

Secure cabinets

FWF 30 and FWF 90 F-SAFE PG 9

Cabinets for proper storage of hazardous substances in work areas in accordance with DIN EN 14470-1 and TRGS 510 (Annex 1).

The F-SAFE secure cabinets are design approved in accordance with DIN EN 14470-1 and comply with DIN EN 14727 (Laboratory Furniture Directive).

The cabinets are resistant to fire for 30 or 90 minutes. The outer body consists of a non-combustible material. The surface coating is highly resistant to chemicals. Body colour light grey, similar to RAL 7035. Door colour zinc yellow, similar to RAL 1023.



Type 12/20
with recirculation fan



Type 12/20 with 3 spill trays
and 1 x 44 L bottom tray



Can be accessed by forklift
for better positioning in the building

COLLECTION VOLUMES

While the collection volume of 10% of the total amount of stored liquids must be ensured when using collection trays, a different regulation applies in the case of secure cabinets: it must be possible to collect at least 110% of the largest container.

VENTILATION

A technical ventilation system (see page 192) with 10 air changes per hour has the advantage that, in normal operation with closed containers, no explosive atmosphere can occur outside the cabinet.

Operation is also possible without technical ventilation. For this, however, the cabinet must be earthed via equipotential bonding to prevent electrostatic charging. If a secure cabinet is not connected to a technical ventilation system, this may also affect the explosion-proof zone. Zone 1 applies to the inside area, Zone 2 applies to the surrounding area within a radius of 2.5 m.

We generally recommend using technical ventilation (page 192-193)

SECURE CABINETS FWF 30

Secure cabinets with 90-minute fire resistance are considered to be "state of the art" in Germany. However, secure cabinets with 30-minute fire resistance may also be used with restrictions, pursuant to TRGS 510 (Annex 3).

The restrictions for FWF 30 cabinets are as follows:

1. only one cabinet is installed per separate building unit/fire (-fighting) compartment; if the area of the separate building unit/fire (-fighting) compartment is greater than 100 m², one cabinet may be installed every 100 m², or
2. the building unit/fire (-fighting) compartment is protected by an automatic fire detection system and recognised plant fire brigade with a response time of at most 5 minutes from the alarm being raised, or an automatic extinguishing system is in place.

EXCEPTIONS IN THE CASE OF EXTREMELY FLAMMABLE LIQUIDS (H224):

Flammable liquids whose ignition temperature is below 200°C and which have been classified as „extremely flammable“ (H224) may only be stored in FWF 90 secure cabinets with technical ventilation.

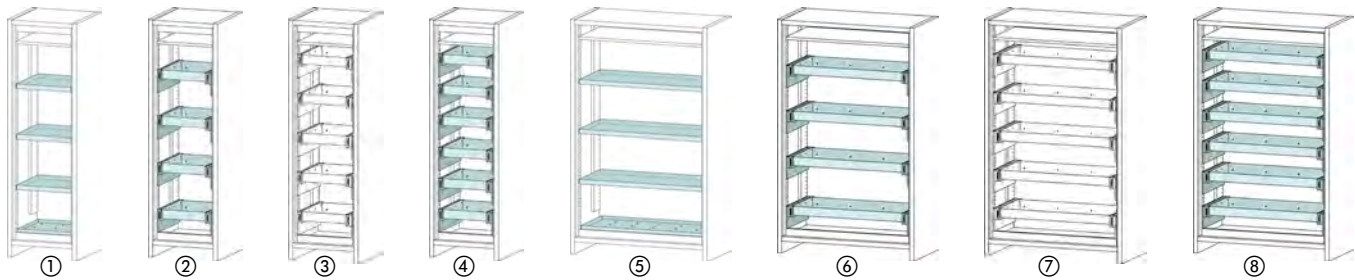
Secure cabinets FWF 30 PG 9

Version secure cabinet FWF 30:

- with sign GS and CE
- 30 minute fire-resistance
- single-layer doors and walls in homogenous full material
- in case of fire, self-closing vents on the top of the cabinet, DN 100 mm
- hydraulic door closer with integrated arrest system (thermally triggered) earthing to avoid the danger of ignition due to electrostatic discharge

