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	12/20(24) kV AND 18/30(36) kV COLD SHRINK REPARATION JOINTS FOR MV CABLES	GSCC017 Rev. 1 06/09/2018

12/20(24) kV AND 18/30(36) kV COLD SHRINK REPARATION JOINTS FOR MV CABLES

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Revision	Date	List of modifications
00	01/08/2018	First emission
01	06/09/2018	Note added in table 3 and acceptance tests

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1 SCOPE

This Global Standard applies to 12/20(24) kV and 18/30(36) kV cold shrink repair joints for MV underground with extruded insulation, both full and reduced insulating thickness, with copper wires or aluminum tape screen. This Global Standard also applies to transition joints used for the connection of single-pole impregnated paper insulated cables and extruded insulated cable.

These Global Standard applies to the Distribution Companies of Enel Group listed below:

<i>e-distribuzione</i>	<i>Italy</i>
<i>Enel Distribuição Rio</i>	<i>Brazil</i>
<i>Enel Distribuição Ceará</i>	<i>Brazil</i>
<i>Enel Distribuição Goiás</i>	<i>Brazil</i>

2 FIELD OF APPLICATION

These requirements apply to the underground cable distribution network with rated maximum voltage of 24 kV and 36 kV. Other existing rated maximum voltage levels up to 24 kV are covered by the 12/20(24) kV class, whereas those with rated maximum voltage up to 36 kV are covered by the 18/30(36) kV class.

3 REFERENCE LAWS AND STANDARDS

3.1 Global Standards

- GSC001
- GSCC004
- GSCG002


3.2 Local standards

3.2.1 Italy

- PVR 006
- GUI 101

4 UNIT OF MEASURE

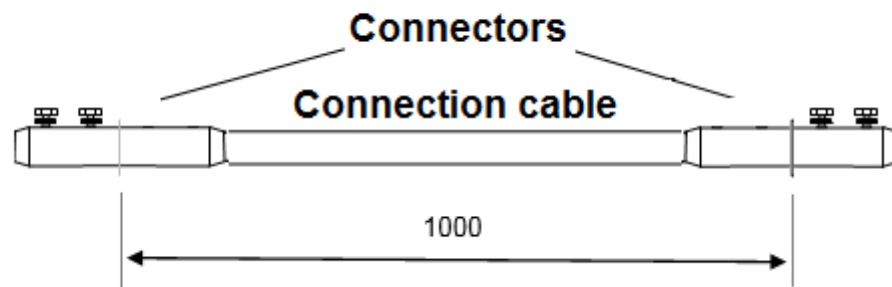
Number of pieces.

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5 GENERAL CHARACTERISTICS

The reparation joints are made by a piece of cable (connection cable) and two joints. The connection cable shall be prepared in the factory by the Supplier according to joint manufacturer instructions and in compliance with GSCC004. The connectors shall be connected in factory by the Supplier to the connection cable.

Dimensions in mm



6 TYPES OF REPARATION JOINTS

The following types of reparation joints are defined:

6.1 Italy: e-distribuzione

Rated voltage $U_0/U (U_m)$ (kV)	Type code	Material code	Type	Type of joints	Q.ty	Connection cable	Applicable for cables cross section (mm ²)
12/20(24)	GSCC017/1	270007	Extruded/ extruded	GSCC004/1 270002	2	See clause 7	95 ÷ 240
	GSCC017/2	270008	Extruded/ transition	GSCC004/1 270002	1		
				GSCC004/3 270004	1		
GSCC017/3	270009	Transition/ transition	GSCC004/3 270004	2			
18/30(36)	GSCC017/4	270010	Extruded/ extruded	GSCC004/2 271030 (GSCC004 rev.0)	2	See clause 7	
			Extruded/ transition				
			Transition/ transition				

Table 1 – Type codes for Italy

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6.2 Brazil: Enel Distribuição Rio, Enel Distribuição Ceará, Enel Distribuição Goiás

