asecos®

Safe solutions for active and passive storage

LITHIUM BATTERIES

NOT AS HARMLESS AS THEY SEEM

LITHIUM-ION BATTERIES – NOT AS HARMLESS AS THEY SEEM

Lithium-ion batteries are very powerful energy storage solutions, and are being used more and more in tools, gardening equipment and vehicles – especially bicycles – and many other applications thanks to their compact design.

As practical and efficient as this battery technology is, and as harmless as it seems to use, it does harbour safety risks that shouldn't be underestimated.

In particular, lithium-ion batteries pose an increased risk of fire and bursting. thanks to their very high energy density, they can spontaneously combust or become unstable in certain circumstances, and can explode if heated.

CONCLUSION

The risk of a fire increases when lithium-ion batteries are left unattended to charge!

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CURRENT NEWS
500,000 € in damages after an E-bike battery explodes
The sales floor of the northern German bicycle shop was quickly engulfed in flames.
The fire was caused by an exploding battery for an electric bike. The 4 floors of the parking structure over the store had to be evacuated quickly due to the extreme, hazardous smoke produced by the fire. Over 30 fire department vehicles and 70 fire fighters responded to the blaze.
Source: heise.de
Exploding E-cigarette causes death
In the USA, the fire department finds a dead man in his burning bedroom. The cause of the fire, and the death, is not known for two weeks. A defective e-cigarette exploded, turning its fragments into projectiles.
Some of these struck the man in the head, killing him. The flames resulting from the explosion ignited the room, causing severe burns to the victim's body.
Source: focus.de
ADVERTISEMENT
Electric bike battery causes major fire in 2,000 m² commercial space
A lithium-ion battery exploded on a test track for E-bikes in the Netherlands.
The fire spread quickly and caused a huge plume of smoke in a very short time. Residents were cautioned to keep doors and windows closed. The fire department's response was severely curtailed due to the unpredictability of the battery. Their primary goal: To prevent the fire from spreading to neighbouring buildings. After allowing the commercial space to burn in a controlled manner, they delivered the devastating news: The building was unrecoverable and could not be saved.
Source: omroepgelderland.nl
DAILY NEWS
Man dies of smoke inhalation after smartphone battery ignites
The Malaysian man was surprised by an exploding smartphone battery as he slept. The mobile device was beside his bed, and the explosion turned it into a fatal projectile. The man suffered a head wound which left him incapacitated. Unable to react, he suffered poisoning due to smoke inhalation and severe burns.
Source: n-tv.de
For more incidents related to lithium-ion batteries, please visit:
freepik.com

WHAT THE **EXPERTS SAY**

With the increasing use of medium power lithium-ion batteries, the dangers related to storing and in particular charging these batteries increase in both commercial and private environments.

Property insurers, therefore, are highly interested in ensuring available protective equipment (such as type 90 safety storage cabinets) are used to minimise risks and avoid damage claims.

The recommendations of the property insurers, for example in Germany, for the use of safety cabinets are clear:

"In order to effectively protect against damages from lithium batteries, there are certainly conventional **protective concepts** using classical measures that have proven useful in manufacturing, **handling and storing flammable materials**."

Lithium batteries – fire hazards and safety risks
Dr. Michael Buser, Dr. Jochen Mähliß

*"We tell customers to store, **batteries** in **hazardous goods storage cabinets**."*

Underwriter for a German property insurer

"Areas with medium power batteries should be spatially (at least 5 m) or structurally separated from other areas with fire-resistant structures".

Publication VdS 3103 : 2019-06 (03)
General Association of the German Insurance Industry
published by VdS Schadenverhütung GmbH

"Lithium batteries should generally be treated as a hazardous material".

Publication VdS 3103 : 2019-06 (03)
General Association of the German Insurance Industry
published by VdS Schadenverhütung GmbH

"The VdS data sheet offers very good instructions for implementation here. No insurer will block itself off or add more requirements than the VdS recommends".

German Insurance

"(…) it is generally recommended to only allow storage and handling of lithium batteries only in **fire-resistant separate areas** or if an appropriate safety distance is ensured. Based on past damages, an international standard of **90 minutes fire resistance** (…) or a safety distance of at least 20 meters has proven effective here".

Lithium batteries – fire hazards and safety risks
Dr. Michael Buser, Dr. Jochen Mähliß

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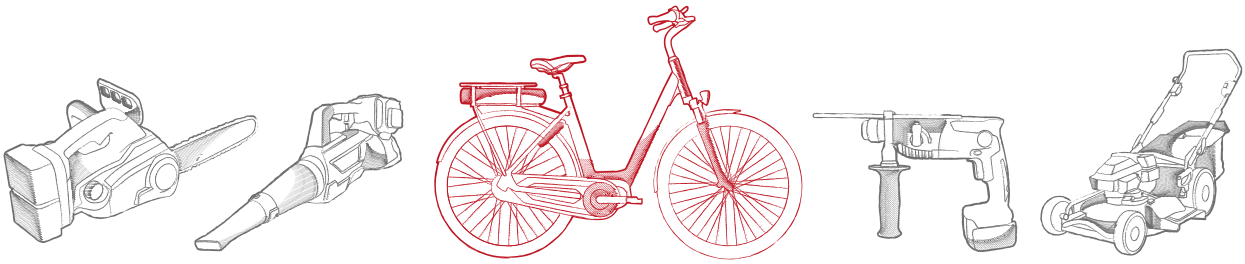
SAFETY REGULATIONS FOR THE **MEDIUM POWER CLASS**

(according to VdS 3103:2019-06 (03) (Publication of German insurers for loss prevention))



Pedelecs, E-bikes, E-scooters, large gardening equipment

SAFETY REGULATIONS

- Compliance with manufacturer specifications (technical product data sheets)
- Protection against battery pole short circuits
- Protection against mechanical damages
- Do not expose to high temperatures or heat sources directly or for a long period of time (this includes direct sunlight)
- Compliance with structural or spatial separation (at least 2.5 m) from other flammable materials if no automatic extinguishing system is available
- Immediately remove damaged or defective batteries from storage and production areas (interim storage until disposal at a safe distance or in a separate fire-protected area)
- Exclusive storage of batteries with test certificate in accordance with UN 38.3 (prototypes only in exceptional cases and with risk assessment)
- Storage in separate fire-resistant areas or in compliance with a safety distance (spatial separation of 5 m)
- Avoidance of mixed storage with other products which are fire accelerants
- monitoring the storage area with a suitable fire alarm system wired to a constantly occupied office
- If fire extinguishing systems are present: Compliance with information on suitable extinguishing agents in the technical product data sheets

CONCLUSION

Store and charge lithium-ion batteries in a safety storage cabinet!

