

# DENIOS.

ENVIRONMENTAL PROTECTION  
& WORK SAFETY

- Needs-based storage solutions
- Custom service options
- Internationally certified safety



## Lithium-ion Battery Storage Solutions



Fire Protection  
Association  
MEMBER 2018

# DENIOS Technical room systems





### **Taking responsibility — every day**

Acetone, phosphorous, peroxide, tetrachloromethane, hydrofluoric acid... the list goes on. Often with unimposing names, they are all commonly found in production processes as raw materials, additives, waste products or as the desired end product of production. The problem is, they are flammable, oxidising, toxic or even potentially explosive. Hazardous substances are an important part of many industrial processes. Their potential dangers are often considerable and handling them entails risks for people, the environment and companies alike.

The responsibility for these hazardous substances lies with their producer. They face the challenge of reducing the handling risks involved to a minimum. At DENIOS, our expertise in safe, legally-compliant handling and storage of hazardous substances dates right back to 1986. We know the many obligations a company like yours must satisfy in order to meet its daily responsibilities. Our solutions here at DENIOS provide effective protection for employees, the environment and corporate values so that you can take on the challenge of Hazmat storage both actively and responsibly.

### **Laws? Regulations? Technical Rules?**

Storing hazardous substances safely and in compliance with regulations ensures you are operating correctly as a company, both in terms of the legislative authorities and the environment. A number of wide-ranging, frequently-changing laws and regulations need to be observed when storing hazardous substances.

For example, do you know the classification of hazardous substances according to water pollution class? At DENIOS, we do. And it doesn't stop there. As regulations have expanded, our knowledge has grown. As legislation has developed, so have our products. Our cutting-edge knowledge of regulations and guidelines for hazardous substances storage and handling makes us a vital source of advice for our customers.

# Expert solutions for hazardous materials storage



## Proven standard or turnkey individual project?

DENIOS products haven't just catered to the market, they've shaped it! Many products which are now standard were originally developed by us, including numerous container solutions for hazardous materials storage. Whether you're a two-person trade company or an environmental representative in a large corporation, whether you need to store very small containers or several hundred tonnes of flammable liquids, the most suitable, legally-compliant storage solution comes from DENIOS.

Our product range covers a wide range of tried, tested and trusted standard solutions, which meet most of our industrial and commercial customers' needs. And when the standard solution does not meet your requirement, we'll design and build an individual Hazmat storage container especially for you! On request, we'll undertake all the construction tasks on site right up to operation-ready handover.



### Made to measure Hazmat storage

Our strength is our versatility: made-to-measure construction, perfectly adapted equipment and flexible, reliable delivery deadlines. We worked with the University of Düsseldorf and the University of Innsbruck to create a central interim Hazmat storage container system, for example. Many water-polluting, flammable fluids and substances are used in the natural sciences: acids, alkalis, solvents and peroxides. The store had to be centrally located, but the components still had to be usable in a mobile, flexible way. After making an inventory, DENIOS engineers designed and manufactured the equipment, taking into account the individual local factors. Our engineers designed each piece of equipment individually: 17 separate fire-rated storage containers, joined together by covered walkways and logistical areas to form a complex, separated into storage and handling areas. The Hazmat storage containers were subject to comprehensive regulations concerning fire and explosion protection, climate control and frost protection, as well as the VCI concept for the combined storage of hazardous substances. The project was completed to the highest safety standards, and all containers were fitted with switch cabinets, which would relay messages to the control room in the event of a fault and to the fire control centre in the event of a fire. Remote monitoring via smartphone and the internet was also made possible using an intelligent bus system. All certification requirements needed for commissioning were met in full. DENIOS continues to support the customer as a trusted partner, providing regular maintenance.

### Safe. Certified. Worldwide.

DENIOS produces all Hazmat storage containers in-house. This means we can ensure the same high level of quality for every DENIOS product, with checks performed on a regular basis. Certification by respected institutes is as standard for us as meeting European standards such as EN 1090 or EN 13501. We often meet these requirements before they even come into force. This means that our products are often one step ahead of what's required by the legislative bodies - and with us, you'll still be ahead of the curve when the legislative bodies raise their standards.

