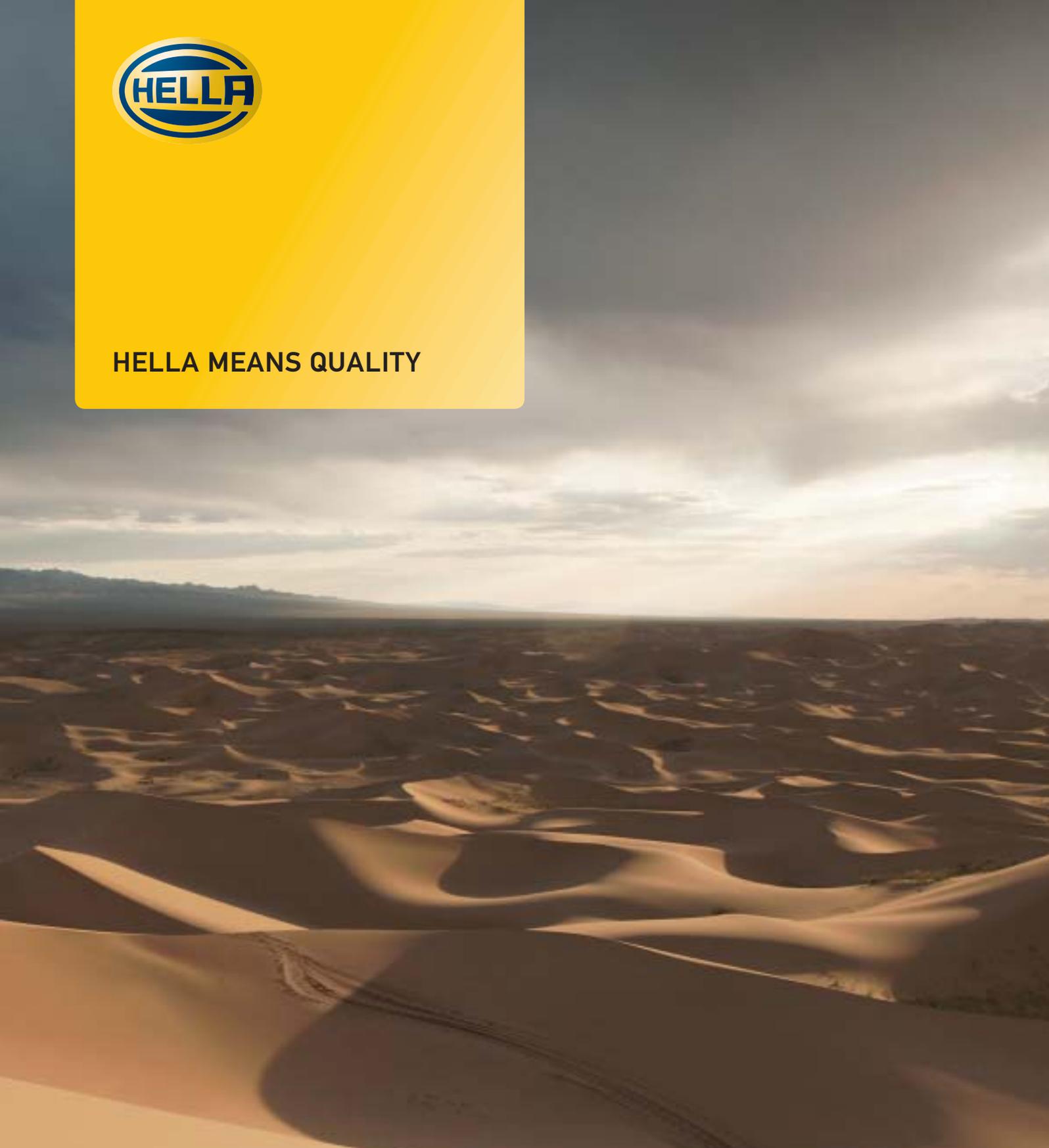




HELLA MEANS QUALITY



EXCELLENCE SINCE 1899





HELLA MEANS QUALITY

HELLA has set itself the ambitious aim of guaranteeing a consistently high level of product quality in every respect. This aim is achieved by defining quality criteria and checking every detail using carefully selected methods throughout the production process. Production quality is backed by accompanying quality monitoring and control.

THE DIFFERENCES ARE IN THE DETAIL

There is a large gap in quality when comparing products from different manufacturers. At first sight they may appear similar, but each individual product has a unique range of tolerance. For example, a housing that is too small can cause vibrations and corrosion and a housing that is too big is difficult to install correctly.

