
# EN 131

## A GUIDE TO UK LADDER STANDARDS

**PART 1.**
Terms, Types & Functional sizes

**PART 2.**
Testing

**PART 3.**
Marking & User Instructions

# INTRODUCTION

## WHAT IS EN131 AND HOW DOES IT AFFECT THE UK?

EN131 is a European committee for standardisation (CEN) harmonised standard for portable steps and ladders, manufactured from metal and certain other materials such as GRP. It covers minimum safety requirements.

## AT A GLANCE

| *There are currently 3 standards for ladders in the UK:* | *As of 1st January 2018 there will be just 2 standards:* |
|---|---|
| **EN131** is for trade and light industrial use. | **EN131 Professional** |
| **BS2037/ BS1129 Class 1** are for heavy duty and industrial use. | |
| **BS2037/ BS1129 Class 3** is for domestic use. | **EN131 Non-Professional** |

*There are separate requirements for stepstools (EN14183), loft ladders (EN14975), telescopic ladders (EN131-6), mobile ladder with platform (EN131-7 and single or multiple joint ladders (EN131-4)*

# WHY ARE LADDER STANDARDS CHANGING?

The European Commission is dissatisfied with elements of the existing standard and has issued an EC Mandate for the standard to include additional requirements for stability, slip, durability and strength in position of use which will help in preventing the main causes of ladder related accidents.

# HOW IS EN131 CHANGING?

A harmonised standard has been introduced in the UK in 2018 which revokes any existing national versions.

The UK has differed from other European countries with a standard specific to ladders intended for domestic use (BS 2037:1994 class 3) and with the proposed introduction of the new EN131 this domestic standard will be withdrawn. BS2037/BS1129 Class 1 for heavy duty and industrial use will also be withdrawn. There are two new categories for ladders under EN131; one for professional users and one for non- professional users reflecting that there are differences in the requirement for performance of the ladder.

# ARE THERE ANY OTHER CHANGES STILL TO COME?

There are some product categories that still need to be finalised.

**Telescopic Ladders** – The current applicable standard is EN131 part 6 (2015). This is under review and amendments to bring it in line with testing requirements in EN131 part 2 are anticipated before the end of 2018.

**Multi-Purpose Hinged Ladders** – The current applicable standard is EN131 part 4 (2007) Again the brief is to bring the standard in line with the testing requirements of EN131 part 2. In addition there is a growing pressure to have EN131 part 1 amended to be more flexible on the base width for the MT type of ladder allowing the splayed base to be retained.


# WILL THE INTRODUCTION OF THE NEW HARMONISED EN131 AFFECT THE RANGE & AVAILABILITY OF PRODUCTS IN THE UK?

Yes, the domestic use (Class 3) range and products will be withdrawn and replaced by the new EN131 Non-Professional rating and the industrial Use (Class 1) range and products will be withdrawn and replaced by the new EN131 Professional rating.

# WILL THE COMPLIANCE BE OPTIONAL?

Ladder standards in the UK are optional but as the UK has participated fully in the standards development, Trading Standards and the HSE will expect new ladders to comply after a period of grace to January 2019.

# WHAT ARE THE MAIN DIFFERENCES BETWEEN EN131 & BS 2037?

Many of the characteristics of the standards are similar but the new EN131 will introduce stabilisers on ladders over 3m, new slip tests, new cyclic durability tests, as well as new tests for ladders in the position of use. Maximum load will be standardised at 150kg load rating.

# WHEN WILL THE NEW HARMONISED EN131 COME INTO FORCE IN THE UK?

There are three main parts to the new standard: Part 1 - Terms, Types & Functional sizes, Part 2 - Testing and Part 3 - Marking & User Instructions. Parts 1 & 2 were introduced in January 2018 with a year for manufacturers to transition to the new standard, before the January 2019 deadline. Part 3 is expected to be released early 2018.

# HOW WILL I KNOW IF A PRODUCT IS COMPLIANT WITH EN131?

Products will need to be independently tested and certified for compliance and labelled with the new EN131 Standard.

## WHAT HAPPENS TO PRODUCTS THAT DO NOT COMPLY WITH EN131?

There is no legal requirement to conform to standards in the UK but safety bodies such as Trading Standards and the HSE will expect manufacturers to comply. They will not expect users such as utility companies to stop using their current products but as they replace their ladders they should comply to the new standard.

Suppliers and retailers have a period of grace to manufacture and sell through stocks of products compliant to prior standards – these products are safe to use, and there is no requirement to remove any product from sale for these reasons.

> *"The most extensive review and update since standards for ladders were first established, the new EN131 standards are positive changes that improve ladder design and therefore ladder safety. Ladder standards do not apply retrospectively so there is no immediate requirement to change existing ladders. During this transitional period users will also be able to purchase ladders meeting the old - BS 2037 and BS 1129 - ladder standards, but the opportunity to do so will diminish over time as supplies are exhausted."*
>
> *Ladder Association Statement*

# TEST OVERVIEW

The major changes to ladders following the introduction of the new Part 1 EN131:2015 and Part 2 EN131:2017 Professional and Non-Professional standard includes adding stabilisers to extension ladders as well as the implementation of new and updated tests.