- height-adjustable feet, can be aligned from inside
- with removable base trim so it can be driven under
- 3 height-adjustable, steel plate spill trays, powder-finished in RAL 7035, load bearing capacity 75 kg (grid size 32 mm)
- one steel plate bottom tray, powder-finished in RAL 7035 with a perforated plate insert

- fully-extending drawers for the storage of small containers, load bearing capacity 65 kg, or 11 kg for 28 litre
- 6/20 with bottom tray 19 litre, 12/20 with bottom tray 44 litre



Description / Type	External dimensions cm (l x d x h)	Internal dimensions cm (l x d x h)	Weight approx. kg	Order no.
① 6/20 – FWF 30 3 spill trays, 1 bottom tray	59.5 x 59.5 x 196	47.5 x 51.5 x 160	147	8057
② 6/20 – FWF 30 4 full drawers	59.5 x 59.5 x 196	47.5 x 51.5 x 160	206	10622
③ 6/20 – FWF 30 5 full drawers	59.5 x 59.5 x 196	47.5 x 51.5 x 160	220	10623
④ 6/20 – FWF 30 6 full drawers	59.5 x 59.5 x 196	47.5 x 51.5 x 160	235	10624
⑤ 12/20 – FWF 30 3 spill trays, 1 bottom tray	119.5 x 59.5 x 196	107.5 x 51.5 x 160	226	8055
⑥ 12/20 – FWF 30 4 full drawers	119.5 x 59.5 x 196	107.5 x 51.5 x 160	291	10625
⑦ 12/20 – FWF 30 5 full drawers	119.5 x 59.5 x 196	107.5 x 51.5 x 160	308	10626
⑧ 12/20 – FWF 30 6 full drawers	119.5 x 59.5 x 196	107.5 x 51.5 x 160	324	10627

ACCESSORIES FOR SECURE CABINETS FWF 30

Description	Order no.
Spill trays for secure cabinets 6/20 FWF 30 F-SAFE	11715
Spill trays for secure cabinets 12/20 FWF 30 F-SAFE	11716

Secure cabinets FWF 90 F-SAFE PG 9

Secure cabinet FWF 90 under-table model:

- GS and CE conformity marks
- 90-minute fire resistance (EN 14470-1)
- single-layer doors and walls in homogeneous full material
- self-closing doors in case of fire
- vents on top of the cabinet, DN 100 mm
- adjustable metal feet on the underside of the cabinet
- earthing to prevent electrostatic charging

Version with hinged doors

- for storage of small containers
- 24 L collection volume

Version with fully-extending drawer

- smooth-running, fully-extending drawers for the storage of small containers, load bearing capacity 65 kg
- under-table cabinet with 49 L drawer with locking function
- rollers for easy movement
- locking status display
- includes certified pipe feed-through and earth terminal



Version with hinged doors



Version with fully-extending drawer (Figure shows usage example)

Description / Type	External dimensions cm (l x d x h)	Internal dimensions cm (l x d x h)	Weight approx. kg	Order no.
11/6-FWF with hinged doors	110 x 50 x 67	101.5 x 35 x 53	185	8060
11/6-FWF with drawer	110 x 57 x 63	87 x 43 x 46.4	235	11024

Secure cabinets FWF 90 F-SAFE PG 9

Version secure cabinet FWF 90 F-SAFE:

- GS and CE conformity marks
- 90 minute fire-resistance
- single-layer doors and walls in homogeneous full material, sandwich rear wall with ventilation
- in case of fire, self-closing vents on the top of the cabinet, DN 100 mm
- single-leaf cabinet with hydraulic door closer with integrated arrest system (thermally triggered)
- double-leaf cabinets with free-running doors, intumescent seal in case of fire
- earthing to prevent the danger of ignition due to electrostatic charging

- height-adjustable feet, can be aligned from inside
- with removable base trim so it can be moved by forklift

