

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors

Application Areas

Perimeter: *Global*

Staff Function: -

Service Function: -

Business Line: *Infrastructure & Networks*

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THE HEAD OF NETWORK COMPONENTS
Maurizio Mazzotti

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors

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1. DOCUMENT AIMS AND APPLICATION AREA

The aim of this document is to provide technical requirements for the supply of round wires concentric –lay-stranded bare conductors to be used in the High and Medium Voltage overhead electrical lines of the Enel Group Distribution Companies, listed below:

| Country | Distribution Company |
|-----------|------------------------------------------------------------------------------------------------------------|
| Argentina | Edesur |
| Brasil | Enel Distribuição Rio Enel Distribuição Ceará Enel Distribuição Goiás Enel Distribuição São Paulo |
| Chile | Enel Distribución Chile |
| Colombia | Codensa |
| España | e-distribución |
| Italia | e-distribuzione |
| Perú | Enel Distribución Perú |
| Romania | Enel Distributie Banat Enel Distributie Dobrogea Enel Distributie Muntenia |

Table 1 - Distribution Companies

1.1 RELATED DOCUMENTS TO BE IMPLEMENTED AT COUNTRY LEVEL

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 | Date | Main changes description |
|---------|------------|--------------------------------------------------------------------------------------------------------------------------|
| 4 | 06/07/2021 | Issuing of "Global Infrastructure and Networks - GSC003 Concentric-Lay-Stranded Bare Conductors" technical specification |

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3. UNITS IN CHARGE OF THE DOCUMENT

Responsible for drawing up the document:

- Global Infrastructure and Networks: Engineering and Construction / Network Components.

Responsible for authorizing the document:

- Global Infrastructure and Networks: Head of Engineering and Construction unit
- Global Infrastructure and Networks: Head of Health, Safety, Environment and Quality unit.

4. REFERENCES

- Code of Ethics of Enel Group;
- Enel Human Right Policy;
- The Enel Group Zero Tolerance of Corruption (ZTC) Plan;
- Organization and management model as per Legislative Decree No. 231/2001;
- RACI Handbook Infrastructure and Networks no. 06;
- Enel Global Compliance Program (EGCP);
- Integrated Policy of Quality, Health and Safety, Environment and anti-Bribery;

5. ORGANIZATIONAL PROCESS POSITION IN THE PROCESS TAXONOMY

Value Chain/Process Area: Networks Management

Macro Process: Materials management

Process: Network Components Standardization

6. DEFINITIONS AND ACRONYMS

| Acronym and Key words | Description |
|-----------------------------|-----------------------------------------------------------------------------------|
| Manufacturer Product | Component manufactured by a Supplier in accordance with a technical specification |

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|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Technical Conformity Assessment (TCA)</p> | <p>A “conformity assessment”¹ with respect to “specified requirements”² 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</p> |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

7. DESCRIPTION

This standard specifies the electrical and mechanical characteristics and test requirements that must be accomplished by concentric lay stranded bare conductors made from round wires for use as overhead electrical conductors by the utilities mentioned above.

7.1 LIST OF COMPONENTS

This standard includes round wire concentric lay bare overhead electrical conductors stranded in alternate directions, with or without grease, of one of the following types:

- Type ACSR: Concentric-lay-stranded hard drawn aluminum conductors, zinc-coated-steel reinforced.
 Aluminum wires: AL1 (EN60889) or 1350-H19 (ASTM B230).
 Zinc coated steel wires: ST1A (EN50189) or Class A (ASTM B498)
- Type ACSR/AW: Concentric-lay-stranded hard drawn aluminum conductors, aluminum-coated-steel reinforced.
 Aluminum wires: AL1 (EN60889) or 1350-H19 (ASTM B230).
 Aluminum clad steel wires: A20SA (EN61232) or Class AW3 (High Strength) (ASTM B502)
- Type AAAC: Concentric-lay-stranded aluminum alloy conductors
 Aluminum wires: AL3 (EN50183) or 6201-T81 (ASTM B398).
- Type CC: Conductors made from round medium-hard copper wires as indicated on ASTM B8 or UNE207015.

The list of conductors with the main requirements, which is an integral part of the present document, is reported in the GS Type Code List attached. In the following tables are shown a brief of these requirements:

¹ Definition 2.1 of ISO/IEC 17000

² Definition 3.1 of ISO/IEC 17000

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| GS Type Code | Standard | Old Designation | Denomination EN 50182 | Denomination GSC003 | Al. wires | | Steel wires | | Total diameter (mm) | DC Resistance 20°C (Ω/km) | Grease (Yes/No) |
|--------------|-------------|-------------------|-----------------------|---------------------|-----------|------------|-------------|------------|---------------------|---------------------------|-----------------|
| | | | | | Nº (Un.) | Diam. (mm) | Nº (Un.) | Diam. (mm) | | | |
| GSC003/01 | ASTM B232 | Swan | 21-AL1/4-ST1A | ACSR 25 | 6 | 2,12 | 1 | 2,12 | 6,36 | 1,3203 | No |
| GSC003/08 | IRAM 2187-I | 25/4 | 24-AL1/4-ST1A | ACSR 28(G) | 6 | 2,25 | 1 | 2,25 | 6,75 | 1,1721 | Yes |
| GSC003/02 | ASTM B232 | Sparrow | 34-AL1/6-ST1A | ACSR 39 | 6 | 2,67 | 1 | 2,67 | 8,01 | 0,8324 | No |
| GSC003/11# | EN-50182 | LA-56 | 47-AL1/8-ST1A | ACSR 55 | 6 | 3,15 | 1 | 3,15 | 9,45 | 0,598 | No |
| GSC003/42 | EN-50182 | - | 48-AL1/8-ST1A | ACSR 56 | 6 | 3,2 | 1 | 3,2 | 9,6 | 0,5795 | No |
| GSC003/09 | EN-50182 | 50/8 | 48-AL1/8-ST1A | ACSR 56(G) | 6 | 3,2 | 1 | 3,2 | 9,6 | 0,5795 | Yes |
| GSC003/03 | ASTM B232 | Raven | 54-AL1/9-ST1A | ACSR 62 | 6 | 3,37 | 1 | 3,37 | 10,11 | 0,5225 | No |
| GSC003/04# | ASTM B232 | Quail | 67-AL1/11-ST1A | ACSR 79 | 6 | 3,78 | 1 | 3,78 | 11,34 | 0,4153 | No |
| GSC003/43# | EN-50182 | - | 70-AL1/11-ST1A | ACSR 81 | 26 | 1,85 | 7 | 1,44 | 11,72 | 0,4034 | No |
| GSC003/77 | ASTM B232 | Petrel | 52-AL1/30-ST1A | ACSR 82 | 12 | 2,34 | 7 | 2,34 | 11,7 | 0,5147 | No |
| GSC003/47 | ASTM B232 | Leghorn | 68-AL1/40-ST1A | ACSR 108 | 12 | 2,69 | 7 | 2,69 | 13,45 | 0,3895 | No |
| GSC003/44 | EN-50182 | - | 94-AL1/15-ST1A | ACSR 110 | 26 | 2,15 | 7 | 1,67 | 13,61 | 0,2987 | No |
| GSC003/10 | EN-50182 | 95/15 | 94-AL1/15-ST1A | ACSR 110(G) | 26 | 2,15 | 7 | 1,67 | 13,61 | 0,2987 | Yes |
| GSC003/14# | EN-50182 | LA-110 | 94-AL1/22-ST1A | ACSR 116 | 30 | 2 | 7 | 2 | 14 | 0,2964 | No |
| GSC003/05# | ASTM B232 | Penguin | 107-AL1/18-ST1A | ACSR 125 | 6 | 4,77 | 1 | 4,77 | 14,31 | 0,2608 | No |
| GSC003/45 | EN-50182 | - | 122-AL1/20-ST1A | ACSR 141 | 26 | 2,44 | 7 | 1,9 | 15,46 | 0,2319 | No |
| GSC003/78 | ASTM B232 | Dotterel | 89-AL1/52-ST1A | ACSR 142 | 12 | 3,08 | 7 | 3,08 | 15,4 | 0,2971 | No |
| GSC003/46 | EN-50182 | - | 128-AL1/21-ST1A | ACSR 149 | 26 | 2,5 | 7 | 1,95 | 15,85 | 0,2209 | No |
| GSC003/06# | ASTM B232 | Partridge | 135-AL1/22-ST1A | ACSR 157 | 26 | 2,57 | 7 | 2 | 16,28 | 0,2091 | No |
| GSC003/79 | ASTM B232 | Cochin | 107-AL1/62-ST1A | ACSR 169 | 12 | 3,37 | 7 | 3,37 | 16,85 | 0,2482 | No |
| GSC003/53 | EN-50182 | 0101-0440 | 149-AL1/24-ST1A | ACSR 173 | 26 | 2,7 | 7 | 2,1 | 17,1 | 0,1894 | No |
| GSC003/95 | EN-50182 | 0101-0440 | 149-AL1/24-ST1A | ACSR 173(G) | 26 | 2,7 | 7 | 2,1 | 17,1 | 0,1894 | Yes |
| GSC003/17# | EN-50182 | LA-180 | 147-AL1/34-ST1A | ACSR 182 | 30 | 2,5 | 7 | 2,5 | 17,5 | 0,1897 | No |
| GSC003/07# | ASTM B232 | Linnet | 171-AL1/28-ST1A | ACSR 198 | 26 | 2,89 | 7 | 2,25 | 18,31 | 0,1653 | No |
| GSC003/96 | EN-50182 | - | 184-AL1/30-ST1A | ACSR 214(G) | 26 | 3,00 | 7 | 2,33 | 19,0 | 0,1535 | Yes |
| GSC003/54# | EN-50182 | LA-280 (Hawk) | 242-AL1/39-ST1A | ACSR 281 | 26 | 3,44 | 7 | 2,68 | 21,8 | 0,1167 | No |
| GSC003/98 | EN-50182 | LA-280 (Hawk) | 242-AL1/39-ST1A | ACSR 281(G) | 26 | 3,44 | 7 | 2,68 | 21,8 | 0,1167 | Yes |
| GSC003/48 | ASTM B232 | Osprey | 282-AL1/16-ST1A | ACSR 298 | 18 | 4,47 | 1 | 4,47 | 22,35 | 0,1011 | No |
| GSC003/80 | ASTM B232 | Dove | 283-AL1/46-ST1A | ACSR 329 | 26 | 3,72 | 7 | 2,89 | 23,55 | 0,0998 | No |
| GSC003/55 | EN-50182 | Peacock 605 | 306-AL1/40-ST1A | ACSR 346 | 24 | 4,03 | 7 | 2,69 | 24,19 | 0,0925 | No |
| GSC003/56 | EN-50182 | 0101-0264 | 304-AL1/49-ST1A | ACSR 354 | 26 | 3,86 | 7 | 3 | 24,44 | 0,0927 | No |
| GSC003/97 | EN-50182 | 0101-0264 | 304-AL1/49-ST1A | ACSR 354(G) | 26 | 3,86 | 7 | 3 | 24,44 | 0,0927 | Yes |
| GSC003/49 | ASTM B232 | Grosbeak | 322-AL1/50-ST1A | ACSR 372 | 26 | 3,97 | 7 | 3,01 | 24,91 | 0,0878 | No |
| GSC003/57# | EN-50182 | LA-380 (Gull) | 337-AL1/44-ST1A | ACSR 381 | 54 | 2,82 | 7 | 2,82 | 25,38 | 0,0842 | No |
| GSC003/58# | EN-50182 | LA-455 (Condor) | 402-AL1/52-ST1A | ACSR 454 | 54 | 3,08 | 7 | 3,08 | 27,72 | 0,0706 | No |
| GSC003/50 | ASTM B232 | Drake | 403-AL1/65-ST1A | ACSR 468 | 26 | 4,44 | 7 | 3,45 | 28,11 | 0,0701 | No |
| GSC003/51 | ASTM B232 | Rail | 484-AL1/34-ST1A | ACSR 517 | 45 | 3,7 | 7 | 2,47 | 29,61 | 0,0592 | No |
| GSC003/59# | EN-50182 | LA-545 (Cardinal) | 485-AL1/63-ST1A | ACSR 547 | 54 | 3,38 | 7 | 3,38 | 30,42 | 0,0586 | No |
| GSC003/99 | EN-50182 | LA-545 (Cardinal) | 485-AL1/63-ST1A | ACSR 547(G) | 54 | 3,38 | 7 | 3,38 | 30,42 | 0,0586 | Yes |
| GSC003/60 | EN-50182 | Plover 900 | 727-AL1/97-ST1A | ACSR 824 | 54 | 4,14 | 19 | 2,55 | 37,59 | 0,039 | No |

