DENIOS

ENGINEERING

»Technical rooms / Safety rooms«

- mobile
- safe
- modular
- can be pre-installed
- Compliant to ISO 9001 and 14001

DENIOS
ENVIRONMENTAL PROTECTION
& WORK SAFETY

» Store sensitive technology on the move – Standard and bespoke solutions from DENIOS.«

Flexibility and mobility are important factors in successful production and technology. Mobile facilities that allow high-tech and equipment to be used practically anywhere are required by many branches of industry. DENIOS' answer: Technical rooms / Safe rooms.

DENIOS can meet all your requirements easily and efficiently! Whether it be fire protection, access controls, temperature control or a bespoke interior:
DENIOS' practical system fulfills all demands to the highest level.

DENIOS Engineering has been developing and producing reliable solutions for technical and safety rooms for over 20 years:
customer-orientated, efficient and of exceptional quality.

Contents

DENIOS – The company

A company that produces has responsibilities: for the quality of its products; for consumer protection and also for the safety of its staff and the environment. DENIOS has been helping to meet this increasing responsibility for over 20 years. As a manufacturer and supplier of products, and as a service provider for holistic, integrated solutions, DENIOS has become Europe's leading provider for environmental protection and safety.

The team at DENIOS Engineering will find exactly the right system design for you, using their know-how, expertise and technology to develop comprehensive projects involved in storing hazardous substances, ventilation, cleaning and safety technology.

An experienced team comprised of engineers in consultation, construction and production departments is up to any challenge! The personal and logistic flexibility allow the widest range of requirements from all areas to be swiftly implemented. DENIOS Engineering is a skilled partner when genuine specialists are required. A lean organization, coupled with convincing implementation – price-conscious and customer-orientated.

Engineering products from DENIOS provide - holistic solutions, incorporated into modern container systems – to the highest industrial standards. DENIOS has also incorporated the competency it has gained from implementing systems for storage of hazardous waste, or thermotechnical systems, into its modern technical rooms and safety rooms. Products that are always used where high-quality technology has to be incorporated safely and for mobile usage. This can be a protected unit, be integrated into running production, or can even be an autonomous system "in the open countryside": Technical rooms / safety rooms provide perfect safety and security.

Thousands of customers all over the world have placed their trust in DENIOS. In 13 European countries and the USA, the comprehensive service that DENIOS offers is marked by its holistic approach – from needs assessment right through to acceptance of the project by the authorities.

DENIOS management, production and forum in Bad Oeynhausen

What is a technical room / safety room ?

Solutions for today's demands

A DENIOS technical room / safety room is a mobile container system for the safe storage of technical equipment, such as, transformers, automatic control engineering, IT technology and control technology. Walk-in or non-walk-in solutions can be implemented.

The walls can be made of sheet steel: insulated and fire protected. They can also be designed in stainless steel. The floor design is always configured according to the customer's requirements, for example as a sump or as a double-load or heavy-load floor. All installations and fittings can be designed and placed individually: Windows, doors, shelving, ventilation technology, bushings and much more.

The modules have been designed for installation and fitting with the following components:

- Analysis rooms
- Rail engineering
- Emergency-lighting systems
- Battery cabinets
- Sampling rooms
- Fire alarm systems and extinguishers
- Dosing stations
- Burglar alarm systems
- Electrical equipment
- Emission test equipment
- Sampling rooms
- Radio cabinets
- Heating technology
- Ventilation technology
- Paint / mixing systems
- Cellular phone technology
- Process analysis technology
- Radar technology
- Clean rooms
- Radio relay equipment
- Server cabinets
- Telephone technology
- Transformer rooms
- Compressor stations
- Video surveillance and monitoring

DENIOS Quality

The stable, torsion-resistant steel construction ensures safe transport of the units and provides optimum possibilities for fixing all installations. Optional fire-protection up to F120 (120 minute) can be perfectly met for the entire system: additional security for valuable systems and for the company – right up to complete insurance coverage. Technical rooms and safety rooms from DENIOS are completely protected against water infiltration, corrosion, industrial emissions and salty air.

The best all round insulation, reduces the energy requirements – without thermal bridges. Every item within the design is certified compliant to ISO 9001 and 14001.

DENIOS' specialists will be happy to advice you on additional possible applications and uses.

