Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovation*

CONTENTS

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THE HEAD OF NETWORK EQUIPMENT

Adriano SABENE

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1 DOCUMENT AIM AND APPLICATION AREA

The aim of this document is to provide technical requirements for the supply of MV cables to be used in the distribution networks of Enel Group Distribution Companies, listed below:

Country	Distribution Company
Argentina	*Edesur*
Brazil	*Enel Distribuição Ceará* *Enel Distribuição Rio* *Enel Distribuição São Paulo*
Chile	*Enel distribución Chile*
Colombia	*Enel Colombia*
Italy	*e-distribuzione*
Spain	*Endesa Distribución Eléctrica*

This standard specifies the construction, dimensions and test requirements that must be accomplished by medium Voltage cables with rated Voltage Uo/U (Umax) = 8,7/15(17,5) kV, 12/20(24) kV, 15/25 (31) kV, 18/30(36) kV and 20/34,5(37,95) kV to be used in distribution systems by the utilities mentioned above. This standard replaces all the local standards used up to now by all the Distribution Companies, as long as local regulation allows it.

This document shall be implemented and applied to the extent possible within the Enel Grids and Innovation Business Line and in compliance with any applicable laws, regulations and governance rules, including any stock exchange and unbundling-relevant provisions, which in any case prevail over the provisions contained in this document.

1.1 RELATED DOCUMENTS TO BE IMPLEMENTED AT COUNTRY LEVEL

This document does not require implementation of further documents.

Anyway, each Enel Grids Company can issue, under the supervision of Enel Grids and Innovation Global Network Equipment a detailed documents according to the provisions of the present document and in case of specific

needs.

This document applies to both Enel Global Infrastructure and Networks Srl Company and to Infrastructure and Networks Business Line perimeter when each Company does not have to issue further documents.

2 DOCUMENT VERSION MANAGEMENT

VERSION	ISSUE DATE	DESCRIPTION OF THE MAIN CHANGES
6	10/07/2026	Issuing of: "GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES" Technical Specification

3 UNITS RESPONSIBLE FOR THE DOCUMENT

Responsible for drawing up the document:

- Enel Grids and Innovation: Network Engineering and Development / Network Engineering/ Network equpment

Responsible for authorizing the document:

- Enel Grids and Innovation Global: Head of Network Equipment unit
- Enel Grids and Innovation Global: Head of Construction Operation & Maintenance unit
- Enel Grids and Innovation: Operational Excellence and Processes Quality unit.

4 REFERENCES

- Integrated Policy for Quality, Health and Safety, Environment, anti-Bribery and Information Security;
- ISO 9001- Quality Management System – Requirements;
- ISO 14001 - Environmental Management System - Requirements with guidance for use;
- ISO 45001 - Occupational Health and Safety Management System - Requirements with guidance for use;
- ISO 37001 - Anti-bribery Management System - Requirements with guidance for use;
- ISO 27001 - Information Security Management System – Requirements
- ISO/IEC 17000 - Conformity assessment – vocabulary and general principles

- ISO/IEC 17020 - General criteria for the operation of various types of bodies performing inspection
- ISO/IEC 17025 - General requirements for the competence of testing and calibration laboratories
- ISO/IEC 17050-1 - Conformity assessment - Supplier's declaration of conformity - Part 1: General requirements (ISO/IEC 17050-1:2004, corrected version 2007-06-15);
- ISO/IEC 17050-2 - Conformity assessment - Supplier's declaration of conformity - Part 2: Supporting documentation (ISO/IEC 17050-2:2004);
- ISO/IEC 17065 - Conformity assessment – Requirements for bodies certifying products, processes and services.
- Reference documents listed below (amendments included) shall be the edition in-force at the approval request date.
- In case which standard edition and paragraph are indicated in this technical specification, Manufacturer shall consider the edition in force at the contract date and relative paragraph.
- For South America destinations, the reference standards are the IEC/ISO, whilst for Europe destinations the reference standards are the correspondent European ones (EN).

Specific local regulations and laws together with the following documents and international standards, in the lat-est edition and including amendments, shall be considered to issue the required proposal.

TECHNICAL REFERENCES

Reference documents listed below (amendments included) shall be the edition in-force at the approval request date.

In case which standard edition and paragraph are indicated in this technical specification, Manufacturer shall consider the edition in force at the contract date and relative paragraph.

The material shall comply with internationals norms.

International Norms	Description
EN 50575	"Power, control and communication cables - Cables for general applications in construction works subject to reaction to fire requirements".

International Norms	Description
EN 13501-6	“Fire classification of construction products and building elements - Part 6: Classification using data from reaction to fire tests on electric cables”.
HD 605 S3	“Electric cables - Additional test methods”.
HD 620 S3	“Distribution cables with extruded insulation for rated voltages from 3,6/6 (7,2) kV up to and including 20,8/36 (42) kV.
IEC 60228	“Conductors of insulated cables”.
IEC 60230	“Impulse tests on cables and their accessories”.
IEC 60332-1-2	“Tests on electric and optical fibre cables under fire conditions Part 1-2: Test for vertical flame propagation for a single insulated wire or cable - Procedure for 1 kW pre-mixed flame”
IEC 60502-2	“Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV) - Part 2: Cables for rated voltages from 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 kV)”.
IEC 60754-1	”Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content”.
IEC 60754-2	“Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity”.
IEC 60811-100	“Electric and optical fibre cables - Test methods for non-metallic materials - Part 100: General”.
IEC 60811-201	“Electric and optical fibre cables - Test methods for non-metallic materials - Part 201: General tests - Measurement of insulation thickness”.
IEC 60811-202	“Electric and optical fibre cables - Test methods for non-metallic materials - Part 202: General tests - Measurement of thickness of non-metallic sheath”.
IEC 60811-401	“Electric and optical fibre cables - Test methods for non-metallic materials - Part 401: Miscellaneous tests - Thermal ageing methods - Ageing in an air oven”.
IEC 60811-402	“Electric and optical fibre cables - Test methods for non-metallic materials - Part 402: Miscellaneous tests - Water absorption tests”.
IEC 60811-406	“Electric and optical fibre cables - Test methods for non-metallic materials - Part 406: Miscellaneous tests - Resistance to stress cracking of polyethylene and polypropylene compounds”.

International Norms	Description
IEC 60811-412	"Electric and optical fibre cables - Test methods for non-metallic materials - Part 412: Miscellaneous tests - Thermal ageing methods - Ageing in an air bomb"
IEC 60811-501	"Electric and optical fibre cables - Test methods for non-metallic materials – Part 501: Mechanical tests - Tests for determining the mechanical properties of insulating and sheathing compounds".
IEC 60811-502	"Electric and optical fibre cables - Test methods for non-metallic materials – Part 502: Mechanical tests - Shrinkage test for insulations".
IEC 60811-503	"Electric and optical fibre cables - Test methods for non-metallic materials - Part 503: Mechanical tests - Shrinkage test for sheaths".
IEC 60811-505	"Electric and optical fibre cables - Test methods for non-metallic materials - Part 505: Mechanical tests - Elongation at low temperature for insulations and sheaths".
IEC 60811-507	"Electric and optical fibre cables - Test methods for non-metallic materials – Part 507: Mechanical tests - Hot set test for cross-linked materials".
IEC 60811-508	"Electric and optical fibre cables - Test methods for non-metallic materials – Part 508: Mechanical tests - Pressure test at high temperature for insulation and sheaths".
IEC 60811-509	"Electric and optical fibre cables - Test methods for non-metallic materials – Part 509: Mechanical tests - Test for resistance of insulations and sheaths to cracking (heat shock test)".
IEC 60811-510	"Electric and optical fibre cables - Test methods for non-metallic materials - Part 510: Mechanical tests - Methods specific to polyethylene and polypropylene compounds - Wrapping test after thermal ageing in air".
IEC 60811-511	"Electric and optical fibre cables - Test methods for non-metallic materials - Part 511: Mechanical tests - Measurement of the melt flow index of polyethylene compounds".
IEC 60811-605	"Electric and optical fibre cables - Test methods for non-metallic materials - Part 605: Physical tests - Measurement of carbon black and/or mineral filler in polyethylene compounds".
IEC 60811-606	"Electric and optical fibre cables - Test methods for non-metallic materials - Part 606: Physical tests - Methods for determining the density".
IEC 60811-607	"Electric and optical fibre cables - Test methods for non-metallic materials - Part 607: Physical tests - Test for the assessment of carbon black dispersion in polyethylene and polypropylene".
IEC 60885-2	"Electrical test methods for electric cables -- Part 2: Partial discharge tests".

International Norms	Description
IEC 60885-3	"Electrical test methods for electric cables. Part 3: Test methods for partial discharge measurements on lengths of extruded power cables".
IEC 61034-2	"Measurement of smoke density of cables burning under defined conditions -- Part 2: Test procedure and requirements".
IEC 62230	"Electric cables - Spark-test method".
ISO 2859-1	"Sampling procedures for inspection by attributes -- Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection".

REFERENCE LAWS

See Local Section.

Group Pillar References:

- The Code of Ethics of Enel Group;
- The Enel Group Zero Corruption Tolerance Plan (ZTC);
- Human Rights Policy;
- Organization and Management Model as per Legislative Decree No. 231/2001;
- Enel Global Compliance Program (EGCP).

5 ORGANIZATIONAL PROCESS POSITION IN THE PROCESS TAXONOMY

Value Chain/Process Area: Engineering

Macro Process: Devices and Components DevelopmentNetwork

Process: Standard Catalog Management

6 DEFINITIONS AND ACRONYMS

Acronym and Key words	Description
Medium Voltage (MV)	System with a nominal operative voltage between the phases higher than 1 kV to 35 kV included. NOTE: The boundary value between medium voltage and high voltage depends on local and historical circumstances or on common usage. Nevertheless for internal standardization purposes, medium voltage is defined as a system with a nominal operative voltage between the phases higher than 1 kV to 35 kV included”
Technical Conformity Assessment (TCA)	A “conformity assessment” with respect to “specified requirements” consists in functional, dimensional, constructional and test characteristics required for a product (or a series of products) and quoted in technical specifications and quality requirements issued by Enel Group distribution companies. This also includes the verification of conformity with respect to local applicable regulation and laws and possession of relevant requested certifications.
Type A documentation	Not confidential documents used for product manufacturig and management from which it is possible to verify the product conformity to all technical specification requirements, directly or indirectly technical. specification requirements, directly or indirectly.

7 DESCRIPTION

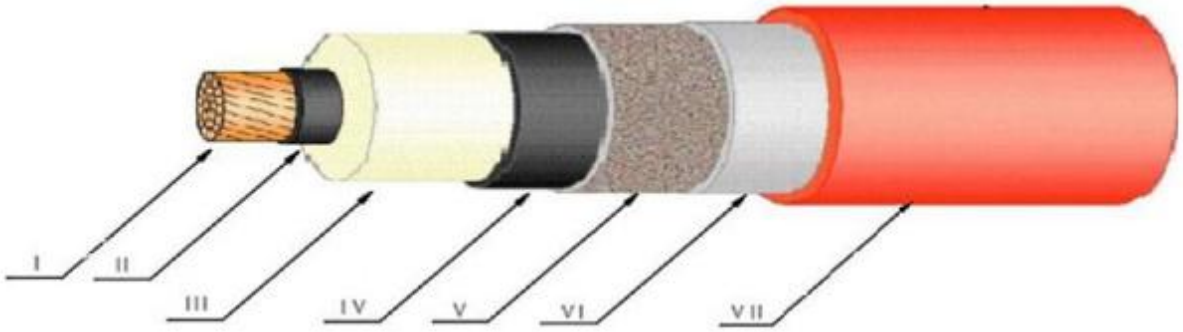
7.1 CABLES CLASSIFICATION

In Table 1 a general description of types of cables depicted in this standard are summarized. Detailed characteristics are described in section 8.

TYPE	DESCRIPTION
I	Single-core or three single cores bundled cables, with aluminum conductor,cross-linked polyethylene (XLPE) reduced thickness insulation, laminated aluminum foil earth screen and polyolefin / polyethylene outer sheath, without reaction to fire class. (Fca for Europe)
II	Single-core or three single cores bundled cables, with aluminum conductor, high performance polypropilene thermoplastic elastomer (HPTE) reduced thickness insulation, laminated aluminum foil earth screen and polyolefin /polyethylene outer sheath, without reaction to fire class. (Fca for Europe)
III	Single-core or three single cores bundled cables, with aluminum or copper conductor, cross-linked polyethylene insulation (XLPE), reduced or standard thickness insulation copper wires earth screen and polyolefin/polyethylene outer sheath, without reaction to fire class. (Fca for Europe)
IV	Single-core or three single cores bundled cables, with aluminum conductor, cross-linked polyethylene (XLPE) reduced thickness insulation, laminated aluminum foil earth screen and polyolefin/polyethylene outer sheath with reaction to fire class.
V	Single-core or three single cores bundled cables, with aluminum conductor, high performance polypropilene thermoplastic elastomer (HPTE) standard thickness insulation, copper wires earth screen and polyolefin/polyethylene outer sheath with reaction to fire class.
VI	Single-core or three single cores bundled cables, with aluminum conductor, cross-linked polyethylene (XLPE) standard thickness insulation, copper wires earth screen and polyolefin/polyethylene outer sheath with reaction to fire class

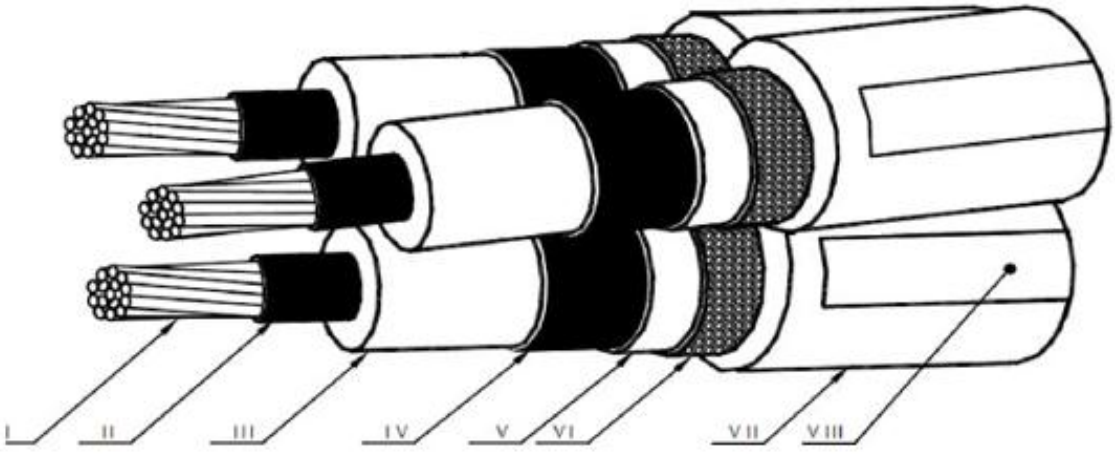
Table 1 Type of cables

Typical lay-out of different type of cables in single core and three single core bundled (Triplex) configuration are shown in Figure 1, Figure 2, Figure 3, Figure 4, Figure 5, Figure 6 and Figure 7.