As HELLA products have the same quality as original parts, products such as headlights – to take one example – fit the chassis perfectly, even for repair, making simple and trouble-free installation a reality.

INVEST IN QUALITY

Lower quality headlights can have optical defects such as spots that can cause glare to oncoming traffic on the reflector surface. No final inspection means a higher number of complaints. Technical lighting problems occur, as legal requirements are not met. Any low beam or high beam with an incorrect range represents a risk to drivers, passengers and other road users.

Low-quality headlights in some cases are extremely difficult to adjust, as no pre-adjustment takes place at the factory. Important structural parts frequently bend during installation, which can prevent the part being installed correctly. Poor bonding allows dust and humidity to penetrate, which can cause a short circuit.

Charred plugs and a lack of insulation increase the risk of a fire. Defective material causes parts to break, melt, burn or deform even under everyday conditions. Paints, reflector coatings and rubber fittings lose colour or flake away from large areas. Dull headlights are the result.

THE GUARANTORS OF HELLA QUALITY

HELLA reflectors guarantee very high surface quality, as they are free of trapped dust (dust spots). Mechanical deformation is prevented and sealing is guaranteed by the even bonding and optimal fit of the headlights.

HELLA original parts meet all regulations as well as most of the even stricter requirements of vehicle manufacturers.

HELLA uses vapour deposition and coating processes with optimised surface adhesion to prevent dull headlights. The light functions of HELLA headlights are also adjusted to each other at the factory. If the low beam, for example, needs to be changed subsequently, all the other settings for high beam and fog light are automatically positioned correctly.



You can find further information about the HELLA quality criteria at: www.hella.com/quality

QUALITY IS A TRADITION AT HELLA

Quality products from HELLA undergo a range of tests that are defined in HELLA Norm 67001. The tests are carried out by the HELLA test laboratory in Lippstadt.

FIRST-CLASS QUALITY WITH CONVICTION

HELLA offers a long-term warranty for perfect function and supplies satisfied customers with spare parts, accessories and light sources. As the traditional company in Lippstadt is a partner of leading automotive manufacturers, HELLA

products are manufactured to meet manufacturer's tolerance specifications perfectly. As a result – and thanks to mature test procedures in product development – HELLA produces products that can always be relied on.

HELLA products undergo the following tests:



→ Heat, humidity and cold test



→ Spray water test



→ Pressure washer test



→ Vibration test



→ Dust test



→ Immersion and leak test

Heat, humidity and cold test

In temperature cycle tests, HELLA products are exposed to temperature fluctuations from -40 to +100 degrees Celsius in climatic exposure test cabinets with volumes of 600 to 1000 litres. Condensation and de-condensation tests are performed up to a maximum humidity of 95% and up to +80 degrees Celsius. In the aptly named "shock cabinet", the temperature varies between -40 and +100 degrees Celsius in a matter of seconds (maximum intervals of 6 seconds).

These tests put intense stress on every material, from the lighting to the individual electronic components. The heat and cold tests last up to 48 hours.

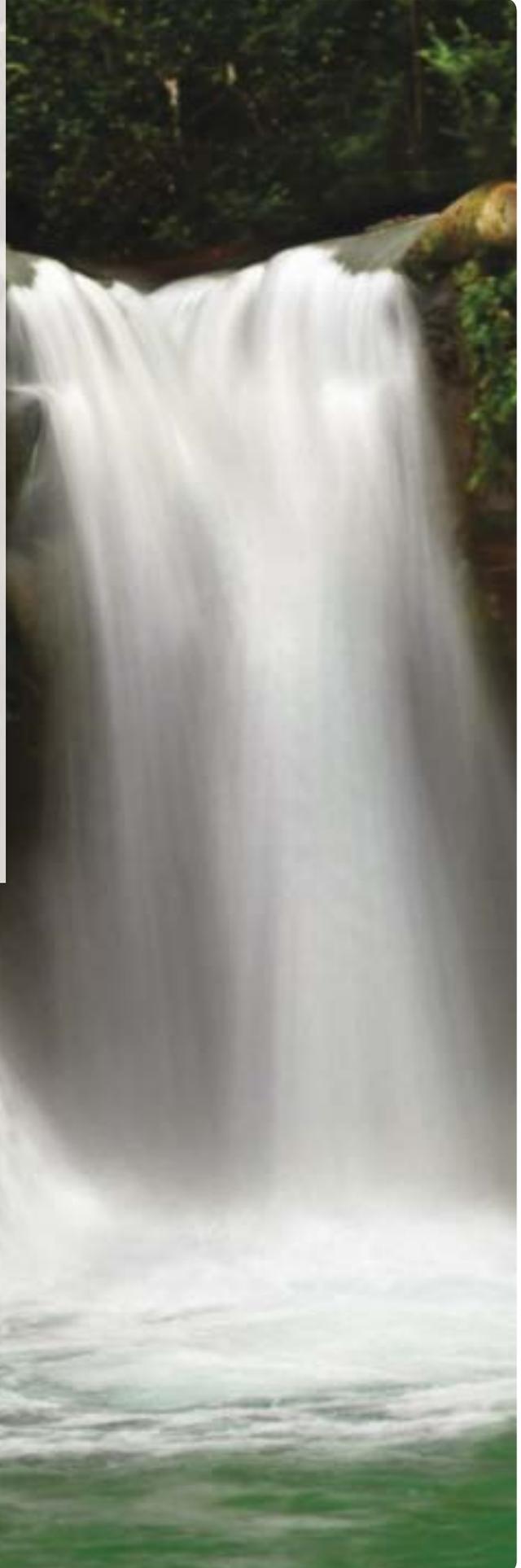
Test reports are archived at HELLA for 15 years.