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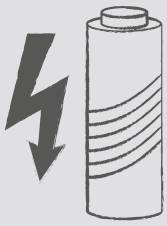
THE **HAZARDS** — THE **THERMAL RUNAWAY**

Lithium-ion batteries can cause a fire. Causes include:

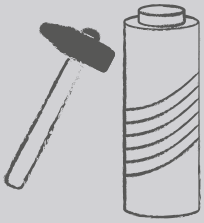
ELECTRICAL OVERLOAD

- During charging and discharging



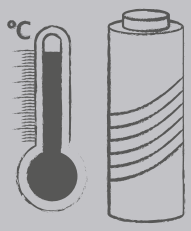
MECHANICAL DAMAGE

- In combination with the high energy density of the battery



THERMAL OVERLOAD

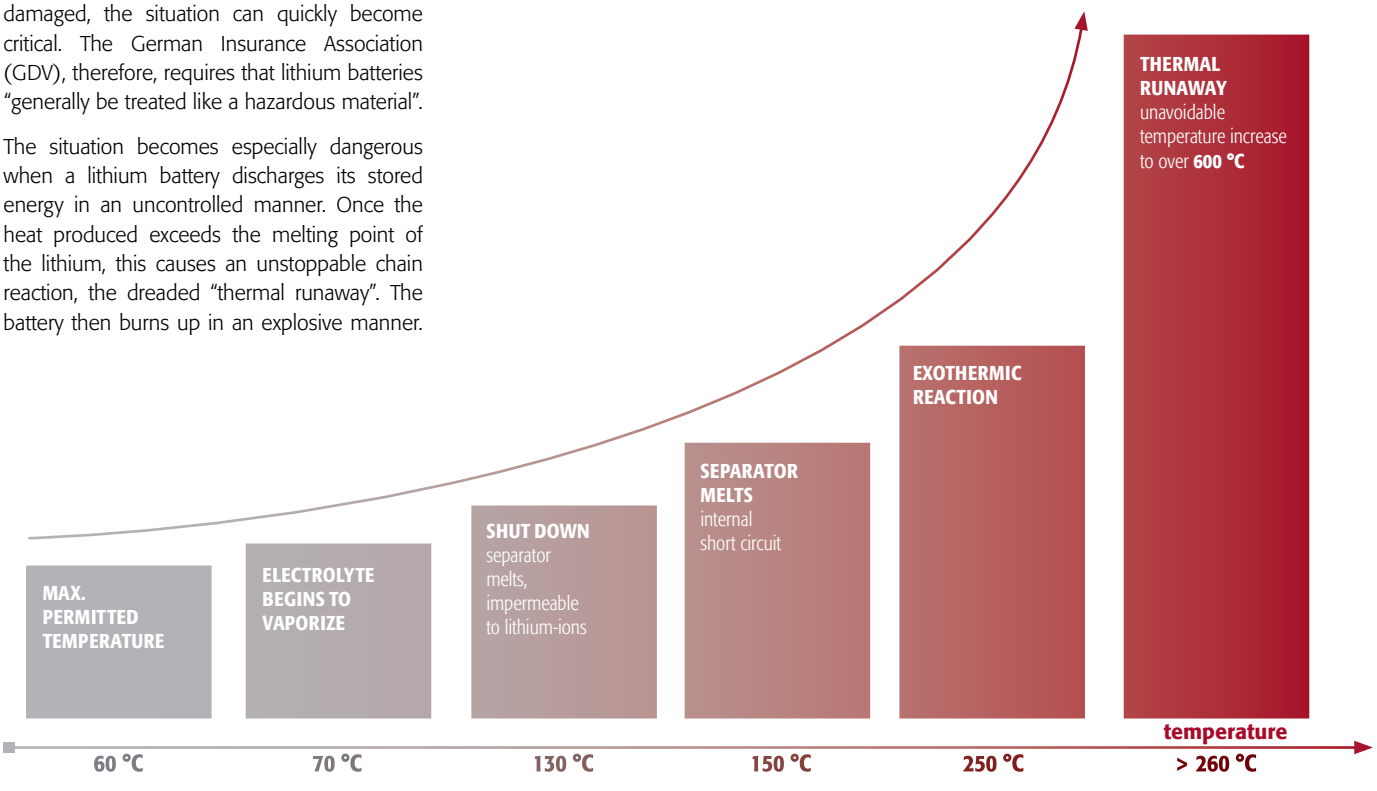
- Caused by external heat or energy sources



In normal operation, using lithium batteries is considered safe. However, according to the VDE this is true only if they are handled properly. If there is a technical defect or a battery is damaged, the situation can quickly become critical. The German Insurance Association (GDV), therefore, requires that lithium batteries "generally be treated like a hazardous material".

The situation becomes especially dangerous when a lithium battery discharges its stored energy in an uncontrolled manner. Once the heat produced exceeds the melting point of the lithium, this causes an unstoppable chain reaction, the dreaded "thermal runaway". The battery then burns up in an explosive manner.

Such fires with lithium-ion batteries are difficult to manage, and the fire spreads quickly. Often, all the fire department can do is protect neighbouring areas.