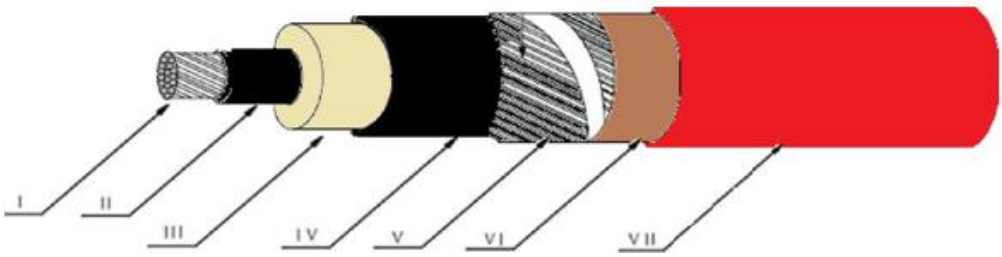
I – Aluminum Conductor
II – Conductor screen
III –Insulation
IV – Insulation screen
V – Longitudinal watertightness
VI – Aluminum foil earth screen
VII – Outer sheath

Figure 1 Type I or Type II single-core cable



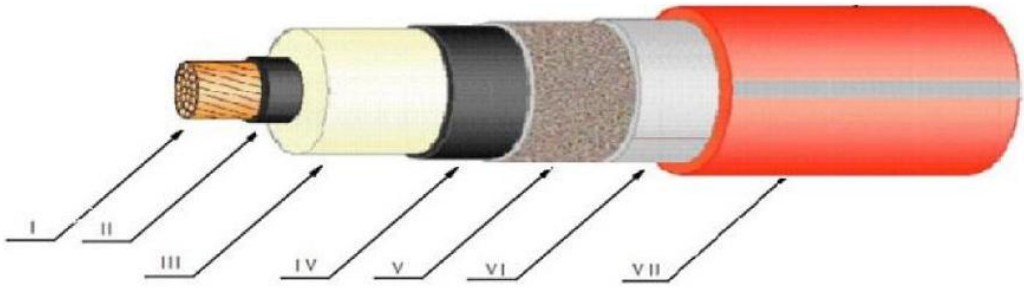
I – Aluminum Conductor
II – Conductor screen
III –Insulation
IV – Insulation screen
V – Longitudinal watertightness
VI – Aluminum foil earth screen
VII – Outer sheath
VIII – Marking

Figure 2 Type I or Type II three single-core bundled cables (Triplex)



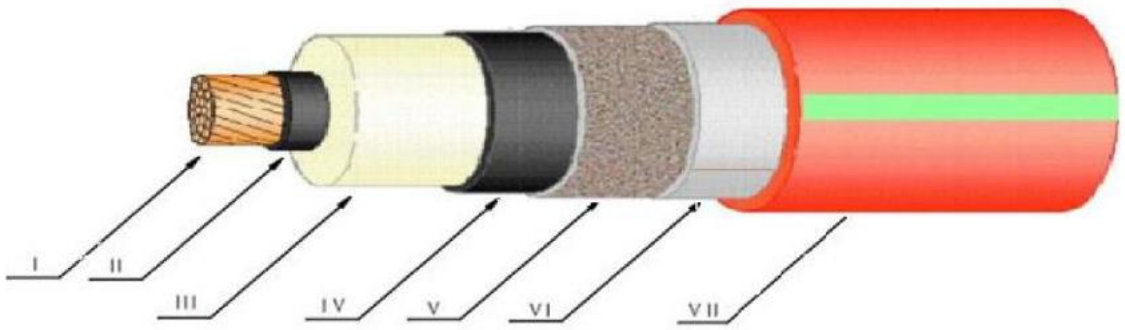
I –Cu or Al Conductor
II – Conductor screen
III –Insulation
IV – Insulation screen
V – Copper wires earth screen
(Optional spiral strip equaliser tape)
VI – Longitudinal watertightness
(over and under the screen)
VII – Outer sheath

Figure 3 Type III or Type V single-core cable



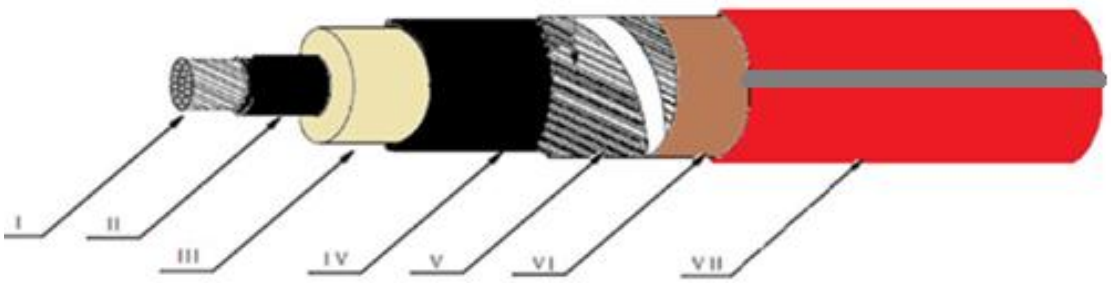
I – Aluminum Conductor
II – Conductor screen
III –Insulation
IV – Insulation screen
V – Longitudinal watertightness
VI – Aluminum foil earth screen
VII – Outer sheath

Figure 4 Type IV single-core cable with minimum fire reaction Eca



I – Aluminum Conductor
II – Conductor screen
III –Insulation
IV – Insulation screen
V – Longitudinal watertightness
VI – Aluminum foil earth screen
VII – Outer sheath

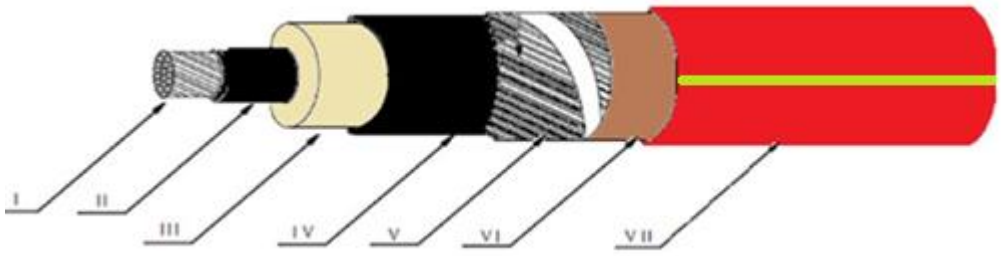
Figure 5 Type IV single-core cable with minimum fire reaction Cca-s1b,d2,a1



I – Aluminum Conductor
II – Conductor screen
III –Insulation
IV – Insulation screen
V – Copper wires earth screen
(Optional spiral strip equaliser tape)
VI – Longitudinal watertightness
(over and under the screen)
VII – Outer sheath

Figure 6 Type VI single-core cable with minimum fire reaction Eca

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*



I – Aluminum Conductor
II – Conductor screen
III –Insulation
IV – Insulation screen
V – Copper wires earth screen (Optional spiral strip equaliser tape)
VI – Longitudinal watertightness (over and under the screen)
VII – Outer sheath

Figure 7 Type VI single-core cable with minimum fire reaction Cca-s1b,d2,a1

Note: Figures above are for illustrative purposes only.

8 DESIGN AND MANUFACTURE

8.1 CONDUCTOR

8.1.1 Aluminum conductors

The aluminum conductors shall be stranded compacted circular class 2, complying all the features specified herein and in standard IEC 60228. Conductor material shall be AAC-1350, i.e. 99,5% aluminum content.

In Table 2 aluminum conductors for cables specified in this document are depicted.

Nominal cross-section [mm2]	Minimum number of wires	Diameter of conductors [mm]		Maximum resistance of conductor at 20°C [Ω/km]
		Minimum	Maximum	
35	6	6,6	7,5	0,868
95	15	11,0	12,0	0,320
150	15	13,7	15,0	0,206
185	30	15,3	16,8	0,164
240	30	17,6	19,2	0,125
400	53	22,3	24,6	0,0778

Table 2 Stranded compacted aluminum conductors characteristics

8.1.2 Copper conductors

The copper conductors shall be stranded compacted circular class 2, complying all the features specified herein and in standard IEC 60228. Copper purity shall not be less than 99,9%

Nominal cross-section [mm2]	Minimum number of wires	Diameter of conductors [mm]		Maximum resistance of conductor at 20°C [Ω/km]
		Minimum	Maximum	
70	12	9,3	10,2	0,268
120	18	12,3	13,5	0,153
150	18	13,7	15,0	0,124
240	34	17,6	19,2	0,0754
400	53	22,3	24,6	0,047
500	53	25,3	27,6	0,0366

Table 3 Stranded compacted copper conductors characteristics

8.2 CONDUCTOR SCREEN

It shall consist of a fully bonded layer of black thermosetting semi-conductive compound[1]. It shall be extruded over the conductor to provide a smooth surface without causing any damage to the conductor or insulation and ensuring material compatibility.

The conductor screen minimum thickness measured and accepted at any point shall not be less than 0,3 mm. In addition, the average of all the measures shall not be less than the nominal thickness (0,5 mm).

8.3 INSULATION

The insulation shall be applied by a suitable extrusion process and shall form a compact and homogenous body. In addition, it shall be possible to remove it without creating any damage to the conductor.
The insulating material shall be:

Type I, Type III, Type IV and Type VI: cross-linked polyethylene; compliant with the characteristics required herein this document. Such XLPE compound can comply all the characteristics described in Standard IEC 60502-2 and standard HD 620 S3 part 1 for DIX 3 compound.

[1] For **Type II and Type V** (HPTE cables) this layer is not required with a thermosetting characteristic.

The XLPE insulation must allow maximum conductor temperatures of 90 °C in normal operation and 250 °C under short circuit condition by at least 5 seconds.

Type II and Type V: high performance polypropylene thermoplastic elastomer (HPTE) in compliance with standard HD 620 S3 Part 1 for DIP 2 compound.

The insulation minimum thickness measured and accepted at any point of the cable shall not be less than 90% of the nominal value minus 0,1 mm.

$$t_{min} \geq 0,9\ t_n - 0,1$$

Where:

t_{min}: minimum insulation thickness in millimeters

t_n : nominal thickness in millimeters

Only for **Type V** and **Type VI** (standard insulation) the average thickness measured and accepted must in any case not be less than the nominal value.

In Table 4 nominal and minimum thickness are shown.

Rated voltage Uo/U (Umax) [kV]	Reduced insulation		Standard insulation	
	Nominal thickness [mm]	Minimum thickness [mm]	Nominal thickness [mm]	Minimum thickness [mm]
8,7/15 (17,5)	4,5	4,0	-	-
12/20 (24)	4,9	4,31	5,5	4,85
15/25 (31)	6,6	5,84	-	-
18/30 (36)	7,25	6,43	8	7,1
20/34,5(37,95)	8	7,1	-	-

Table 4 Insulation thickness values.

Refer to the common list to identify the appropriate thickness.

8.4 INSULATION SCREEN

A black layer of thermosetting semi-conductive compound[2] shall be applied over the insulation by extrusion.

This layer shall be compatible with the temperatures expected for the insulation both under normal operating conditions and in the event of a short circuit.

The insulating screen shall be easy to remove without the need for special tools or the application of heat. The compound mechanical properties before aging are: minimum tensile strength same as 7 N/mm^2 and a minimum elongation at break same as 150%.

Unless otherwise indicated in the Common List, the insulation screen minimum thickness measured and accepted at any point shall not be less than 0,3 mm. In addition, the average of all the measures shall not be less than the nominal thickness (0,5 mm).

8.5 CONDUCTOR SCREEN, INSULATION AND INSULATION SCREEN APPLICATION

The conductor screen, the insulation and the insulation screen shall be extruded in one operation, i.e. triple extrusion process. It is not permitted using any type of lacquer or other material between this layers.

8.6 LONGITUDINAL WATER-TIGHTNESS (ONLY FOR ALUMINIUM FOIL SCREENS)

A tape made of suitable semi-conductive material shall be applied in order to achieve longitudinal water-tightness in the region of the metal layers according to IEC 60502-2 §19.24. Such tape shall be applied without harming the adjacent layers and could work as additional separator layer as well. The swelling tape shall be applied with a minimum overlap same as 10%.

8.7 EARTH SCREEN

For **Type I**, **Type II** and **Type IV** cables a poly-laminated aluminium foil with minimum thickness same as 0,3 mm shall be applied over the swelling tape, forming a longitudinal pipe with overlapping glued edges at least of 5 mm. Besides nullifying the electric field outside the cable and drain the current during short-circuits the aluminium tape screen is intended to ensure radial water-tightness. The aluminium tape screen shall be firmly bonded to the outer sheath.

[2] For **Type II and Type V** (HPTE cables) this layer is not required with a thermosetting characteristic.

For **Type III**, **Type V**, and **Type VI** cables, the earth screen shall be made using a continuous crown of annealed copper wires, with a diameter between 0,5 and 1,0 mm, arranged in an spiral with a pitch not exceeding 20 times the diameter of the cable below the metal shielding.

The maximum distance between adjacent wires must not exceed 4 mm. A distance between 4 mm and 8 mm is permitted for a maximum of 5% of the gaps between the wires (rounded down to the nearest whole number).

A spiral strip of annealed copper with a minimum cross-section of 1 mm² shall be applied to the ring for equalization purposes, with a pitch not exceeding 4 times the diameter below the metallic screen.

- For cables with **Aluminum foil screen**, refer to Tables 5 and 6 depending on the voltage level:

Cross-section [mm²]	**Aluminium foil screen**	
	Theoretical cross-section [mm²]	**Maximum resistance at 20 °C [Ω/km]**
95	22,5	1,344
150	25,5	1,186
185	27,0	1,045
240	30,0	1,008
400	34,5	0,877

Table 5 For 12/20(24) kV aluminium foil screen main characteristics

Cross-section [mm²]	**Aluminium foil screen**	
	Theoretical cross-section [mm²]	**Maximum resistance at 20 °C [Ω/km]**
95	27,0	1,045
150	30,0	1,008
185	31,5	0,960
240	34,5	0,877
400	39,0	0,775

Table 6 For 18/30(36) kV aluminium foil screen main characteristics

- For cables with **Copper wires screen**:

Earth screen cross-section [mm²]	Maximum resistance at 20 °C [Ω/km]
16	1,15
25	0,727
50	0,387
NOTE: for **Spain**, as an additional requirement, the cross section shall not be less than 16mm³ and the resistance 1,24 as maximum.	

Table 7 Copper wires screen main characteristics

8.8 LONGITUDINAL WATER-TIGHTNESS (ONLY FOR COPPER WIRES SCREENS)

It is necessary to apply a tape made of suitable material, such as to guarantee longitudinal water-tightness without damaging the adjacent layers and at the same time to act as an additional separating layer.

The tape shall be applied with a minimum overlap of 20% and must completely encircle the screen, being visible at both the top and bottom of the screen.

The use of hygroscopic powders without supporting elements is not permitted.

8.9 OUTER SHEATH

The outer sheath shall be resistant to moisture, abrasion and UV.
Unless otherwise specified, the outer sheath shall be red. Alternative constructive solutions respecting the outer colour required by this technical specification may be adopted if approved in advanced by Enel.

The material shall be polyolefin compliant with the characteristics required herein.

The minimum thickness of the outer sheath measured and accepted at any point of the cable shall not be less than 80% of the nominal value minus 0,2 mm.

$$t_{min} \geq 0{,}8\ t_n - 0{,}2$$

While, for **Types III and VI** (Spain):

$$t_{min} \geq 0{,}85\ t_n - 0{,}15$$

Where:

t_{min}: minimum thickness in millimeters

t_n: nominal thickness in millimeters

In Table 8 rated and minimum thickness of the polyolefin outer sheath are shown.

Cross-section [mm2]	Sheath nominal thickness [mm]	Sheath minimum thickness [mm]
35	2,5	1,8
70	2,5	1,8
95	2,75	2
120	2,75	2
150	2,75	2
185	2,75	2
240	3,0	2,2
400	3,0	2,2
500	3,0	2,2

Table 8 Type I, Type II, Type III, Type IV, Type V and Type VI outer sheath thickness

The colour of the outer sheath is defined by each country as indicated in the common list. For further information, please consult the local section.

For **Spain**:

- **Type I** and **Type III**[3] cables DMZ1 polyolefin of standard HD 620 S3 part 1 shall be used.
- **Type IV and Type VI**[3] cables DMZ2 polyolefin of standard HD 620 S3 part 1 shall be used.
- For **Type IV** and **Type VI** cables, the outer sheath must have the following color characteristics:
  - red with two gray longitudinal stripes, for cables with fire reaction class **Eca;**
  - red with two green longitudinal stripes, for cables with fire reaction class **Cca–s1b,d2,a1**.

The stripes shall be between 5 mm and 10 mm wide and be arranged at 180° to each other.

- For **Type I and Type IV:**
  - The nominal thickness of the outer sheath shall be same as 2,75 mm. In addition, the minimum thickness measured and accepted at any point of the cable shall not be less than 2,0 mm.

[3] For outer sheath thickness please consult the common list.

8.10 AMPACITY AND SHORT-CIRCUIT RATING

The ampacity and short-circuit rating **estimated** values shall be given for network design purposes.

Unless otherwise indicated in local sections, such ampacity values shall be calculated in steady state condition, for single core laying and triplex laying, when installed in open air, directly buried and buried in duct using the following operational conditions:

- Maximum conductor temperature 90 °C
- Ambient air temperature 40 °C
- Ground temperature 20 °C
- Depth of laying 0,8 m
- Soil thermal resistivity 1,5 K m/W
- Earthenware ducts thermal resistivity 1,2 K m/W
- Both end bonding

Regarding short-circuit rating adiabatic and non-adiabatic values shall be calculated using the following conditions:

- Conductor initial temperature 90 °C
- Conductor final temperature 250 °C
- Tape foil screen initial temperature 75 °C
- Tape foil screen final temperature 150 °C
- Copper wires screen initial temperature 80 °C
- Copper wires screen final temperature 180 °C
- Short-circuit duration: 0,5 s and 1 s

For reference values see local section.

