



Electric vehicles in the individual approval procedure

**Vehicle and
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This Merkblatt was drawn up by the TÜVs (Technical Inspection Bodies), DEKRA and the TÜV|DEKRA arge tp 21 working group in cooperation with the VDA (German Association of the Automotive Industry) and the VDIK (Association of International Motor Vehicle Manufacturers). It contains instructions for the design and assessment of individual vehicles equipped with electric or hybrid electric drive systems. Individual requirements described in the information sheet, in particular those relating to electrical safety, apply primarily to electric drive systems with voltages in the high-voltage range (> 60 V direct current (DC) and > 30 V alternating current (AC)). It is therefore directed towards independent experts from Technical Inspection Bodies or Technical Services who perform individual approval examinations either according to § 13 EG-FGV (Decree on the reorganisation of legislation for EC approval procedures) or § 21 StVZO (German Road Traffic Regulations). The Merkblatt does not apply to experimental, development and pre series production vehicles, which are approved in accordance with § 21 in conjunction with § 19(6) or § 70 StVZO. Neither does it apply to manufacturers, with their authorised representatives, who have already undergone an initial examination and who are owners of type approval for the basic vehicle to be converted, as well as for accident-damaged vehicles, e. g. import vehicles with salvage title.

The intention of this Merkblatt is to ensure, by means of uniform technical requirements for vehicles in the individual approval procedure, a safety standard that reduces the risk of hazards associated with the electric drive – such as those caused by the effects of electric current – to the acceptable minimum both during the use of the vehicles and during their maintenance and repair. The purpose of this Merkblatt is therefore to create unified assessment criteria for these vehicles. The rules and remarks apply both to assessment of new vehicles and also to existing vehicles that have been modified for electric drive. For vehicles with fuel cells this Merkblatt may be referred to with regard to the electrical equipment.

This Merkblatt is based on the German Road Traffic Licensing Regulations (StVZO) and also on UN Regulations and Standards. The authoritative regulations in relation to the electrical safety of vehicles with electric power trains are the current versions of UN Regulation No. 100 – Uniform provisions concerning the approval of vehicles with regard to specific requirements for the electric power train – and § 62 StVZO regarding electrical equipment of electrically-driven motor vehicles. In addition, the Merkblatt includes tests which also reflect contents of the current standards and VDE regulations in the area of high-voltage technology and electrical safety. The requirements contained in this Merkblatt state solutions for the normal case that are satisfactory from the safety point of view, in order also to fulfil the rules contained in Article 5 (1) of Regulation (EC) 661/2009 and § 30 StVZO. Due to the complexity of the regulations, only the relevant regulations for individual vehicle classes have been specified in this Merkblatt in some cases. The expert shall independently determine and apply the regulations for other vehicle classes during the assessment.

This version of the Merkblatt was voted for at Special Committee “Passive Safety” of the Ministry of Transport and agreed on with supplements in the 191. meeting of the Technical Committee of Automotive Engineering (FKT). The Bund-Länderausschuss Technisches Kraftfahrwesen (BLFA-TK) approved these modifications in its 164. meeting. The adjustments and additions in the year 2020 represent the state of the art. In place of the test procedures or technical rules specified in the Merkblatt, other technical solutions are permissible in so far as they are proven to the Technical Service or the officially-recognised independent expert to be of equal value. Any liability on the part of VdTÜV is excluded, also in relation to the factual correctness of the descriptions and statements in this agreement. In the same way, patents and other intellectual property rights must be clarified by the user on his own behalf and responsibility. The Merkblatt is continually adapted to the state of technology. Any suggestions in this regard should be addressed to the publisher:

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