



**RING**

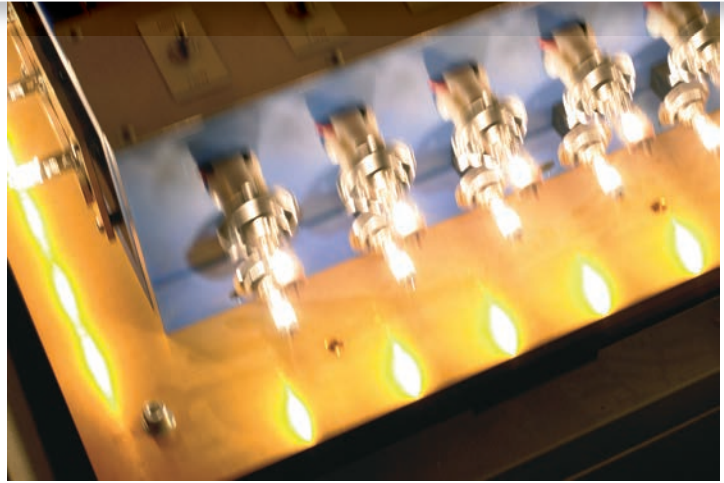


# AUTOMOTIVE BULBS

A GUIDE TO E MARKING & BULB QUALITY

## INTRODUCTION

It's a fact the simple Autobulb is a safety critical component of any vehicle on the road today. Often overlooked, it's a key part of providing the right light ahead on a dark road or warning other road users a driver is braking or about to change direction. As it is vital to operate safely the bulbs must be manufactured to International Standards.



Bulb vibration testing

## ECE Regulation 37

The Standard is ECE Regulation 37 more commonly shortened to the "E" mark. ECE Regulation 37 details exact specifications that cover the light output, filament geometry, voltage and wattage and the size and shape of the bulb.

The light output specification ensures the correct level of illumination from the light assembly. Too bright and you could dazzle other road users. Too dim and you may simply not be able to see the way ahead.

Filament geometry specification ensures the correct alignment of the light source, (the filament, in the light assembly) ensuring the light source is correctly focused for optimum light output.

Voltage and wattage specification ensures the bulb can safely be fitted to a vehicle's electrical system without overloading the switching or wiring harnesses.

Size and shape specification ensures the bulb fits correctly into a light unit or assembly.

## THE STANDARD AROUND THE WORLD



Each country that has signed up to ECE Regulation 37 is authorised via a government agency to issue E approvals with a unique number. In the case of the UK the issuing agency is the VCA. The numbers are issued in sequence as countries join and issue approvals to the regulation. For instance, Germany uses E1, France E2, UK E11, Korea E51.

Approvals can only be granted once the product and the manufacturing process has been tested and verified by an independent test laboratory. These test laboratories are located across the world and test to the same ECE Regulation 37 standards. The testing or manufacturing may not be in the country that issues the E approval. Therefore, it is possible to have products made in Taiwan, tested in China and issued with a German approval number.

The approval number also does not indicate the country of origin, nor does it carry any indication of perceived quality, as all the approvals are granted to the same specification and testing regimes.

## THE LEGAL REQUIREMENTS

It is illegal to fit light assemblies (that carry their own performance approval numbers) with bulbs that are not E approved (1989 Road Vehicle Lighting Regulations). In addition, it is also illegal to stock or offer these bulbs for sale in the UK (Filament Lamps for Vehicles (Safety) Regulation 1982). The standard for Gas Discharge light sources is ECE Reg. 98.

## How can I tell if a bulb meets ECE Regulation 37?

**It should be marked with ALL the following information:**

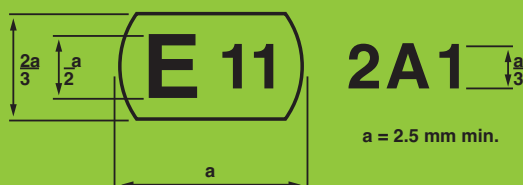
1. The trade name or mark of the manufacturer.
2. The rated voltage, typically 12v for passenger cars and 24v for commercial vehicles.
3. The international designation for the lamp e.g. W21W.
4. The rated wattage of the lamp including any dual filaments e.g. 21W or 21/5W. This is not required if the international designation identifies the wattage.
5. The approval mark in accordance with the specification for its size and shape (See Fig 1).

**This consists of the following:**

1. The designated E number (e.g. E11) in a rectangular box followed by a unique 3 digit code. This can only be applied to one lamp type for each manufacturer. This identifies the manufacturer.
2. In the case of a halogen bulb which has to meet the requirements of the UV light output specification it may be marked with a U.

### Example of the arrangement of the approval mark

Fig 1



The above approval mark affixed to a filament lamp indicates the lamp has been approved in the United Kingdom (E11) under the approval code A1.

The first character of the approval code indicates the approval was granted in accordance with the requirements of ECE Regulation No. 37 as amended by the 02 and 03 \*/ series of amendments.

### Compliant approval marking



# NON-COMPLIANT MARKING

The following examples show non-compliant E marked bulbs which are illegal and the products should not be sold or offered for sale.



## 1. No international designation



## 2. No Trade mark



## 3. Incorrect approval symbol



## 4. Duplicate E mark on different caps Clearly one is a copy?

Example 4 illustrates very clearly there are manufacturers that are prepared to apply E marks to their products that are clearly illegal and to which they may not have the rights.



