400	C.C	23.4		2.1	4.0	4.1	98.5	21,950	0.0470		

12/22(24)kV

3	35	C.C	6.9	5.5	1.5	2.5	2.9	59.5	5,690	0.524	44.5	500
	50	C.C	8.1		1.6	2.5	3.0	62.5	6,370	0.387		
	70	C.C	9.8		1.6	2.5	3.1	66.5	7,340	0.268		
	95	C.C	11.4		1.7	2.5	3.2	70.5	8,545	0.193		250
	120	C.C	12.9		1.8	3.15	3.4	76.0	10,580	0.153		
	150	C.C	14.4		1.8	3.15	3.5	79.5	11,775	0.124		
	185	C.C	15.9		1.9	3.15	3.6	83.0	13,260	0.0991		
	240	C.C	18.4		2.0	3.15	3.8	89.0	15,640	0.0754		
	300	C.C	20.5		2.1	4.0	4.0	96.5	18,025	0.0601		200
	400	C.C	23.4		2.2	4.0	4.2	103.5	21,340	0.0470		

18/30(36)kV

3	50	C.C	8.1	8.0	1.8	3.15	3.4	76.5	8,925	0.387	63	250
	70	C.C	9.8		1.8	3.15	3.5	80.5	10,160	0.268		
	95	C.C	11.4		1.9	3.15	3.7	84.5	11,355	0.193		
	120	C.C	12.9		2.0	3.15	3.8	88.0	12,560	0.153		200
	150	C.C	14.4		2.0	4.0	3.9	93.5	15,240	0.124		
	185	C.C	15.9		2.1	4.0	4.1	97.5	16,950	0.0991		
	240	C.C	18.4		2.2	4.0	4.2	103.5	19,485	0.0754		
	300	C.C	20.5		2.3	4.0	4.4	108.5	22,095	0.0601		150

20/35(40.5)kV

3	50	C.C	8.1	8.8	1.9	3.15	3.6	80.5	9,630	0.387	70	250
	70	C.C	9.8		1.9	3.15	3.7	84.5	10,720	0.268		
	95	C.C	11.4		2.0	3.15	3.8	88.5	12,065	0.193		
	120	C.C	12.9		2.0	4.0	3.9	94.0	14,615	0.153		200
	150	C.C	14.4		2.1	4.0	4.0	97.5	16,040	0.124		
	185	C.C	15.9		2.2	4.0	4.2	101.5	17,775	0.0991		
	240	C.C	18.4		2.3	4.0	4.4	107.5	20,390	0.0601		150

Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

Medium voltage CXV-SEhh-DSTA

Cu/XLPE/CWS/PVC/DSTA/PVC

Double Steel Tape Armoured type (3 cores)

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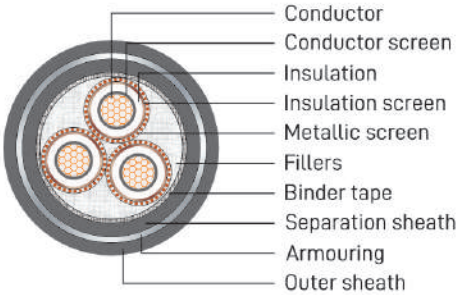

- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Metallic screen: Annealed copper wires + copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Separation sheath: PVC compound
Armour: Double Galvanized steel tape
Outer sheath: PVC compound

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

12.7/22(24)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Armour thickness	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm^2	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	35	C.C	6.9	5.5	1.5	0.5	2.8	59.0	4,530	0.524	44.5	500
	50	C.C	8.1		1.6	0.5	2.9	62.0	5,265	0.387		
	70	C.C	9.8		1.7	0.5	3.0	66.5	6,330	0.268		
	95	C.C	11.4		1.7	0.5	3.2	70.0	7,605	0.193		
	120	C.C	12.9		1.8	0.5	3.3	74.5	8,870	0.153		250
	150	C.C	14.4		1.9	0.5	3.4	78.0	10,270	0.124		
	185	C.C	15.9		1.9	0.8	3.6	83.0	12,645	0.0991		
	240	C.C	18.4		2.0	0.8	3.8	89.0	15,045	0.0754		200
	300	C.C	20.5		2.1	0.8	3.9	94.0	17,260	0.0601		

Medium voltage CXV-SEhh-DSTA-W (water blocking)
Cu/XLPE/CWS/PVC/DSTA/PVC-W
Double Steel Tape Armoured type (3 cores)

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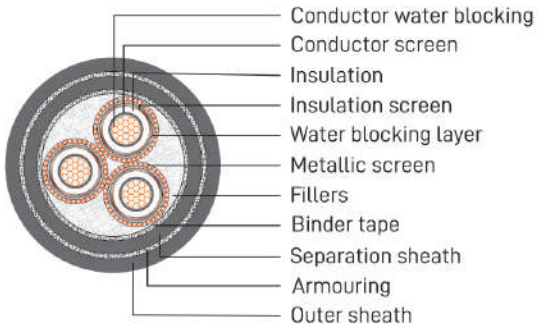

- **Cable construction:**

Conductor: Plain annealed copper, class 2 (IEC 60228)
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Water blocking layer: Semi-conductive swellable tape
Metallic screen: Annealed copper wires + copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, Yellow, Blue
Separation sheath: PVC compound
Armour: Double Galvanized steel tape
Outer sheath: PVC compound

- **Applicable standards:**

IEC 60228: Conductors of Insulated cables
IEC 60502-2: Cables for rated voltages from 6 kV

- **Testing (Routine test):**

Conductor resistance (IEC 60228)
Voltage test (IEC 60502-2)
Partial discharge test (IEC 60502-2)

12.7/22(24)kV

No. of core	Conductor			Nominal insulation thickness	Nominal separation sheath thickness	Nominal Armour thickness	Nominal outer sheath thickness	Approx. Overall Diameter	Approx. Cable weight	Max. DC resistance at 20°C	Voltage test	Standard length
	Nominal area	Shape	Nominal diameter									
No.	mm²	-	mm	mm	mm	mm	mm	mm	kg/km	Ω/km	kV/5min	m
3	35	C.C	6.9	5.5	1.6	0.5	2.9	61.0	4,720	0.524	44.5	500
	50	C.C	8.1		1.6	0.5	3.0	63.5	5,430	0.387		
	70	C.C	9.8		1.7	0.5	3.0	67.5	6,480	0.268		
	95	C.C	11.4		1.7	0.5	3.2	71.5	7,760	0.193		
	120	C.C	12.9		1.8	0.5	3.3	76.0	9,030	0.153		250
	150	C.C	14.4		1.9	0.5	3.4	79.5	10,450	0.124		
	185	C.C	15.9		1.9	0.8	3.6	84.5	12,845	0.0991		
	240	C.C	18.4		2.0	0.8	3.8	90.5	15,260	0.0754		200
	300	C.C	20.5		2.1	0.8	3.9	95.0	17,495	0.0601		

Đường kính và trọng lượng cáp chỉ mang tính chất tham khảo / (Overall diameter and weight of cable is reference data)

66kV Single Core Cable

Cu/XLPE/Corrugated Aluminum Sheath/ PE or LSZH Overall Sheath

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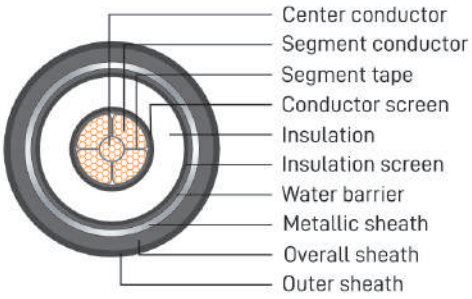


- **Cable construction:**

Conductor: Plain annealed copper
Conductor screen: Semi-conductive compound
Insulation: XLPE Compound
Insulation screen: Semi-conductive compound
Water blocking layer: Semi-conductive swellable tape
Metallic sheath/Armour: Corrugated Aluminum sheath
Overall sheath: PE or LSZH compound
Outer sheath: Semi-conductive compound

- **Applicable standards:**

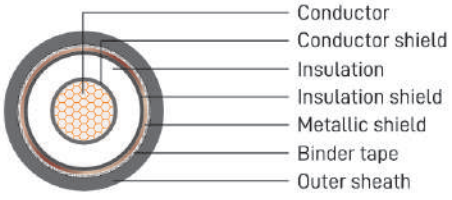
IEC 60228: Conductors of Insulated cables
IEC 60480: Power cables with extruded insulation and their accessories for rated voltages above 30 kV(Um= 36 kV) up to 150kV (Um= 170kV)
- Test methods and requirements