Table 2 - Type ACSR: Aluminum Conductors, Galvanized Steel Reinforced

to be used in the construction of new lines

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| GSC Type Code | Standard | Old Designation | Denomination EN 50182 | Denomination GSC003 | Al. wires | | Steel wires | | Total diameter (mm) | DC Resistance 20°C (Ω/km) | Grease (Yes/No) |
|---------------|----------|-----------------|-----------------------|---------------------|-----------|------------|-------------|------------|---------------------|---------------------------|-----------------|
| | | | | | Nº (Un.) | Diam. (mm) | Nº (Un.) | Diam. (mm) | | | |
| GSC003/12# | EN-50182 | LARL-56 | 47-AL1/8-A20SA | ACSR/AW 55 | 6 | 3,15 | 1 | 3,15 | 9,45 | 0,5802 | No |
| GSC003/81 | EN-50182 | LARL-56 | 47-AL1/8-A20SA | ACSR/AW 55(G) | 6 | 3,15 | 1 | 3,15 | 9,45 | 0,5802 | Yes |
| GSC003/92# | EN-50182 | LARL-78 | 67-AL1/11-A20SA | ACSR/AW 79 | 6 | 3,78 | 1 | 3,78 | 11,34 | 0,403 | No |
| GSC003/13 | EN-50182 | LARL-78 | 67-AL1/11-A20SA | ACSR/AW 79(G) | 6 | 3,78 | 1 | 3,78 | 11,34 | 0,403 | Yes |
| GSC003/102# | EN-50182 | LARL-125E | 107-AL1/18-A20SA | ACSR/AW 125 | 6 | 4,77 | 1 | 4,77 | 14,31 | 0,2531 | No |
| GSC003/15 | EN-50182 | LARL-125E | 107-AL1/18-A20SA | ACSR/AW 125(G) | 6 | 4,77 | 1 | 4,77 | 14,31 | 0,2531 | Yes |
| GSC003/103 | EN-50182 | LARL-145E | 117-AL1/31-A20SA | ACSR/AW 148 | 15 | 3,15 | 4 | 3,15 | 15,75 | 0,2264 | No |
| GSC003/16 | EN-50182 | LARL-145E | 117-AL1/31-A20SA | ACSR/AW 148(G) | 15 | 3,15 | 4 | 3,15 | 15,75 | 0,2264 | Yes |
| GSC003/41# | EN-50182 | - | 128-AL1/21-A20SA | ACSR/AW 149 | 26 | 2,5 | 7 | 1,95 | 15,85 | 0,2144 | No |
| GSC003/52 | EN-50182 | - | 128-AL1/21-A20SA | ACSR/AW 149(G) | 26 | 2,5 | 7 | 1,95 | 15,85 | 0,2144 | Yes |
| GSC003/61# | EN-50182 | Partridge | 135-AL1/22-A20SA | ACSR/AW 157 | 26 | 2,57 | 7 | 2 | 16,28 | 0,203 | No |
| GSC003/104# | EN-50182 | LARL-180 | 147-AL1/34-A20SA | ACSR/AW 182 | 30 | 2,5 | 7 | 2,5 | 17,5 | 0,1819 | No |
| GSC003/18 | EN-50182 | LARL-180 | 147-AL1/34-A20SA | ACSR/AW 182(G) | 30 | 2,5 | 7 | 2,5 | 17,5 | 0,1819 | Yes |
| GSC003/62# | EN-50182 | LARL-280-Hawk | 242-AL1/39-A20SA | ACSR/AW 281 | 26 | 3,44 | 7 | 2,68 | 21,8 | 0,1133 | No |
| GSC003/105 | EN-50182 | - | 283-AL1/46-A20SA | ACSR/AW 329 | 26 | 3,72 | 7 | 3,89 | 23,55 | 0,0969 | No |
| GSC003/63# | EN-50182 | LARL-380-Gull | 337-AL1/44-A20SA | ACSR/AW 381 | 54 | 2,82 | 7 | 2,82 | 25,38 | 0,0822 | No |
| GSC003/64# | EN-50182 | LARL-455-Condor | 402-AL1/52-A20SA | ACSR/AW 454 | 54 | 3,08 | 7 | 3,08 | 27,72 | 0,0689 | No |
| GSC003/65# | EN-50182 | Cardinal | 485-AL1/63-A20SA | ACSR/AW 547 | 54 | 3,38 | 7 | 3,38 | 30,42 | 0,0572 | No |
| GSC003/100 | EN-50182 | Curlew | 525-AL1/68-A20SA | ACSR/AW 594 | 54 | 3,52 | 7 | 3,52 | 31,68 | 0,0528 | No |

Table 3 - Type ACSR/AW: Aluminum Conductors, Aluminum-Clad Steel Reinforced

| GSC Type Code | Standard | Old Designation | Denomination EN 50182 | Denomination GSC003 | Al. wires | | Total Area (mm ²) | Total diameter (mm) | DC Resistance 20°C (Ω/km) | Grease (Yes/No) |
|---------------|-----------|-----------------|-----------------------|---------------------|-----------|------------|-------------------------------|---------------------|---------------------------|-----------------|
| | | | | | Nº (Un.) | Diam. (mm) | | | | |
| GSC003/19 | ASTM B399 | - | 25-AL3 | AAAC 25 | 7 | 2,13 | 24,94 | 6,39 | 1,3313 | No |
| GSC003/82 | ASTM B399 | - | 25-AL3 | AAAC 25 (G) | 7 | 2,13 | 24,94 | 6,39 | 1,3313 | Yes |
| GSC003/20 | ASTM B399 | - | 50-AL3 | AAAC 50 | 7 | 3,02 | 50,14 | 9,06 | 0,6623 | No |
| GSC003/83 | ASTM B399 | - | 50-AL3 | AAAC 50 (G) | 7 | 3,02 | 50,14 | 9,06 | 0,6623 | Yes |
| GSC003/22 | ASTM B399 | - | 67-AL3 | AAAC 67 (G) | 7 | 3,5 | 67,35 | 10,5 | 0,4931 | Yes |
| GSC003/21 | ASTM B399 | - | 70-AL3 | AAAC 70 | 19 | 2,17 | 70,27 | 10,85 | 0,4753 | No |
| GSC003/84 | ASTM B399 | - | 70-AL3 | AAAC 70 (G) | 19 | 2,17 | 70,27 | 10,85 | 0,4753 | Yes |
| GSC003/23 | ASTM B399 | - | 120-AL3 | AAAC 120 | 19 | 2,83 | 119,51 | 14,15 | 0,2795 | No |
| GSC003/85 | ASTM B399 | - | 120-AL3 | AAAC 120 (G) | 19 | 2,83 | 119,51 | 14,15 | 0,2795 | Yes |
| GSC003/32 | EN-50182 | D145 | 148-AL3 | AAAC 148 | 19 | 3,15 | 148,07 | 15,75 | 0,2256 | No |
| GSC003/24 | ASTM B399 | - | 161-AL3 | AAAC 161 | 19 | 3,28 | 160,54 | 16,4 | 0,208 | No |
| GSC003/86 | ASTM B399 | - | 161-AL3 | AAAC 161 (G) | 19 | 3,28 | 160,54 | 16,4 | 0,208 | Yes |
| GSC003/66 | EN-50182 | D180 | 188-AL3 | AAAC 188 | 19 | 3,55 | 188,06 | 17,75 | 0,1776 | No |
| GSC003/25 | ASTM B399 | - | 200-AL3 | AAAC 200 | 19 | 3,66 | 199,90 | 18,3 | 0,1671 | No |
| GSC003/87 | ASTM B399 | - | 200-AL3 | AAAC 200 (G) | 19 | 3,66 | 199,90 | 18,3 | 0,1671 | Yes |
| GSC003/26 | ASTM B399 | - | 236-AL3 | AAAC 236 (G) | 37 | 2,85 | 236,04 | 19,95 | 0,142 | Yes |
| GSC003/27 | ASTM B399 | - | 240-AL3 | AAAC 240 | 61 | 2,24 | 240,39 | 20,16 | 0,1399 | No |
| GSC003/67 | EN-50182 | D280 | 279-AL3 | AAAC 279 | 37 | 3,1 | 279,26 | 21,7 | 0,12 | No |
| GSC003/68 | ASTM B399 | 304 | 303-AL3 | AAAC 303 (G) | 37 | 3,23 | 303,18 | 22,61 | 0,1106 | Yes |
| GSC003/28 | ASTM B399 | - | 315-AL3 | AAAC 315 | 37 | 3,29 | 314,55 | 23,03 | 0,1066 | No |

to be used in the construction of new lines

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Application Areas

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Service Function: -

 Business Line: *Infrastructure & Networks*

| GS Type Code | Standard | Old Designation | Denomination EN 50182 | Denomination GSC003 | Al. wires | | Total Area (mm ²) | Total diameter (mm) | DC Resistance 20°C (Ω/km) | Grease (Yes/No) |
|--------------|-----------|-----------------|-----------------------|---------------------|-----------|------------|-------------------------------|---------------------|---------------------------|-----------------|
| | | | | | Nº (Un.) | Diam. (mm) | | | | |
| GSC003/88 | ASTM B399 | - | 315-AL3 | AAAC 315 (G) | 37 | 3,29 | 314,55 | 23,03 | 0,1066 | Yes |
| GSC003/69 | EN-50182 | D380 | 381-AL3 | AAAC 381 | 61 | 2,82 | 380,99 | 25,38 | 0,0883 | No |
| GSC003/29 | ASTM B399 | - | 400-AL3 | AAAC 400 | 37 | 3,71 | 399,98 | 25,97 | 0,0838 | No |
| GSC003/89 | ASTM B399 | - | 400-AL3 | AAAC 400 (G) | 37 | 3,71 | 399,98 | 25,97 | 0,0838 | Yes |
| GSC003/70 | EN-50182 | D450 | 454-AL3 | AAAC 454 | 61 | 3,08 | 454,49 | 27,72 | 0,074 | No |
| GSC003/71 | ASTM B399 | 490 | 500-AL3 | AAAC 500 (G) 61H | 61 | 3,23 | 499,83 | 29,07 | 0,0673 | Yes |
| GSC003/30 | ASTM B399 | - | 500-AL3 | AAAC 500 | 37 | 4,15 | 500,48 | 29,05 | 0,067 | No |
| GSC003/90 | ASTM B399 | - | 500-AL3 | AAAC 500 (G) | 37 | 4,15 | 500,48 | 29,05 | 0,067 | Yes |
| GSC003/101 | ASTM B399 | - | 607-AL3 | AAAC 607 (G) | 61 | 3,56 | 607,18 | 32,04 | 0,0554 | Yes |
| GSC003/31 | ASTM B399 | - | 631-AL3 | AAAC 631 | 37 | 4,66 | 631,05 | 32,62 | 0,0531 | No |
| GSC003/91 | ASTM B399 | - | 631-AL3 | AAAC 631 (G) | 37 | 4,66 | 631,05 | 32,62 | 0,0531 | Yes |
| GSC003/72 | EN-50182 | 680 | 681-AL3 | AAAC 681 | 61 | 3,77 | 680,93 | 33,93 | 0,0494 | No |

Table 4 - Type AAAC: All Aluminum-Alloy Conductors

| GS Type Code | Standard | Old Designation | Denominat. EN 207015 | Denominat. GSC003 | Copper wires | | Total Area (mm ²) | Total diameter (mm) | DC Resistance 20°C (Ω/km) | Grease (Yes/No) | Direction of Lay (external lay) |
|--------------|------------|-----------------|----------------------|-------------------|--------------|------------|-------------------------------|---------------------|---------------------------|-----------------|---------------------------------|
| | | | | | Nº (Un.) | Diam. (mm) | | | | | |
| GSC003/33 | ASTM B8 | 25 | - | CC 23 | 7 | 2,06 | 23,33 | 6,18 | 0,795 | No | Left(S) |
| GSC003/34 | ASTM B8 | 35 | - | CC 34 | 7 | 2,5 | 34,36 | 7,5 | 0,538 | No | Left(S) |
| GSC003/37 | UNE-207015 | - | C 35 | CC 35 | 7 | 2,52 | 34,91 | 7,56 | 0,529 | No | Right(Z) |
| GSC003/38 | UNE-207015 | - | C 50 E | CC 49 | 7 | 3 | 49,48 | 9 | 0,372 | No | Right(Z) |
| GSC003/35 | ASTM B8 | 70 | - | CC 67 | 19 | 2,12 | 67,07 | 10,6 | 0,276 | No | Left(S) |
| GSC003/39 | UNE-207015 | - | C 70 | CC 70 | 19 | 2,17 | 70,27 | 10,85 | 0,268 | No | Right(Z) |
| GSC003/36 | ASTM B8 | 95 | - | CC 93 | 19 | 2,5 | 93,27 | 12,5 | 0,198 | No | Left(S) |
| GSC003/40 | UNE-207015 | - | C 95 | CC 95 | 19 | 2,52 | 94,76 | 12,6 | 0,196 | No | Right(Z) |
| GSC003/94 | ASTM B8 | 500 | C 500 | CC 500 | 61 | 3,23 | 499,83 | 29,07 | 0,0366 | No | Left(S) |
| GSC003/93 | ASTM B8 | 1000 | - | CC 1015 | 127 | 3,19 | 1015,02 | 41,47 | 0,018 | No | Left(S) |

Table 5 - Type CC: Copper Conductors, Medium-Hard Temper
7.2 APPLICABLE LAWS, REFERENCE STANDARD AND LIST OF REPLACED STANDARDS

The list of reference standards used to develop this specification and that shall be used as test method are mentioned below in this document. There shall be used the edition in-force at the contract date.

