

BUNCKER®

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LITHIUM SAFETY SOLUTIONS





Our mission

Sustainable, user-friendly, smart integral (fire) safety solutions around the entire logistics of lithium batteries and where they are located to support businesses.



Purposes

Preventing consequential damage

Transport conform international regulation

Robust and sustainable

Storage conform regulation

Logistic efficiency

Flexible and multi-functional



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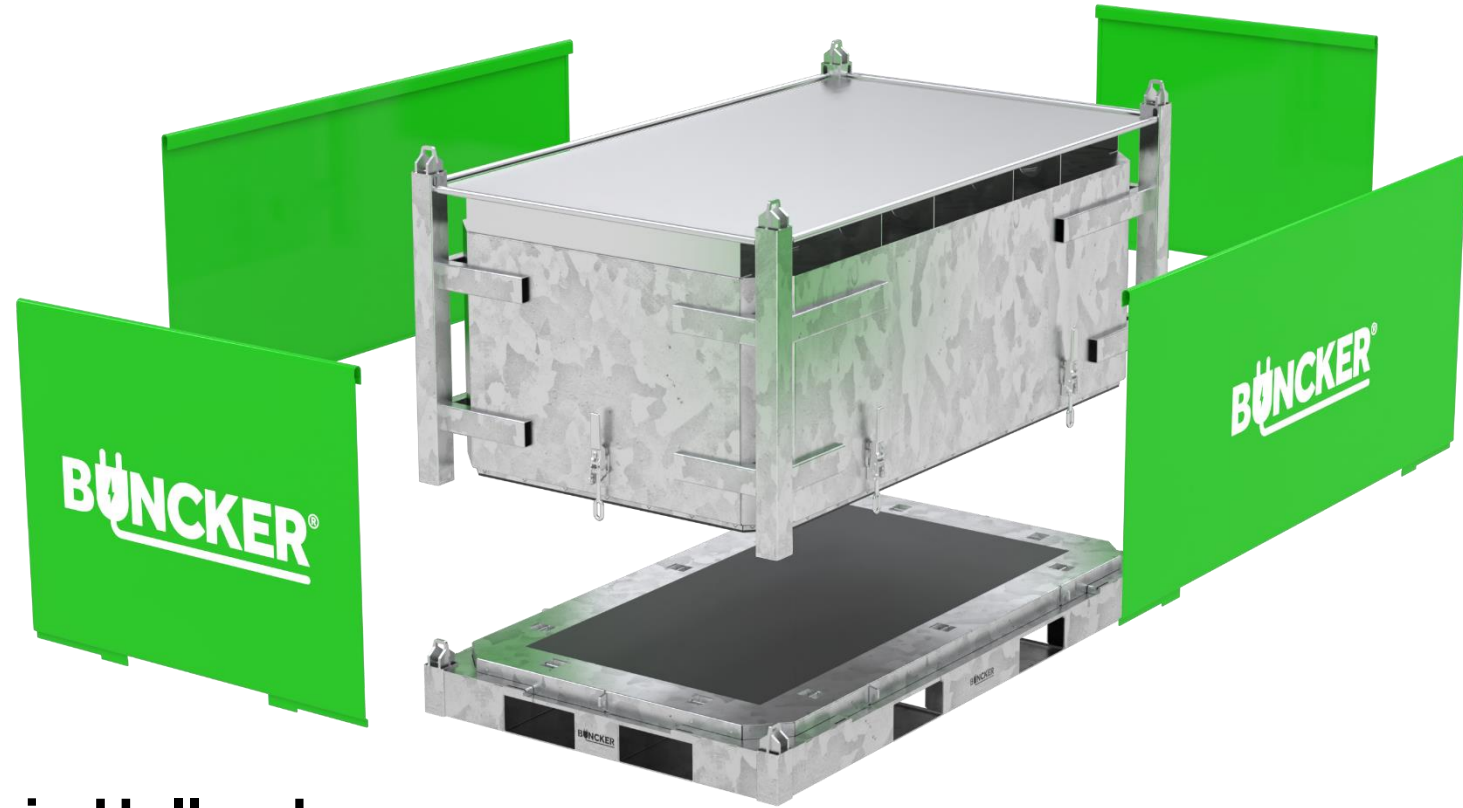
Technical
design of our
solution



- **Withstand a worst-case scenario fire test**
- **No leakage**
- **Good working gas management system**
- **Heat resistance**

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Exploded
view



Made in Holland

- Award winning design
- Patented design
- Conceived and made in the Netherlands by 3 Dutch companies



