Lead-acid starter batteries - Part 6: Batteries for micro-cycle applications

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 50342-6:2025 sisaldab Euroopa standardi EN 50342-6:2025 ingliskeelset teksti.	This Estonian standard EVS-EN 50342-6:2025 consists of the English text of the European standard EN 50342-6:2025.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.08.2025.	Date of Availability of the European standard is 01.08.2025.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.220.20

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50342-6

August 2025

ICS 29.220.20

Supersedes EN 50342-6:2015; EN 50342-6:2015/A1:2018

English Version

Lead-acid starter batteries - Part 6: Batteries for micro-cycle applications

Batteries d'accumulateurs de démarrage au plomb - Partie 6: Batteries pour applications micro-cycles

Blei-Akkumulatoren-Starterbatterien - Teil 6 : Batterien für Mikrozyklen-Anwendungen

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 50342-6:2025 E

Contents

Page

European foreword 3

1 Scope 4

2 Normative references 4

3 Terms and definitions 4

4 General 4

4.1 Designation of starter batteries 4

4.2 Condition on delivery 4

5 General requirements — Identification and labelling 4

6 General test conditions 5

6.1 Characteristics and abbreviations 5
6.1.1 Nominal capacity C_n 5
6.1.2 Cranking current I_{CC} 5

6.2 Syntax of test descriptions 5

6.3 Requirements for measuring equipment capability 7
6.3.1 Equipment requirements for the micro-hybrid test MHT (8.2) 7
6.3.2 Equipment requirements for the dynamic charge acceptance test DCA (8.3) 8
6.3.3 Water bath 8
6.3.4 Equipment for other tests, measuring instruments 8

6.4 Sampling of batteries 8

7 Test sequence 8

8 Inspections and test procedures 9

8.1 Charging of batteries 9

8.2 Micro-hybrid test (MHT) 9
8.2.1 Purpose 9
8.2.2 Procedure 9
8.2.3 Data evaluation 12

8.3 Dynamic charge acceptance test (DCA) 12
8.3.1 Purpose 12
8.3.2 Procedure 13

8.4 Endurance in cycle test with 17,5 % depth of discharge (DoD) 17
8.4.1 Purpose 17
8.4.2 Procedure 17

8.5 Endurance in cycle test with 50 % depth of discharge (DoD) at 40 °C and preceded deep discharge 18
8.5.1 Purpose 18
8.5.2 Procedure 18
8.5.3 Deep discharge part 19
8.5.4 Rest time 19
8.5.5 Cycling part 19

9 Requirements and battery performance levels 20

9.1 General 20

9.2 Tests to be passed (no performance differentiation) 20
9.3 Tests determining the DCA performance level 21
9.4 Tests determining the micro-cycle performance level 22
Annex A (informative) **Flow charts of DCA test procedure, 8.3 ..... 23**
Annex B (normative) **Marking / Labelling of batteries 27**
Bibliography 28

Tables

Table 1 — Test steps 5
Table 2 — Description of columns 6
Table 3 — Acronyms and symbols 7
Table 4 — Equipment requirements for the micro-hybrid test MHT 7
Table 5 — Equipment requirements for the dynamic charge acceptance test DCA 8
Table 6 — Test sequence 9
Table 7 — Test sequence MHT V2 10
Table 8 — DCA – Pre-cycling 13
Table 9 — DCA – Charge Acceptance qDCA procedure 14
Table 10 — DCA – The DCA_{pp} procedure 15
Table 11 — DCA – The DCR_{ss} part<Tbl_--></Tbl_--> 16
Table 12 — Endurance 17,5 % DoD – Cycling units 18
Table 13 — Endurance 50 % DoD – Deep discharge part 19
Table 14 — Endurance 50 % DoD – Cycling part 20
Table 15 — Requirements of tests to be passed 21
Table 16 — Requirements levels DCA performance 21
Table 17 — Requirements of tests determining the micro-cycle performance level M1…M3 22

Figures

Figure 1 — Subphases of the DCRss part 17
Figure B.1 — Optional Start-Stop logo 27

European foreword

This document (EN 50342-6:2025) has been prepared by CLC/TC 21X “Secondary cells and batteries”.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2026-08-31
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2028-08-31

This document supersedes EN 50342-6:2015 and all of its amendments and corrigenda (if any).

TC21X working group 3 has been agreed to implement an improved version of Micro-hybrid test (MHT). This test replaces the version of EN 50342-6:2015.[1]

EN 50342-6:2025 includes the following significant technical changes with respect to EN 50342-6:2015:

— change of test temperature from 25 °C to 40 °C for entire test procedure including initials, cycling and check-up;

— change from 100 cycles to 200 cycles each test block;

— change of rest time between blocks from 12 h to 3 h;

— change of total number of cycles from 8000 to 16000;

— a new performance level “D” for dynamic charge acceptance (DCA) with two steps has been introduced and some minor errors have been corrected.

EN 50342, *Lead-acid starter batteries*, is currently composed of the following parts:

— *Part 1: General requirements and methods of test*;

— *Part 2: Dimensions of batteries and marking of terminals*;

— *Part 3: Terminal system for batteries with 36 V nominal voltage*;

— *Part 4: Dimensions of batteries for heavy vehicles*;

— *Part 5: Properties of battery housings and handles*;

— *Part 6: Batteries for Micro-Cycle Applications* [the present document];

— *Part 7: General requirements and methods of tests for motorcycle batteries*.

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

Any feedback and questions on this document should be directed to the users’ national committee. A complete listing of these bodies can be found on the CENELEC website.

[1] As amended by EN 50342-6:2015/A1:2018.

1 Scope

This document is applicable to lead-acid batteries with a nominal voltage of 12 V, used primarily as power source for the starting of internal combustion engines (ICE), lighting and also for auxiliary equipment of ICE vehicles. These batteries are commonly called “starter batteries”. Batteries with a nominal voltage of 6 V are also included in the scope of this document. All referenced voltages need to be divided by two for 6 V batteries. The batteries under the scope of this document are used for micro-cycle applications in vehicles which can also be called Start-Stop (or Stop-Start, idling-stop system, micro-hybrid or idle-stop-and-go) applications. In cars with this special capability, the internal combustion engine is switched off during a complete vehicle stop, during idling with low speed or during idling without the need of supporting the vehicle movement by the internal combustion engine. During the phases in which the engine is switched off, most of the electric and electronic components of the car need to be supplied by the battery without support of the alternator. In addition, in most cases an additional regenerative braking (recuperation or regeneration of braking energy) function is installed. The batteries under these applications are stressed in a completely different way compared to classical starter batteries. Aside of these additional properties, those batteries need to crank the ICE and support the lighting and also auxiliary functions in a standard operating mode with support of the alternator when the internal combustion engine is switched on. All batteries under this scope need to fulfil basic functions, which are tested under application of EN 50342-1:2015.

This document is applicable to batteries for the following purposes:

— Lead-acid batteries of the dimensions according to EN 50342-2 for vehicles with the capability to automatically switch off the ICE during vehicle operation either in standstill or moving (“Start-Stop”);

— Lead-acid batteries of the dimensions according to EN 50342-2 for vehicles with Start-Stop applications with the capability to recover braking energy or energy from other sources.

This document is not applicable to batteries for purposes other than mentioned above, but it is applicable to EFB delivered in dry-charged conditions according to EN 50342-1:2015, Clause 7.

NOTE The applicability of this document also for batteries according to EN 50342-4 is under consideration.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 50342-1:2015[2], *Lead-acid starter batteries - Part 1: General requirements and methods of test*

3 Terms and definitions

No terms and definitions are listed in this document.

4 General

4.1 Designation of starter batteries

Regarding the designation of starter batteries, refer to EN 50342-1:2015, 3.2.

4.2 Condition on delivery

Regarding the condition on delivery, refer to EN 50342-1:2015, 3.3.

5 General requirements — Identification and labelling

For detailed information about measurement and labelling EN 50342-1 shall be used.

[2] As impacted by EN 50342-1:2015/A1:2018 and EN 50342-1:2015/A2:2021.