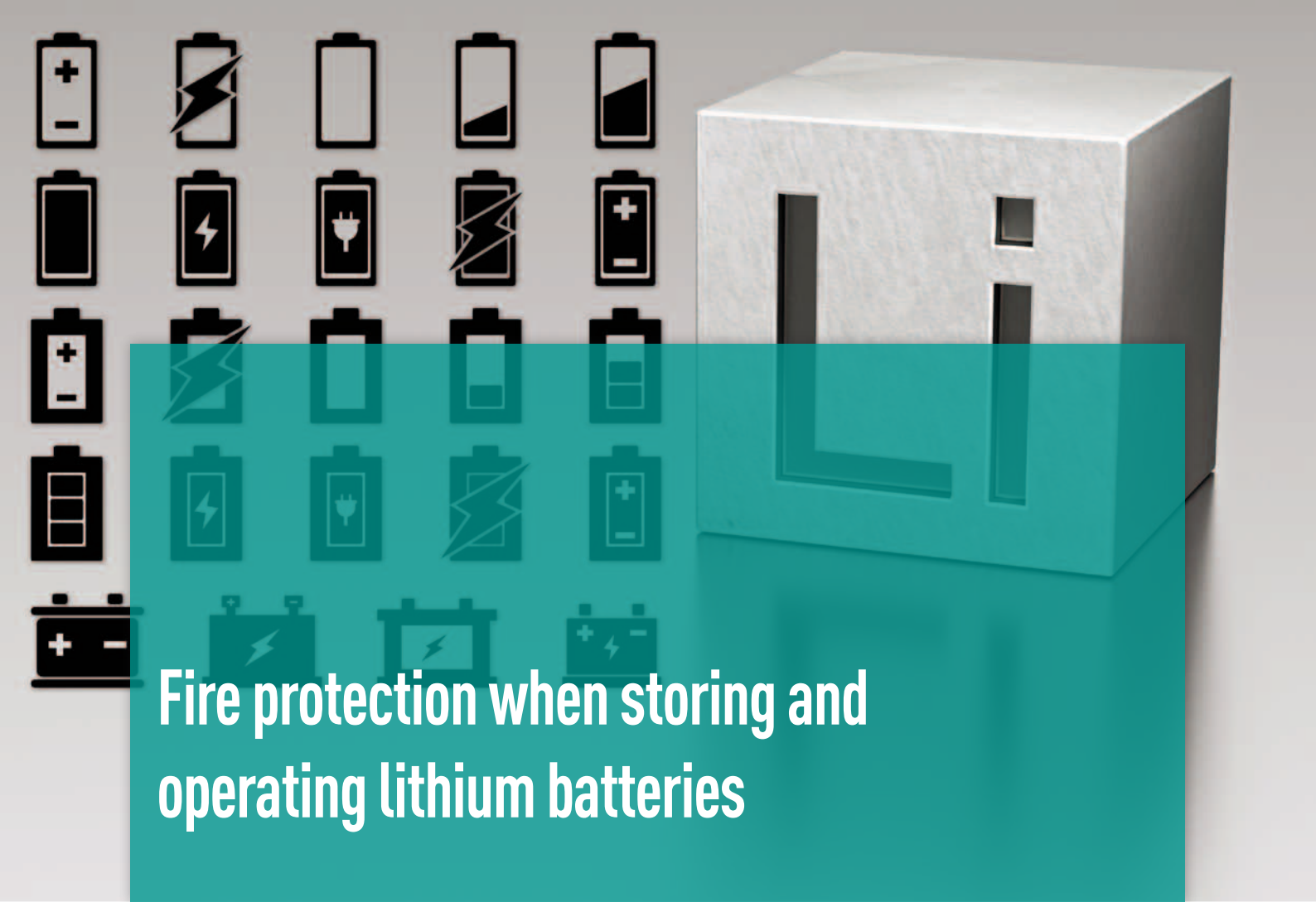


Safe storage of lithium batteries

Fire protection products for the storage of Li batteries

From small to large



Fire protection when storing and operating lithium batteries

Lithium batteries are highly efficient energy storage devices that are suitable for a wide range of applications. As energy demand continues to rise, energy storage will play a particularly important role, meaning that the demand for high-performance batteries will continue to increase.