With a DENIOS Hazmat storage container, your hazardous materials will still be safely stored in the future and you'll ensure your company's obligations are met. At DENIOS, we're always on hand - right across the world. DENIOS' decades of experience in international markets means that we have a large network of specialists available to support our customers. With over 750 employees in 20 locations, there's always a DENIOS expert by your side.

# Individual solutions

## Lithium-ion battery storage

The hazard potential of incorrectly handling lithium-ion batteries is extremely high. Deep discharge, fire, chemical reactions, explosion of the batteries in the worst-case scenario – each individual situation means a risk for workers and the environment.

And this may result in considerable financial losses and production downtime. Organisational and constructional protective measures help to limit the potential for risks at an early stage.



Storage container with wing doors and 5 shelves

### Example options (other versions available on request)

| Model*     | Useful area | External dimensions (W x D x H mm) | Bay dimensions (W x D x H mm) | Walk-in | Shelving system | Fire protection | Crane brackets | Features (examples)   |
|------------|-------------|------------------------------------|-------------------------------|---------|-----------------|-----------------|----------------|---|
| FBM 614.30 |             | 7.080 x 1.850 x 3.700              | 2.700 x 1.340 x 920           | –       | •               | •               | •              | <ul style="list-style-type: none"> <li><input type="checkbox"/> Fire rated / Explosion proof</li> <li><input type="checkbox"/> Pressure relief</li> </ul> |
| FBM 626.30 |             | 7.080 x 3.120 x 3.740              | 2.700 x 2.610 x 920           | –       | •               | •               | •              | <ul style="list-style-type: none"> <li><input type="checkbox"/> Temperature control</li> </ul>  |

\* Design with ground clearance to allow loading using a hand operated electric stacker



Specific temperature control for a battery storage container

**Definition of potential risk in accordance with EUCAR Hazard Level**

| Hazard Level | Effect          | Classification   |
|--------------|-----------------|--|
| 0            | no effect       | no effect on operation   |
| 1            | passive safety  | cells suffer reversible damage, repair needed                              |
| 2            | defect / damage | cells suffer irreversible damage, repair needed                            |
| 3            | leak            | slow leak of electrolyte, electrolyte reduction in weight < 50%            |
| 4            | bursting        | partial spraying out of electrolyte, electrolyte reduction in weight ≥ 50% |
| 5            | fire / flames   | fire   |
| 7            | breakage        | flying parts, breakage of solid parts                                      |
| 6            | explosion       | explosion of the cells   |

## Technical Safety Room for the Storage of Fuel Cells & Lithium-ion Batteries



### HOPPECKE Energy Storage Systems

HOPPECKE has been delivering batteries and power management solutions to customers across the globe for nearly a century. As a result of their work over the decades they have made ground-breaking developments in the market for industrial batteries. Today, HOPPECKE is the largest producer of industrial batteries, systems and chargers in Europe. The comprehensive product range is supplemented by state-of-the-art charging technologies and monitoring units to form complete systems. The increasing use of regenerative energies and the switch to emission-free drives increase the importance of rechargeable energy storage. HOPPECKE develops marketable concepts for the future and thus makes an important contribution to solving the societal challenges arising from the implementation of global climate protection goals.

### The task for DENIOS

DENIOS was approached to come up with a solution so that HOPPECKE could demonstrate their state-of-the-art technologies in the field of renewable energy. HOPPECKE needed an exhibition container that had to meet a wide range of requirements for safety, particularly in terms of fire and explosion protection. The two-part sample container, designed as a showroom for HOPPECKE's customers, was to be indented to enable the sensitive storage of hydrogen bottles to operate a fuel cell, as well as the storage of lithium-ion batteries. The lithium-ion batteries were to be powered by fuel cells and the photovoltaic system installed on the roof of the technical container.