8.11 CONSTRUCTIVE ASPECTS

Three core cables shall be bundled to the left (anti-clockwise). The length of lay shall be up to 40D where D is intended as one phase external diameter.

8.12 CABLE DESIGNATION AND MARKING

8.12.1 Cable designation

See Local Section.

8.12.2 Marking

The marking must be indelible paint, easily legible and carried out by indenting or embossing above the surface of the outer sheath in a continuous way.

Durability shall be checked by the test given in sub-clause 2.5.4 of standard HD 605.

Specific characteristics are detailed in Local Section.

9 TESTS

For **Endesa** tests see Local Section F.

9.1 ACCEPTANCE TESTS CARRIED OUT INDIPENDENTLY BY THE SUPPLIER

Acceptance tests must be carried out independently by the Supplier at its own facilities.

Acceptance tests must be carried out on finished products (that don't require further processing before shipment) and are divided into two types with different sampling criteria: Routine tests and Sample tests.

9.1.1 Routine tests

Routine tests shall be performed on all the spools ready for shipment to verify the product integrity.
The Routine tests are listed in the following table:

N°	Test	Requirements	Test method
1	Voltage Test Test voltage Test duration Test Result	 3,5 Uo 5 min No breakdown	IEC 60502-2 sub-clause 16.4 For Uo see sub clause 14 of this document
2	Conductor electrical resistance measurement	See sub-clause 8.1	IEC 60502-2 sub-clause 16.2
3	Earth Screen electrical resistance measurement	See sub-clause 8.7	IEC 60502-2 sub-clause 16.2
4	Partial discharge test Applied voltage before test Applied voltage duration Max. discharge magnitude Sensitivity level	After voltage test N°1 2 Uo ≤ 60 s 5 pC ≤ 5 pC	IEC 60885-3 For Uo see sub clause 14 of this document
5	Outer sheath voltage test (spark test) Test result Test voltage DC AC	 No breakdown 25 kV 15 kV	IEC 62230

Table 9 Routine tests list

9.1.2 Sample test

Sample tests are carried out over samples (see sub-clause 9.1.3) taken from a complete cable in order to verify that the finished product meet the approved prototype.

The Sample tests are listed in the following table:

N°	Test	Requirements	Test method
1	Conformity to the approved prototype	Cables shall comply characteristics described herein (Check also the local section)	Design characteristics such as: Insulation material (XLPE/HPTE), marking, number of conductor wires, colors, lay length (Pitch) measurement and outer sheath application, total length and used spool (types, markings and labels)
2	Cable mass per unit length	The value shall be recorded	HD 605 sub-clause 2.1.13.1
3	Conductor diameter measurement	See sub-clause 8.1.1 and 8.1.2	IEC 60811-203
4	Conductor screen thickness measurement	See sub-clause 8.2	IEC 60811-201
5	Insulation screen thickness measurement	See sub-clause 8.4	IEC 60811-202
6	Insulation screen strippability test Min. force required Max. force required	 4 N 45 N	IEC 60502-2 sub-clause 19.23 When repeated by Enel inspector the test shall be performed only in one phase of each sample.
7	Insulation thickness measurement	See sub-clause 8.3	IEC 60811-201
8	Insulation mechanical properties* Before ageing on sample Minimum tensile strength Minimum elongation at break	 12,5 MPa 200%	IEC 60811-501
9	Insulation hot set test **(not applicable for HPTE)**		IEC 60811-507

N°	Test	Requirements	Test method
	Temperature Duration Mechanical stress Maximum elongation under load Maximum residual elongation	200 °C 15 min 0,2 MPa 175% 15%	
10	Voltage Test (Complete cable) Test voltage Test duration Sample length Test Result	 4 Uo 4 h > 5 m per core No breakdown	IEC 60502-2 sub-clause 17.9 For Uo see sub clause 14 of this document The test shall be performed only in one phase of each sample
11	Tan δ measurement as function of the voltage Tan δ at Uo Tan δ maximum variation between 0,5 Uo and 2 Uo	 Tan δ ≤40x10-4 Tan δ ≤20x10-4	HD 605 3.11.3.1
12	Aluminum tape screen (**Type I, Type II and Type IV cables**) Thickness Sample dimension (cut together with outer sheath) Overlap of tape foil	 See sub-clause 8.7 Ring 50 mm long Min 5 mm	Five measurements along the circumference and at a distance of 10 mm from each edge shall be taken by micrometer on a sample of the tape fully detached from the outer sheath (i.e. detachment may be done by immersion in acetic acid at 80 °C or other suitable method). Visual examination

N°	Test	Requirements	Test method
13	Copper wires screen (**Type III, Type V and Type VI cables**) Measurement of the diameter of wires Cross-sectional area	 0,5 – 1,00 mm See sub-clause 8.7 (table 7)	HD 605 sub clause 2.1.4.3
14	Sheath thickness measurement	See sub-clause 8.9	IEC 60811-202
15	Sheath shrinkage test at high temperature **(for Europe)** Cycles Duration Temperature Maximum shrinkage	 1 5 h 105±2 °C 5%	IEC 60811-503
16	Sheath mechanical properties Before ageing on sample Minimum tensile strength Minimum elongation at break	 12,5 MPa 300%	IEC 60811-501
* The reference values for HPTE insulation are shown in Table 14.			

Table 10 Sample tests list

9.1.3 Acceptance tests sampling and acceptance criteria

Quantities always refer to the number of spools.

The Routine tests shall be performed by the supplier on 100% of the production with positive results.

The Sample tests shall be performed following a single sampling plan for normal inspection, AQL=1,5%, Level I in compliance with standard ISO 2859-1, as long as the resulting minimum number of samples (8) does not exceed 25% of the total lot size.

In such case, the number of samples shall be 25% (1/4) of the total lot size rounded down to the nearest unit as shown in table 11.

Amount of Spools	Number of Samples	Acceptable Level	Rejection Level
1 - 32	Amount of spools /4*	0	1
33 - 280	8	0	1
281 - 1.200	32	1	2
1.201 - 3.200	50	2	3
3.201 - 10.000	80	3	4
10.001 - 35.000	125	5	6

Table 11 Application of single sampling plan for Sample test normal inspection, AQL=1,5%, Level I in compliance with standard ISO 2859-1

*down to the nearest unit.

The approval or rejection of each one of the samples will be according to what is required in standard ISO 2859-1 for each one of the tests.

Tests performed during the production process on semi-finished products may also be considered valid as a Acceptance test if:

- This was previously agreed with Enel;
- The tests are performed as required by the relevant technical specifications and technical standards;
- The sampling plans adopted by the Supplier are in compliance with the aforementioned ones;
- The performed test results are properly recorded;
- The Supplier demonstrates that the components/materials features do not vary during further production phases after the test.

The reports of the acceptance tests performed by the supplier shall be prepared and retained, for possible verification by Enel inspectors or designate.

9.2 REPETITION OF ACCEPTANCE TESTS IN THE PRESENCE OF ENEL'S INSPECTOR OR DESIGNATE

The Supplier shall be available to repeat the Acceptance tests (Routine tests + Sample tests) in the presence of Enel's Inspector or designate, on a "reduced" sample of the spools ready for shipment based on the following general criteria or the specific criteria set out in paragraphs 9.2.1 and 9.2.2.

- Quantities always refer to the number of spools;
- Enel inspector or designate can choose to perform the test on spools already tested by the Supplier or on others from the lot;
- If only a single spool is purchased, it shall be tested according to what is indicated for a single sample;
- The negative result of a single test (Routine or Sample test) will result in the rejection of the entire lot or, when possible, in the repetition of the test on all the units, in order to accept only the compliant ones.
- The costs of rejected materials will be charged to the Supplier.

9.2.1 Repetition of Routine tests

The Routine tests are those listed in table 9 sub-clause 9.1.1. with the exception of test No. 5, "Outer sheath voltage test (spark test)," which does not need to be repeated.

If a lot does not meet the requirements of the electrical resistance test as set out in the reference standard, the Inspector may carry out that test on all the units comprising the lot.

Routine tests must be performed on a reduced sample by applying the following reduction criteria:
The minimum between:

- 1/3 of Required Sampling (100%)
- Result of Single sampling plans for Normal Inspection, Level I, AQL 1% - according UNI ISO 2859-1 Ed 5-2007 (See table 12)

Amount of spools	Number of Samples	Acceptable Level	Rejection Level
1 - 41	Amount of spools /3*	0	1
42 - 500	13	0	1
501 – 3200	50	0	1
3.201 – 10.000	80	0	1

10.001 - 35.000	125	0	1

Table 12 Application of single sampling plan for Routine test normal inspection, AQL=1%, Level I in compliance with standard ISO 2859-1

*down to the nearest unit.

9.2.2 Repetition of Sample tests

The Sample tests are those listed in table 10 sub-clause 9.1.2.

On a spool among those subjected to the electrical resistance measurement, shall be performed the verification of the total length of the cable, that shall be not shorter than that declared by the supplier by more than 0,5 m.

Sample tests shall be performed at 50% (rounded down to the nearest unit) of required sample size already adopted for the Sample tests independently performed by the Supplier (referring to each test).

9.3 TYPE TEST

Type tests shall be performed before supplying a type of cable covered by this standard in order to demonstrate satisfactory performance characteristics to meet the intended application.

When type tests have been successfully performed on one type cable covered herein with a specific cross-section, rated voltage and construction characteristics, the type approval could be accepted as valid as long as the following conditions are met:

- The conductor cross-section is not larger than that of the tested cable.
- The cable as similar constructions as that of the tested cable, i.e. utilizes same materials, (conductor, screens, insulation, earth screen, outer sheath) and the same manufacturing process.
- The rated voltage not exceeds that of the tested cable.

When design, manufacturing process or materials are changed (which might affect the performance characteristics of the cable), the relevant type tests shall be repeated.

Cables shall undergo type tests and acceptance tests for type approval

N°	Test	Requirements	Test method
1	Sequential electrical tests Sample	15 m of cable 15 to 20 m	
1.1	Partial discharge test Test voltage Discharge magnitude	 2 Uo ≤ 5 pC	IEC 60885-3
1.2	Partial discharge measurement after bending test Cycles Test cylinder Discharge magnitude	 3 20(d+D)±5% ≤ 5 pC	EC 60502-2 sub-clause 18.2.4
1.3	Tan δ measurement as a function of the temperature Test voltage Tan δ at (20 ± 3) °C Tan δ at (90 ± 5) °C	 Uo ≤ 20x10-4 ≤ 40x10-4	IEC 60502-2 sub-clause 18.2.6
1.4	Thermal cycle test followed by partial discharge test Discharge magnitude	 ≤ 5 pC	IEC 60502-2 sub-clause 18.2.7

* The reference values for HPTE insulation are shown in Table 15.

N°	Test	Requirements	Test method
1.5	Impulse test followed by a voltage test Test result	 No breakdown	IEC 60502-2 sub-clause 18.2.8
1.6	High voltage test A.C test voltage Duration test Test result	 4 Uo 4 h No breakdown	IEC 60502-2 sub-clause 18.2.9
2	Conductor screen resistivity measurement Volume resistivity Oven temperature	 ≤1000 Ω•m 90±2 °C	IEC 60502-2 sub-clause 18.2.10.3 (Annex D)
3	Insulation resistance at 90 °C Volume resistivity [Ω· cm]	 10^{12}	IEC 60502-2 sub-clause 18.3.3
4	Insulation mechanical properties After ageing on sample * Temperature Duration T1 *Minimum Tensile strength* Maximum variation T1/T0 *Minimum elongation at break* Maximum variation T1/T0	 135 °C 168 h ±25% ±25%	IEC 60811-501 IEC 60811-401

* The reference values for HPTE insulation are shown in Table 15.

N°	Test	Requirements	Test method
5	Insulation water absorption test (Gravimetric method) * Temperature Duration Maximum variation of mass	 85 °C 336 h 1 mg/cm^2	IEC 60811-402
6	Insulation shrinkage test Distance L between marks Duration Temperature Maximum shrinkage	 200mm 1 h 130 °C 4%	IEC 60811-502
7	Insulation screen resistivity measurement Volume resistivity Oven temperature	 ≤500 Ω•m 90±2 °C	IEC 60502-2 Annex D
8	Insulation screen mechanical properties Minimum tensile strength Minimum elongation at break	 7 MPa 150%	IEC 60811-501 sub clause 4.3

* The reference values for HPTE insulation are shown in Table 15.

N°	Test	Requirements	Test method
9	Insulation screen strippability test (at 0 °C, 20 °C, 40 °C) Min. force required Max. force required	 4 N 45 N	IEC 60502-2 sub-clause 19.23
10	Earth screen adhesion test (**Type I, Type II and Type IV cables**) Minimum strength	 >12 N	HD 605 sub-clause 2.4.17.1
11	Sheath mechanical properties After ageing on sample Temperature Duration T1 Minimum elongation at break	 110±2 °C 240 h 300%	IEC 60811-501 IEC 60811-401
12	Sheath pressure test at high temperature Duration Temperature Maximum depth of indentation	 6 h 115±5 °C 30%	IEC 60811-508
13	Test at low temperature (Sheath)		IEC 60811-505

N°	Test	Requirements	Test method
	Elongation test at low temperature Temperature Minimum elongation	 -15±2 °C 20%	
14a	Sheath shrinkage test at high temperature **(for Europe)** Cycles Duration Temperature Maximum shrinkage	 5 5 h 105±2 °C 5%	IEC 60811-503
14b	Sheath shrinkage test **(for LATAM)** Cycles Duration Temperature Maximum shrinkage	 5 5 h 80±2 °C 3%	IEC 60811-503
15	Sheath abrasion resistance test Temperature Mass Speed Number of scratches	 20±5 °C 20 kg 0,3 ±15% m/s 8	HD 605 Sub-clause 2.4.22
16	Sheath water absorption test Temperature	(Gravimetric method) 85±2 °C	IEC 60811-402

N°	Test	Requirements	Test method
	Duration Maximum variation of mass	336 h 5 mg/cm2	
17	Sheath UV ray resistance test Tensile strength max variation Elongation at break max variation Discoloration	 15% 15% Poor	HD 605 Sub clause 2.2.13
18	Test under fire conditions** (Complete cable)	The cable shall be classified in accordance with the Common List	EN 50575 sub-clause 4.1
19	Non contamination test (Complete cable) XLPE Insulation* Temperature Duration T2 *Tensile strength* max variation T2/T0 *Elongation at break.* Max variation T2/T0 PO Sheath Temperature	 100 °C 168 h ±25% ±25% 100 °C	IEC 60811-501 IEC 60811-401 sub-clause 4.2.3.4

N°	Test	Requirements	Test method
	Duration T1 *Elongation at break* Maximun variation T1/T0	168 h ±25%	
20	Longitudinal water-tightness test	During the period of testing no water shall emerge from the ends of the test piece.	IEC 60502-2 Annex F
21	Radial water-tightness test and corrosion resistance test (Complete cable) (**Type I**, **Type II** and **Type IV** cables)	The aluminium screen shall not show any signs of corrosion	HD 605 sub-clause 5.5
* The reference values for HPTE insulation are shown in Table 15.			
** Only for Europe.			

Table 13 Type Test list.

For **HPTE** insulation:

Sample test			
N°	**Test**	**Requirements**	**Test method**
9	Insulation mechanical properties Before ageing on sample Minimum tensile strength Minimum elongation at break	 8,5 MPa 350%	IEC 60811-501

Table 14 Acceptance tests with requirements for HPTE insulation

Type test			
N°	**Test**	**Requirements**	**Test method**
1.3	Tan δ measurement as a function of the temperature Test voltage Tan δ at (20 ± 3) °C Tan δ at (90 ± 5) °C	 Uo ≤ $40x10^{-4}$ ≤ $80x10^{-4}$	HD 605 Subclause 3.11.3.2
4	Insulation mechanical properties After ageing on sample* Temperature Duration *Minimum tensile strength:* Average value, minimum *Minimum elongation at break:* Average value, minimum	 135 °C 240h 8,5 MPa 350%	IEC 60811-501 IEC 60811-401

Type test			
N°	**Test**	**Requirements**	**Test method**
6	Insulation water absorption test (Gravimetric method)* Temperature Duration Maximum variation of mass	 85 °C 336 h 5 mg/cm2	IEC 60811-402
19	Non contamination test HPTE Insulation (Complete cable) Temperature Duration *Test requirements for tensile breaking load* Average value, minimum (after T1 and after T2) *Test requirements for elongation at break:* Average value, minimum (after T1 and after T2)	 100 °C T1:336h; T2: 1008h 8,5 MPa 350%	IEC 60811-501 IEC 60811-401 sub-clause 4.2.3.4
22	Hot pressure test on insulation Duration Temperature Coefficient k Maximum depth of indentation	 6h 130 °C 0,7 50%	IEC 6811-508

Table 15 Type tests with requirements for HPTE insulation

10 TECHINCAL CONFORMITY ASSESSMENT

10.1 GENERAL CONDITIONS

The manufacturer shall provide personnel and equipment necessary to carry out type tests and acceptance tests described herein. Otherwise, the supplier could hire the service to a laboratory previously accepted by the customer

and assume the cost. The product shall comply with the requirements of GSCG002 regarding the Technical Conformity Assessment, procedure in the edition in force on the date of the request for approval.

