

ASTRABAT Deliverable 2.3

External geometry of cells

WP2, T2.2

Technical references

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| Project Acronym | ASTRABAT |
| Project Title | All Solid-sTate Reliable BATtery for 2025 |
| Project Duration | January 2020 – June 2023 |

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|----------------------------------|---|
| Deliverable No. | D2.3 |
| Dissemination level ¹ | PU |
| Work Package | WP 2 – Components and cells specifications |
| Task | T2.2 – New generation of All-Solid-State electrolyte cell specification |
| Lead beneficiary | LECLANCHE |
| Contributing beneficiary/ies | CEA, FRAUNHOFER, WUT, UMICORE, NANOMAKERS, DAIKIN, LEITAT, ELAPHE |
| Due date of deliverable | 30 June 2020 |
| Actual submission date | 30 June 2020 |

¹ PU = Public, PP = Restricted to other programme participants (including the Commission Services) , RE = Restricted to a group specified by the consortium (including the Commission Services), CO = Confidential, only for members of the consortium (including the Commission Services)

Versions

| Version | Date | Beneficiary | Author |
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| 2 | 29/05/2020 | Leclanché | Catalina Rodriguez Correa |
| 3 | 12/06/2020 | CEA | Frédéric Le Cras |
| 4 | 24/06/2020 | Leclanché | Catalina Rodriguez Correa |
| | | | |

Disclaimer

The ASTRABAT project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°875029. This output reflects only the author's view and the European Union cannot be held responsible for any use that may be made of the information contained therein.



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1 External Geometry of the Cells

In the following report, the size and geometry of the ASTRABAT cell prototypes are defined.

1.1 Cell Geometry

The cell geometry chosen for the ASTRABAT prototype (50 Ah) is an A4-sized pouch cell based on the standard Leclanché geometry. This geometry was chosen due to its simplicity to down-scale it, if it is required, for the prototypes with lower capacity and energy density (10 Ah). Furthermore, it allows the integration of the bipolar cell concept, which will be considered later in the project in WP5. The dimensions of both prototypes are given in Table 1. Figure 1 shows a sketch of the cell inside the pouch.

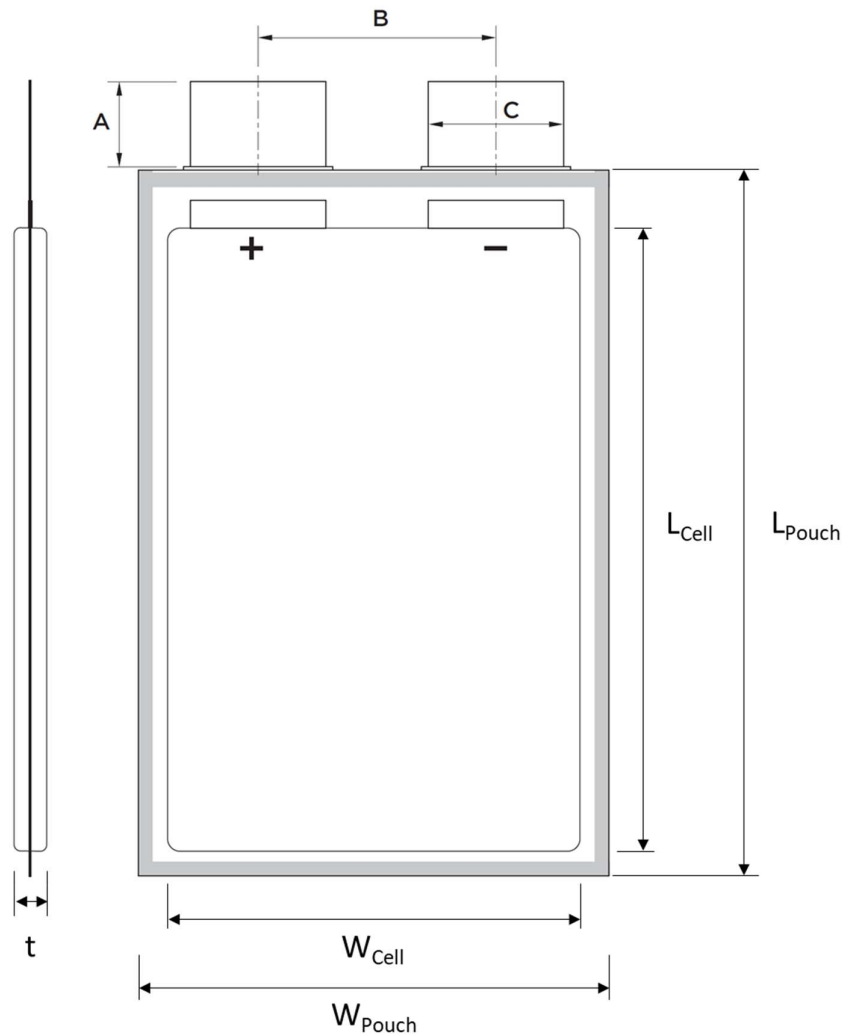


Figure 1: Sketch of an A4-sized pouch cell



Table 1: Dimensions of the 10 Ah prototype cell and of the A4-sized pouch cell (50 Ah).

| | 10 Ah Prototype | 50 Ah prototype |
|-------------------------|----------------------------|----------------------------|
| A [mm] | 30 | 33 |
| B [mm] | 70 | 90 |
| C [mm] | 20 | 50 |
| L _{Pouch} [mm] | 80 | 290 |
| L _{Cell} [mm] | 60 | 250 |
| W _{Pouch} [mm] | 140 | 180 |
| W _{Cell} [mm] | 125 | 150 |
| t [mm] | 5 - 6 | max. 12 |

The thickness of the cell is directly dependent on the electrode loading, the thickness of the electrolyte, and of the current collectors, among other factors. Thus, this parameter shall be defined individually for each prototype.

Even though the 50 Ah prototype will not be built within the framework of the project, it is proposed thinking forward to the up-scaling process, economic assessment, and exploitation plan (WP 7 and 8). This design is subjected to changes based on the project advancements and developments.