- **Testing (Routine test):**

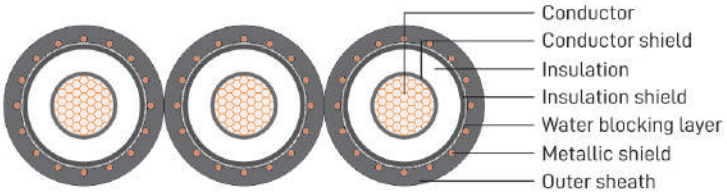
Conductor resistance (IEC 60228)
Voltage test (IEC 60840)
Partial discharge test (IEC 60840)

5 Through 46kV Medium Voltage Cable

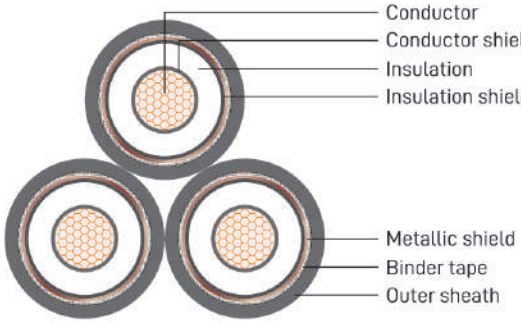
CU/XLPE/Metallic screen/ PE outer sheath



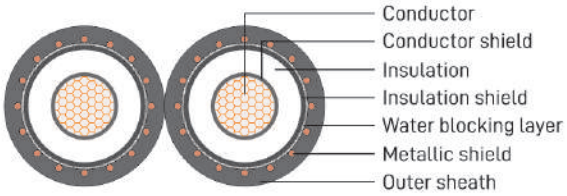
SINGLE CORE



PARALLEL - 3 CORES



TRIPLEX TYPE



PARALLEL - 2 CORES

- **Cable construction:**

Conductor: Plain annealed copper
Conductor screen: Semi-conductive compound
Insulation: TR-XLPE Compound
Insulation screen: Semi-conductive compound
Water blocking layer: Semi-conductive swellable tape
Metallic screen: Plain annealed copper wires or Corrugated copper tape
Outer sheath: PE compound

- **Applicable standards:**

ICEA S-94-649: Standard for concentric neutral cables rated 5 through 46kV
ICEA S-97-682: Standard For Utility Shielded Power Cables Rated 5 through 46kV

Medium Voltage Cable AS/NZS 1429.1

Unarmour type - 3 cores

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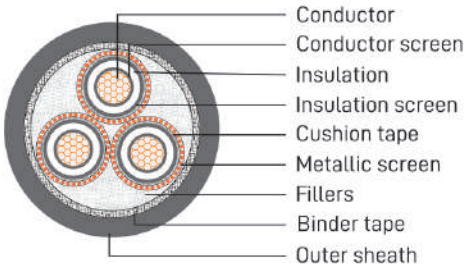


- **Cable construction:**

Conductor: Plain annealed copper
Conductor screen: Semi-conductive compound
Insulation: XLPE or TR-XLPE Compound
Insulation screen: Semi-conductive compound
Cushion tape: Semi-conductive tape
Metallic screen: Annealed copper wires + copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, White, Blue.
Outer sheath: PVC, PE or LSZH compound

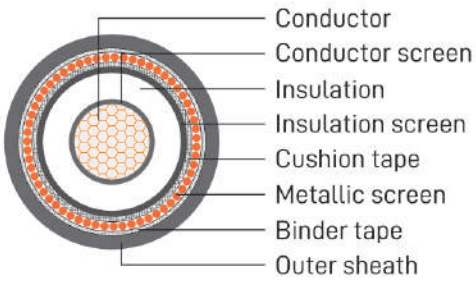
- **Applicable standards:**

AS/NZS 1125: Conductors in insulated electric cable and flexible cords
AS/NZS 1429.1: Electric cables-Polymeric insulated Part 1: For working voltages 1.9/3.3(3.6) kV up to and including 19/33 (36)kV

- **Testing (Routine test):**

Conductor resistance (AS/NZS 1125)
Voltage test (AS/NZS 1429.1)
Partial discharge test (AS/NZS 1429.1)

Single core



- **Cable construction:**

Conductor: Plain annealed copper
Conductor screen: Semi-conductive compound
Insulation: XLPE or TR-XLPE Compound
Insulation screen: Semi-conductive compound
Cushion tape: Semi-conductive tape
Metallic screen: Annealed copper wires + copper tape
Outer sheath: PVC or PE or LSZH compound

- **Applicable standards:**

AS/NZS 1125: Conductors in insulated electric cable and flexible cords
AS/NZS 1429.1: Electric cables-Polymeric insulated Part 1: For working voltages 1.9/3.3(3.6) kV up to and including 19/33 (36)kV

- **Testing (Routine test):**

Conductor resistance (AS/NZS 1125)
Voltage test (AS/NZS 1429.1)
Partial discharge test (AS/NZS 1429.1)

Medium Voltage Cable AS/NZS 1429.1

Aluminum Laminated Tape - 3 cores

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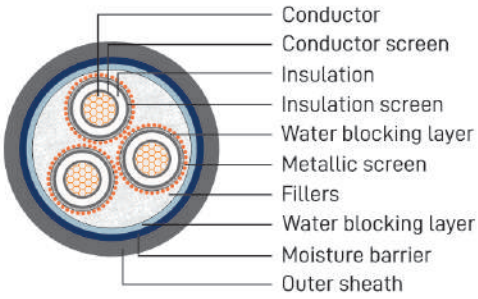


- **Cable construction:**

Conductor: Plain annealed copper
Conductor screen: Semi-conductive compound
Insulation: XLPE or TR-XLPE Compound
Insulation screen: Semi-conductive compound
Water blocking layer: Semi-conductive swellable tape
Metallic screen: Annealed copper wires + copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, White, Blue.
Water blocking layer: Semi-conductive swellable tape
Metallic moisture barrier: Aluminum laminated tape
Outer sheath: PVC or PE or LSZH compound

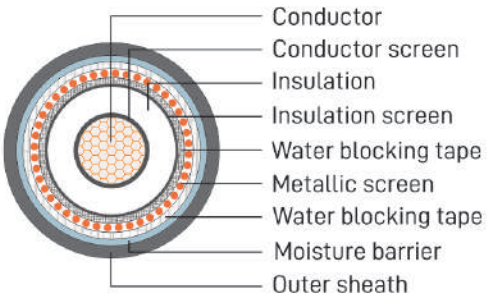
- **Applicable standards:**

AS/NZS 1125: Conductors in insulated electric cable and flexible cords
AS/NZS 1429.1: Electric cables-Polymeric insulated Part 1: For working voltages 1.9/3.3(3.6) kV up to and including 19/33 (36)kV

- **Testing (Routine test):**

Conductor resistance (AS/NZS 1125)
Voltage test (AS/NZS 1429.1)
Partial discharge test (AS/NZS 1429.1)

Single core



- **Cable construction:**

Conductor: Plain annealed copper
Conductor screen: Semi-conductive compound
Insulation: XLPE or TR-XLPE Compound
Insulation screen: Semi-conductive compound
Water blocking layer: Semi-conductive swellable tape
Metallic screen: Annealed copper wires + copper tape
Water blocking layer: Semi-conductive swellable tape
Metallic moisture barrier: Aluminum laminated tape
Outer sheath: PVC or PE or LSZH compound

- **Applicable standards:**

AS/NZS 1125: Conductors in insulated electric cable and flexible cords
AS/NZS 1429.1: Electric cables-Polymeric insulated Part 1: For working voltages 1.9/3.3(3.6) kV up to and including 19/33 (36)kV

- **Testing (Routine test):**

Conductor resistance (AS/NZS 1125)
Voltage test (AS/NZS 1429.1)
Partial discharge test (AS/NZS 1429.1)

Medium Voltage Cable AS/NZS 1429.1

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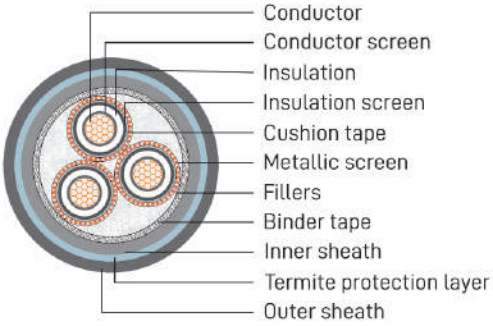
Nylon type - 3 cores