Walk-in technology / safe room

Technical rooms / safe rooms

Example of application: Radio installations – climate-controlled and security sensitive

Individual sizes available on request

Technical rooms and safe rooms protect radio installations from overheating on the outside and theft, they also protect IT servers within buildings. These rooms are especially designed to meet the requirements for robust storage of mobile phone and transmitting stations. When space is limited, the systems can also be used as non walk-in cabinets. All of the features are included even in this compact model!

A selection of fittings:

- Ventilation system
- F90 (90 minute) fire protection
- Linoleum floor
- Aeration
- Lighting
- Lightning protection
- HF shielding
- Alarm systems
- Fire alarms

Approval

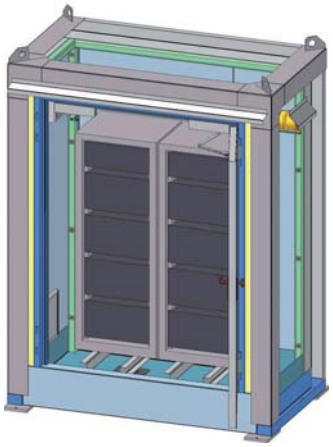
General building authority approval
DIBt German Institute of Construction Eng., Berlin

Of course, the interior can be adapted to your requirements at any time. Safety cabinets can be used for technical installation with limited space requirements, radio installations, server rooms and backup batteries. The safety cabinets can be installed both indoors and outdoors.

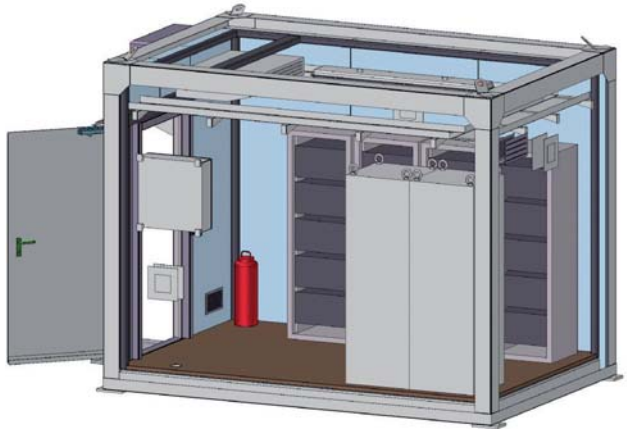
Double floor for laying cable

48 Volt Fan

Battery-backed emergency power supply



Non walk-in radio container, basic module



Walk-in radio container

Technical rooms / safe rooms

Example of application: Switching and transformer stations – mobile and can be preinstalled

Container with switching station on wind turbine

DENIOS container – can also be used as service point on tracks

Container with transformer in open pit mining of brown coal

Access to technical rooms

Electrical switching stations, transformers or inverters are protected in the technical / safety rooms from fire, burglary or other risks that are difficult to evaluate and, as the examples show, even at the oddest locations! The technical fittings can be cheaply pre-installed in the rooms at our production facility.

Additional equipment features:

- Fire protection on the inside and outside, selectable from F30 (30 minute) to F120 (120 minute)
- Burglar proofing
- Technical ventilation
- Ventilation system
- Fire alarms
- Lighting
- Lightning protection
- Stabile base
- Bushings

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Sizes: Individual sizes available on request

Internal view of container

Technical rooms / safe rooms

Example of application: Dosing container – with ex-protection on request

The requirements of this project were to install a new outdoor mixing station. The paint colours had to be kept constantly in motion and frost-free. Because flammable vapours are emitted when mixing, it was also necessary to provide the complete interior with explosion protection as well as technical ventilation. The final solution from DENIOS now primarily supports the operator in writing up/creating the required explosion-protection documents.

As there was not enough distance between the new unit and adjacent buildings during the installation, the room was designed with F90 (90 minute) fire protection with complete approval from the DIBt in Germany.

F90 (90 minute) technical systems from DENIOS can be installed both indoors and outdoors without safety clearances. The mobility of the F90 (90 minute) technical system also allows the location to be easily changed at a later date. The container solution implemented also had the advantage of allowing all assembly work to be done in advance. This pre-installation process guarantees a secure start and trouble-free operation by the operator.

Additional features:

- F90 (90 minute) fire protection
- Silicone free
- Aeration
- Lighting
- Bushings
- Dust protection
- Explosion protection
- Fire alarms
- PPG 26 Compliant Sump

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Of course, the interior can be subsequently adapted to your requirements.