The equipment should be properly calibrated by a laboratory certified or approved by the client. The manufacturer shall possess up to date calibration certificates (to turn over) at the time of inspection.

For suppliers who already hold type approval under GSC001 Rev.5, the **confirm existing** option will be considered, whereby the requirements set out in the new version must be incorporated.

11 CONDITIONS OF SUPPLY

See Local Section.

12 TECHNICAL CHECK-LIST

The following checklist indicates the minimum technical information that suppliers shall give in the tender.

Item	Description	Unit	Required	Offered
1	**GENERAL INFORMATION**			
1.1	Supplier	-	Informative	
1.2	Factory	-	Informative	
2	**MAIN FEATURES**			
2.1	Distribution Company and Country	-		
2.2	Country Code	-		
2.3	GS Type Code			
2.4	Nominal voltage Uo/U (Umax)	[kV]		
2.5	Type I, Type II, Type III, Type IV, Type V and Type VI	-		
2.6	Disposition	[n x mm^2]		
3	**CONDUCTOR**			
3.1	Material	-		
3.2	Nominal cross-section	[mm^2]		
3.3	Minimum number of wires of conductor	-		
3.4	Minimum diameter	[mm]		
3.5	Maximum diameter	[mm]		
3.6	Maximum resistance of conductor at 20°C	[Ω/ km]		
3.7	Stranding Type	-		
4	**CONDUCTOR SCREEN**			
4.1	Material			
4.2	Nominal thickness	[mm]		
4.3	Minimum thickness	[mm]		
4.4	Maximum potential gradient at Uo	[kV/mm]		
5	**INSULATION**			
5.1	Material	-		
5.2	Nominal thickness	[mm]		
5.3	Minimum thickness	[mm]		
5.4	Color	-		

Item	Description	Unit	Required	Offered
6	**INSULATION SCREEN**			
6.1	Material			
6.2	Nominal thickness	[mm]		
6.3	Minimum thickness	[mm]		
6.4	Maximum potential gradient at Uo	[kV/mm]		
7	**LONGITUDINAL WATER-TIGHTNESS**			
7.1	Material			
7.2	Nominal thickness	[mm]		
7.3	Minimum overlap	[%]		
8	**EARTH SCREEN**			
8.1	Minimum thickness (when aluminum foil)	[mm]		
8.2	Cross-section	[mm^2]		
8.3	Maximum resistance at 20°C	[Ω/ km]		
8.4	Wires diameter (when copper wires)	[mm]		
8.5	Number of wires (when copper wires)			
9	**OUTER SHEATH**			
9.1	Material			
9.2	Nominal thickness	[mm]		
9.3	Minimum thickness	[mm]		
9.4	Color			
10	**ADDITIONAL FEATURES**			
10.1	Maximum total diameter	[mm]		
10.2	Drum Type			
10.3	Total length in one drum	[m]		
10.4	One phase weight	[kg/km]		
10.5	Total weight	[kg/km]		
10.6	Ampacity (see clause 8.10 for conditions)	[A]		
10.7	Conductor SC current (see clause 8.10)	[kA]		
10.8	Earth screen SC current (see clause 8.10)	[kA]		
10.9	Fire reaction Class (EN 50575 if apply)			
10.10	Positive sequence reactance	[Ω/ km]		

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

Item	Description	Unit	Required	Offered
10.11	Positive sequence capacitance	[µF/km]		
10.12	Zero sequence resistance at 20 °C	[Ω/ km]		
10.13	Zero sequence reactance	[Ω/ km]		
10.14	Zero sequence capacitance	[µF/km]		
10.15	Minimum bending radius	[mm]		
10.16	Maximum pulling tension	[kg]		
10.17	Min. admissible installation temperature	[°C]		

12.1 TECHNICAL CHECK-LIST EXAMPLE

12.1.1 Type I 12/20(24) kV 1x400 mm2 XLPE insulation, PO outer sheath

Item	Description	Unit	Required	Offered
1	**GENERAL INFORMATION**			
1.1	Supplier	-	Informative	
1.2	Factory	-	Informative	
2	**MAIN FEATURES**			
2.1	Distribution Company and Country	-	EE-Spain	
2.2	Country Code	-	330013	
2.3	GS Type Code		GSC001/016	
2.4	Nominal voltage Uo/U (Umax)	[kV]	12/20(24)	
2.5	Type I, Type II, Type III, Type IV, Type V and Type VI	-	Type I	
2.6	Disposition	[n x mm^2]	1x400	
3	**CONDUCTOR**			
3.1	Material	-	Aluminum	
3.2	Nominal cross-section	[mm^2]	400	
3.3	Minimum number of wires of conductor	-	53	
3.4	Minimum diameter	[mm]	22,3	
3.5	Maximum diameter	[mm]	24,6	
3.6	Maximum resistance of conductor at 20°C	[Ω/ km]	0,0778	
3.7	Stranding Type	-	Compacted Class 2	
4	**CONDUCTOR SCREEN**			
4.1	Material		Informative	
4.2	Nominal thickness	[mm]	0,5	
4.3	Minimum thickness	[mm]	0,3	
4.4	Maximum potential gradient at Uo	[kV/mm]	Informative	
5	**INSULATION**			
5.1	Material	-	XLPE	
5.2	Nominal thickness	[mm]	Informative	
5.3	Minimum thickness	[mm]	4,31	
5.4	Color	-	Informative	

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

Item	Description	Unit	Required	Offered
6	**INSULATION SCREEN**			
6.1	Material		Informative	
6.2	Nominal thickness	[mm]	0,5	
6.3	Minimum thickness	[mm]	0,3	
6.4	Maximum potential gradient at Uo (info)	[kV/mm]	Informative	
7	**LONGITUDINAL WATER-TIGHTNESS**			
7.1	Material		Informative	
7.2	Nominal thickness	[mm]	Informative	
7.3	Minimum overlap	[%]	10	
8	**EARTH SCREEN**			
8.1	Minimum thickness (when aluminum foil)	[mm]	0,3	
8.2	Cross-section	[mm2]	34,5	
8.3	Maximum resistance at 20°C	[Ω/ km]	0,877	
8.4	Wires diameter (when copper wires)	[mm]	-	
8.5	Number of wires (when copper wires)		-	
9	**OUTER SHEATH**			
9.1	Material		DMZ1	
9.2	Nominal thickness	[mm]	Informative	
9.3	Minimum thickness	[mm]	2	
9.4	Color		RED	
10	**ADDITIONAL FEATURES**			
10.1	Maximum total diameter	[mm]	Informative	
10.2	Drum Type		Informative	
10.3	Total length in one drum	[m]	Informative	
10.4	One phase weight	[kg/km]	Informative	
10.5	Total weight	[kg/km]	Informative	
10.6	Ampacity (see clause 8.10 for conditions)	[A]	Calculated	
10.7	Conductor SC current (see clause 8.10)	[kA]	Informative	
10.8	Earth screen SC current (see clause 8.10)	[kA]	Informative	
10.9	Fire reaction Class (EN 50575 if apply)		No	
10.10	Positive sequence reactance	[Ω/ km]	Informative	

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

Item	Description	Unit	Required	Offered
10.11	Positive sequence capacitance	[µF/km]	Informative	
10.12	Zero sequence resistance at 20 °C	[Ω/ km]	Informative	
10.13	Zero sequence reactance	[Ω/ km]	Informative	
10.14	Zero sequence capacitance	[µF/km]	Informative	
10.15	Minimum bending radius	[mm]	Informative	
10.16	Maximum pulling tension	[kg]	Informative	
10.17	Min. admissible installation temperature	[°C]	Informative	

13 LOCAL SECTION

13.1 LOCAL SECTION A – EDESUR ARGENTINA

<table>
<tr><th>N°</th><th>TITLE</th><th>DESCRIPTION</th></tr>
<tr><td>4</td><td>Local Standards</td><td>• IRAM 2178-2 Extruded solid dielectric insulated power cables for voltage ratings from 1,1 kV to 33 kV.</td></tr>
<tr><td>8.7</td><td>Copper wire screen</td><td>• Consider copper tape for mechanical fixed screen wires features are detailed in the Common List.</td></tr>
<tr><td>8.8</td><td>Outer Sheath</td><td>To facilitate importation, the sheath could be made of PVC, with the following characteristics:
<table><tr><th colspan="3">Outer PVC sheath</th></tr><tr><th>Cross-section [mm2]</th><th>Nominal [mm]</th><th>Minimum [mm]</th></tr><tr><td>50</td><td>1,8</td><td>1,2</td></tr><tr><td>70</td><td>1,9</td><td>1,3</td></tr><tr><td>185</td><td>2</td><td>1,4</td></tr><tr><td>240</td><td>2,1</td><td>1,5</td></tr><tr><td>300</td><td>2,2</td><td>1,6</td></tr><tr><td>400</td><td>2,3</td><td>1,6</td></tr><tr><td>500</td><td>2,4</td><td>1,7</td></tr></table>
The color of the outer sheath shall be red.</td></tr>
<tr><td>8.10</td><td>Ampacity and short-circuit rating</td><td>Ampacity values shall be calculated in steady state condition, for single core laying and triplex laying, when installed in open air, directly buried using the following operational conditions:
• Maximum conductor temperature 90 °C
• Ambient air temperature 40 °C
• Ground temperature 25 °C
• Depth of laying 1,1 m
• Soil thermal resistivity 1 K m/W</td></tr>
</table>

		• Earthenware ducts thermal resistivity: it does not apply • Both end bonding.
8.12.1	Cable designation	On each meter of length, the outer sheath of cable painted in white must show the following information: • Distributor Name • Name of manufacturer • Year of manufacture • Cable description • Maximum operating voltage between phases • Material and type of insulation • Conductor size (in mm ²) • Footage correlative / dialling sequence (when indicated in O / C).
8.12.2	Marking	**Marking Example:** **SINGLE CORE** Distributor Name – Manufacture NNN CA2-XR-HCO-PEA 185mm2 8,7/15 kV 2025-07 Distribution Manufactured by NNN circular aluminium conductor of section 185mm2, compact, Class 2. XLPE insulation. Copper wire screen. Polyethylene cover, Uo / U 8,7/15. Made the year 2025, month 07 **TRIPLEX** Distributor Name – Manufacture NNN CA2-XR-HCO-PEA 95mm2 8,7/15 kV 2025-07 Fase 1 Distributor Name – Manufacture NNN CA2-XR-HCO-PEA 95mm2 8,7/15 kV 2025-07 Fase 2

		Distributor Name – Manufacture NNN CA2-XR-HCO-PEA 95mm2 8,7/15 kV 2025-07 Fase 3
11	Conditions of supply	IRAM 9590-1 Standard

13.2 LOCAL SECTION B – ENEL COLOMBIA

N°	TITLE	DESCRIPTION
4	Replaced Local Standards	E-MT-002 - CABLES UNIPOLARES AISLADOS DE MEDIA TENSIÓN
	Local Standards	RETIE- Reglamento técnico de instalaciones eléctricas.
8.3	Insulation	The XLPE compound shall have retardant characteristics, complying standard ASTM D6097
8.8	Outer Sheath	The outer sheath shall be **black**, with a colored strip in order to identify the phases complying the following indications: Phase A: Black outer sheath with a violet strip Phase B: Black outer sheath with a brown strip Phase C: Black outer sheath with a red strip
8.12.2	Marking	Markings shall be indelible spaced from each other 1 meter maximum. The following information shall be marked: - Manufacturer name or trademark - ENEL COLOMBIA - Year of manufacture - Rated voltage Uo/U(Umax) - Insulation material - Cable cross-section [mm2] - Metric marking - Phase identification using violet, brown and red strips. - Maximum operating temperature [°C] (according to RETIE)

11	CONDITIONS OF SUPPLY	Packaging and Labelling Cables shall be delivered on spools made of wood or metal, such spool will not be returned. Characteristics are indicated in Figure A, dimensions are depicted in Table A. The total length of the supplied cable shall not be less than that requested in the purchase order and shall not be longer by any more than 5%. The maximum gross weight of the packaged spool must not exceed 3500 kg. The ends of the cables on each spool must be protected with caps or hoods that prevent the entry of moisture. These ends internally secured to the spools, must be mechanically protected against possible damages resulting from handling and transportation of each spool, leaving both ends accessible through the use of an internal helix or reel on each spool. When distance between manufacturing facilities and Enel Distribución Colombia storage center is less than 200 km and is necessary only one mean of transportation. It is mandatory to use internal helix for cables cross-section greater of equal to 120 mm².However, moisture protection on both visible ends of the cables, mechanical protection, and careful handling shall be applied. Some Purchase orders could request 2,000 m of maximum length per spool and/or prejoined cables. The supplier shall process RETIE certification in order to deliverer the order. Spools made of wood shall be treated according to the international requirements for the control of plant disease, avoiding the compounds “ Pentachlorophenol” and “Creosote”. The treatment must include, at least: highly toxic to xylophagous organisms, high penetration and holding power, chemical stability, non-corrosive substances to metals that could affect the physical characteristics of wood.

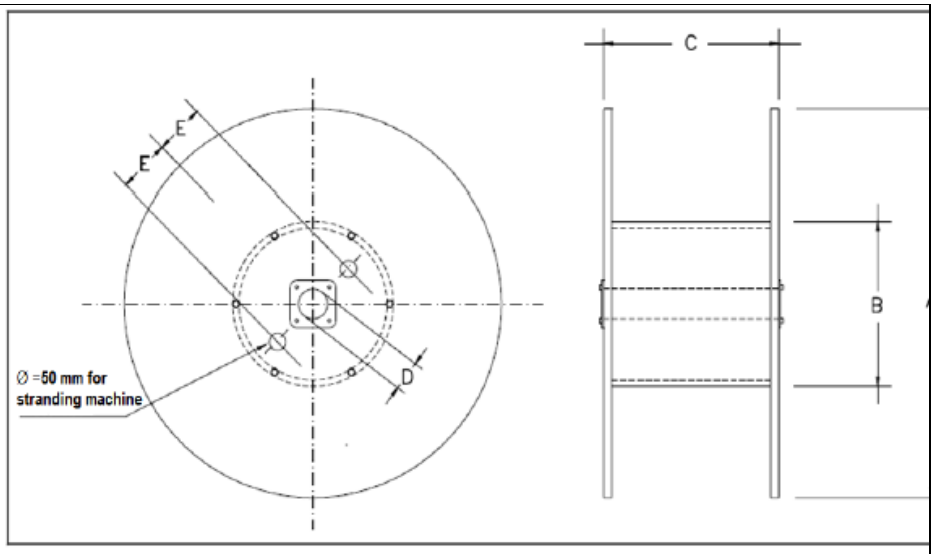


Figure A

Dimensions:

A(1)	B	C(1)	D(2)	E
mm	mm	mm	mm	mm
2000	(3)	1120	80	(4)

Table A

Notes:

(1) Maximum value.

(2) Minimum value.

(3) Two times the minimum bending radius indicated by the supplier.

(4) 300 or 180 mm according to spool type (large or small, respectively)

The spools must contain:

- An external protection built with wooden flanges fixed on the wooden spools or some equivalent for metal spools, being secured with tapes or straps.

		• Indication with an arrow of the rolling direction. • A stainless steel plate for identification purposes. Such plate shall be applied in both flanges and shall have the following information (in Spanish): 1) Manufacturer name 2) Country of origin 3) ENEL COLOMBIA 4) Purchase order N° 5) Rated voltage Uo/U (Umax) 6) Insulation material 7) Cable cross-section [mm2] 8) Spool number of the corresponding delivered batch 9) Net and gross weight [kg] 10) Configuration type (unipolar, triplex, quadruplex). 11) Cable length [m] **Note: for single-core cables, an increased quantity of cable per reel of up to 1 km is permitted. The reel design will be proposed by the supplier to ensure compliance with operational safety conditions**.
12	TECHNICAL CHECK-LIST	Besides all technical information provided according the common part, ISO certifications, Certification of conformity with this Global Standard and RETIE certification shall be indicated.

