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## 1 General Instructions

### 1.1 1.3. Legend, Explanation of symbols

The following safety symbols are used in these operating instructions. Above all, these symbols are intended to draw the attention of the reader to the adjacent safety instructions.

	This symbol indicates that there are hazards to the life and health of persons.
	The symbol indicates that there are hazards for the machine, material or environment.
	This symbol identifies information provided to improve understanding of the product and correct handling of the product.
	This symbol warns of dangerous electrical voltage within the working area (e.g. electrical distributors, terminal boxes, etc.)
	This symbol warns of hazards caused by explosive atmospheres.
	This symbol indicates suspended loads and their concomitant dangers.
	This symbol indicates a possible risk of crushing
	This symbol indicates a possible risk of crushing body parts (especially hands) by moving machine parts or machine parts that are closing.
 <b>SEPARATE INSTRUCTIONS</b>	This point refers to additional operating instructions or regulations (enclosed or delivered separately) required for operation or maintenance of accessories; these must be read and carefully observed. (safety instructions referring to these must always be observed).

## 1.2 Basic safety instructions

**Keep this user manual in a safe place. It has been designed for practical use and should be available to the user on site.**

This user manual applies to the . It contains all the information needed regarding correct startup, trouble-free operation, maintenance, removal from service and disposal.







The instructions in this user manual must be carefully followed and adhered to.







Any person who is involved in the installation, use, servicing or repair of the product is required to have familiarized him/herself with the contents of the user manual and to have been trained and instructed in its handling.

These instructions for use do not absolve the operator from the duty to issue special operating instructions in accordance to the German GefStoffV and BetrSichV (hazardous substances regulation and the regulation for industrial health and safety). The user manual is based on the safety data sheet and a risk assessment. The prohibition regarding the storing together of certain substances must be adhered to.

No changes, extensions or modifications may be made to the product without the manufacturer's written authorisation.

National regulations and safety regulations have to be adhered to.

2 Safety instructions	
	The storage system may only be operated by skilled and instructed personnel. Potential hazards have to be identified.
	Unauthorized people are not allowed to enter the storage system.
	The storage system may only be used for its intended purpose.
	Handling of hazardous substances is only allowed while wearing the specified protective equipment.
	If the storage system is damaged, it has to be repaired immediately by an approved company while observing the required safety measures. In case of any damage the storage system must be put out of service.
	There is the risk of bruises when using the door.

	Only store materials for which the storage is designed.
	The trading units for the materials must comply with the provisions for the Transportation of Dangerous Goods.
	The trading units may only be opened for filling and emptying. They are only allowed to be dispensed above the sump.
	The following regulations and instructions, latest issues, have to be observed: - BGV A1 and BGR 234 - The information leaflet "Rules of operation and conduct for the storage of water-hazardous liquids" (put it up at a clearly visible position!) - Construction supervision approval (if available)
	Fire, naked flames or smoking are not allowed.
	The system has to be checked regularly. For this purpose, refer to the Control and Maintenance Plan

### 3 Intended use

The is a storage system used to store hazardous substances and flammable liquids of the classes R10, R11 and R12 in accordance with the ordinance on hazardous substances (later than 01 December 2010, these classes will be called H 224, H 225 and H 226 acc. to GHS).

The specified total volumes of the storage system must not be exceeded. The load capacity of the storage system in the data sheet/on the type plate must also be observed. Make sure that the substances are only stored on the grids. During storage, the total permissible storage volumes as well as the maximum permissible storage volume of the largest storage unit must be met and observed, depending on the provided sump capacity.

Additionally, before use and after any change of the type of the stored media, it will be necessary to prove that the material of the sump is resistant to the medium to be stored.

This proof can be provided:

- by DIN 6601 or
- by the BAM list
- as a proof of experience

Drums may only be placed into the storage system or removed from it, or lifted down, using suitable equipment (e.g. drum grippers).

Substances are only permitted to be stored together when the risk assessment indicates that there are no hazards caused by possible reactions or physical influences. Otherwise, the substances must be stored separately. The substances must be stored in a way that all trade units and the sump can be viewed.