Ergonomic arrangement and free movement for the walk-in system

Access via T 90 door with securing system

Fixing of fittings/installations in the container

Technical rooms / safe rooms

Example of application: Emergency power supply – space-saving and weatherproof

Emergency power supplies are used, e.g. in hospitals and other public buildings. These systems, which maintain vital building functions in case of a power failure, are perfectly protected by technical and safety rooms.

Insensitive to fluctuating weather conditions and lightweight, the technical room / safety room can be placed in a space-saving manner and without the need of extensive rearrangement of existing facilities, onto flat roofs or in the outdoor areas of hospitals and clinics.

The containers are completely assembled at our location in Newport – all you have to do after delivery is to establish the connections to your local power system on site.

The technical room can be setup right on the roof of the hospital

Equipment:

- Ventilation system
- Aeration
- Lockable
- Rodent-proof
- Body paint colour can be adapted to the respective front of the building
- Short assembly time
- Lightning protection
- Double floor for bushings
- F90 (90 minute) fire protection for inside and outside
- Lightweight
- fixings/installations can be fixed within the container

Final assembly of emergency power supply at the factory in Bad Oeynhausen

Advantage of this solution:

Modular design: Due to low costs and fast delivery, you only require one contact for the container and for the technical equipment/fittings.

Plug and play solution: Ensures fast and safe startup.

Lightweight: Allowing the systems to be erected onto roof tops.

Sizes: Individual sizes available on request

Container ready for final acceptance and transport to the customer

Technical rooms / safe rooms

Example of application:Sampling / washing room – with personal protection system

Interior design with vented workbenches for optimum personal protection

Inlet and outlet air connections with fire protection flaps

When handling dusts and vapours hazardous to health – which may also be flammable – a technical solution is often required instead of personal protection equipment (PPE).

The system must therefore keep emissions away from staff to ensure that there is no risk to health. The certified extraction systems from DENIOS are perfectly integrated into the mobile technical rooms/ safety rooms.

Technical solution:

Dusts and vapours are extracted over a wide area by means of targeted air guidance. The exhaust air is filtered to ensure no emissions escape to the environment and the inlet air is temperature controlled. The customer therefore receives an application that has been system-tested as a mobile solution which is immediately ready for operation.

Additional features:

- F90 (90 minute) fire protection
- Stainless steel systems for detecting hazardous/noxious materials
- Aeration
- Lighting
- Dust protection
- Bushings
- Air conditioning
- Explosion protection
- Fire alarms
- Windows in doors

Approval

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Container in operation on customer's premises

Technical rooms / safe rooms

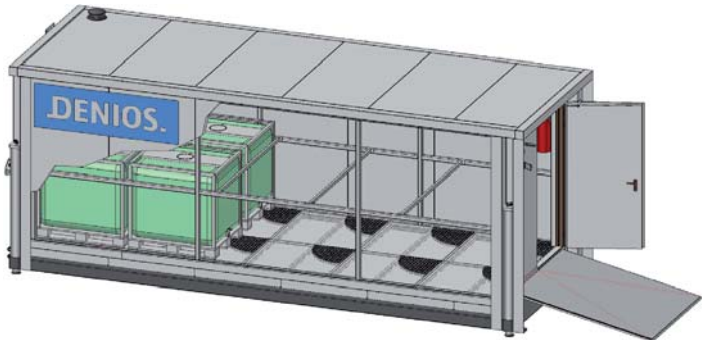
Example of application: Mobile box – flexible and can be transported by lorry

Many waste disposal contractors provide their customers with collecting stations for hazardous materials. The material is collected in "boxes", which must be suitable for transport by lorry. Because some dangerous substances are flammable, it is necessary to implement solutions and methods with fire and explosion protection.

This container can be placed directly onto the floor at the customer's location. This allows loading to be easily carried out manually and/or using the ramp. The waste disposal contractor can connect the box and then remove it with a lorry. For this the system is equipped with integrated, extendable hydraulic grippers, these lift the unit to the height of the lorry mount– even when fully loaded. Fully approved to ISO 9001 and 14001. Construction is done completely at the DENIOS factory, allowing the system to be picked up by the lorry with all functions already fully installed and ready to go!

