



HAZARDOUS MATERIALS STORAGE TECHNOLOGY



- "Walk-in" hazmat containers
- Hazmat containers with shelving
- Fully assembled hazmat storage
- "Walk-in" 90 Minute fire-proof cabinets
- Fire-proof containers with shelving
- Individual solutions

DENIOS ENGINEERING

Development, design, production

The following is provided by DENIOS ENGINEERING

Based on the top quality of our standard products, the DENIOS ENGINEERING team develop perfect individual customised solutions.

Benefit from optimally utilised synergies between series production and individual solutions, our solutions are always economically efficient - starting with a smart container solution right up to an exhaustive range of hazmat storage containers.

Manufactured to a high quality in our own factories, DENIOS provides the highest standard of safety and conformity to legislation.

Partnership in safety

As the manufacturer, we are completely familiar with all our products and their uses. We have the technical expertise, the expert legal knowledge and an enormous wealth of experience.

You will receive our full support during project planning and for the required approval procedures - on site, if required.

The engineering team at DENIOS, is up to any challenge and we will always provide you with the best solution for your needs, on time, tailor-made, state-of-the-art and fully compliant to current legislation.

We also remain at your side following assembly and installation - a long-term partnership which you can rely on.

Sound legal protection

All our products are subject to strict quality control and are covered by official regulations, approvals and documentation. "Made by DENIOS" guarantees a long product life and gives reliable legal protection.

Always there for you - guaranteed

DENIOS sales engineers guarantee competent and individual expert advice, optimal individual support and care and excellent delivery times.

DENIOS – "Working for a safer environment"



Responsibility

For the environment. For the people.



A manufacturing company has responsibilities - for the quality of its products; for consumers' and employees' safety; for the environment.

The company who does not exercise the highest caution, takes unnecessary risks.

To meet this increasing responsibility, DENIOS has supported enterprises in both Europe and the USA for more than 20 years.

DENIOS, as a manufacturer and supplier, is continually contributing to the safety of mankind and the environment. As a supplier of products which enable you to handle and responsibly store dangerous substances, and as an innovative service provider who is conversant with all aspects of the storage of hazardous substances, with its accumulated experience, DENIOS stands for holistic solutions.



Secure Hazmat Storage from the Experts

As the brand leader in Europe, DENIOS provides a complete range of Hazmat Storage Technology. Within this brochure you will find detailed information for "Walk-In" storage systems and containers, ie for pallet storage, with or without fire protection, and various heating and other accessories are also available.

Take advantage of DENIOS Know-how. Our highly skilled sales team and engineers will be happy to advise you in these specific areas either by telephone or on site.

From sumps to fire protection containers - we provide the largest range of Hazmat Storage available.

Walk-In Hazmat Storage, without fire protection

- Hazmat Storage MC Vario
- Hazmat Storage MC Vario, insulated
- WHG
Module-Container
- WHG insulated
Module-Container



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System Containers for Hazmat Storage without fire protection

- Basic-Stores
- System-Containers with shelving
- System-Containers, insulated



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Modular Hazmat Stores

- Hazmat Storage with easy access and covered gangways



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Fire Protection Containers

- EFP-Store
- BMC-X Containers
- BMC-M Containers
- BMC-S Containers



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Fire Protection Containers with Shelving

- Type FBM



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Personalised Consumer Service

- We produce Hazmat Storage Containers tailored to your individual requirements.
- Make an appointment with our skilled engineering or sales team - We look forward to assisting you.



Walk-in Hazmat Storage Container, without Fire Protection



Hazmat Storage Container – MC-Vario

Design

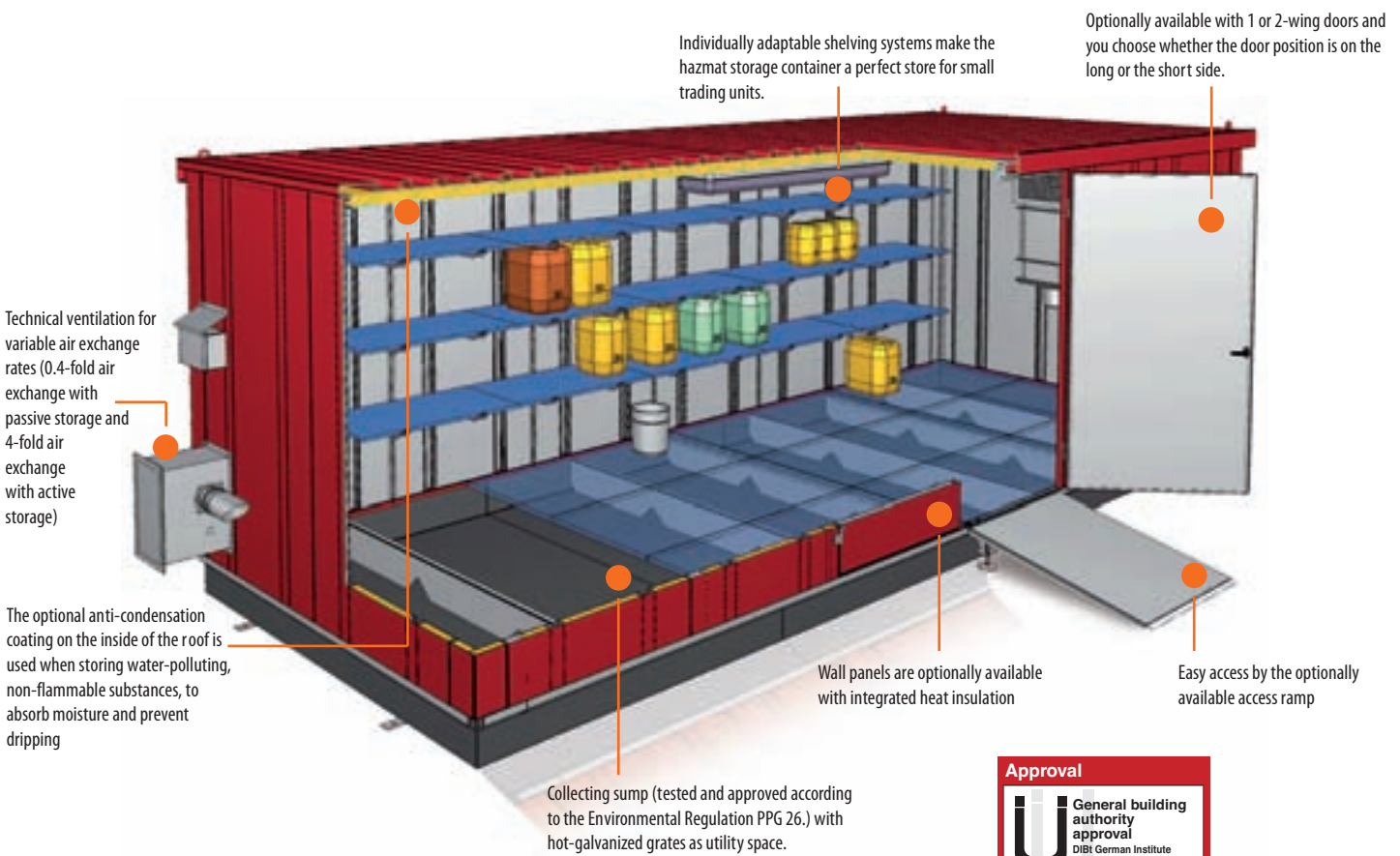
This innovative new container fulfils the storage needs of many of our customers, as we build the container according to their individual requirements.

This hazmat storage container, with its plain outside panelling, blends well with the existing architecture of many companies. You can choose the number and position of the doors, which can be built onto an allocated space, of 500mm per door, on any part of the container.

The galvanized design of the walls, the roof and the collecting sump (tested and approved according to the Environmental Regulation PPG 26.) offers the best corrosion protection. Optionally, the exterior surface can be painted in blue (RAL 5010) or any other preferred colour.

The choice is yours

- 7 sizes from 3 to 17 m² storage space
- Internal height of 2050 mm (heat insulated version)
- 2 types of door
- Manufactured from 2 types of materials
- Insulation and heating, if required
- Lifting eyes*, as standard, for ease of transportation



MC-Vario	Special Equipment		DENIOS ENGINEERING
Product characteristics	Standard equipment	Optional	Additional equipment
<ul style="list-style-type: none"> - Approval according to Environmental Regulation PPG 26. - Walk-in storage container with shelving - Galvanized surface - robust, corrosion protected steel design - Fully-assembled 	<ul style="list-style-type: none"> - Arrangement of doors is freely selectable. - 1 or 2-wing doors - galvanized collecting sump and grids - Lifting eyes* 	<ul style="list-style-type: none"> - Variable shelving system - Narrow-meshed grids allow use of transportation trolleys - Windows or continuous rooflight - Surface can be painted in any preferred colour - Lighting - Ventilation system 	<ul style="list-style-type: none"> - "Frost-free" version for sensitive substances - Optimal heat insulation - Heating systems

A versatile range of accessories is available to meet your requirements on further individual equipment (see page 28-31).

Walk-in Hazmat Storage Container, without Fire Protection



Hazmat Storage Container – MC-Vario

Extended range of accessories

The individual design of your hazmat storage container MC Vario is completed by an extended range of accessories. That means, for instance, built-in shelving, wall lamps, windows and skylights are available.

For universal use

Do you want to store temperature controlled hazardous substances? Then, we would be able to supply a heat-insulated version of the MC Vario. If you want to store flammable liquids, a technical ventilation system can be integrated.



MC-Vario MC 2310 type hazmat storage container, galvanized, with 2-wing doors on the long side, (optional shelving available)



The MC-Vario hazmat storage containers are suitable for hazardous substances of the following classes:

MC-Vario MC 4320 type hazmat storage container, painted, with 2-wing doors on the long side, (optional shelving available)



All types are optionally available as steel sheet structure or heat-insulated structure.

Type	Storage space (m ²)	Internal dimensions (mm)			External dimensions (mm)			Sump capacity (l)	Weight (kg)
		Width	Depth	Height	Width	Depth	Height		
MC 2310	2,8	2,240	1,240	2,100	2,480	1,340	2,460	500	675
MC 2520	5,0	2,240	2,240	2,100	2,480	2,340	2,460	1,000	920
MC 3320	7,0	2,240	3,240	2,100	2,480	3,340	2,460	1,500	1,175
MC 4320	9,5	2,240	4,240	2,100	2,480	4,340	2,460	1,900	1,470
MC 4330	11,5	2,740	4,240	2,100	2,980	4,340	2,460	2,400	1,655
MC 6320	14,0	2,240	6,240	2,100	2,480	6,340	2,460	2,900	1,950
MC 6330	17,0	2,740	6,240	2,100	2,980	6,340	2,460	3,500	2,190

Please find more information about all standard designs in the main catalogue or visit www.denios.co.uk.