ASTM B2 Standard specification for medium-hard-drawn copper wire.

ASTM B8 Standard specification for concentric-lay-stranded copper conductors, hard medium-hard, or soft.

ASTM B230 Standard Specification for Aluminum 1350-H19 Wire for Electrical Purposes.

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- ASTM B232 Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Reinforced (ACSR).
- ASTM B398 Standard Specification for Aluminum-Alloy 6201-T81 Wire for Electrical Purposes.
- ASTM B399 Standard Specification for Concentric-Lay-Stranded Aluminum-Alloy 6201-T81 Conductors.
- ASTM B498 Standard Specification for Zinc-Coated (Galvanized) Steel Core Wire for Aluminum Conductors, Steel Reinforced (ACSR).
- ASTM B500 Standard Specification for Metallic Coated Stranded Steel Core for Aluminum Conductors, Steel Reinforced (ACSR).
- EN 50182 Conductors for overhead lines - Round wire concentric lay stranded conductors
- EN 50183 Conductors for overhead lines — Aluminium-magnesium-silicon alloy wires
- EN 50189 Conductors for overhead lines — Zinc coated steel wires
- EN 50326 Conductors for overhead lines - Characteristics of greases.
- EN 60889 Hard-drawn aluminium wire for overhead line conductors.
- EN 61232 Aluminium-clad steel wires for electrical purposes.
- EN 61394 Overhead lines - Requirements for greases for aluminium, aluminium alloy and steel bare conductors
- IEC 60050-466 International Electrotechnical Vocabulary (IEV) - Part 466: Overhead lines
- IEC-TR 61597 Overhead electrical conductors - Calculation methods for stranded bare conductors
- UNE 207015 Conductores desnudos de cobre cableados para líneas eléctricas aéreas.

7.3 TERMINOLOGY

In addition to IEC 60050-466 terminology, the following ones shall be noted:

Direction of lay: The direction of lay is defined as right-hand or left-hand. With right-hand lay, the wires conform to the direction of the central part of the letter Z when the conductor is held vertically. With left-hand lay, the wires conform to the direction of the central part of letter S when the conductor is held vertically.

Lay ratio: means the ratio of the axial length of one complete turn of the helix formed by the the wire of a stranded conductor to the external diameter of the corresponding layer of wires.

Nominal: the name or identifying value of a measurable property by which a conductor or component of a conductor is identified and to which tolerance are applied. Nominal values should be target values.

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Wire: a filament of draw metal having a constant circular cross-section.

Rated Tensile Strength: sum of the tensile strength of all wires considering the rupture load of the weakest wire.

7.4 RAW MATERIALS OF WIRES

The following sections provides general information about the raw material of wires considered in this Global Standard.

7.4.1. Zinc-Coated (Galvanized) Steel Core Wires

Zinc-Coated (Galvanized) Steel Core Wires used for mechanical reinforcement in the manufacture of aluminum conductors, must be manufactured with the requirements of the standards EN50189 (Type ST1A) or ASTM B498 (Class A).

7.4.2. Aluminum-Coated (Aluminized) Steel Core Wires

Aluminum-Coated (Aluminized) Steel Core Wires used for mechanical reinforcement in the manufacture of aluminum conductors, must be manufactured with the requirements of the EN 61232 ("20SA" class and "A" type) or ASTM B502 (wires Class AW3 -High Strength).

7.4.3. Aluminum Wires

Aluminum wires used to assemble the bare conductors considered in this Global Standard shall be made of pure aluminum, manufacture under the standards EN 60889, or aluminum 1350-H19, manufacture under the standard ASTM B230.

7.4.4. Aluminum-Alloy Wires

Aluminum-alloy wires used to assemble the bare conductors considered in this Global Standard shall be made of 6201-T81 aluminum-alloy under the standard ASTM B398 or identified as AL3 under the standard Norma EN 50183.

7.4.5. Copper wires

Copper wires shall be uncoated, under the standards ASTM B2 or UNE 207015.

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7.5 TECHNICAL FEATURES

7.5.1.Surface

The surface of the conductor shall be free from all imperfections visible to the unaided eye (normal corrective lenses accepted), such as nicks, indentations, etc., not consistent with good commercial practice.

7.5.2.Conductor diameter

The diameter of the conductor shall not vary from the nominal values more than the limits indicated in the referenced standards.

7.5.3.Stranding

All wires of the conductor shall be concentrically stranded.

The wires in each layer shall be closely stranded around the underlying layer of wires.

The direction of lay shall be reversed in successive layers.

The directions of lay of the outer layer shall be “right-hand” (Z) for conductors type ACSR, ACSR/AW and AAAC.

The direction of lay of the outer layer for copper conductor shall be “right-hand” or “left-hand”, as indicated in the GS Type List.

7.5.4.Joints

Conductors with only one steel wire, shall not be made any joints after heat treatment of wires or rods. There shall be no joints of any kind made in the zinc-coated or aluminum-coated steel core wire or wires during stranding.

Before stranding, no more than one joint shall be accepted in the aluminum wires per length of conductor. During stranding, no wire welds shall be made for the purpose of achieving the required conductor length. Joints are permitted in aluminum or copper wires unavoidably broken during stranding, provided such breaks are not associated with either inherently defective wire or with the use of short lengths of wires. Joints shall conform to the geometry of original wire, i.e., joints shall be dressed smoothly with a diameter equal to that of the parent wires and shall not be kinked. Joints shall not be made in the finished copper wires composing conductors of seven wires or less.

Joints in wires shall not be closer than 15 m from a joint in the same wire or in any other wire of the completed conductor. The quantity of joints per length shall not be greater than values indicated in the standards of reference.

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Joints shall be made by electric butt welding, electric butt cold upset welding or cold pressure welding and other approved methods. These joints shall be made in accordance with good commercial practice. The first type of joints shall be electrically annealed for approximately 250 mm on both sides of the weld.

7.5.5. Mass per unit of length

The mass per unit length of the conductor shall be calculated using densities, stranding increments and cross-sectional areas of all kind of wires. The mass per unit length of the conductor without grease shall not vary from its nominal value by more than $\pm 2\%$.

The mass per unit length of the grease on greased conductors shall not vary from its nominal value by more than $\pm 20\%$.

7.5.6. Rated tensile strength

Rated tensile strength are result of sum of the tensile strength of all wires that compose the conductor, as indicated in the referenced standards shown in the GS Type Code List.

7.5.7. Electrical resistance

The electrical DC resistance at 20 °C of a conductor, expressed in Ω / km and with three decimals, is calculated using the value of the resistivity of the wires used.

7.6 CONSTRUCTION CHARACTERISTICS

The following sections provides the description of the conductors in function of the wires use to assemble them. The Standards use to manufacture the conductors are indicated in the Common List and in the section 7.2.

7.6.1. Aluminum Conductors, Zinc-Coated-Steel Reinforced

Aluminum conductors, coated-steel reinforced are assembled with aluminum wires (see 5.1.3) in the external layers and zinc-coated (galvanized) steel core wires in the internal layers (see 5.1.1).

Manufactured as indicated on EN 50182 or ASTM B232.

7.6.2. Aluminum Conductors, Aluminum-Coated-Steel Reinforced

Aluminum conductors, aluminum-coated-steel reinforced are assembled with aluminum wires (see 5.1.3) in the external layers and aluminum-coated (Aluminized) steel core wires in the internal layers (see 5.1.2).

Manufactured as indicated on EN 50182 or ASTM B549.

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7.6.3. Alloy-aluminum conductors

The alloy-aluminum conductors shall be assembled with alloy-aluminum wires, as indicated in the section 5.1.4. and manufactured as indicated on EN 50182 or ASTM B399.

7.6.4. Copper conductors

The uncompressed copper conductors shall be assembled with copper wire, as indicated in the section 5.1.5. and manufactures as indicates on ASTM B8 or UNE207015.

7.6.5. Greases

The Concentric-Lay-Stranded Aluminum Conductors, Aluminum-Coated-Steel Reinforced and Alloy-Aluminum Conductors could be provided with or without greases, applied to the both internal or external layers (see Figure 1), as indicated in the GS Type Code List.

The grease shall be chemically neutral with respect to aluminum, zinc and steel, free of impurities, uniform throughout of the length of the conductor and cold applied (Type A). It must have the characteristics described in the standards EN 50326 or IEC 61394 for a designation 30A125. and the stability under short-circuit must be tested with 250 °C for 1,5 seconds.

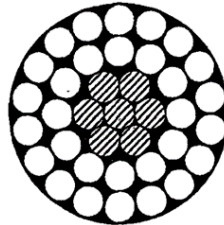


Figure 1 - Greased Conductors

The volume and mass of the grease shall be calculated as indicated on Annex B in EN-50182. Special conditions other than that could be specified on Local Sections or specific orders.

7.7 TESTING

7.7.1.Type Tests

Type test shall be carried out over conductors considered in this Global Standard in order to verify its main characteristics that depended mainly on its design.

Each manufacture shall make these tests once for a new design or manufacturing process of conductor and then subsequently repeated only when the design or manufacturing process is changed. The type test

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shall be analyzed by the purchaser using the requirements of this Global Standard and requirements of Technical Conformity Assessment (TCA) procedures.

Type tests of wires and conductors of type ACSR, ACSR/AW and AAAC shall be carried out as the procedures of EN50182 and are shown in the table below. Additional test could be indicated in Local Section.

| Type Tests | | Clause EN50182 |
|----------------------------|-------------------------------------------|----------------|
| Conductor | - surface condition | 6.4.1 |
| | - diameter | 6.4.2 |
| | - inertness | 6.4.3 |
| | - lay ratio and direction of lay | 6.4.4 |
| | - number and type of wires | 6.4.5 |
| | - mass per unit length | 6.4.6 |
| | - stress-strain curve | 6.4.7 |
| | - tensile breaking strength | 6.4.8 |
| | - stringing test | 6.4.9 |
| Aluminium wires | diameter | 6.5.2 |
| | - tensile strength | 6.5.2 |
| | - elongation ⁽¹⁾ | 6.5.2 |
| | - resistivity | 6.5.2 |
| | - wrapping test | 6.5.2 |
| | - welding | 6.5.3 |
| Zinc coated Steel wires | - diameter | 6.5.2 |
| | - tensile strength | 6.5.2 |
| | - stress at 1 % extension | 6.5.2 |
| | - elongation or torsion test | 6.5.2 |
| | - wrapping test | 6.5.2 |
| | - mass of zinc | 6.5.2 |
| | - zinc dip test | 6.5.2 |
| | - adhesion of zinc coating | 6.5.2 |
| Aluminium-clad Steel wires | - diameter | 6.5.2 |
| | - tensile strength | 6.5.2 |
| | - stress at 1 % extension | 6.5.2 |
| | - elongation | 6.5.2 |
| | - torsion | 6.5.2 |
| | - cladding thickness/uniformity | 6.5.2 |
| | - resistivity | 6.5.2 |
| Grease | - mass per unit length | 6.6.1 |
| | - drop point (high temperature stability) | 6.6.2 |

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| Type Tests | Clause EN50182 |
|---------------------------------------------------|-------------------|
| (1) Elongation test for AL1 wires is not required | |

Table 6 - Type Tests for Aluminum Conductors

Type tests for copper conductors, type CC, shall be carried out as the procedures of UNE207015 and are shown in the table below. Additional test could be indicated in Local Section.

| Type Tests | | Clause UNE207015 |
|--------------|----------------------------------|---------------------|
| Conductor | - surface condition | 7.2.1 |
| | - diameter | 6.8 |
| | - number and type of wires | 6.8 |
| | - lay ratio and direction of lay | 7.2.2 |
| | - tensile breaking strength | 7.2.3 |
| | - electrical resistance | 7.2.4 |
| | - mass per unit length | 7.2.5 |
| Copper wires | - hard copper | 5 |
| | - diameter | 7.1.1 |
| | - elongation | 7.1.2 |
| | - alternative bends | 7.1.3 |
| | - torsion | 7.1.4 |
| | - resistivity | 7.1.5 |
| | - welding | 6.4 |

Table 7 - Type Tests for Copper Conductors

7.7.2. Sample Tests

Sample test shall be carried out to guarantee the quality of conductors and compliance with the requirements of this standard.

The list of sample tests of wires and conductors are shown in the Local Section and shall be carried out as the procedures of referenced standards.

7.8 SUPPLY REQUIREMENTS

Unless otherwise specified, each drum shall contain one continuous length of conductor.

The conductor shall be suitably protected against possible damages resulting from handling and transportation of each spool. The reel shall be protected with staves or similar protection.

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The reel shall be capable to support the weight of the conductor both during and after transport, by truck, crane movements or forklift truck, without causing damage to the conductor.