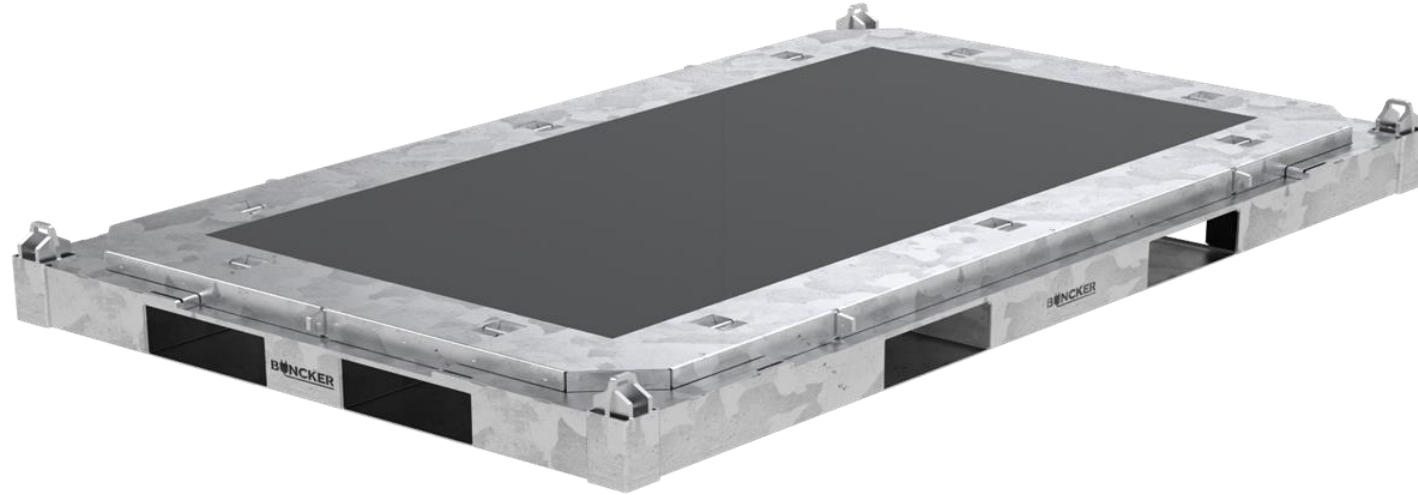


Unique pallet-based packaging design

- 100 x 120 cm (S)
- 150 x 120 cm (M)
- 200 x 120 cm (L)
- 240 x 120 cm (XL)
- 280 x 200 cm (XXL)

User convenience

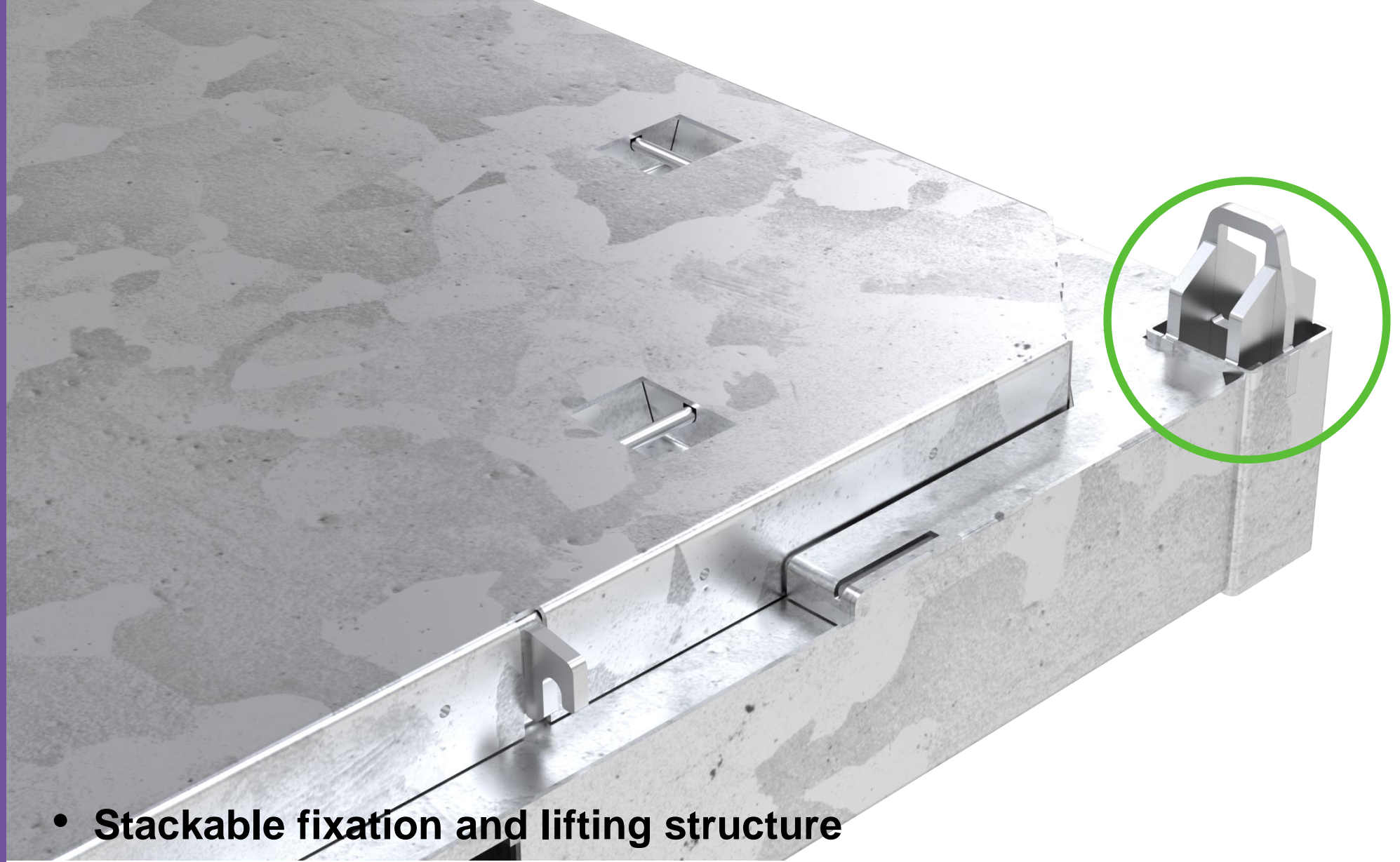
- Easy to place and move around multiple batteries
- Easy and safe closure
- No filling material
- No inner packaging
- Stackable
- Flexibility



