Electricity Specification 603

Issue 3  December 2005

Waterproof Boots

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Approved for issue by the
Technical Policy Panel

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### Amendment Summary

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WATERPROOF BOOTS

1. INTRODUCTION

This specification sets out the requirements for waterproof boots purchased by Electricity North West Limited, hereinafter referred to as Electricity North West.

2. SCOPE

The specification covers two types of waterproof boot (referred to as Types A and B), manufactured from latex-dipped and vulcanised rubber. It also covers the safety footwear manufactured to EN 345:1992 (referred to as Type C).

- **Type A** is intended to be worn by Electricity North West’s fitting, overhead line and cable laying staff, and includes both a steel toecap and a penetration resistant midsole. This type shall incorporate a non-metallic dig pad which is permanently vulcanised to the instep of each boot.

- **Type B** is intended to be worn by cable jointers, and has no toecap and no penetration resistant insert.

- **Type C** is intended to be worn by persons working adjacent to live cables and overhead lines.

3. TECHNICAL AND PERFORMANCE REQUIREMENTS

3.1 All Boots

3.1.1 Type A boots shall be designed, manufactured and tested to the requirements of BS EN 345-1:1993, BS EN 345-2:1997 and BS EN 344-1:1979. The lining may be of knitted or woven fabric.

3.1.2 Type B boots shall be manufactured to BS EN 347. Type C boots shall be manufactured to BS EN 345:1992 and for electrical properties of the sole ASTM F1117-93.

3.1.3 All boots shall provide a secondary line of insulation protection (when used in conjunction with rubber mats manufactured to Electricity North West’s Specification ES602). Therefore, all boots shall be manufactured using insulating materials exclusively, other than the protective toe cap (where specified) and the penetration resistant midsole. Rubber boots are required to insulate the wearer against contact with the ground, forming part of the overall system of protection against electric shock. They shall be neither conducting nor anti-static as defined in BS 5145:1989.

3.1.4 The overall height of boots shall be that appropriate to ‘Knee Boots’ as defined in BS EN 347.

3.1.5 Boots shall not be fitted with laces, buckles or other fastenings.

3.1.6 The soles and heels of boots shall be deeply ridged to allow mud, snow or other viscous material to be pressed from underfoot and also patterned to provide an anti-slip surface as per BS EN 344.
3.2 **Additional Requirements - Type A Boots**

3.2.1 Boots for fitting, overhead line and cable laying staff shall be fitted with a steel toecap and penetration resistant steel insert under the sole extending under the instep, generally as Figure 1 of BS EN 344-1:1979.

3.2.2 The inside of these boots shall be marked STEEL TOECAP AND MIDSOLE at a point not more than 75 mm from the upper edge. The letters used shall be not less than 7 mm high.

3.3 **Colouring and Marking of each Type of Boot**

3.3.1 Type A boots shall be coloured overall black, although the 'Foxing strip', 'Toecap' and 'Top binding' (as defined in BS EN 345) may be any other colour.

3.3.2 Type B boots shall be green (any shade).

3.3.3 Type C boots shall be yellow.

3.3.4 Each boot shall be permanently labelled with the Electricity North West ' logo, which is shown at the top right of each page of this specification. The logo shall be placed on a blue rectangular background at least 50mm high, positioned centrally on the calf of the boot so that the lower edge of the blue rectangle is 150mm above ground level. Labels shall be so placed that they face directly out from the wearer's legs when in use (that is, on the left-hand side for left foot boots and on the right-hand side for right foot boots).

3.3.5 The name of the maker and the size of the boot shall be marked, using the English system, on the inside of the boot at a point not more than 75mm from the upper edge. The numerals shall be at least 7mm high.

3.3.6 Marking shall be as per BS EN 345 and 347 - 1 (The batch number must be included.)

3.4 **Sizes of Boots**

All boots are required in the following English system sizes: 7, 8, 9, 10, 11 and 12.

4. **TESTING**

4.1 **Electrical Testing of Boots**

4.1.1 One pair of boots in every hundred manufactured shall be electrically tested at a pressure and duration of 4kV AC RMS for 1 minute in accordance with BS EN 60903:2003. If failure occurs, then 12 pairs of boots shall be randomly selected from the batch of 100. If 100% pass rate is not achieved at this stage, all remaining boots from the batch shall be tested. Failures shall be rejected.

4.1.2 In addition, a sample of boots shall be subjected to the above electrical test when requested by the purchaser. These tests may be witnessed by an engineer appointed by the purchaser.

4.1.3 Type C boots shall be manufactured and tested to withstand 10 000V for 3 minutes.
4.2 Water Leak Test

All boots (ie 100% of product) shall be leak tested as per BS EN 345 and 347.

5. PACKAGING

Boots shall be supplied boxed in pairs of 6 (6 x 2 boots), all of the same size with pairs of left and right boots temporarily fixed together. The outside of packaging boxes shall be labelled with the maker's name, type and the boot size generally as follows:

XXX LTD
RUBBER BOOTS WITH STEEL TOECAP AND SOLE INSERT
6 PAIRS
SIZE 9

6. GENERAL REQUIREMENTS FOR APPROVALS AND TESTING

6.1 Product not to be Changed

No change in the product, packaging or labelling shall be made after Approval has been granted without prior notice to the Engineer, and receipt of a written agreement to the proposed change from the Engineer.