STORAGE OF **LITHIUM-ION BATTERIES**

When storing lithium-ion batteries, we can differentiate between passive and active storage.

PASSIVE STORAGE

In passive storage, new or used lithium-ion batteries are stored over a certain time period.

CONCLUSION
We recommend for new and used lithium-ion batteries to be stored separately (different storage levels) in the BATTERY STORE or BATTERY STORE PRO safety storage cabinets.

ACTIVE STORAGE

In active storage, lithium-ion batteries or battery packs are charged in a cabinet with a charger or partially discharged (60 - 70%).

Heat is generated when a lithium-ion battery charges. If this heat output is too high, a fire may occur, for instance if the lithium battery, the charger or the connection cable is defective.

Another major risk factor is the risk of **thermal runaway** of lithium-ion batteries, for instance caused by internal short circuits.

CONCLUSION
The risk increases when lithium-ion batteries are left unattended to charge outside of work hours. We recommend active storage in the asecos BATTERY CHARGE or BATTERY CHARGE PRO safety storage cabinet.

SAFETY, **SIGNED** AND **SEALED**

PROTECTION FROM THE **OUTSIDE** TO THE **INSIDE**

Lithium-ion batteries stored in ION-LINE cabinets are protected against overheating from external fires for a period of 90 minutes.

This prevents lithium-ion batteries stored in the cabinet from spontaneously combusting, becoming unstable, or exploding.

Fire testing in compliance with the testing conditions of EN 14470-1 certifies that the cabinets fulfil fire resistance requirements (type 90).

Safety storage cabinets with a fire resistance of at least 90 minutes are considered a storage section.These cabinets thus fulfill the requirements of a separated, structurally fire-resistant, storage area according to the German VdS 3103:2019-06 (03) or further similar international guidelines.

PROTECTION FROM THE **INSIDE** TO THE **OUTSIDE**

To test fire protection from inside to the outside, ION-LINE cabinets also underwent fire testing in accordance with EN 1363-1:2012-10.

The test results show that the cabinets achieve a fire resistance of up to over 90 minutes.
Cabinets in the ION-LINE, therefore, offer excellent protection against fires from the interior.

The **BATTERY STORE PRO**, **BATTERY CHARGE** and **BATTERY CHARGE PRO** models are equipped with a smoke detector incl. a potential-free alarm contact to the building services management. **BATTERY STORE PRO** and **BATTERY CHARGE PRO** cabinets are also equipped with a 3-stage warning / fire suppression system. That means perfect protection for storage and in particular for unattended charging.

The clever, multi-stage concept with an active upstream fire suppression unit in the cabinet adds extra safety:

- **possibility of connection to a permanently staffed building services**
- **sufficient time for rescue personnel and fire fighters to carry out an evacuation or extinguish the blaze**
- **sufficient time for personnel to escape**
- **protection for rescue responders and personnel in case of a fire**

A full system description is provided on the following pages of this brochure.

BATTERY CHARGE PRO	BATTERY CHARGE	BATTERY STORE PRO	BATTERY STORE
STORE:			
✓	✓	✓	✓
CHARGE:			
✓	✓		
FIRE PROTECTION FROM OUTSIDE (TYPE 90):			
✓	✓	✓	✓
FIRE PROTECTION FROM INSIDE:			
✓	✓	✓	✓
3-STAGE AUTOMATIC WARNING/FIRE SUPPRESSION SYSTEM:			
✓		✓	
PLUG-IN DESIGN:			
✓	✓	✓	
EARTHED SOCKET FOR CONNECTING CHARGERS:			
✓	✓		
INTEGRATED TECHNICAL VENTILATION:			
✓			
Model from page 12	Model from page 14	Models from page 16	Models from page 18

ION-LINE COMPONENTS AND FEATURES -

CABINETS WITH SAFETY SYSTEM

The **BATTERY STORE PRO** and **BATTERY CHARGE PRO** models have not only fire-resistant, passive fire protection from the outside and inside, but also a high-quality 3-stage warning/fire suppression system inside the cabinet.

The following components are included in the ION-LINE cabinets

1. Electronic controller incl. potential-free alarm contact to building services management
2. Fire suppression unit
3. Function indicator (green LED)
4. 2-Stage warning light (red LED)
5. 2-Stage acoustic alarm signal
6. Smoke detector
7. Temperature sensor
8. Plug-in design to connect to mains supply
9. High-quality outlet strip with metal housing and 10 earthed sockets for each storage / charging level mounted complete and ready for operation inside the cabinet
10. All electrical lines to the outlet strip are centrally installed in a junction box via cable ducts in the head of the cabinet.
11. Technical ventilation (to avoid heat build-up in the interior)

Overall power ION-CHARGE-90 model group
Standard: 1-phase, fuse 16 A, power max. 3.68 kW
Optional: 3-phase, fuse 3 x 16 A (each phase 16 A), power max. 11.04 kW for BATTERY CHARGE PRO and 2-phase, power max. 7.36 kW for BATTERY CHARGE

Image shows BATTERY CHARGE PRO model

See the following pages for further information on the components of the model groups BATTERY STORE PRO, BATTERY CHARGE and BATTER CHARGE PRO.