- **Multiple fixation points on pallet**
- **Fixation with straps**
- **Electrically non-conductive mat**
- **Flexible for different sizes and models of batteries**
- **One person-handling**

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Pallet design

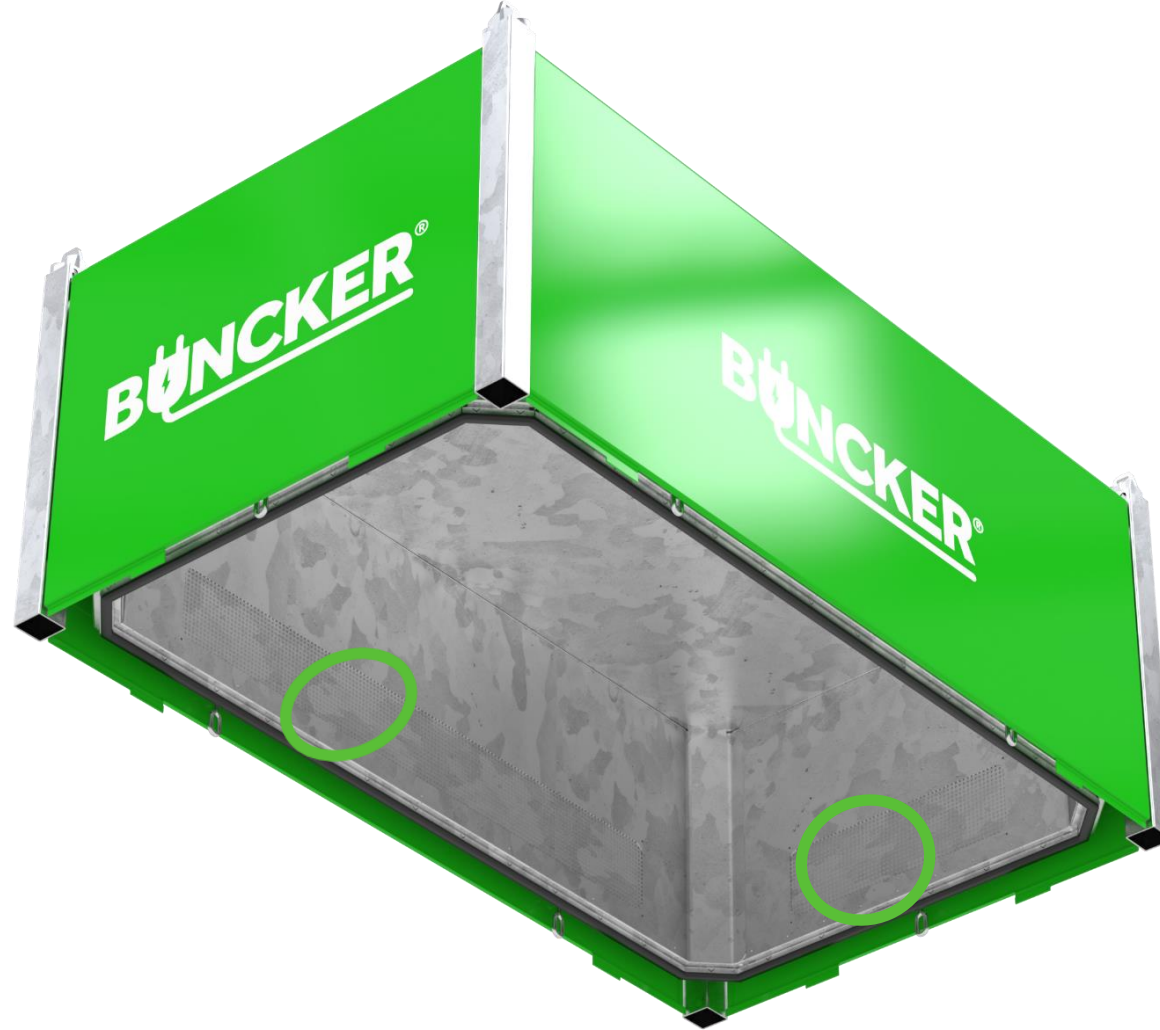


- **Stackable fixation and lifting structure**



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Altilium CP
blanket



- **Filtering of dangerous gasses with ALTIUM®**
- **Special insulated walls to prevent excessive heat on the outside**
- **Contain a thermal runaway during entire cycle**



