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BSI Standards Publication

Electrically propelled road vehicles — Dimensions and designation of secondary lithium-ion cells

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee PEL/69, Electric vehicles.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Véhicules routiers à propulsion électrique — Dimensions et désignation d'accumulateurs lithium-ion

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Foreword

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An ISO/IEC PAS or ISO/IEC TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/IEC PAS or ISO/IEC TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC PAS 16898 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 21, *Electrically propelled road vehicles*.

Introduction

The vehicle traction battery system as a large and very costly component of an electrically propelled vehicle has a huge influence on the vehicle design. Depending on vehicle dimensions and package constraints, the shape of battery packs and systems has to follow a top-down procedure. The dimensional requirements on lithium-ion cells for automotive application are given by the battery system, which is influenced by the vehicle design. Therefore, this Publicly Available Specification (PAS) was developed in a joint ISO and IEC Working Group consisting of experts from the automotive industry, the automotive suppliers, the battery and the cell industry.

Today there is a huge variety of different cell types and dimensions on the market. When a traction battery system design is finished based on one specific cell, a change to another cell or cell supplier is quite difficult or may not be possible. It is necessary to reduce this variety in order to:

— lower the cell costs through encouraging competition and allowing cell suppliers access to the worldwide market,

— enable an exchange of the cells from different suppliers during and after the battery system development, and

— support the battery system design by specifying basic outer dimensions per known design type of lithium-ion cells for automotive traction battery systems.

By specifying only a certain number of cell dimensions for vehicle propulsion, this PAS aims to reduce the number of different dimensions. It should furthermore ensure that cells of the dimensions as listed in this PAS will be used in the long term by the vehicle manufacturers for their current and future models. Cells of these dimensions need to be available for the vehicle production time, plus the vehicle life time, plus the legally required spare part availability time.

This PAS lists only those battery cells, chosen from the currently existing variety, which will be used for the current and planned vehicle models and which are currently available. This PAS does not exclude the usage of other cell dimensions in vehicle models.

This PAS is not intended to restrict the development of cell technology. Therefore no requirements are specified in this PAS for the cell chemistry, the usage of materials or any electrical characteristics.

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PUBLICLY AVAILABLE SPECIFICATION ISO/IEC PAS 16898:2012(E)

Electrically propelled road vehicles — Dimensions and designation of secondary lithium-ion cells

1 Scope

This Publicly Available Specification (PAS) specifies a designation system as well as the shapes and dimensions for secondary lithium-ion cells for integration into battery packs and systems used in electrically propelled road vehicles including the position of the terminals and any over-pressure safety device (OPSD). It is related to cylindrical, prismatic and pouch cells.

The cell designation according to this PAS is intended to be applied to the cells used for electrically propelled road vehicles. This PAS does not apply to cells specifically used for mopeds, motorcycles and vehicles not primarily defined as road vehicles, i.e. material handling trucks or forklifts.

The cell dimensions listed in this PAS are recommended but not restricted for use in passenger cars up to 3,5 t.

The inner design, the cell chemistry, the electrical characteristics and any further properties of the cells are not defined in this PAS.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62660-1, *Secondary lithium-ion cells for the propulsion of electric road vehicles — Part 1: Performance testing*

3 Terms and definitions

For the purposes of this document the following terms and definitions apply.

3.1
cylindrical cell
secondary lithium-ion cell with a cylindrical hard case housing, terminal and over-pressure safety device

3.2
over-pressure safety device
OPSD
safety device to limit the gas pressure inside the cell

EXAMPLE burst disc, pressure valve or predetermined breaking point

3.3
pouch cell
secondary lithium-ion cell with a laminated housing consisting of compound foil and terminal

3.4
prismatic cell
secondary lithium-ion cell with a prismatic hard case housing, terminal and over-pressure safety device