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THE **ION-LINE SAFETY CONCEPT**

	INCIDENTS	SYSTEM REACTIONS	SUBSEQUENT MEASURES
WARNING MESSAGE	If the interior temperature increases **above 50 °C,** the warning/fire suppression system triggers a warning message to the central control office. **Possible causes:** ▪ Temperature build-up due to battery charging processes ▪ Ventilation system failure	**Visual and acoustic signal output** ▪ The warning light (red LED) is activated and permanently illuminated, the function indicator (green LED) goes out ▪ Alarm triggers with slow tone interval **The potential-free alarm switch** ▪ is activated, the alarm is transmitted to the building services management system	The warning message does not indicate any direct danger. Internal qualified personnel can immediately inspect the system to take any further necessary measures. If the interior temperature decreases below 50 °C once again, the system returns to normal operations, and the visual and acoustic signals are turned off.
ALARM LEVEL 1	**Alarm level 1** is triggered when smoke begins to form in the cabinet, as soon as the smoke detector is activated. **Possible causes:** ▪ Smoke detected without simultaneous temperature increase	**Visual and acoustic signal output** ▪ The warning light (red LED) is activated and permanently illuminated, the function indicator (green LED) goes out ▪ Alarm triggers with medium tone interval **The potential-free alarm switch** ▪ is activated, the alarm is transmitted to the building services management system	Technicians (such as from the fire department) can immediately inspect the system to take any further necessary measures. If the smoke detector does not detect any further smoke production inside the cabinet, the system can be returned to normal operations by briefly unplugging it from mains voltage.
ALARM LEVEL 2	**Alarm level 2** is triggered when the smoke detector is already activated (alarm level 1) and the temperature sensor registers an interior temperature **greater than 70 °C** **Possible causes:** ▪ Outbreak of fire	**The visual and acoustic signals change to** ▪ warning light (red LED) switches from continuous illumination to flashing light ▪ the alarm switches to a fast tone interval **In the BATTERY CHARGE model, at the same time** ▪ the technical ventilation is also switched off ▪ power to the outlet strip is turned off **The aerosol fire suppression unit** ▪ triggers	The overall system can then only be assessed by an authorised asecos service technician and reset to normal operation if possible. At least the fire suppression unit and smoke detector must be exchanged before doing so.

EXPERT TIP: React quickly in case of a fire

With an integrated 3-stage warning/fire suppression system and smoke detector, the **BATTERY STORE PRO**, **BATTERY CHARGE PRO** and **BATTERY CHARGE** cabinets offer a high level of safety for storing and charging lithium-ion batteries. Any fires which occur inside the cabinet are detected promptly, and employees can be evacuated immediately. The warning/fire suppression system is also connected to a permanently staffed building services management, ensuring that trained rescue personnel

- can be alarmed quickly and be on site in a short amount of time
- can initiate further measures immediately after completing an initial assessment of the situation
- can transport the cabinet out of the building, for instance. This prevents further major damage to the building, and protects against personal injury.

The cabinets are equipped with a transport base to ensure fast transportation. Cabinets are automatically unplugged from mains supply during transportation. Once the cabinet is outside of the building at a safe location, rescue personnel can identify any further measures necessary.

We recommend an installation at the ground level for the simplified and quick evacuation of the safety storage cabinets!

BATTERY CHARGE PRO Charging cabinet
ION-CHARGE-90 model IO90.195.120.K3.WDC
Body colour anthracite grey (RAL 7016) with wing doors in gentian blue (RAL 5010), interior equipment with 5 x perforated shelves incl. outlet strips (sheet steel powder-coated), 1 x bottom collecting sump (sheet steel powder-coated)
Order no. 37276-047-38082 6

price upon request

Safe active storage of lithium-ion batteries with integrated 3-stage warning and fire suppression system

Function / construction:

- **Robust construction and longevity:** triple hinged door, safety elements assembled outside the storage compartement for increased protection against corrosion, scratch- and impact-resistant surface, easy to clean
- **Easy handling with comfort:** Smooth doors with permanent self-closing function and oil-dampened door closer. Open doors with a minimum amount of force
- **No unauthorised use:** doors lockable with cylinder lock (locking system compatible) and locking state indicator (red/green)
- **Easy transport:** integrated transport base for internal transportation
- **Easy alignment:** adjusting aids to compensate for uneven floor
- **Ventilation:** integrated technical ventilation to avoid heat build-up, turning wheel in the exhaust grate as an indicator of sufficient technical ventilation
- **Safe storage and charging:** installed 3-stage warning and fire suppression system including smoke detector, temperature sensor, visual and acoustic alarms and fire suppression unit; triggers automatically in case of a fire; plug-in ready for connection to mains supply.
- **All-around protection:** 90 minute fire protection from outside to inside (type 90 / type tested in accordance with EN 14470-1) and for more than 90 minutes fire resistance for fires from inside to outside

Available equipment:

- Height-adjustable perforated shelves with load capacity of 75 kg
- Bottom collecting sump
- High-quality outlet strip* with metal housing for each storage / charging level

EXPERT TIP

Fire and risk minimisation
Lithium-ion batteries with obvious damage should generally not be stored inside buildings.
Dispose of them promptly in appropriate disposal containers suitable for transportation, outside of buildings.

Outlet strips*
Each storage level is equipped with a high-quality outlet strip incl. metal housing and 10 earthed sockets. The outlet strips are mounted ready for operation on the rear wall of the cabinet.

Warning/fire suppression system
High-quality 3-stage warning/fire suppression system inside the cabinet triggers automatically in case of a fire.

Model	Information / equipment	W x D x H (mm)	Order no.
IO90.195.120.K3.WDC	without interior equipment, including warning/fire suppression system	1193 x 615 x 2224	37276

Body colour	Door colour	Order no.
Anthracite grey RAL 7016	gentian blue RAL 5010	047 6

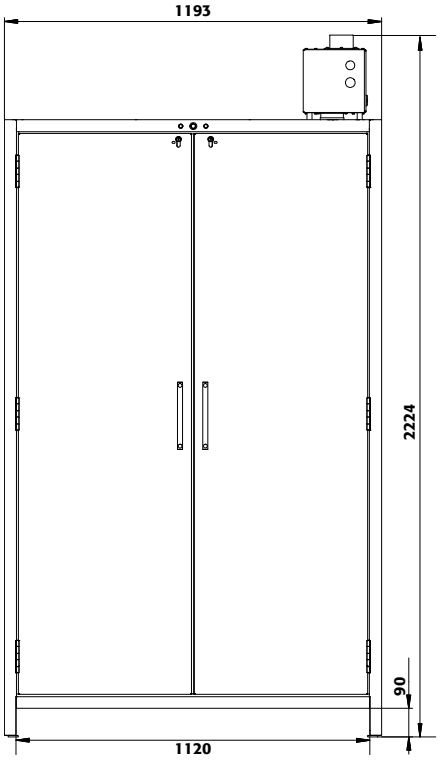
Interior equipment package (can only be ordered in combination with cabinet)	Material	Order no.
3x perforated shelves incl. outlet strips, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	38080 2
4x perforated shelves incl. outlet strips, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	38081 2
5x perforated shelves incl. outlet strips, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	38082 2
6x perforated shelves incl. outlet strips, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	38083 2