Packagings and trading units must comply with the provisions for the transportation of dangerous goods.

## 4 Product description

### 4.1 Design

The **Basic Store** containers are designed as follows:

- Frame structure made of rolled box sections according to structural analysis.
- Side walls made of galvanized steel sheets
- Rear panels and roof made of galvanized trapezoidal sheet sections
- Sump made of steel (material S235 JR, material number: 1.0038 according to DIN EN 10025-2) and tested using a leak test according to DIN EN-571-1
- Optional sump insert made of plastics (PE HD)
- Optionally, depending of the type, the front can be equipped with wing door or sliding door.
- The electrical earth connection of the basic body is ensured.
- The surface of the basic body is one-colour painted on a 2K-PUR basis. Doors are made of galvanised steel sheets.
- Foot plates are mounted to fix it to the bottom.

#### Model codes







### BS 60-2D-ST V600

(Example)

BS	60	-	2	D	-	ST	V600		
							V600	Sump capacity	600 l 1200 l 2000 l
						ST		Door element	ST = Sliding door TE = Wing door
				D				Stock type (preferred)	D = Storage of drums K = Storage of CTCs (IBCs)
			2					Number of storage levels	1 or 2
	60							One-bay container	30
								Two-bay container	60
BS								Container model Basic Store	






## 4.2 Technical Data

### 4.2.1 Basic Store – One-bay container

Data	Unit	Basic Store – One-bay container					
		BS 30-2D V600	BS 30-2D V1200	BS 30-2D V2000	BS 30-1K V1200	BS 30-2K V1200	BS 30-2K V2000
Image							
Storage capacity	CTC				2	4	4
	Drums	16	16	16	8		
Number of storage levels		2	2	2	1	2	2
Shelf width (SW)	mm	2700					
Shelf depth (SD)	mm	1340					
Shelf height (SH)	mm	1250		1340	2430	1450	1340
Width (W)	mm	2830					
Depth (D)	mm	1660					
Height (H)	mm	3001	3171	3591	3001	3571	3591
Sump capacity - net	l	600	1200	2000	1200	1200	2000
gross	l	730	1370	2200	1370	1370	2200
Shelf load	kg	3500					



#### 4.2.2 Basic Store – Two-bay container

Basic Store – Two-bay container						
Data	Unit	BS 60-2D V 2x600	BS 60-2D V 2x1200	BS 60-2D V 2x2000	BS 60-1K V 2x1200	BS 60-2K V 2x1200
Image						
	Storage capacity				4	8
	Drums	32	32	32		
	Number of storage levels	2	2	2	1	2
Shelf width (SW)	mm	2700				
Shelf depth (SD)	mm	1340				
Shelf height (SH)	mm	1250		1340	2430	1450
Width (W)	mm	5650				
Depth (D)	mm	1660				
Height (H)	mm	3001	3171	3591	3001	3571
Sump capacity - net	l	2x 600	2x 1200	2x 2000	2x 1200	2x 2000
gross	l	2x 730	2x 1370	2x 2200	2x 1370	2x 2200
Shelf load	kg	3500				

There are proofs of stability available for the Basic Store which are based on the following load assumptions:

Load assumptions:	Wind load:	→	0.39 kN/m <sup>2</sup> according to DIN 1055
	Snow load:	→	1.25 kN/m <sup>2</sup> according to DIN 1055

## 5 Transport

Before transport, make sure that the permissible total height and width are not exceeded.

### 5.1 Transport securing devices and handling by crane

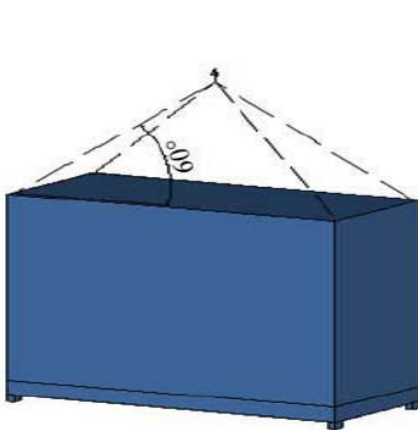


Only empty Basic Stores are allowed to be transported!