The drum bore shall be capable to support the weight of the conductor and respect the minimum bend radio.

The drum shall be loaded and unloaded by crane capable to support its weight.

The ends of the conductor length must be internally secured to the spools, leaving both ends accessible through the use of an internal helix or reel on each spool.

Specific characteristics are detailed in Local Section.

7.8.1. Packing and marking

Each reel shall be identified with an indelible and easily legible mark on the external faces, as indicated in the Local Section.

7.8.2. Length tolerance

The admitted tolerance for a size is equal to $\pm 5\%$ of the length indicated in the order. The equipment used to measure the length of the conductor shall be accurate to $\pm 1\%$.

7.9 LOCAL SECTIONS

7.9.1.LOCAL SECTION A – AMERICA: Argentina, Brasil, Chile, Colombia and Perú.

| ITEM | TITLE | DESCRIPTION |
|------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.2 | International Standards | <p><u>Enel Distribuição Rio (Brasil), Enel Distribuição Ceará (Brasil), Enel Distribución Chile), Codensa(Colombia), Enel Distribución Perú.</u></p> <ul style="list-style-type: none"> • ASTM B398: Standard Specification for Aluminum-Alloy 6201-T81 Wire for Electrical Purposes. • ASTM B399: Standard Specification for Concentric-Lay-Stranded Aluminum-Alloy 6201-T81 Conductors. • ASTM B230: Standard Specification for Aluminum 1350-H19 Wire for Electrical Purposes. • ASTM B232: Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Reinforced (ACSR). • ASTM B498: Standard Specification for Zinc-Coated (Galvanized) Steel Core Wire for Aluminum Conductors, Steel Reinforced (ACSR). • ASTM B500: Standard Specification for Metallic Coated Stranded Steel Core for Aluminum Conductors, Steel Reinforced (ACSR). • ASTM B2: Standard specification for médium-hard-grawn copper wire. • ASTM B8: Standard specification for concentric-lay-stranded copper conductors, hard médium-hard, or soft. <p>Para Enel distribución Perú en el caso de conductores ACSR/AW</p> <ul style="list-style-type: none"> • EN-50182 : Conductores para líneas eléctricas aéreas. Conductores de alambres redondos cableados en capas concéntricas. |

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| | | <ul style="list-style-type: none"> • EN 60889: Alambre de aluminio duro para Conductores de líneas aéreas de transporte de energía eléctrica. • EN 61232: Alambres de acero recubiertos de aluminio para usos eléctricos. • EN 50326: Conductores para líneas eléctricas aéreas. Características de los productos de protección (grasas). |
| | List of replaced Standards | <u>Enel Distribuição Rio (Brasil), Enel Distribuição Ceará (Brasil), Chilectra (Chile), Codensa(Colombia), Enel distribución Perú, Edesur(Argentina)</u> <ul style="list-style-type: none"> • E-MT-003: Especificación Técnica de Conductores desnudos para líneas aéreas de tensión hasta 36 kV. • E-LT-001 CONDUCTORES DESNDOS PARA LÍNEAS AÉREAS DE ALTA TENSIÓN |
| | Local Standards | <u>Edesur(Argentina)</u> <ul style="list-style-type: none"> • IRAM 2187-I: Conductores de aluminio y de aleación de aluminio con alma de acero de resistencia mecánica normal para líneas aéreas de energía. <u>Codensa (Colombia).</u> <ul style="list-style-type: none"> • <u>RETIE: Reglamento Técnico de Instalaciones Eléctricas.</u> |
| 7.4.5 | Copper Wires | <u>Enel Distribuição Rio (Brasil), Chilectra (Chile),Codensa (Colombia), Enel Distribuição Ceará (Brasil), Enel distribución Perú, Edesur (Argentina).</u> Copper wires shall be medium-hard temper, uncoated, under the standards ASTM B2. |
| 7.6.5 | Greases | <u>Enel Distribuição Rio (Brasil), Chilectra (Chile), Enel Distribuição Ceará (Brasil), Enel distribución Perú, Edesur (Argentina).</u> Shall be applied the standard IEC- 61089 y standards EN 50326 or IEC 61394. <u>Enel Distribuição Rio (Brasil).</u> Conductors shall be provided with greases, applied to the internal layers as indicated in the Common List. <u>Enel distribución Perú,</u> MT conductors shall be provided with greases, applied to the both internal or external layers as indicated in the Common List. AT conductors shall be provided with greases, applied to the internal layers. <u>Codensa (Colombia),</u> It is not required greases for conductors. |
| 7.5.3 | Stranding | <u>Enel Distribuição Rio (Brasil), Enel Distribuição Ceará (Brasil), Chilectra (Chile), Codensa(Colombia), Enel distribución Perú, Edesur(Argentina)</u> The directions of lay of the external layer shall be "left-hand" to copper conductors. |

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|-------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.7.1 | Type Test | <p><u>Enel Distribuição Rio (Brasil), Enel Distribuição Ceará (Brasil), Chilectra (Chile), Codensa(Colombia), Enel distribución Perú, Edesur(Argentina)</u></p> <ul style="list-style-type: none"> • Surface Condition • Overall Diameter • Number and type of wires • Cross section area • Mass per unit length • Rated tensile strength • Elongation • Joints • Electrical resistance • Lay ratio and direction of lay • Grease temperature characteristics <p>For Edesur consider the standard IRAM-2187-I</p> |
| 7.7.2 | Sample Test | <p><u>Enel Distribuição Rio (Brasil), Enel Distribuição Ceará (Brasil), Chilectra (Chile), Codensa(Colombia), Enel distribución Perú, Edesur(Argentina)</u></p> <ul style="list-style-type: none"> • Number and type of wires • Cross section area • Lay ratio and direction of lay • Mass per unit length • Rated tensile strength (wires) • Electrical resistance (wires) • Grease temperature characteristics <p>The acceptance level shall be determined according to the procedure described in standard IEC 60410 considering AQL 1,5%, level II, simple sampling.</p> <p>For Edesur consider the standard IRAM-2187-I</p> <p>For Peru:</p> <p>-para conductores Aluminum Conductors, Aluminum-Coated-Steel Reinforced de acuerdo a lo señalado en la tabla del item 6.1 de la Sección Local.</p> <p>-para los conductores de aleación de aluminio deberán tener en consideración lo siguientes:</p> <ul style="list-style-type: none"> • Las pruebas serán de acuerdo a lo detallado en el ítem b) del numeral 6.6.2 de la norma IEC 61089. • La prueba de resistencia eléctrica será de acuerdo a la IEC 60468 • Un análisis químico de los elementos constitutivos del alambón de aleación de aluminio elegida al azar. • Análisis metalográfico de los alambres y el conductor cableado antes y luego de ser sometido a envejecimiento artificial • El fabricante entregará copia del certificado del análisis químico del alambón, realizado por el fabricante en el lugar de origen respectivo del lote. |
| 7.8 | Conditions of supply | <p><u>Enel Distribuição Rio (Brasil), Chilectra (Chile), Codensa (Colombia), Enel Distribuição Ceará (Brasil), Enel distribución Perú, Edesur (Argentina).</u></p> <p>The cable shall be delivered by the manufacturer on a wooden or metal spool, which will not be returned, as per maximum and minimum dimensions indicated in Table 4 and in accordance with Figure 2.</p> <p>In order to use the reel in a spooling machine, the reel shall be supplied with two holes spaced at 50 cm, equidistant and aligned with central hole.</p> |

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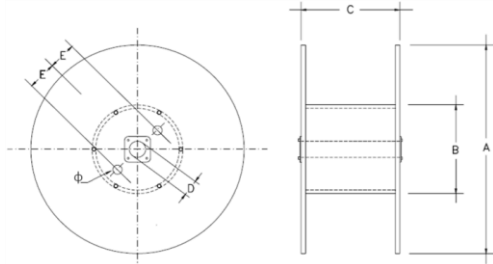
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| | |  <p>Figure 2 – Reel</p> <table border="1" data-bbox="705 779 1308 862"> <thead> <tr> <th>A(1) mm</th> <th>B mm</th> <th>C(1) mm</th> <th>D(2) mm</th> <th>E mm</th> <th>Φ(mm)</th> </tr> </thead> <tbody> <tr> <td>1730</td> <td>(3)</td> <td>1120</td> <td>80</td> <td>(4)</td> <td>50</td> </tr> </tbody> </table> <p>Table 4 – Dimensions of reel</p> <p>Notes:</p> <p>(1) Maximum value (2) Minimum value (3) Twice of the minimum bend ratio of conductor used to transport , as indicated by the manufacturer. (4) 300 ó 180 mm , according to the type of reel.</p> <p>The wooden spools 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 nor should they affect the physical characteristics of wood.</p> <p>Each reel shall be protected with a plastic coat than avoids the corrosion of the conductor.</p> <p>The total length of the cable supplied may not be less than that requested in the purchase order and shall not be longer by any more than 1%.</p> <p>The maximum gross weight of the packaged spool must not exceed 2500 kg.</p> <p><u>Codensa (Colombia)</u> In additional to above specified, for Codensa the manufacturers shall to attach the RETIE certification in the first supply.</p> <p><u>Para Peru:</u> Para los conductores de aleación de aluminio de las secciones 304mm², 491 mm² y 608 mm² se indicará las dimensiones de las bobinas y las longitudes de los conductores en las órdenes de compra.</p> | A(1) mm | B mm | C(1) mm | D(2) mm | E mm | Φ(mm) | 1730 | (3) | 1120 | 80 | (4) | 50 |
|---------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------|---------|---------|------|-------|------|-----|------|----|-----|----|
| A(1) mm | B mm | C(1) mm | D(2) mm | E mm | Φ(mm) | | | | | | | | | |
| 1730 | (3) | 1120 | 80 | (4) | 50 | | | | | | | | | |
| 8.8.1 | Packing and Marking | <p><u>Enel Distribuição Rio (Brasil), Chilectra (Chile), Codensa (Colombia), Enel Distribuição Ceará (Brasil), Enel distribución Perú, Edesur (Argentina).</u></p> <p>The spools must:</p> <p>Indicate the correct rolling direction with an arrow on its side.</p> <p>Have a stainless steel plate for its identification on each side, each one of which must include at least the following information, in the language of the country where it will be used (Spanish or Portuguese):</p> <ul style="list-style-type: none"> • Name of the manufacturer • Country of origin of the item • ENEL GROUP • Purchase Order N° • Conductor caliber (en mm²) • Number of the spool within the delivered batch. | | | | | | | | | | | | |

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| | | |
|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <ul style="list-style-type: none"> • Net weight and gross weight in kg. • Cable type • Cable length, in meters. <p><u>For Perú:</u></p> <p>A plate/label (stainless or polyethylene) shall be applied in both flanges and shall have the following information (in Spanish):</p> <ol style="list-style-type: none"> 1) Enel Distribución Peru 2) Name of the manufacturer 3) Country of origin of the item 4) Country code 5) Description of item 6) Cable type 7) Conductor caliber (mm²) 8) Year and month of manufacture 9) Number of the spool within the delivered batch. 10) Cable length, in meters. 11) Manufacture standard 12) Purchase Order N° 13) Net weight and gross weight in kg. 14) Weight of the coil in kg 15) Weight of one meter of cable in kg 16) Coil dimension in mm <p>Note: The plate/label used shall be resistant to UV ray, tearing, chemical substances. The dimension will be at least: Height: 230 mm Width: 140 mm. The size of the letters should be: Width: 4.5 mm; Height: 10 mm. An example is given in the following figure.</p> |
|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors

Application Areas

Perimeter: *Global*

Staff Function: -

Service Function: -

Business Line: *Infrastructure & Networks*

| | |
|--------------------------------------------------|--------------|
| NOMBRE DEL PROVEEDOR | |
| Cliente | |
| Fabricante | |
| País de Origen | |
| Código de País | |
| Descripción | |
| Mes/Año de Producción | |
| Matricula de Carrete | |
| Punta Inicial | |
| Punta Final | |
| Cantidad (m) | |
| Sección del Conductor (mm²) | Fase: |
| Tipo de Cable / Aislamiento | |
| Norma de Fabricación | |
| Tensión U_o/U (U_{max}) | |
| Orden de Compra | |
| Peso Neto (kg) | |
| Peso metro de cable | |
| Peso de carrete (kg) | |
| Dimensiones de carrete | |
| Peso Bruto (kg) | |

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors
Application Areas

 Perimeter: *Global*

Staff Function: -

Service Function: -

 Business Line: *Infrastructure & Networks*
7.9.2.LOCAL SECTION B – ESPAÑA: e-distribución redes digitales.