Advantages of lithium batteries

- High cell voltage
- No memory effect with secondary batteries (rechargeable; primary batteries are not rechargeable)
- Low self-discharge

Due to these properties, lithium batteries are becoming increasingly popular in many areas of daily life as well as in the industrial sector. With the rapidly growing use of lithium batteries, manufacturers, installers and users have to deal just as intensively with the issue of safety. Technical defects or improper handling of the batteries during storage, charging and operation can lead to an under-controlled release of the stored energy, which usually results in a fire.

Applications of lithium batteries



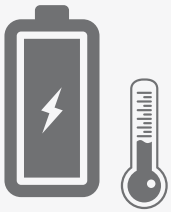
„From the property insurer’s view, lithium batteries must potentially be classified as a hazard ...“

Carsten Tormöhlen, Allianz Deutschland AG

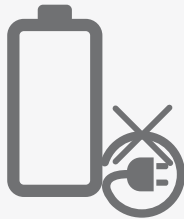
19.08.2019 | Frankfurter Allgemeine

„Batteries cause a fire each and every week“

Causes of fires lithium batteries



Overheating when charging



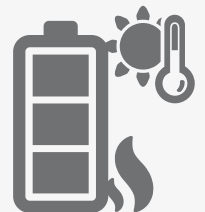
Using the wrong chargers or overcharging



Deep discharge



Mechanical damage



High ambient temperature

„It is advisable to treat lithium batteries as a hazardous material during manufacture, production, storage and transport“.



Storage of lithium batterys



Storage of lithium batterys

Fire protection by means of:

- Fire resistant safety cabinets
- Fire resistant containers
- Fire resistant rooms (adapted room solutions for storing greater amounts of batteries)

Equipped with cable sheathings and fans as desired

Area of application:

- Electromobility (battery storage with the manufacturers of bicycles or cars and dealers)
- Storage in the area of small electrical units (such as entertainment electronics or tools)
- Storage in the disposal process

General safety rules according to capacity classes (VdS 3103: 2019-06)

The following general safety rules must be followed:

- Adherence to the specifications of the respective manufacturer and the technical product data sheets
- Prevention of external short circuits (protection against short circuit of the battery terminals, e.g. by means of caps)
- Prevention of internal short circuits (protection against mechanical damage)
- Do not expose directly and permanently to high temperatures or heat sources (e.g. direct solar irradiation)
- In any area not protected by an automatic extinguishing system, a structural or spatial separation of min. 2.5 m from other combustible materials shall be provided for.
- Immediately remove any damaged or defective lithium battery from the storage and production area and store this temporarily with safe distance or in an area separated with fire protection technology until its disposal.

„In the interest of effective damage prevention, however, conventional protection concepts with classic measures which have proven their worth in the production, handling and storage of flammable substances are suitable.“

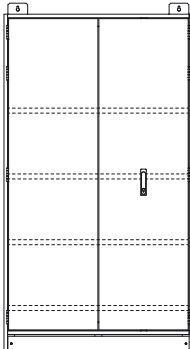
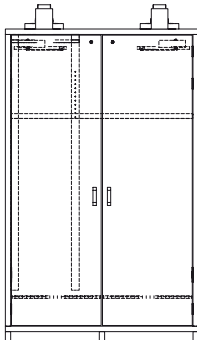
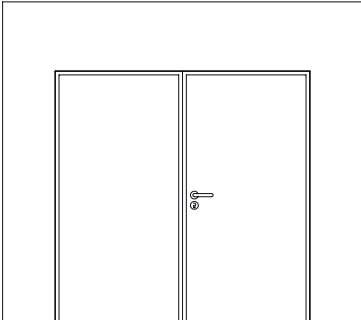

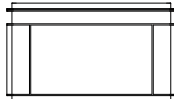
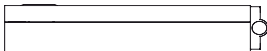
Auszüge Fachaufsatz – Lithium Batterien – Brandgefahren und Sicherheitsrisiken von Dr. Michael Buser




Tested quality and safety



Product overview for battery storage

Cabinets for battery storage		PRIOCAB-LI EI90		<div>Material + Decor</div> <div>A2 Class</div>		<div>Fire Resistance</div> <div>90 Min.</div>		
								