6.2 Electricity North West Technical Approval

6.2.1 The tenderer shall submit, with this tender, proposals for testing which will demonstrate, to the satisfaction of the Engineer, compliance with this Specification. Such tests shall be carried out without expense to Electricity North West.

6.2.2 Alternatively, the tenderer may submit technical reports and other data that he considers will demonstrate, to the satisfaction of the Engineer, compliance with this specification. Acceptance of this evidence shall be at the discretion of the Engineer but will not be unreasonably withheld.

6.3 Quality Assurance

6.3.1 The Tenderer shall confirm whether or not approval is held in accordance with a Quality Assurance Scheme accredited under BS EN ISO 9000: 2000. If not, he shall submit a statement of the quality assurance procedures employed to control the quality of the product, including the performance of Suppliers and Sub-Contractors.

6.3.2 The right is reserved for the Engineer to require, from time to time, the repeat of such tests as he may deem to be reasonably necessary to demonstrate continued compliance with the Specification.

6.3.3 The tenderer shall submit, with his tender, a list of tests and inspections which are carried out on the product prior to despatch which shall demonstrate, to the satisfaction of the Engineer, fitness for installation and service.
6.3.4 The tenderer shall provide free of charge to Electricity North West such samples as may, in the opinion of the Engineer, be reasonably required for inspection and/or retention as quality control samples. The Engineer will confirm the requirement for samples at the time of tendering.

6.3.5 The right is reserved for the Engineer to make, from time to time, such inspections of the tenderer’s facilities as he may deem to be reasonably necessary to ensure compliance with this Specification and any Contract of which it forms a part.

6.3.6 The Tenderer shall submit, with his tender, such details of product packaging disposal, as will enable Electricity North West to comply with the requirements of BS EN ISO 14001: 1996 – Environmental Management Systems.

6.4 Formulation

The Tenderer shall submit, with his tender, such details of the formulation and use of the product and associated substances as will enable Electricity North West to comply with the obligations of the Health and Safety at Work Act 1974 and the Control of Substances Hazardous to Health Regulations 1988, in the use, storage and disposal of the product. The tenderer may stipulate, prior to submission of such information, that he requires it to remain confidential and the Engineer will, if requested, confirm his agreement to this prior to receipt of the information.

6.5 Identification Markings

6.5.1 The Tenderer shall submit, with his Tender, details of markings which it is proposed to apply to the product or packaging to identify manufacturing batches or items. The forms and content of such markings shall be subject to the Approval of the Engineer, and shall in all cases include the Electricity North West Commodity Code Number.

6.5.2 The Tenderer shall submit, with his Tender, such details of marking gross weight on components, assemblies and packages, as will enable Electricity North West to comply with the Health and Safety Manual Handling Operation Regulations 1992, for components, assemblies and packages supplied with a gross weight over 1kg. The forms and content of such markings shall be subject to the Approval of the Engineer.

6.6 Minimum Life Expectancy

The minimum life expectancy of all products covered by this specification is 10 years.

6.7 Manufacturers Already Approved

Clauses 6.2.1, 6.2.2, 6.3.1, 6.3.3, 6.3.4, 6.4 and 6.5 will be waived in the case of products already approved.

6.8 Product Conformity

Preference will be given to those suppliers who can provide suitable Product Conformity Certification to a recognised or specified standard, or an equivalent certification.

7. REQUIREMENTS FOR TYPE AND ROUTINE TESTING

The specifier shall set out the requirement of the following tests to be carried out by the supplier at the suppliers’ cost.
7.1 Requirement for Type Tests at the Suppliers’ Premises

These are a series of one-off type tests, which are carried out to ensure the satisfactory performance of the product design, under extremes of operating stresses, and of endurance, as may be appropriate, to be determined by the specifier.

These may or may not be destructive tests.

7.2 Requirement for Routine Tests at the Suppliers’ Premises

These tests may be required to be carried out on every individual unit or component, as specified, or at some regular frequency to be determined by the specifier.

The results of these tests may be required to be supplied to Electricity North West with each unit purchased or retained for inspection, at a period to be determined.

8. DOCUMENTS REFERENCED

Health and Safety at Work Act 1974
Control of Substances Hazardous to Health Regulations 1988
Health and Safety Manual Handling Operation Regulations 1992
ISO 9000 - Quality Management Systems
BS 5145:1989: Lined Industrial Vulcanised Rubber Boots
BS EN 344 - 2:1997: Safety Protective and Occupational Footwear for Professional Use. Additional requirements and test methods
BS EN 345-1:1993: Safety footwear for professional use.
BS EN 347-1:1993: Occupational footwear for professional use.
EPD311 - Approval of Equipment
CP311 - Equipment Approval Process

9. KEYWORDS

Fitter; Jointer; Linesman; Safety