| ITEM | TITLE | DESCRIPTION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------|----------------|-----------|------------|----------------|----------------------------|--------------------------|---------|---------|-----------------|----------|------|-----|-------|------------------|----------|------|-----|-------|-------------------|----------|------|-----|-------|-------------------|----------|------|-----|-------|-------------------|----------|------|-----|-------|
| 7.2 | International Standards | <ul style="list-style-type: none"> • IEC 60050-466: Vocabulario electrotécnico internacional. Líneas aéreas. • EN 50182: Conductores para líneas eléctricas aéreas. Conductores de alambres redondos cableados en capas concéntricas. • EN 50183: Conductores para líneas eléctricas aéreas. Alambres en aleación de aluminio-magnesio-silicio. • EN 50189: Conductores para líneas eléctricas aéreas. Alambres de acero galvanizado. • EN 60889: Alambre de aluminio duro para Conductores de líneas aéreas de transporte de energía eléctrica. • EN 61232: Alambres de acero recubiertos de aluminio para usos eléctricos. • EN 50326: Conductores para líneas eléctricas aéreas. Características de los productos de protección (grasas). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | List of replaced Standards | <ul style="list-style-type: none"> • Norma GE AND010: Conductores desnudos para líneas eléctricas aéreas de media tensión hasta 30kV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Local Standards | <ul style="list-style-type: none"> • UNE 20003: Cobre-tipo recocido e industrial, para aplicaciones eléctricas. • UNE 21045: Bobinas de madera destinadas a conductores desnudos para conductores de líneas eléctricas aéreas. • UNE 207015: Conductores desnudos de cobre duro cableados para líneas eléctricas aéreas. • UNE 21044: Planes de muestreo y criterios de aceptación y rechazo en la recepción de cables desnudos para conductores de líneas eléctricas aéreas | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.6.5 | Greases | <p>The weight of the grease per km of each aluminum conductors, aluminum-coated-steel reinforced in this standard is indicated in following Table:</p> <table border="1"> <thead> <tr> <th>DESIGNACIÓN</th> <th>VOLUMEN GRASA</th> <th>DENSIDAD GRASA</th> <th>FACTOR DE</th> <th>MASA GRASA</th> </tr> <tr> <td>según EN 50182</td> <td>"Vg" (cm³/km)</td> <td>"δ" (g/cm³)</td> <td>RELLENO</td> <td>(kg/km)</td> </tr> </thead> <tbody> <tr> <td>47-AL1/ 8-A20SA</td> <td>15586,23</td> <td>0,87</td> <td>0,8</td> <td>10,85</td> </tr> <tr> <td>67-AL1/ 11-A20SA</td> <td>21732,91</td> <td>0,87</td> <td>0,8</td> <td>15,13</td> </tr> <tr> <td>107-AL1/ 18-A20SA</td> <td>35740,17</td> <td>0,87</td> <td>0,8</td> <td>24,88</td> </tr> <tr> <td>119-AL1/ 28-A20SA</td> <td>46758,68</td> <td>0,87</td> <td>0,8</td> <td>32,54</td> </tr> <tr> <td>147-AL1/ 34-A20SA</td> <td>58904,86</td> <td>0,87</td> <td>0,8</td> <td>41,00</td> </tr> </tbody> </table> <p>The weight of the grease shall not vary more than ±20% from the values shown in this table.</p> | DESIGNACIÓN | VOLUMEN GRASA | DENSIDAD GRASA | FACTOR DE | MASA GRASA | según EN 50182 | "Vg" (cm ³ /km) | "δ" (g/cm ³) | RELLENO | (kg/km) | 47-AL1/ 8-A20SA | 15586,23 | 0,87 | 0,8 | 10,85 | 67-AL1/ 11-A20SA | 21732,91 | 0,87 | 0,8 | 15,13 | 107-AL1/ 18-A20SA | 35740,17 | 0,87 | 0,8 | 24,88 | 119-AL1/ 28-A20SA | 46758,68 | 0,87 | 0,8 | 32,54 | 147-AL1/ 34-A20SA | 58904,86 | 0,87 | 0,8 | 41,00 |
| DESIGNACIÓN | VOLUMEN GRASA | DENSIDAD GRASA | FACTOR DE | MASA GRASA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| según EN 50182 | "Vg" (cm ³ /km) | "δ" (g/cm ³) | RELLENO | (kg/km) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47-AL1/ 8-A20SA | 15586,23 | 0,87 | 0,8 | 10,85 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 67-AL1/ 11-A20SA | 21732,91 | 0,87 | 0,8 | 15,13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 107-AL1/ 18-A20SA | 35740,17 | 0,87 | 0,8 | 24,88 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 119-AL1/ 28-A20SA | 46758,68 | 0,87 | 0,8 | 32,54 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 147-AL1/ 34-A20SA | 58904,86 | 0,87 | 0,8 | 41,00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.5.3 | Stranding | The directions of lay of the external layer shall be "right-hand" to copper conductors. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors
Application Areas

 Perimeter: *Global*

Staff Function: -

Service Function: -

 Business Line: *Infrastructure & Networks*
8. ANNEX
ANNEX A – TECHNICAL CHECK LIST

To be provided in the technical offer during tenders:

| Item | Description | Unit | Required values | Ofered values |
|----------|-------------------------------------|------------------------|-----------------|---------------|
| 1 | GENERAL INFORMATION | | | |
| 1.1 | Supplier Name | - | | |
| 1.2 | Suplier CUI | | | |
| 1.3 | Factory | - | | |
| 1.4 | Location of factory | - | | |
| 2 | MAIN FEATURES | | | |
| 2.1 | Distribution Company and Country | - | | |
| 2.2 | Country Code | - | | |
| 2.3 | GS Type Code | - | | |
| 2.4 | Type | - | | |
| 2.5 | Code Word | - | | |
| 2.6 | International standard of reference | - | | |
| 2.7 | Designation | - | | |
| 3 | CONDUCTOR PROPERTIES | | | |
| 3.1 | Total diameter | [mm] | | |
| 3.2 | Core diameter | [mm] | | |
| 3.3 | Total section | [mm ²] | | |
| 3.4 | Core section | [mm ²] | | |
| 3.5 | Mass | [kg/km] | | |
| 3.6 | DC Resistance at 20°C | [Ω/ km] | | |
| 3.7 | AC Resistance at 75°C | [Ω/ km] | | |
| 3.8 | Rated tensile Strength | [daN] | | |
| 3.9 | Modulus of elasticity | [KN/mm ²] | | |
| 3.10 | Coefficient of linear expansion | [10 ⁻⁶ /°C] | | |
| 4 | CONDUCTOR FORMATION | | | |
| 4.1 | Construction | - | | |
| 4.2 | Number of wires | - | | |
| 4.3 | Number of layers | | | |
| 4.4 | Aluminium | - | | |
| 4.4.1 | designation | - | | |

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors
Application Areas

 Perimeter: *Global*

Staff Function: -

Service Function: -

 Business Line: *Infrastructure & Networks*

| Item | Description | Unit | Required values | Ofered values |
|----------|-----------------------------------------------------------------------------------------------------------|----------------------|-----------------|---------------|
| 4.4.2 | wires number | - | | |
| 4.4.3 | wire diameter | [mm] | | |
| 4.4.4 | section | [mm ²] | | |
| 4.4.5 | mass | [kg/km] | | |
| 4.5 | Steel | - | | |
| 4.5.1 | designation | - | | |
| 4.5.2 | wires number | - | | |
| 4.5.3 | wire diameter | [mm] | | |
| 4.5.4 | section | [mm ²] | | |
| 4.5.5 | mass | [kg/km] | | |
| 4.6 | Copper | - | | |
| 4.6.1 | designation | - | | |
| 4.6.2 | wires number | - | | |
| 4.6.3 | wire diameter | [mm] | | |
| 4.6.4 | section | [mm ²] | | |
| 4.6.5 | mass | [kg/km] | | |
| 4.7 | Direction of lay of external layer | - | | |
| 5 | GREASE | | | |
| 5.1 | Designation of grease | - | | |
| 5.2 | Comercial Code | - | | |
| 5.3 | Density | [kg/m ³] | | |
| 5.4 | Layers in which is applied | - | | |
| 5.5 | Fill factor | [%] | | |
| 5.6 | Mass of grease | [kg/km] | | |
| 6 | AMPACITY as IEC TR 61597 (Ta: 25°C; Wind speed: 0,6 m/s; Solar radiation: 1 kW/m ²) | | | |
| 6.1 | Absorptivity | - | | |
| 6.2 | Emissivity | - | | |
| 6.3 | Ampacity Tc=50°C (ΔT=25°C) | [A] | | |
| 6.4 | Ampacity Tc=70°C (ΔT=45°C) | [A] | | |
| 6.5 | Ampacity Tc=75°C (ΔT=50°C) | [A] | | |
| 6.6 | Ampacity Tc=80°C (ΔT=55°C) | [A] | | |
| 6.7 | Ampacity Tc=85°C (ΔT=60°C) | [A] | | |
| 7 | TCA | | | |
| 7.1 | There is an active TCA for this reference | YES/NO | | |
| 7.2 | In case 7.1 answer is YES, indicate TCA Code | - | | |

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors
Application Areas

 Perimeter: *Global*

Staff Function: -

Service Function: -

 Business Line: *Infrastructure & Networks*

| Item | Description | Unit | Required values | Ofered values |
|----------|---------------------------------------------|------|-----------------|---------------|
| 8 | COMMENTS | | | |
| 8.1 | Any exception to what is required in GSC003 | - | | |
| 8.2 | Additional comments | - | | |