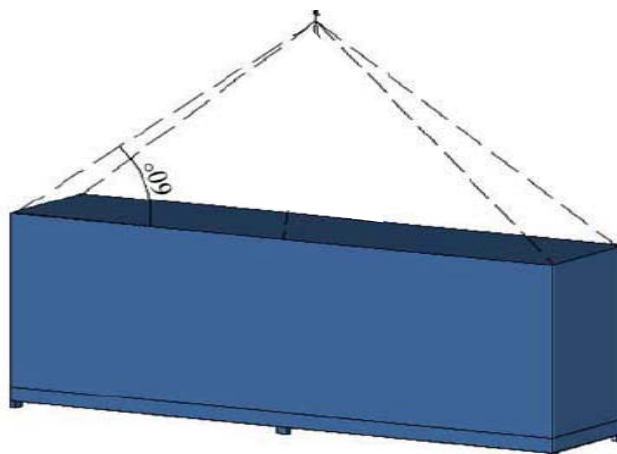
Before starting transport activities, fasten the container on the specified lashing points.

To transport the Basic Stores with crane eyes, the lifting angle of the ropes may not exceed 60°.

Refer to the image "Lashing of ropes/chains".



Container models:  
BS - one-bay




Container models:  
BS - two-bay

Image: Lashing of ropes/chains

## 5.2 Transport by fork-lift truck


Basic-Stores may only be unloaded and transported with fork-lift trucks of sufficient load capacity. Make sure that the forks are long enough to avoid tipping over.

	Consider the maximum load capacity of the fork lift!
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## 6 Erection / Commissioning

### 6.1 Erection conditions

Basic Stores may only be placed on even and paved surfaces. The foundation provided by the customer must be able to discharge the indicated loads. The selection of concrete with regard to load capacity, fitness for use and durability compliant to DIN EN 206 must be determined by the planner in accordance with the local requirements (refer also to the foundation plan).

	It may be required that an expert or a specialist firm has to prove the system before the commissioning.
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### 6.2 Additional conditions for the storage of flammable substances outdoors.

For the erection of Basic Stores, the following installation instructions (refer to images 1 - 3) have to be observed and kept to ensure the natural ventilation:



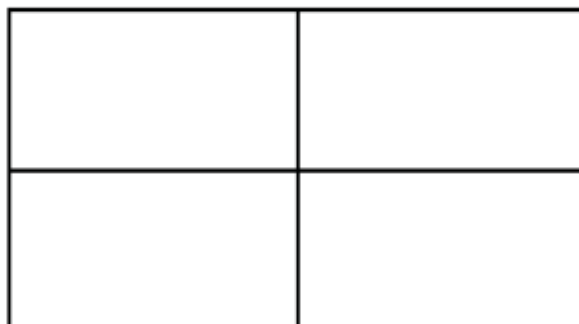
	Safety distances to the adjacent buildings have to be kept and protecting strips must be established.
	Flammable materials may only be stored passively in naturally ventilated Basic-Stores.

Image 1



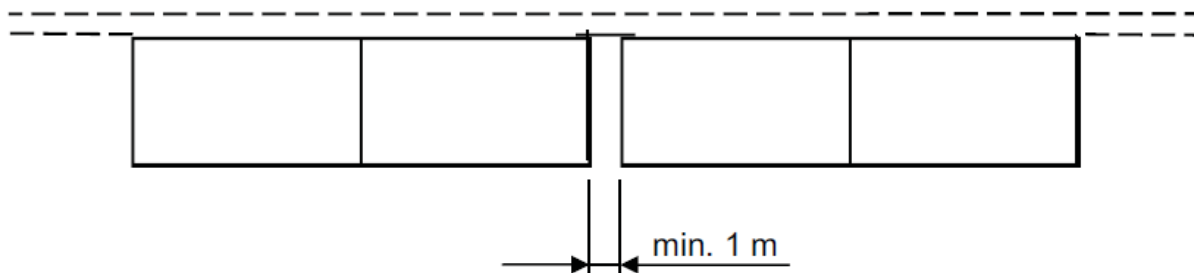
Formation of blocks with max. 4 containers;  
2 pieces each, in 2 rows after another

Image 2



Containers in a row without limitation of piece number!