Equipment:

- Hydraulic grippers
- Ventilation system
- Aeration
- Lockable
- Transport safety device, combined with drive-up ramp
- Fixing point compatible to lorry system
- PPG 26 Compliant Sump
- With lifting carriage and mobile grid
- F90 (90 minute) fire protection for inside and outside
- Energy can be supplied by plug and power supply of lorry



No energy on site – what now ?

If there is no power supply at the place of installation then the systems can be equipped with solar and/or wind power plants. Clearly designed battery back-up systems and selected consumers – for example, energy-efficient ventilators – guarantee trouble-free operation.

Equipment:

- Solar module
- Wind turbines
- Battery charging units

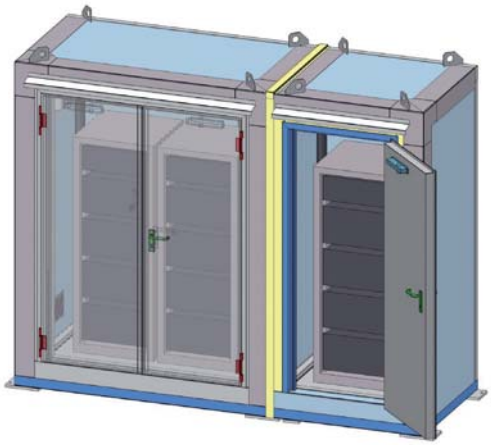
Technical rooms / safe rooms

Dimensions – standard

On request, DENIOS customers receive professional support in processing any required approval procedures. The size of the container is always geared towards the requirements of the customer. Areas can then be easily partitioned off within the container. This is achieved using wire mesh if you only need to control access to certain areas. Other solutions extend right up to fire-protected segments that are isolated entirely from the remaining areas. Additional modules can be attached to the existing container when necessary.

DENIOS implement these options quickly and economically. The modular design of components with their tried-and-tested system solutions, as well as the accompanying fittings and expansions, allow all DENIOS projects to be implemented quickly and at a low cost.

Room with radio and emergency power technology/equipment



Non walk-in technology room with extension module

Type	Exernal dimensions (mm)			Internal dimensions (mm)			Room sizes (m^3)	Weight (kg)
	Width W	Depth D	Height H	Width W	Depth D	Height H		
TSR 180	1,860	1,640	2,850	1,260	1,350	2,430	4.1	1,150
TSR 240	2,660	2,510	2,520	2,240	2,190	2,100	10.3	2,000
TSR 314	3,370	1,850	2,420	2,700	1,340	1,955	7.1	2,350
TSR 360	3,860	2,510	2,520	3,440	2,190	2,100	15.8	2,400
TSR 480	5,060	2,510	2,520	4,640	2,190	2,100	21.3	2,800
TSR 600	6,260	2,510	2,520	5,840	2,190	2,100	26.9	3,200
TSR 360-X	3,860	2,970	2,920	3,440	2,650	2,500	22.8	2,700
TSR 480-X	5,060	2,970	2,920	4,640	2,650	2,500	30.7	3,300
TSR 600-X	6,260	2,970	2,920	5,840	2,650	2,500	38.7	3,900
TSR 720-X	7,460	2,970	2,920	7,040	2,650	2,500	46.6	4,500
TSR 840-X	8,660	2,970	2,920	8,240	2,650	2,500	54.6	5,100

Standard gauge, special sizes available on request

Technical rooms / safe rooms

Door and gate models

Container with door in secured state and with outer lighting

The securing system in detail

Container with door securing system

To ensure that every technical room / safety room is an all around product, DENIOS only uses door systems with DIBt approval that are compliant to DIN 4102 and that are tested according to EN 1634. Insurance security approval standards are also available. The doors can be equipped with additional block locks as well as closed and locked indicators.

The size and arrangement of the doors can be selected as required.

Fire protection and even smoke protection can be ensured – if required – by submersible floor sealings and fusing door seals. Special door locking devices, such as biometric access controls and knock-code technology are also possible.

Every door is kept open electromagnetically using the approved door securing device – the same one that DENIOS uses every day. In case of a fire, the magnet is switched automatically and the T90 door closes. This ensures that the company remains Insurance Compliant at all times.