Interior equipment		Order no.
Module for remote signalling	Alarm transmission to a mobile of your choice	available soon
Power supply cable 400 V (can only be ordered in combination with the cabinet)	3-phase, fuse 3 x 16 A (each phase 16 A), power max. 11.04 kW	38038 2

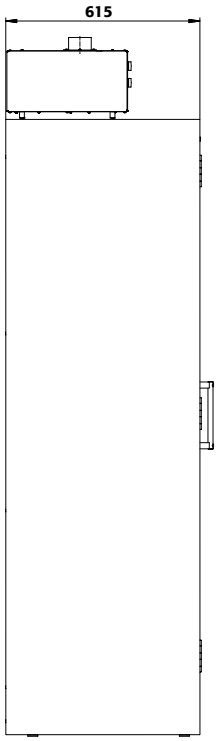
Ready for dispatch within
X Days X Weeks

** Suitable outlet strips for the United Kingdom are available upon request.*

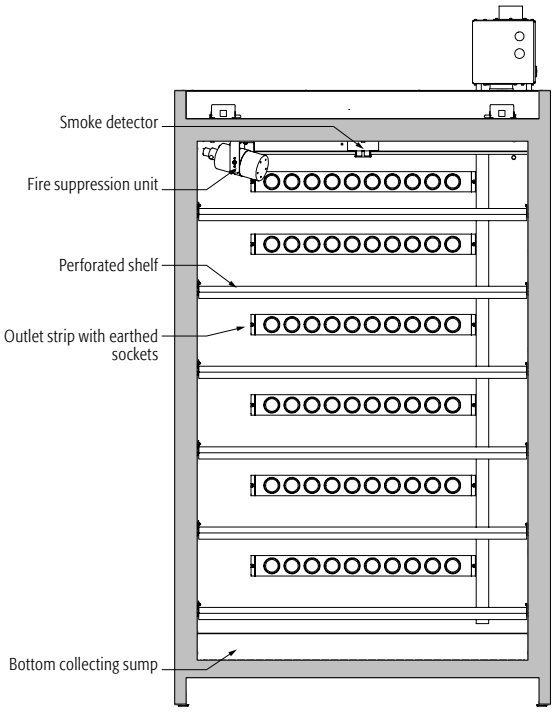
Front view



Side view



Selectional view



Technical specifications	**IO90.195.120.K3.WDC**	
External dimensions W x D x H	mm	1193 x 615 x 2224
Internal dimensions W x D x H	mm	1050 x 522 x 1647
Weight of empty cabinet	kg	424
Maximum load	kg	600
Distributed load	kg/m²	531
Transport base		
Entry width transport base	mm	1120
Entry height transport base	mm	90

Total power

1-phase	Fuse	A	16
	Power max.	kW	3.68
3-phase	Fuse	A	3 x 16
	Power max.	kW	11.04

The total power is only valid for Germany. It may differ for other countries.
The fuse protection has to be carried out on site.

BATTERY CHARGE Charging cabinet
ION-CHARGE-90 model IO90.195.060.K9.WDC
Body colour anthracite grey (RAL 7016) with wing door in gentian blue (RAL 5010), interior equipment with 4 x perforated shelves incl. outlet strips (sheet steel powder-coated), 1 x bottom collecting sump (sheet steel powder-coated)
Order no. 38611-047-38628 6

price upon request

Safe active storage of lithium-ion batteries with integrated alarm system

Function / construction:

- **Robust construction and longevity:** triple hinged door, safety elements assembled outside the storage compartement for increased protection against corrosion, scratch- and impact-resistant surface, easy to clean
- **Easy handling with comfort:** Smooth door with permanent self-closing function and oil-dampened door closer. Open door with a minimum amount of force
- **No unauthorised use:** door lockable with cylinder lock (locking system compatible) and locking state indicator (red/green)
- **Easy transport:** integrated transport base for internal transportation
- **Easy alignment:** adjusting aids to compensate for uneven floor
- **Ventilation:** integrated technical ventilation to avoid heat build-up, turning wheel in the exhaust grate as an indicator of sufficient technical ventilation
- **All-around protection:** 90 minute fire protection from outside to inside (type 90 / type tested in accordance with EN 14470-1) and for more than 90 minutes fire resistance for fires from inside to outside

Available equipment:

- Height-adjustable perforated shelves with load capacity of 25 kg
- Bottom collecting sump
- High-quality outlet strip* with metal housing for each storage / charging level
- Optionally available with a module for remote signalling

YOUR BENEFITS

- Optionally available with a module for remote signalling
- Integrated alarm system with connection to a permanently staffed building services management

EXPERT TIP

Fire and risk minimisation
Lithium-ion batteries with obvious damage should generally not be stored inside buildings.
Dispose of them promptly in appropriate disposal containers suitable for transportation, outside of buildings.