- **Cable construction:**

Conductor: Plain annealed copper
Conductor screen: Semi-conductive compound
Insulation: XLPE or TR-XLPE Compound
Insulation screen: Semi-conductive compound
Cushion tape: Semi-conductive tape
Metallic screen: Annealed copper wires + copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, White, Blue.
Inner sheath: PVC or LSZH compound
Termite protection: Nylon
Outer sheath: PVC, PE or LSZH compound

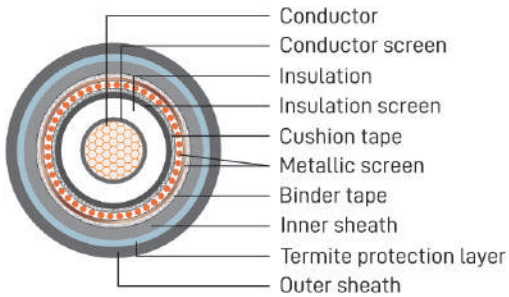
- **Applicable standards:**

AS/NZS 1125: Conductors in insulated electric cable and flexible cords
AS/NZS 1429.1: Electric cables-Polymeric insulated Part 1: For working voltages 1.9/3.3(3.6) kV up to and including 19/33 (36)kV

- **Testing (Routine test):**

Conductor resistance (AS/NZS 1125)
Voltage test (AS/NZS 1429.1)
Partial discharge test (AS/NZS 1429.1)

Single core



- **Cable construction:**

Conductor: Plain annealed copper
Conductor screen: Semi-conductive compound
Insulation: XLPE or TR-XLPE Compound
Insulation screen: Semi-conductive compound
Cushion tape: Semi-conductive tape
Metallic screen: Annealed copper wires + copper tape
Inner sheath: PVC or LSZH compound
Termite protection: Nylon
Outer sheath: PVC or PE or LSZH compound

- **Applicable standards:**

AS/NZS 1125: Conductors in insulated electric cable and flexible cords
AS/NZS 1429.1: Electric cables-Polymeric insulated Part 1: For working voltages 1.9/3.3(3.6) kV up to and including 19/33 (36)kV

- **Testing (Routine test):**

Conductor resistance (AS/NZS 1125)
Voltage test (AS/NZS 1429.1)
Partial discharge test (AS/NZS 1429.1)

Medium Voltage Cable AS/NZS 1429.1

Armoured type - 3 cores

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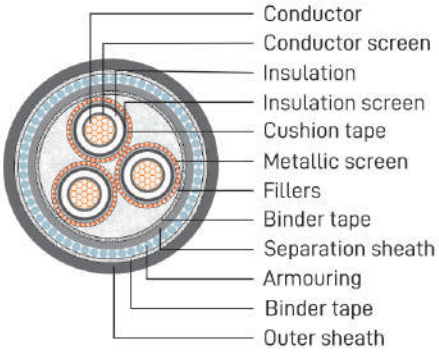


- **Cable construction:**

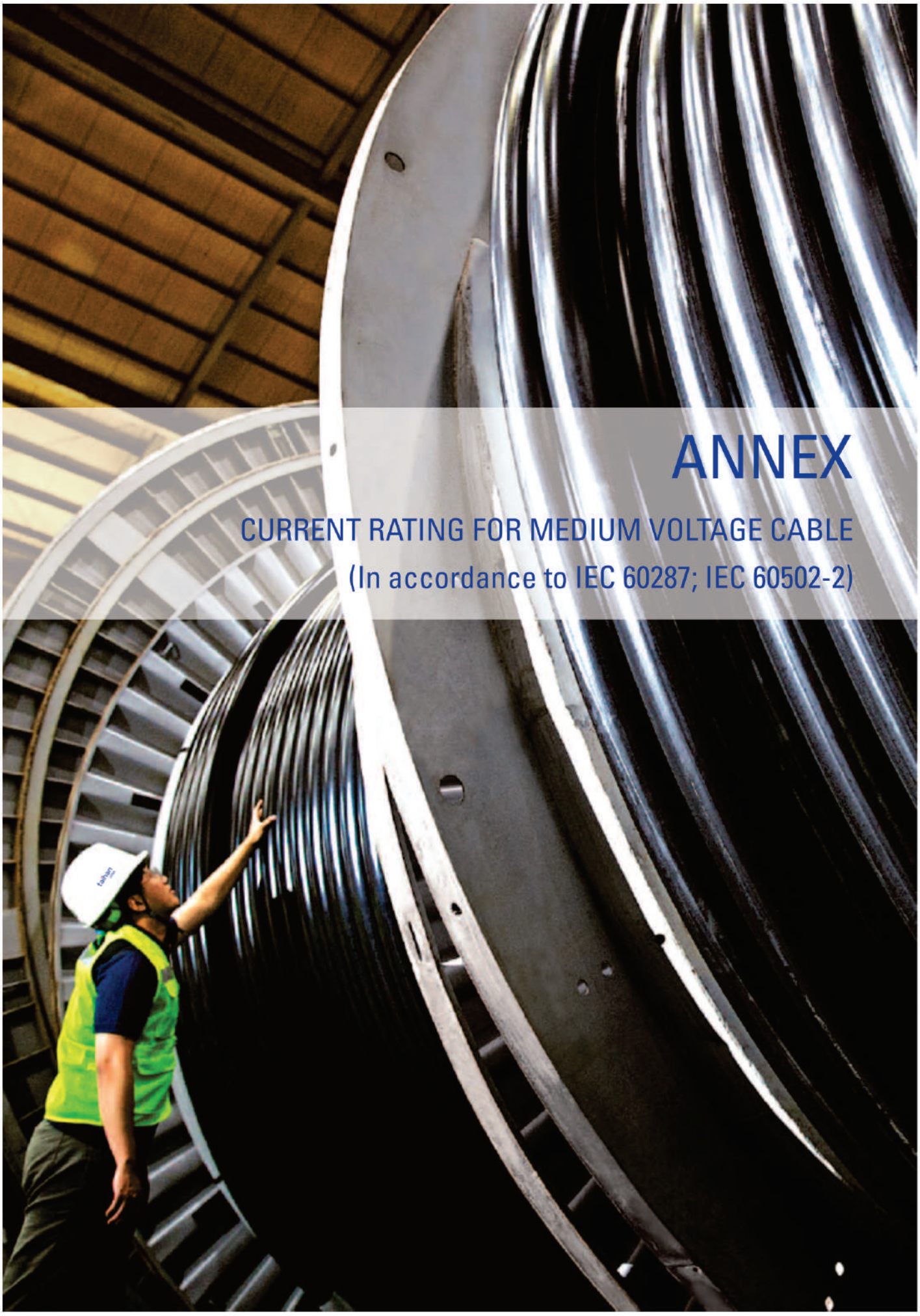
Conductor: Plain annealed copper
Conductor screen: Semi-conductive compound
Insulation: XLPE or TR-XLPE Compound
Insulation screen: Semi-conductive compound
Cushion tape: Semi-conductive tape
Metallic screen: Annealed copper wires + copper tape
Assembly: Non-hygroscopic filler
Core indentification: Red, White, Blue.
Inner sheath: PVC or LSZH compound
Armour: Galvanized steel wire
Outer sheath: PVC, PE or LSZH compound

- **Applicable standards:**

AS/NZS 1125: Conductors in insulated electric cable and flexible cords
AS/NZS 1429.1: Electric cables-Polymeric insulated **Part 1:** For working voltages 1.9/3.3(3.6) kV up to and including 19/33 (36)kV

- **Testing (Routine test):**

Conductor resistance (AS/NZS 1125)
Voltage test (AS/NZS 1429.1)
Partial discharge test (AS/NZS 1429.1)



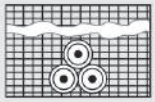
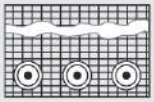
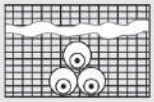
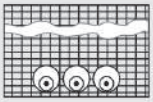
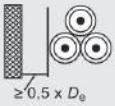
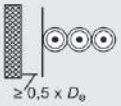
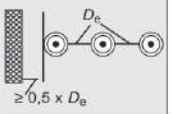
ANNEX

CURRENT RATING FOR MEDIUM VOLTAGE CABLE

(In accordance to IEC 60287; IEC 60502-2)

Annex - Current rating for Medium Voltage Cable (In accordance to IEC 60287; IEC 60502-2)

TABLE B.1 Current rating for single-core cables with XLPE insulation - Rated voltage 3,6/6 kV to 18/30 kV