Version with spill trays

- 3 height-adjustable, steel plate spill trays, powder-finished in RAL 7035, load bearing capacity 75 kg (grid size 32 mm)
- one steel plate bottom tray, powder-finished in RAL 7035 with a perforated plate insert
- on request: additional sizes for drum cabinets



Version with fully-extending drawers

- fully-extending drawers for the storage of small cVontainers (load bearing capacity 65 kg)

We recommend using technical ventilation (page 192-193)



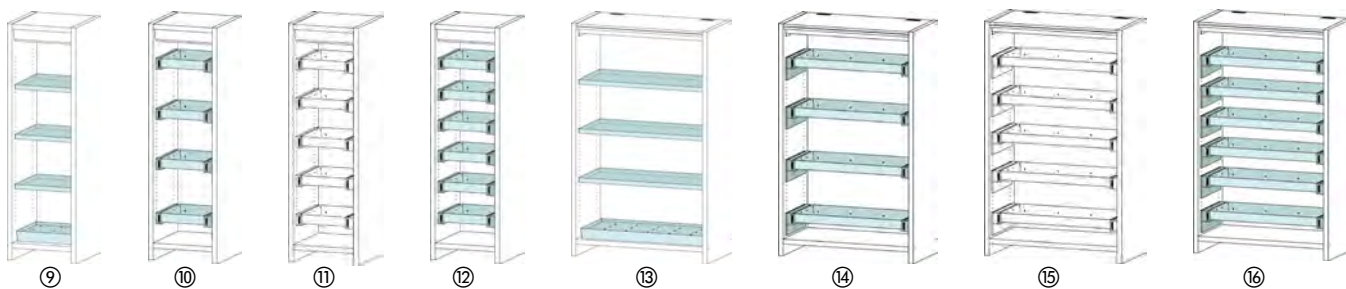
Type 6/20

Type 6/20 with 3 spill trays and 1 bottom tray 20 L

Type 6/20 with 4 full drawers (à 11 litres)

Type 12/20 with 3 spill trays and 1 bottom tray 44 L

Type 12/20 with 4 full drawers (à 28 litres)



Description / Type	External dimensions cm (l x d x h)	Internal dimensions cm (l x d x h)	Weight approx. kg	Order no.
⑨ 6/20 – FWF 90 3 spill trays, 1 bottom tray	60 x 59.5 x 196	51.6 x 48.3 x 160.3	340	8701
⑩ 6/20 – FWF 90 4 full drawers	60 x 59.5 x 196	51.6 x 48.3 x 160.3	394	10628
⑪ 6/20 – FWF 90 5 full drawers	60 x 59.5 x 196	51.6 x 48.3 x 160.3	408	10629
⑫ 6/20 – FWF 90 6 full drawers	60 x 59.5 x 196	51.6 x 48.3 x 160.3	422	10630
⑬ 12/20 – FWF 90 3 spill trays, 1 bottom tray	120 x 59.5 x 196	111.6 x 48.3 x 160.3	600	8700
⑭ 12/20 – FWF 90 4 full drawers	120 x 59.5 x 196	111.6 x 48.3 x 160.3	673	10631
⑮ 12/20 – FWF 90 5 full drawers	120 x 59.5 x 196	111.6 x 48.3 x 160.3	691	10632
⑯ 12/20 – FWF 90 6 full drawers	120 x 59.5 x 196	111.6 x 48.3 x 160.3	710	10633

ACCESSORIES FOR SECURE CABINETS FWF 90 F-SAFE

Description	Order no.
① Cable feed-through Ø 30 mm for secure cabinets FWF 90 F-SAFE	10848
② Cable and pipe feed-through Ø 125 mm for secure cabinets FWF 90 F-SAFE	10962
Spill trays for secure cabinets 6/20 FWF 90 F-SAFE	11717
Spill trays for secure cabinets 12/20 FWF 90 F-SAFE	11718



Ventilation systems PG 9

FOR SECURE CABINETS FWF 30 AND FWF 90

Escaping vapours and hazardous gas-air mixtures are always possible when flammable liquids are stored in secure cabinets. These Ex-zones form not only inside a secure cabinet, but can also arise within a radius of several metres around it.