Walk-in Hazmat Storage Container, without Fire Protection



Module Container Type WHG

WHG series in detail

Safe storage of water-polluting and flammable liquids

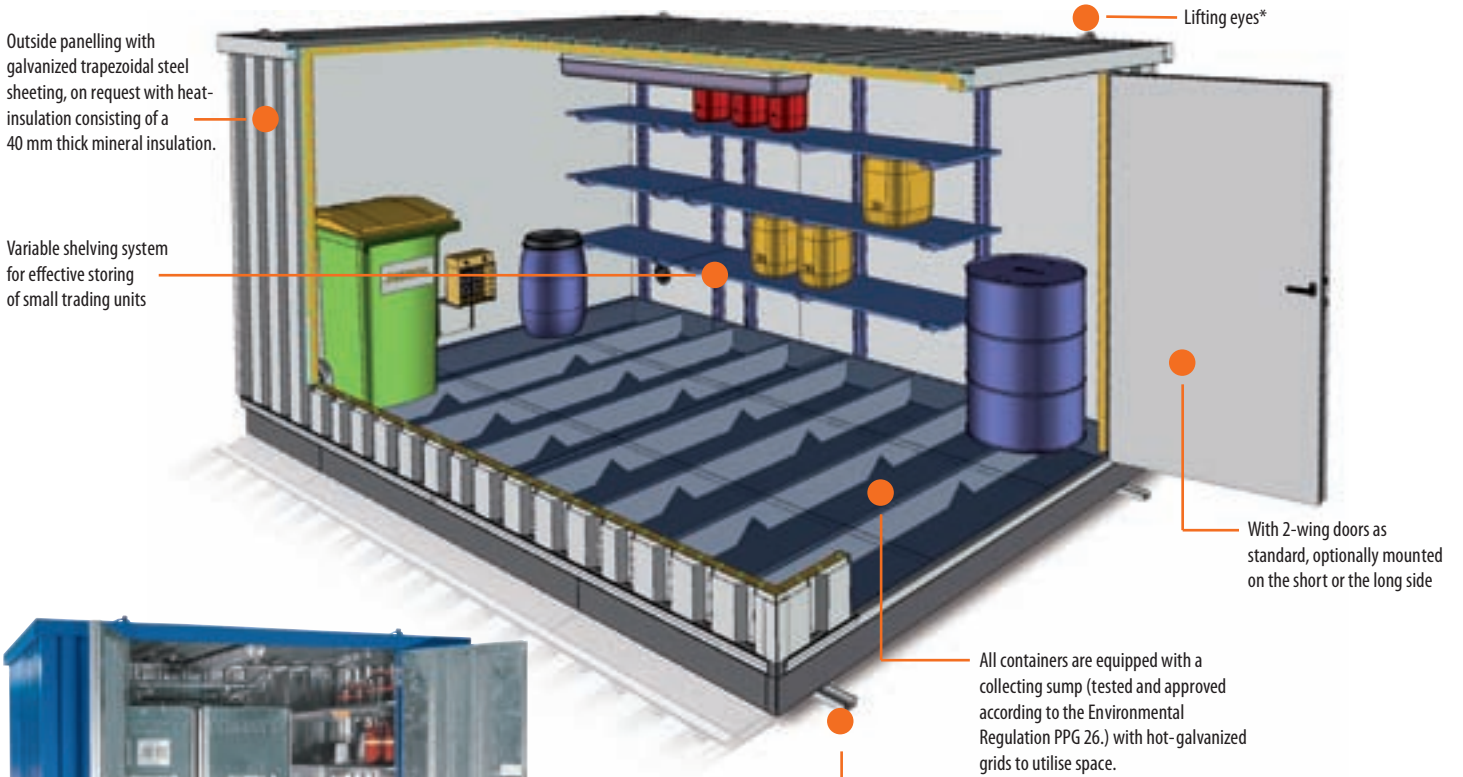
The DENIOS module containers type WHG are storage systems for storing water-polluting and flammable liquids (R10-R12). Their compact size makes it possible to use them universally to meet the customer's requirements.

Design

The module containers are ideally suitable for storing small containers, 205-litre drums and single IBCs. The screwed steel sheet structure consists of a hot galvanized sump with grids together with galvanized steel wall and roof elements. Galvanized spill guards, mounted all around the container, protect from splashes during decanting. As an optional extra, the module containers can be delivered in a painted version.

The choice is yours

- 5 sizes from 1,5 to 15 m² storage space
- On request, with extra heat insulation or self-ventilating design for the storage of flammable liquids
- With 2-wing doors as standard, optionally on the short or the long side
- Manufactured from two types of materials
- Extended range of accessories



Module Container WHG 320, painted, with 2 wing doors and shelving



WHG	Special Equipment		DENIOS ENGINEERING
Product characteristics	Standard equipment	Optional	Additional equipment
<ul style="list-style-type: none"> - Approval according to the Environmental Regulation PPG 26. - Steel structure - Galvanized surface - Freely selectable arrangement of doors 	<ul style="list-style-type: none"> - 2-wing doors - Galvanized collecting sump with grids - Lifting eyes* - All around spill guards 	<ul style="list-style-type: none"> - Grids for transportation trolleys - Anti-condensation coating - Lighting - Ventilation system 	<ul style="list-style-type: none"> - "Frost-free" version for sensitive substances - Version for flammable liquids, built with a safety distance

*Cabinets only to be lifted when empty.

Walk-in Hazmat Storage Container, without Fire Protection



Module Container Type WHG

Equipment for many applications

To protect your valuable stock from frost, heat-insulated module containers are available with integrated heating. In addition, various heating systems, ventilation systems, an explosion-proof version (for active storing of flammable liquids) are also available.



Module Container WHG 320, painted, with 2-wing doors



Module Container WHG 360, painted, with 2-wing doors on the short side and built-in shelving



Self-ventilating module container WHG 250, painted, with built-in shelving

Module containers WHG are suitable for hazardous substances of the following classes:



All types are optionally available as steel sheet structure or heat-insulated structure.

Type	Storage space (m ²)	Internal dimensions (mm)			External dimensions (mm)			Sump capacity (l)	Weight (kg)
		Width	Depth	Height	Width	Depth	Height		
WHG 210	1,5	2,000	830	2,000	2,220	1,090	2,350	300	360
WHG 320	5,5	2,830	2,000	2,000	2,990	2,270	2,350	1,000	750
WHG 250	9,5	4,830	2,000	2,000	5,100	2,200	2,350	1,300	1,280
WHG 340	10,0	3,830	2,590	2,000	4,100	2,800	2,350	1,300	1,200
WHG 360	15,0	5,830	2,590	2,000	6,000	2,800	2,350	2,000	1,650

Please find more information about all standard designs in the main catalogue or visit www.denios.co.uk.

Storage Container for Hazardous Materials, without Fire Protection



Basic-Store storage container

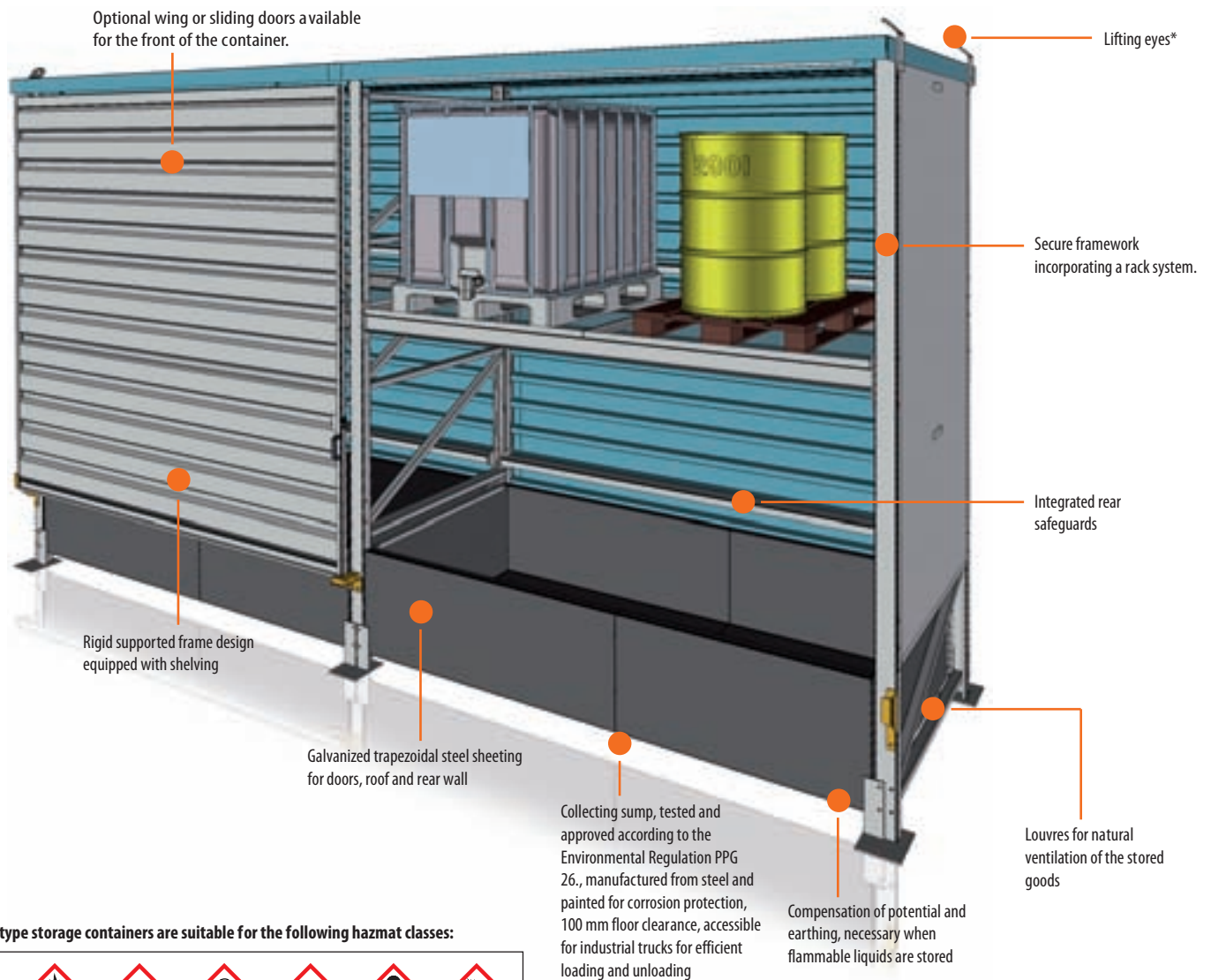
Product profile

DENIOS provides a suitable solution for all your requirements. With our DENIOS Basic Store, we offer you safety and comfort for your hazardous materials storage at a reasonable price/performance ratio.

A maximum of 32 drums or 8 IBCs can be stored reliably and efficiently in this storage container. It has an easy and fast access for fork lift trucks and the Basic Store can be equipped with either lockable wing or sliding doors on request.

Design

The system is based on a very rigid support frame design and is manufactured from galvanized steel sheets to provide weather protection. The integrated collecting sump provides the necessary environmental protection and DENIOS supplies a design which is tested and approved according to the Environmental Regulation PPG 26. The shelving is designed for carrying heavy loads of 3,000 kg (drums) and 3,600 kg (IBCs), which confirms the high stability and quality of the whole system.



Basic-Store type storage containers are suitable for the following hazmat classes:



Basic-Store	Standard	Equipment	Further possibilities
Product characteristics <ul style="list-style-type: none"> - Approval according to the Environmental Regulation PPG 26. - Can be accessed by fork lifts - Supplied fully-assembled 	<ul style="list-style-type: none"> - Collecting sump made of steel - Lifting eyes* - Rigid rear stopping safeguard 	<ul style="list-style-type: none"> - Lockable wing or sliding doors - Sump made of plastics / stainless steel - Compensation of potential - Increased collecting capacity up to 4,600 litres 	

*Cabinets only to be lifted when empty.

Storage Container for Hazardous Materials, without Fire Protection



Basic-Store storage container

The choice is yours:

The Basic-Store storage container with shelving, is available in two widths, in either drum or IBC versions. With a shelf width of 2,700 mm you can store drums on Euro/chemical pallets, or IBCs, with space-saving efficiency. To be able to adapt to different storage container sizes, the Basic-Store storage containers are available with different shelf heights, in combination with the appropriate sump collecting capacity. Larger sump capacities up to 4,600 litres are also available on request.

Product characteristics:

- Excellent price/performance ratio
- Can be installed outdoors
- Simple and robust design



Basic-Store BS 30-D type storage container for drums with wing doors



Basic-Store BS 60-K type storage container for IBCs and drums, with sliding doors

Rack storage container type "Basic Store", available with lockable wing or sliding doors

Types	Storage capacity	Internal dimensions (mm)			External dimensions (mm)			Sump capacity (l)	Weight (kg)
		Shelf width	Shelf depth	Shelf height	Width	Depth	Height		
BS 30-D	6 EP or 4 CP	2,700	1,280	2 x 1,260	2,880	1,600	3,160	580	790
BS 60-D	12 EP or 8 CP	2 x 2,700	1,280	2 x 1,260	5,670	1,600	3,160	1,160	1,415
BS 30-K	4 IBCs	2,700	1,280	2 x 1,450	2,880	1,600	3,670	1,300	920
BS 60-K	8 IBCs	2 x 2,700	1,280	2 x 1,450	5,670	1,600	3,670	2,600	1,650

EP=Euro-Pallet (800 x 1,200 mm), CP=Chemical-Pallet (1,200 x 1,200 mm), IBC=Tank-Container (1,020 x 1,220 x 1,200 mm),

Please find more information about all standard designs in the main catalogue or visit www.denios.co.uk.

Storage Container for Hazardous Materials, without Fire Protection



System-Container type storage container

Storage of hazardous material - using Drum & IBC Storage Containers

This efficient Container range is approved in practice. For more than 20 years, it fulfils our customer's most diverse requirements throughout Europe and is both safe and reliable.