Boxes, rooms and containers		PRIOBOX		<div>Material + Decor</div> <div>A2 Class</div>		<div>Fire Resistance</div> <div>FWF 90</div>		
								
		PRIOROOM		<div>Material + Decor</div> <div>A2 Class</div>		<div>Fire Resistance</div> <div>90 Min.</div>		
								
		PRIOCOVER		<div>Material + Decor</div> <div>A2 Class</div>		<div>Fire Resistance</div> <div>90 Min.</div>		
								
		PRIOPACK		<div>Material + Decor</div> <div>A2 Class</div>		<div>Fire Resistance</div> <div>90 Min.</div>		
								
		PRIOSMART						<div>Material + Decor</div> <div>A2 Class</div>
For mobile phones								



14.06.2019 | www.br.de

**Rechargeable batteries caused fire in
Wörth an der Isar, says recycling company**

01.09.2021 | Fuldaer Zeitung

**Major fire in the Main-Kinzig district!
Police come across the battery
of an e-bike**

09.03.2018 | www.tag24.de

**Damage running into millions!
A rechargeable battery factory in
Ölbronn-Dürrn burns down**

24.09.2021 | www.nordbayern.de

**Lithium batteries caught
fire in Fürth warehouse**

29.05.2021 | www.ndr.de

**Hazard for emergency forces: battery
specialist shop in Rostock burns out**

Cabinets – the small solution

Simple, safe, transportable



Free-standing cabinet in special colour; ESL92.12444.BAT



**Fire
Resistance
90 Min.**



**Smoke
Protection
min leakage**



**Material
+ Decor
A2 Class**



EN



DIN

PRIOCAB-Li EI90

2-leaf free-standing cabinet for the storage of lithium-ion batteries

PRIORIT free-standing cabinet in double-leaf design, suitable for smoke-tight and fire-resistant storage of lithium-ion batteries. The cabinet is made of a non-combustible building material of class A2 - s1, d0. Safety cabinet with active fire suppression in the event of an accident - can stop the spread of fire inside the cabinet and minimise

the escape of toxic vapours. The cabinets have a ventilation system in the rear wall and cable entries at the top and bottom as standard.

- Tested fire protection from the inside and outside
- Fire resistance rating over 90 minutes
- Tested fire load insulation
- Housing with high mechanical resistance
- Housing made of noncombustible material including the decorative surface
- Protection against unauthorised access – pivot lever with two-way cylinder
- All-round fire protection seal, intumescent in case of fire
- Top and bottom cable entry
- Integrated ventilation system, consisting of smoke detector and fan
- Cold smoke-tight closure system

- Smooth and easy, free-moving doors, inset type door, opening angle approx. 180°
- Accessible plinth (e.g. fork-lift forks), height 100 mm with removable plinth cover panel
- Height-adjustable mesh shelves, load capacity 75 kg/floor
- Standard colour light grey, similar to RAL 7035

Optionen

- Individual colour design
- Available in different configurations
- Additional grating shelves



Control unit with fire detection
 Malfunction message via optical signal and switch-off of the ventilation system.