The ventilation systems on pages 192 and 193 can be used for our environmental cabinets as well.

Suitable ventilation systems can remove escaping vapours and gases directly where they are produced, effectively preventing an explosive atmosphere forming. Subdivision into Ex-zones is no longer necessary.

Note from TRGS 510, Appendix 1: Not only fire resistance class FWF 90 but also technical ventilation systems are required for extremely flammable liquids (H224).

There are two different ventilation systems:

- exhaust air fans, which discharge the extracted air to the outside through an exhaust line
- recirculation fans, which pass the extracted air through integrated filters and thereby render it harmless with regard to explosion hazard before discharging it into the environment



EXHAUST AIR FAN WITH AIRFLOW MONITORING

For placement on the secure cabinet and discharge of the extracted air into an external exhaust line

- sheet steel housing, powder-coated, light grey RAL7035
- floating output via DIN socket
- intake fitting diameter 75 mm
- output volume: 50 - 200 m³/h with volume flow monitoring
- sound pressure level Lp2A: 35 dB(A)
- voltage: 230 V
- frequency: 50 Hz
- power consumption: max. 0.45 A



Solutions ready to plug in

ATEX-compliant:
for extraction from Ex-zone 2
and installation in Ex-free zone
protection class: CE II _/3 G IIB T4

Description	External dimensions cm (l x w x h)	Weight approx. kg	Order no.
Exhaust air fan SST AL with adapter SST-P for FWF90	42.5 x 25 x 25.5	8	8739

RECIRCULATION FAN WITH ACTIVE CARBON FILTER

Plug&play recirculation fan with active carbon filter for discharging the exhaust air directly to outdoors.

- sheet steel housing, powder-coated, light grey RAL7035
- incl. active carbon, coarse and fine filters
- saturation level monitoring for filters
- floating output via DIN socket
- intake fitting diameter 75 mm
- output volume: 25m³/h with volume flow monitoring
- sound pressure level: 38 dB(A)
- voltage: 230 V
- frequency: 50 Hz



Advantages:

- no exhaust pipe to outside required
- no wall opening required

Solutions ready to plug in

ATEX-compliant:
for extraction from Ex-zone 2
and installation in Ex-free zone
protection class: CE II _/3 G IIB T4

Description	External dimensions cm (l x w x h)	Weight approx. kg	Order no.
Recirculation fan SST UL with adapter SST-P for type FWF90	50 x 28.5 x 29.5	20	10963
Replacement filter set for recirculation fan SST UL	-	-	10964

Ventilation systems PG 9

FOR SECURE CABINETS FWF 30 AND FWF 90

RADIAL FAN 230 V [model 1](#) made of flame retardant PPS

- with mounting bracket
- intake fitting diameter: 75 mm
- voltage: 230 V
- frequency: 50 Hz
- nominal current: 0.95 A
- output volume: 250 m³/h
- operating speed: 2850 rpm
- sound pressure level: 45 dB(A)



ATEX-compliant:
for extraction from Ex-zone 2
and installation in Ex-free zone
protection class:
CE II 2G Ex h IIB T3 Gc

Description	External dimensions cm (l x w x h)	Weight approx. kg	Order no.
Radial fan 230 V (model 1)	24.6 x 21.6 x 30	4	11431

RADIAL FAN 230 V [model 2](#) made of flame retardant PPS-el

- with mounting bracket
- intake fitting diameter: 75 mm
- voltage: 230 V
- frequency: 50 Hz
- nominal current: 1.07 A
- output volume: 150 m³/h
- operating speed: 2800 rpm
- sound pressure level: 55 dB(A)



ATEX-compliant:
for extraction from zone 1 and installation
in zone 1
Motor: II 2G Ex eb IIC T4 Gb
Fan: II 2G Ex h IIB T4 Gb

Description	External dimensions cm (l x w x h)	Weight approx. kg	Order no.
Radial fan 230 V (model 2)	39 x 22 x 40.8	6	11432