## 5. No U

May not be suitable for any headlamps with plastic lenses or component parts. Bulbs must not exceed damaging UV light limits set to protect plastic headlamps and any plastic components in the light unit. Products marked with the U are U/V cut and meet the requirements of ECE Regulation 37. Consumers should look for the letter U to check all bulbs are suitable for their headlamps.

Unfortunately a correctly marked E mark does not always guarantee quality. There are direct copies and forgeries circulating in the marketplace. You can only be certain of a products quality by selecting a supplier that has the abilities to independently check and verify the quality of the bulbs offered for sale.

## Did you know?

All Ring Automotive bulbs are lead free



Ring Automotive headlamp bulbs are UV cut



All Ring Automotive bulbs are marked as being suitable for transport use only and not for use in the home





## BEYOND E MARKING

- The E mark is only one part of the specification and even if the product appears to be correctly marked it may not meet the standards.
- Ring Automotive has identified many supposedly approved bulbs as being counterfeit - simply poor copies of genuine bulbs.
- The E mark is no guarantee of quality, the performance of the bulb is the real test.

That's why Ring Automotive has invested in its own quality assurance laboratories in the UK.

No other bulb supplier in the UK has made the investment nor has the range of equipment at its disposal.

**Ring Automotive has full facilities to test to ECE Regulation 37, including:**

1. Overall light output and colour temperature in its integrated sphere photometer
2. Voltage and wattage
3. Geometry via shadow graph
4. Physical dimensions
5. Beam pattern in a 10m dark room using the latest image capturing technology detecting over 1.5 million light readings per test.



Bulb life testing

### ADDITIONAL RING AUTOMOTIVE TESTING

Life testing is not part of ECE Regulation 37 but an integral part of determining the quality of Ring Automotive bulbs compared to other products in the marketplace.

Vibration testing, is again, not part of ECE Regulation 37 but an integral part of determining the quality of Ring Automotive bulbs compared to other products in the marketplace.

**With all this in place Ring Automotive can be confident only the highest quality of bulbs are offered. No other UK bulb supplier can make the same confident claim.**

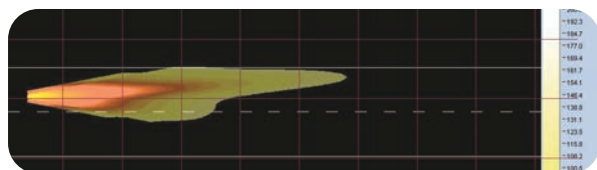
## QUALITY ASSURANCE

With nearly forty years experience in the manufacture and distribution of automotive lighting, Ring Automotive's commitment to quality is second to none. Through major investments in test equipment and fully qualified staff, Ring Automotive has created a Quality Assurance Department that is at the forefront of the Automotive Lighting Market. Ring Automotive recognises quality is of the utmost importance in helping to ensure customer satisfaction and with this in mind Ring Automotive's Quality Assurance Department carries out stringent quality control procedures on a continuous basis.

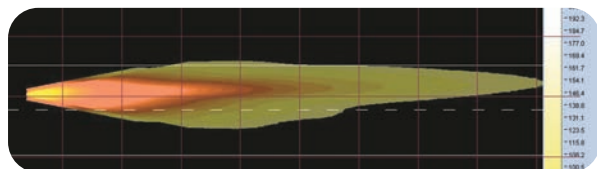


The department has been awarded ISO 9001 for the manufacture and assembly of automotive lighting.

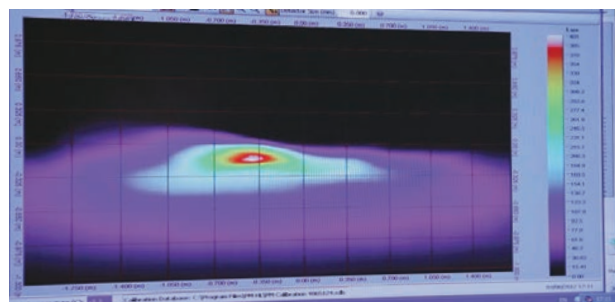
This is regularly and independently verified by BSI and the standard has now been achieved over a period of many years. This independent Quality Assessment is vital when it comes to Ring Automotive's original equipment programme where the best in the world OEM's continue to place business with Ring Automotive.



Standard beam pattern



H7 Xenon Ultima beam pattern



H7 beam pattern

Ring Automotive's Quality Assurance Department carries out a much bigger role than simply testing our existing products.

The department's extensive facilities are used in the continuous process of product development, comparing the performance of existing products to those utilising the very latest technologies. It works closely with our manufacturing partners in developing those new technologies. It is also able to monitor and assess the general quality of the marketplace issuing regular updates on other bulbs available.

## LIGHT TUNNEL LABORATORY

A major investment for the future development of Ring Automotive and its lighting ranges.

## THE TECHNOLOGY

The Lighting Laboratory is invaluable in the ongoing Research and Development at Ring Automotive. The state of the art laboratory is equipped with the latest light imaging photometer and supporting software. The equipment measures the light intensity and colour of any light source on test from 1.5 million points simultaneously, providing data not previously available from conventional tests.

The software is able to create overhead images that can accurately show the on road performance.



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