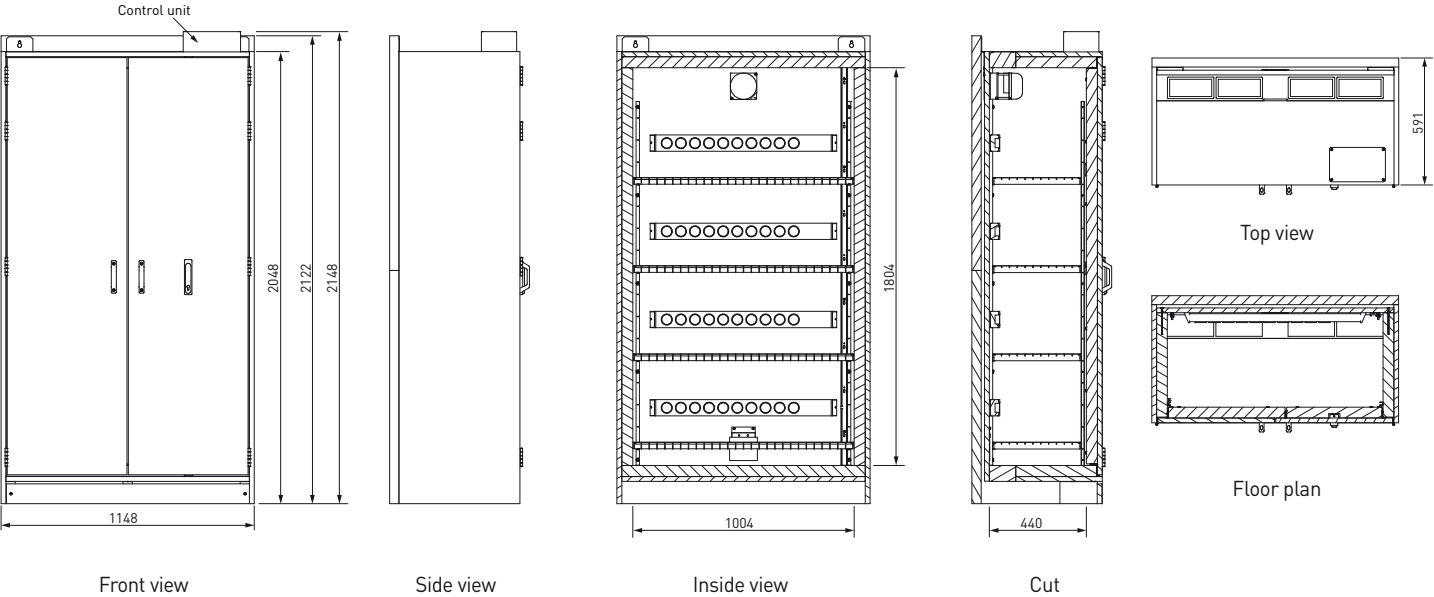


Fire extinguishing generator
 Current-independent tripping in the event of fire and impermissible temperature rise.



Power strips

Technical drawing – Example: ESL92.12144.BAT15



Art.	 H x W x D mm	 H x W x D mm	 kg	Mesh shelves	Socket strips Quantity	Socket outlets	Extinguishing unit
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2-leaf free-standing cabinet for the storage of lithium-ion batteries - Without control unit

ESL92.12444.BAT	1804 x 1004 x 440	2048 x 1148 x 591	650	4	–	–	–
ESL92.12444.BAT-A				4	–	–	✓

2-leaf free-standing cabinet for the storage of lithium-ion batteries - With control unit

ESL92.12444.BAT09	1804 x 1004 x 440	2148 x 1148 x 591	650	4	1	10	–
ESL92.12444.BAT10				4	1	10	✓
ESL92.12444.BAT11	1804 x 1004 x 440	2148 x 1148 x 591	650	4	2	20	–
ESL92.12444.BAT12				4	2	20	✓
ESL92.12444.BAT13	1804 x 1004 x 440	2148 x 1148 x 591	650	4	3	30	–
ESL92.12444.BAT14				4	3	30	✓
ESL92.12444.BAT15	1804 x 1004 x 440	2148 x 1148 x 591	650	4	4	40	–
ESL92.12444.BAT16				4	4	40	✓

Options and accessories

Art.	Accessories	 kg	 H x W x D mm
BAT.FBO.ESL92.XX444	1 mesh shelf with 4 shelf supports	7	30 x 1000 x 400

From boxes to rooms – individual safety





Material
+ Decor
A2 Class



Fire
Resistance
90 Min.







PRIOBOX

Fire Resistant Batterie Box

- Report of an accredited material test institute
- Fire resistance rating of 90 minutes, fire resistant
- Stable, tilt-resistant pull-out trays, adjustable
- Large bottom tray with mesh shelf
- Door closer with hold-open system and thermocouples for automatic door closing in case of fire
- Fire resistant ventilation penetration seals for air supply and exhaust air cabinet top
- Opening angle of the doors: 115°
- Clear opening width: 1330 mm

Options

- Exhaust air/ air circulation attachment
- Adapter set for exhaust air attachment
- Individual cable and pipe penetration
- Installation on site by PRIORIT

Art.	 H x W x D mm	 H x W x D mm	 incl. equipment kg	Storage volume  Litres	Equipment	Description
90 minutes Fire resistance						
FBX90-Typ2	2622 x 1500 x 1000	1922 x 1416 x 852	1.100	220	Drain pan, tank bottom	unmounted on pallets
FBX90						preassembled