RADIAL FAN 380 V [model 3](#) made of flame retardant PPS-el

- with mounting bracket
- intake fitting diameter: 75 mm
- voltage: 3~ 230/400 V
- frequency: 50 Hz
- nominal current: 0,62 A
- output volume 150 m³/h
- operating speed: 2825 rpm
- sound pressure level: 55 dB(A)



ATEX-compliant:
for extraction from zone 1 and installation
in zone 1
Motor: II 2G Ex eb IIC T4 Gb
Fan: II 2G Ex h IIB T4 Gb

Description	External dimensions cm (l x w x h)	Weight approx. kg	Order no.
Radial fan 380 V (model 3)	37.7 x 22 x 38	6	11433

ACCESSORIES FOR RADIAL FANS

Description	Order no.
Throttle valve, DN 75 mm, PPS	11434
Intake fitting, ND 120-75 mm, incl. clamp	11435
Sleeve extension, DN 75 mm	11436
Fitting extension, DN 75 mm	11437
Ventilation hose L=750 mm, DN 75 mm, incl. two clamps	11438
Ventilation hose L=2,000 mm, DN 75 mm, incl. two clamps	11439
T-piece, DN 75 mm	11440

Storage and charging of lithium batteries

The importance of lithium batteries is increasing constantly in our everyday lives. These powerful batteries are increasingly being used not only in small mobile devices or in bicycles (e-bikes) but, correspondingly sized, also in industrial appliances, vehicles and machines. Lithium batteries are powerful, but not without their hazards.

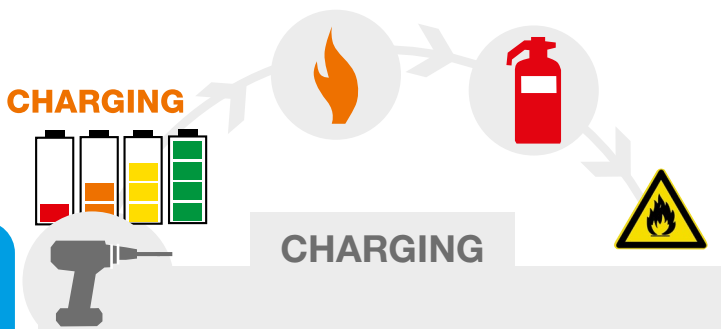
Lithium batteries have long been classified as hazardous goods under transport law and are therefore subject to meticulous hazardous materials regulations which become stricter every 2 years.

Lithium batteries require the utmost care during transport and particularly during storage and handling. If damaged or if handled incorrectly, these batteries can quickly lead to dramatic consequences, usually in the form of a fire. One reason why storing lithium batteries poses a fire safety challenge is that they are not under constant observation, and a fire can spread quickly and unnoticed.

The typical incidence of damage involves the battery igniting and explosively emitting jets of flame and toxic smoke.

Summary of the possible causes of fire:

- mechanical damage (e.g. impact, fall)
- improper charging process
- deep discharging
- overheating due to high ambient temperature



CHARGING

CHARGING

STORAGE

Important: Lithium batteries are mentioned in German Regulation TRGS 510. Due to their higher hazard level, appropriate fire protection measures must be taken.

Most of the lithium battery-related fires studied in Germany occurred during the charging process. Safety specialists, fire brigades and property insurers are therefore paying closer attention to this threat.

Unfortunately, practical experience has shown us that there are many (deliberately or unintentionally) incorrect ways to charge batteries. Even a lithium battery which looks perfectly intact from the outside can already be damaged enough on the inside that adding electrical energy via the charger can cause a fire hazard. Charging stresses a lithium battery. Frequent charging, hard use and wear place a burden on the battery to the point that any charging process could be the last one.

Charged lithium batteries pose a higher fire hazard (cause) and burn more intensely (effect). Therefore, the charging process must never be underestimated and must always take place under supervision at a designated location. Charging in the workplace therefore requires a risk assessment which takes into account the risk to employees and the environment, as well as the building layout. These findings should be included in the fire prevention plan.