Smoke detector
with external alarm contact and connection to a permanently staffed building services management

Vertical outlet strips*
enable the individual height adjustment of perforated shelves and the usage of sockets on every storage level (depending on the storage heights some sockets can be covered by shelves)

Model	Information / equipment	W x D x H (mm)	Order no.
IO90.195.060.K9.WDC	without interior equipment, including smoke detector and alarm contact	599 x 615 x 1953	38611

Body colour	Door colour	Order no.
Anthracite grey RAL 7016	gentian blue RAL 5010	047 6

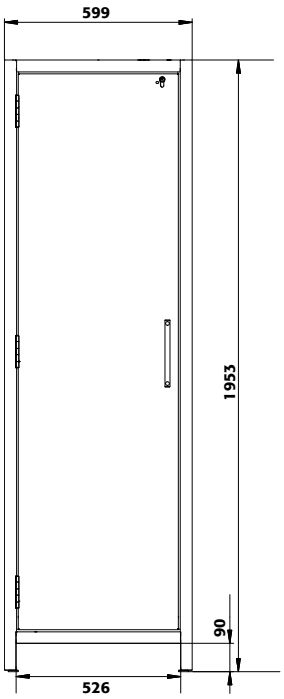
Interior equipment package (can only be ordered in combination with cabinet)	Material	Order no.
4x perforated shelves, 2x outlet strips, 1x bottom collecting sump (V=22.0L)	sheet steel powder-coated RAL 7035	38628 2

Interior equipment		Order no.
Module for remote signalling	Alarm transmission to a mobile of your choice	available soon
Power supply cable 400 V (can only be ordered in combination with the cabinet)	2-phase, fuse 2 x 16 A (each phase 16 A), power max. 7.36 kW	38038 2

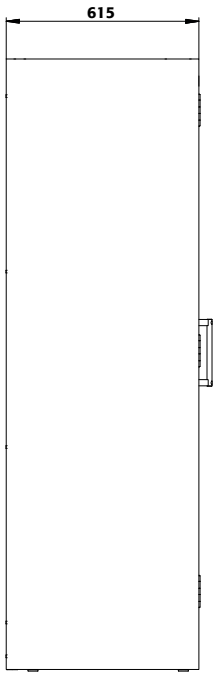
Ready for dispatch within
X Days X Weeks

** Suitable outlet strips for the United Kingdom are available upon request.*

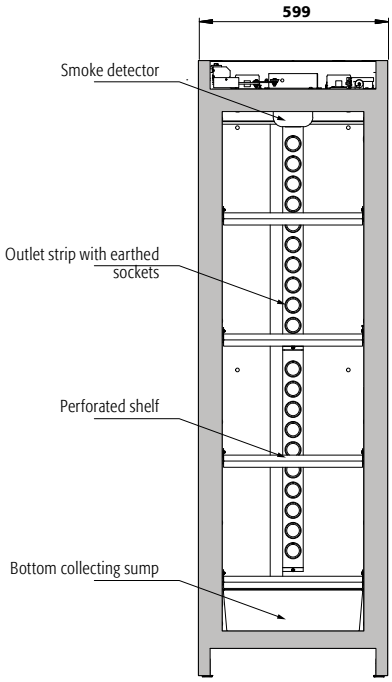
Front view



Side view



Selectional view



Technical specifications	**IO90.195.060.K9.WDC**	
External dimensions W x D x H	mm	599 x 615 x 1953
Internal dimensions W x D x H	mm	450 x 522 x 1647
Weight of empty cabinet	kg	265
Maximum load	kg	600
Distributed load	kg/m²	894
Transport base		
Entry width transport base	mm	526
Entry height transport base	mm	90

Total power

1-phase	Fuse	A	16
	Power max.	kW	3,68
2-phase	Fuse	A	2 x 16
	Power max.	kW	7,36

The total power is only valid for Germany. It may differ for other countries.
The fuse protection has to be carried out on site.

BATTERY STORE PRO storage cabinet
ION-STORE-90 model IO90.195.120.K2.WDC
Body colour anthracite grey (RAL 7016) with wing doors in gentian blue (RAL 5010), interior equipment with 5 x perforated shelves (sheet steel powder-coated), 1 x bottom collecting sump (sheet steel powder-coated)
Order no. 38055-047-37265 6

price upon request

Safe passive storage of lithium-ion batteries with integrated 3-stage warning and fire suppression system

Function / construction:

- **Robust construction and longevity:** triple hinged door, safety elements assembled outside the storage compartement for increased protection against corrosion, scratch- and impact-resistant surface, easy to clean
- **Easy and comfortable handling** smooth doors with permanent self-closing feature using oil-dampened door closer; open doors with a minimum of force
- **No unauthorised use:** doors lockable with cylinder lock (locking system compatible) and locking state indicator (red/green)
- **Easy transport:** integrated transport base for internal transportation
- **Easy alignment:** adjusting aids to compensate for uneven floor
- **Safe storage:** installed 3-stage warning and fire suppression system including smoke detector, temperature sensor, visual and acoustic alarms and fire suppression unit; triggers automatically in case of a fire; plug-in ready for connection to the mains network.
- **All-around protection:** 90 minute fire protection from outside to inside (type 90 / type tested in accordance with EN 14470-1) and for more than 90 minutes fire resistance for fires from inside to outside

Available equipment:

- Height-adjustable perforated shelves with load capacity of 75 kg
- Bottom collecting sump

EXPERT TIP

Fire and risk minimisation
Lithium-ion batteries with obvious damage should generally not be stored inside buildings.
Dispose of them promptly in appropriate disposal containers suitable for transportation, outside of buildings.

Warning/fire suppression system
High-quality 3-stage warning/fire suppression system inside the cabinet triggers automatically in case of a fire.

Bottom collecting sump
The bottom collecting sump is used to catch any leakage which may occur from burning batteries.