Technical modifications reserved. | Stand: 11.2023



Example application

**Fire
Resistance
90 Min.**



**Material
+ Decor
A2 Class**



SYSTEM 42

PRIOROOM

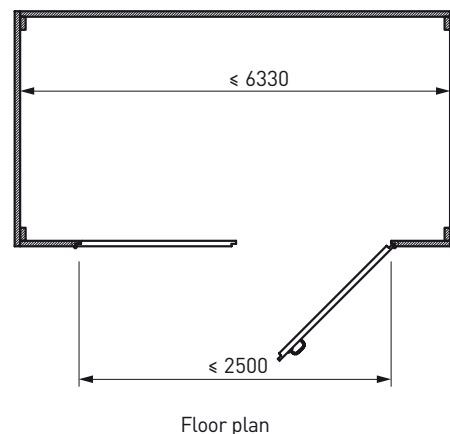
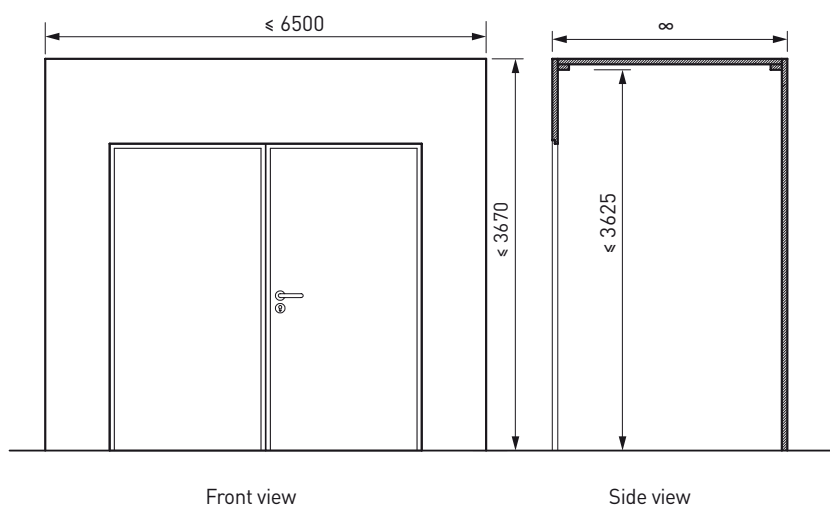
Individually designable room consisting of individual noncombustible elements

Fire-resistant room for safe storage of lithium-ion batteries. The 42 mm modular system made of prefabricated panels can be used to create a separate fire compartment, quickly and cleanly. The advantages: highly chemically-resistant surfaces inside and outside, easy assembly, modification and extension. The room has an accessible, level threshold entrance and can be equipped with heavy-duty racking. The room offers a fire resistance rating of 90 minutes.

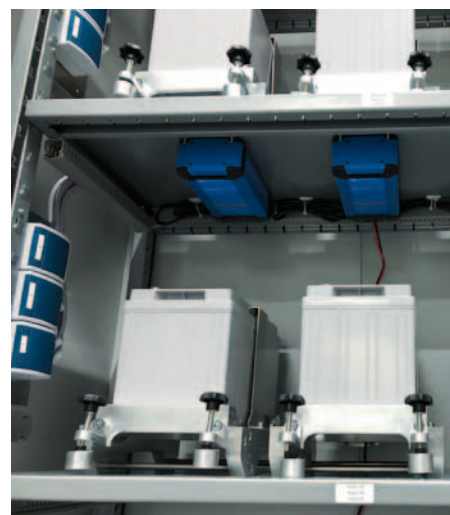
- Fire resistance rating 90 minutes, fire resistant
- Walls: EI 90 classification
- Ceiling: F 90/EI 90 a↔b
- T 90-RS classification of the door(s)
- Door(s) smoke-tight, tested for resistance to repeated opening and closing
- Room with high mechanical resistance
- Accessible entry
- One or two-leaf door(s)
- Door(s) with 3D stainless steel hinges, triple locking, prepared for profile cylinder
- Room can be equipped on site with light, ventilation technology, smoke detector and shelves or racking
- Delivery on pallet, installation on site

Options

- Special colours
- Explosion-proof smoke detector



Application example





Easy handling

Stable under pressure

Fire resistant design

Fire
Resistance
90 Min.