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**Altilium CP
blanket**

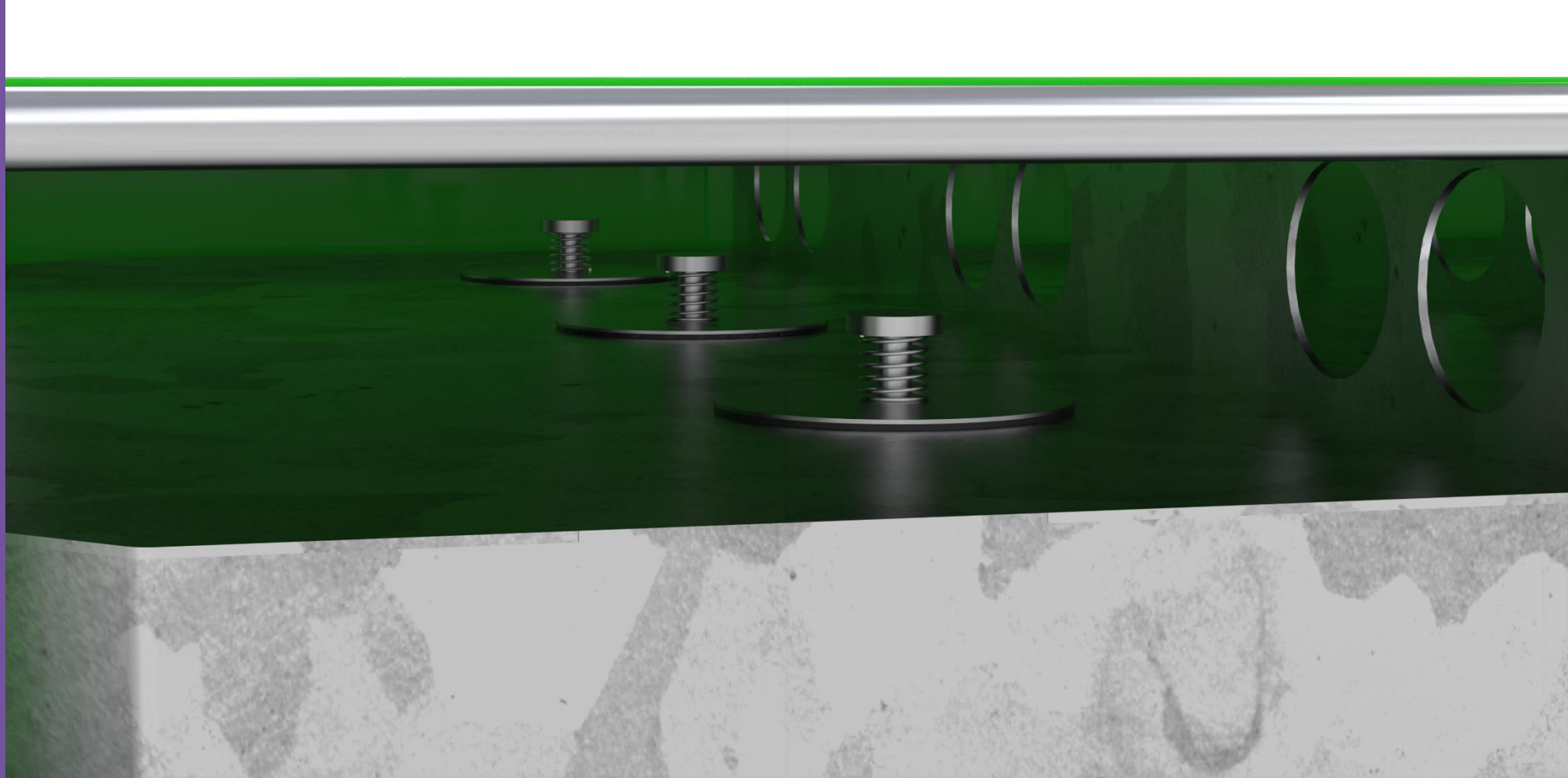


- **Gasket between pallet and bell jar**
- **Protect batteries for external fires**