13.3 LOCAL SECTION C – ENEL DISTRIBUCIÓN CHILE

N°	TITLE	DESCRIPTION
4	Local Standards	Reglamento de seguridad de las instalaciones eléctricas destinadas a la producción, transporte, prestación de servicios complementarios, sistemas de almacenamiento y distribución de energía eléctrica. Todos los pliegos técnicos normativos.
8.8	Outer Sheath	The outer sheath color shall be blue for 15/25(31) cable, while for 8.7/15(17.5) kV cables, the sheath color shall be red.
8.12.1	Cable designation	CA2: Stranded compacted aluminum conductor CCU: Stranded compacted copper conductor XR: XLPE insulation HCO: Copper wires earth screen PE: polyethylene outer sheath
8.12.2	Marking	The outer sheath should be marked with high aligned characters. The distance between the end of a mark and the beginning of the next one will be less than or equal to 1 m and shall contain, in the order listed the following inscriptions: Property Name Manufacturer name or trademark Cable designation Cross-section [mm2] Rated voltage Uo/U(Umax) Year of manufacture Metric marking

		Phase identification with numbers, veins or stripes of color. **Marking Example:** **Enel distribucion Chile NNN CA2-XR-HCO-PE 1x400 mm2 15/25 kV 2025-12** **0000** Single-core cable stranded compact Class 2 aluminum conductor, XLPE insulation, copper wires screen and polyethylene outer sheath 400 mm2, Uo/U 15/25 kV, manufactured in 2025, month 12
11	CONDITIONS OF SUPPLY	Packaging and Labelling Cables shall be delivered on spools made of wood or metal, such spool will not be returned. Characteristics are indicated in Figure A, dimensions are depicted in Table A. The total length of the supplied cable shall not be less than that requested in the purchase order and shall not be longer by any more than 5%. The maximum gross weight of the packaged spool must not exceed 3500 kg. The ends of the cables on each spool must be protected with caps or hoods that prevent the entry of moisture. These ends internally secured to the spools, must be mechanically protected against possible damages resulting from handling and transportation of each spool, leaving both ends accessible through the use of an internal helix or reel on each spool. When distance between manufacturing facilities and Enel Distribución Chile storage center is less than 200 km and is necessary only one mean of transportation. It is mandatory to use internal helix for cables cross-section greater of equal to 120 mm².However, moisture protection on both visible ends of the cables, mechanical protection, and careful handling shall be applied.

Some Purchase orders could request 2,000 m of maximum length per spool and/or pre-joined cables.

Spools made of wood shall be treated according to the international requirements for the control of plant disease, avoiding the compounds "Pentachlorophenol" and Creosote". The treatment must include, at least: highly toxic to xylophagous organisms, high penetration and holding power, chemical stability, non-corrosive substances to metals that could affect the physical characteristics of wood.

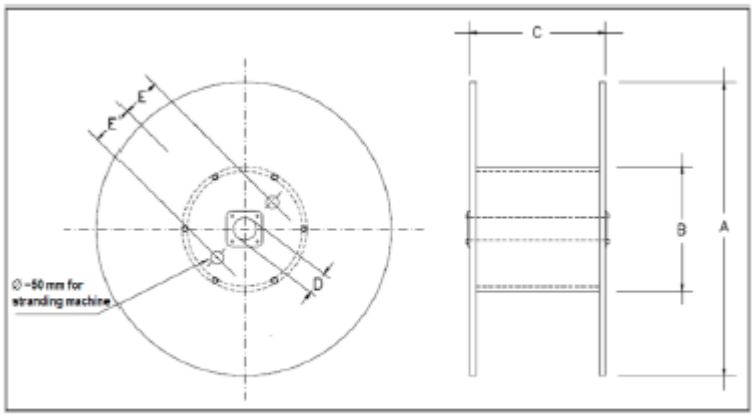


Figure A

Dimensions:

A(1)	B	C(1)	D(2)	E
mm	mm	mm	mm	mm
2000	(3)	1120	80	(4)

Table A

Notes:

(1) Maximum value.

(2) Minimum value.

(3) Two times the minimum bending radius indicated by the supplier.

		(4) 300 or 180 mm according to spool type (large or small, respectively) The spools must contain: • An external protection built with wooden flanges fixed on the wooden spools or some equivalent for metal spools, being secured with tapes or straps. • Indication with an arrow of the rolling direction. • A stainless-steel plate for identification purposes. Such plate shall be applied in both flanges and shall have the following information (in Spanish): 1) Manufacturer name 2) Country of origin 3) Enel distribucion Chile 4) Purchase order N° 5) Rated voltage Uo/U (Umax) 6) Cable designation 7) Cable cross-section [mm2] 8) Spool number of the corresponding delivered batch 9) Net and gross weight [kg] 10) Configuration type (unipolar, triplex, quadruplex). 11) Cable length [m] 12) Year and month of manufacture 13) Weight of the coil [kg] 14) Cable type 15) Coil dimensions [mm]

13.4 LOCAL SECTION D – ENEL DISTRIBUIÇÃO CEARÁ, RIO AND SÃO PAULO

N°	TITLE	DESCRIPTION
4	Local Standards	• PMA 210.10.1 "Cabo multiplexado de MT, aluminio, 12/20 kV, com e sem fibra optica" • NTE-M-055: Condutores Elétricos Distribuição Subterrânea • NTE-030: Carreteis para fios e cabos elétricos • NBR 7286 - Cabos de potência com isolação sólida extrudada de borracha etileno propileno (EPR) para tensões de 3 kV a 35 kV – Especificação • NBR 7287 - Cabos de potência com isolação sólida extrudada de polietileno reticulado (XLPE) para tensões de 3 kV a 35 kV – Especificação • NBR 6251 - Cabos de potência com isolação extrudada para tensões de 1 a 35kV – Requisitos construtivos
8.12.1	Cable designation	Type of conductor - A: Aluminum R: Round Stranded E4: XLPE cross-linked polyethylene insulation H1: copper wires earth screen E: PE outer sheath X: Triples configuration Rated voltage: Uo/U Conductor cross-section Example **ARE4H1EX 8,7/15 kV 185 mm2**
8.12.2	Marking	The distance between the end of a mark and the beginning of the next one will be less than or equal to 1 m and shall contain, in the order listed the following inscriptions: • The property stands • Cable designation

		• The name or trademark of the manufacturer • The identification letter of the manufacturing • The year and month of manufacture • The metric indicated only in phase 1 (for triplex configuration); also supports sealed ink. Alternatively to the aforementioned method, it could be stamped at a distance less than 1 meter. • Identification of the phase, repeated at least 100 mm in the interval between two successive of entries. Example: Triplex cable, marking in phase 1 cable: **Enel Distribuição *Ceará* ARE4H1EX 8,7/15 kV 185 mm2 XXXXXX 2025 12 0000 FASE 1 ... FASE 1** Single core cable: **Enel Distribuição *Ceará* ARE4H1E 8,7/15 kV 185 mm2 XXXXXX 2025 12 0000**

11	CONDITIONS OF SUPPLY	Packaging and Labelling Cables shall be delivered on spools made of wood or metal, such spool will not be returned. Characteristics are indicated in Figure A, dimensions are depicted in Table A. The total length of the supplied cable shall not be less than that requested in the purchase order and shall not be longer by any more than 5%. The maximum gross weight of the packaged spool must not exceed 3500 kg. The ends of the cables on each spool must be protected with caps or hoods that prevent the entry of moisture. These ends internally secured to the spools, must be mechanically protected against possible damages resulting from handling and transportation of each spool, leaving both ends accessible through the use of an internal helix or reel on each spool. When distance between manufacturing facilities and distribution company storage center is less than 200 km and is necessary only one mean of transportation. It is mandatory to use internal helix for cables cross-section greater of equal to 120 mm².However, moisture protection on both visible ends of the cables, mechanical protection, and careful handling shall be applied. Some Purchase orders could request 2,000 m of maximum length per spool and/or pre-joined cables. Spools made of wood shall be treated according to the international requirements for the control of plant disease, avoiding the compounds “Pentachlorophenol” and “Creosote”. The treatment must include, at least: highly toxic to xylophagous organisms, high penetration and holding power, chemical stability, non-corrosive substances to metals that could affect the physical characteristics of wood.

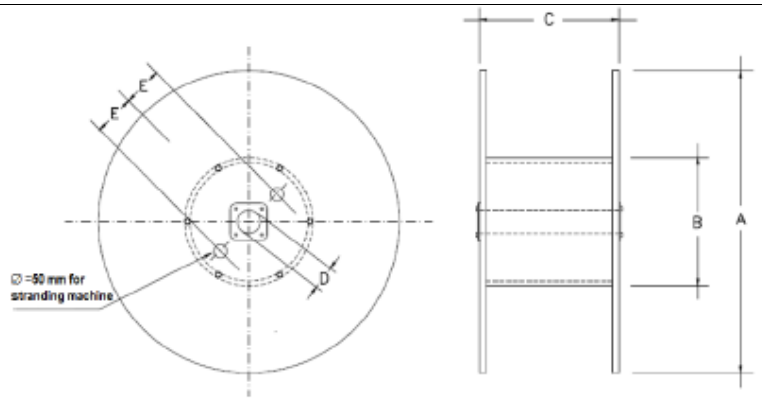


Figure A

Dimensions:

A(1)	B	C(1)	D(2)	E
mm	mm	mm	mm	mm
2000	(3)	1120	80	(4)

Table A

Notes:

(1) Maximum value.

(2) Minimum value.

(3) Two times the minimum bending radius indicated by the supplier.

(4) 300 or 180 mm according to spool type (large or small, respectively)

The spools must contain:

- An external protection built with wooden flanges fixed on the wooden spools or some equivalent for metal spools, being secured with tapes or straps.
- Indication with an arrow of the rolling direction.
- A stainless steel plate for identification purposes. Such plate shall be applied in both flanges and shall have the following information (in Portuguese):

1) Manufacturer name

2) Country of origin

3) ENEL RIO/ENEL CEARÁ/ENEL SÃO PAULO (according to purchase)

4) Purchase order N°

5) Rated voltage Uo/U (Umax)

6) Insulation material

7) Cable cross-section [mm2]

8) Spool number of the corresponding delivered batch

9) Net and gross weight [kg]

10) Configuration type (unipolar, triplex, quadruplex).

11) Cable length [m]

The drums shall be (For: SÃO PAULO)

Type Code	Formation	Spool max dimension	Nominal length [m]
GSC001/032	3x95	Figure A and Table A	250
GSC001/047	3x95	Figure A and Table A	250
GSC001/048	3x95	Figure A and Table A	250
GSC001/049	3x35	ABNT 11137 150/80	250
GSC001/050	3x400	Figure A and Table A	250
GSC001/051	3x240	Figure A and Table A	200
GSC001/052	3x400	Figure A and Table A	200
GSC001/053	3x400	Figure A and Table A	200
GSC001/054	1x240	ABNT 11137 150/80	250
GSC001/055	3x500	Figure A and Table A	200
GSC001/056	1x500	ABNT 11137 150/80	250
GSC001/069	1x35	ABNT 11137 150/80	500*

* The nominal length is for guidance only and may be adjusted to suit the requirements of the project.

13.5 LOCAL SECTION E – E-DISTRIBUZIONE

N°	TITLE	DESCRIPTION
4	Local Standards	• SER-NDV-PNS-26-0002-EDIS ST di bobine per trasporto cavi MT e BT • GRI-GRI-CNS-O&M-0002 Barcode specification
8.12.1	Cable designation	A: Aluminum conductor R: Round Stranded E4: XLPE insulation P1: HPTE insulation H5: Aluminum foil earth screen; H1: Copper wire screen; E: polyethylene outer sheath X: Three single core cables bundled together
8.12.2	Marking	The distance between the end of a mark and the beginning of the next one will be less than or equal to 1 m and shall contain, in the order listed the following inscriptions: • The property stands: e-distribuzione • Cable designation (see 5.11.2) (ARE4H5EX) • Rated voltage Uo/U [kV] (12/20 KV) • Cross-section. (185) • Reaction to fire class (CPR) • The name or trademark of the manufacturer (XXXXXX) • The identification letter of the manufacturing (B) • The index of the project: to choose exponentially (01, 02, 03⋯) this index must be modified with every construction variation of the single core (phase or neutral) • The year and month of manufacture (2025 12)

<table>
<tr><td></td><td></td><td>

- Identification of the phase, repeated at least 100 mm in the interval between two successive of entries (FASE X) (When triplex)
- The metric indicated only in phase 1; also supports sealed ink. Alternatively to the aforementioned method, it could be stamped at a distance less than 1 meter.

</td></tr>
<tr><td>11</td><td>CONDITIONS OF SUPPLY</td><td>

Marking example Triplex (on phase 1):

e-distribuzione ARE4H5EX 12/20 kV 150 **CPR** XXXXXX B 01 2025 12 CPR 0000

FASE 1 ... FASE 1

Marking example single core:

e-distribuzione ARE4H5E 12/20 kV 150 **CPR** XXXXXX B 01 2025 12 CPR 0000

Cable length and type of coil.

<table>
<tr><th>Formation [n° x mm2]</th><th>Maximum Length [m]</th><th>Coil Type (SER-NDV-PNS-26-0002-EDIS ST)</th></tr>
<tr><td>1x185</td><td>1000</td><td>20</td></tr>
<tr><td>1x240</td><td>1000</td><td>22</td></tr>
<tr><td>3x1x95</td><td>400</td><td>22**</td></tr>
<tr><td>3x1x185</td><td>370</td><td>22**</td></tr>
<tr><td>3x1x240</td><td>300*</td><td>22**</td></tr>
<tr><td colspan="3">*The accepted tolerance will be + 15 %.</td></tr>
<tr><td colspan="3">**For the Type III-V-VI, use coil type 25.</td></tr>
</table>

Resilience Project, XL size:

</td></tr>
</table>

		<table><tr><th>Formation [n° x mm2]</th><th>Maximum Length [m]</th><th>Coil Type (SER-NDV-PNS-26-0002-EDIS ST)</th></tr><tr><td>3x1x185</td><td>500</td><td>25</td></tr><tr><td>3x1x240</td><td>400</td><td>25</td></tr></table> The far end of the cables shall be protected against the moisture. The characteristics of the drums and the labels affixed to them must comply with the requirements set out in standard SER-NDV-PNS-26-0002-EDIS ST. Following standard EN 50575, the CE marking and labelling shall be in accordance with the general principles set out in Article 30 of regulation (EC) No. 765/2008 and shall be affixed visibly, legibly and indelibly to the product labels affixed to the reels, coils or drums. In compliance with standard EN 50575 in particular annex V of the EU Construction Products Regulation n° 305/2011 (CPR) the supplier shall elaborate a Declaration of performance (DoP) and shall dispose a CE marking in function of the assessment and verification of constancy of performance (AVCP).