Features:

- Winged doors
- Sliding door
- Burglar proof up to WK 4 compliant to DIN V ENV 1627
- Windows in doors
- Various locking systems
- Surface-applied door closer
- Securing systems
- Door contact switch

Approval

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Locking contact

Door contact

Technical design and design models

Wall design of the rooms

The walls and roofs of the containers can be sealed using various materials. There are many possibilities – from the model with sheet steel through to insulation panels made of PU foam or non-flammable rock wool, right up to noise or fire protected panels. The panels are made using galvanized and painted sheet steel, which guarantees an extremely long lifetime. Excellent insulation and tightness as well as the possibility of adding and then sealing additional individual openings are the key features of this solution.

Rock wool panels:

DENIOS uses panels that are DIBt-approved and classified according to EN 13501-2 from 60 to 120 minutes. These panels are comprised of a rockwool core and are covered on both sides by a galvanised and painted sheet panel.

Features:

- Excellent F90 (90 minute) fire protection
- Good heat/cold insulation
- The coated steel lining on both sides ensures excellent lighting protection.

PU panels:

PU panels are comprised of a polyurethane foam core and are covered on both sides by a galvanised and painted sheet panel.

Features:

- DIBt approval
- Very good heat/cold insulation
- Standard openings / individual openings can even be made after installation and then sealed.
- The coated steel lining on both sides ensures excellent lighting protection.

Extreme loads can be applied to the walls and the roofs. A separate frame is added for loads over 50 kg. Discharge capacity, EMC and lighting protection are all ensured by the sheet steel covering. The system with insulation meets the requirements of a high level of burglar protection due to its non-unmountable fixture. Fixing points and bushings can be easily altered subsequently at any time.

100 mm panels made of rockwool

50 mm panels made of PU foam

100 mm panels made of rockwool with stainless steel sheeting

Technical design and design models

Glands and ventilation

The pipe feedthrough glands and cable used provide protection against water, fire, gas and pressure as well as sand, dust and dirt. Vermin and rodents are kept away. Inconveniences, problems or damages caused by cable extraction, explosion pressure, vibrations, noise and electromagnetic disturbances are excluded.

Features:

- Rain and snow proof
- Excellent insulation
- Noise protection
- Dust protection
- Rodent-proof
- EMC and lighting protection
- Burglar proof to insurance standards available
- Fixtures and feedthrough glands/bushings can be added at any time
- Feedthrough glands for power and data cables
- Fire protection
- New and additional feedthrough glands can be made in the panels without loss of F90 (90 minute) protection status.
- Proof for EN 13501-2 as well as DIBt

Approval

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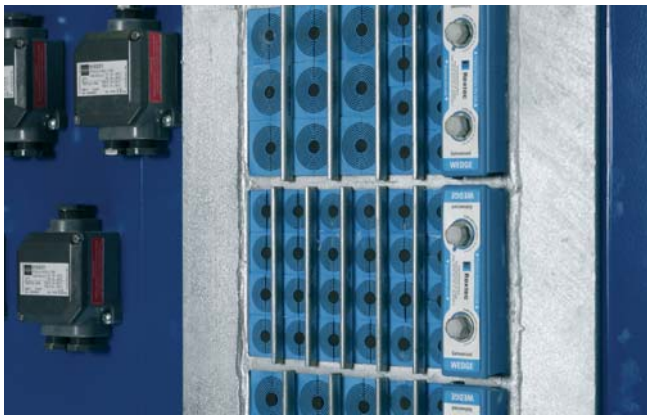

Cable feedthrough glands

Ventilation component in sidewall with rain protection

Ventilation component with safety fuse

Fire-protected feedthrough glands of cables in a side wall

Fire-protected feedthrough glands of pipes in a side wall

Technical design and design models

Installations/Fixtures and equipment

The special feature of every technical room / safety room is the ability for the customer to react quickly to a variety of situations. Various transport attachments such as, crane eyes, lashings or corner casings make these technical systems highly mobile and flexible. A range of detection devices ensure that a secure warning is always issued promptly in the case of an emergency. Various climate control techniques are available to ensure the accurate temperature range for specific fittings/installations.