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Managing
overpressure

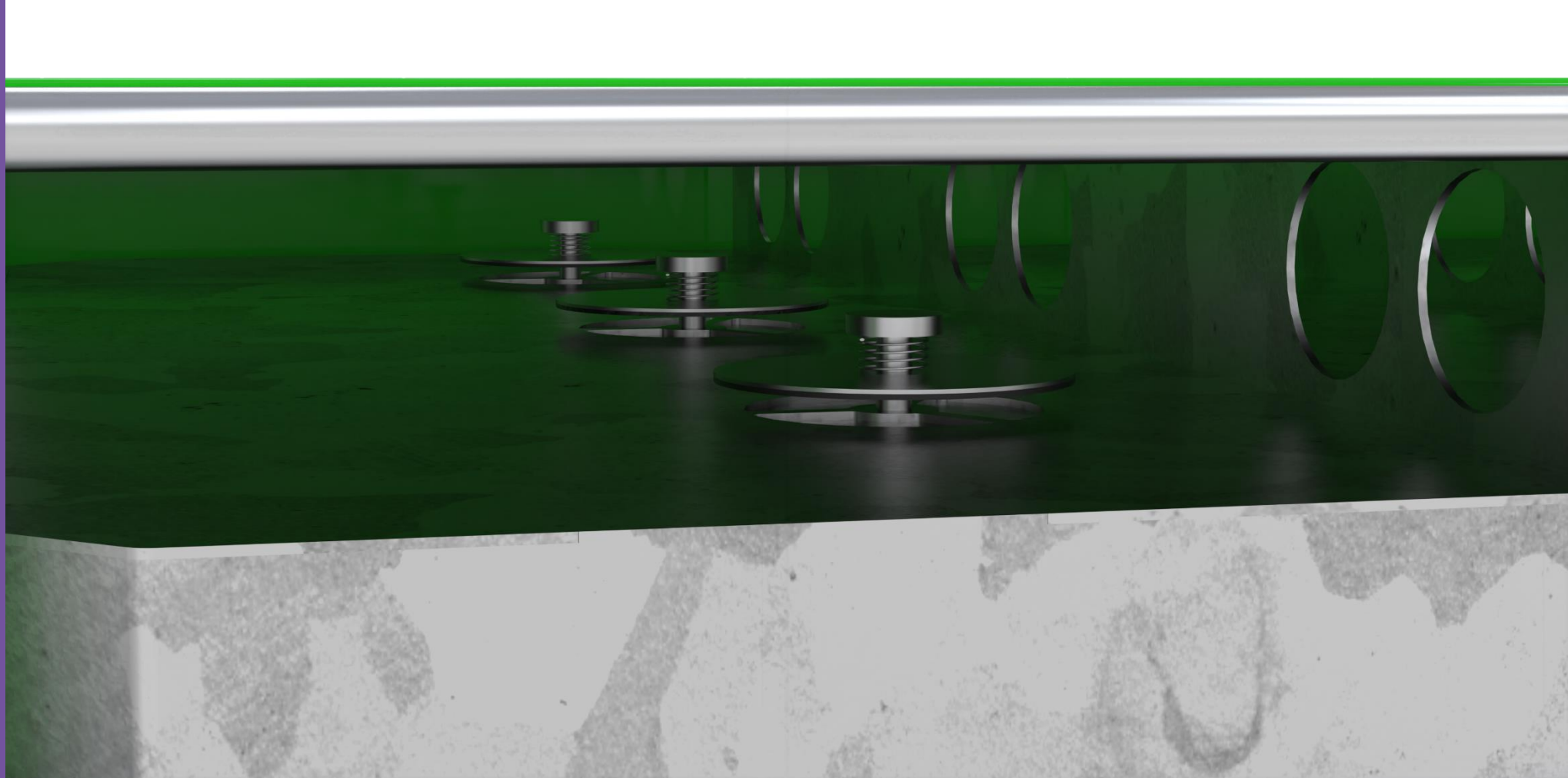


- **Air circulation openings**
- **Pressure relieve valves**



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Managing
overpressure

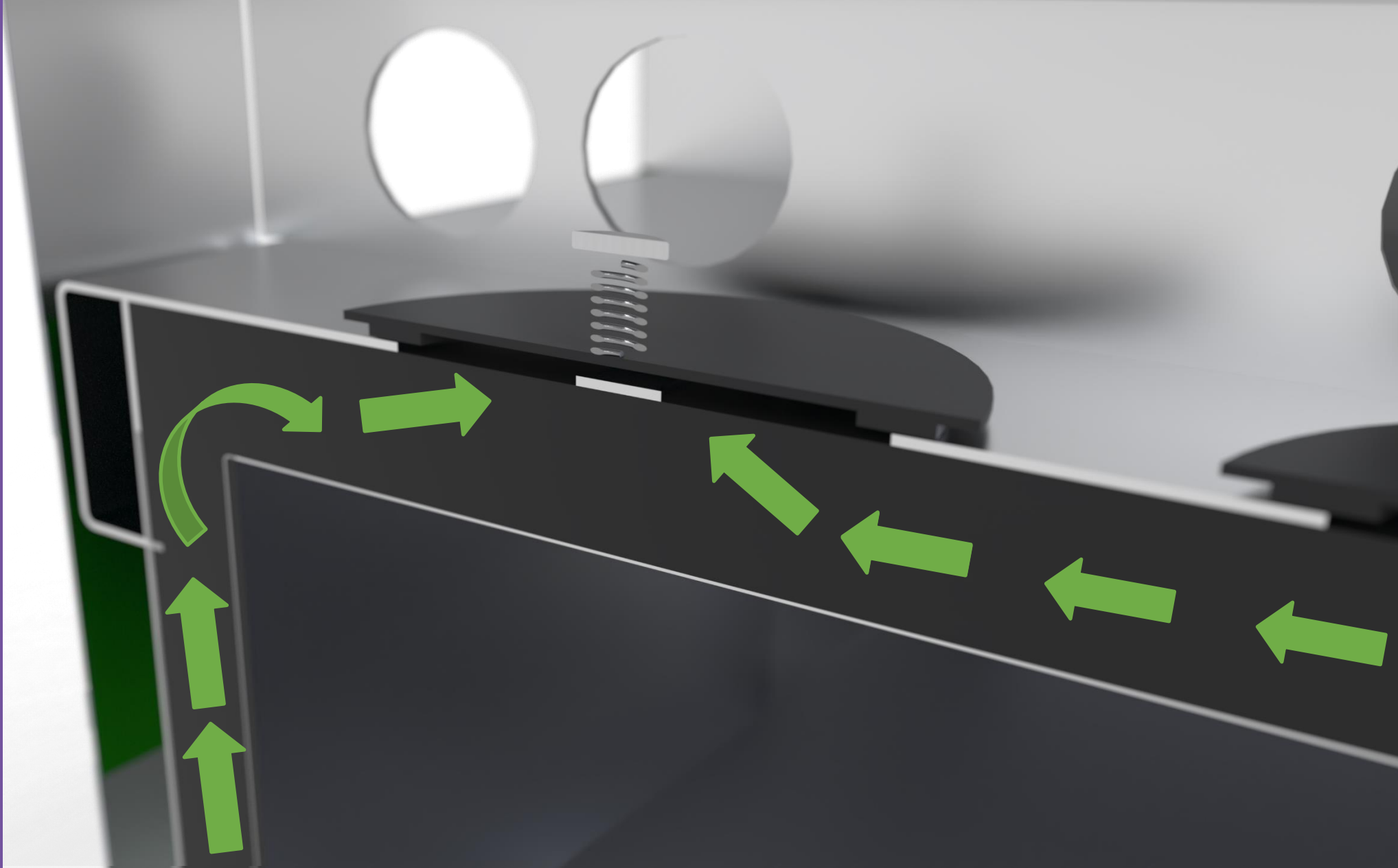


- **Air circulation openings**
- **Pressure relieve valves**
- **Gasket between pallet and bell jar**