13.6 LOCAL SECTION F – ENDESA DISTRIBUCIÓN ELÉCTRICA

N°	TITLE	DESCRIPTION
4	Laws	• R.D. 614/2001, de 8 de junio, sobre disposiciones mínimas para la protección de la salud y seguridad de los trabajadores frente al riesg eléctrico. • Real Decreto 223/2008 de 15 de febrero, por el que aprueba el Reglamento sobre condiciones técnicas y garantías de seguridad en líneas eléctricas de alta tensión y sus instrucciones técnicas complementarias ITC-LAT 01 a 09 (R.L.A.T.) • Reglamento (UE) nº 305/2011 del Parlamento Europeo y del Consejo, de 9 de marzo de 2011, por el que se establecen condiciones armonizadas para la comercialización de productos de construcción y se deroga la Directiva 89/106/CEE del Consejo.
4	Local Standards	• UNE 21167: Bobinas de madera para cables aislados de transporte y distribución. • UNE 211435 "Guía para la elección de cables eléctricos de tensión asignada superior o igual a 0,6/1 kV para circuitos de distribución." • UNE 211006 "Ensayos previos a la puesta en servicio de sistemas de cables eléctricos de alta tensión en corriente alterna." • UNE 211605. Climatic ageing test of outer covering cables. • Norma DND001 Cables Aislados Para Redes Aéreas Y Subterráneas De Media Tensión Hasta 30 kV. • UNE-HD 620-10E1 Cables eléctricos de distribución con aislamiento extruido, de tensión asignada desde 3,6/6 (7,2) kV hasta 20,8/36 (42) kV inclusive. • UNE-HD 620-10E2 Cables eléctricos de distribución con aislamiento extruido, de tensión asignada desde 3,6/6 (7,2) kV hasta 20,8/36 (42) kV inclusive.
8.8	Outer Sheath	For **Type I** and **Type III** cables without reaction to fire class the material shall be polyolefin DMZ1 of standard HD 620. S3 part 1

		For **Type IV** and **Type VI** with reaction to fire class the material shall be polyolefin DMZ2 of standard HD 620. S3 part 1 For the **Type I** and **Type IV** with earth screen in aluminum foil: The nominal thickness shall be same as 2,75 mm. In addition, the minimum thickness of the outer sheath measured and accepted at any point of the cable shall not be less than 2,0 mm. For the **Type III** and **Type VI** with earth screen in copper wires please consult the common list. The minimum fire reaction for **Type IV** and **Type VI** cables shall be: • Eca for 10E-7 (Type IV) and 10E-4 (Type VI) (S) cables • Cca-s1b, d2,a1 for 10E-8 (Type IV) and 10E-5 (Type VI) (AS) cables The outer sheath material shall be free of heavy metals, halogens or volatile hydrocarbons
8.9	Ampacity and Shortcircuit rating	Ampacity and short-circuit ratings for conductor and screen shall comply the conditions stated in ITC06 from "Reglamento sobre condiciones tecnicas y garantias de seguridad en lineas electricas de AT (Real decreto 223/2008 15-02)
8.12.1	Cable designation	The designation code is defined as follows: R = cross-linked polyethylene H5 = Aluminum foil screen; H: Copper wire screen; Z1 = polyolefin Composite Reaction to fire requirements: (S): 10E-7 (Type IV) or 10E-4 (Type VI) according to UNE-HD 620 (Eca class) (AS) = 10E-8 (Type IV) or 10E-5 (Type VI) according to UNE-HD 620 (Cca-s1b, d2,a1 class)

		Uo/U = Rated voltage in kV 1 (unipolar cables) x (rated cross-section of the phase conductor, measured in mm2) K (round and compact conductor) Al (Aluminum conductor) Quality markings: In the case of certified cable i.e. AENOR. Example of designation code **RH5Z1 12/20 kV 1 x 95 k Al** Single core cable with 95 mm2round compact aluminum conductor, insulated with XLPE, covered with an aluminum tape screen, sheathed with polyolefin for 12/20 kV voltage operation without reaction to fire class **RH5Z1 (S) 18/30 kV 1 x 240 k Al** Single core cable with 240 mm2round compact aluminum conductor, insulated with XLPE, covered with an aluminum tape screen, sheathed with polyolefin for 18/30 kV voltage operation with Eca reaction to fire class.
8.12.2	Marking	Cables shall be have easily legible and indelible marking containing the following information: • Manufacturer name and / or trademark, • The complete description of the cable (Cable designation 10.12.1) • Fire class, according to UNE EN 50575 sub-clause 4.1 (Only for **Type IV** and **Type VI** cables) • The last two digits of the year of manufacture. • <u>Additional markings:</u> - Traceability: the manufacturer shall include in the outer sheath some element in order to trace the cable, for instance a lot number. - Certification: when the cable is certificate with a quality marking. - Metric indicated: the metric marking, applied by printing, is repeated on the cable at 1 meter intervals and allows for accurate identification of the cable's progressive length.

<table>
<tr><td></td><td></td><td>The marking shall be indelible, easily legible and be performed by incision or embossed on the outer sheath.

The distance between the end of a mark and the beginning of the next one will be less than or equal to 300 mm.

Marking example:

(manufacturer) RH5Z1 (AS) 12/20 kV 1 x 240 K Cca-1sb,d2,a1 17 (additional markings)

Following standard EN 50575 for Type IV and Type VI cables the CE marking and labelling shall be in accordance with the general principles set out in Article 30 of regulation (EC) No. 765/2008 and shall be affixed visibly, legibly and indelibly to the product labels affixed to the reels, coils or drums.</td></tr>
<tr><td>9</td><td>TESTS</td><td>All tests shall be performed in accordance with:

- For Type I and Type IV, standard UNE-HD 620-10E2.

- For Type III and Type VI, standard UNE-HD 620-10E1.

For non-electrical tests (standard UNE-HD 620-10E2 "Tests on semiconductor screens"), the minimum values of subclause 8.2 and subclause 8.4 of standard GSC001 must be met, as indicated in the following table:
<table>
<tr><td>Conductor screen
thickness measurement
Nominal thickness
Mean value
Minimum at any point</td><td>

0,5 mm
0,5 mm
0,3 mm</td><td>IEC 60811-203</td></tr>
<tr><td>Insulation screen
thickness measurement
Nominal thickness</td><td>

0,5 mm</td><td>IEC 60811-203</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td></td><td>
<table>
<tr><td>Mean value</td><td>0,5 mm</td><td></td></tr>
<tr><td>Minimum at any point</td><td>0,3 mm</td><td></td></tr>
</table>
</td></tr>
<tr><td>11</td><td>CONDITIONS OF SUPPLY</td><td>
Reels shall be in compliance with the Standard UNE 21167 “Bobinas de Madera para cables asilados de trasnporte y distribucion”

1) Technical report (TR)

The technical report (TR) must consist of the documents described below.

It is specified that some requirements in the following paragraphs are preceded by the word “Prescription”, and others by the word “Indication”.

In the first case the requirements are normative, therefore satisfying them is a necessary (but not sufficient) condition for acceptance during the trial period. In the second case, however, the content of the required information is not binding for acceptance during the trial period.

2) Technical document.

Technical working drawing of the coil, including representation of the two sections (longitudinal and transversal) completed with all the dimensional measurements and with the points where the drum is anchored to the flanges highlighted (enlarged diagram of the part).

The following dimensional characteristics must be provided:

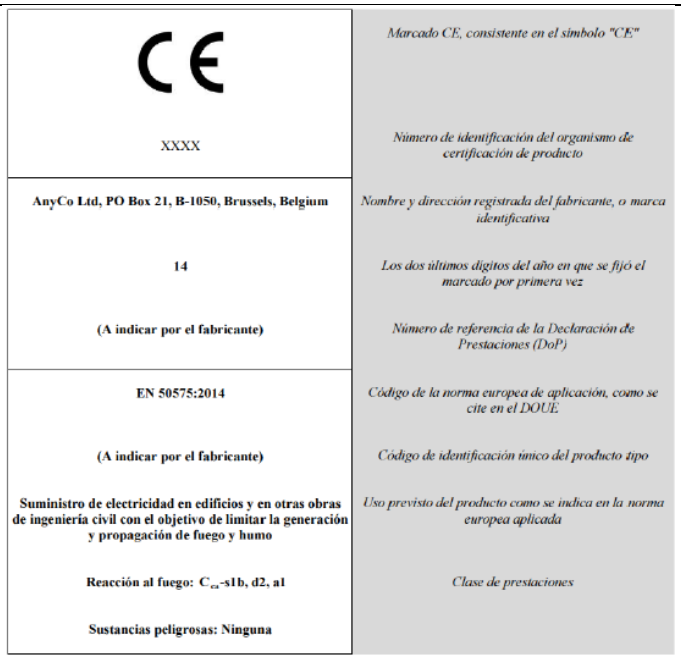
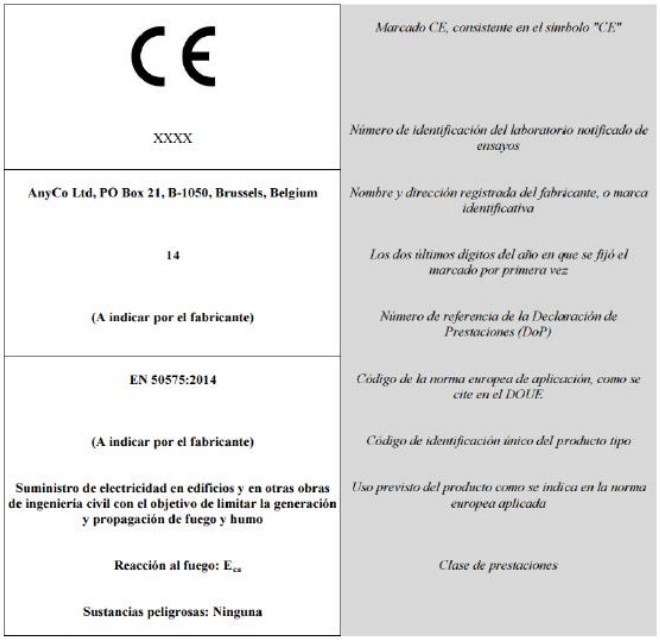
• Parts in wood:
<table>
<tr><td>For the flange</td><td>Board width
Diameter
Thickness
Diameter of axial hole
Counter-flage thickness</td></tr>
<tr><td>Coil width</td><td></td></tr>
<tr><td>For the Drum</td><td>Board width
Diameter
Width
Staves thickness</td></tr>
</table>
</td></tr>
</table>

		<table><tr><td>For the tie rods</td><td>Number Diameter Length</td></tr></table> • Metal parts - Dimensional and number of metal components (tie rods, support and fixing plates) 3) Photographic documentation. The following documentation shall be delivered: • A side view and a front view photo (for a total of at least 6 photos) showing: - The empty coil; - The coil with wound cable without external cover; - The coil complete with external cover • The detailed view of the identification plate where the coil and supply data are provided (at an enlargement level such as to allow the information photographed to be read). 4) Technical data sheet of the wood. Prescriptions: Wood species coming from conifers or other wood of documented equivalent performance characteristics must be used. The wood used must be free of fungi and insects; the boards must be without non-adherent (dead) chamfers and knobs Instructions: The percentage of maximum humidity of the wood at the end of the coil fabrication process shall be stated. The description of any treatments that the wood undergoes shall be provided. 5) Technical data sheet of the metals. Instructions:

		The type of material used shall be stated. 6) Construction methods. Prescriptions: The coil must not, in any case, have metallic projections of any kind (they could in fact cause cuts or injuries during handling). Any wooden parts must not be painted. The outer surface of the drum and that inside the flange must be planed and the boards forming the flanges must be put close to each other; the nailing of the boards for the flanges must be riveted on the outside and the nail head must penetrate inside the boards by riveting. The boards of the drum must have chamfered edges and be put close to each other; uneven boards or steps between two boards or between boards and metal tie rods are not allowed. Instructions: Specify the welding type/technique (if present) and the anti-oxidation treatments. 7) Protections The cables must be protected in such a way as to prevent damage or tampering during transport and handling, also within the sphere of ENDESA. If the bidder plans to use a type of protection as an alternative to staves, it must not be made with materials that during disposal are classifiable as hazardous waste; in any case, all protections that are alternatives to staves must be explicitly approved by ENDESA during homologation or during the tender process. The free ends of the cable must be properly protected against the penetration of water and moisture during transport, storage (which may also be outdoors) and lying. The finished and inspected cable coils at the Constructor's facilities cannot be parked without staves or equivalent protections in zones exposed to bad weather (sun, rain,

		etc.) and to accidental impacts unless for the time necessary for their staving or similar protection. Unless otherwise provided in the purchase order letter, the protection (staving or other) of the coils must be executed 100%. The spacing between the external layer of the cable and the staving must be sufficient for preventing damage to the cable and in any case never less than **50 mm**; to comply with said prescription, sizes of length reduced up to the minimum allowed can be preferred, if necessary. 8) Labeling. At least the following data shall be shown in addition to what is required in the order on the external surface of at least one of the **flanges of the transport coil**, or on the **packaging of every single skein**, with clearly legible and indelible characters, if applicable: • The ENDESA code of the cable; • The name or trademark of the company that owns the coil; • The name of the Constructor of the cable; • The code and formation of the cable; • The type and code of the coil; • The total gross weight (only for the sizes on coil) • The net weight; • The weight of one meter of cable; • The actual length of the size; • The details of the ENDESA order; • The number and date of notice of shipment or, for the skeins, the number of the production lot (job no.). **Note: The two external faces of the flanges for coils made of wood and the two opposing faces of the pallets, which can be used for shipping several types of cable, must bear the mark demonstrating that the wood used for their**

		construction has been treated as required in directive 2000/29/EC, referred to in SECTION 8.2 7.2. For **Type IV** and **Type VI** cables following standard EN 50575, the CE marking and labelling shall be in accordance with the general principles set out in Article 30 of regulation (EC) No. 765/2008 and shall be affixed visibly, legibly and indelibly to the product labels affixed to the reels, coils or drums. The CE markings shall be followed by: • The last two digits of the year in which it was first affixed • The name and the registered address of the manufacturer, or the identifiying mark allowing identification of the name and address of the manufacturer easily and without ambiguity. • The unique identification code of the product-type • The reference number of the declaration of performance • The class of the performance declared • The date reference to the harmonized technical specification applied • The identification number of the notified body • The intended use as laid down in the applied harmonized technical specification. CE marking example for products subject to AVCP system 1+ (**Type IV** and **Type VI** cables with reaction to fire Cca-1sb,d2,a1 (10E-8 (Type IV) or 10E-5 (Type VI) (AS))).

		 CE marking example for products subject to AVCP system 3 (**Type IV** and **Type VI** cables with reaction to fire Eca (10E-7 (Type IV) or 10E-4 (Type VI) (S))). 

		9) Transport In order to facilitate unloading, drums should be arranged in the vehicle with a distance between the covers for inputting the charging and discharging means, so that either can be discharged with handling means with forks. For **Type IV** and **Type VI** cables, in compliance with standard EN 50575 in particular annex V of the EU Construction Products Regulation n° 305/2011 (CPR) the supplier shall elaborate a Declaration of performance (DoP) and shall dispose a CE marking in function of the assessment and verification of constancy of performance (AVCP).

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

14 COMMON LIST

GS Type Code	Distribution Company and Country	Country Code	Rated voltage Uo/U(Umax) [kV]	Cross-section [mm2]	Type of cable	Conductor material	Insulation material	Nominal insulation thcikness [mm]	Minimum insulation thcikness [mm]	Insulation Screen Nominal thickness [mm]	Insulation Screen Minimum thickness [mm]	Earth Screen type	Copper wires screen crosssection [mm2]	Aluminum screen minimum thickness [mm]	Outer sheath material	Sheath nominal thickness [mm]	Sheath minimun thickness [mm]	Sheath color	Constructive Characteristics	Minimum fire class reaction	Maximum diameter above the insulation [mm]	Outer diameter of the cable ** [mm]
GSC001/001	ED-Italy	332283	12/20(24)	95	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	2,75	2	RED	TRIPLEX	Fca	25	31,7
GSC001/002	ED-Italy	332284	12/20(24)	185	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	2,75	2	RED	TRIPLEX	Fca	28	36,5
GSC001/002	ED-Italy	330152*	12/20(24)	185	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	2,75	2	RED	TRIPLEX	Fca	28	36,5
GSC001/003	ED-Italy	332286	12/20(24)	185	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	2,75	2	RED	SINGLE CORE	Fca	28	36,5
GSC001/004	ED-Italy	332285	12/20(24)	240	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	3	2,2	RED	TRIPLEX	Fca	32,2	39,4
GSC001/004	ED-Italy	330153*	12/20(24)	240	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	3	2,2	RED	TRIPLEX	Fca	32,2	39,4
GSC001/005	ED-Italy	332283	12/20(24)	95	II	ALUMINUM	HPTE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	2,75	2	RED	TRIPLEX	Fca	25	31,7
GSC001/006	ED-Italy	332284	12/20(24)	185	II	ALUMINUM	HPTE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	2,75	2	RED	TRIPLEX	Fca	28	36,5
GSC001/006	ED-Italy	330152*	12/20(24)	185	II	ALUMINUM	HPTE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	2,75	2	RED	TRIPLEX	Fca	28	36,5
GSC001/007	ED-Italy	332286	12/20(24)	185	II	ALUMINUM	HPTE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	2,75	2	RED	SINGLE CORE	Fca	28	36,5
GSC001/008	ED-Italy	332285	12/20(24)	240	II	ALUMINUM	HPTE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	3	2,2	RED	TRIPLEX	Fca	32,2	39,4
GSC001/008	ED-Italy	330153*	12/20(24)	240	II	ALUMINUM	HPTE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	3	2,2	RED	TRIPLEX	Fca	32,2	39,4
GSC001/009	EE-Spain	330010	12/20(24)	95	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ1	2,75	2	RED	SINGLE CORE	Fca	25	31,7
GSC001/010	EE-Spain	330011	12/20(24)	150	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ1	2,75	2	RED	SINGLE CORE	Fca	28	34,7