Nominal cross-sectional area of conductor	*Buried direct in the ground*		*In single-way ducts*		*In air*		
	Trefoil	*Flat spaced*	*Trefoil ducts*	*Flat touching ducts*	*Trefoil*	*Flat touching ducts*	*Flat spaced*
							
mm^2	A	A	A	A	A	A	A
16	109	113	103	104	125	128	150
25	140	144	132	133	163	167	196
35	166	172	157	159	198	203	238
50	196	203	186	188	238	243	286
70	239	246	227	229	296	303	356
95	285	293	271	274	361	369	434
120	323	332	308	311	417	426	500
150	361	366	343	347	473	481	559
185	406	410	387	391	543	550	637
240	469	470	447	453	641	647	745
300	526	524	504	510	735	739	846
400	590	572	564	571	845	837	938

**** Calculation condition: (Current rating calculated for cables having a rated voltage of 6/10 kV)***

Maximum conductor temperature: **90 °C**

Ambient air temperature: **30 °C**

Ground temperature: **20 °C**

Depth of laying: **0.8 m**

Thermal resistivity of soil: **1.5 K.m/W**

Thermal resistivity of earthenware ducts: **1.2 K.m/W**

TABLE B.2 Current rating for three-core XLPE insulated cables - Rated voltage 3,6/6 kV to 18/30 kV

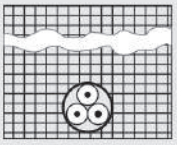
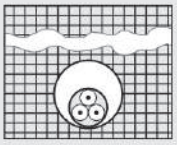
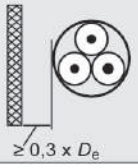
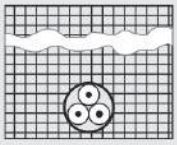
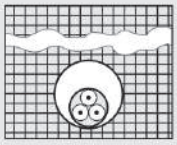
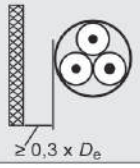
"Nominal cross-sectional area of conductor	*Unarmoured*			*Armoured*		
	Buried direct in ground	***In a buried duct***	***In air***	***Buried direct in ground***	***In a buried duct***	***In air***
						
mm2	A	A	A	A	A	A
16	101	87	109	101	88	110
25	129	112	142	129	112	143
35	153	133	170	154	134	172
50	181	158	204	181	158	205
70	221	193	253	220	194	253
95	262	231	304	263	232	307
120	298	264	351	298	264	352
150	334	297	398	332	296	397
185	377	336	455	374	335	453
240	434	390	531	431	387	529
300	489	441	606	482	435	599
400	553	501	696	541	492	683

TABLE B.3 Correction factors for ambient ground temperatures other than 20°C

Maximum conductor temperature (°C)	***Ambient ground temperature (°C)***							
	10	15	25	30	35	40	45	50
90	1,07	1,04	0,96	0,93	0,89	0,85	0,80	0,76

TABLE B.4 Correction factors for depths of laying other than 0,8 m for direct buried cables

Depth of laying (m)	*Single-core cables*		*Three-core cables*
	Nominal conductor size (mm^2)		
	≤185 mm^2	>185 mm^2	
0,5	1,04	1,06	1,04
0,6	1,02	1,04	1,03
1	0,98	0,97	0,98
1,25	0,96	0,95	0,96
1,5	0,95	0,93	0,95
1,75	0,94	0,91	0,94
2	0,93	0,90	0,93
2,5	0,91	0,88	0,91
3	0,90	0,86	0,90

TABLE B.5 Correction factors for depths of laying other than 0,8 m for cables in ducts

Depth of laying (m)	*Single-core cables*		**Three-core cables**
	Nominal conductor size (mm^2)		
	≤185 mm^2	>185 mm^2	
0,5	1,04	1,05	1,03
0,6	1,02	1,03	1,02
1	0,98	0,97	0,99
1,25	0,96	0,95	0,97
1,5	0,95	0,93	0,96
1,75	0,94	0,92	0,95
2	0,93	0,91	0,94
2,5	0,91	0,89	0,93
3	0,90	0,88	0,92

TABLE B.6 Correction factors for soil thermal resistivities other than 1,5 K-m/W for direct buried single-core cables

Nominal cross-sectional area of conductor	*Values of soil thermal resistivity* K-m/W						
mm^2	0,7	0,8	0,9	1	2	2,5	3
16	1,29	1,24	1,19	1,15	0,89	0,82	0,75
25	1,30	1,25	1,20	1,16	0,89	0,81	0,75
35	1,30	1,25	1,21	1,16	0,89	0,81	0,75
50	1,32	1,26	1,21	1,16	0,89	0,81	0,74
70	1,33	1,27	1,22	1,17	0,89	0,81	0,74
95	1,34	1,28	1,22	1,18	0,89	0,80	0,74
120	1,34	1,28	1,22	1,18	0,88	0,80	0,74
150	1,35	1,28	1,23	1,18	0,88	0,80	0,74
185	1,35	1,29	1,23	1,18	0,88	0,80	0,74
240	1,36	1,29	1,23	1,18	0,88	0,80	0,73
300	1,36	1,30	1,24	1,19	0,88	0,80	0,73
400	1,37	1,30	1,24	1,19	0,88	0,79	0,73

TABLE B.7 Correction factors for soil thermal resistivities other than 1,5 K-m/W single-core cables in buried ducts

Nominal cross-sectional area of conductor	*Values of soil thermal resistivity* K-m/W						
mm^2	0,7	0,8	0,9	1	2	2,5	3
16	1,20	1,17	1,14	1,11	0,92	0,85	0,79
25	1,21	1,17	1,14	1,12	0,91	0,85	0,79
35	1,21	1,18	1,15	1,12	0,91	0,84	0,79
50	1,21	1,18	1,15	1,12	0,91	0,84	0,78
70	1,22	1,19	1,15	1,12	0,91	0,84	0,78
95	1,23	1,19	1,16	1,13	0,91	0,84	0,78
120	1,23	1,20	1,16	1,13	0,91	0,84	0,78
150	1,24	1,20	1,16	1,13	0,91	0,83	0,78
185	1,24	1,20	1,17	1,13	0,91	0,83	0,78
240	1,25	1,21	1,17	1,14	0,90	0,83	0,77
300	1,25	1,21	1,17	1,14	0,90	0,83	0,77
400	1,25	1,21	1,17	1,14	0,90	0,83	0,77

TABLE B.8 Correction factors for soil thermal resistivities other than 1,5 K-m/W for direct buried three-core cables

Nominal cross-sectional area of conductor	*Values of soil thermal resistivity* K-m/W						
mm^2	0,7	0,8	0,9	1	2	2,5	3
16	1,23	1,19	1,16	1,13	0,91	0,84	0,78
25	1,24	1,20	1,16	1,13	0,91	0,84	0,78
35	1,25	1,21	1,17	1,13	0,91	0,83	0,78
50	1,25	1,21	1,17	1,14	0,91	0,83	0,77
70	1,26	1,21	1,18	1,14	0,90	0,83	0,77
95	1,26	1,22	1,18	1,14	0,90	0,83	0,77
120	1,26	1,22	1,18	1,14	0,90	0,83	0,77
150	1,27	1,22	1,18	1,15	0,90	0,83	0,77
185	1,27	1,23	1,18	1,15	0,90	0,83	0,77
240	1,28	1,23	1,19	1,15	0,90	0,83	0,77
300	1,28	1,23	1,19	1,15	0,90	0,82	0,77
400	1,28	1,23	1,19	1,15	0,90	0,82	0,76

TABLE B.9 Correction factors for soil thermal resistivities other than 1,5 K-m/W for three-core cables in ducts

Nominal cross-sectional area of conductor	*Values of soil thermal resistivity* K-m/W						
mm^2	0,7	0,8	0,9	1	2	2,5	3
16	1,12	1,11	1,09	1,08	0,94	0,89	0,84
25	1,14	1,12	1,10	1,08	0,94	0,89	0,84
35	1,14	1,12	1,10	1,08	0,94	0,88	0,84
50	1,14	1,12	1,10	1,08	0,94	0,88	0,84
70	1,15	1,13	1,11	1,09	0,94	0,88	0,83
95	1,15	1,13	1,11	1,09	0,94	0,88	0,83
120	1,15	1,13	1,11	1,09	0,93	0,88	0,83
150	1,16	1,13	1,11	1,09	0,93	0,88	0,83
185	1,16	1,14	1,11	1,09	0,93	0,87	0,83
240	1,16	1,14	1,12	1,10	0,93	0,87	0,82
300	1,17	1,14	1,12	1,10	0,93	0,87	0,82
400	1,17	1,14	1,12	1,10	0,92	0,86	0,81