Spray water test

HELLA products are tested under real environmental conditions in universal spray booths. The booths are fitted with devices for rain, flood water, jets of water and spray mist.

The test products are tested for leak tightness at a pressure of up to 5 bar for the spray water test and at a pressure of up to 10 bar for the water jet test.



Pressure washer test

The products are tested at a water pressure of up to 120 bar and a water temperature of +85 degrees Celsius in a testing facility.

This test reproduces the conditions in a carwash or when a pressure washer is used to clean the vehicle.



Vibration test

This test simulates the behaviour of the products on a “rough-road track” and measures the reactions of the vehicle, for example, to potholes, dirt roads, road metal, gravel, fields and farm tracks. Special rally profiles are tested for selected products such as auxiliary lights.

Mechanical endurance is tested vertically and horizontally by the wide band random vibration test. The frequency band is 10 to 1000 Hertz. In addition to the vibration test, the products are exposed to a test temperature of -40 to +80 degrees Celsius. This tests the ageing process of the material, as well as other properties. All products undergo function testing for up to 24 hours.

A mechanical shock test is also carried out; the test is designed to simulate behaviour on impact (for example, boxed products during shipping) at an acceleration of 300 to 500 metres per second².



Dust test

The products are tested for dust-proofness in this test. Unfired Portland cement is used as the test medium for all products. The test is performed either in test functional mode or by generating high and low pressure in the test object.

The test is assessed by measuring the photometric value before and after the test.

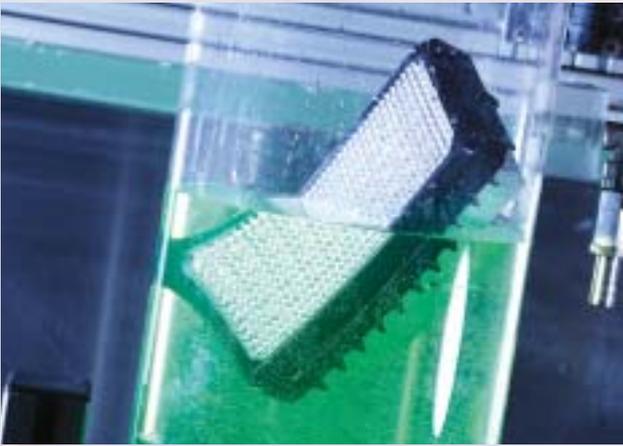


Immersion and leak test

This test is carried out on all technical lighting products, as per requirements.

An immersion tube provides a water depth of 1 metre. A second test unit provides a depth of 6 metres. A positive pressure test at up to 1.6 bar is also performed in an immersion tank.

All the tests are carried out in accordance with HELLA Norm 67001 and applicable legal requirements.