Material
+ Decor
A2 Class



EN



PRIOCOVER

Mobile fire enclosure

Universally usable pop-over enclosure for comprehensive fire protection in case of active or passive storage of lithium-ion batteries. The enclosure is open at the bottom and is fitted with stable corner angles. The lifting eyebolts enable easy transport and easy moving into position. The enclosure can also be popped over the batteries when they begin to burn. The fire enclosure has a fire resistance rating of 90 minutes.

- Non-combustible incl. decorative surface, A2-s1,d0
- Fire resistant design – 90-minute fire resistance
- Stable under pressure
- Mechanical pressure relief
- Report of an accredited material test institute
- Suitable for passive and active storage
- Easy handling
- Mobile, simple solution
- No time-consuming transfer of the batteries into safety cabinets
- Easy to pop over filled pallets
- Fast moving into position by forklift truck
- Easy transport by means of lifting eyes

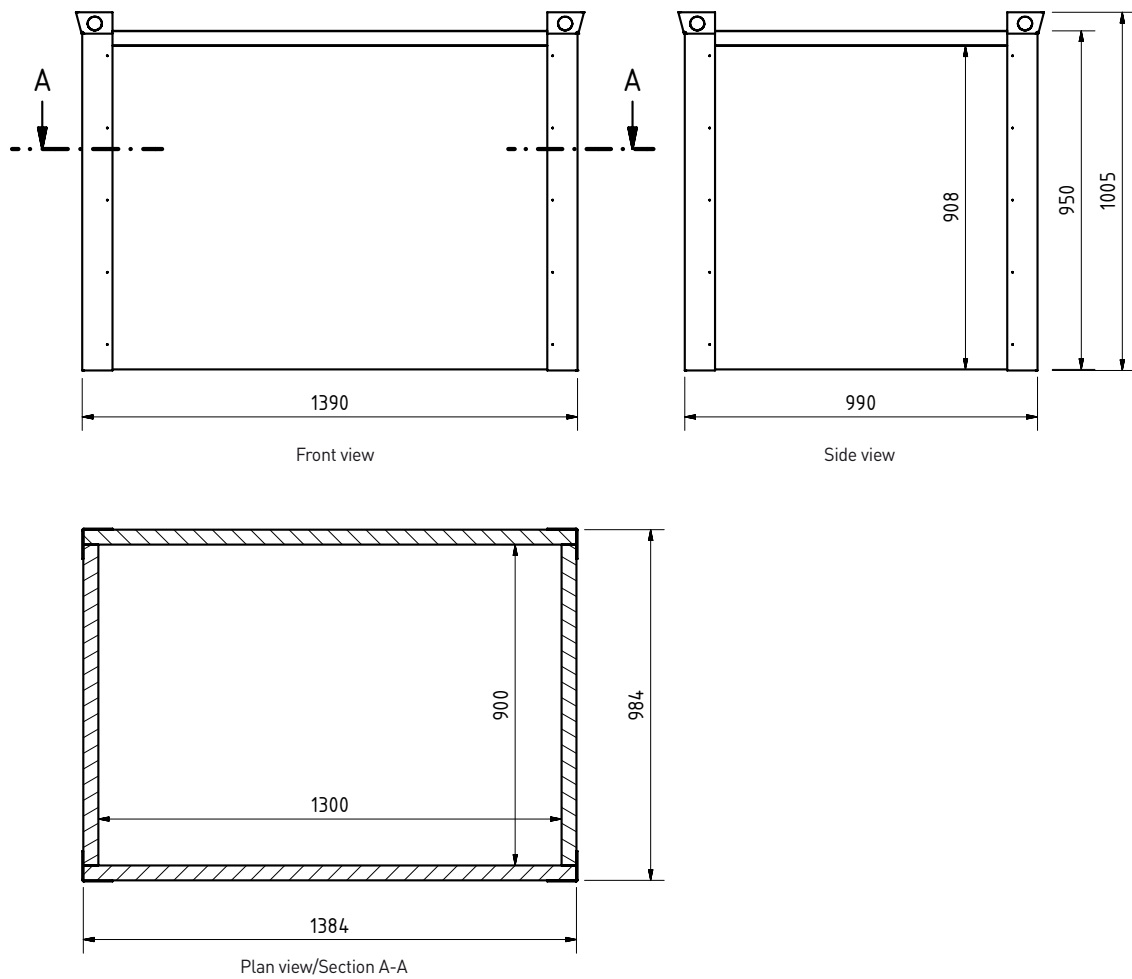
- Corner angle edge protection
- Space saving, as stackable
- Standard size for covering a euro-pallet 1200 x 800
- Covering of pallets, containment trays or cages
- Placement directly on existing floor