TABLE B.10 Correction factors for groups of three-core cables in horizontal formation laid direct in the ground

Number of cables in group	Spacing between cable centres (mm)				
	Touching	200	400	600	800
2	0,80	0,86	0,90	0,92	0,94
3	0,69	0,77	0,82	0,86	0,89
4	0,62	0,72	0,79	0,83	0,87
5	0,57	0,68	0,76	0,81	0,85
6	0,54	0,65	0,74	0,80	0,84
7	0,51	0,63	0,72	0,78	0,83
8	0,49	0,61	0,71	0,78	-
9	0,47	0,60	0,70	0,77	-
10	0,46	0,59	0,69	-	-
11	0,45	0,57	0,69	-	-
12	0,43	0,56	0,68	-	-

TABLE B.11 Correction factors for groups of three-phase circuits of single-core cables laid direct in the ground

Number of cables in group	Spacing between cable centres (mm)				
	Touching	200	400	600	800
2	0,73	0,83	0,88	0,90	0,92
3	0,60	0,73	0,79	0,83	0,86
4	0,54	0,68	0,75	0,80	0,84
5	0,49	0,63	0,72	0,78	0,82
6	0,46	0,61	0,70	0,76	0,81
7	0,43	0,58	0,68	0,75	0,80
8	0,41	0,57	0,67	0,74	-
9	0,39	0,55	0,66	0,73	-
10	0,37	0,54	0,65	-	-
11	0,36	0,53	0,64	-	-
12	0,35	0,52	0,64	-	-

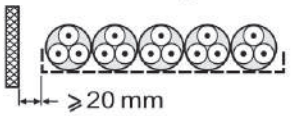
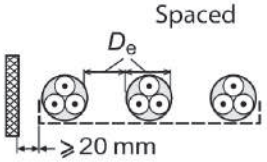
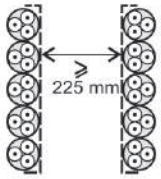
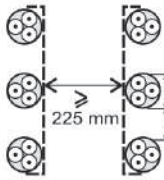
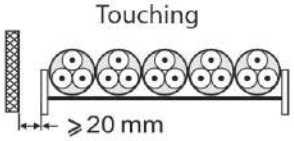
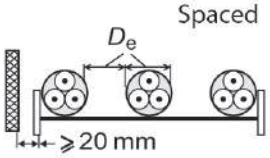
TABLE B.12 Correction factors for groups of three-core cables in single way ducts in horizontal formation

Number of cables in group	*Spacing between duct centres* (mm)				
	Touching	200	400	600	800
2	0,85	0,88	0,92	0,94	0,95
3	0,75	0,80	0,85	0,88	0,91
4	0,69	0,75	0,82	0,86	0,89
5	0,65	0,72	0,79	0,84	0,87
6	0,62	0,69	0,77	0,83	0,87
7	0,59	0,67	0,76	0,82	0,86
8	0,57	0,65	0,75	0,81	-
9	0,55	0,64	0,74	0,80	-
10	0,54	0,63	0,73	-	-
11	0,52	0,62	0,73	-	-
12	0,51	0,61	0,72	-	-

TABLE B.13 Correction factors for groups of three-phase circuits of single-core cables in single-way ducts

Number of cables in group	*Spacing between duct centres* (mm)				
	Touching	200	400	600	800
2	0,78	0,85	0,89	0,91	0,93
3	0,66	0,75	0,81	0,85	0,88
4	0,59	0,70	0,77	0,82	0,86
5	0,55	0,66	0,74	0,80	0,84
6	0,51	0,64	0,72	0,78	0,83
7	0,48	0,61	0,71	0,77	0,82
8	0,46	0,60	0,70	0,76	-
9	0,44	0,58	0,69	0,76	-
10	0,43	0,57	0,68	-	-
11	0,42	0,56	0,67	-	-
12	0,40	0,55	0,67	-	-

TABLE B.14 Reduction factors for groups of more than one multi-core cable in air -To be applied to the current-carrying capacity for one multi-core cable in free air

METHOD OF INSTALLATION		Number of trays	Number of cables					
			1	2	3	4	6	9
Cables on perforated trays	Touching  	1	1,00	0,88	0,82	0,79	0,76	0,73
		2	1,00	0,87	0,80	0,77	0,73	0,68
		3	1,00	0,86	0,79	0,76	0,71	0,66
	Spaced  	1	1,00	1,00	0,98	0,95	0,91	-
		2	1,00	0,99	0,96	0,92	0,87	-
		3	1,00	0,98	0,95	0,91	0,85	-
Cables on vertical perforated trays	 	1	1,00	0,88	0,82	0,78	0,73	0,72
		2	1,00	0,88	0,81	0,76	0,71	0,70
	 	1	1,00	0,91	0,89	0,88	0,87	-
		2	1,00	0,91	0,88	0,87	0,85	-
Cables on ladder supports, cleats, etc.	Touching  	1	1,00	0,87	0,82	0,80	0,79	0,78
		2	1,00	0,86	0,80	0,78	0,76	0,73
		3	1,00	0,85	0,79	0,76	0,73	0,70
	Spaced  	1	1,00	1,00	1,00	1,00	1,00	-
		2	1,00	0,99	0,98	0,97	0,96	-
		3	1,00	0,98	0,97	0,96	0,93	-

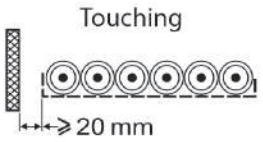
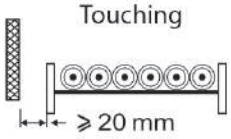
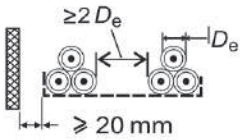
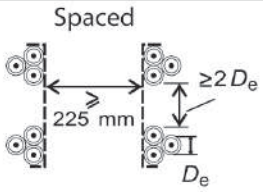
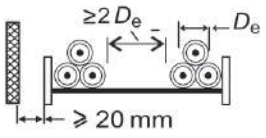
Note 1: *Values given are averages for the cable types and range of conductor sizes considered. The spread of values is generally less than 5%.*

Note 2: *Factors apply to single layer groups of cables as shown above and do not apply when cables are installed in more than one layer touching each other. Values for such installations may be significantly lower and must be determined by an appropriate method.*

Note 3: *Values are given for vertical spacings between trays of 300 mm and at least 20 mm between trays and wall. For closer spacing, the factors should be reduced.*

Note 4: *Values are given for horizontal spacing between trays of 225 mm with trays mounted back to back. For closer spacing, the factors should be reduced.*

TABLE B.15 Reduction factors for groups of more than one circuit of single-core canles (Note 2) - To be applied to the current-carrying capacity for one circuit of single-core cables in free air

METHOD OF INSTALLATION		Number of trays	Number of three-phase circuits (Note 5)			Use as a multiplier to rating for
			1	2	3	
Perforated trays (Note 3)		1	0,98	0,91	0,87	*Three cables in horizontal formation*
		2	0,96	0,87	0,81	
		3	0,95	0,85	0,78	
Ladder supports, cleats, etc. (Note 3)		1	1,00	0,97	0,96	*Three cables in horizontal formation*
		2	0,98	0,93	0,89	
		3	0,97	0,90	0,86	
Perforated trays (Note 3)		1	1,00	0,98	0,96	*Three cables in trefoil formation*
		2	0,97	0,93	0,89	
		3	0,96	0,92	0,86	
Perforated trays (Note 4)		1	1,00	0,91	0,89	
		2	1,00	0,90	0,86	
Ladder supports, cleats, etc. (Note 3)		1	1,00	1,00	1,00	
		2	0,97	0,95	0,93	
		3	0,96	0,94	0,90	

Note 1: *Values given are averages for the cable types and range of conductor sizes considered. The spread of values is generally less than 5%.*

Note 2: *Factors are given for single layers of cables (or trefoil groups) as shown in the table and do not apply when cables are installed in more than one layer touching each other. Values for such installations may be significantly lower and should be determined by an appropriate method.*

Note 3: *Values are given for vertical spacings between trays of 300 mm. For closer spacing, the factors should be reduced.*

Note 4: *Values are given for horizontal spacing between trays of 225 mm with trays mounted back to back. For closer spacing, the factors should be reduced.*