ANNEX B – GLOBAL TYPE CODES

| GS Type Code | Denomination GSC003 | Al. wires Nº / diam. Ud. / (mm) | | Steel wires Nº / diam. Ud. / (mm) | | Total Area (mm ²) | Total diameter (mm) | DC Resistance (Ω /km) | Mass per unit length (kg/Km) | Rated strength (daN) | Coeff. Of linear expansion (x10 ⁻⁶) | Final Modulus of elasticity (kN/mm ²) | Grease (Yes/No) |
|--------------|------------------------|---------------------------------------|------|-----------------------------------------|------|----------------------------------|------------------------|----------------------------------|---------------------------------|----------------------|-------------------------------------------------------|---------------------------------------------------------|-----------------|
| | | | | | | | | | | | | | |
| GSC003/01 | ACSR 25 | 6 | 2,12 | 1 | 2,12 | 24,71 | 6,36 | 1,3203 | 85,5 | 794 | 18,8 | 74,3 | No |
| GSC003/08 | ACSR 28 (G) | 6 | 2,25 | 1 | 2,25 | 27,83 | 6,75 | 1,1721 | 96,3 | 895 | 18,8 | 74,3 | Yes |
| GSC003/02 | ACSR 39 | 6 | 2,67 | 1 | 2,67 | 39,19 | 8,01 | 0,8324 | 135,6 | 1.209 | 18,8 | 74,3 | No |
| GSC003/11# | ACSR 55 | 6 | 3,15 | 1 | 3,15 | 54,55 | 9,45 | 0,598 | 188,8 | 1.629 | 18,8 | 74,3 | No |
| GSC003/42 | ACSR 56 | 6 | 3,2 | 1 | 3,2 | 56,30 | 9,6 | 0,5795 | 194,8 | 1.681 | 18,8 | 74,3 | No |
| GSC003/09 | ACSR 56 (G) | 6 | 3,2 | 1 | 3,2 | 56,30 | 9,6 | 0,5795 | 194,8 | 1.681 | 18,8 | 74,3 | Yes |
| GSC003/03 | ACSR 62 | 6 | 3,37 | 1 | 3,37 | 62,44 | 10,11 | 0,5225 | 216,1 | 1.864 | 18,8 | 74,3 | No |
| GSC003/04# | ACSR 79 | 6 | 3,78 | 1 | 3,78 | 78,55 | 11,34 | 0,4153 | 271,8 | 2.312 | 18,8 | 74,3 | No |
| GSC003/43# | ACSR 81 | 26 | 1,85 | 7 | 1,44 | 81,29 | 11,72 | 0,4034 | 282,2 | 2.627 | 18,9 | 73,9 | No |
| GSC003/77 | ACSR 82 | 12 | 2,34 | 7 | 2,34 | 81,71 | 11,7 | 0,5147 | 377,9 | 4.335 | 15,3 | 104,7 | No |
| GSC003/47 | ACSR 108 | 12 | 2,69 | 7 | 2,69 | 107,98 | 13,45 | 0,3895 | 499,5 | 5.695 | 15,3 | 104,7 | No |
| GSC003/44 | ACSR 110 | 26 | 2,15 | 7 | 1,67 | 109,73 | 13,61 | 0,2987 | 380,6 | 3.493 | 18,9 | 73,9 | No |
| GSC003/10 | ACSR 110 (G) | 26 | 2,15 | 7 | 1,67 | 109,73 | 13,61 | 0,2987 | 380,6 | 3.493 | 18,9 | 73,9 | Yes |
| GSC003/14# | ACSR 116 | 30 | 2 | 7 | 2 | 116,24 | 14 | 0,2964 | 432,5 | 4.317 | 17,9 | 80,5 | No |
| GSC003/05# | ACSR 125 | 6 | 4,77 | 1 | 4,77 | 125,09 | 14,31 | 0,2608 | 432,9 | 3.681 | 18,8 | 74,3 | No |
| GSC003/45 | ACSR 141 | 26 | 2,44 | 7 | 1,9 | 141,42 | 15,46 | 0,2319 | 491,0 | 4.450 | 18,9 | 73,9 | No |
| GSC003/78 | ACSR 142 | 12 | 3,08 | 7 | 3,08 | 141,56 | 15,4 | 0,2971 | 654,8 | 7.212 | 15,3 | 104,7 | No |
| GSC003/46 | ACSR 149 | 26 | 2,5 | 7 | 1,95 | 148,53 | 15,85 | 0,2209 | 516,0 | 4.679 | 18,8 | 74,0 | No |
| GSC003/06# | ACSR 157 | 26 | 2,57 | 7 | 2 | 156,87 | 16,28 | 0,2091 | 544,5 | 4.866 | 18,9 | 73,9 | No |
| GSC003/79 | ACSR 169 | 12 | 3,37 | 7 | 3,37 | 169,47 | 16,85 | 0,2482 | 783,9 | 8.634 | 15,3 | 104,7 | No |
| GSC003/53 | ACSR 173 | 26 | 2,7 | 7 | 2,1 | 173,11 | 17,1 | 0,1894 | 600,8 | 5.367 | 18,9 | 73,9 | No |
| GSC003/95 | ACSR 173 (G) | 26 | 2,7 | 7 | 2,1 | 173,11 | 17,1 | 0,1894 | 600,8 | 5.367 | 18,9 | 73,9 | Yes |
| GSC003/17# | ACSR 182 | 30 | 2,5 | 7 | 2,5 | 181,62 | 17,5 | 0,1897 | 675,8 | 6.494 | 17,9 | 80,5 | No |
| GSC003/07# | ACSR 198 | 26 | 2,89 | 7 | 2,25 | 198,39 | 18,31 | 0,1653 | 688,7 | 6.156 | 18,9 | 73,9 | No |
| GSC003/96 | ACSR 214 (G) | 26 | 3,00 | 7 | 2,33 | 213,60 | 19,0 | 0,1535 | 741,0 | 6.522 | 18,9 | 73,8 | Yes |
| GSC003/54# | ACSR 281 | 26 | 3,44 | 7 | 2,68 | 281,13 | 21,8 | 0,1167 | 976,2 | 8.489 | 18,9 | 74,0 | No |
| GSC003/98 | ACSR 281 (G) | 26 | 3,44 | 7 | 2,68 | 281,13 | 21,8 | 0,1167 | 976,2 | 8.489 | 18,9 | 74,0 | Yes |
| GSC003/48 | ACSR 298 | 18 | 4,47 | 1 | 4,47 | 298,17 | 22,35 | 0,1011 | 899,5 | 6.246 | 21,1 | 62,1 | No |
| GSC003/80 | ACSR 329 | 26 | 3,72 | 7 | 2,89 | 328,50 | 23,55 | 0,0998 | 1139,6 | 9.756 | 18,9 | 73,9 | No |
| GSC003/55 | ACSR 346 | 24 | 4,03 | 7 | 2,69 | 345,92 | 24,19 | 0,0925 | 1156,2 | 9.433 | 19,4 | 70,5 | No |
| GSC003/56 | ACSR 354 | 26 | 3,86 | 7 | 3 | 353,74 | 24,44 | 0,0927 | 1227,3 | 10.509 | 18,9 | 73,9 | No |
| GSC003/97 | ACSR 354 (G) | 26 | 3,86 | 7 | 3 | 353,74 | 24,44 | 0,0927 | 1227,3 | 10.509 | 18,9 | 73,9 | Yes |
| GSC003/49 | ACSR 372 | 26 | 3,97 | 7 | 3,01 | 371,65 | 24,91 | 0,0878 | 1278,4 | 10.629 | 19 | 73,1 | No |
| GSC003/57# | ACSR 381 | 54 | 2,82 | 7 | 2,82 | 380,99 | 25,38 | 0,0842 | 1274,6 | 10.718 | 19,4 | 70,5 | No |

to be used in the construction of new lines

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors
Application Areas

 Perimeter: *Global*

Staff Function: -

Service Function: -

 Business Line: *Infrastructure & Networks*

| GS Type Code | Denomination GSC003 | Al. wires Nº / diam. Ud. / (mm) | | Steel wires Nº / diam. Ud. / (mm) | | Total Area (mm ²) | Total diameter (mm) | DC Resistance (Ω /km) | Mass per unit length (kg/km) | Rated strength (daN) | Coeff. Of linear expansion (x10-6) | Final Modulus of elasticity (kN/mm ²) | Grease (Yes/No) |
|--------------|------------------------|---------------------------------------|------|-----------------------------------------|------|----------------------------------|------------------------|----------------------------------|---------------------------------|----------------------|------------------------------------------|---------------------------------------------------------|-----------------|
| | | | | | | | | | | | | | |
| GSC003/58# | ACSR 454 | 54 | 3,08 | 7 | 3,08 | 454,49 | 27,72 | 0,0706 | 1520,5 | 12.375 | 19,4 | 70,5 | No |
| GSC003/50 | ACSR 468 | 26 | 4,44 | 7 | 3,45 | 468,00 | 28,11 | 0,0701 | 1623,6 | 13.639 | 18,9 | 73,9 | No |
| GSC003/51 | ACSR 517 | 45 | 3,7 | 7 | 2,47 | 517,39 | 29,61 | 0,0592 | 1599,3 | 11.565 | 20,8 | 63,8 | No |
| GSC003/59# | ACSR 547 | 54 | 3,38 | 7 | 3,38 | 547,33 | 30,42 | 0,0586 | 1831,1 | 14.904 | 19,4 | 70,5 | No |
| GSC003/99 | ACSR 547 (G) | 54 | 3,38 | 7 | 3,38 | 547,33 | 30,42 | 0,0586 | 1831,1 | 14.904 | 19,4 | 70,5 | Yes |
| GSC003/60 | ACSR 824 | 54 | 4,14 | 19 | 2,55 | 823,95 | 37,59 | 0,039 | 2770,1 | 22.693 | 19,4 | 70,9 | No |
| GSC003/12# | ACSR/AW 55 | 6 | 3,15 | 1 | 3,15 | 54,55 | 9,45 | 0,5802 | 179,5 | 1.707 | 19,7 | 69,9 | No |
| GSC003/81 | ACSR/AW 55 (G) | 6 | 3,15 | 1 | 3,15 | 54,55 | 9,45 | 0,5802 | 179,5 | 1.707 | 19,7 | 69,9 | Yes |
| GSC003/92# | ACSR/AW 79 | 6 | 3,78 | 1 | 3,78 | 78,55 | 11,34 | 0,403 | 258,5 | 2.312 | 19,7 | 69,9 | No |
| GSC003/13 | ACSR/AW 79 (G) | 6 | 3,78 | 1 | 3,78 | 78,55 | 11,34 | 0,403 | 258,5 | 2.312 | 19,7 | 69,9 | Yes |
| GSC003/102# | ACSR/AW 125 | 6 | 4,77 | 1 | 4,77 | 125,09 | 14,31 | 0,2531 | 411,6 | 3.503 | 19,7 | 69,9 | No |
| GSC003/15 | ACSR/AW 125 (G) | 6 | 4,77 | 1 | 4,77 | 125,09 | 14,31 | 0,2531 | 411,6 | 3.503 | 19,7 | 69,9 | Yes |
| GSC003/103 | ACSR/AW 148 | 15 | 3,15 | 4 | 3,15 | 148,07 | 15,75 | 0,2264 | 529,8 | 5.669 | 18,6 | 76,9 | No |
| GSC003/16 | ACSR/AW 148 (G) | 15 | 3,15 | 4 | 3,15 | 148,07 | 15,75 | 0,2264 | 529,8 | 5.669 | 18,6 | 76,9 | Yes |
| GSC003/41# | ACSR/AW 149 | 26 | 2,5 | 7 | 1,95 | 148,53 | 15,85 | 0,2144 | 491,0 | 4.742 | 19,8 | 69,6 | No |
| GSC003/52 | ACSR/AW 149 (G) | 26 | 2,5 | 7 | 1,95 | 148,53 | 15,85 | 0,2144 | 491,0 | 4.742 | 19,8 | 69,6 | Yes |
| GSC003/61# | ACSR/AW 157 | 26 | 2,57 | 7 | 2 | 156,87 | 16,28 | 0,203 | 518,2 | 4.932 | 19,8 | 69,6 | No |
| GSC003/104# | ACSR/AW 182 | 30 | 2,5 | 7 | 2,5 | 181,62 | 17,5 | 0,1819 | 634,7 | 6.700 | 19 | 74,7 | No |
| GSC003/18 | ACSR/AW 182 (G) | 30 | 2,5 | 7 | 2,5 | 181,62 | 17,5 | 0,1819 | 634,7 | 6.700 | 19 | 74,7 | Yes |
| GSC003/62# | ACSR/AW 281 | 26 | 3,44 | 7 | 2,68 | 281,13 | 21,8 | 0,1133 | 929,0 | 8.726 | 19,8 | 69,6 | No |
| GSC003/63# | ACSR/AW 381 | 54 | 2,82 | 7 | 2,82 | 380,99 | 25,38 | 0,0822 | 1222,3 | 10.980 | 20,3 | 66,9 | No |
| GSC003/64# | ACSR/AW 454 | 54 | 3,08 | 7 | 3,08 | 454,49 | 27,72 | 0,0689 | 1458,1 | 12.897 | 20,3 | 66,9 | No |
| GSC003/65# | ACSR/AW 547 | 54 | 3,38 | 7 | 3,38 | 547,33 | 30,42 | 0,0572 | 1756,0 | 15.406 | 20,3 | 66,9 | No |
| GSC003/100 | ACSR/AW 594 | 54 | 3,52 | 7 | 3,52 | 593,62 | 31,68 | 0,0528 | 1904,5 | 16.174 | 20,3 | 66,9 | No |
| GSC003/19 | AAAC 25 | 7 | 2,13 | - | - | 24,94 | 6,39 | 1,3313 | 68,1 | 735 | 23 | 63,30 | No |
| GSC003/82 | AAAC 25 (G) | 7 | 2,13 | - | - | 24,94 | 6,39 | 1,3313 | 68,1 | 735 | 23 | 63,30 | Yes |
| GSC003/20 | AAAC 50 | 7 | 3,02 | - | - | 50,14 | 9,06 | 0,6623 | 136,9 | 1.479 | 23 | 63,30 | No |
| GSC003/83 | AAAC 50 (G) | 7 | 3,02 | - | - | 50,14 | 9,06 | 0,6623 | 136,9 | 1.479 | 23 | 63,30 | Yes |
| GSC003/22 | AAAC 67 (G) | 7 | 3,5 | - | - | 67,35 | 10,5 | 0,4931 | 183,9 | 1.986 | 23 | 63,30 | Yes |
| GSC003/21 | AAAC 70 | 19 | 2,17 | - | - | 70,27 | 10,85 | 0,4753 | 192,9 | 2.072 | 23 | 61,20 | No |
| GSC003/84 | AAAC 70 (G) | 19 | 2,17 | - | - | 70,27 | 10,85 | 0,4753 | 192,9 | 2.072 | 23 | 61,20 | Yes |
| GSC003/23 | AAAC 120 | 19 | 2,83 | - | - | 119,51 | 14,15 | 0,2795 | 328,1 | 3.525 | 23 | 61,20 | No |
| GSC003/85 | AAAC 120 (G) | 19 | 2,83 | - | - | 119,51 | 14,15 | 0,2795 | 328,1 | 3.525 | 23 | 61,20 | Yes |
| GSC003/32 | AAAC 148 | 19 | 3,15 | - | - | 148,07 | 15,75 | 0,2256 | 406,5 | 4.368 | 23 | 61,20 | No |
| GSC003/24 | AAAC 161 | 19 | 3,28 | - | - | 160,54 | 16,4 | 0,208 | 440,7 | 4.736 | 23 | 61,20 | No |
| GSC003/86 | AAAC 161 (G) | 19 | 3,28 | - | - | 160,54 | 16,4 | 0,208 | 440,7 | 4.736 | 23 | 61,20 | Yes |
| GSC003/66 | AAAC 188 | 19 | 3,55 | - | - | 188,06 | 17,75 | 0,1776 | 516,3 | 5.547 | 23 | 61,20 | No |
| GSC003/25 | AAAC 200 | 19 | 3,66 | - | - | 199,90 | 18,3 | 0,1671 | 548,8 | 5.896 | 23 | 61,20 | No |
| GSC003/87 | AAAC 200 (G) | 19 | 3,66 | - | - | 199,90 | 18,3 | 0,1671 | 548,8 | 5.896 | 23 | 61,20 | Yes |
| GSC003/26 | AAAC 236 (G) | 37 | 2,85 | - | - | 236,04 | 19,95 | 0,142 | 650,2 | 6.963 | 23 | 58,90 | Yes |
| GSC003/27 | AAAC 240 | 61 | 2,24 | - | - | 240,39 | 20,16 | 0,1399 | 664,4 | 7.091 | 23 | 58,30 | No |
| GSC003/67 | AAAC 279 | 37 | 3,1 | - | - | 279,26 | 21,7 | 0,12 | 769,3 | 8.238 | 23 | 58,90 | No |
| GSC003/68 | AAAC 303 (G) | 37 | 3,23 | - | - | 303,18 | 22,61 | 0,1106 | 835,2 | 8.943 | 23 | 58,90 | Yes |
| GSC003/28 | AAAC 315 | 37 | 3,29 | - | - | 314,55 | 23,03 | 0,1066 | 866,5 | 9.279 | 23 | 58,90 | No |
| GSC003/88 | AAAC 315 (G) | 37 | 3,29 | - | - | 314,55 | 23,03 | 0,1066 | 866,5 | 9.279 | 23 | 58,90 | Yes |
| GSC003/69 | AAAC 381 | 61 | 2,82 | - | - | 380,99 | 25,38 | 0,0883 | 1053,0 | 11.239 | 23 | 58,30 | No |
| GSC003/29 | AAAC 400 | 37 | 3,71 | - | - | 399,98 | 25,97 | 0,0838 | 1101,9 | 11.799 | 23 | 58,90 | No |
| GSC003/89 | AAAC 400 (G) | 37 | 3,71 | - | - | 399,98 | 25,97 | 0,0838 | 1101,9 | 11.799 | 23 | 58,90 | Yes |