Model	Information / equipment	W x D x H (mm)	Order no.
IO90.195.120.K2.WDC	without interior equipment, including warning/fire suppression system	1193 x 615 x 1953	38055

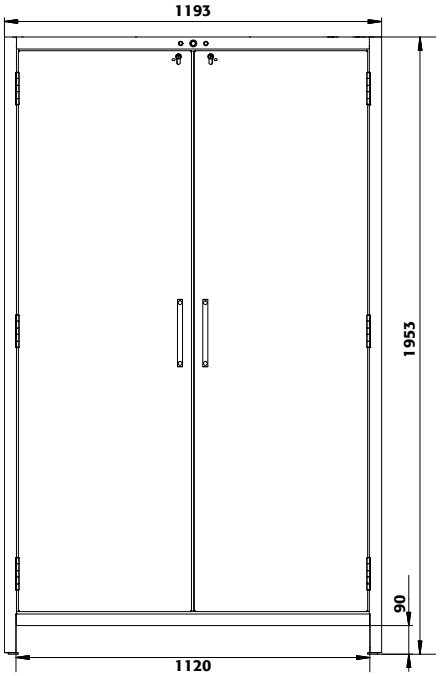
Body colour	Door colour	Order no.
Anthracite grey RAL 7016	gentian blue RAL 5010	047 6

Interior equipment package (can only be ordered in combination with cabinet)	Material	Order no.
3x perforated shelves, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	37258 2
4x perforated shelves, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	37264 2
5x perforated shelves, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	37265 2
6x perforated shelves, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	37266 2

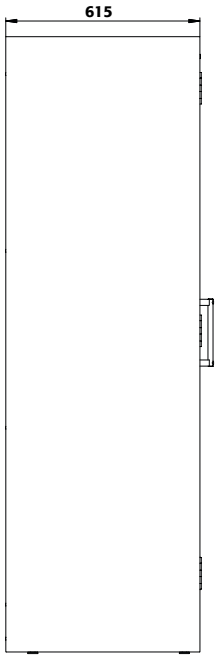
Interior equipment		Order no.
Module for remote signalling	Alarm transmission to a mobile of your choice	available soon

Ready for dispatch within
X Days X Weeks

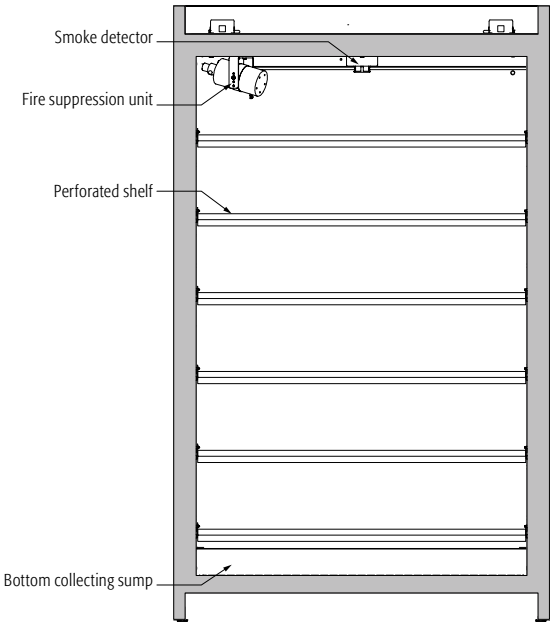
Front view



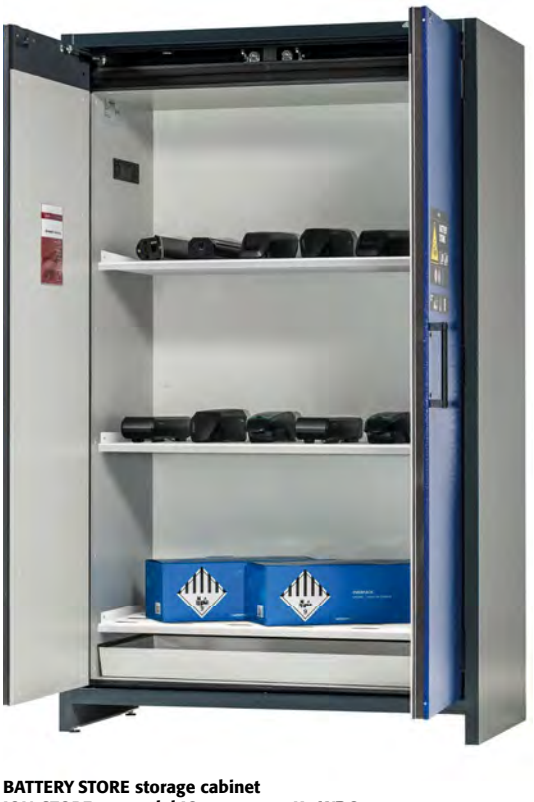
Side view



Selectional view



Technical specifications	**IO90.195.120.K2.WDC**	
External dimensions W x D x H	mm	1193 x 615 x 1953
Internal dimensions W x D x H	mm	1050 x 522 x 1647
Weight of empty cabinet	kg	424
Maximum load	kg	600
Distributed load	kg/m²	531
Transport base		
Entry width transport base	mm	1120
Entry height transport base	mm	90



BATTERY STORE storage cabinet
ION-STORE-90 model IO90.195.120.K1.WDC
Body colour anthracite grey (RAL 7016) with wing doors in gentian blue (RAL 5010), interior equipment with 3 x perforated shelves (sheet steel powder-coated), 1 x bottom collecting sump (sheet steel powder-coated)
Order no. 37254-047-37258 6

Safe passive storage of lithium-ion batteries

Function / construction:

- **Robust construction and longevity:** triple hinged door, safety elements assembled outside the storage compartement for increased protection against corrosion, scratch- and impact-resistant surface, easy to clean
- **Easy and comfortable handling** smooth doors with permanent self-locking via oil-dampened door closer. Open doors with a minimum amount of force
- **No unauthorised use:** doors lockable with cylinder lock (locking system compatible) and locking state indicator (red/green)
- **Easy transport:** integrated transport base for internal transportation
- **Easy alignment:** adjusting aids to compensate for uneven floor
- **All-around protection:** 90 minute fire protection from outside to inside (type 90 / type tested in accordance with EN 14470-1) and for more than 90 minutes fire resistance for fires from inside to outside

Available equipment:

- Height-adjustable perforated shelves with load capacity of 75 kg
- Bottom collecting sump

price upon request

EXPERT TIP

Fire and risk minimisation
Lithium-ion batteries with obvious damage should generally not be stored inside buildings.
Dispose of them promptly in appropriate disposal containers suitable for transportation, outside of buildings.