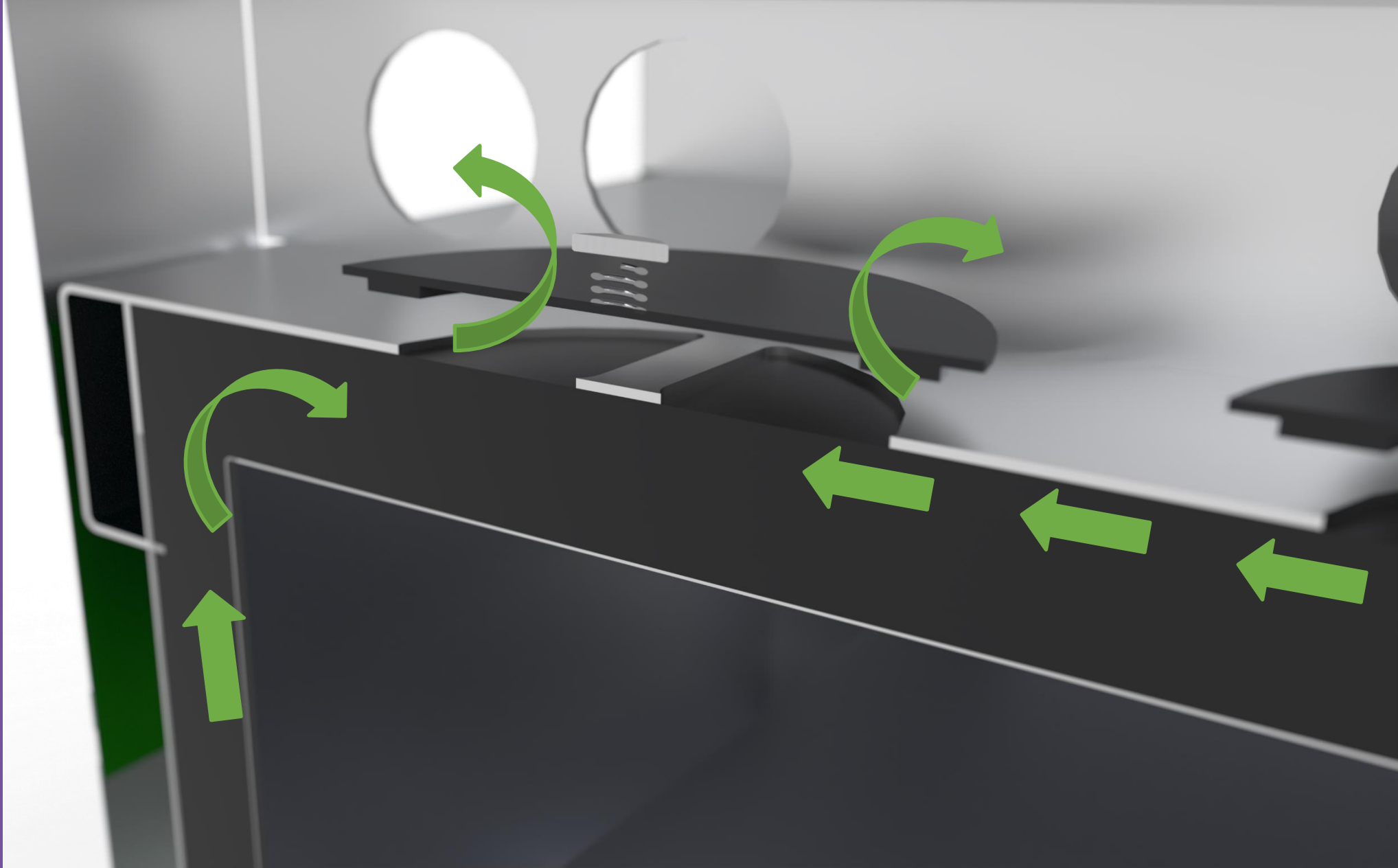
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Managing
overpressure



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Managing
overpressure



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Stackable



- All parts are stackable
- Less spacing, storage and transport

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Outer
covering
and flexibility



- **Protective outer covering**
- **Thermal bridge prevention**
- **Forklift pockets all sides and lifting possibilities**



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Outer
covering
and flexibility