Image 3

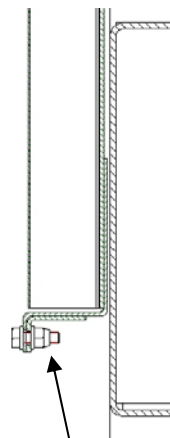
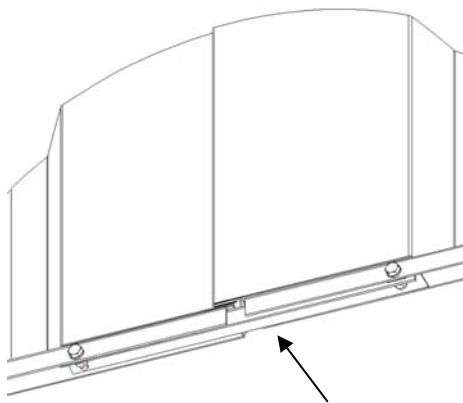


2 containers placed next to each other in a row against a wall!

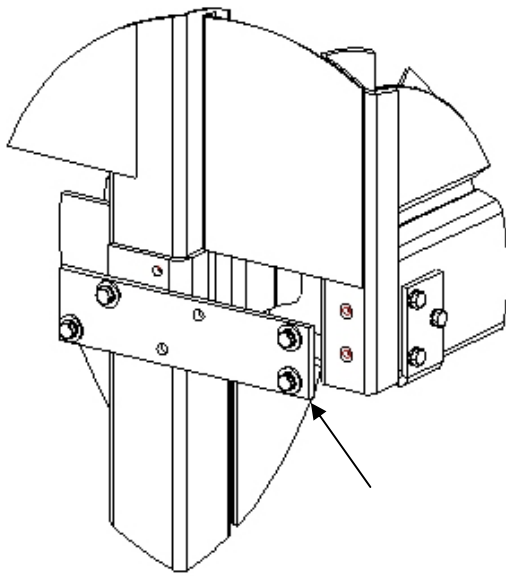
## 6.3 Alignment and anchoring in the ground

1. The container is set up at the desired place. To be able to reach the rear fixing points, a distance of 60 cm should be kept to buildings and the other facilities.

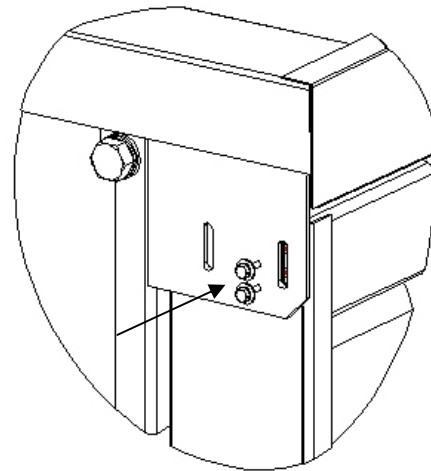
2. Remove the transport securing devices of the doors. In case of wing doors, they are in the middle - at the bottom. In case of sliding doors, each sliding door element is secured outside, at the bottom, and additionally outside, at the top.



Wing door - transport securing device (front view)    Wing door - transport securing device (side view)



Sliding door - transport securing device (at the bottom)



Sliding door - transport securing device (at the top)

3. The container has to be aligned horizontally and vertically using a spirit level. Also ensure that the doors are in alignment.