## NEW TESTS

**Base slip test for all leaning ladders and ladders that can be used in a leaning mode**

Base slip is a common reason for accidents on leaning ladders if not used correctly; it's basically where the base of a leaning ladder slips away from the wall. The new test requires the most demanding of surfaces, so the ladders are actually tested at a consistent length, on a glass floor in the position of use with a load attached, representing the maximum weight of a person (including tools) allowed. For ladders that extend over 3m a wider base (i.e. a stabiliser bar) is also required.

**Durability tests for standing ladders**

Although we've tested our standing ladders for durability for many years, this is now an actual requirement of the new standard. Importantly, the standard recognises that the demands placed on a ladder in professional and non-professional use are different and therefore there are two levels of test criteria. The ladders are placed open and in position of use, a cyclic test replicates use for 50 000 professional and 10 000 non-professional times. The ladders have to withstand this level of use and show no signs of rupture.

## CHANGES

**The main changes to tests required by the new EN131 standard involve the ladders now being tested in position of use and the clarification of test methodology ensures consistency across manufacturers and test facilities.**

**Wider base for leaning ladders.**
For ladders 3m or above, there is now a minimum base width requirement. This can be achieved by the use of stabilisers which must be fitted and used at all times.

**Torsion for standing and leaning ladders.**
Tests on standing ladders and leaning ladders are now performed with the ladders open, with horizontal and vertical loads applied to twist the ladder and measure the amount of torsion to ensure any deflection is within the permitted range. These tests were previously conducted but changes to the test methods now provide a better understanding of the product's performance when in use.

**Strength for standing and leaning ladders.**
Testing in position of use, the strength test is designed to check that the ladder can take the weight limit specified; fully extended it has 275kg professional or 229kg non - professional weight hanging from the midpoint to check for distortion or failure. This used to be performed with the ladder horizontal across a trestle but the new harmonised industry standard requires a more rigorous test of performance in use.

**Changes to labels and user instructions.**
The CEN have introduced additional guidance on the safe use of a ladder including inspection, maintenance and best practises both before and during use. Additional safety information will now appear on all ladders including clearer pictograms with details on how to use the ladder safely.

## EXISTING

**There are several other tests that ladders need to pass in order to meet the new requirements however these have not changed from the previous version of the Standard;** such as vertical loads on rungs, steps and platforms, torsion on rungs, feet pull and platform kick-up, plus several more.

**At WernerCo we take the quality and safety of our ladders very seriously and test in house and with 3rd party certification bodies to ensure that our products are safe and durable.**

# THE NEW TESTS IN MORE DETAIL

# THE BASE SLIP TEST

## What is tested?

Slip resistance of the feet whilst the ladder is in position of use.

## How is it tested?

- The ladder is placed in position of use on a float glass surface.
- The ladder is tested with a static load of 150kg placed on the 4th rung down from the top of the leaning ladder.
- The load test is repeated 4 times.

## The requirement

- The test requires the ladder to be no longer than 4m.
- In order to pass the test, the ladder feet must not move more than 40mm.

# LATERAL DEFLECTION

## What is tested?

The bend movement whilst the ladder is laid on its side.

## How is it tested?

- Pre-conditioning and test loads are applied to the centre of the ladder section.
- Deflection measurments are taken both during the test and after the loads have been removed.

## The requirement

- The maximum permissible deflection must not exceed a calculation based on the length of the ladder.

# BEND TEST

## What is tested?

The bend that occurs whilst the ladder is laid on a test rig.

## How is it tested?

- The ladder is laid flat in a fully opened position on a test rig with a vertical pre-load of 10kg applied to the centre of the ladder and centre between the stiles. After 60 seconds the load is removed and a measurement datum taken of the stiles.
- A test load of 76kg must be applied to the centre of the stiles for a duration of at least 60 seconds.

## The requirement

- The maximum permissible deflection must not exceed a calculation based on the span distance of the ladder.

# STRENGTH TEST

## What is tested?

The strength of the ladder whilst the ladder is in the position of use

## How is it tested?

- The tread/rung of the ladder is tested to static loads of:
  **Professional - 275kg**
  or
  **Non-professional - 229kg**

## The requirement

- After removal of the test load the ladder, stabilisers and their connections shall remain functional with no fracture or visible cracks.

# TORSION TEST

## What is tested?

The twist movement whilst the ladder is laid on a test rig.