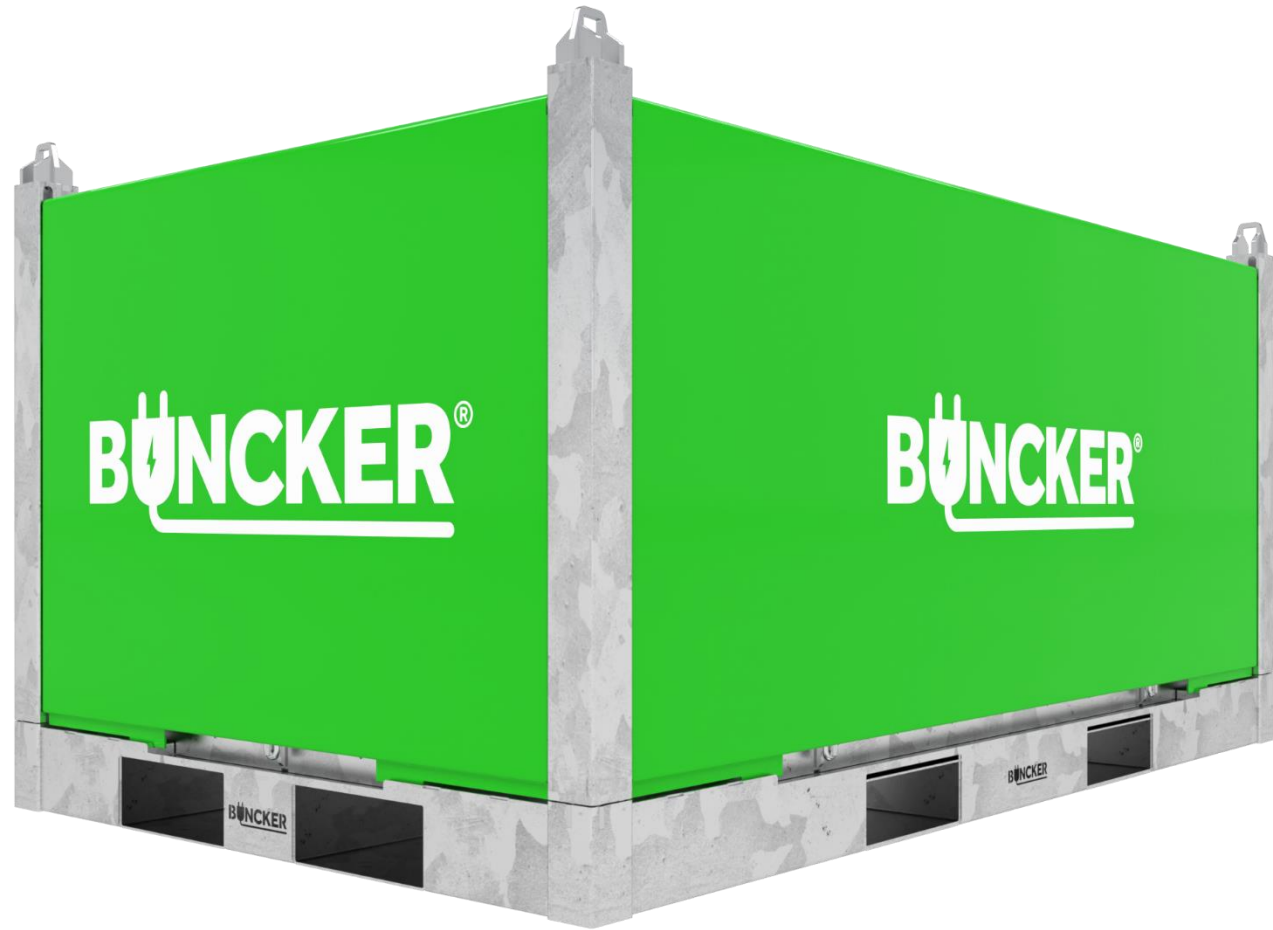


- **Clamps can be sealed and locked**



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In case of
emergency



In case of fire the BUNCKER® can be evacuated for quarantine



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Fire test
Size L

14-02-2023



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FAILED

**Fire test
Size L**



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Successful

**Fire test
Size L**

14-02-2023



Fireman is checking for toxic gasses. No HF gasses measured

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Successful

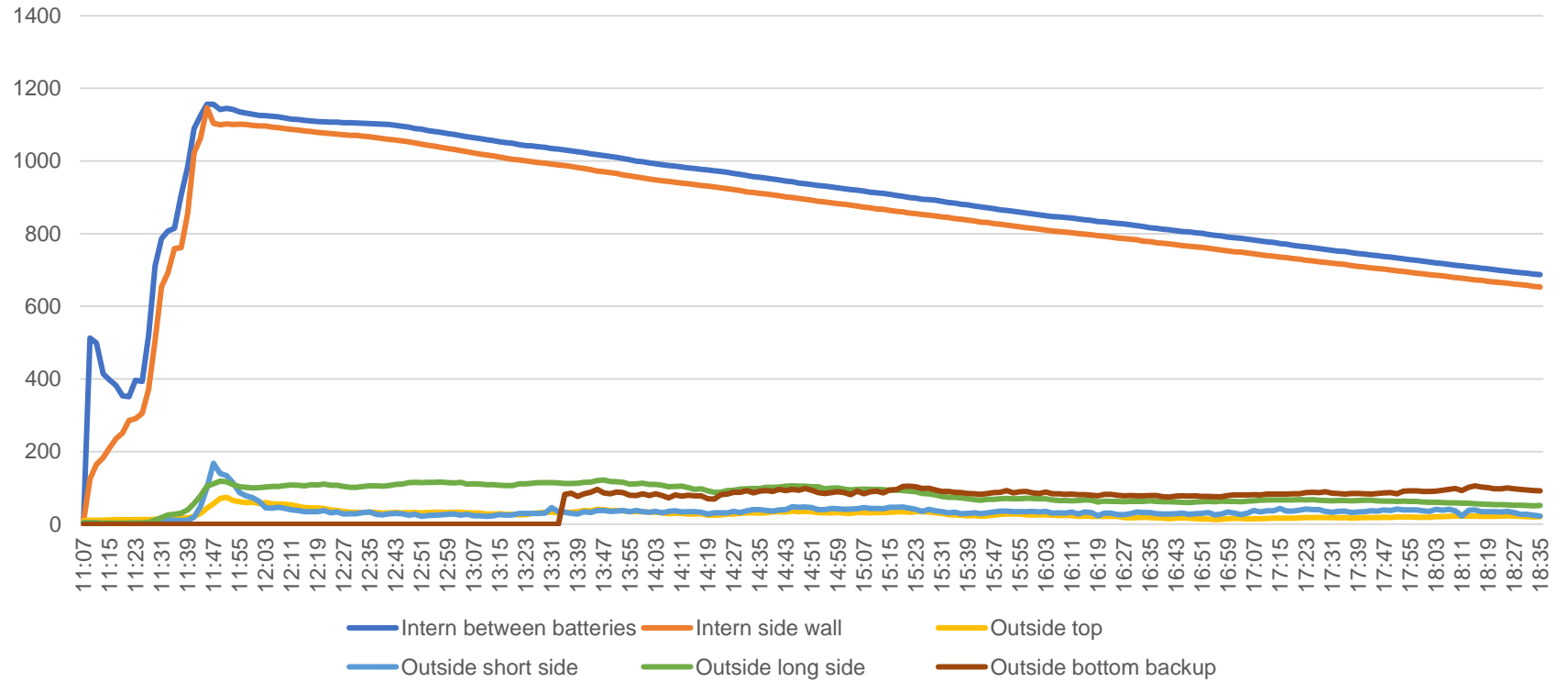
**Fire test
Size L**

14-02-2023



Firetest result

Complete data measured per 120 seconds



BUNCKER® Pro Line Heavy Assortment

Buncker® Pro Line Heavy assortment	S	M	L	XL	XXL
Outer dimensions (mm)	1200 x 1000 x 1150	1500 x 1200 x 1250	2000 x 1200 x 950	2400 x 1200 x 950	2800 x 2000 x 950
Inner dimensions (mm)	880 x 720 x 750	1220 x 880 x 850	1720 x 880 x 550	2120 x 880 x 550	2480 x 1720 x 550
Empty weight per pallet box in kgs	365	508	536	621	1120
Number of closures	6	6	6	8	10
Max. capacity nett weight of batteries in kgs	435	700	700	800	1540
Max. capacity of lithium batteries in kWh	50	90	90	100	200

Lithium cells or batteries transport according to ADR

Packing Instruction

Packaging:

- UN approved Drums, Jerricans, Boxes
- Large packaging / IBC's
- Approval performance standard battery packaging
- Secured against movement in outer packaging
- Secured against damaging
- Prevented for short circuits
- Max. 1 battery (pack) per outer box
- Strong outer packaging, impact resistant
- Metal packagings need non-conductive lining material
- non-combustible and non-conductive filling material
- Inner packaging that completely enclose cell/battery
- Leakproof inner or outer packaging
- Sealed packagings needs a venting device
- Non combustibility of filling mat. must be approved