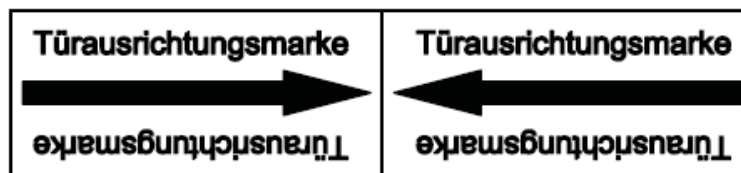
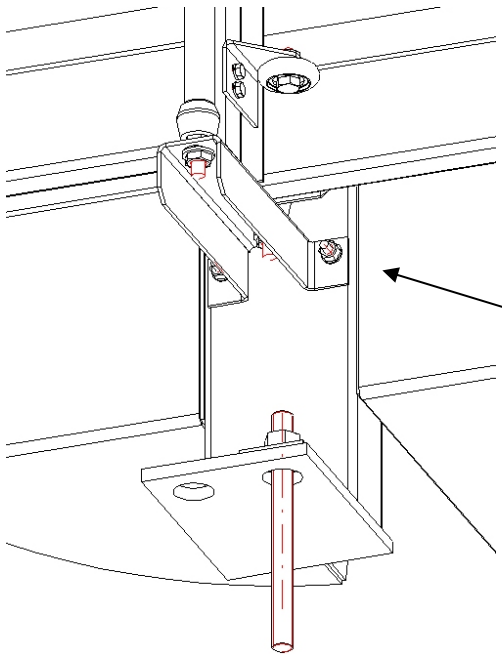


Image: Correct position of the door alignment marks

For the alignment use shims which are laid under the foot plates.

4. After the container has been aligned, the dowel boreholes are to be drilled. Please find the required boreholes in the images below.



In case of the sliding doors, the middle door guide has to be removed to get access to the borehole. It must be reinstalled after the dowel has been inserted.

Sliding door - middle door guide

Position and number of composite anchors, refer to Images 1 - 2:

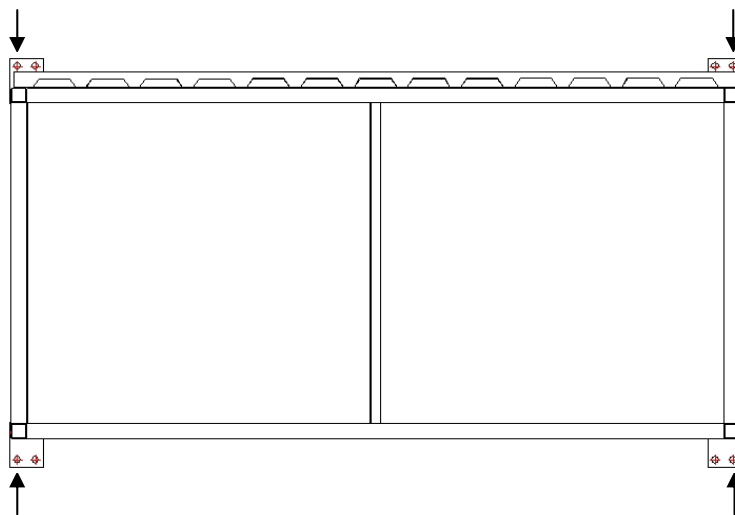


Image 1

Basic Store - One-bay containers

Number of composite anchors: 4

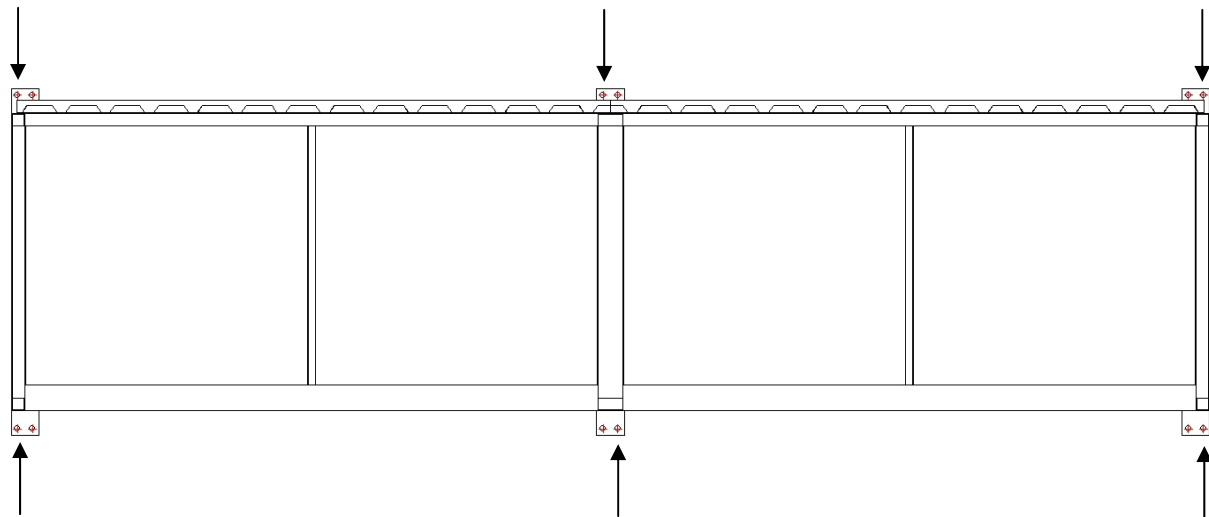


Image 2

Basic Store - Two-bay container

Number of composite anchors: 6

5. Apply the dowels according to the manufacturer's instructions. Attach locking nut and washer and fasten the nut.

1	Down comer - container
2	Foot plate
3	Fixing nut M16
4	Washer
5	Composite anchor M16 with anchor cartridge

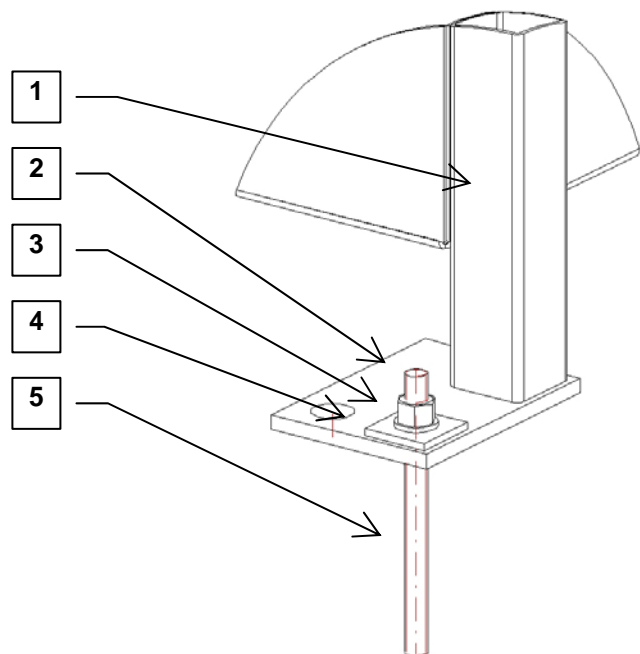
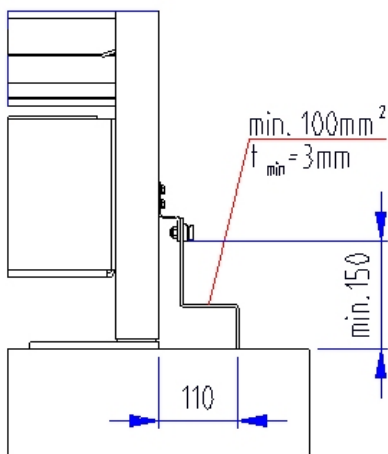
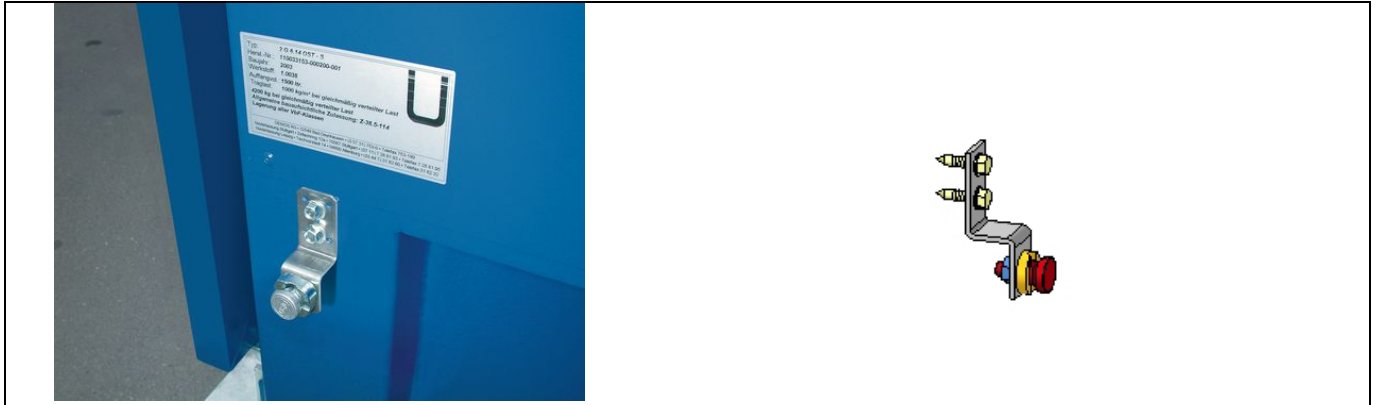