Sustainability

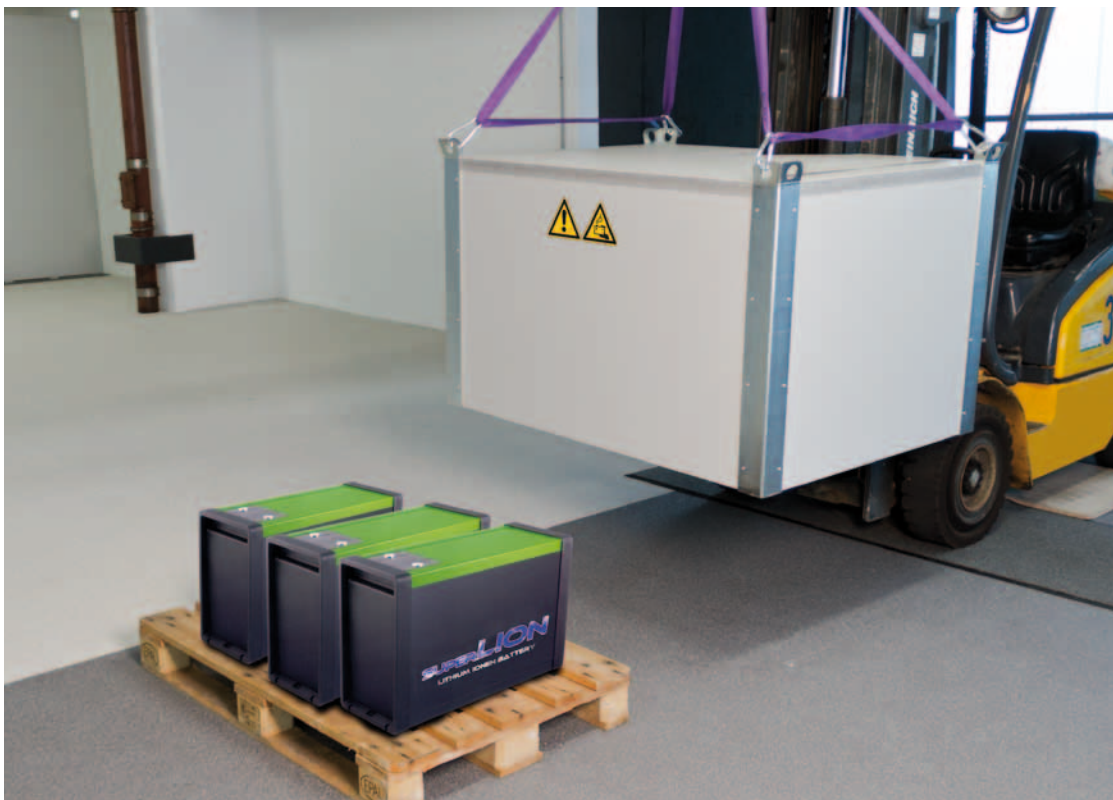
- Recyclable
- Green building declaration in accordance with LEED and DGNB
- Contaminant-free




Options

- Special colours
- PRIOCOVER including fitting kit for a cooling water connection
- Cable penetration seal
- Floor drip tray
- Lifting set



Application example






Art.	 H x W x D mm	 H x W x D mm	 kg	Description
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Standard type

PC.138.098.095	908 x 1300 x 900	1005 x 1390 x 990	400	
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Other sizes on request
Tender specification text and current price list: www.priorit.de

Art.	 H x W x D mm	 H x W x D mm	 kg	Description
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Optional types

PC.138.098.095.F	908 x 1300 x 900	1005 x 1390 x 990	400	Enclosure incl. fitting kit
PC.138.098.095.KE	908 x 1300 x 900	1005 x 1390 x 990	400	Enclosure incl. cable penetration seal
PC.138.098.095.F.KE	908 x 1300 x 900	1005 x 1390 x 990	400	Enclosure incl. fitting kit and cable penetration seal



PRIOPACK

Storage container for safe storage of rechargeable lithium-ion batteries

Storage containers for the storage of defective or damaged batteries with increased fire risk and for minimising the toxic fumes associated with a thermal runaway.