Perforated shelves as storage / charging levels
made of sheet steel powder-coated offer a high storage capacity and ensure optimal ventilation inside the cabinet.

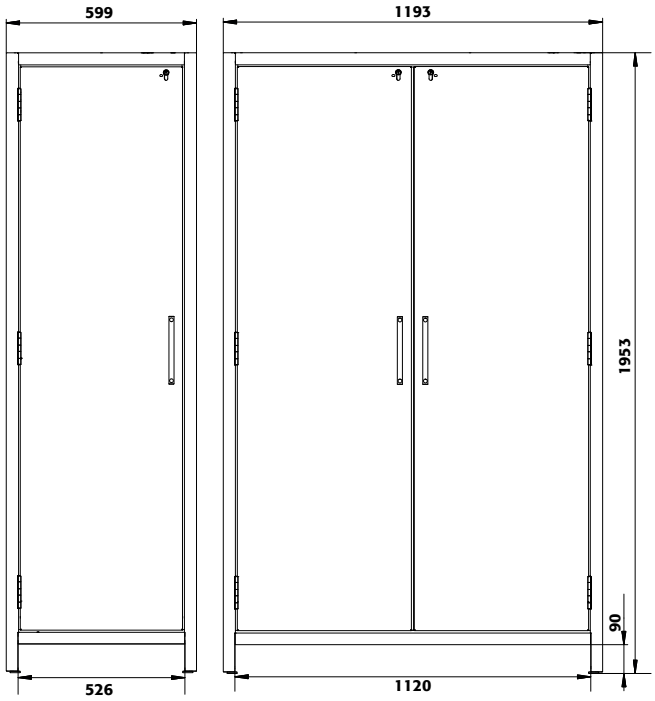
Model	Information / equipment	W x D x H (mm)	Order no.
IO90.195.120.K1.WDC	without interior equipment	1193 x 615 x 1953	37254
IO90.195.060.K1.WDC	without interior equipment, left hinged	599 x 615 x 1953	38067

Body colour	Door colour	Order no.
Anthracite grey RAL 7016	gentian blue RAL 5010	047 6

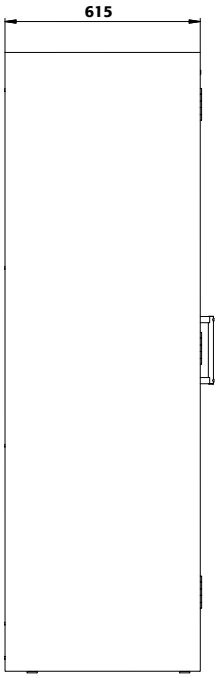
Interior equipment package (can only be ordered in combination with cabinet)	Material	Order no.
IO90.195.120.K1.WDC		
3x perforated shelves, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	37258 2
4x perforated shelves, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	37264 2
5x perforated shelves, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	37265 2
6x perforated shelves, 1x bottom collecting sump (V=33.0L)	sheet steel powder-coated RAL 7035	37266 2
IO90.195.060.K1.WDC		
3x perforated shelves, 1x bottom collecting sump (V=22.0L)	sheet steel powder-coated RAL 7035	38086 2
4x perforated shelves, 1x bottom collecting sump (V=22.0L)	sheet steel powder-coated RAL 7035	38087 2
5x perforated shelves, 1x bottom collecting sump (V=22.0L)	sheet steel powder-coated RAL 7035	38088 2
6x perforated shelves, 1x bottom collecting sump (V=22.0L)	sheet steel powder-coated RAL 7035	38089 2

Ready for dispatch within
X Days X Weeks

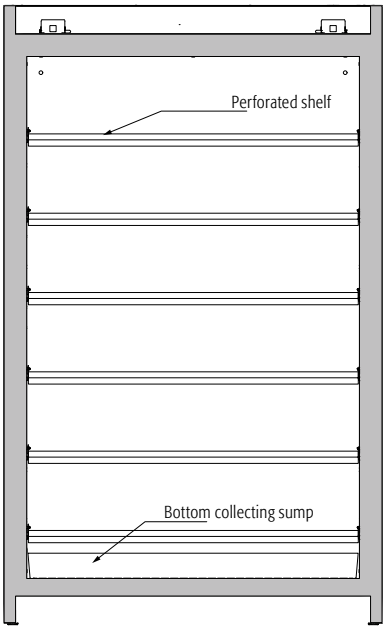
Front view



Side view



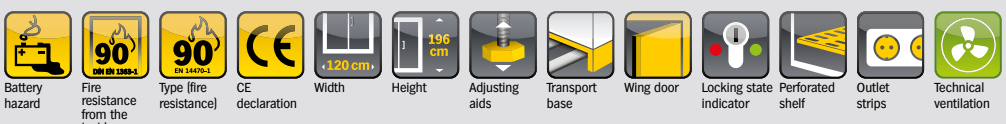
Selectional view



Technical specifications	**IO90.195.060.K1.WDC**	
External dimensions W x D x H	mm	599 x 615 x 1953
Internal dimensions W x D x H	mm	450 x 522 x 1647
Weight of empty cabinet	kg	265
Maximum load	kg	600
Distributed load	kg/m²	894
Transport base		
Entry width transport base	mm	526
Entry height transport base	mm	90

Technical specifications	**IO90.195.120.K1.WDC**	
External dimensions W x D x H	mm	1193 x 615 x 1953
Internal dimensions W x D x H	mm	1050 x 522 x 1647
Weight of empty cabinet	kg	424
Maximum load	kg	600
Distributed load	kg/m²	531
Transport base		
Entry width transport base	mm	1120
Entry height transport base	mm	90

ICONS legend



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