Electricity Distribution

nationalgrid

Company Directive

ENGINEERING SPECIFICATION
EE SPEC: 74/4

Specification for Low Voltage Service and Mains Type Cables

Author: **Richard Summers**

Implementation Date: **October 2024**

Approved by

Andrew Reynolds
Engineering Policy Manager

Date: **7th October 2024**

Target Staff Group	**N/A**
Impact of Change	**Green – No major impact**
Planned Assurance checks	**N/A**

IMPLEMENTATION PLAN

Introduction

This document defines the low voltage (LV) service and mains cables used within NGED and provides a standard with which the Purchasing section can tender with.

Main Changes

Update to enable the global tender.

Impact of Changes

No major impact.

Implementation Actions

N/A.

Implementation Timetable

Immediate.

REVISION HISTORY

Document Revision & Review Table		
Date	**Comments**	**Author**
October 2024	• Updates to identification requirement and current standards • WPD branding removed	Richard Summers
April 2020	• Tensile strengths added to section 4 • “Property of NGED” added for waveform cable	Richard Summers
January 2015	• Removal of 4mm and 16mm Cu cables	Richard Summers
October 2013	• Update of BS numbers, consolidation into one specification and update of schedule 1	Richard Summers

Contents

1.0 SCOPE

This Specification gives the requirements for the supply and delivery of service and mains cables for use on the NGED 230/400 Volt distribution systems. Low Voltage single core Solidal cables are covered in NGED Specification EE75.

2.0 SPECIFICATION FOR SERVICE CABLES

XLPE insulated combined neutral and earth (copper wire) concentric cables with copper and aluminium conductors to BS 7870-3.11:2011. The 35mm^2 copper conductor version of the CNE cable shall be generally manufactured to this British Standard. For variation see section 4

XLPE insulated split concentric cables with copper and aluminium conductors to BS 7870-3.21:2011. For variation see section 4

XLPE insulated split concentric cables with copper and aluminium conductors having low emission of smoke and corrosive gases (LSF) when affected by fire to BS 7870-3.22:2011. For variation see section 4

XLPE insulated split concentric cables with copper and aluminium conductors having low emission of smoke and corrosive gases (LSF) when affected by fire to BS 7870-3.12:2011. For variation see section 4.

3.0 SPECIFICATION FOR WAVEFORM MAINS CABLES

Standard three and four core Waveform cables shall be manufactured in accordance with BS 7870-3.40:2011 XLPE insulated, copper wire waveform concentric cables with solid aluminium conductors. For variation see section 4

LSF variations shall be manufactured in accordance with BS 7870-3.50:2011 XLPE insulated, copper wire Waveform or helical concentric cables with solid aluminium conductors, having low emission of smoke and corrosive gases when affected by fire.

For variation see section 4.

4.0 VARIATIONS

Cable Over-sheaths

Over-sheaths for all non LSF cables will be black and shall be installed by the “float down” method thereby preventing the oversheath from penetrating the separate neutral earth wires. For LSF cable the cable sheath shall be orange.

Security

Service cables are to be uniquely traceable to NGED, this can be achieved by embossing of the cable oversheath / conductor or other methods approved by NGED.

Waveform cables shall also be marked externally with the word “NGED”. This marking can be either printer or embossed. Other methods of providing a uniquely traceable identification must be approved by the NGED Cables Policy Engineer

Tensile Strength of Solid Aluminium Conductors

Nominal cross-sectional area mm^2	Tensile strength N/mm^2
25 and 35	60 to 105
70 and above	60 to 70

5.0 SIZES AND DRUM LENGTHS

The standard size drum lengths shall be a maximum of 250m unless agreed with NGED

6.0 DELIVERY

NGED have two modes of supply for mains cables: - Cable supplied to stores are required in drum lengths. Just in Time (JIT) cables can be ordered in any length greater than 50m, these lengths will be required to be delivered to our local depots or directly to site. Details of the JIT system are contained elsewhere in the tender documentation.

APPENDIX 1

SPECIFICATION FOR LOW VOLTAGE THREE PHASE MAINS CABLES.

ITEM NO.	SHOPS CODE	DESCRIPTION
	41347	1 Core 25mm^2 Cu CNE – 250m
	41361	1 Core 25mm^2 Cu CNE – **100m**
	41349	1 Core 35mm^2 Cu CNE – 250m
	41355	1 Core 25mm^2 SAC CNE Service Cable – 250m
	41362	1 Core 25mm^2 SAC CNE Service Cable – **100m**
	41348	1 Core 35mm^2 SAC CNE Service Cable – 250m
	41363	1 Core 35mm^2 SAC CNE Service Cable – **100m**
	41353	1 Core 25mm^2 Cu SNE – 250m
	50000	1 Core 35mm^2 SAC SNE – 250mm
	41966	1 Core 25mm^2 SNE **LSF**– 250m
	50004	1 Core 35mm^2 SAC CNE Service Cable **LSF** – 250m
	41351	3 Core 25mm^2 Cu CNE Service Cable – 250m
	41356	3 Core 25mm^2 SAC CNE Service Cable – 250m
	41357	3 Core 35mm^2 SAC CNE Service Cable – 250m
	41354	3 Core 25mm^2 Cu SNE – 250m
	50003	3 Core 35mm^2 SAC SNE – 250m
	42144	3 Core 25mm^2 Cu SNE **LSF** – 250m
	52949	3 Core 35mm^2 Hybrid CNE **LSF** – 250m
	41345	3 core 95mm^2 Waveform mains cable – 250m
	41344	3 core 185mm^2 Waveform mains cable – 250m
	41343	3 core 300mm^2 Waveform mains cable – 250m

	41342	4 core 95mm^2 Waveform mains cable – 250m
	41341	4 core 185mm^2 Waveform mains cable – 250m
	41340	4 core 300mm^2 waveform mains cable – 250m
	41336	4 core 300mm2 Cu waveform mains cable – 250m
	41883	3 core 95mm^2 LSF Waveform mains cable – 250m
	41884	3 core 185mm^2 LSF Waveform mains cable – 250m
	41885	3 core 300mm^2 LSF Waveform mains cable – 250m
	41886	4 core 95mm^2 LSF Waveform mains cable – 250m
	41887	4 core 185mm^2 LSF Waveform mains cable – 250m
	41888	4 core 300mm^2 LSF waveform mains cable – 250m

APPENDIX A

SUPERSEDED DOCUMENTATION

This document supersedes EE SPEC: 74/3 dated April 2020 which has now been withdrawn.

APPENDIX B

RECORD OF COMMENT DURING CONSULTATION

EE SPEC: 74/4 - Comments

APPENDIX C

KEY WORDS

None.