The storage container is lined with a non-combustible thermal insulation material and has a fire resistance of 90 minutes. Additional filling and insulating material, which can absorb leaking electrolytes, completely encloses the Li-Ion batteries to be stored.

This means that even with a thermal runaway - a chemical reaction with extreme heat development - the danger of fire spreading is prevented and the generation of toxic gases is minimised.

- Fire resistant storage containers
- Storage containers made of plastic
- Closure by means of hinged cover and snap lock
- Tight-closing cover
- Tight closure, including in case of fire – no lifting up of the cover
- Lined with a nonflammable thermal insulation material
- Colour grey

Accessories

- Filler packs must be ordered separately.
Recommended quantity depending on the size of the batteries:
PP.040.030.023.VV: 2 to 3 packs per box
PP.060.040.023.VV: 4 to 5 packs per box
(one pack = 8 pieces)

Art.	 H x W x D mm	 H x W x D mm	 kg
Storage container			
PP.040.030.023.VV	307 x 208 x 164	400 x 300 x 233	8
PP.060.040.023.VV	507 x 308 x 164	600 x 400 x 233	15
PP.018.015.VK	Filler pack; 180 x 150 mm (length x width); 8 ea. = 520 g = 1 PU		0,52

Other sizes on request



Everyday safety – At home and on the move



PRIOSMART

Secure charging box for smartphone

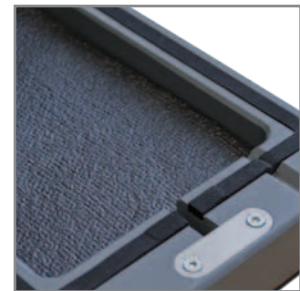
- Housing made of a single-layer, high-density, non-combustible board
- Safe charging of one to two mobile phones
- Flap unlocked by pressing the folding ring shell handle
- Soft-close
- Internal dimensions: 150 x 200 x 20
- Cable penetrations at the front
- Anti-slip mat



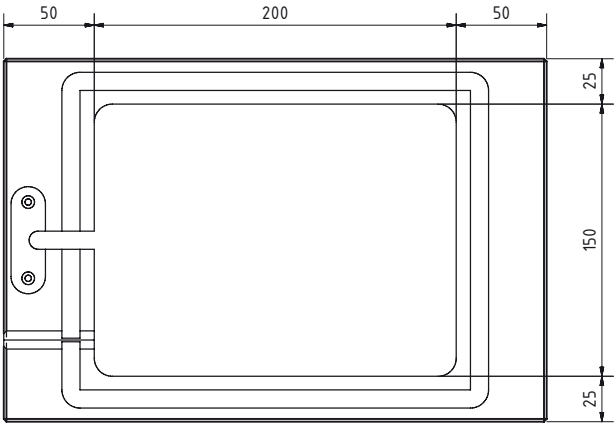
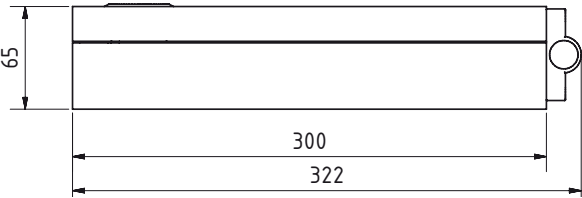
Cable penetration at the front



Geschlossen, Kabeldurchführung an der Vorderseite



Slip-resistant underlay



Art.	 H x W x D mm	 H x W x D mm	 kg
PS.066.020.030	20 x 200 x 150	66 x 300 x 200	6

Technical modifications reserved. | Stand: 11. 2023

Manufactory and Safety

Our ISO 9001 certification provides safety and peace of mind. All development and production processes of PRIORIT fire protection products comply with internationally recognized regulations. You can be assured of that! That is a certainty!

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