to be used in the construction of new lines

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors
Application Areas

 Perimeter: *Global*

Staff Function: -

Service Function: -

 Business Line: *Infrastructure & Networks*

| GS Type Code | Denomination GSC003 | Al. wires Nº / diam. Ud. / (mm) | | Steel wires Nº / diam. Ud. / (mm) | | Total Area (mm ²) | Total diameter (mm) | DC Resistance (Ω /km) | Mass per unit length (kg/Km) | Rated strength (daN) | Coeff. Of linear expansion (x10-6) | Final Modulus of elasticity (kN/mm ²) | Grease (Yes/No) |
|--------------|------------------------|---------------------------------------|------|-----------------------------------------|---|----------------------------------|------------------------|----------------------------------|---------------------------------|----------------------|------------------------------------------|---------------------------------------------------------|-----------------|
| | | | | | | | | | | | | | |
| GSC003/70 | AAAC 454 | 61 | 3,08 | - | - | 454,49 | 27,72 | 0,074 | 1256,1 | 13.407 | 23 | 58,30 | No |
| GSC003/71 | AAAC 500 (G) 61H | 61 | 3,23 | - | - | 499,83 | 29,07 | 0,0673 | 1381,4 | 14.745 | 23 | 58,30 | Yes |
| GSC003/30 | AAAC 500 | 37 | 4,15 | - | - | 500,48 | 29,05 | 0,067 | 1378,7 | 14.764 | 23 | 58,90 | No |
| GSC003/90 | AAAC 500 (G) | 37 | 4,15 | - | - | 500,48 | 29,05 | 0,067 | 1378,7 | 14.764 | 23 | 58,90 | Yes |
| GSC003/101 | AAAC 607 (G) | 61 | 3,56 | - | - | 607,18 | 32,04 | 0,0554 | 1678,1 | 17.911 | 23 | 58,30 | Yes |
| GSC003/31 | AAAC 631 | 37 | 4,66 | - | - | 631,05 | 32,62 | 0,0531 | 1738,4 | 18.615 | 23 | 58,90 | No |
| GSC003/91 | AAAC 631 (G) | 37 | 4,66 | - | - | 631,05 | 32,62 | 0,0531 | 1738,4 | 18.615 | 23 | 58,90 | Yes |
| GSC003/72 | AAAC 681 | 61 | 3,77 | - | - | 680,93 | 33,93 | 0,0494 | 1881,9 | 20.087 | 23 | 58,30 | No |

| GS Type Code | Denomination GSC003 | Copper wires Nº / diam. Ud. / (mm) | | Total Area (mm ²) | Total diameter (mm) | DC Resistance (Ω /km) | Mass per unit length (kg/Km) | Coeff. Of linear expansion (x10-6) | Final Modulus of elasticity (kN/mm ²) | Grease (Yes/No) | Direction of Lay |
|--------------|------------------------|------------------------------------------|------|----------------------------------|------------------------|----------------------------------|---------------------------------|------------------------------------------|---------------------------------------------------------|--------------------|------------------|
| | | | | | | | | | | | |
| GSC003/33 | CC 23 | 7 | 2,06 | 23,33 | 6,18 | 0,795 | 212 | 17 | 105 | No | Left(S) |
| GSC003/34 | CC 34 | 7 | 2,5 | 34,36 | 7,5 | 0,538 | 312 | 17 | 105 | No | Left(S) |
| GSC003/37 | CC 35 | 7 | 2,52 | 34,91 | 7,56 | 0,529 | 317 | 17 | 105 | No | Right(Z) |
| GSC003/38 | CC 49 | 7 | 3 | 49,48 | 9 | 0,372 | 449 | 17 | 105 | No | Right(Z) |
| GSC003/35 | CC 67 | 19 | 2,12 | 67,07 | 10,6 | 0,276 | 612 | 17 | 105 | No | Left(S) |
| GSC003/39 | CC 70 | 19 | 2,17 | 70,27 | 10,85 | 0,268 | 641 | 17 | 105 | No | Right(Z) |
| GSC003/36 | CC 93 | 19 | 2,5 | 93,27 | 12,5 | 0,198 | 850 | 17 | 105 | No | Left(S) |
| GSC003/40 | CC 95 | 19 | 2,52 | 94,76 | 12,6 | 0,196 | 864 | 17 | 105 | No | Right(Z) |
| GSC003/94 | CC 500 | 61 | 3,23 | 499,83 | 29,07 | 0,0366 | 4586 | 17 | 105 | No | Left(S) |
| GSC003/93 | CC 1015 | 127 | 3,19 | 1015,02 | 41,47 | 0,018 | 9272 | 17 | 105 | No | Left(S) |

Values of DC Resistance, Mass per unit length, Rated Strength, Coefficient of linear expansion and Final Modulus of elasticity presented on the tables above are calculated values using the method indicated on relevant standard and IEC-TR 61597.

Nominal values specified on the local sections or a specific order could present some variation from the indicated values, with a deviation no greater than $\pm 2\%$ of the value indicated herein.

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors
Application Areas

 Perimeter: *Global*

Staff Function: -

Service Function: -

 Business Line: *Infrastructure & Networks*
ANNEX C – COMMON LIST

| COMMON LIST | | | | Rev.04 05/07/2021 |
|--------------|-----------------|----------------------------------|--------------|---------------------------------------------------|
| GS Type Code | Code Words | Distribution Company and Country | Country Code | TAM Description |
| GSC003/08 | ACSR 28 (G) | Edesur Argentina | 0101-0374 | CONDUCTOR DESNUDO AL-AO 25/4 MM ² LAMT |
| GSC003/09 | ACSR 56 (G) | Edesur Argentina | 0101-0254 | CONDUCTOR DESN AL AO 50 8 MM2 LAMT |
| GSC003/10 | ACSR 110 (G) | Edesur Argentina | 0101-0255 | CONDUCTOR DESN AL AO 95 15 MM2 LAMT |
| GSC003/23 | AAAC 120 | Edesur Argentina | 0101-0257 | CONDUCTOR DESN ALEAC AL120 MM2 LAMT |
| GSC003/11 | ACSR 55 | edistribución España | 310071 | CONDUCTOR 47AL1/8ST1A (COD.ANT.:LA-56) |
| GSC003/14 | ACSR 116 | edistribución España | 310050 | CONDUCTOR 94-AL1/22-ST1A(COD.ANT.LA-110) |
| GSC003/17 | ACSR 182 | edistribución España | 310051 | CONDUCTOR 147-AL1/34-ST1A(COD.ANT.LA-180) |
| GSC003/54 | ACSR 281 | edistribución España | 310018 | CABLE 242-AL1/39-ST1A (LA-280) |
| GSC003/57 | ACSR 381 | edistribución España | 310019 | CABLE 337-AL1/44-ST1A (LA-380) |
| GSC003/58 | ACSR 454 | edistribución España | 310030 | CABLE 402-AL1/52-ST1A (LA-455) |
| GSC003/59 | ACSR 547 | edistribución España | 310080 | CABLE 485-AL1/63-ST1A (LA-545) |
| GSC003/12 | ACSR/AW 55 | edistribución España | 310041 | CONDUCTOR 47AL1/8-A20SA(LARL-56)NO GRASA |
| GSC003/81 | ACSR/AW 55 (G) | edistribución España | 310025 | CONDUCT. 47AL1/8-A20SA(LARL-56)ENGRASADO |
| GSC003/92 | ACSR/AW 79 | edistribución España | 310029 | CONDUCT. 67AL1/11-A20SA(LARL-78)NO GRASA |
| GSC003/13 | ACSR/AW 79 (G) | edistribución España | 310024 | CONDUCT.67AL1/11-A20SA(LARL-78)ENGRASADO |
| GSC003/102 | ACSR/AW 125 | edistribución España | 310028 | COND. 107AL1/18-A20SA(LARL-125E)NO GRASA |
| GSC003/15 | ACSR/AW 125 (G) | edistribución España | 310023 | COND.107AL1/18-A20SA(LARL-125E)ENGRASADO |
| GSC003/103 | ACSR/AW 148 | edistribución España | 310027 | COND. 117AL1/31-A20SA(LARL-145E)NO GRASA |
| GSC003/16 | ACSR/AW 148 (G) | edistribución España | 310022 | COND.117AL1/31-A20SA(LARL-145E)ENGRASADO |
| GSC003/104 | ACSR/AW 182 | edistribución España | 310026 | CONDUC.147AL1/34-A20SA(LARL-180)NO GRASA |
| GSC003/18 | ACSR/AW 182 (G) | edistribución España | 310009 | COND. 147AL1/34-A20SA(LARL-180)ENGRASADO |
| GSC003/62 | ACSR/AW 281 | edistribución España | 310032 | CABLE 242-AL1/39-A20SA (LARL HAWK) |
| GSC003/63 | ACSR/AW 381 | edistribución España | 310033 | CABLE 337-AL1/44-A20SA (LARL GULL) |
| GSC003/64 | ACSR/AW 454 | edistribución España | 310034 | CABLE 402-AL1/52-A20SA (LARL CONDOR) |
| GSC003/32 | AAAC 148 | edistribución España | 160297 | CONDUCTOR 148-AL3 (CODIGO ANTIGUO:D-145) |
| GSC003/66 | AAAC 188 | edistribución España | 310014 | CABLE 188-AL3 (D-180) |
| GSC003/67 | AAAC 279 | edistribución España | 310015 | CABLE 279-AL3 (D-280) |
| GSC003/69 | AAAC 381 | edistribución España | 310016 | CABLE 381-AL3 (D-400) |
| GSC003/70 | AAAC 454 | edistribución España | 310017 | CABLE 454-AL3 (D-450) |
| GSC003/37 | CC 35 | edistribución España | 310059 | CABLE LINEAS AÉREAS COBRE C35 |
| GSC003/38 | CC 49 | edistribución España | 310060 | CABLE LINEAS AÉREAS COBRE C50E |
| GSC003/39 | CC 70 | edistribución España | 310010 | CABLE LINEAS AÉREAS COBRE C70 |
| GSC003/40 | CC 95 | edistribución España | 310061 | CABLE LINEAS AÉREAS COBRE C95 |
| GSC003/12 | ACSR/AW 55 | E-distribuzione Italia | 317056 | CORDA AL-AC DIAM 9,45 LINEE MT |
| GSC003/41 | ACSR/AW 149 | E-distribuzione Italia | 317011 | CORDA ALAC 150MMQ |
| GSC003/01 | ACSR 25 | Enel Brasil | 310604 | CABO,NU,CAA,CL.A,4AWG,SWAN,GSC003 |
| GSC003/03 | ACSR 62 | Enel Brasil | 310605 | CABO,NU,CAA,CL.A,1/0AWG,RAVEN,GSC003 |
| GSC003/04 | ACSR 79 | Enel Brasil | 310889 | CABO NU CAA 2/0 AWG 6/1F, QUAIL,GSC003 |
| GSC003/77 | ACSR 82 | Enel Brasil | 311103 | CABO,NU,CAA,CL.B,101MCM,PETREL,GSC003 |
| GSC003/77 | ACSR 82 | Enel Brasil | 990306 | CABO,NU,CAA,CL.B,101MCM,PETREL,GSC003 |
| GSC003/47 | ACSR 108 | Enel Brasil | 310774 | CABO,NU,CAA,CL.B,134MCM,LEGHORN,GSC003 |
| GSC003/05 | ACSR 125 | Enel Brasil | 310651 | CABO,NU,CAA,CL.A,4/0AWG,PENQUIN,GSC003 |
| GSC003/78 | ACSR 142 | Enel Brasil | 310030 | CABO,NU,CAA,ACSR 142,GSC003/78 |
| GSC003/06 | ACSR 157 | Enel Brasil | 310652 | CABO,NU,CAA,CL.A,266MCM,PARTRIDGE,GSC003 |