Note 5: *For circuits having more than one cable in parallel per phase, each three phase set of conductors should be considered as a circuit for the purpose of this table.*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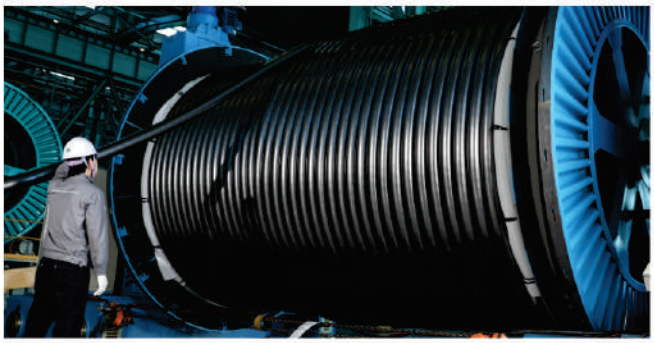


CÁC HỆ SỐ ĐỊNH MỨC
RATING FACTORS

Khả năng mang tải của cáp được tính toán dựa trên giá trị các thông số cơ bản ban đầu và điều kiện lắp đặt cáp. Mỗi điều kiện lắp đặt cáp trong môi trường khác nhau đều ảnh hưởng đến khả năng mang tải của cáp và có thể được tính toán dựa trên các hệ số tính toán được nêu ra dưới đây:

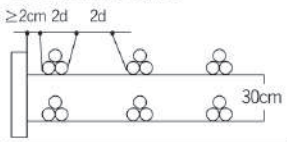
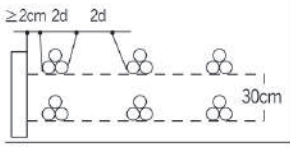
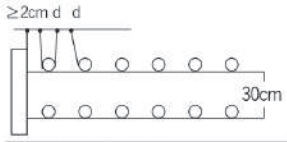
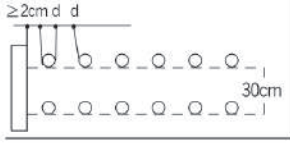
Each current rating has been determined on the basis of the values for started basic assumption and condition of installation. Where cables are installed in another condition, it is possible to determine the rating more precisely by the use of the various rating factors given hereunder.

Lắp đặt trên không/ *Installation in air:*

Hệ số tính toán ảnh hưởng của nhiệt độ môi trường xung quanh.
Rating factors relating to open air temperature.

Air temperature (^oC) Nhiệt độ không khí	20	25	30	35	40	45	50
Rating factors / hệ số	1.18	1.14	1.10	1.05	1.00	0.95	0.90

Hệ số tính toán ảnh hưởng của số lượng cáp lắp đặt trên cùng hệ thống máng cáp trên không/ *Rating factors relating to the proximity of other cables systems mounted in the air.*

Type of laying Kiểu lắp đặt	Number of racks Số lượng giá đỡ	Number of systems Số lượng mạch cáp		
		1	2	3
Plain rack – trefoil Giá đỡ cáp loại đáy kín cáp đặt hình tam giác 	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
Perforated rack – trefoil 1 Giá đỡ cáp loại đáy đục lỗ cáp đặt hình tam giác 	1	1.00	0.98	0.96
	2	1.00	0.95	0.93
	3	1.00	0.94	0.92
	6	1.00	0.93	0.90
Plain rack - Flat 1 Giá đỡ cáp loại đáy kín cáp đặt nằm ngang 	1	0.92	0.89	0.88
	2	0.87	0.84	0.83
	3	0.84	0.82	0.81
	6	0.82	0.80	0.79
Perforated rack 1 Giá đỡ cáp loại đáy đục lỗ cáp đặt nằm ngang 	1	1.00	0.97	0.96
	2	1.00	0.94	0.93
	3	1.00	0.93	0.90
	6	1.00	0.91	0.92

Lắp đặt ngầm/ *Installation in ground:*

Hệ số tính toán ảnh hưởng của nhiệt độ môi trường đất khu vực chôn ngầm/ *Rating factors relating to ground temperature.*

Ground temperature (^oC) Nhiệt độ đất	10	15	20	25	30	35	40
Rating factors / hệ số	1.11	1.07	1.04	1.00	0.96	0.92	0.87

Hệ số tính toán ảnh hưởng của nhiệt độ môi trường đất chôn ngầm/ *Rating factors relating to thermal ground resistivity.*

Thermal Resistivity (oC cm/W) Suất nhiệt điện trở	70	80	90	100	120	150	200	250	300
Rating factors / hệ số	1.15	1.11	1.08	1.05	1.00	0.93	0.85	0.78	0.73

Hệ số tính toán ảnh hưởng của hệ thống cáp chôn liền kề.
Rating factors relating to the proximity of other cables in ground - 7cm clearance.

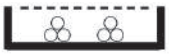
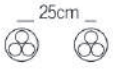
Number of cables / số lượng cáp	2	3	4	5	6	8	10
Rating factors / hệ số	0.82	0.76	0.69	0.65	0.61	0.57	0.53

Hệ số tính toán ảnh hưởng của độ sâu chôn ngầm.
Rating factors relating to laying depth.

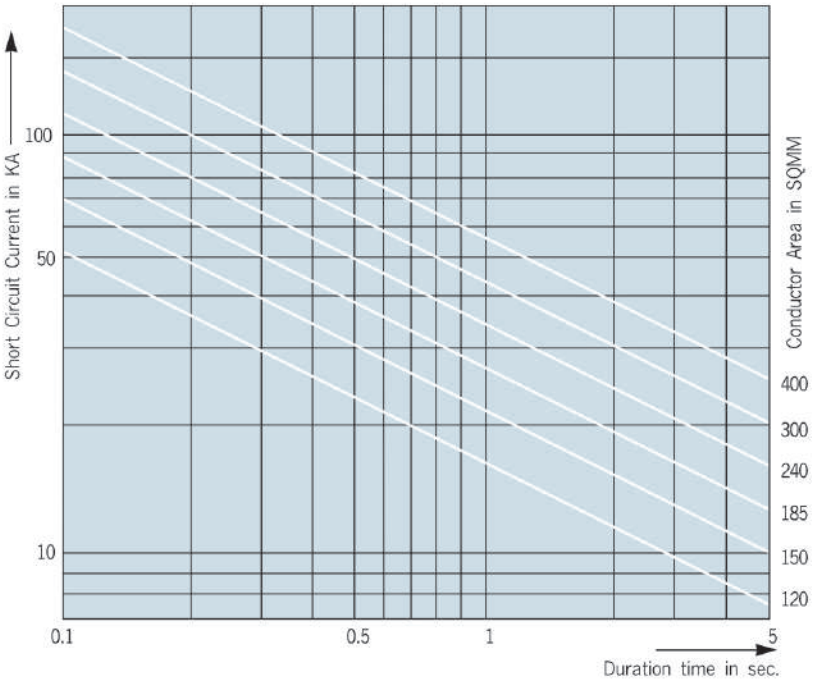
Depth(cm) Độ chôn sâu (cm)	s ≤ 50mm²	s > 50mm²
50	1.03	1.06
50	1.02	1.04
70	1.01	1.02
80	1.0	1.0
100	0.98	0.98
120	0.96	0.96
150	0.94	0.94

s: conductor size (tiết diện dây)

Hệ số tính toán ảnh hưởng khi chôn ngầm đặt trong mương cáp hoặc ống/ *Rating factors relating to trench and duct effects.*

	Number of Cable systems	*Trefoil* Kiểu tam giác	*Flat* Kiểu mặt phẳng
Closed trench 	2	0.94	0.94
	3	0.90	0.91
	4	0.88	0.89
Half open trench 	2	0.95	0.95
	3	0.91	0.92
	4	0.89	0.90
Duct 	2	0.87	0.89
	3	0.79	0.81
	4	0.75	0.77

DÒNG ĐIỆN NGẮN MẠCH
SHORT CIRCUIT CURRENT



Ngắn mạch đối với dây đồng/ *Short circuit (Copper conductor)*

Where I = Short circuit current(KA)
Dòng ngắn mạch

S = Conductor area(mm^2)
Tiết diện dây dẫn

t = Short circuit duration(Sec.)
Thời gian duy trì ngắn mạch

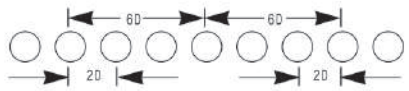
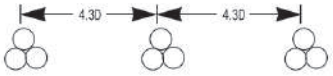
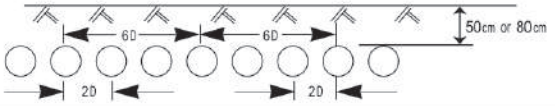
Curves based on formula
Công thức xác định biểu đồ dòng ngắn mạch

$$I = 143 \times \frac{S}{\sqrt{t}} \times 10^{-3} \text{ [KA]}$$

KHẢ NĂNG TẢI DÒNG ĐIỆN
CURRENT CARRYING CAPACITY

Điều kiện tính toán/ *Caculation condition:*

Dòng điện cho phép của cáp bọc XLPE được tính toán theo điều kiện sau
The permissible current of XLPE cable is caculated on the following conditions:

Nhiệt độ tối đa của ruột dẫn/ *Maximum conductor temp.*		90°C
Nhiệt độ trung bình của môi trường đặt cáp *Base temperature*	Ngoài trời/ *In air*	40°C
	Chôn ngầm/ *Underground*	25°C
Nhiệt trở đất/ *Thermal resistivity of soil*		120°C · cm/W
Độ chôn sâu/ *Depth of layigng, underground*		0.6/1KV : 50cm 1.8/3(3.6)KV and above : 80cm
Kiểu lắp đặt cáp *Cable arrangement (D: Cable overall dia.)*	Ngoài trời/ *In air*	Phẳng/ *Flat:* 
		Tam giác/ *Trefoil:* 
	Chôn ngầm/ *Underground*	Phẳng/ *Flat:* 
		Tam giác/ *Trefoil:* 

LẮP ĐẶT CÁP
INSTALLATION

1. Rải cáp

Trong điều kiện bình thường, cáp thường được lắp đặt trong hệ thống mương ở độ sâu tối thiểu 0.6m. Tuy nhiên trong một số điều kiện khách quan không thể thực hiện được như khi hệ thống cáp giao chéo với đường ray xe lửa, đường quốc lộ, khu vực đông dân cư... cáp cần được bảo vệ bằng hệ thống ống kim loại, bêtông... Khi đó, đường kính trong của ống yêu cầu tối thiểu phải bằng 2.5 lần đường kính cáp. Độ rộng của mương cáp cần đảm bảo để thi công dễ dàng.

Theo các yêu cầu nêu trên, có rất nhiều cách thức lắp đặt cáp như đặt cáp trong ống, trong mương, trên kệ thống giá đỡ (trong nhà)... Mỗi kiểu bố trí cáp đều được tính toán cụ thể các điều kiện xung quanh có ảnh hưởng đến hệ thống cáp.

2. Bảo vệ cáp

Hệ thống cáp sau khi được rải cần được bảo vệ suốt tuyến nhằm đảm bảo độ bền cho cáp cũng như chống lại các tác nhân bên ngoài gây hư hỏng cáp trong quá trình thi công, đào đắp mương cáp.

Các biện pháp bảo vệ cần phải thực hiện suốt tuyến cáp đã rải. Hệ thống bảo vệ có thể được xây bằng gạch, che đậy bằng các tấm đan bêtông, và ngăn cách bởi một lớp mỏng cát hoặc đất mịn.

Nhằm đảm bảo sự nhận biết tuyến cáp sau này cũng như cảnh báo các thiết bị thi công khi đào đắp, hệ thống cáp chôn ngầm phải được đánh dấu. Trong trường hợp công trường đang thi công, các biển báo cần được lắp đặt suốt tuyến cáp.

3. Nối cáp

Trong một hệ thống cáp, các điểm nối cáp hoặc các điểm đầu/cuối là những điểm là những điểm yếu nhất trong hệ thống bởi nhiều lý do như tay nghề của công nhân trong quá trình thực hiện nối cáp, do chất liệu và chất lượng của thiết bị nối... Do vậy, việc sử dụng các thiết bị nối cáp, đầu cáp có chất lượng cao sẽ đảm bảo sự vận hành của hệ thống cáp được an toàn và lâu dài. Việc sử dụng các thiết bị không tốt, có giá rẻ có thể gây ra những hậu quả không tốt cho hệ thống cáp và như vậy chi phí khắc phục sẽ rất cao.

Ngoài ra, các vị trí nối cáp phải được đánh dấu trên thực địa và cả trên sơ đồ. Điều này giúp xác định khoảng cách giữa các hộp nối cũng như cả tuyến cáp một cách chính xác.

4. Lực kéo căng tối đa cho phép

Lực kéo căng tối đa cho phép đối với cáp đồng là 7kg/ mm2 tiết diện tổng và với cáp nhôm là 4kg.

5. Bán kính cong tối thiểu

Bán kính cong tối thiểu đối với cáp bọc XLPE là khả năng bẻ cong của cáp trong quá trình thi công lắp đặt và được thể hiện trong bảng dưới đây.

Các giới hạn bán kính cong trong bảng không áp dụng đối các thiết bị chứa cáp như ống, mương cáp, máng cáp... Trong mọi trường hợp, bán kính cong tối thiểu đều được xác định đối với đường kính mặt cắt trong của cáp chứ không được tính theo chiều dọc của cáp.

Loại cáp/ *Kind of cables*		Tỷ lệ đường kính cáp so với bán kính cong tối thiểu *Minimum bending radius as a multiple of cable diameter*
Cáp không màn chắn/ *Non-screened Cable*	Một lõi/ *Single core*	8
	Nhiều lõi/ *Multi core*	6
Cáp có màn chắn/ *Screened Cable*	Một lõi/ *Single core*	10
	Nhiều lõi/ *Multi core*	8
Cáp có bọc giáp/ *Armored Cable*	Một lõi/ *Single core*	10
	Nhiều lõi/ *Multi core*	10

Đối với cáp có ruột dẫn chia làm nhiều phần, bán kính cong tối thiểu gấp 12 lần đường kính tổng của cáp.
Minimum bending radius of segment conductor shall be 12 times of cable diameter.

1. Laying

In accordance with the general regulation concerning electrical installations. Cables are to be laid in trenches of a minimum depth of 0.6m. When it is not possible to carry out a burying depth of 0.6m or when crossing railway, local railvvay main roads and busy roads, the cables are protected by a continuous sheath, generally in metal, fiber cement of sandstone tube, the inner diameter of which is at least egual to 2.5 times that of the cable. Cable trench width must be sufficient to permit satistactory execution of the work. According to requirements, various other modes of laying may be considered, among which; laying in ducts of cellular pre-manufactured pipe works, on racks in building, etc.

Each of them must be individually studied and the method of laying will be taken into consideration for the making out of the cable operating conditions.

2. Protection of cables

The laid cables are protected all along their route by a covering of durable and resistant materials intended to protect them against tools during ĩurther excavations. The protective covering must run over the cables. It is made in such a way that no continuous longitudinal ịoint angle with the cable is realized. This protection generally consists of bricks, cable covers of appropriate shape or of concrete slabs separated by thick layer of sand or sifted earth.

Taking into account the increasing extention of netvvorks and the constant increase of excavator requirement, it is highly advisable to proceed with the most complete and accurate marking possible of the cable route. Where this method of marking cannot be used, all the dimension figures of the markers necessary for the transfer of the route of the ground are to be indicated on the site drowning.

3. Cable jointing

If this is not carried out with the maximum of care by a skilled staff and by means of appropriate material, every function box or end box is weak point in the network. We recommend the use of good quality accessories, the difference in cost between such and those of inferior quality is usually insignificant as compared with the value of the cable and it is therefore short term policy to provide expensive cables with cheap accessories.

As for the cable route, it is advisable to mark carefully the location of joints both on the ground and in the drawings. With this in mind, we can provide length indicated cable. These indications allow determining the length of a cable between two successive joints and, from that, the total length of the cable laid.

4. Allowable maximum pulling tension

The allowable maximum pulling tension of the copper conductor cable is 7kg/mm2 and aluminum conductor cable is 4kg/mm2 of conductor total sectional area.

5. Minimum bending radius

Minimum bending radius to which XLPE cables may be bent for permanent training during installation shall be shown in the table.

These limits do not apply to conduit bends, sheaves or other curved surfaces around which the cable may be pulled under tension while being installed. Larger radius bends are required for such conditions. In all cases the minimum radius specified refers to the inner surface ofthe cable and not to axis of the cable.

THỬ NGHIỆM SAU KHI LẮP ĐẶT

Sau khi hoàn thành việc lắp đặt, cáp được thử nghiệm với điện áp DC trong vòng 15 phút tại công trường như sau.

ELECTRICAL TESTS AFTER INSTALLATION

At the completion of the cable installation, the following test is recommended to carry out on site for the relevant cable voltage.