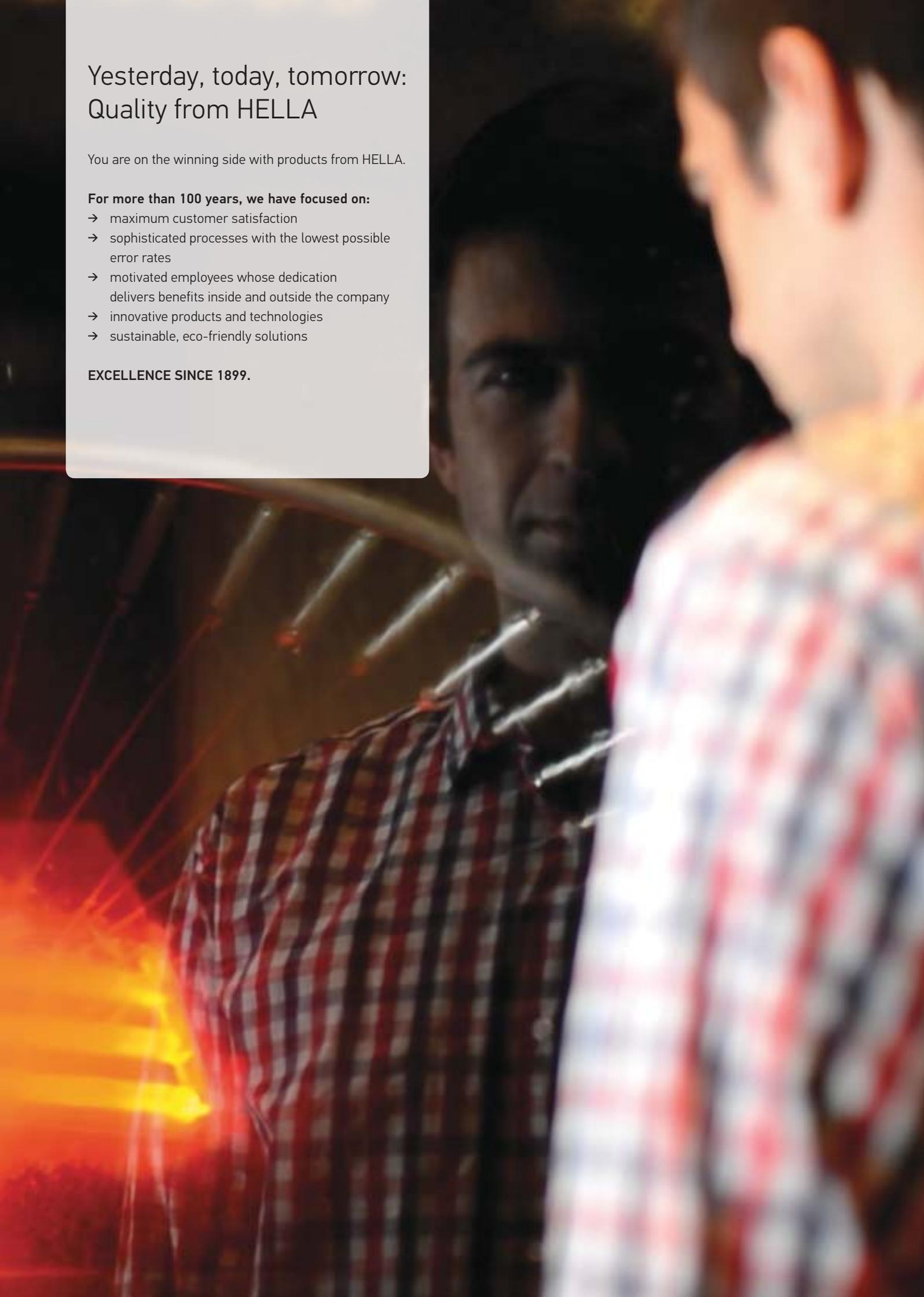
Yesterday, today, tomorrow: Quality from HELLA

You are on the winning side with products from HELLA.

For more than 100 years, we have focused on:

- maximum customer satisfaction
- sophisticated processes with the lowest possible error rates
- motivated employees whose dedication delivers benefits inside and outside the company
- innovative products and technologies
- sustainable, eco-friendly solutions

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HELLA KGaA Hueck & Co.

Rixbecker Straße 75
59552 Lippstadt, Germany
Tel.: +49 2941 38-0
Fax: +49 2941 38-7133
Internet: www.hella.com

HELLA Limited

Wildmere Industrial Estate
Banbury, Oxon OX16 3JU
Tel.: (01295) 225600
Fax: 0800 7832571
E-mail: hella.sales@hella.com
Website: www.hella.co.uk

HELLA, Inc.

201 Kelly Drive,
P.O. Box 2665
Peachtree City, GA 30269
Toll Free: 1-877-224-3552
Fax: 1-800-631-7575
www.hellausa.com

HELLA Asia Singapore Pte Ltd

Regional Headquarters Asia Pacific
Independent Aftermarket
2 International Business Park
#02-12 The Strategy
Singapore 609930
Tel: +65 6854 7300
Fax: +65 6854 7302
E-mail: singapore@hella.com
Internet: www.hella.com.sg

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