Rated voltage $U_0/U (U_m)$ (kV)	Type code	Material code	Type	Type of joints	Q.ty	Connection cable	Applicable for cables cross section (mm ²)
12/20(24)	GSCC017/5	tbd	Extruded/ extruded	GSCC004/1 6788369	2	See clause 7	35 ÷ 95
	GSCC017/6	tbd	Extruded/ extruded	GSCC004/1 6776209	2		95 ÷ 240
	GSCC017/7	tbd	Extruded/ extruded	GSCC004/1 6794284	2		240 ÷ 400
	GSCC017/8	tbd	Extruded/ extruded	GSCC004/1 6794285	2		400 ÷ 630
18/30(36)	GSCC017/9	tbd	Extruded/ extruded	GSCC004/2 T160113	2	See clause 7	95 ÷ 240

Table 2 – Type codes for Brazil

7 CONNECTION CABLE

Design and manufacturing of the cables shall be according with Global standard GSC001, for Type III cables with the characteristics indicated in 7.1 of this document, for the maximum cross section of the specified range of the reparation joint (e.g. 240 mm² for 95 ÷ 240).

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7.1 Connection cable

	12/20 (24) kV	18/30 (36) kV
Conductor Material	Aluminum	
Conductor cross-section	95; 240; 400; 630 (mm ²)	240 (mm ²)
Conductor screen	Black semi-conductive cross-linkable compound	
Insulation	XLPE compliant with GSC001 characteristics	
Insulation thickness	4,85 mm min. - 5,5 mm avg.	7,1 mm min. - 8,0 mm avg.
Insulation screen	Easy strippable Black semi-conductive cross-linkable compound	
Longitudinal water-tightness	Semi-conductive swelling tape	
Earth screen	Continuous crown annealed copper wires	
Earth screen cross-section	25 mm ² (for 95 and 240) 50 mm ² (for 400 and 630)	25 mm ²
Outer sheath	Thickness and PE compliant with GSC001 characteristics	
Note: for e-distribuzione the connection cable for GSCC017/4 shall be 240 mm ² 12/20 (24) kV.		

Table 3 – Connection cable

8 TESTS

The connection cable shall be tested in compliance with GSC001. The joints shall complete successfully a TCA process in compliance with GSCG002 and according to the requirements specified in GSCC004.

Acceptance tests shall be performed on the complete reparation joints i.e. with the connection cable and two joints according to the requirements specified in GSCC004.

NOTE: for e-distribuzione the acceptance test shall be performed considering the insulation level of the connection cable, i.e. 12/20 (24) kV.

9 PACKAGING

Reparation joints shall be supplied in individual packages which shall bear the following information:

- Material code assigned by the Distribution Companies of Enel Group;
- name of the manufacturer;
- type of joint (e.g. extruded-extruded);
- type of cables for which the accessory is intended, section and conductor material allowed (aluminum/copper);
- year and month of packaging;
- progressive identification number assigned by the manufacturer (or serial number);
- barcode (see 9.1.1) ;
- production batch number;
- identification abbreviation;
- maximum voltage U_m in kV;
- expiry date (year/month) of the materials.

The joints shall be packed according to GSCC004.

The connection cable and the connectors shall be adequately protected (e.g. by a plastic mesh).

Furthermore, the packages shall contain a self-adhesive label with the following information (only for E-distribuzione):

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- manufacturer identification code (CUI);
- material code assigned by the Distribution Companies of Enel Group;
- year and month of manufacture (e.g.: 15/2);
- progressive identification number (assigned by the manufacturer);
- barcode (see 9.1.1)

For E-distribuzione, shipping (of several individual packages) shall meet the requirements of the packaging in compliance with GUI 101 specifications.

9.1.1 Barcode

The characteristics of the barcode are listed in E-distribuzione specification PVR 006.

9.1.2 Identification label

It shall include blank fields to be filled after installation:

Name:

Date:

Company: