
TEST REPORT**N° DGP-23.099**

REPORT DATE: 19/04/2023

YOUR REF.: Peppermotion

SUBJECT: Tests on Plywood large packagings (50D), to obtain the authorization for the transport of dangerous goods.

BY ORDER OF: **CLIP-LOK SIMPACK SCANDINAVIA**
SOLVANG 25
DK – 3450 ALLEROED

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Recognition:



Joachim Bronselaer
Analyst
(F)IBC & Dangerous goods
packaging



Ing. D. De Valck
Head of Department
(F)IBC & Dangerous goods
packaging

1. Received samples:

Contact person : Katrine Skovbjerg Cardellino
E-mail contact person : kskovbjerg@clip-lok.com

Receiving date of the samples : 20/03/2023

Description of the received samples : Empty plywood boxes.
Complete package: filled and closed plywood box with Content

The samples were taken and sent by CLIP-LOK SIMPACK SCANDINAVIA to IBE-BVI.

Testing date : 04/04/2023 – 19/04/2023
Analyst : Joachim Bronselaer & Stefaan De Ryck

2. Objective of the project:

Prototype tests on plywood large packaging (50D), to obtain the authorization for the transport of dangerous goods.

The packaging will be used to transport lithium batteries.

All tests with (Q) are executed under the Belac accreditation.

This report is a test report and exclusively refers to the tested objects.

3. Description of the samples:

Type of box: Plywood large packaging (50D) conform with the description as mentioned in the different regulations.

Manufacturer: **CLIP-LOK SIMPACK SCANDINAVIA
SOLVANG 25
DK – 3450 ALLEROED**

Empty weight: 130 kg (including closing system & straps)

Dimensions: Length: Outer: 1170 mm
Inner: 1130 mm (as provided by the customer)
Width: Outer: 1077 mm
Inner: 1040 mm (as provided by the customer)
Height: Outer: 1067 mm
Inner: 935 mm

Construction: The packaging is made of 6 different parts, which are affixed to each other with the specific 'clip-lok' closing system.
The bottom part is a pallet base.

Closing system: 44 metal L-clips are used to close and keep the different parts of the packaging together.
weight: 146 g (for a single L-clip)

See annex for more information regarding construction/composition of the packaging.

Content:

Lithium dummy battery placed in a frame of plywood on a base with slots for strapping of the battery.

Dummy battery:
- Gross weight: 609 kg

Straps:
- Weight: 915 g

Gross mass of the tested sample : 739 kg
Gross mass of the final package : **739 kg**

Pictures:

Side view:



Front view:



L-clip:



Content (vertical position):



Content (horizontal position):



Content (horizontal position):



4. Test program:

Performance tests for plywood large packagings(50D) prescribed by:

- UN-Recommendations – part 6
- IMDG-Code – part 6
- ICAO-TI – part 6
- ADR-RID - part 6

A. Bottom lift test (Q):

On top of a filled large packaging, an additional load is evenly distributed.
The mass of the filled large packaging and the load is 1.25 times the maximum permissible gross mass.

The large packaging is raised and lowered twice by a lift truck with the forks centrally positioned and spaced at three quarters of the dimension of the side of entry (unless the points of entry are fixed). The forks penetrate to three quarters of the direction of entry. The test is repeated from each possible direction of entry.

Number of tested packaging	: 1
Filling material	: See point 3 'content', placed in vertical position
Weight of the samples	: 739 kg
Added load on top of the large packaging	: 185 kg
Total weight of the sample	: 924 kg
Possible entry directions	: 4 => 2 in length & 2 in width

Criteria for passing the test:

No permanent deformation which renders the large packaging, including the base pallet, if any, unsafe for carriage and no loss of contents.

Results of the tests:

No deformation of the base of the large packaging after having lifted the large packaging.

B. Drop test:

The large packaging is filled with the content described in point 3 'content' and dropped on the part of the base of the large packaging which is considered the most vulnerable.

Here, an angle of 26° was chosen for a drop test diagonally on a bottom rib. A drop test was performed on both the sort and largest side of the packaging. The orientation of the content was also changed for both drops (vertical or horizontal).

After the test, the large packaging must be lifted for 5 minutes to prove that it is still safely movable.

Filling material	: See point 3 'content'.
Number of tested packaging	: 2
Weight of the samples	: 739 kg
Drop height	: 1.20 m

Criteria for passing the test:

No damage liable to affect safety during transport.
No important breakage or leakage, nor of the box, nor of the inner receptacles.

Results of the tests:

The large packaging does not show any loss of contents.
No deformation of the base of the large packaging after having lifted the large packaging.

C. Stacking tests (Q):

Filling material	: See point 3 'content'
Number of tested packages	: 1
Conditioning	: Ambient temperatures
Stacking height	: 3 high
Duration of the test	: 24 hours
Calculated load	: $1.8 \times 739 \times (3-1) = 2661$ kg
Applied load	: 2670 kg

Criteria for passing the tests:

No deterioration which could adversely affect transport safety.
No distortion liable to reduce the strength of the packaging or to cause instability in a stack of packages.

Results of the tests:

No test sample shows any deterioration which could adversely affect transport safety.
No distortion liable to reduce the strength of the packaging or to cause instability in a stack of packages.

5. Conclusion:

The presented package has successfully met the performance tests prescribed for the transport of dangerous goods and may be used in accordance with the following conditions:

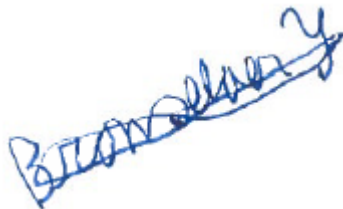
For the content Lithium Batteries:

- Maximum stacking height : 3 high
- Maximum stacking weight during transport : 1478 kg
- Maximum permissible gross mass : 739 kg

Important note: The maximum allowed net mass/capacity must always be in conformity with the prescriptions as set in the RID-ADR, IMDG or ICAO-TI.

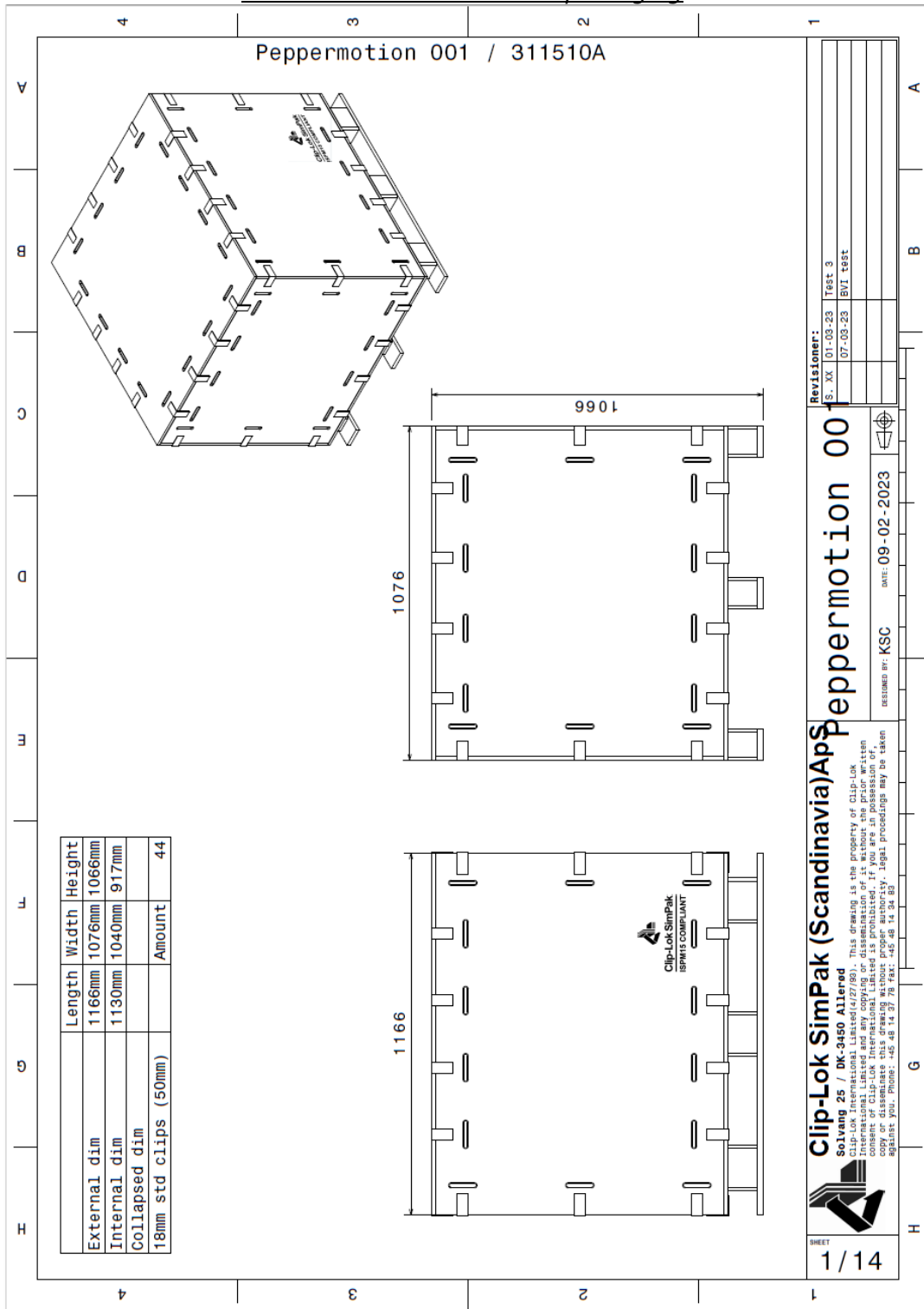
All other conditions of use are not covered by this report.

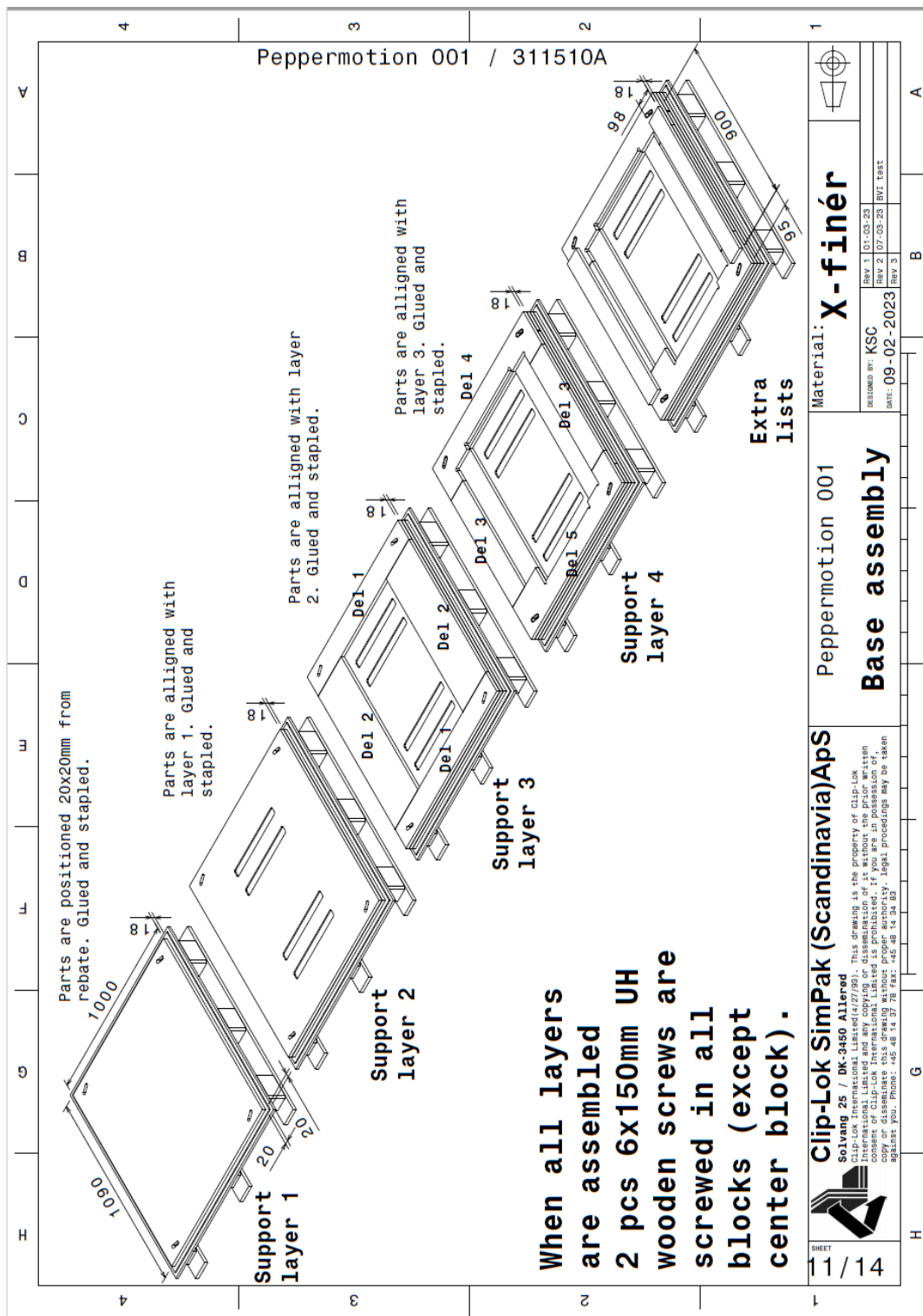
The use of other packing methods or components other than stated in this report will render the use of this package invalid.

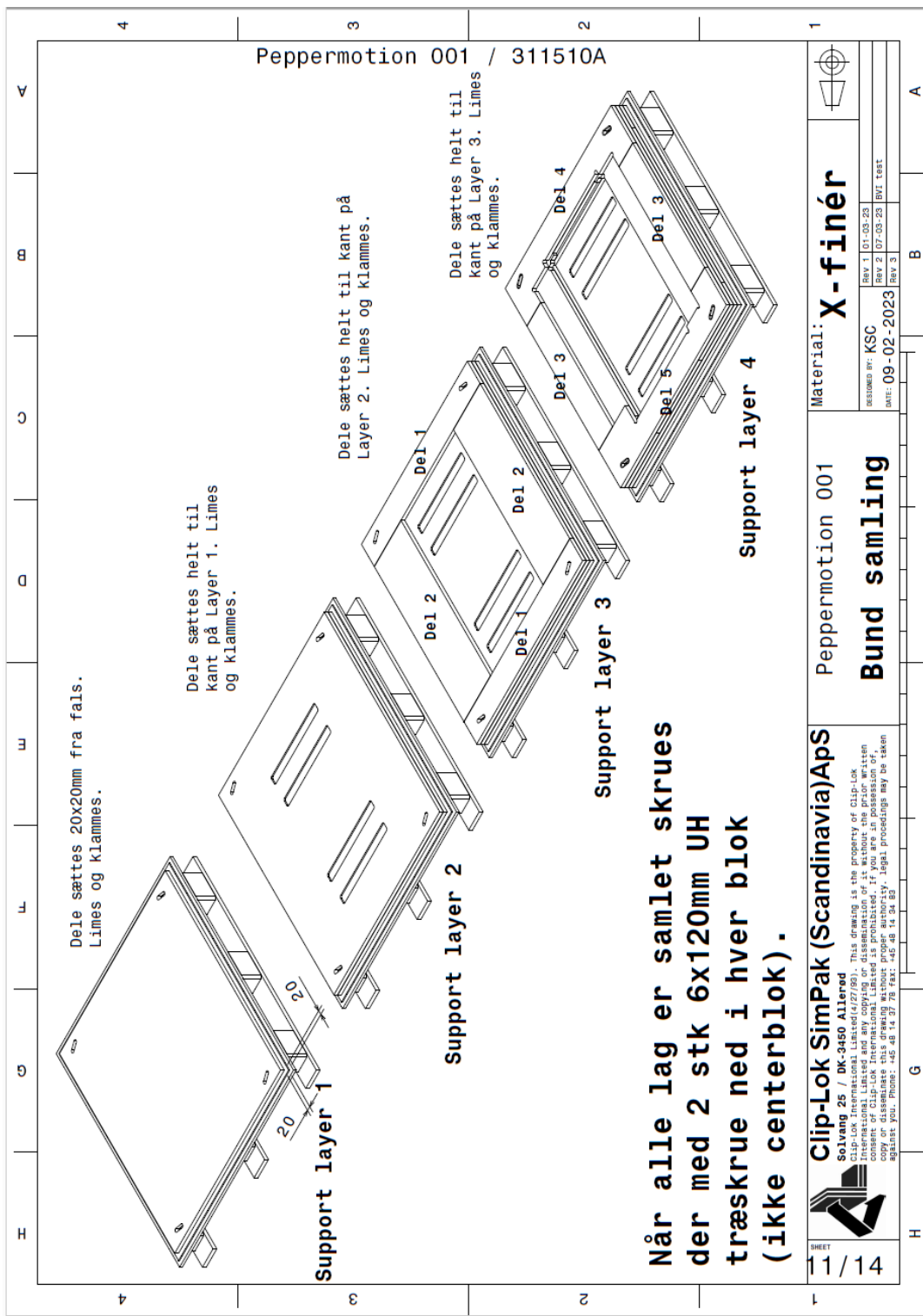


Joachim Bronselaer
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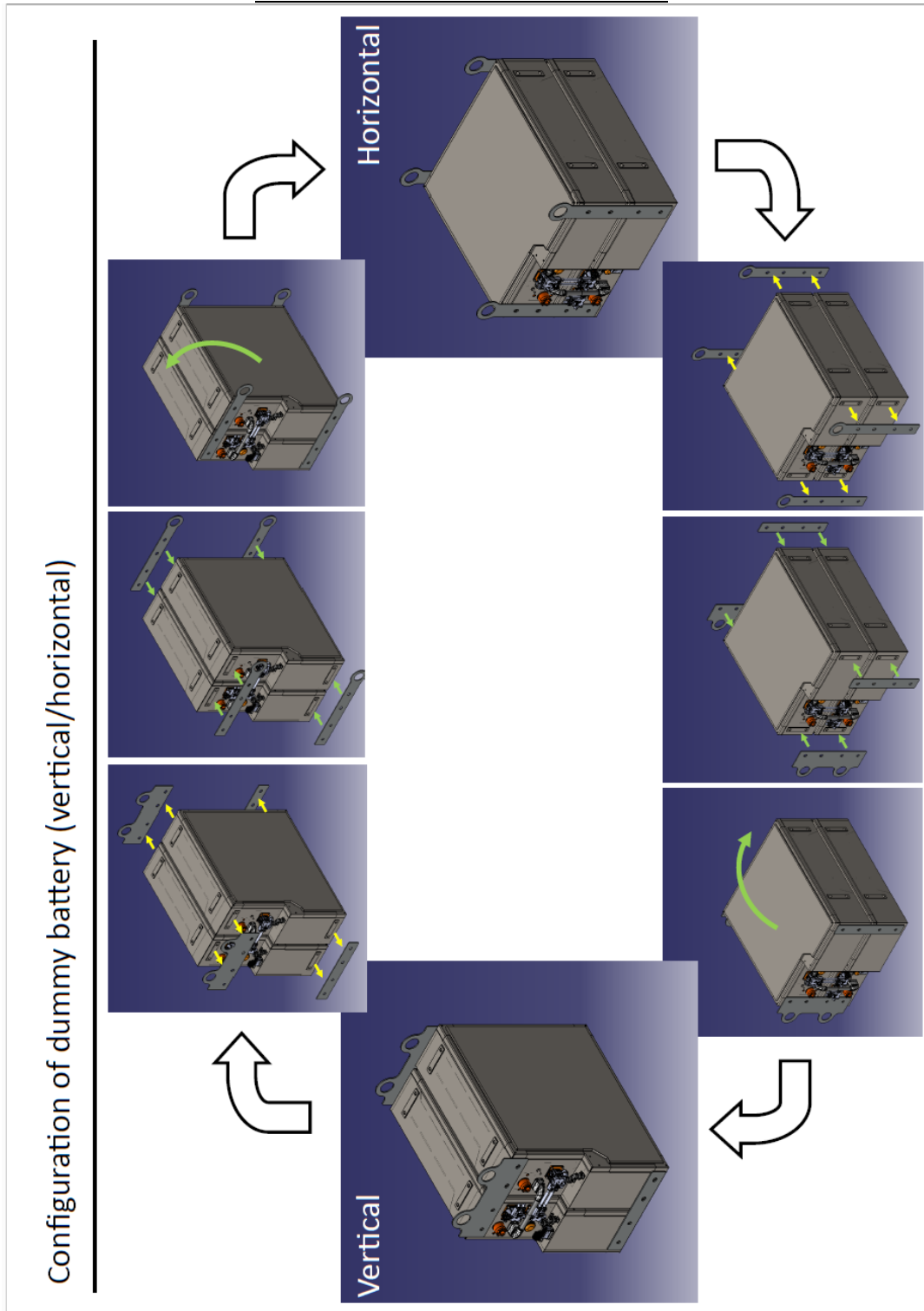
Annex 1: datasheets of the packaging:







Annex 2: datasheets of the content:



Correct packing of box (vertical/horizontal)