Features:

- Floor variations:
  - Double floor for cable and air guidance
  - Grids
  - Linoleum floor can discharge
- Fire alarms
- Door securing systems
- Switching cabinet
- Fire extinguisher systems
- Detection devices (gas, vapour, liquid)
- Special coatings
- Pump sumps
- Window
- Ventilation system, heaters
- Feedthroughs
  - Cable
  - Pipes
- Shelving
- Fixing points

Double floor with door opening

Gas warning detector

Switching cabinet

Fire alarm

Floor feedthrough for media in container

Ventilation system and shelves with sumps

Cable tray and inlet opening with coarse filter

Warning lamp and eaves

Technical design and design models

Installations/Fixtures and equipment

Entirely dependent on the individual project requirements, the technical rooms / safety rooms from DENIOS are equipped with a tailor-made solution. In addition to various sensors, aggregates/units, cable lines or switching cabinets can also be installed in the container. Other heaters, windows, trays or cabinets can be integrated for staff comfort.

To ensure that a complete system with a full range of functions can be delivered, each project is completely planned and attended to by DENIOS' engineers from initial inception through to completion. The all round consultation and care provided by DENIOS ensures the highest level of project implementation – "from one source".

Mechanical temperature sensor with capillary

Ventilation

Fire alarm

EX sockets

Heating system

Motor-controlled fire protection flaps

Temperature sensor

Temperature controller (thermostat)

DENIOS Engineering
Individual solutions for professionals

Based on the top quality of our products, the DENIOS Engineering Team also develop special solutions in the "storage of hazardous materials", "air technology" and "thermotechnology". The special know-how of our engineers is in combining performance features, such as, a walk-in hazmat storage unit with F90 (90 minute) fire protection including an integrated workplace with air extraction.

For over 20 years DENIOS has provided customised safety in the construction and design of containers and storage rooms. Various cabinets made of sheet steel, insulated or with F90 (90 minute) fire protection on the inside and outside, as well as integrated sump systems for water protection are designed and implemented by our engineers for the most varied range of applications – and for practically all industries.

The DENIOS Engineering team provide solutions which always **comply with the current legislation.**

Development, design, production
At DENIOS everything comes from one source - in accordance with the strictest quality criteria, which often exceed current regulations.

The focus is on the following areas:
- **Hazardous materials storage technology / F90 (90 minute) fire protection**
- **Thermotechnology**
- **Ventilation technology**
- **Technical rooms / safe rooms**

Following expert, specialist advice with an intensive planning phase, as a DENIOS customer you receive turn-key systems which our experts also assemble and start up in your company. In addition we accompany you during the approval phase and provide support with the acceptance of your system - based on current regulations.

After delivery DENIOS provide you with comprehensive service and maintenance for your systems. Please request more information about this, or ask your DENIOS advisor.

Flexibility for future requirements
All technical components are very service and update friendly! A change of system or technology, as well as retrofits, can be made easily.

System-tested complete solution
System-tested products are tested as complete units. This includes the complete construction and all attachment/installation modules such as doors, feedthroughs/openings or ventilation units. The total safety for the construction of the room and compliance to safety standards of the cabinet is only ensured after this check.

Benefit from over 20 years of DENIOS experience!

The DENIOS range of products

DENIOS Quality

"Made by DENIOS" is a seal of quality for the ambitious projects of DENIOS Engineering. With competency and a high level of safety, we use tried and tested processes in all areas of the company. Internal and external checks and tests ensure this high level of quality. DENIOS has been certified compliant to ISO 9001 for over 10 years and also certified compliant to ISO 14001 in recognition of environmental protection. This is a key part of the DENIOS philosophy and a benefit to everyone by saving valuable resources.

Technical Solution Specialists

DENIOS Engineering is distinguished by its know-how in achieving solutions for the most varied projects. In addition to safety technology, the team is also involved in the following:

- **Storage of hazardous substances**
  The core competency: DENIOS is the market leader in this area. DENIOS Engineering profits from over 20 years of know-how in the implementation of systems of all sizes.
- **Ventilation technology**
  Clean air for man and his environment is the focus of our work. DENIOS Engineering provides highly effective single user solutions and integrated systems in the storage of hazardous materials and thermotechnology.
- **Thermotechnology**
  Many work processes require substances/materials to be heated up or stored at constant temperatures. DENIOS Engineering formulate a tailor-made process for your system.

The DENIOS main catalogue is also available for you to use as a reliable source of information. Containing more than 7,000 professional products, its 500 pages provide everything that your operational environmental protection and work safety requires.

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DENIOS
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10/09/UK/Technical rooms / safe rooms