



**PAGID**

BRAKE SYSTEMS

**ECE R90 APPROVAL  
FOR BRAKE DISCS**



# FROM NOVEMBER 2016, NEW ECE R90 REGULATION ALSO OBLIGATORY FOR BRAKE DISCS

Selected spare parts need approval from the respective national approval authorities before they can be offered on the market. That has been the case for many years and also applies to brake pads. With the introduction of the ECE R90, binding standards were created across Europe for the testing and approval of replacement brake pads.

Until now, there has been no binding ECE approval for other components of brake systems. However, that is soon to end! As of November 2016, a corresponding approval will also be mandatory for brake discs and brake drums in passenger cars and light commercial vehicles.

## PUTTING AN END TO COUNTERFEITERS & CO

Internationally agreed, standardised specifications for vehicles, their equipment and their spare parts are stipulated in the ECE regulations. Their introduction, control and monitoring should put a stop to counterfeiters and irresponsible cheap manufacturers, or at least make it difficult for them to access the market. That is also apparently urgently required since counterfeit products for safety-related parts, such as brakes, can pose a risk of fatal injury in a worst-case scenario.

The binding approval in accordance with ECE R90 assures that all spare parts meet the same performance parameters as original equipment products. Everyone who is genuinely concerned about the operating and road safety of vehicles will benefit from the regulations and that not only means the manufacturers of high-quality automotive spare parts but also trade, garages and, last but not least, road users.

### MORE COMPLEX TEST PROCESS

Similar to brake pads, the testing of brake discs or brake drums is not only limited to test stand tests undertaken by an independent institute.

Instead numerous tests – in accordance with strict specifications – are also carried out directly on the vehicle as part of the testing process. The large number of test procedures not only poses a major challenge for the industry but also for vehicle technology and mobility institutes such as the TÜV.

### LICENSE TO TEST

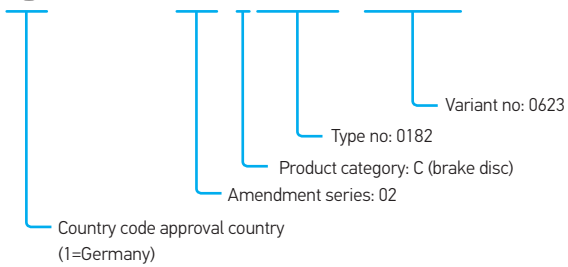
In this situation, it is highly beneficial for HELLA PAGID and our customers that the parent company TMD Friction was already approved by TÜV Nord as an R90 license holder in 2015. Since then, this has enabled both the group and company to cooperate with TÜV Nord in performing independent testing in accordance with the ECE R90, and to thus launch a total range of brake discs approved according R90 on to the market earlier than the competition.

### THE TEST CRITERIA

The ECE R90 prescribes a number of criteria whose compliance is verified by several tests, these include:

- Geometric parameters
- Chemical composition
- Design
- Material structure
- Mechanical properties
- Production tolerances
- Corrosion protection

# E1 90R-02 C0182/0266



## A CODE ENSURES SAFETY

A wide range of tests are carried out before ECE approval is granted.

These are performed by an independent institute such as TÜV. An international approval number is only granted after successful completion of this procedure.

The number consists of a circle containing the letter "E" and the ID of the country that granted the approval. In addition, the code consists of a letter and number combination providing information on the respective product category, variant, the type and amendment series.

### Especially important:

The approval number must be directly applied to the product and be clearly visible.

## AHEAD OF TIME

What applies to all manufacturers as of November 2016 has long been normal daily practice at HELLA PAGID. The in-house test criteria are even far more extensive than specified in the ECE R90. And not only that, in order to guarantee maximum performance, comfort and safety, all the articles in our product range have long since fully met the specifications for original equipment manufacturers. A strict test procedure, with at times considerably higher standards than required by the regulatory authorities, provides the final security. Therefore, it is hardly surprising that since HELLA PAGID was already able to present the first brake discs with ECE approval back in 2014, it has enabled the company to become the acknowledged pioneer in the industry.

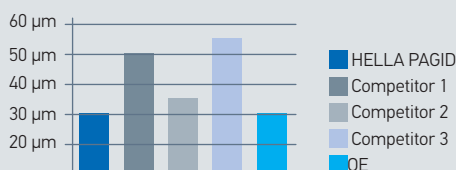
## THE TEST PROCEDURE

In order to check the properties mentioned, the following tests are binding:

- Thermal fatigue test to check the stress cracking resistance (test stand)
- High load test to check the resistance at torque transmission (test stand)
- Various performance tests on the (test stand)
- Vehicle tests as required

In addition, the product groups mentioned are tested against the following R90 criteria and thus compliance with ECE R90 regulations is checked:

### Lateral runout $\mu\text{m}$ BMW Z4



R90 criterion	R90 specification
Thickness variance	$\leq 15\mu\text{m}$
Shoe thickness variance (vented)	$\leq 1.5\mu\text{m}$
Lateral runout	$\leq 50\mu\text{m}$
Centering diameter	H9
Cylinder parallelism	$\leq 100\mu\text{m}$
Contact surface evenness	$\leq 50\mu\text{m}$
Surface roughness of friction material	Ra 3.2
Imbalance	Corresponding original equipment
Brinell hardness	Depending on the material used
Tensile strength	Depending on the material used

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