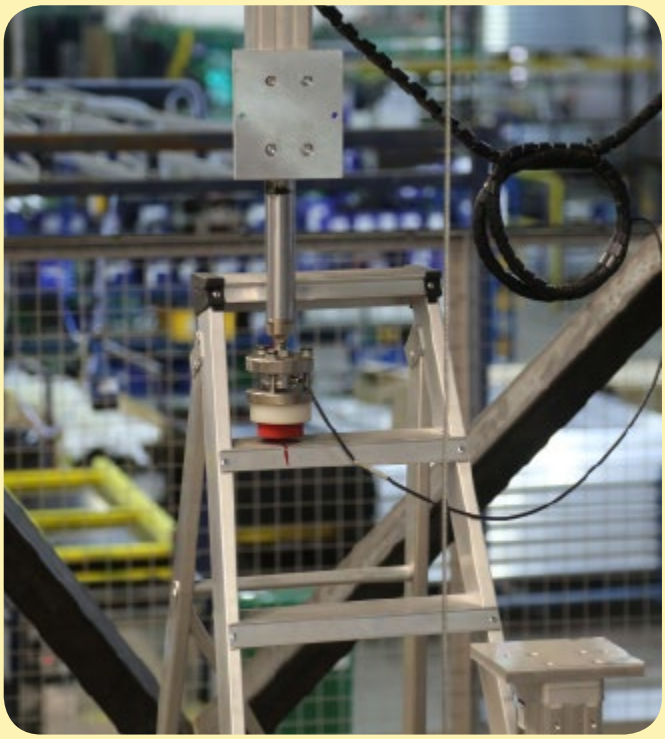
## How is it tested?

- The leaning ladder is laid flat on a test rig with a vertical load of 50kg applied to the centre of the ladder and centre between the stiles. After 30 seconds the load is removed and a measurement datum taken of the stiles.
- A vertical load of 65kg is applied to one stile for 30 seconds and then removed to take a further measurement.

## The requirement

- The difference between the deformation of the two stiles should not exceed 0.07 times of the external width of the ladder section.

# DURABILITY TEST



## What is tested?
Durability of the ladder.

## How is it tested?
- A load of 150kg is applied to the ladder alternating between the top tread/rung and the middle tread/rung of the ladder.
- The test cycle is repeated:
  **Non-professional graded products: 10,000 cycles**
  **Professional graded products: 50,000 cycles**

## The requirement
- The ladder must be able to support the load without showing signs of rupture.

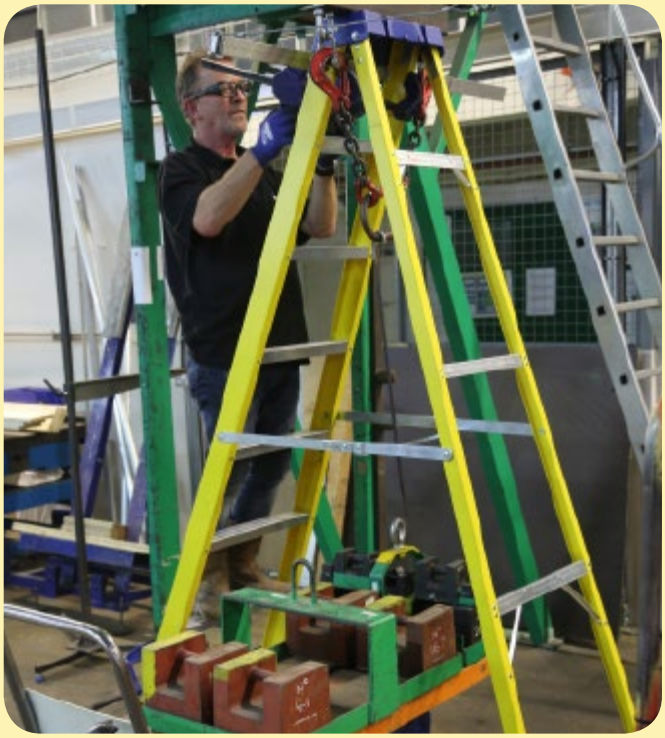
# OPENING RESTRAINTS AND HINGE

## What is tested?
The durability of the opening restraints and hinges of the standing ladder.

## How is it tested?
- Each leg of the ladder is placed on a platform fitted with castors.
- A test load of 265kg is divided into 2 loads of 132.5kg each and distributed and applied to the top tread/platform of the ladder, as close as possible to the ascending part of the ladder stiles. This test is conducted for a period of 60 seconds.

## The requirement
- The ladder must not show any deformation of the hinge joints or restraint devices. There must be no cracks, indentations or other visible damage and the ladder must remain in full working order.

# TORSION TEST



## What is tested?

The twist movement whilst the ladder is in the position of use

## How is it tested?

- The ascending side of a ladder is clamped to hold it's position
- A static vertical load of 75kg is attached to the top of the ladder
- A horizontal load of 14kg is applied to the top of the ladder to measure any movement to the ascending ladder foot that is not clamped

## The requirement

- The ladder must not move more than 25mm from its original position whilst the test load is applied.

# FOR MORE INFORMATION, PLEASE CONTACT: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