Điện áp định mức/ *Rated voltage (kV)*	Điện áp định thử D.C (kV)/15 phút/ *D.C test voltage (kV)/15 min*
0.6/1	6
1.8/3(3.6)	11
3.6/6(7.2)	18.5
6/10(12)	25
8.7/15(17.5)	37
12.20(24)	50
12.7/22(24)	55
18/30(36)	75.5
20/35(40.5)	88

Handling & Storage

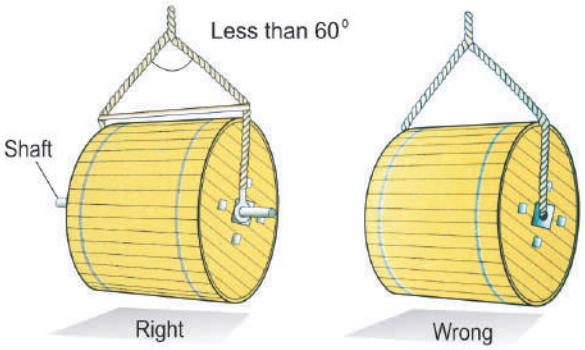
SẮP XẾP & VẬN CHUYỂN / LOADING & TRANSPORTATION

- Nên dùng cần trục hay xe nâng để di dời bôbin.
- Không có tác nhân nào gây hại đến bôbin sau khi sắp xếp để vận chuyển.

- *When loading or unloading, crane or forklift should be used.*
- *There shall be no object which might cause damage on a drum.*

Trường hợp dùng cần trục / *In case of Crane:*

- Sử dụng dây thừng và đòn xuyên qua lỗ trục của bôbin để di chuyển.
- *Use a standard rope and shaft. While carried, a shaft should be inserted in the axis of a drum.*

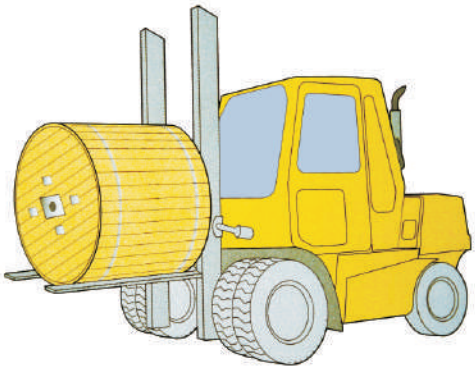


Chú ý / *Notice:*

Luôn giữ bôbin ở vị trí cân bằng. Di chuyển chậm, tránh dừng đột ngột.
Keep a parallel with the bottom level. Keep slow movement, and do not stop suddenly.

Trường hợp dùng xe nâng / *In case of Forklift:*

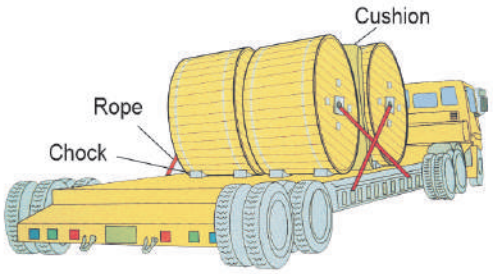
- Không được dùng càng nâng làm hư hỏng hay kéo lê bôbin.
- *Drums should not be harmed by a fork nor dragged in the ground.*



Chú ý / *Notice:*

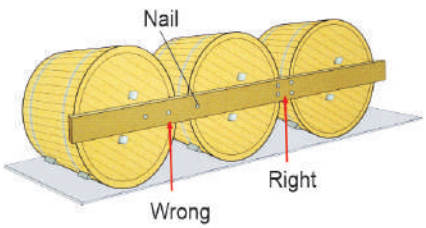
Bôbin phải được đặt ở vị trí cân bằng của càng xe. Độ rộng của càng xe phải lớn hơn kích thước bôbin.
Drum should be positioned in the center of a fork. The width of a fork should be longer than drum size.

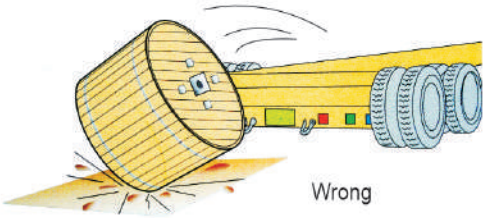
- Khi di chuyển, dùng chèn nêm tránh lăn bôbin. Giữa 2 bôbin dùng màn xốp ngăn lại để chống va đập và cố định bôbin bằng dây thừng.
- *When carrying, make sure tie a rope firmly around the drum and fix each corner with chocks.*



Chú ý / *Notice:*

Không đóng đinh vào giữa mặt bích của bôbin.
Do not drive a nail into the flange.





VẬN CHUYỂN & XUỐNG BÔBIN / TRANSPORTATION & UNLOADING

- Dùng xe nâng hay cần trục để di dời cáp, tránh trường hợp rớt bôbin khi di dời.
  Unloading is done by a forklift or a crane and drum should not be dropped on the grand in any case.

Tuân thủ những hướng dẫn sau khi lăn bôbin:
The following instructions should be complied when rolling a drum:

Cáp động lực: lăn ngược hướng với chiều mũi tên.

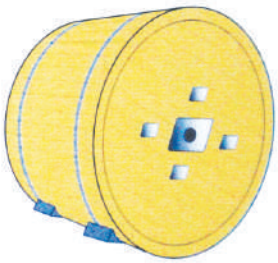
Cáp viễn thông: lăn cùng hướng với chiều mũi tên.

Không đặt nằm bôbin.
Không lăn bôbin quá 20m.
Không dùng khoan hay vật nhọn đâm vào bôbin.
Không lăn khi bôbin hư.
Không lăn khi bề mặt bôbin lồi lõm.
Đặt bôbin tránh xa nguồn nhiệt.

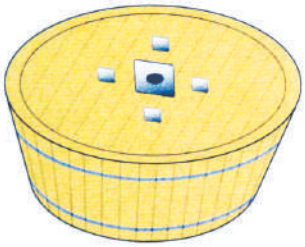
Electric power cable: *Roll in the opposite direction with arrow sign.*

Communication cable: *Roll in the direction with arrow sign.*

Do not lay a drum on the side.
Do not roll a drum longer than 20 meter.
Do not use a gimlet or a sharp thing.
Do not roll a damaged drum.
Do not roll a drum on projecting surface.
Do not keep a drum around a heater or a heat source



Right



Wrong

LƯU KHO / STORAGE

Không được tháo bỏ lớp bảo vệ bôbin khi lưu kho. Đặt cố định trên sàn thoáng mát.

Đặt rào chắn xung quanh với khoảng cách an toàn.

Tránh bôbin tiếp xúc với hợp chất hóa học, nguồn lửa và nhiệt. Thời gian lưu trữ hai năm trong điều kiện thoáng.

Dùng đầu chụp cáp chụp 2 đầu cáp để ngăn nước vào cáp.

Do not remove protective packing and external packing in advance. Keep it on a well-paved ground or a pi which drains well.
Put a fence around drums to prevent harm. Take preventive measures against intentinal damage or theft.
Keep drums out of chemical substances, fire, and heat.
Drum and packing material last for two years in weather.
Reseal up the both ends of cable with cab or heat-contracting tubes to prevent water penetrating.

HƯỚNG DẪN BẢO QUẢN LÂU DÀI / INSTRUCTION FOR LONG-TERM STORAGE

1) Những khu vực có khí ăn mòn / *Areas where corrosion gas presents:*

Khí S02 ăn mòn vật liệu của cáp, giảm tuổi thọ của nhựa và cao su.
Sulfur dioxide corrodes materials of cable, and shortens the durability of rubber and plastic.

2) Những khu vực có khí amoniac / *Areas where ammonia gas presents:*

Khi hấp thụ khí amoniac, điện trở cách điện sẽ giảm.
When it absorbs an ammonia gas, the insulation resistance is reduced.

3) Những khu vực có nhiều loại axit / *Areas where various acid presents:*

Những axit oxl hóa như axit H2S04 đậm đặc, HCI và HN03 làm giảm tuổi thọ của nhựa hay cao su.
Oxidizing acid such as condensed sulfuric acid, hydrogen chloride hydrochloric acid, and nitrate shorten the durability of rubber or plastic by acidifying them.

CERTIFICATE

GIẤY CHỨNG NHẬN
CERTIFICATE

CABLE TECHNOLOGY LABORATORIES
CERTIFIED ENGINEERING
TEST REPORT

bsi.
Certificate of Registration

Bureau Veritas Certification
ISO 14001:2015

CABLE TECHNOLOGY LABORATORIES
CERTIFICATE OF COMPLIANCE

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