Drum & IBC Storage Containers are designed for the optimal storage of drums, goods on pallets and IBCs. A range of different models are perfectly adapted for a variety of hazardous material container sizes. DENIOS Drum & IBC Containers offer a safe storage solution which has been developed for minimum investment costs per storage space.

Product characteristics:

- Approved and rigid steel frame structure, robust and reliable for daily industrial routines
- Tested and approved according to Environmental Regulation PPG 26.
- Suitable for water-polluting, flammable/inflammable liquids and a heat-insulated version is available for the frost-free storage of goods
- Due to the range of different standardized types, you have a wide choice of storage options
- Optional wing, roller or sliding doors are available

DENIOS System-Container – General Information

To provide you with a rigid and durable storage system, the DENIOS Drum & IBC Storage Containers are all designed with a welded steel frame structure. The wall and roof are covered with galvanized high-quality metal sheets and are painted to ensure optimal corrosion protection. The collecting sump, firmly welded to the frame, provides protection for the environment and groundwater.



Drum & IBC Storage Container 2G 314.0, with wing doors for compact storage of 205 litre drums



Drum & IBC Storage Container 2K 514.0, with sliding doors and with optimal dimensions for storing IBCs.

Storage Container for Hazardous Materials, without Fire Protection



Drum & IBC Storage Container

Store hazardous substances in compliance with environmental requirements.

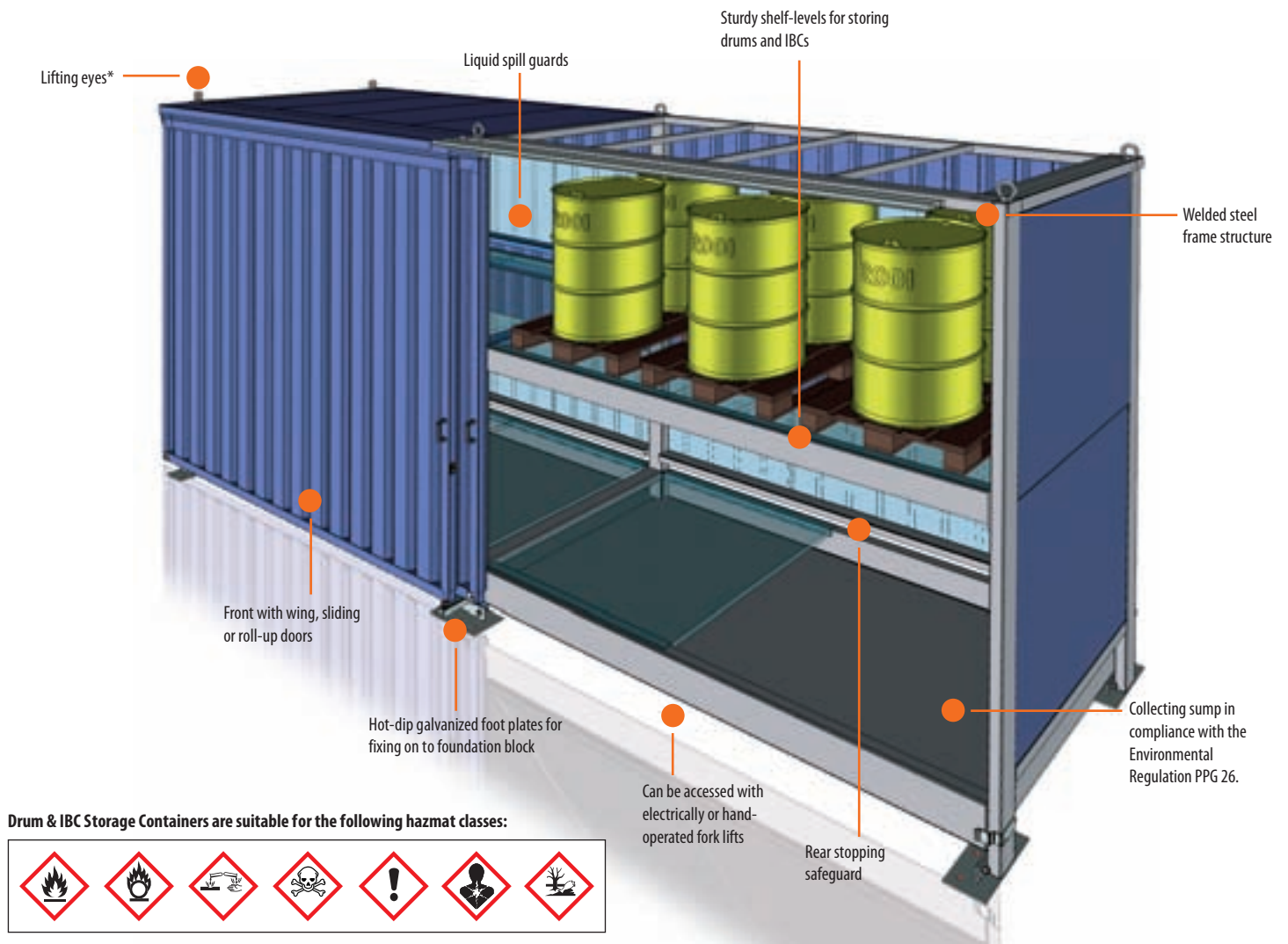
Drum & IBC Storage Containers made by DENIOS are designed for water-polluting substances for all water endangerment categories. If a higher resistance of sump is required than the standard steel sumps provide, inserts manufactured from stainless steel or plastic are available.

An identical container version has also been approved for storing flammable or inflammable liquids. This version provides a natural ventilation system installed as standard, for the necessary air change for passive storage. For the active storage of goods, an exhaust air system (see Accessories on page 28) can be added.

If a safety distance to other buildings cannot be kept, we recommend our fire protection container, as shown on page 22.

All DENIOS Drum & IBC Storage Containers can also be delivered in a heat-insulated version for storing frost-sensitive substances. These heat-insulated Drum & IBC Storage Containers, manufactured by DENIOS, are equipped with an efficient heat insulation of double-wall PU- or rockwool panels.

Optional heating systems are available for this container, which can be supplied by electrical power, hot water or saturated steam.



Drum & IBC Storage Containers are suitable for the following hazmat classes:



System-Container	Standard	Equipment	DENIOS ENGINEERING Additional equipment
Product characteristics <ul style="list-style-type: none"> - Approval according to the Environmental Regulation PPG 26. - Steel profile structure - Can be accessed by fork lift truck - Supplied fully-assembled 	<ul style="list-style-type: none"> - Collecting sump made of steel - Lifting eyes* - Rigid rear stopping safeguard - Completely painted version - Galvanized foot plates 	Further possibilities <ul style="list-style-type: none"> - Double design depth - Lockable wing, roll-up or sliding doors - Sump made of plastics / stainless steel - Extendable drum platforms - Compensation of potential - Surface painted in a choice of colours 	<ul style="list-style-type: none"> - Cooling unit/ air conditioning - Heat insulation - Heating system - Special dimensions - "Frost-free" version for temperature-sensitive substances

A versatile range of accessories is available to meet your requirements on further individual equipment (see page 28-31).

*Cabinets only to be lifted when empty.

Storage Container for Hazardous Materials, without Fire Protection



Drum Storage Container

Efficient storage of single drums and goods on pallets

For storing drums we recommend our **series G and P**.

Series G is especially designed for storing single drums. With a shelf width of 3,000 mm, there are 5 drums in two rows on each shelf.

If you store drums on Euro or Chemical pallets, we are recommending the **P series**. In this version, you will get a shelf width of 3,900 mm so that 3 Chemical or 4 Euro pallets can be loaded next to each other.

The shelf height is 1,250 mm for all Drum Storage Containers giving enough space for the drums, the pallets and the necessary clearance for loading and unloading.

The choice is yours:

- Shelf widths of 3,000 or 3,900 mm
- up to 3 shelving levels
- Lengths up to 8 metres as standard
- Varying widths for loading from one side or from both sides
- Front with wing, roll-up or sliding doors
- max. storage capacity for 144 drums per container



System containers double depth accessible from both sides

Shelving with double design depth for loading from both long sides

Excerpt from our complete program:

Types	Storage capacity	Internal dimensions (mm)			External dimensions (mm)			Sump capacity (l)	Weight (kg)
		Shelf width	Shelf depth	Shelf height	Width	Depth	Height		
		FB	FT	FH	B	T	H		
2G 314.0	6 EP or 4 CP	3,000	1,310	2 x 1,250	3,170	1,460	3,020	750	1,300
3G 314.0	9 EP or 6 EC	3,000	1,310	3 x 1,250	3,170	1,460	4,410	750	1,800
2P 414.0	8 EP or 6 EC	3,900	1,310	2 x 1,250	4,070	1,460	3,020	1,100	1,600
3P 414.0	12 EP or 9 CP	3,900	1,310	3 x 1,250	4,070	1,460	4,410	1,100	2,200
2G 614.0	12 EP or 8 CP	2 x 3,000	1,310	2 x 1,250	6,260	1,460	3,020	1,500	2,400
3G 614.0	18 EP or 12 CP	2 x 3,000	1,310	3 x 1,250	6,260	1,460	4,410	1,500	3,700
2P 814.0	16 EP or 12 CP	2 x 3,900	1,310	2 x 1,250	8,060	1,460	3,020	2,100	2,900
3P 814.0	24 EP or 18 CP	2 x 3,900	1,310	3 x 1,250	8,060	1,460	4,410	2,100	4,100

EP=Euro-Pallet (800 x 1,200 mm) / CP=Chemical-Pallet (1,200 x 1,200 mm) / IBC=Tank-Container (1,020 x 1,220 x 1,200 mm) **All System Containers are also available with double design depth. This is the way to increase your storage capacity by 100%. Please find more information about all standard designs in the main catalogue or visit www.denios.co.uk.**

Storage Container for Hazardous Materials, without Fire Protection



IBC Storage Containers

Optimal Storage of IBCs

The **K series** has been designed for storing IBCs. With shelf widths of 2,700 or 3,380 mm, you will be provided with solutions which can accommodate 4 or 6 IBCs per shelf. The shelf height of 1,500 mm makes it possible to safely store containers with special dimensions or with fixed dispensing units etc. It is also possible to store single drums or drums on pallets.

The choice is yours:

- Shelf widths of 2,700 or 3,380 mm
- Up to 2 shelving levels
- Lengths of max. 7 metres as standard
- Varying widths for loading from one side or from both sides
- Front with wing, roll-up or sliding doors
- max. storage capacity for 24 IBCs per container



IBC storage container 2K 414.0, with wing doors



2K 714.0 type IBC Storage Container with sliding doors



Excerpt from our complete program:

Types	Storage capacity	Internal dimensions (mm)			External dimensions (mm)			Sump capacity (l)	Weight (kg)
		Shelf width	Shelf depth	Shelf height	Width	Depth	Height		
		FB	FT	FH	B	T	H		
1K214.0	2 IBCs	2,700	1,310	2,570	2,870	1,460	3,100	1,000	1,320
1K414.0	3 IBCs	3,380	1,310	2,570	3,550	1,460	3,000	1,180	1,500
2K214.0	4 IBCs	2,700	1,310	2 x 1,500	2,870	1,460	3,650	1,180	1,400
2K414.0	6 IBCs	3,380	1,310	2 x 1,500	3,550	1,460	3,590	1,180	1,600
1K514.0	4 IBCs	2 x 2,700	1,310	2,570	5,660	1,460	3,100	2,000	2,500
1K714.0	6 IBCs	2 x 3,380	1,310	2,570	7,020	1,460	3,000	2,000	2,900
2K514.0	8 IBCs	2 x 2,700	1,310	2 x 1,500	5,660	1,460	3,650	2,400	2,650
2K714.0	12 IBCs	2 x 3,380	1,310	2 x 1,500	7,020	1,460	3,590	2,400	3,100

EP=Euro-Pallet (800 x 1,200 mm), CP=Chemical-Pallet (1,200 x 1,200 mm), IBC=Tank-Container (1,020 x 1,220 x 1,200 mm), **All System Containers are also available with double design depth. This is the way to increase your storage capacity by 100%. Please find more information about all standard designs in the main catalogue or visit www.denios.co.uk.**



Drum & IBC Storage Container - heat insulated

Special design

The principle design of the Drum & IBC Storage Container (pages 12 to 15), which has been approved for many years, is also used for heat-insulated storage containers.

Its rigid and welded steel frame structure is covered with special panels. These 50 mm thick panels are insulated with mineral or rockwool.

The system is equipped with an electrical ribbed pipe heating as standard or versions using saturated steam, heat transfer oil or heating water as an energy source are available if required.

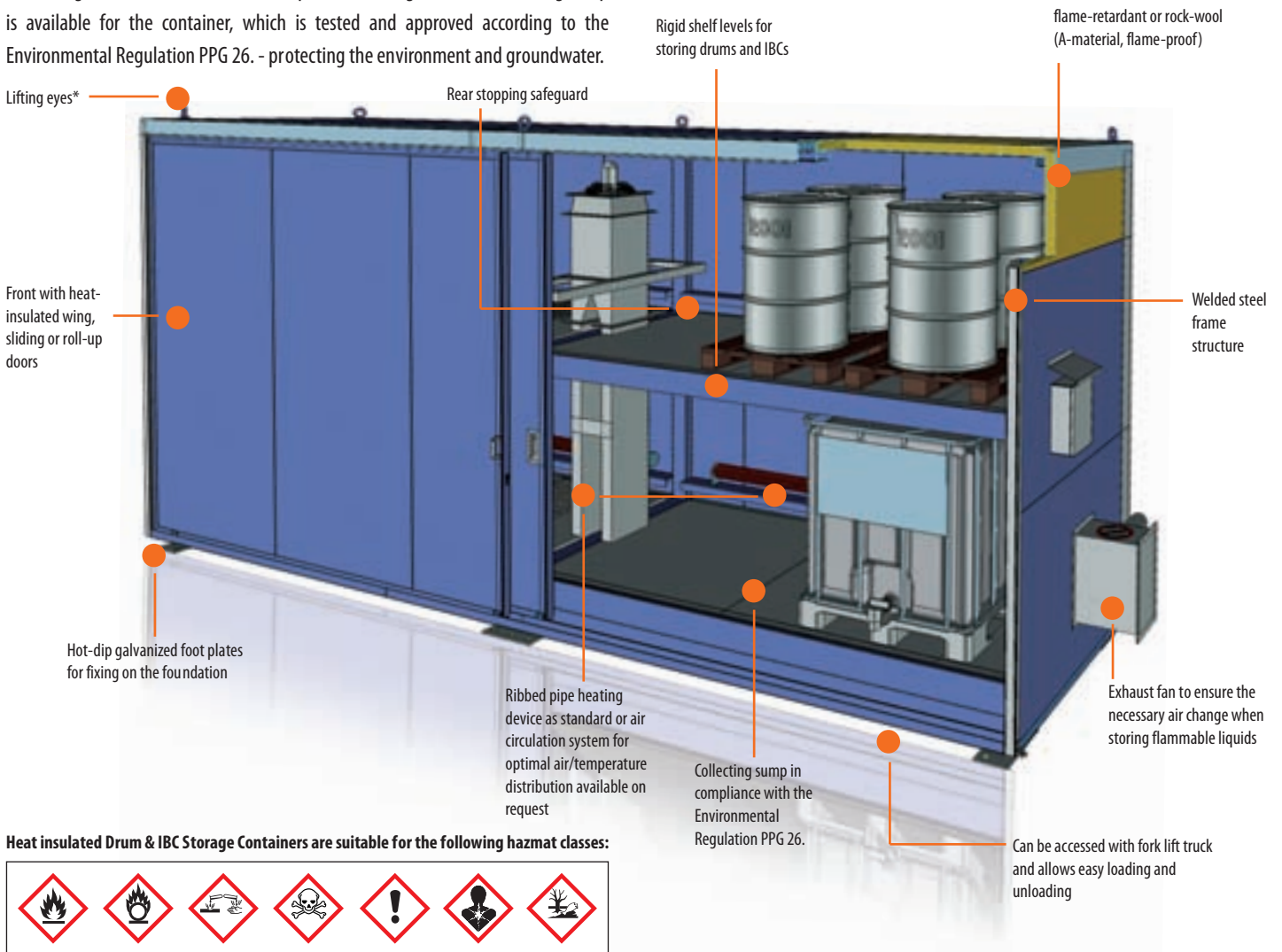
For storing hazardous substances in compliance with regulations, a collecting sump is available for the container, which is tested and approved according to the Environmental Regulation PPG 26. - protecting the environment and groundwater.

Product profile

Heat-insulated Drum & IBC Storage Containers are often used for frost-free storage of temperature-sensitive materials. Additional variants with a higher heating power, cooling units or air conditioning systems are available.

Depending on the requirements for the safe storage of your valuable goods - DENIOS offers the perfect solution.

Efficient heat insulation, with 50 mm thick mineral wool B-material insulating panels offer a high level of protection.



Heat insulated Drum & IBC Storage Containers are suitable for the following hazmat classes:



Drum & IBC Storage Container	Equipment		DENIOS ENGINEERING
Product characteristics	Standard	Further possibilities	Additional equipment
<ul style="list-style-type: none"> - Approval according to the Environmental Regulation PPG 26. - Steel profile structure - Heat insulation and electrical heating system - Can be accessed by fork lifts - Supplied fully-assembled 	<ul style="list-style-type: none"> - Collecting sump made of steel - Lifting eyes* - Rigid rear stopping safeguard - Completely painted version - Galvanized foot plates 	<ul style="list-style-type: none"> - Double design depth - Lockable wing or sliding doors - Roll-up door - Sump made of plastics / stainless steel - Extendable drum platforms - Compensation of potential - Surface painted in a choice of colours 	<ul style="list-style-type: none"> - Heating with saturated steam, hot water, heat transfer oil - Explosion protection - Special dimensions - Thermo technology for temperatures from -25°C up to 200°C please refer to our denios thermo technology brochure

A versatile range of accessories is available to meet your requirements on further individual equipment (see page 28-31).

*Cabinets only to be lifted when empty.



Drum Storage Container - heat insulated

Product characteristics:

- Frost-free storage, external temperature min. -15 °C, internal temperature at least. +5 °C
- Available with either wing, sliding or roller doors
- Explosion protection and non-flammable insulation materials for storing flammable liquids

Heating, cooling, melting, drying . . .

We are also able to offer you many solutions which require temperatures up to +300 °C or -25 °C. For further details regarding DENIOS products see our "Thermo-Technology" brochure (see page 35) or contact the DENIOS engineering team.



2G 314.ISO type heat-insulated Drum Storage Container with integrated electrical ribbed pipe heating



2G 614.ISO type heat-insulated Drum Storage Container with integrated electrical circulating air heating



The controlled air guidance ensures optimal heat distribution within the container.

Excerpt from our complete program:

Type	Storage capacity	Internal dimensions (mm)			External dimensions (mm)			Sump capacity (l)	Weight (kg)
		Shelf width FB	Shelf depth FT	Shelf height FH	Width B	Depth T	Height H		
2G 314,ISO	6 EP or 4 CP	3,000	1,310	2 x 1,250	3,170	1,460	3,115	750	1,300
2K 414,ISO	6 IBCs	3,380	1,310	2 x 1,500	3,550	1,460	3,685	1,180	1,600
2P 414,ISO	8 EP or 6 EC	3,900	1,310	2 x 1,250	4,070	1,460	3,115	1,100	1,600
2G 614,ISO	12 EP or 8 CP	2 x 3,000	1,310	2 x 1,250	6,260	1,460	3,030	1,500	2,400
2K 714,ISO	12 IBCs	2 x 3,380	1,310	2 x 1,500	7,020	1,460	3,590	2,400	2,900
2P 814,ISO	16 EP or 12 CP	2 x 3,900	1,310	2 x 1,250	8,060	1,460	3,020	2,100	2,900

EP=Euro Pallet (800 x 1,200 mm) / CP=Chemical Pallet (1,200 x 1,200 mm) / IBC=Tank container (1,020 x 1,220 x 1,200 mm), *transport-depending divided version

All System-Containers are also available with double design depth. This is the way to increase your storage capacity by 100%, if you have enough space for loading from both sides.



Storage facility for hazardous substances with roofed passageways and driveways

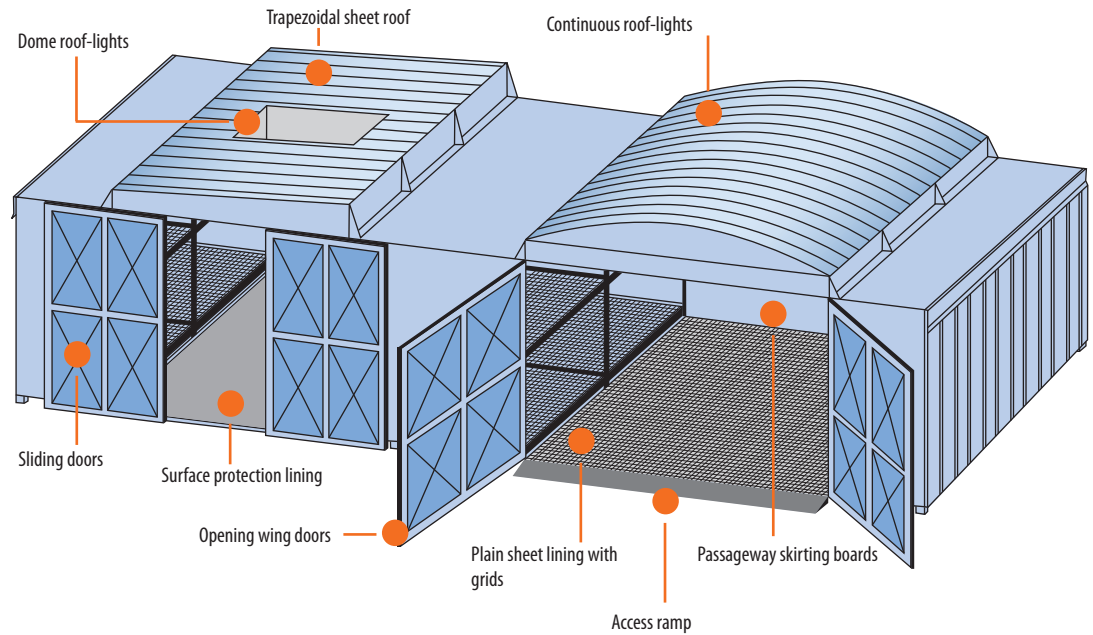
Safe storage of hazardous materials

For modern companies, the responsible protection of our environment is an elementary company objective and an important factor for success.

The continuously growing number of statutory regulations and guidelines and their frequent amendments, as well as the increasing globalisation of the legal environment, dominate operational practices more and more.

The larger the amount of hazardous material to be stored, the more complex the requirements which have to be met. Now you can benefit from DENIOS as a competent partner when you need to meet these requirements.

This diagram shows a typical DENIOS Container Insulation



Experience and know-how

For more than 20 years, DENIOS has been developing, producing and installing individual solutions for the storage of hazardous substances in compliance with European regulations. Our experts offer:

- Advice and planning
- Approval procedures
- Project management
- Final inspection and commissioning
- Service

DENIOS offers a complete package solution - everything from one source. This is presented in detail on pages 18 - 21.



Drum & IBC Storage Containers with collection sumps and continuous roof-lights above the walk-in areas designed with integrated work space.

Bespoke system design

DENIOS offers tailor-made container systems for storing large quantities of hazardous materials, in accordance with current regulations, using shelving solutions shown on pages 12 - 17. We are also able to integrate fire protection systems (page 22) to fit precisely into the desired facility.

DENIOS Container facilities are suitable for compact and practice-orientated storage.

Advantages

- Minimised investment costs per storage unit
- Optimised dimensions for direct storage of drums, pallets and IBCs
- Wing, sliding or roller doors
- Heat protection
- Fire protection
- Water systems for production and fire fighting
- Roofed driveways and order picking areas
- Flexible sump capacities (100% in water protection areas)
- Different storage and fire protected areas possible



Storage facility for hazardous substances with roofed passageways and driveways

Versions

The modular design of individual system containers meets your every-day business requirements with an extensive range of versions and accessories.

The following optional equipment is available:

- Plastic/stainless steel sump inserts, for the safe storage of aggressive media
- Sumps with 100% collection capacity for water protection areas
- Insulation for temperature controlled storage
- Natural ventilation for storing flammable liquids

Advice and planning

- Analysis of requirements
- Technical advice and conceptional proposals
- Detailed design

Approval procedures

- Proficient in current legislation
- Negotiation support with authorities
- Execution of approval procedures

Project processing

- Professionalism of experienced project engineers
- Approval of drawings, circuit diagrams & documentation
- Management of production and assembly
- Precise and on time
- DENIOS technicians assemble all individual components



Temporary storage for approx. 192 tonnes of hazardous waste which requires monitoring.

Final inspection and commissioning

- Customer service
- After-Sales-Service
- Maintenance



Service

From the requirements being determined in the first meeting, during the approval procedures, to putting your store into service, you will be supported by the expert DENIOS ENGINEERING Team.

Cost control

Our project managers ensure there are no nasty surprises for you and you can rely on our offers..



Hazmat stores consisting of system containers equipped with continuous roof-lights above the drive-in /walk-in area.



Large storage facility for about 400 tonnes of hazardous material in drums, IBC/ASF and further special containers, completely roofed, with efficient accessibility to all containers.



Bespoke solution - drum & IBC storage containers combined with roofs and integrated continuous roof-lights.



Large storage facility for new and used goods with a capacity of 2 x 72 tonnes of flammable or toxic liquids.



EU-Fire-Protection-Container Type EFP-Store

Fire protection with an economic touch

Often fire protection is an important factor when storing hazardous products which need to comply with regulations, and at the same time keep costs to a minimum. Denios offers a range of EU Fire-Proof Containers type EFP. These are available in four standard sizes and offer an excellent price/quality ratio and ensure your fire protection requirements are covered.

DENIOS also offers an extensive range of accessories, developed for use with the Fire Protection Containers.

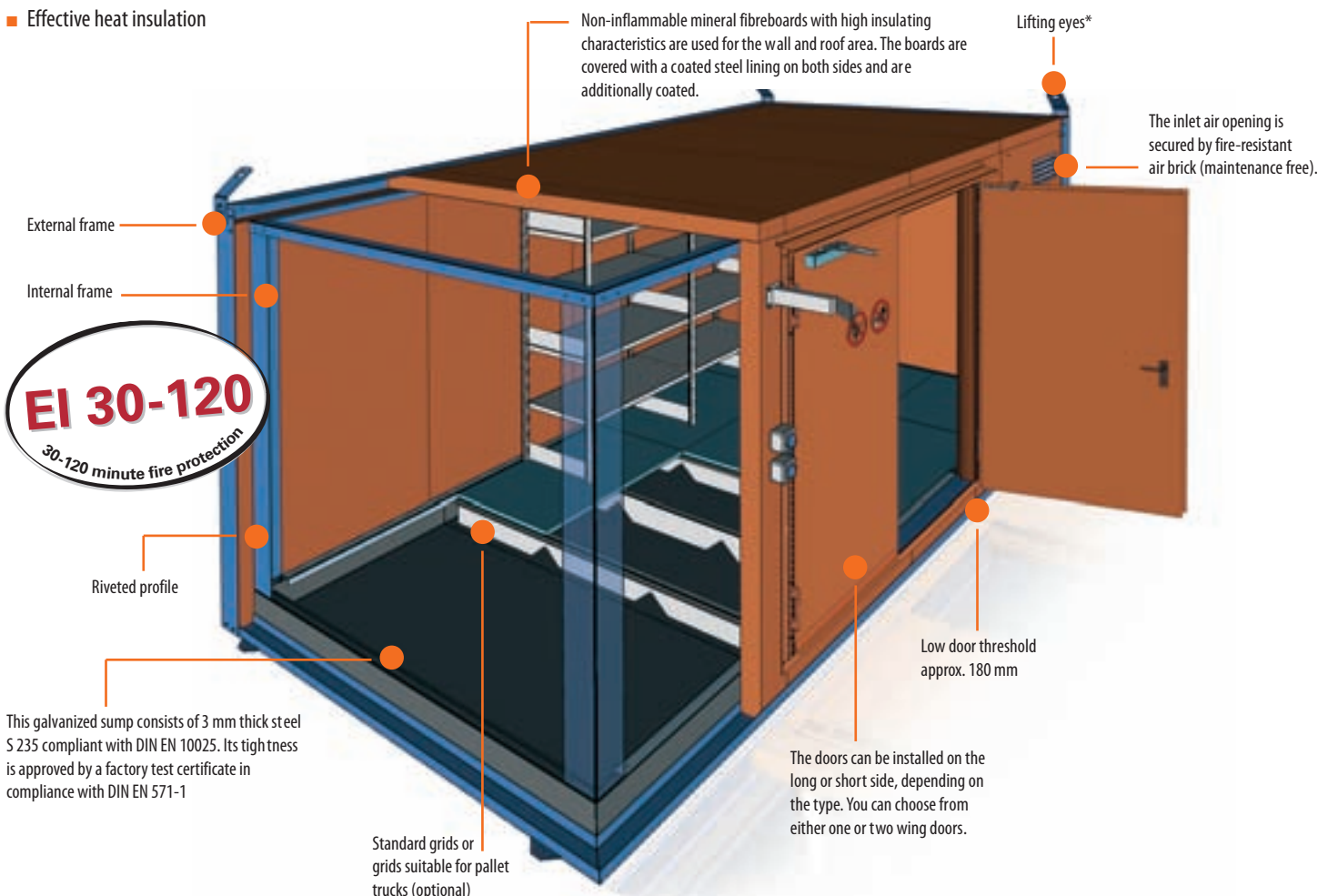
Product characteristics:

- European approval for panels (up to EI 120) acc. to EN 13501-2
- European approval for doors (up to EI 120) acc. to EN 1634-1
- Effective heat insulation

Fire-protection compliance is ensured from EI 30 to EI 120 and up to EN 13501-2.

This means you have fire protection systems which withstand a fire for 30, 60, 90 or even 120 minutes. Due to its design, the EFP store can easily be moved at any time and is suitable for indoor or outdoor installation.

The new directive EN 13501-2 has not been implemented everywhere in Europe and there are also country-specific regulations which have to be met. The competent specialist consultants at DENIOS would be pleased to support you with the selection of the appropriate fire protection storage and the necessary 30, 60, 90 or 120 minute (EI 30 to EI 120) fire protection.



EU-Container EFP Product characteristics	Equipment	Further possibilities	DENIOS ENGINEERING Additional equipment
<ul style="list-style-type: none"> - Roof, side walls and doors made of Approved fire-resistant panels - Separated internal and external frames - Sump with test certificate - Robust steel structure - Walk-in store for trading units 	<ul style="list-style-type: none"> - 1 or 2-wing doors - Arrangement of doors is freely selectable. - Steel sump - Galvanized grids - Lifting eyes* 	<ul style="list-style-type: none"> - Variable shelving system - Lighting - Explosion protection - Grids passable by lifting carriage - Surface varnishing with special paints - Ventilation system - Door retaining device - Access ramp 	<ul style="list-style-type: none"> - Extraction equipment - Heating system - Cooling system

A versatile range of accessories is available to meet your requirements on further individual equipment (see page 28-31).

*Cabinets only to be lifted when empty.

Walk-in Fire-Protection-Container



EU-Fire-Protection-Container Type EFP-Store

Fire resistant design with spacious storage capacity

The use of a double steel frame design for the internal and an external frame provides reliable safety and stability in case a fire occurs. Due to its high internal height, this robust fire protected store offers ample space for storage of various small trading units, drums or 1,000-litre containers. The EFP store is available in 4 standard sizes. The design of this fire-protection container allows the interior fittings to be adapted to operational requirements, e.g. additional components such as lighting, shelving or completely explosion-protected equipment.

EU-Fire-Protection-Container Type EFP-Store are suitable for storing the following classes of hazardous material:



EU fire protection container type EFP Store 240. Available with built in racking and a combination of drum and mixed size products



EFP-Store Type ES 600-L, with optional access ramp and built-in shelving as combined storage for drums and small containers

Type	Storage capacity (m ²)	Internal dimensions (mm)			External dimensions (mm)			Sump capacity (l)	Weight (kg)
		Width	Depth	Height	Width	Depth	Height		
EFP Store 240	5.0	2,180	2,200	2,155	2,415	2,515	2,460	750	1,250
EFP Store 360	7.5	2,180	3,400	2,155	2,415	3,715	2,460	1,200	1,750
EFP Store 480	10.0	2,180	4,600	2,155	2,415	4,915	2,460	1,600	2,100
EFP Store 600	13.0	2,180	5,800	2,155	2,415	6,110	2,460	2,000	2,500



Fire protection store type BMC-overview

Secure storage for dangerous substances - perfect for your requirements.

Choose from an excellent range of BMC fire protection stores:

The European EFP fire protection container offers four sizes to choose from, however the BMC range has 16 sizes, from compact one drum storage up to a 21,5 m² storage area. A variety of accessories are also available which allow an optimal and individual container perfectly suited to your requirements.

General information

The DENIOS fire proof containers from the BMC range - BMC-S, BMC-M and BMC-X, are "walk-in" hazardous storage containers designed to store active and passive material. Their construction is tailored to securely store inflammable as well as toxic substances. Integrated sumps provide the necessary environmental protection. With our extensive range of accessories (from page 28) these containers can be constructed to suit your individual requirements and specification.

BMC's can be used externally and internally, as manufacturing plants and factories.

Construction

A fire protection rating of 90 minutes (F90) is provided in this range of containers by the construction of a steel framework and the use of certified fire proof wall and roof cladding.

This achieves both internal and external fire proof protection for the container.

Important notes:

- 90 minutes resistant against fire from inside and outside
- For internal and external application
- Segregation distances eliminated

The range at a glance

BMC-X	BMC-M	BMC-S
the universal container with a storage area of 21,5 m ²	the practical solution all-rounder with a storage area of 12,5 m ²	The compact store for smaller products, drums and IBCs



Fire protection container type BMC-360-M with single-wing door (T30 or T90) (30 or 90 minute fire rated), optional access ramp

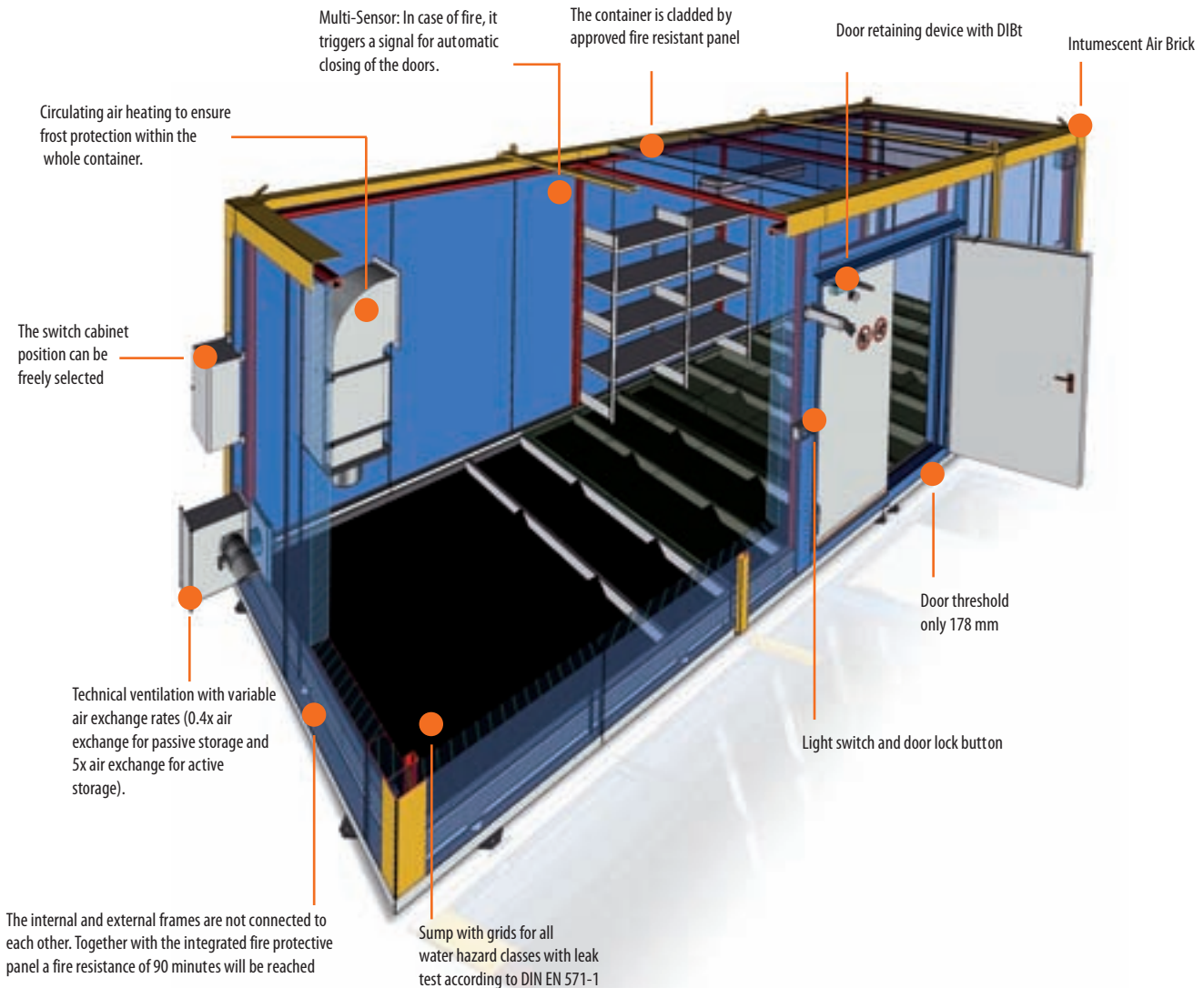


BMC Fire Protection Container - Overview

Tested for safety

For your safety, DENIOS uses high-quality materials. We achieve high quality standards and unconditionally comply with all applicable standards. Each fire protection container sump, for instance, has obtained an approval according to the Environmental Regulation PPG 26.

The structural analysis and the whole hazmat storage container system has received a general technical approval. Due to this, your approval procedure will be simplified because Denios supplies a tested and approved product.



BMC	Equipment		DENIOS-Engineering
Product characteristics	Standard version	Further possibilities	Additional equipment
<ul style="list-style-type: none"> - F90 fire protection from inside and outside - Approval according to Environmental Regulation PPG 26. - Approved for the storage of flammable substances, toxic or oxidising materials, etc. - Robust steel structure - High heat insulation of walls and roof - Low door threshold for easy loading 	<ul style="list-style-type: none"> - 1- or 2-wing doors - Arrangement of doors is freely selectable. - Galvanized steel sump - Grids (galvanized) - Anti-panic locking device 	<ul style="list-style-type: none"> - Sump made of stainless steel or with plastics insert - Grids passable by lifting carriage - Surface painted with special paints - Variables shelving system - Lighting - Extinguishing system - Compensation of potential and lightning protection - Ventilation system - Door retaining device with DIBt approval - Access ramp 	<ul style="list-style-type: none"> - Heating system - Cooling system - Fire extinguishing system - Ventilation technique <p>On request, we equip your container with an air suction device for a workplace which is part of the range of ventilation equipment made by DENIOS.</p>

A versatile range of accessories is available to meet your requirements on further individual equipment (see page 28-31).



Fire Protection Container BMC - X

Type BMC-X – universal

The BMC-X fire protection containers combine all advantages, characteristics and optional equipment of the BMC series but they are bigger and provide more space. The BMC-X container is ideal for use as a work-room or large store and would be an ideal choice, giving a floor space of up to 21.5 m², you will achieve the optimal combination of more storage space and fast accessibility to your stored goods.

BMC-X as workspace

With an internal height of 2,500 mm, these containers meet the requirements of a standard workspace. The container can be classified as workspace/workplace when people work there for more than 15 minutes a day. The classification is often given when a container is used: as a room for dispensing and refilling; paint mixing; analyses; reception within the course of collecting harmful substances according to TRGS 520; or it can include a workplace for hazardous substances, when it is equipped with workbenches combined with an extraction facility as part of the DENIOS ventilation technology programme.

BMC-X type fire protection containers are suitable for storing the following classes of hazardous material:

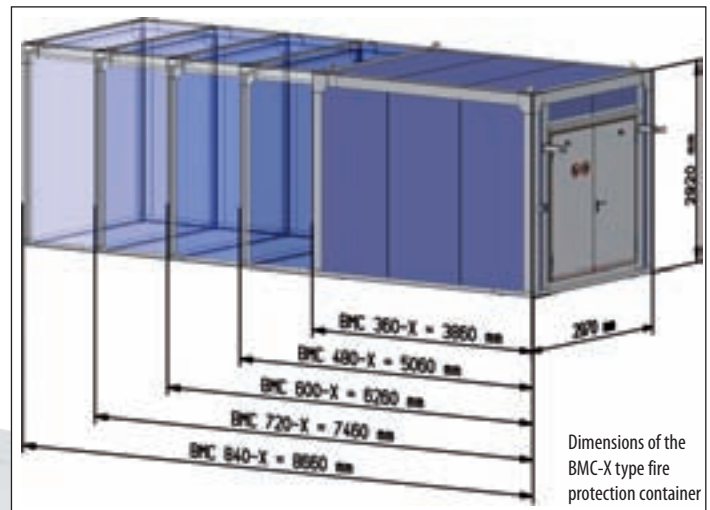


BMC-X as large storage facility

This provides you with a floor space of up to 21.5 m². Especially when handling drums and IBCs, a BMC-X type hazmat storage container provides comfortable working conditions, while the trading units are quickly accessible. If it is used as storage for small units, the internal height of 2,500 mm, with its adapted shelving, can optimally be utilized.

You can choose between

- 5 sizes
- Doors on the long or the short side of the container
- 1 or 2-wing doors, optionally in version T30 or T90 (30 or 90 minute fire rated)



Fire protection container BMC-X 720-L, Fire-resistant window and loading ramp

Type	Storage space (m ²)	Internal dimensions (mm)			External dimensions*		Sump capacity (l)	Weight (kg)
		Width	Length	Height	(mm) Length			
BMC-X 360	9.0	2,650	3,440	2,500	3,860	1,200	2,700	
BMC-X 480	12.0	2,650	4,640	2,500	5,060	1,600	3,300	
BMC-X 600	15.5	2,650	5,840	2,500	6,260	2,000	3,900	
BMC-X 720	18.5	2,650	7,040	2,500	7,460	2,400	4,500	
BMC-X 840	21.5	2,650	8,240	2,500	8,660	2,800	5,100	

* without attachments



Fireproof container type BMC-M

BMC-M - the practical all rounder

Considering the advantages and characteristics, the BMC series fire protection containers meet all the requirements of the modern stock.

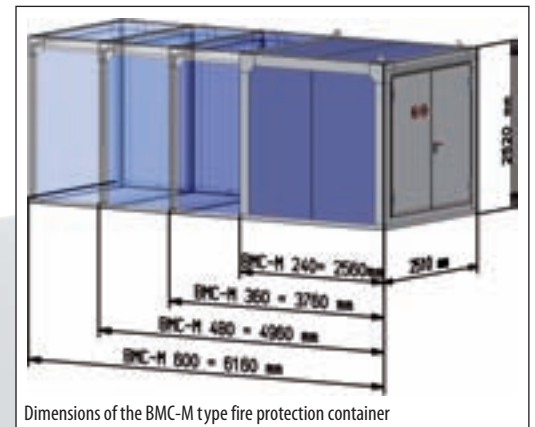
You can choose between:

- 4 sizes
- Doors on the long or the short side of the container
- 1 or 2-wing doors, optionally in version T30 or T90 (30 or 90 minute fire rated)

Equipment

The BMC type fire protection containers are designed for storing drums and IBCs. It is possible to install additional shelving to make your container a neatly arranged storage for small trading units.

A versatile range of accessories (see page 28 - 31) is available to meet your requirements on further individual equipment. Our experts are there to help you with guidance and assistance - both with equipping the container as well as with discussing applicable regulations and standards to be met.



Dimensions of the BMC-M type fire protection container



Walk-in fire protection storage container with 2-wing doors on the short side and a shelving system

BMC-M type fire protection containers are suitable for storing the following classes of hazardous material:



Type	Storage space (m ²)	Internal dimensions (in mm)			External dimensions* (mm) Length	Sump capacity (l)	Weight (kg)
		Width	Length	Height			
BMC-M 240	5.0	2.190	2.240	2.100	2.560	500	2.000
BMC-M 360	7.5	2.190	3.440	2.100	3.760	1.000	2.400
BMC-M 480	10.0	2.190	4.640	2.100	4.960	1.350	2.800
BMC-M 600	12.5	2.190	5.840	2.100	6.160	1.700	3.200

* without attachments



Fire Protection - Storage Container Type BMC-S

Innovative storage for hazardous substances

Denios' range of fire protection products gives its customers an extensive choice to meet the most variable demands in the storage of substances hazardous to the environment. Based on expert knowledge gained from numerous innovations and projects, DENIOS has developed and produced a large number of products over the last few years.

Flexibility

BMC-S type containers can optionally be placed indoors or outdoors. In addition, built-in storage levels or retrofitted plastic sumps, enable you to meet all requirements and provide creative scope for storing hazardous substances. A wide selection of accessories, e.g. a door retaining device and a variable shelving system complete this programme.

Product characteristics:

- Storage for up to 4 drums or 2 IBCs
- 90 minute fire resistance, inside and outside
- Extensive range of accessories



BMC 180-2 Fire protection container, for 2 x 205 litre drums or small containers



BMC-S 180-10 type fire protection container - the compact storage for an IBC



BMC-S 150 type fire protection container, enough space for storing drums and small trading units.

Type	Capacity	Internal dimensions (mm)			External dimensions (mm)			Sump capacity (l)	Weight (kg)
		Width	Depth	Height	Width	Depth	Height		
BMC-S 150	1 drum	1,190	870	1,920	1,510	1,080	2,470	220	1,100
BMC-S 180-2	2 drums	1,540	870	1,920	1,860	1,080	2,470	280	1,200
BMC-S 180-4	4 drums	1,260	1,350	2,430	1,860	1,640	2,850	220	1,280
BMC-S 180-IBC	1 IBC	1,260	1,350	2,430	1,860	1,640	2,850	1,000	1,500
BMC-S 314-20	2 IBCs	2,700	1,350	1,900	3,420	1,750	2,460	1,000	1,850

A versatile range of accessories is available to meet your requirements on further individual equipment (see page 28-31).



Example: Safe storage of organic peroxides

For storing these chemicals, strong safety measures have to be taken and numerous requirements have to be met.

To meet the quality requirements and fulfil the safety criteria for your peroxides, a constant temperature range has to be ensured. Therefore, DENIOS delivers all peroxide stores with wall insulation and chiller units. Furthermore, all electrical units within the peroxide store are explosion-proof.

For your maximum safety, these hazmat stores consist of robust, corrosion-resistant and fire-resistant steel and steel reinforced concrete structures. The collecting sumps are available made of stainless steel or plastics. The doors are fire-resistant. For release of pressure in case of an explosion, each peroxide storage container is equipped with a pressure release device in the roof. Its surface is designed in a way so that it will open when a specified pressure has been achieved. After the shock wave has gone, the device will close automatically and seal the container. Thanks to a special design, the pressure release surface will keep its fire-protection characteristics even after an explosion.

Furthermore, the DENIOS peroxide storage containers are equipped with technical ventilation, compensation of potential, and lightning protection.



All storage facilities meet explosives regulations

Fire-protected peroxide storage facility made of steel available for max. 200 kg, alternative designs for 1,000 or 5,000 kg peroxide storage

Example: Fire-protection storage facility as dosing station

Due to its individual equipment, a DENIOS fire protection storage container can flexibly be adapted to the company's requirements.

In this example, a dosing/mixing-station for varnishes and paints has been integrated in the mobile fire-protected store. Because varnishes and paints generate inflammable vapours during mixing, the storage facility has been

equipped with a vapour extractor. These components can be pre-installed at the DENIOS factory. Therefore they can be quickly put into service at the customer's site. For the acceptance procedure by the authorities, the DIBT-approval and all explosion protection certificates are delivered as part of the complete documentation package.



Figure on the left:
Fire protection storage with T90 (90 Minute) door including door retaining device.

Figure on the right:
The flexible interior can be adapted to your individual requirements. In this case, several agitators and dosing stations have been installed.





FBM Type Fire Protection - Storage Container

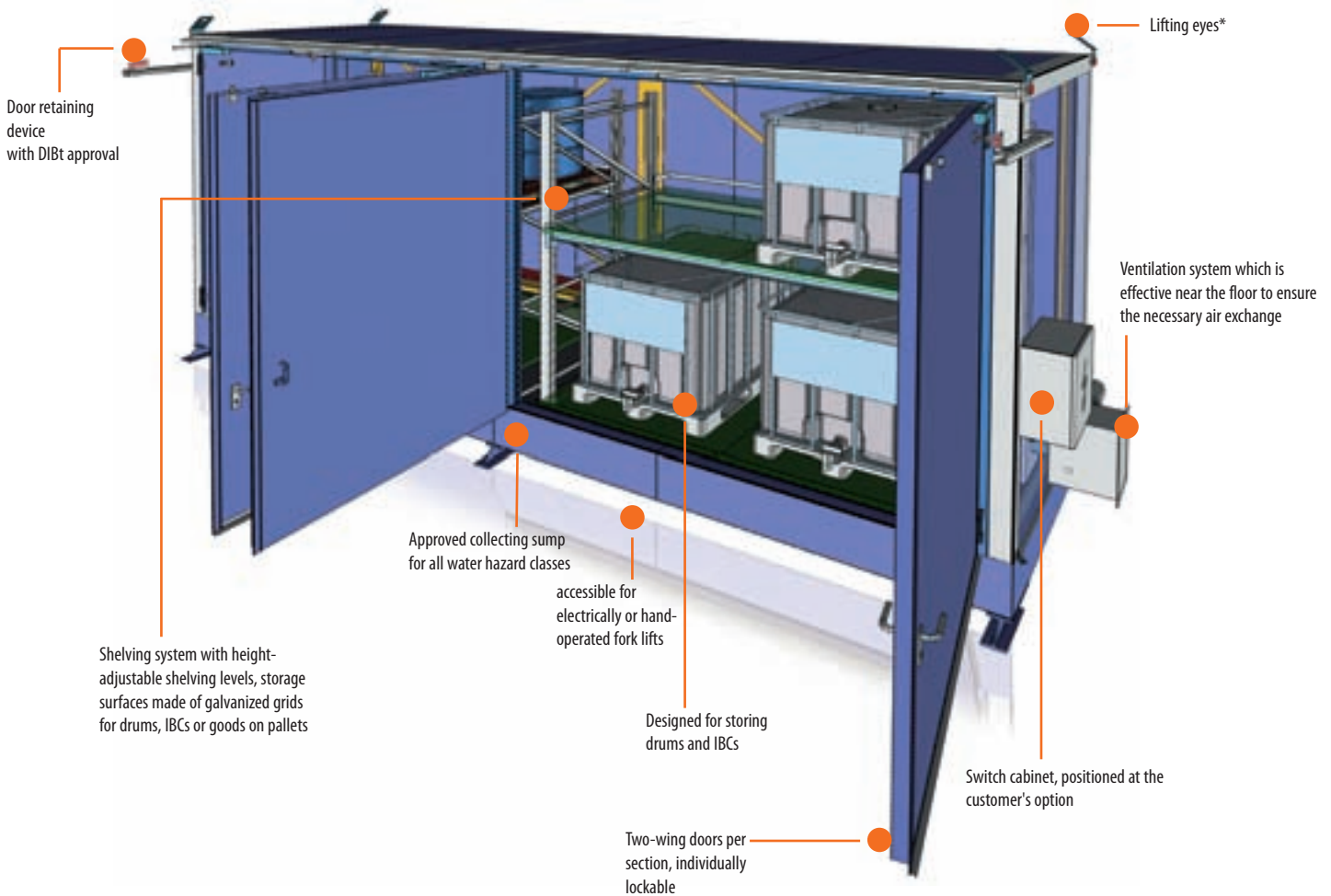
Fire protected storage container with shelving system

When hazardous material has to be stored in drums or IBCs and they need to be transported by fork lifts, fire protected shelving stores are a necessity.

This storage container has enough floor clearance for optimal loading and unloading of pallets using an electrically or hand-operated fork lift.

Design

The FBM type fire protection container, made by DENIOS, is a hazmat storage with a height adjustable shelving system for safe and comfortable storage of a maximum of 64 205 litre drums or 16 IBCs. Due to its especially rigid design the fire protection storage container with shelving provides fire resistance for at least 90 minutes, when exposed to an internal or external fire source. Additionally, it is equipped with a double-walled collecting sump in compliance with the Environmental Regulation PPG 26., grids and fire-resistant T90 (90 minutes) fire rated doors.



FBM	Equipment		DENIOS ENGINEERING
Product characteristics	Standard	further possibilities	Additional equipment
<ul style="list-style-type: none"> - F90 fire protection from inside and outside - Approval according to Environmental Regulation PPG 26. - Robust steel structure 	<ul style="list-style-type: none"> - Galvanized steel sump - Grids (galvanized) - Anti-panic locking device 	<ul style="list-style-type: none"> - Sump made of stainless steel or with plastics insert - Variable shelving system - Compensation of potential and lightning protection - Ventilation system - Door retaining device - Lifting eyes* 	<ul style="list-style-type: none"> - Heating system - Cooling system

A versatile range of accessories is available to meet your requirements on further individual equipment (see page 28-31).



FBM Type Fire Protection - Storage Container

Product characteristics:

- Protection against fire from inside and outside the container
- Can be accessed with electrically or hand-operated fork lifts
- Storage capacity for up to 32 drums or 8 IBCs
- Integrated shelving system, can flexibly be adapted to keep different sizes of trading units
- DIBt-approved door retaining device, optional

FBM type fire protection storage containers are suitable for the following hazmat classes:



FBM 614.30 type fire protection storage with diverse optional equipment



FBM 314.30 type fire protection storage container for max. 16 x 205 litre drums or 4 IBCs

Type	Capacity EP/EC/IBC	Internal dimensions (mm)			External dimensions (mm)			Collecting (l)	Weight (kg)
		Width	Depth	Height	Width	Depth	Height		
FBM 314.20	3 / 2 / 2	2.700	1.340	1.950	3.370	1.850	2.640	1.000	2.700
FBM 314.30	6 / 4 / 4	2.700	1.340	1.400/1.400	3.370	1.850	3.640	1.000	3.300
FBM 614.20	6 / 4 / 4	2 x 2.700	1.340	1.950	6.590	1.850	2.730	2.000	4.800
FBM 614.30	12 / 8 / 8	2 x 2.700	1.340	1.400/1.400	6.590	1.850	3.730	2.000	6.000

EP=Euro-Pallet (800 x 1,200 mm), CP=Chemicals-Pallet (1,200 x 1,200 mm), IBC=Tank-Container (1,020 x 1,220 x 1,200 mm), all variants are also available designed with double depth



Fire alarm components



Smoke/heat detectors & fire alarms

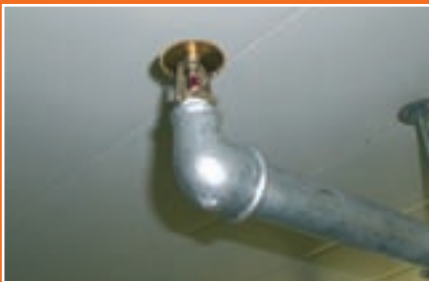
For the protection of fire proof containers it is important that an early warning system is installed. Denios uses certified multi sensors for this purpose. Smoke and fire detection is quick and reliable and can be installed in conjunction with a siren.

The alarm system can be connected to the main alarm system.



Alarm beacons

In addition to audible alarms DENIOS can provide alarm beacons to work in conjunction with the main alarm system, this enhances the chance of early detection and a fire spreading.



Sprinkler systems

Sprinkler systems provide extra safety in containers used to store flammable and non-flammable substances. Denios offers several types of sprinkler systems. We can provide, standard, heavy foam, powder, Novec or CO₂ systems.



Fire prevention flaps

Where air circulation is required, air vents can be protected by installing automatic closing air vent mechanisms. These close automatically as soon as fire is detected, thus cutting off the supply of oxygen to the fire source in the container.



Door closing system with door open restraints

Fire proof container doors must be kept closed at all times. For an easy and uncomplicated solution, we recommend installing a door restraint system. Doors are held open utilising electro magnets. Doors are closed automatically when the "door close" button is activated or when fire or heat is detected.





Gauge technology



Temperature regulators

When stored, many substances require a constant temperature to avoid loss of quality or to prevent dangerous reactions. DENIOS uses the most up-to-date temperature regulators to ensure user friendly programming of required temperatures. The majority of Denios regulators can be programmed and adjusted on the main control box on the exterior of the container.



System monitoring

To monitor important features such as temperature, pressure, air quality etc., it is possible to install an assortment of sensors to the container. A continuous monitoring system can be installed to your specific requirement and standards. The system can be monitored in situ or attached to the main computer system which ensures a regular and safe way to monitor air flow etc.



Gas detectors

When storing dangerous substances, inappropriate use can result in severe health problems, as well as dangerous environmental damage. If poisonous gases are allowed to escape then early detection is a vital requirement. DENIOS can provide gas warning detectors where a pre-set level can be set and when reached an audible or visual alarm or both will occur.



Leakage Sensor

Leakage sensors can be installed in sumps to detect any leakage from container contents. The alarm can be audible, visual or both. Early detection allows prompt action to be taken.



Cable and pipe ducts

The majority of fire proof containers require some form of internal equipment that requires an external power source, such as pump equipment. Dispensing units are regularly fitted for this purpose. These require inlets for cables or pipes. Denios has the technology to supply and fit fire proof cable and pipe ducts. These maintain the fire proof standard and are sealed against water, dust, powder and dirt.



Additional accessories



PE and stainless steel sump liners

When storing acids, alkalis or other aggressive substances, it is recommended that sump liners be installed, these can be manufactured both in PE and stainless steel.

Further information regarding sumps can be found in our main catalogue.



Grids

DENIOS fire proof containers are fitted with galvanized grids as standard. Alternative grids are available however and when storing aggressive substances, stainless steel grids or synthetic material grids can be provided.

When using pallet trucks inside these containers, we recommend special strengthened grids with smaller apertures.



Floor apertures

When hazmat containers require an opening in the floor for specific requirements such as cables etc, DENIOS can construct the sump accordingly. DENIOS guarantees that safety standards will not be compromised.



Earthing kits

Earthing kits are required to avoid an electric discharge between the container and other conductive units. All DENIOS hazmat containers can be fitted with an accessory to avoid discharges. These are highly recommended for containers storing explosive materials.



Lightning conduction

The steel exterior and internal framework of the BMC containers prevent ignition of material through lightning strikes. The container functions similar to that of a Faraday cage. Earthing kits are essential and DENIOS has developed a TUV approved system to counteract this danger. Containers manufactured from concrete etc require lightning conductors.

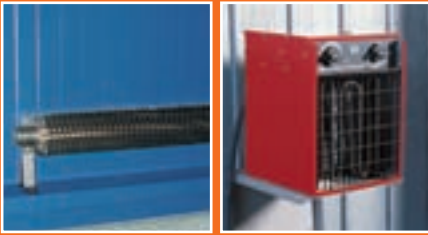


Special paint finishes

DENIOS offers internal as well as external multi colour finishes. We can provide designs to meet your individual needs, such as company logos and colours.



Climate control technology



Heating/cooling

Many substances require optimal heating or cooling storage to maintain quality.

DENIOS provides heating systems using air flow or ribbed heaters. We also install cooling units as well as full air conditioning to maintain an optimal temperature suited to your individual requirements or specifications. This equipment is also available in ATEX standards.



Insulation

The walls of our hazmat insulated system containers guard against loss of energy, temperature and frost damage. Denios use different types of material ranging from a thickness of 60 to 125 mm.



Air conditioning units

DENIOS ENGINEERING provide precise solutions to temperature control, such as cooling units and air conditioning systems. With Denios expertise we always have a solution for your needs.



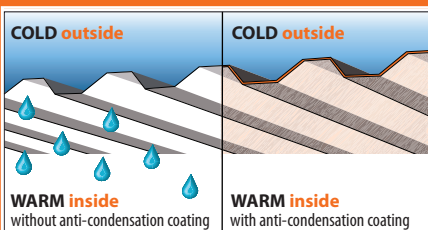
Air extraction/flow

For continued air exchange on hazmat containers, Denios offers several solutions depending on whether active or passive storage is required. With passive storage of dangerous substances, 0-4 times air exchange is required, with active storage, 5 times air flow per hour is legally required.