Overheating due to causes such as direct sunlight or heat build-up during charging must also be avoided.

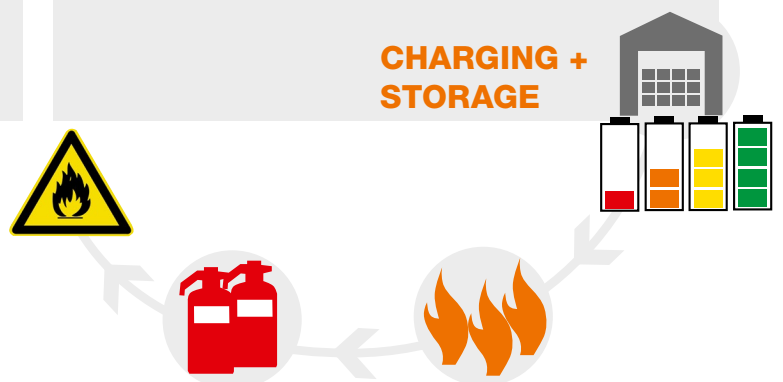
So far, there are no statutory regulations for the storage and supply of lithium batteries. Occupational safety obligations and, above all, insurance guidelines nevertheless mean that the information to be observed regarding the storage and operation of lithium batteries is just as comprehensive as that applicable to traditional hazardous materials storage.

VdS Guideline 3103 from the German Insurance Association (GDV) is a current source of important information about storing and supplying lithium batteries.

Storage also involves the danger of a nearby fire spreading to the lithium batteries. A small, extinguishable fire source can then become a major challenge to the fire brigade.

A risk assessment in combination with the right charging and storage solution effectively improves safety in the workplace. Not all lithium batteries are the same. Therefore, there is no "one size fits all" protection scheme. In addition, the information provided by the manufacturers of energy storage devices and battery-operated devices must be observed at all times. Suitable technical protective measures, such as tested transport containers, safety cabinets or even fire protection containers, always depend on the circumstances in the workplace.

CHARGING + STORAGE



Practical tip

CHARGE AND STORE LITHIUM BATTERIES SEPARATELY!

Storage and charging of lithium batteries

CEMO SAFETY NOTE

Safety rules for CHARGING

- Never charge in the storage area.
 - Maintain a clearance of several metres from combustible objects.
 - Never charge damaged or faulty batteries.
 - Avoid heat build-up during charging.
 - Use only the original charger.
 - Immediately disconnect the battery from the mains after charging.
 - Avoid charging overnight.
- Unsupervised charging poses a higher risk.

Fire extinguishing is still the most disputed topic regarding lithium batteries. Although small quantities of water can worsen the reactions of lithium-ion batteries, large quantities have a cooling effect and, in the ideal case, can interrupt the thermal runaway process.

The fire brigade also fight fires with plenty of water, which at least prevents the flames spreading to the surroundings. It is therefore crucial to alert the fire brigade as soon as possible so they can extinguish the fire.

Safety rules for STORAGE

- Protect against short circuit of the battery poles.
- Protect against mechanical damage.
- Separate storage, i.e. no mixed storage.
- When storing batteries inside buildings, maintain a distance of 2.5 m from other installations or store them in areas that are isolated in terms of fire prevention (e. g. fire protection containers, safety cabinets).
- Immediately dispose of damaged products properly, even in case of slight abnormalities.
- Do not expose directly and permanently to high temperatures.
- Train employees how to handle lithium batteries properly.
- Provide suitable fire extinguishers.

Damaged/defective batteries, prototypes or batteries for disposal require a hazard assessment and possibly additional protective measures.

Additional storage solutions for lithium batteries

STEEL CONSTRUCTION

F90 F-SAFE fire protection container
with DIBt certification



F90 F-SAFE fire protection container
with DIBt certification



Additionally available as a self container.



CONCRETE CONSTRUCTION

F90 F-SAFE fire protection storage cell



F90 F-SAFE fire protection storage
walk-in version



Ask about our guide to storing lithium batteries.