### The DENIOS Solution

DENIOS designed a two-part technical security room to suit the complex requirements presented by HOPPECKE. The two parts of the technical container were separated by a F90 wall. The left-hand area was to be used as a technical room with batteries and fuel cells; with the right area designated as gas cylinder storage for hydrogen bottles. A frame construction for a photovoltaic system to be installed on site was installed on the roof. All doors were equipped with door locking systems. To supply the fuel cell, several ventilation modules were installed. In addition, the technical room has a 1-leaf door and circumferential cable ducts on the ceiling. In the hydrogen storage room, the floor is covered with teardrop sheet. Lighting and light switches are in EX version. An additional fan in the floor area ensures optimum safety. Although the lower Ex limit for hydrogen is 4%, the fan is already activated by the gas detector at 1%. The customer has specified in the hazard analysis that the fan does not need to have EX protection. As hydrogen is lighter than air, additional ventilation modules are integrated in the ceiling area. In order to equip the bottle racks comfortably, a 2-winged door was installed. DENIOS was able to draw on its many years of experience as a developer and manufacturer of walk-in fire protection warehouses to realize this ambitious project. By accessing existing know-how, DENIOS has quickly developed a technical / security room that integrates all requirements such as F90 fire protection, fire detection, explosion protection and ventilation technology.

## Storage of Lithium-ion Batteries in the Automotive Industry



**KTM Sportmotorcycle**

**The DENIOS Solution**

KTM Sportmotorcycle is an Austrian motorcycle and sports car manufacturer formed in 1992 and traces its foundation as early as 1934. Part of the KTM Group the company is known for its off-road motorcycles where since the late 1990s it has expanded into street motorcycle production and developing sports cars. Since 2012, KTM has become the the largest motorcycle manufacturer in Europe, having sold over 203 thousand motor vehicles worldwide.

DENIOS developed a solution based on its technical / security rooms. With 7 m<sup>2</sup> of floor space and integrated drip pans, the basic requirements for the storage unit were met. Although fire safety was not compulsory, the insulation in building material class A (Fire Rated insulation panels) was performed - also against the background of a year-round constant internal temperature of 20 °C, which is to be maintained at outdoor temperatures of -15 °C to 35 °C. For this purpose, a combined heating and air conditioning unit is used. Since the creation of combustible gases could be explicitly excluded when charging the batteries or in case of a fault on the part of the battery manufacturer, the internals were not "ex-protected" executed.

### The task for DENIOS

KTM needed a solution where they could legally, safely and efficiently storing lithium-ion batteries. For this they needed a specialist hazardous materials warehouse to be set up. The project had to be developed within the absence of specific legislation for lithium-ion batteries in cooperation with KTM and the batter manufacturer. Sufficiently tempered storage capacity to prevent loss of battery performance during storage was another requirement to consider.

### Result & Customer Benefit

The customer benefited from the experience of DENIOS in the construction of technical / safety rooms for lithium-ion batteries. In cooperation between KTM, battery manufacturer and DENIOS, a solution has been developed that takes into account the general legal framework as well as the special features of lithium-ion battery storage. An extra safety is achieved by the fire-protected version (F90), although this was not mandatory. The temperature-controlled storage prevents a loss of performance of the stored batteries.



*Delivery of the technical / safety room*

# Lithium-ion battery test rooms

## Cutting edge research and development

Due to changes in the trend for energy storage media, new ground must now be explored in many areas. Alternative designs for battery technology, especially for e-mobility, are based on lithium-ion technology. These new batteries offer a promising solution compared to other forms of energy storage media. Its very high energy density in a small module size is already making lithium-ion technology a leading alternative for the automotive field looking forward. It offers the best possible use of the heavily restricted space available in this industry. However, as with any innovation, there are significant disadvantages. As we do not yet have that much data based on practical experience, the risk involved with these media is not yet fully understood. This means that special requirements are needed for both personal and fire protection.

Technical faults or incorrect handling of the modules may lead to an accident. Electrical charge may be uncontrollably converted into thermal energy, increasing temperatures and causing a fire. Pressure increases and in the worst-case scenario, the module explodes.

Comprehensive tests (including above the actual loading limits) are required. The effects of various environmental factors, such as variations in temperature, humidity, vibration or severe shocks, on the life of the module are thoroughly tested. Things are further complicated by the fact that there are no binding regulations or laws set out by legislative bodies. Even trade associations have not come to any common agreement.

If you build and operate a testing site, there are only recommendations to follow. Safety designs are based more on insights than standards. Plans for measures to take in the event of an incident are also rare, as are general statements on accident prevention.



Walk-in REI 90 fire-rated container with integral climate control chamber



View into the open climate chamber

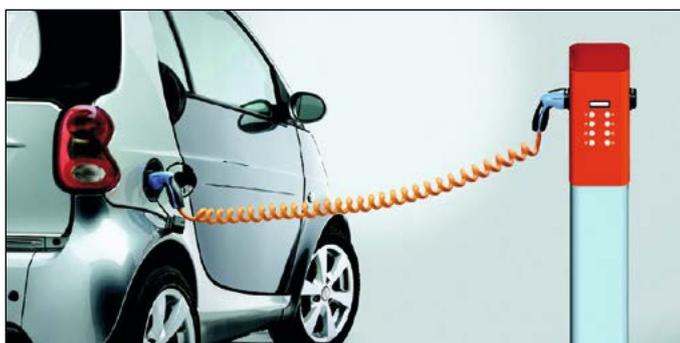


Image source: MENNEKES Elektrotechnik GmbH & Co. KG



Lithium-ion batteries - the power source of the future.

## Evaluate the risks

It is left to the people building the facility, in their own risk assessment, to determine the details of the safety plan. It is best to involve specialist insurers early on in the constructional preventive plan for the facility - and to choose a manufacturer with decades of experience in hazardous substance storage. In principle, every employer is obliged, to assess the risks which could arise from technical equipment or facilities, evaluate them and take any necessary protective measures. This applies to the manufacturing as well as

to the storage and transport of sensitive goods. This also applies regardless of whether you are handling cells, modules or complete battery systems. You need to evaluate which risks may occur, with what probability and what consequences (see Overview of Hazard Level page 77).

## Organisational protective measures:

- Take constructional protective measures
- Avoid mechanical damage and high temperatures over a long period
- Observe safety distances
- Ensure sufficient ventilation
- Provide separated storage
- Train employees on the potential risks and recommendations for handling
- Develop extinguishing plans



DENIOS has a wide range of valuable experience to help you! Our walk-in REI 120 systems are ideally suited for use as a test room with internal and external fire protection

### Example options (other versions available on request)

| Model     | Useful area approx. (m <sup>2</sup> ) | External dimensions (W x D x H mm) | Bay dimensions (W x D x H mm) | Walk-in | Shelving system | Fire-rated | Crane eyes | Features (examples)                  |
|-----------|---------------------------------------|------------------------------------|-------------------------------|---------|-----------------|------------|------------|--------------------------------------|
| TSR 37.17 | 10                                    | 4.990 x 2.510 x 2.520              | 4.640 x 2.190 x 2.100         | •       | –               | •          | •          | ■ Fire rated / Explosion proof       |
| TSR 50.25 | 8                                     | 3.790 x 2.510 x 2.520              | 3.440 x 2.190 x 2.100         | •       | –               | •          | •          | ■ Room monitoring / sensors          |
| TSR 62.30 | 16                                    | 6.160 x 2.990 x 2.920              | 5.840 x 2.650 x 2.500         | •       | –               | •          | •          | ■ Connection to extinguishing system |

# Lithium-ion battery test rooms

## Researched. Tested. Proven.

### Active safety:

Pressure release surfaces in the roof allow for controlled pressure equalisation in extreme cases. The destruction of the room or the endangerment of workers by doors being blown off and an uncontrolled release of energy can therefore be avoided right from the outset. High performance technical ventilation also ensures that any harmful and potentially explosive gases are removed from the room. Correct operation is constantly monitored.

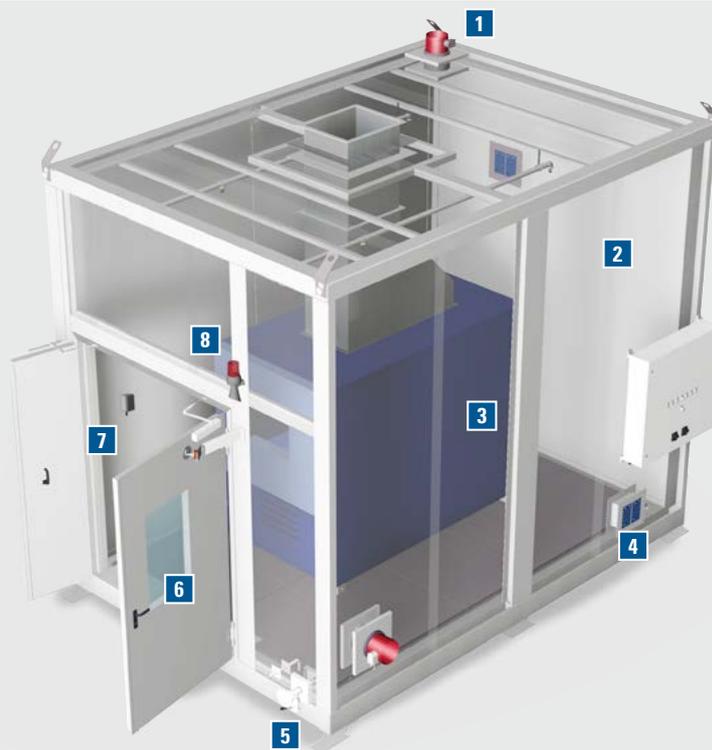
### Monitoring:

Comprehensive monitoring is vital for safety reasons.

Whether it's gas detection, temperature monitoring or even fire early warning, the provision of potential free contacts for risk-free transmission, for example to a (works) fire department, offers you the highest level of protection for your workers, equipment and company.

### Disposal:

In the event of an accident, contaminated cooling water may collect in the spill pallet for example. An acid resistant, anti-static inliner gives an additional level of safety. A separate connection is provided for emptying the WHG spill pallet. The cooling water can then be properly disposed of.



- 1 Optimised fresh air entry and specific air extraction
- 2 Fire and explosion proof test room
- 3 Separate climate chamber in test room including connection to pressure release surfaces in the roof
- 4 Secure wall break-through points for power and data connection cables
- 5 Water cooling or alternative extinguishing designs - shown here as dry sprinkler pipes and separate connection for later «spill pallet draining»
- 6 Safety with visual checks
- 7 Room monitoring eg gas detection or temperature sensor
- 8 Visual and audible signalling of deviations from set requirements

### Test container for stationary energy storage units

The energy revolution needs rethinking - in many respects. More and more energy is supplied by renewable sources such as wind farms or solar installations. Energy is often produced at sites and at times of the day when it can't be used directly. This also means that electrical energy storage is becoming an increasingly relevant issue. With this in mind, DENIOS has developed an REI 120 test room in a joint project, as a test bench for stationary energy storage units.

Very large batteries, within the permitted test volume of up to 30 m<sup>3</sup>, can be subjected to defined thermal and electrical stresses. Under the most realistic test conditions possible, within a temperature range of - 20°C to + 60 °C, an artificial ageing process is simulated, which also tests the cycle stability of the batteries.

In addition to basic tests, the test scope covers:

- Simulation of extreme environmental conditions by loading up to the permitted temperature limits, as well as testing behaviour during temperature variations
- Effects of high humidity on the test pieces, eg formation of condensation
- Loading with minimum and maximum power supply, looking at upper and lower voltage limits
- Customer-specific evaluations

**All this was done without a separate climate chamber in the test container!**

You'll receive an innovative and ready-to-use solution.

What's also important for you: your test results will be reproducible every time!



Generous test room volume - even for large test objects



Test pieces: Batteries



View into the REI 90 test room - temperatures of - 20 to +60 °C can be simulated

# Emergency Power Supply containers

## Reliable power supplies with EPS containers

An emergency power supply is an essential component of safety system design, for providing the uninterruptible power supply (UPS) for hospitals, computer data centres, the chemicals industry or a-t telecommunications sites, for example. However important these systems are, there are often problems when installing a system as an add-on: lack of space, safety concerns and any required conversion work can all mean high additional costs.

Especially in cases where small, portable equipment is no longer sufficient, DENIOS offers a space saving, mobile solution with its safety rooms, all with an attractive price-performance ratio. When it comes to reliable power supplies with EPS containers, the most varied kinds of energy producing equipment (diesel generators, fuel cells or similar) and storage media such as batteries may be safely housed in our fire and vandalism protected technical/safety rooms, while remaining mobile. We would be happy to produce a room design especially optimised for your equipment.

The weather-proof container can be sited outdoors and, thanks to its low net weight, can even be located on a flat roof to save space. Indoor locations are of course also suitable.

The system is fully assembled in our production facilities, so that connection to the local system is all that is needed when the system is delivered. DENIOS offers a comprehensive, user-friendly Plug & Play solution, making it possible to set up your emergency power supply quickly and safely and making a real contribution to your works safety! As your service and maintenance partner, we're always there to support you.



View into the uninterruptible power supply (UPS) in the container.



REI 90 (F90) fire-rated container, cable routing in the double floor



Location for the technical container on the roof of a hospital

### Example options (other versions available on request)

| Typ       | Useful area approx. (m <sup>2</sup> ) | External dimensions (W x D x H mm) | Bay dimensions (W x D x H mm) | Fire-rated | Insulation | Crane eyes | Corner castings | Features (examples)  |
|-----------|---------------------------------------|------------------------------------|-------------------------------|------------|------------|------------|-----------------|--|
| TSR 26.10 | 2                                     | 2.650 x 1.150 x 2.200              | 2.400 x 900 x 2.000           | –          | •          | •          | –               | ■ Easy access from 1 or 2 sides, giving access to the full container width |
| TSR 26.19 | 4                                     | 2.650 x 1.900 x 2.300              | 2.400 x 1.800 x 2.150         | –          | •          | •          | –               |  |

## Fuel cells are the technology of the future

Fuel cells are increasingly being used as an energy source which does not depend on the power grid. This technology has been used in the mobile communications field and in military applications.

These sensitive systems are often found in climatically difficult environments. As part of a cooperative project, a system was developed to ensure that fuel cell technology could be safely and suitably housed:

- Creation of defined room temperatures, optimised to suit the application
- Use of an REI 120 protective shell
- Pressure relief surfaces in the roof

For safety reasons, the container was divided into two separated fire compartments. One provided the storage area for the H<sub>2</sub> cylinders, and so had an Ex zone design. The other was a technical room, which housed the fuel cells and the required storage media. The result: a mobile room, which was perfectly designed to house this sensitive technology and suitable for both indoor and outdoor use.



In addition to fuel cells, photovoltaic equipment was also sited on the container roof to provide a source of energy.



Separate area for H<sub>2</sub> cylinders



View into the technical room with fuel cells and corresponding storage media

### Example options (other versions available on request)

| Model           | Useful area approx. (m <sup>2</sup> ) | External dimensions (W x D x H mm) | Bay dimensions (W x D x H mm) | Fire-rated | Insulation | Crane eyes | Corner castings | Features (examples)  |
|-----------------|---------------------------------------|------------------------------------|-------------------------------|------------|------------|------------|-----------------|--|
| TSR 30.25 (10") | 6                                     | 2.991 x 2.438 x 2.591              | 2.700 x 2.200 x 2.250         | –          | •          | –          | •               | <ul style="list-style-type: none"> <li>■ Partition between fuel cells and H<sub>2</sub> supply</li> <li>■ Climate control</li> <li>■ Technical ventilation</li> <li>■ Pressure relief panels</li> <li>■ Break in security</li> </ul> |
| TSR 38.30       | 9                                     | 3.760 x 2.990 x 2.920              | 3.440 x 2.650 x 2.500         | •          | –          | •          | –               |  |
| TSR 50.30       | 12                                    | 4.960 x 2.990 x 2.920              | 4.640 x 2.650 x 2.500         | •          | –          | •          | –               |  |
| TSR 60.25 (20") | 13                                    | 6.058 x 2.438 x 2.591              | 5.750 x 2.200 x 2.250         | –          | •          | –          | •               |  |
| TSR 62.30       | 16                                    | 6.160 x 2.990 x 2.920              | 5.840 x 2.650 x 2.500         | •          | –          | •          | –               |  |

\*Upon request.

# Accessories

## Internal accessories

With the help of various accessories we can adapt your thermotechnic solution to your individual requirements. We have a tried and tested range of spill pallets as part of our range of internal fittings. For improved flexibility and quicker processing, grids can be replaced by a roller conveyor or rail

system. We can also ensure the required insulation or safety technology is fitted, depending on the requirements your system needs to meet.



### Technical ventilation

For permanent air extraction from your storage container.

The air exchange rate for both passive and active storage is ensured by technical ventilation according to local regulations.

**Explosion-proof designs are optionally available.**



### Explosion Relief Hatch

Designed to minimise damage from internal explosions:

- 120 minute fire resistant trap
- Opens at 600 Pa and close after explosion
- Heat insulated
- Tested by notified body



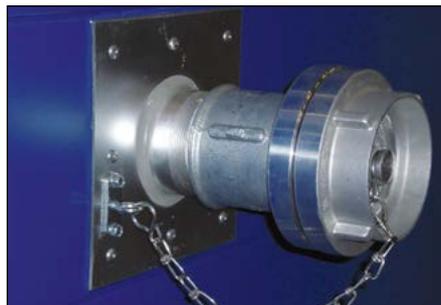
### Gas detector

Gas detectors warn of a hazardous atmosphere in the inner room of the container. Together with other detectors for leaks or heat, gas detectors create an effective monitoring system for the storage system.



### Insulation

The mineral wool insulation meets the highest requirements for fire protection and has very good insulation properties. If required, thicker insulation can be fitted, significantly lowering the U value. For certain applications, insulation using a PUR hard foam may be suitable. This almost doubles the thermal insulation for the same material thickness!



### Safety technology

The safety of people and the environment is our priority. We offer a wide range of options to protect your workforce:

- Semi-fixed extinguishing systems
- Fire alarm equipment
- Leak sensors
- Signal transfer and much more

### Additional accessories For internal usage

If required we would be happy to offer additional components to make using your thermal system easier:

- Mixing equipment
- Lifting equipment
- Pumping equipment
- Wall break-through points
- Internal lighting
- and much more

## External accessories

Additional equipment for the body of your thermotechnic solution can optimise your daily processes. Wing doors need more room than roller shutter doors, but have better insulation properties. Various retention devices prevent

the doors from closing, canopies and rainwater protection devices minimise the effects of the weather. Technical ventilation or safety equipment also improve safety.



### CO2 fire extinguisher system

Designed to handle lithium-ion battery based fires

- Automatic fire fighting system
- No water contamination



### Door hold-open device

Especially outdoors, workers need to be protected from the wing doors closing by themselves. We offer:

- Door bolts
- Retaining magnets
- Electro-magnetic door hold-open devices
- Storm hooks
- Door dampers



### Cable and pipe lead-through

Fire rated system lead through with possibility of replanting

- Gas, explosion and watertight
- Customisable to different requirements



### Air extraction

If hazardous vapours are created (eg harmful, toxic or flammable) in the internal room, the air extraction system can be turned on to remove the contaminated atmosphere and make it safe to open the doors. The extraction system can be operated manually or timer-controlled.



### Safety technology

DENIOS uses many solutions to ensure early recognition of any faults. Monitor your system with acoustic and visual warning systems for example. Direct data evaluation and signal transfer to control systems are also possible. Your system can also be fitted with access controls as an option.

### ! Additional accessories for outdoor installation

If required we would be happy to offer additional components to make using your thermal system easier:

- Door contact switch
- Collision protection
- Viewing window
- External lighting
- and much more

# Safe transport to your site

Transport and assembly



## On the road worldwide — on-site assembly

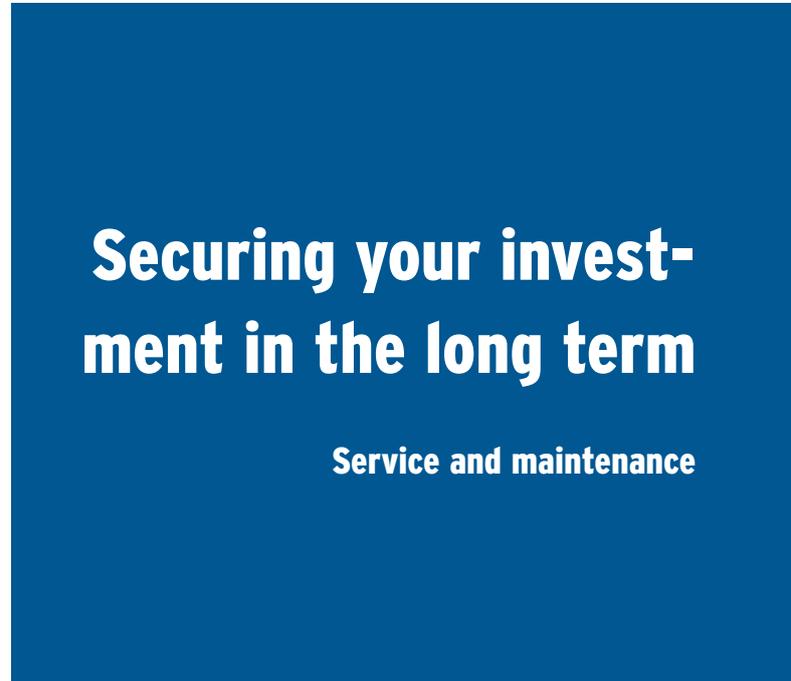
Whether we use our own DENIOS flat bed trailer or a trusted freight forwarder, we ensure your goods are transported safely and simply. Especially long containers can be transported on telescopic crane vehicles. Special oversized load transport for oversize widths or heights can also be arranged. We will take care of all the arrangements including obtaining the necessary special permits.

Would you prefer to fetch your container yourself or come and see it being assembled or commissioned? Not a problem. Your personal contact will happily arrange things for you and accompany you on your visit.

As your international partner, we'll bring our products directly to you - even overseas! Long term partnerships with logistics companies and freight forwarders enhance our international distribution channels. Your product will be delivered safely and on time.

Our containers are prepared in our facilities so that they can be quickly set up at your site. Pre-assembled and with all necessary connections in place, our containers can be put into service immediately. We will also undertake the technical training of your employees on site.





**Maintenance services**

- One-off inspection or maintenance contract
- Trained and certified service technicians
- Small repairs can be carried out directly on site, more involved repairs will be quoted for separately
- Production of a service report and test report
- Fitting of the inspection plate
- Travel costs and small consumables are always included in the maintenance price

**Your advantages**

- Legal requirements for maintenance intervals are observed
- Maintenance of your insurance protection including limitation of company liability in the event of a loss
- Save the expense of costly repairs with regular maintenance
- Minimise the risk of downtime and extend the life of your product
- Don't worry about tiresome scheduling. With a maintenance contract, we'll remind you in good time when maintenance is due
- Safety for your employees and your company

**Service**

Service - for DENIOS, this means our overall approach to your project, from the needs analysis to official acceptance.

We guarantee worldwide competent advice in accordance with the relevant local legislation. We are also your reliable partner for maintenance. In your contract we will ensure that the maintenance and repair of your technical equipment meets the legal requirements at the required intervals for your project.



Our maintenance programmes are as individual as our products, and custom made for your requirements. From one-off "on demand" maintenance to a cost saving, long-term maintenance contract, DENIOS offers made to measure solutions for everyone.

# DENIOS.

ENVIRONMENTAL PROTECTION  
& WORK SAFETY



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|                |  |
|----------------|--|
| Belgium        | <a href="http://www.denios.be">www.denios.be</a>         |
| China          | <a href="http://www.denios.cn">www.denios.cn</a>         |
| Denmark        | <a href="http://www.denios.dk">www.denios.dk</a>         |
| France         | <a href="http://www.denios.fr">www.denios.fr</a>         |
| Finland        | <a href="http://www.denios.fi">www.denios.fi</a>         |
| UK             | <a href="http://www.denios.co.uk">www.denios.co.uk</a>   |
| Italy          | <a href="http://www.denios.it">www.denios.it</a>         |
| Mexico         | <a href="http://www.denios.mx">www.denios.mx</a>         |
| Netherlands    | <a href="http://www.denios.nl">www.denios.nl</a>         |
| Poland         | <a href="http://www.denios.pl">www.denios.pl</a>         |
| Portugal       | <a href="http://www.denios.pt">www.denios.pt</a>         |
| Sweden         | <a href="http://www.denios.se">www.denios.se</a>         |
| Slovakia       | <a href="http://www.denios.sk">www.denios.sk</a>         |
| Spain          | <a href="http://www.denios.es">www.denios.es</a>         |
| Czech Republic | <a href="http://www.denios.cz">www.denios.cz</a>         |
| USA            | <a href="http://www.denios-us.com">www.denios-us.com</a> |