- sufficient absorbent material in case of leakage
- Gas management system
- No flame shall occur outside the package
- Max. outside surface temp. when on fire

Batteries in good condition (for 38.3 certified batteries)	Damaged or defective batteries, but STABLE	Damaged or defective batteries, but UNSTABLE	Batteries produced as prototype, not 38.3 certified	Batteries for recycling (end of life), NOT damaged
P903 / LP903	P908 / LP904	P911 / LP906	P910/LP905	P909
Cel > 1 gr or 20 wh Battery > 2 gr or 100 wh				Cel > 1 gr or 20 wh Battery > 2 gr or 100 wh
√ < 400 kg weight	√ < 400 kg weight	√ < 400 kg weight	√ < 400 kg weight	√ < 400 kg weight
√ > 400 kg weight	√ > 400 kg weight	√ > 400 kg weight	√ > 400 kg weight	X
√ UN approved, II (Y)	√ UN approved, II (Y)	√ UN approved, I (X)	√ UN approved, II (Y)	√ UN approved, II (Y)
√	√	√	√	√
√	√	√	√	√
√	√	√	√	√
X	√ when >30kg	X	√ when >30kg	X
√ non-UN when >12kg	√	√	√	√ non-UN when >12kg
	X	X	X	√
	√	√	√	√
	√	√	√	√
	√	√	√	
	√	√	√	
	√	X	√	
	√	√		
		√		
		100°C (spike: 200°C)		

ADR/IMDG special provision 376

Classification of the damaged or defective battery must be done by **manufacturer** or **technical expert** according the following criteria:

1. Acute hazard, such as gas, fire, or electrolyte leaking;
2. The use or misuse of the cell or battery;
3. Signs of physical damage;
4. External and internal short circuit protection;
5. The condition of the cell or battery safety features;
6. Damage to any internal safety components, such as BMS

In case of stable circumstances batteries shall be packed in accordance with packing instruction P908 or LP904.

In other words, a defective battery should be packed according to P911 or LP906, unless an expert has determined that the battery(s) will remain stable at six points during normal shipping conditions.

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Thank you for your attention

www.buncker.com



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