Air bricks

Alternative air exchange methods, such as an air brick, can be installed in hazmat storage containers. In the case of fire, air bricks dissolve into a fireproof foam, thus sealing the opening air-tight. Air bricks are fitted with a weather-proof louvre vent.



Anti condensation lining

With galvanized steel there is always the possibility of a condensation build-up due to temperature fluctuation. An anti condensation coating absorbs and stores moisture and releases it slowly. Therefore, water droplets are avoided.



Valuable suggestions and hints for dealing with hazardous substances based on European legislation.

Technical regulations for the EXTERNAL storage of flammable liquids

These next few paragraphs will provide a brief insight and help you to understand some of the fundamental parts of the Health and Safety at Work act 1974 at locations where flammable liquids are to be stored. Specifically some extract data, as taken generally from the Highly Flammable Liquids and Liquefied Petroleum Gases Regulation 1972. Some points of which have changed slightly in accordance with the new DSEAR Regulation, the approved codes of practice for this standard are just becoming available from the Health & Safety Executive (contact 01787 881165). Firstly it is important to understand the definition of a flammable liquid and why you should take the necessary precautions to provide the correct methods of storage.

Definition of a flammable liquid *

In general terms, a liquid, which has a flash point of 55 Degrees C or below.

There are three categories:

A) R10 - Flammable Liquids

Liquids with a flashpoint equal to or greater than 21 degrees C and less than or equal to 55 degrees C, which support combustion when tested at 55 degrees C

B) (F) R11, R15, R17 - Highly Flammable Liquids

Liquids with a flashpoint lower than 21 degrees C but are not classified as extremely flammable.

C) (F+) R12 - Extremely Flammable Liquids

Liquids with a flashpoint lower than 0 degrees C and with a boiling point lower than or equal to 35 degrees C.

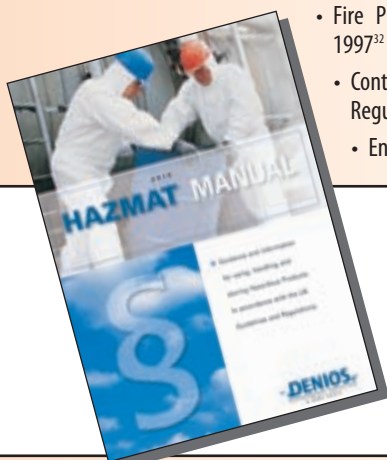
Flashpoint

Flashpoint is defined as the lowest temperature at which a chemical gives off a vapour in sufficient quantity to form a combustible mixture with air.

It is obvious by the above definitions, that any person or Company that is involved in the use or handling of any such products, could be at risk. Therefore the government have already laid down specific Guidelines and Regulations in order to protect the employer, employee, public and the Environment, from incidents that may arise as a result of malpractice, misuse or mishandling of such products.

Listed here are just a few standards, which may be applicable, for a full list, we advise all customers to contact their local HS&E office or Environment Officer at their respective Local Authority.

- Health and Safety at Work Act 1974²
- DSEAR-December 2002 (Dangerous Substances & Explosive Atmospheres Regulation)
- Management of Health and Safety at Work Regulations 1992¹
- Fire Precautions (Workplace) Regulations 1997^{3,2}
- Control of Substances Hazardous to Health Regulation 1994
- Environmental Protection Act 1990⁶



The DENIOS hazardous materials handbook

is a useful guide through the jungle of regulations. On its 36 pages you will find up-to-date information on legal requirements and regulations for the storage of hazardous materials and work safety. With this handbook, DENIOS customers will be kept well informed.

Request a copy now!

(Order No. 188-294-71, nominal charge £ 9.50)

Specific details contained within each of the above documents is available direct from HSE Books on 01787 881165 (charges may be applicable).

New British Product Standard BS-EN14470 Flammable Storage Cabinets – in our main catalogue 2010 from p. 101.

There are generally five key factors that the H&SE recommend when considering Flammable Liquid Storage. Here are just two of those key points. Should you require additional details, please contact our customer service department 01952 811991.

Ventilation

This is one of the key factors to consider when handling flammable liquids. Most flammable liquids produce a natural vapour, which is heavier than air. This vapour must be dispersed efficiently to reduce the hazard of a flash. Current HSE recommendations specify an air change of five times per hour.

If natural ventilation is not possible, then explosion rated mechanical ventilation must be provided.

Throughout the catalogue the European fire safety symbol appears next to products tested to ensure correct ventilation.

Adequate ventilation must also be ensured within the building and work area.

Volume of Storage

External

When a large volume of flammable materials, are to be stored, then a minimum separation distance is also an important factor, the following table indicates the recommended distance for storage according to volume.



Quantity in Litres	Distance - Metres - from occupied building, boundary, process unit, flammable Liquid storage tank, or source of ignition
Up to 1000	2
1000 – 100,000	4
above 100,000	7.5

If these distances cannot be maintained, then a fire-wall with a minimum 30 minute fire rating should be used.

Internally

The internal storage of flammable materials is a highly complex subject and requires the use of both explosion rated zone 1 electrics and 30 minute fire protection. As the new standard (DSEAR) for this subject have only just been published, we strongly recommend that you contact your local H&SE for further advice and guidance.

When selecting a product from this catalogue, you can rest assured in the knowledge, that DENIOS leads the way in product innovation and offers the largest range of Spill Protection Equipment in Europe.



The mixed storage of chemicals - the VCI concept

Hazardous materials are classified according to their hazard features in different storage classes.

The storing together of different storage classes in one storage section is regulated by the relevant laws, guidelines and technical regulations. The VCI has on the basis of this developed a concept for storing different storage classes together, which is presented here in simplified form:

Storage areas can be separated either by sufficient distances or by fire-resistant components.

(Exceptions apply for small quantities.) The storage classification can be determined by the details in the safety data sheet.

The VCI concept (simplified presentation)

Classification		10-13	13	12	11	10	8B	8A	7	6.2	6.1B	6.1A	5.2	5.1C	5.1B	5.1A	4.3	4.2	4.1B	4.1A	3	2B	2A	1
Explosive materials	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)
Compressed, liquefied or pressure-dissolved gases	2A	(+)	+	+	(+)	-	+	(+)	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	(+)	(+)
Pressurized gas packages (aerosol containers)	2B	(+)	(+)	(+)	(+)	(+)	(+)	(+)	-	-	(+)	(+)	-	(+)	-	-	-	-	-	-	(+)	+		
Flammable liquid materials	3	(+)	+	+	(+)	+	(+)	(+)	-	-	-	(+)	-	-	(+)	-	-	-	-	-	-	(+)		
Flammable solid materials	4.1A	(+)	(+)	(+)	(+)	(+)	(+)	(+)	-	-	-	-	(+)	-	-	-	-	-	-	(+)	(+)			
Flammable solid materials	4.1B	+	+	+	+	+	+	+	-	-	-	(+)	(+)	-	(+)	-	(+)	(+)	+					
Spontaneously combustible materials	4.2	(+)	+	+	(+)	(+)	(+)	(+)	-	-	-	-	-	-	-	-	(+)	+						
Materials that form flammable gases in contact with water	4.3	(+)	+	(+)	(+)	(+)	(+)	(+)	-	-	-	-	-	-	-	-	+							
Oxidizing) agents	5.1A	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+								
Oxidizing) agents	5.1B	(+)	+	+	(+)	(+)	+	(+)	-	-	(+)	(+)	(+)	(+)	+									
Oxidizing agents	5.1C	(+)	(+)	(+)	(+)	(+)	(+)	(+)	-	-	-	-	-	(+)										
Organic peroxides	5.2	(+)	(+)	(+)	(+)	(+)	-	-	-	-	-	-	(+)											
Flammable toxic materials	6.1A	(+)	+	+	(+)	+	+	+	-	-	+	(+)												
Non-flammable toxic materials	6.1B	(+)	+	+	(+)	+	+	+	-	-	+													
Infectious materials	6.2	-	-	-	-	-	-	-	-	+														
Radioactive materials	7	-	-	-	-	-	-	-	(+)															
Flammable corrosive materials	8A	+	+	+	+	+	+	+																
Non-flammable corrosive materials	8B	+	+	+	+	+	+																	
Flammable liquids if not LGK 3	10	+	+	+	+	+																		
Flammable solids	11	+	+	+	+																			
Non-flammable liquids	12	+	+	+																				
Non-flammable solids	13	+	+																					
	10-13	+																						

+ allowed **(+)** allowed with restricted use, see www.denios.de/vci **-** not allowed

Explained in short

LGK Storage classes
VCI German Chemical Industry Association (Verband der Chemischen Industrie e.V.)
TRGS Technical rules for hazardous materials

You can also find further information via the internet at: www.denios.co.uk



DENIOS manufacturing

DENIOS is a streamlined company, established more than 20 years ago. We are proud to provide secure and environmentally-friendly storage containers. One important key factor leading to Denios' success, is the fact that development, construction and engineering are all under one roof, resulting in extensive product knowledge and giving our customers confidence in our products.



Advantages with DENIOS

Flexibility

We manufacture standard as well as tailor-made customer solutions. Whether a specific size is required or simply a product painted in your company colours. Individual requirements are our forte and are part of our daily challenge.

Efficiency

With DENIOS you buy directly from the manufacturer. Planning, development and production are all available from a single source and this allows us to communicate efficiently with our customers from our centrally based Newport office.

Under one roof

Whether standard or tailored to your individual requirements, DENIOS has a unique engineering know-how, providing problem free solutions, together with knowledge of legal and environmental requirements.

Legal

The numerous laws and legal barriers for the storage and use of Hazmat products and substances, change constantly, creating problems when deciding on the best solution for your company.

All DENIOS products are subject to strict quality control with the latest up to date regulations being taken into account.

Service

For the security and long life of your DENIOS system containers, we offer a full after sales service.

"Made by DENIOS"

Guarantees a long product life as well as continued support.

Innovation

When customers require a higher specification product than our normal range, Denios engineering can provide innovative ideas to solve your problems. With Denios you can be sure to find the best solutions.

DENIOS products are always at the cutting-edge of technology and fulfil the most up to date environmental and legal recommendations.

Investment security

Our experts have more than 20 years of DENIOS know-how and are able to support you through the process of choosing the correct hazmat storage solution, for your individual needs. The DENIOS engineering team will also help you to overcome the environmental challenges for the storage of hazardous materials and assist you with the ever-changing legal regulations.

Consultation

Be assured your decision to use Denios will be the right choice. We have competent European-wide engineers ready to help and advise you with your specific requirements.

DENIOS in your area



For our international sales offices visit www.denios.com

For a safer environment: Solutions from DENIOS

DENIOS ENGINEERING

provides you with solutions in compliance with relevant laws and regulations, in the following fields:

Hazardous material storage technology

Is the safe storage of goods important to you?

In the hazmat storage technology brochure we offer both standard solutions and individual solutions to meet all your requirements.

With reduced development time and cost optimisation, we guarantee the highest quality and experience. Hazmat containers meet the full regulatory requirements and specifications for hazardous material storage.

We also take into consideration other factors ie additional quantities to be stored and the requirements of the installation site. We offer appropriate solutions for the internal and external storage of goods.



It is in your hands

- "Walk-in" hazmat containers
- Hazmat containers with shelving
- Fully assembled hazmat storage
- "Walk-in" fire-proof cabinets
- Fire-proof containers with shelving
- Individual solutions

Thermo-technology

Is the correct temperature important for you?

Our Thermo-Technology brochure offers storage solutions for small and large quantities of temperature-sensitive materials in all types of industries. If you need a heating box or a cooling chamber, a drum heater or a special design for specific applications, DENIOS will meet all your requirements, when heating or melting, cooling or storing in frost-free rooms, are part of your daily business.



Please request

- Heater Boxes
- Heater Cabinets
- Insulated Containers
- Cold Stores
- Cold Rooms

Please copy this page, complete it and send by fax or mail to DENIOS Ltd.

Yes, I want some advice. Please call me.

Thermo-Technology **Hazmat Manual** **Main 500 Page Catalogue**

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- Absorbents
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- many more

Please use our expert knowledge on statutory regulations and approval procedures in addition to our technical knowhow and long-term experience.

Due to the informative pages on current laws and regulations, our catalogue will be your personal reference guide.



PLEASE REQUEST A COPY!



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