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code	Distribution Company and Country	Country Code	Rated voltage Uo/U(Umax) [kV]	Cross-section [mm2]	Type of cable	Conductor material	Insulation material	Nominal insulation thcikness [mm]	Minimum insulation thcikness [mm]	Insulation Screen Nominal thickness [mm]	Insulation Screen Minimum thickness [mm]	Earth Screen type	Copper wires screen crosssection [mm2]	Aluminum screen minimum thickness [mm]	Outer sheath material	Sheath nominal thickness [mm]	Sheath minimun thickness [mm]	Sheath color	Constructive Characteristics	Minimum fire class reaction	Maximum diameter above the insulation [mm]	Outer diameter of the cable ** [mm]
GSC001/011	EE-Spain	330012	12/20(24)	240	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ1	2,75	2	RED	SINGLE CORE	Fca	32,2	38,9
GSC001/012	EE-Spain	330013	12/20(24)	400	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ1	2,75	2	RED	SINGLE CORE	Fca	37,5	44,3
GSC001/013	EE-Spain	330033	12/20(24)	240	IV	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	32,2	38,9
GSC001/014	EE-Spain	330028	12/20(24)	240	IV	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca - s1b,d2,a1	32,2	38,9
GSC001/015	EE-Spain	330032	12/20(24)	400	IV	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	37,5	44,3
GSC001/016	EE-Spain	330018	12/20(24)	400	IV	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca - s1b,d2,a1	37,5	44,3
GSC001/017	EE-Spain	330014	18/30(36)	150	I	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ1	2,75	2	RED	SINGLE CORE	Fca	33	39,4
GSC001/018	EE-Spain	330015	18/30(36)	240	I	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ1	2,75	2	RED	SINGLE CORE	Fca	37,2	43,6

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code	Distribution Company and Country	Country Code	Rated voltage Uo/U(Umax) [kV]	Cross-section [mm2]	Type of cable	Conductor material	Insulation material	Nominal insulation thcikness [mm]	Minimum insulation thcikness [mm]	Insulation Screen Nominal thickness [mm]	Insulation Screen Minimum thickness [mm]	Earth Screen type	Copper wires screen crosssection [mm2]	Aluminum screen minimum thickness [mm]	Outer sheath material	Sheath nominal thickness [mm]	Sheath minimun thickness [mm]	Sheath color	Constructive Characteristics	Minimum fire class reaction	Maximum diameter above the insulation [mm]	Outer diameter of the cable ** [mm]
GSC001/019	EE-Spain	330016	18/30(36)	400	I	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ1	2,75	2	RED	SINGLE CORE	Fca	42,5	49
GSC001/020	EE-Spain	340020	18/30(36)	240	IV	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	37,2	43,6
GSC001/021	EE-Spain	330037	18/30(36)	240	IV	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca - s1b,d2,a1	37,2	43,6
GSC001/022	EE-Spain	340030	18/30(36)	400	IV	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	42,5	49
GSC001/023	EE-Spain	330036	18/30(36)	400	IV	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca - s1b,d2,a1	42,5	49
GSC001/024	ED-Chile	330278	15/25(31)	150	III	ALUMINUM	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLUE	SINGLE CORE	-	33	41
GSC001/025	ED-Chile	330223	15/25(31)	240	III	ALUMINUM	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	25	-	PO	3	2,2	BLUE	SINGLE CORE	-	37,2	45,7
GSC001/026	ED-Chile	330224	15/25(31)	400	III	ALUMINUM	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	BLUE	SINGLE CORE	-	42,5	51,1
GSC001/027	ES-Argentine	0101-0274	18/30(36)	185	III	ALUMINUM	XLPE	7,25	6,43	1	0,8	COPPER WIRES	25	-	PO	2,75	2	RED	SINGLE CORE	-	33	45,1
GSC001/028	CD- Colombia	330629 (6793744)	20/34(37.95)	240	III	ALUMINUM	XLPE	8	7,1	1	0,9	COPPER WIRES	25	-	PO	3	2,2	BLACK	TRIPLEX	-	37,2	49,5

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Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code	Distribution Company and Country	Country Code	Rated voltage Uo/U(Umax) [kV]	Cross-section [mm2]	Type of cable	Conductor material	Insulation material	Nominal insulation thcikness [mm]	Minimum insulation thcikness [mm]	Insulation Screen Nominal thickness [mm]	Insulation Screen Minimum thickness [mm]	Earth Screen type	Copper wires screen crosssection [mm2]	Aluminum screen minimum thickness [mm]	Outer sheath material	Sheath nominal thickness [mm]	Sheath minimun thickness [mm]	Sheath color	Constructive Characteristics	Minimum fire class reaction	Maximum diameter above the insulation [mm]	Outer diameter of the cable ** [mm]
GSC001/029	CD- Colombia	330667 (T330020)	8.7/15(17.5)	95	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLACK	TRIPLEX	-	25	33,8
GSC001/030	RJ/CE BRASIL	331275 (T330003)	8.7/15(17.5)	95	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	BLACK	SINGLE CORE	-	25	33,8
GSC001/031	ES-Argentine	0101-0489	8.7/15(17.5)	95	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	50	-	PO	2,75	2	RED	TRIPLEX	-	25	33,8
GSC001/032	RJ/CE BRASIL	T330004	8.7/15(17.5)	95	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	BLACK	TRIPLEX	-	25	33,6
GSC001/032	SP-BRASIL	323860	8.7/15(17.5)	95	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	BLACK	TRIPLEX	-	25	33,8
GSC001/033	CD- Colombia	330630 (6793787)	8.7/15(17.5)	150	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLACK	TRIPLEX	-	28	36,8
GSC001/034	RJ/CE BRASIL	T330005	8.7/15(17.5)	150	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLACK	SINGLE CORE	-	28	36,8
GSC001/035	ES-Argentine	0101-0268	8.7/15(17.5)	185	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	50	-	PO	2,75	2	RED	SINGLE CORE	-	28	38,6
GSC001/036	CD- Colombia	330628 (6793716)	8.7/15(17.5)	185	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLACK	TRIPLEX	-	28	38,6
GSC001/037	RJ/CE BRASIL	330792 (6776421)	8.7/15(17.5)	185	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLACK	SINGLE CORE	-	28	38,6
GSC001/037	CD- Colombia	330311	8.7/15(17.5)	185	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLACK	SINGLE CORE	-	28	38,6
GSC001/037	ED-Chile	330721	8.7/15(17.5)	185	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	RED	SINGLE CORE	-	28	38,6
GSC001/038	RJ/CE BRASIL	330852 (6805960)	8.7/15(17.5)	240	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	3	2,2	BLACK	SINGLE CORE	-	32,2	41,5
GSC001/038	CD- Colombia	330312	8.7/15(17.5)	240	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	3	2,2	BLACK	SINGLE CORE	-	32,2	41,5

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code	Distribution Company and Country	Country Code	Rated voltage Uo/U(Umax) [kV]	Cross-section [mm2]	Type of cable	Conductor material	Insulation material	Nominal insulation thcikness [mm]	Minimum insulation thcikness [mm]	Insulation Screen Nominal thickness [mm]	Insulation Screen Minimum thickness [mm]	Earth Screen type	Copper wires screen crosssection [mm2]	Aluminum screen minimum thickness [mm]	Outer sheath material	Sheath nominal thickness [mm]	Sheath minimun thickness [mm]	Sheath color	Constructive Characteristics	Minimum fire class reaction	Maximum diameter above the insulation [mm]	Outer diameter of the cable ** [mm]
GSC001/038	ED-Chile	330722	8.7/15(17.5)	240	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	3	2,2	RED	SINGLE CORE	-	32,2	41,5
GSC001/039	ES-Argentine	0101-0277	8.7/15(17.5)	240	III	COPPER	XLPE	4,5	4	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	RED	SINGLE CORE	-	32,2	41,5
GSC001/040	CD- Colombia	330627 (6791555)	8.7/15(17.5)	240	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	3	2,2	BLACK	TRIPLEX	-	32,2	41,5
GSC001/041	RJ/CE BRASIL	331066 (6804341)	8.7/15(17.5)	400	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	BLACK	SINGLE CORE	-	37,5	46,9
GSC001/041	ED-Chile	330720	8.7/15(17.5)	400	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	RED	SINGLE CORE	-	37,5	46,9
GSC001/041	ES-Argentine	0101-0458	8.7/15(17.5)	400	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	RED	SINGLE CORE	-	37,5	46,9
GSC001/042	ED-Chile	330199	15/25(31)	70	III	COPPER	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	25	-	PO	2,5	1,8	BLUE	SINGLE CORE	-	30	35,7
GSC001/043	ED-Chile	330200	15/25(31)	120	III	COPPER	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLUE	SINGLE CORE	-	30	39,5
GSC001/044	ED-Chile	330201	15/25(31)	240	III	COPPER	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	BLUE	SINGLE CORE	-	37,2	45,7
GSC001/045	ED-Chile	350064	15/25(31)	400	III	COPPER	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	BLUE	SINGLE CORE	-	42,5	51,1
GSC001/046	ES-Argentine	0101-0486	8.7/15(17.5)	240	III	COPPER	XLPE	4,5	4	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	RED	SINGLE CORE	-	32,2	41,5
GSC001/047	SP-BRASIL	323861	15/25(31)	95	III	ALUMINUM	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	BLACK	TRIPLEX	-	30	38
GSC001/048	SP-BRASIL	323862	20/34(37.95)	95	III	ALUMINUM	XLPE	8	7,1	1	0,9	COPPER WIRES	16	-	PO	2,75	2	BLACK	TRIPLEX	-	30	41,8
GSC001/049	SP-BRASIL	325010	8.7/15(17.5)	35	III	ALUMINUM	XLPE	4,5	4	0,4	0,3	COPPER WIRES	16	-	PO	2,5	1,8	BLACK	TRIPLEX	-	21,8	28,6

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code	Distribution Company and Country	Country Code	Rated voltage Uo/U(Umax) [kV]	Cross-section [mm2]	Type of cable	Conductor material	Insulation material	Nominal insulation thcikness [mm]	Minimum insulation thcikness [mm]	Insulation Screen Nominal thickness [mm]	Insulation Screen Minimum thickness [mm]	Earth Screen type	Copper wires screen crosssection [mm2]	Aluminum screen minimum thickness [mm]	Outer sheath material	Sheath nominal thickness [mm]	Sheath minimun thickness [mm]	Sheath color	Constructive Characteristics	Minimum fire class reaction	Maximum diameter above the insulation [mm]	Outer diameter of the cable ** [mm]
GSC001/050	SP-BRASIL	325012	8.7/15(17.5)	400	III	ALUMINUM	XLPE	4,5	4	0,4	0,3	COPPER WIRES	25	-	PO	3	2,2	BLACK	TRIPLEX	-	37,5	46,7
GSC001/051	SP-BRASIL	323846	15/25(31)	240	III	COPPER	XLPE	6,6	5,84	0,4	0,3	COPPER WIRES	16	-	PO	3	2,2	BLACK	TRIPLEX	-	37,2	45,5
GSC001/052	SP-BRASIL	323850	15/25(31)	400	III	ALUMINUM	XLPE	6,6	5,84	0,4	0,3	COPPER WIRES	16	-	PO	3	2,2	BLACK	TRIPLEX	-	42,5	40,9
GSC001/053	SP-BRASIL	323851	20/34(37.95)	400	III	ALUMINUM	XLPE	8	7,1	1	0,9	COPPER WIRES	16	-	PO	3	2,2	BLACK	TRIPLEX	-	42,5	54,9
GSC001/054	SP-BRASIL	323842	12/20(24)	240	III	COPPER	XLPE	4,9	4,31	0,5	0,3	COPPER WIRES	16	-	PO	3	2,2	BLACK	SINGLE CORE	-	32,2	42,3
GSC001/055	SP-BRASIL	323897	8.7/15(17.5)	500	III	COPPER	XLPE	4,5	4	0,4	0,3	COPPER WIRES	25	-	PO	3	2,2	BLACK	TRIPLEX	-	38,1	49,7
GSC001/056	SP-BRASIL	323118	12/20(24)	500	III	COPPER	XLPE	4,9	4,31	0,5	0,3	COPPER WIRES	16	-	PO	3	2,2	BLACK	SINGLE CORE	-	42,5	50,7
GSC001/057	CD-Colombia	330597	8.7/15(17.5)	150	III	COPPER	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLACK WITH COLORED STRIPS	TRIPLEX	-	28	36,8
GSC001/058	CD-Colombia	330598	20/34(37.95)	150	III	COPPER	XLPE	8	7,1	1	0,9	COPPER WIRES	25	-	PO	3	2,2	BLACK WITH COLORED STRIPS	TRIPLEX	-	33	43,8
GSC001/059	ED-Italy	330141	12/20(24)	240	I	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	3	2,2	RED	SINGLE CORE	Fca	32,2	39,4
GSC001/060	ED-Italy	330141	12/20(24)	240	II	ALUMINUM	HPTE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	PO	3	2,2	RED	SINGLE CORE	Fca	32,2	39,4
GSC001/061	RJ/CE BRASIL	330302	18/30(36)	240	III	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	BLACK	SINGLE CORE	-	37,2	47
GSC001/062	RJ/CE BRASIL	330303	18/30(36)	400	III	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	BLACK	SINGLE CORE	-	42,5	52,4

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code	Distribution Company and Country	Country Code	Rated voltage Uo/U(Umax) [kV]	Cross-section [mm2]	Type of cable	Conductor material	Insulation material	Nominal insulation thcikness [mm]	Minimum insulation thcikness [mm]	Insulation Screen Nominal thickness [mm]	Insulation Screen Minimum thickness [mm]	Earth Screen type	Copper wires screen crosssection [mm2]	Aluminum screen minimum thickness [mm]	Outer sheath material	Sheath nominal thickness [mm]	Sheath minimun thickness [mm]	Sheath color	Constructive Characteristics	Minimum fire class reaction	Maximum diameter above the insulation [mm]	Outer diameter of the cable ** [mm]
GSC001/063	RJ/CE BRASIL	330300	18/30(36)	95	III	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	BLACK	SINGLE CORE	-	30	39,3
GSC001/064	RJ/CE BRASIL	330301	18/30(36)	185	III	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLACK	SINGLE CORE	-	33	44,1
GSC001/065	ED-Chile	330321	15/25(31)	95	III	ALUMINUM	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLUE	SINGLE CORE	-	30	38
GSC001/066	ED-Chile	330250	15/25(31)	185	III	ALUMINUM	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLUE	SINGLE CORE	-	33	42,8
GSC001/067	CD- Colombia	330309	20/34(37.95)	240	III	ALUMINUM	XLPE	8	7,1	1	0,9	COPPER WIRES	25	-	PO	3	2,2	BLACK	SINGLE CORE	-	37,2	49,5
GSC001/068	CD- Colombia	330310	8.7/15(17.5)	95	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLACK	SINGLE CORE	-	25	33,8
GSC001/068	ED-Chile	330723	8.7/15(17.5)	95	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	RED	SINGLE CORE	-	25	33,8
GSC001/069	SP-BRASIL	330703	8.7/15(17.5)	35	III	ALUMINUM	XLPE	4,5	4	0,4	0,3	COPPER WIRES	16	-	PO	2,5	1,8	BLACK	SINGLE CORE	-	21,8	28,6
GSC001/070	ED-Chile	330589	15/25(31)	400	III	ALUMINUM	XLPE	6,6	5,84	0,5	0,3	COPPER WIRES	50	-	PO	3	2,2	BLUE	TRIPLEX	-	42,5	51,1
GSC001/071	CD-Colombia	331050	20/34(37.95)	185	III	COPPER	XLPE	8	7,1	0,5	0,3	COPPER WIRES	25	-	PO	2,75	2	BLACK	SINGLE CORE	-	37,2	46,6
GSC001/072	CD-Colombia	331051	8.7/15(17.5)	35	III	ALUMINUM	XLPE	4,5	4	0,5	0,3	COPPER WIRES	25	-	PO	2,5	1,8	BLACK	TRIPLEX	-	21,8	28,6
GSC001/073	EE-Spain	330131	12/20(24)	95	IV	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	25	31,7
GSC001/074	EE-Spain	330130	12/20(24)	95	IV	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca - s1b,d2,a1	25	31,7