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors
Application Areas

 Perimeter: *Global*

Staff Function: -

Service Function: -

 Business Line: *Infrastructure & Networks*

| COMMON LIST | | | | Rev.04 05/07/2021 |
|--------------|--------------|----------------------------------|--------------|------------------------------------------|
| GS Type Code | Code Words | Distribution Company and Country | Country Code | TAM Description |
| GSC003/79 | ACSR 169 | Enel Brasil | 310029 | CABO,NU,ACSR 169,GSC003/79 |
| GSC003/07 | ACSR 198 | Enel Brasil | 310634 | CABO,NU,CAA,CL.A,336MCM,LINNET,GSC003 |
| GSC003/54 | ACSR 281 | Enel Brasil | 311087 | CABO,NU,CAA,CL.B,477MCM,HAWK,GSC003 |
| GSC003/54 | ACSR 281 | Enel Brasil | 310019 | CABO,NU,CAA,477MCM,HAWK,B,GSC003 |
| GSC003/48 | ACSR 298 | Enel Brasil | 310031 | CABO,NU,ACSR 298,GSC003/48 |
| GSC003/80 | ACSR 329 | Enel Brasil | 310540 | CABO,NU,CAA,CL.B,556MCM,DOVE,GSC003 |
| GSC003/49 | ACSR 372 | Enel Brasil | 310908 | CABO, ELETTRICO NU AL CAA, 636 MCM 2 |
| GSC003/57 | ACSR 381 | Enel Brasil | 310026 | CABO,NU,337-AL1/44-ST1A,GSC003/57 |
| GSC003/58 | ACSR 454 | Enel Brasil | 310024 | CABO,NU,402-AL1/52-ST1A,GSC003/58 |
| GSC003/50 | ACSR 468 | Enel Brasil | 310913 | CABO, ELETTRICO NU AL CAA, 795 MCM 2,FP |
| GSC003/51 | ACSR 517 | Enel Brasil | 310644 | CABO,NU,CAA,CL.A,954MCM,RAIL,GSC003 |
| GSC003/59 | ACSR 547 | Enel Brasil | 310022 | CABO,NU,485-AL1/63-ST1A,GSC003/59 |
| GSC003/61 | ACSR/AW 157 | Enel Brasil | 310021 | CABO,NU,CAA,CL.A,266MCM,GSC003/61# |
| GSC003/62 | ACSR/AW 281 | Enel Brasil | 310028 | CABO,NU,242-AL1/39-A20SA,GSC003/62 |
| GSC003/105 | ACSR/AW 329 | Enel Brasil | 310020 | CABO,NU,CAA,CL.B,556MCM,DOVE,GSC003/105 |
| GSC003/63 | ACSR/AW 381 | Enel Brasil | 310027 | CABO,NU,337-AL1/44-A20SA,GSC003/63 |
| GSC003/64 | ACSR/AW 454 | Enel Brasil | 310025 | CABO,NU,402-AL1/52-A20SA,GSC003/64 |
| GSC003/65 | ACSR/AW 547 | Enel Brasil | 310023 | CABO,NU,ACSR/AW 547,GSC003/65# |
| GSC003/19 | AAAC 25 | Enel Brasil | 310653 | CONDUTOR LIGA AL 25MM-AAAC-7F-GSC-003 |
| GSC003/82 | AAAC 25 (G) | Enel Brasil | 310636 | COND LIGA AL NU ENGRAX AAAC25MM- GSC-003 |
| GSC003/20 | AAAC 50 | Enel Brasil | 310654 | CONDUTOR LIGA AL 50MM-AAAC-7F-GSC-003 |
| GSC003/83 | AAAC 50 (G) | Enel Brasil | 310434 | COND LIGA AL NU ENGRAX AAAC50MM- GSC-003 |
| GSC003/21 | AAAC 70 | Enel Brasil | 311101 | CABO,NU,CAL 70MM2,19F,GSC003 |
| GSC003/84 | AAAC 70 (G) | Enel Brasil | 310633 | COND LIGA AL NU ENGRAX AAAC70MM- GSC-003 |
| GSC003/23 | AAAC 120 | Enel Brasil | 310639 | CABO,NU,CAL 120MM2,19F,GSC003 |
| GSC003/24 | AAAC 161 | Enel Brasil | 310650 | CONDUTOR LIGA AL 160MM-AAAC-19F- GSC-003 |
| GSC003/86 | AAAC 161 (G) | Enel Brasil | 310539 | COND LIGA AL NU ENGRAX AAAC160MM GSC-003 |
| GSC003/25 | AAAC 200 | Enel Brasil | 310534 | CONDUTOR LIGA AL 200MM-AAAC-19F- GSC-003 |
| GSC003/87 | AAAC 200 (G) | Enel Brasil | 310646 | COND LIGA AL NU ENGRAX AAAC200MM GSC-003 |
| GSC003/28 | AAAC 315 | Enel Brasil | 311096 | CONDUTOR LIGA AL 315MM-AAAC-37F- GSC-003 |
| GSC003/88 | AAAC 315 (G) | Enel Brasil | 252014 | COND LIGA AL NU ENGRAX AAAC315MM GSC-003 |
| GSC003/29 | AAAC 400 | Enel Brasil | 311097 | CONDUTOR LIGA AL 400MM-AAAC-37F- GSC-003 |
| GSC003/30 | AAAC 500 | Enel Brasil | 311098 | CONDUTOR LIGA AL 500MM-AAAC-37F- GSC-003 |
| GSC003/31 | AAAC 631 | Enel Brasil | 311099 | CONDUTOR LIGA AL 630MM-AAAC-37F- GSC-003 |
| GSC003/33 | CC 23 | Enel Brasil | 310566 | CABO,CU NU, 25MM2,7F,MEIO-DURO,GSC003 |
| GSC003/34 | CC 34 | Enel Brasil | 310567 | CABO COBRE NU 35MM2 M DURA CL2A |
| GSC003/35 | CC 67 | Enel Brasil | 310568 | CABO,CU NU, 70MM2,19F,MEIO-DURO,GSC003 |
| GSC003/36 | CC 93 | Enel Brasil | 310569 | CABO,CU NU, 95MM2,19F,MEIO-DURO,GSC003 |
| GSC003/04 | ACSR 79 | Enel Chile | 310009 | Conductor ACSR MT 78,6 mm2 Quail |
| GSC003/07 | ACSR 198 | Enel Chile | 310010 | Conductor ACSR MT 198,4 mm2 Linnet |
| GSC003/21 | AAAC 70 | Enel Chile | 310152 | CABLE AL DESN AAAC 70MM2 19H E-MT-003 |
| GSC003/23 | AAAC 120 | Enel Chile | 310153 | CABLE AL DESN AAAC 120MM2 19H E-MT-003 |
| GSC003/24 | AAAC 161 | Enel Chile | 310017 | Conduc AAAC 161-AL3 GSC003/24 |
| GSC003/25 | AAAC 200 | Enel Chile | 310016 | Conduc AAAC 200-AL3 GSC003/25 |
| GSC003/27 | AAAC 240 | Enel Chile | 310154 | CABLE AL DESN AAAC 240MM2 61H E-MT-003 |
| GSC003/28 | AAAC 315 | Enel Chile | 310015 | Conduc AAAC 315-AL3 GSC003/28 |

Subject: Global Infrastructure and Networks GSC003 Concentric-Lay-Stranded Bare Conductors
Application Areas

 Perimeter: *Global*

Staff Function: -

Service Function: -

 Business Line: *Infrastructure & Networks*

| COMMON LIST | | | | Rev.04 05/07/2021 |
|--------------|-----------------|----------------------------------|--------------|-----------------------------------------------------------|
| GS Type Code | Code Words | Distribution Company and Country | Country Code | TAM Description |
| GSC003/29 | AAAC 400 | Enel Chile | 310014 | Conduc AAAC 400-AL3 GSC003/29 |
| GSC003/30 | AAAC 500 | Enel Chile | 310013 | Conduc AAAC 500-AL3 GSC003/30 |
| GSC003/31 | AAAC 631 | Enel Chile | 310012 | Conduc AAAC 631-AL3 GSC003/31 |
| GSC003/33 | CC 23 | Enel Chile | 310129 | CABLE CU DESN SEMIDURO 25MM2 7H |
| GSC003/34 | CC 34 | Enel Chile | 310130 | CABLE CU DESN SEMIDURO 35MM2 7H |
| GSC003/35 | CC 67 | Enel Chile | 310131 | CABLE CU DESN SEMIDUR 70MM2 19H GSC003 |
| GSC003/94 | CC 500 | Enel Chile | 310146 | CABLE CU DESN SEMIDURO 500MM2 61H |
| GSC003/93 | CC 1015 | Enel Chile | 310125 | CABLE CU DESN SEMIDURO 1000MM2 127H |
| GSC003/02 | ACSR 39 | Enel Colombia | 310415 | CABLE 2 AWG ACSR DESNUDO |
| GSC003/03 | ACSR 62 | Enel Colombia | 310412 | CABLE 1/0 AWG ACSR DESNUDO |
| GSC003/04 | ACSR 79 | Enel Colombia | 310417 | CABLE 2/0 ACSR DESNUDO |
| GSC003/05 | ACSR 125 | Enel Colombia | 310414 | CABLE 4/0 AWG ACSR DESNUDO |
| GSC003/06 | ACSR 157 | Enel Colombia | 310413 | CABLE 266,8 MCM ACSR DESNUDO |
| GSC003/55 | ACSR 346 | Enel Colombia | 310425 | CABLE 605 KCM ACSR DESNUDO PEACOCKNORMA |
| GSC003/28 | AAAC 315 | Enel Colombia | 310427 | CABLE AAAC 315MM2, DESNUDO NOR E-LT-001 |
| GSC003/13 | ACSR/AW 79 (G) | Enel Peru | 310407 | ACSR/AW 79 (G) |
| GSC003/52 | ACSR/AW 149 (G) | Enel Peru | 310406 | ACSR/AW 149 (G) |
| GSC003/18 | ACSR/AW 182 (G) | Enel Peru | 310405 | ACSR/AW 182 (G) |
| GSC003/22 | AAAC 67 (G) | Enel Peru | 310376 | CONDUCTOR DESN.AAAC. 7H. 70MM2-C/GRASA |
| GSC003/85 | AAAC 120 (G) | Enel Peru | 310377 | CONDUCTOR DESN.AAAC.19H.120MM2-C/GRASA |
| GSC003/26 | AAAC 236 (G) | Enel Peru | 310378 | CONDUCTOR DESN.AAAC.19H.240MM2-C/GRASA |
| GSC003/68 | AAAC 303 (G) | Enel Peru | 310379 | CONDUCTOR DESN.AAAC.37H.304MM2-C/GRASA |
| GSC003/71 | AAAC 500 (G) | Enel Peru | 310380 | CONDUCTOR DESN.AAAC.61H.490MM2-C/GRASA |
| GSC003/101 | AAAC 607 (G) | Enel Peru | 310373 | CONDUCTOR DESN.AAAC.61H.608 MM2-C/GRASA |
| GSC003/42 | ACSR 56 | Enel Romania | 631302 | CONDUCTOR AL-OL NEIZOLAT 50/8MMP |
| GSC003/43 | ACSR 81 | Enel Romania | 631303 | CONDUCTOR AL-OL NEIZOLAT 70/12MMP |
| GSC003/44 | ACSR 110 | Enel Romania | 631248 | CONDUCTOR OL-AL.NORM. 95/15, PT.LEA |
| GSC003/45 | ACSR 141 | Enel Romania | 631305 | CONDUCTOR AL-OL NEIZOLAT 120/21MMP |
| GSC003/95 | ACSR 173 (G) | Enel Romania | 310011 | Conductor OL-AL 149/24 mmp2 tip ACSR 173 (G) GSC003/95 |
| GSC003/96 | ACSR 214 (G) | Enel Romania | 310012 | Conductor OL-AL 184/30 mmp2 tip ACSR 214 (G) GSC003/96 |
| GSC003/98 | ACSR 281 (G) | Enel Romania | 310013 | Conductor OL-AL 242/39 mmp2 tip ACSR 281 (G) GSC003/98 |
| GSC003/97 | ACSR 354 (G) | Enel Romania | 310014 | Conductor OL-AL 304/49 mmp2 tip ACSR 354 (G) GSC003/97 |
| GSC003/99 | ACSR 547 (G) | Enel Romania | 310015 | Conductor OL-AL 485/63 mmp2 tip ACSR 547 (G) GSC003/99 |
| GSC003/41 | ACSR/AW 149 | Enel Romania | 310016 | Conductor OL-AL 128 /21 mm2 tip ACSR/AW149 GSC003/41 |

Brasil 310033 CABO,NU,CAA/AW,CL.A,1/0AWG,RAVEN,GSC003/03

310429 GSC003/110 CABLE ACSR 1113 MCM BLUE JAY Colombia