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code	Distribution Company and Country	Country Code	Rated voltage Uo/U(Umax) [kV]	Cross-section [mm2]	Type of cable	Conductor material	Insulation material	Nominal insulation thcikness [mm]	Minimum insulation thcikness [mm]	Insulation Screen Nominal thickness [mm]	Insulation Screen Minimum thickness [mm]	Earth Screen type	Copper wires screen crosssection [mm2]	Aluminum screen minimum thickness [mm]	Outer sheath material	Sheath nominal thickness [mm]	Sheath minimun thickness [mm]	Sheath color	Constructive Characteristics	Minimum fire class reaction	Maximum diameter above the insulation [mm]	Outer diameter of the cable ** [mm]
GSC001/075	EE-Spain	330128	12/20(24)	150	IV	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	28	34,7
GSC001/076	EE-Spain	330129	12/20(24)	150	IV	ALUMINUM	XLPE	4,9	4,31	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca - s1b,d2,a1	28	34,7
GSC001/077	EE-Spain	330126	18/30(36)	150	IV	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	33	39,4
GSC001/078	EE-Spain	330127	18/30(36)	150	IV	ALUMINUM	XLPE	7,25	6,43	0,5	0,3	ALUMINUM FOIL	-	0,3	DMZ2	2,75	2	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca - s1b,d2,a1	33	39,4
GSC001/079	ED-Italy	330073	12/20(24)	95	III	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	RED	TRIPLEX	Fca	25	35,8
GSC001/080	ED-Italy	330074	12/20(24)	185	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	RED	TRIPLEX	Eca	29	40,6
GSC001/081	ED-Italy	330075	12/20(24)	240	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	PO	3	2,2	RED	TRIPLEX	Eca	32,2	43,5
GSC001/082	ED-Italy	330073	12/20(24)	95	V	ALUMINUM	HPTE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	RED	TRIPLEX	Eca	25	35,8
GSC001/083	ED-Italy	330074	12/20(24)	185	V	ALUMINUM	HPTE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	RED	TRIPLEX	Eca	29	40,6
GSC001/084	ED-Italy	330075	12/20(24)	240	V	ALUMINUM	HPTE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	PO	3	2,2	RED	TRIPLEX	Eca	32,2	43,5
GSC001/085	EE-Spain	330047	12/20(24)	95	III	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ1	2,7	2,2	RED	SINGLE CORE	Fca	25	36,3
GSC001/086	EE-Spain	330124	12/20(24)	95	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ2	2,7	2,2	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	25	36,3
GSC001/087	EE-Spain	330125	12/20(24)	95	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ2	2,7	2,2	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca - s1b,d2,a1	25	36,3

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code	Distribution Company and Country	Country Code	Rated voltage Uo/U(Umax) [kV]	Cross-section [mm2]	Type of cable	Conductor material	Insulation material	Nominal insulation thcikness [mm]	Minimum insulation thcikness [mm]	Insulation Screen Nominal thickness [mm]	Insulation Screen Minimum thickness [mm]	Earth Screen type	Copper wires screen crosssection [mm2]	Aluminum screen minimum thickness [mm]	Outer sheath material	Sheath nominal thickness [mm]	Sheath minimun thickness [mm]	Sheath color	Constructive Characteristics	Minimum fire class reaction	Maximum diameter above the insulation [mm]	Outer diameter of the cable ** [mm]
GSC001/088	EE-Spain	330000	12/20(24)	150	III	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ1	3	2,4	RED	SINGLE CORE	Fca	28	39,3
GSC001/089	EE-Spain	330122	12/20(24)	150	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	28	39,3
GSC001/090	EE-Spain	330123	12/20(24)	150	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca - s1b,d2,a1	28	39,3
GSC001/091	ED-Italy	330076	12/20(24)	185	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	RED	SINGLE CORE	Eca	29	40,6
GSC001/092	ED-Italy	330076	12/20(24)	185	V	ALUMINUM	HPTE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	PO	2,75	2	RED	SINGLE CORE	Eca	29	40,6
GSC001/093	EE-Spain	330001	12/20(24)	240	III	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ1	3	2,4	RED	SINGLE CORE	Fca	32,2	43,5
GSC001/094	EE-Spain	330017	12/20(24)	240	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	32,2	43,5
GSC001/095	EE-Spain	330029	12/20(24)	240	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca-s1b,d2,a1	32,2	43,5
GSC001/096	EE-Spain	330002	12/20(24)	400	III	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ1	3	2,4	RED	SINGLE CORE	Fca	37,5	48,9
GSC001/097	EE-Spain	330019	12/20(24)	400	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	37,5	48,9
GSC001/098	EE-Spain	330030	12/20(24)	400	VI	ALUMINUM	XLPE	5,5	4,85	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca-s1b,d2,a1	37,5	48,9
GSC001/099	EE-Spain	330003	18/30(36)	150	III	ALUMINUM	XLPE	8	7,1	0,5	0,3	COPPER WIRES	16	-	DMZ1	3	2,4	RED	SINGLE CORE	Fca	33	44,3
GSC001/100	EE-Spain	330120	18/30(36)	150	VI	ALUMINUM	XLPE	8	7,1	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	33	44,3

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code	Distribution Company and Country	Country Code	Rated voltage Uo/U(Umax) [kV]	Cross-section [mm2]	Type of cable	Conductor material	Insulation material	Nominal insulation thcikness [mm]	Minimum insulation thcikness [mm]	Insulation Screen Nominal thickness [mm]	Insulation Screen Minimum thickness [mm]	Earth Screen type	Copper wires screen crosssection [mm2]	Aluminum screen minimum thickness [mm]	Outer sheath material	Sheath nominal thickness [mm]	Sheath minimun thickness [mm]	Sheath color	Constructive Characteristics	Minimum fire class reaction	Maximum diameter above the insulation [mm]	Outer diameter of the cable ** [mm]
GSC001/101	EE-Spain	330121	18/30(36)	150	VI	ALUMINUM	XLPE	8	7,1	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREEN STRIPS	SINGLE CORE	- Cca-s1b,d2,a1	33	44,3
GSC001/102	EE-Spain	330004	18/30(36)	240	III	ALUMINUM	XLPE	8	7,1	0,5	0,3	COPPER WIRES	16	-	DMZ1	3	2,4	RED	SINGLE CORE	Fca	37,2	48,5
GSC001/103	EE-Spain	330026	18/30(36)	240	VI	ALUMINUM	XLPE	8	7,1	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	37,2	48,5
GSC001/104	EE-Spain	330034	18/30(36)	240	VI	ALUMINUM	XLPE	8	7,1	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca-s1b,d2,a1	37,2	48,5
GSC001/105	EE-Spain	330005	18/30(36)	400	III	ALUMINUM	XLPE	8	7,1	0,5	0,3	COPPER WIRES	16	-	DMZ1	3	2,4	RED	SINGLE CORE	Fca	42,5	53,9
GSC001/106	EE-Spain	330027	18/30(36)	400	VI	ALUMINUM	XLPE	8	7,1	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREY STRIPS	SINGLE CORE	Eca	42,5	53,9
GSC001/107	EE-Spain	330035	18/30(36)	400	VI	ALUMINUM	XLPE	8	7,1	0,5	0,3	COPPER WIRES	16	-	DMZ2	3	2,4	RED WITH TWO GREEN STRIPS	SINGLE CORE	Cca-s1b,d2,a1	42,5	53,9

*Codes introduced with XL size, see local section E.

**A tolerance of ±10% will be allowed.

Note:

- **The maximum diameter for TRIPLEX cables refers to each phase.**
- **Conductors screen nominal/ minimum thickness [mm]: 0,5/ 0,3.**

15 ANNEX

GS Type Code (Rev.6)	GS Type Code (Rev.5)	Distribution Company and Country	Country Code		Insulation material
			New code	Old code	
GSC001/001	GSC001/001	ED-Italy	332283	-	XLPE
GSC001/002	GSC001/002	ED-Italy	332284	-	XLPE
GSC001/002	GSC001/002	ED-Italy	330152	-	XLPE
GSC001/003	GSC001/003	ED-Italy	332286	-	XLPE
GSC001/004	GSC001/004	ED-Italy	332285	-	XLPE
GSC001/004	GSC001/004	ED-Italy	330153	-	XLPE
GSC001/005	GSC001/005	ED-Italy	332283	-	HPTE
GSC001/006	GSC001/006	ED-Italy	332284	-	HPTE
GSC001/006	GSC001/006	ED-Italy	330152	-	HPTE
GSC001/007	GSC001/007	ED-Italy	332286	-	HPTE
GSC001/008	GSC001/008	ED-Italy	332285	-	HPTE
GSC001/008	GSC001/008	ED-Italy	330153	-	HPTE
GSC001/009	GSC001/013	EE-Spain	330010	-	XLPE
GSC001/010	GSC001/014	EE-Spain	330011	-	XLPE
GSC001/011	GSC001/015	EE-Spain	330012	-	XLPE
GSC001/012	GSC001/016	EE-Spain	330013	-	XLPE
GSC001/013	GSC001/017	EE-Spain	330033	-	XLPE
GSC001/014	GSC001/018	EE-Spain	330028	-	XLPE
GSC001/015	GSC001/019	EE-Spain	330032	-	XLPE
GSC001/016	GSC001/020	EE-Spain	330018	-	XLPE
GSC001/017	GSC001/021	EE-Spain	330014	-	XLPE
GSC001/018	GSC001/022	EE-Spain	330015	-	XLPE
GSC001/019	GSC001/023	EE-Spain	330016	-	XLPE
GSC001/020	GSC001/024	EE-Spain	340020	-	XLPE
GSC001/021	GSC001/025	EE-Spain	330037	-	XLPE
GSC001/022	GSC001/026	EE-Spain	340030	-	XLPE
GSC001/023	GSC001/027	EE-Spain	330036	-	XLPE
GSC001/024	GSC001/028	ED-Chile	330278	-	XLPE
GSC001/025	GSC001/029	ED-Chile	330223	-	XLPE
GSC001/026	GSC001/030	ED-Chile	330224	-	XLPE

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code (Rev.6)	GS Type Code (Rev.5)	Distribution Company and Country	Country Code		Insulation material
			New code	Old code	
GSC001/027	GSC001/032	ES-Argentine	0101-0274	-	XLPE
GSC001/028	GSC001/033	CD-Colombia	330629	6793744	XLPE
GSC001/029	GSC001/034	CD-Colombia	330667	T330020	XLPE
GSC001/030	GSC001/035	RJ/CE/GO BRASIL	331275	T330003	XLPE
GSC001/031	GSC001/037	ES-Argentine	0101-0489	-	XLPE
GSC001/032	GSC001/038	RJ/CE/GO BRASIL	T330004	-	XLPE
GSC001/032	GSC001/038	SP-BRASIL	323860	-	XLPE
GSC001/033	GSC001/039	CD-Colombia	330630	6793787	XLPE
GSC001/034	GSC001/040	RJ/CE/GO BRASIL	T330005	-	XLPE
GSC001/035	GSC001/041	ES-Argentine	0101-0268	-	XLPE
GSC001/036	GSC001/042	CD-Colombia	330628	6793716	XLPE
GSC001/037	GSC001/045	RJ/CE/GO BRASIL	330792	6776421	XLPE
GSC001/037	GSC001/045	CD-Colombia	330311	-	XLPE
GSC001/037	-	ED-Chile	330721		XLPE
GSC001/038	GSC001/046	RJ/CE/GO BRASIL	330852	6805960	XLPE
GSC001/038	GSC001/046	CD-Colombia	330312		XLPE
GSC001/038	-	ED-Chile	330722		XLPE
GSC001/039	GSC001/047	ES-Argentine	0101-0277	-	XLPE

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code (Rev.6)	GS Type Code (Rev.5)	Distribution Company and Country	Country Code		Insulation material
			New code	Old code	
GSC001/040	GSC001/048	CD-Colombia	330627	6791555	XLPE
GSC001/041	GSC001/049	RJ/CE/GO BRASIL	331066	6804341	XLPE
GSC001/041	GSC001/051	ES-Argentine	0101-0458	-	XLPE
GSC001/041	-	ED-Chile	330720		XLPE
GSC001/042	GSC001/053	ED-Chile	330199	-	XLPE
GSC001/043	GSC001/054	ED-Chile	330200	-	XLPE
GSC001/044	GSC001/055	ED-Chile	330201	-	XLPE
GSC001/045	GSC001/056	ED-Chile	350064	-	XLPE
GSC001/046	GSC001/057	ES-Argentine	0101-0486	-	XLPE
GSC001/047	GSC001/058	SP-BRASIL	323861	-	XLPE
GSC001/048	GSC001/059	SP-BRASIL	323862	-	XLPE
GSC001/049	GSC001/060	SP-BRASIL	325010	-	XLPE
GSC001/050	GSC001/061	SP-BRASIL	325012	-	XLPE
GSC001/051	GSC001/063	SP-BRASIL	323846	-	XLPE
GSC001/052	GSC001/064	SP-BRASIL	323850	-	XLPE
GSC001/053	GSC001/065	SP-BRASIL	323851	-	XLPE
GSC001/054	GSC001/066	SP-BRASIL	323842	-	XLPE
GSC001/055	GSC001/067	SP-BRASIL	323897	-	XLPE
GSC001/056	GSC001/068	SP-BRASIL	323118	-	XLPE
GSC001/057	GSC001/069	CD-Colombia	330597	-	XLPE
GSC001/058	GSC001/070	CD-Colombia	330598	-	XLPE
GSC001/059	GSC001/071	ED-Italy	330141	-	XLPE
GSC001/060	GSC001/072	ED-Italy	330141	-	HPTE
GSC001/061	GSC001/073	RJ/CE/GO BRASIL	330302	-	XLPE
GSC001/062	GSC001/074	RJ/CE/GO BRASIL	330303	-	XLPE
GSC001/063	GSC001/075	RJ/CE/GO BRASIL	330300	-	XLPE

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code (Rev.6)	GS Type Code (Rev.5)	Distribution Company and Country	Country Code		Insulation material
			New code	Old code	
GSC001/064	GSC001/076	RJ/CE/GO BRASIL	330301	-	XLPE
GSC001/065	GSC001/077	ED-Chile	330321	-	XLPE
GSC001/066	GSC001/078	ED-Chile	330250	-	XLPE
GSC001/067	GSC001/079	CD-Colombia	330309	-	XLPE
GSC001/068	GSC001/080	CD-Colombia	330310	-	XLPE
GSC001/068	-	ED-Chile	330723		XLPE
GSC001/069	GSC001/081	SP-BRASIL	330703	-	XLPE
GSC001/070	GSC001/082	ED-Chile	330589	-	XLPE
GSC001/071	-	CD-Colombia	331050	-	XLPE
GSC001/072	-	CD-Colombia	331051	-	XLPE
GSC001/073	-	EE-Spain	330131		XLPE
GSC001/074	-	EE-Spain	330130		XLPE
GSC001/075	-	EE-Spain	330128		XLPE
GSC001/076	-	EE-Spain	330129		XLPE
GSC001/077	-	EE-Spain	330126		XLPE
GSC001/078	-	EE-Spain	330127		XLPE
GSC001/079	-	ED-Italy	330073	-	XLPE
GSC001/080	-	ED-Italy	330074	-	XLPE
GSC001/081	-	ED-Italy	330075	-	XLPE
GSC001/082	-	ED-Italy	330073	-	HPTE
GSC001/083	-	ED-Italy	330074	-	HPTE
GSC001/084	-	ED-Italy	330075	-	HPTE
GSC001/085	-	EE-Spain	330047	-	XLPE
GSC001/086	-	EE-Spain	330124		XLPE
GSC001/087	-	EE-Spain	330125		XLPE
GSC001/088	-	EE-Spain	330000	-	XLPE
GSC001/089	-	EE-Spain	330122		XLPE
GSC001/090	-	EE-Spain	330123		XLPE

Technical Specification code: GRI-GRI-MAT-NE&D-0051

Version no. 6 dated 10/07/2026

Subject: GSC001 – UNDERGROUND MEDIUM VOLTAGE CABLES

Application Areas
Perimeter: *Global*
Staff Function: -
Service Function: -
Business Line: *Enel Grids and Innovaton*

GS Type Code (Rev.6)	GS Type Code (Rev.5)	Distribution Company and Country	Country Code		Insulation material
			New code	Old code	
GSC001/091	-	ED-Italy	330076	-	XLPE
GSC001/092	-	ED-Italy	330076	-	HPTE
GSC001/093	-	EE-Spain	330001	-	XLPE
GSC001/094	-	EE-Spain	330017	-	XLPE
GSC001/095	-	EE-Spain	330029	-	XLPE
GSC001/096	-	EE-Spain	330002	-	XLPE
GSC001/097	-	EE-Spain	330019	-	XLPE
GSC001/098	-	EE-Spain	330030	-	XLPE
GSC001/099	-	EE-Spain	330003	-	XLPE
GSC001/100	-	EE-Spain	330120	-	XLPE
GSC001/101	-	EE-Spain	330121	-	XLPE
GSC001/102	-	EE-Spain	330004	-	XLPE
GSC001/103	-	EE-Spain	330026	-	XLPE
GSC001/104	-	EE-Spain	330034	-	XLPE
GSC001/105	-	EE-Spain	330005	-	XLPE
GSC001/106	-	EE-Spain	330027	-	XLPE
GSC001/107	-	EE-Spain	330035	-	XLPE