Image: Detail of floor anchor with foot plate

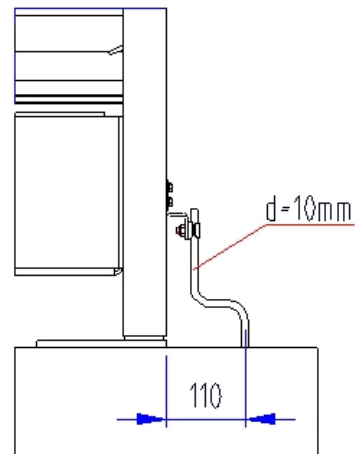
## 6.4 Earthing

For the storage of flammable substances, Basic Stores have to be connected to earth (refer to image). To do this, use the VbF accessory kit (item no.: 138099).

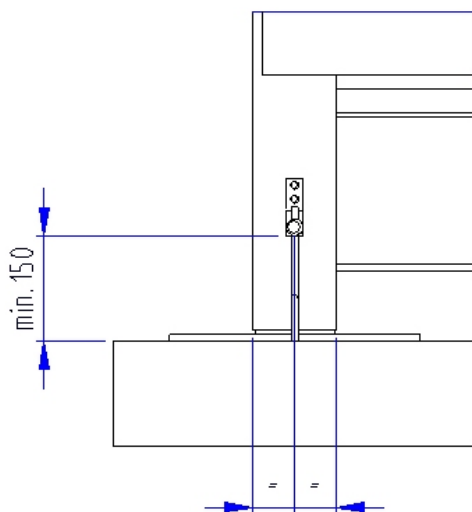
The earth conductor at the customer's side is to be connected to the VbF accessory kit. You can also connect round or flat steel earth connections.



Connection with flat steel earthing conductor



Connection with round steel earthing conductor



Side view of earthing connection



## 7 Operation

- Open the doors for loading or unloading the stored goods. Secure the wing doors using the storm hooks.
  - In case of sliding doors make sure that no objects are in the closing edge when closing the door.
  - Use a suitable lifting gear (e.g. fork lift truck with drum grippers) to place the containers on the grid or to unload them.
  - When storing metal containers place them carefully on the grid (speed 1 m/s) to prevent any possible sparks.
  - During storage or removal, the trading units must be secured against tipping over. For transport, also secure the trading units against tipping over.
  - When loading/unloading, pay attention to the shelf depth (refer to the Technical Data).
  - Store the goods that way that the sump can always be checked visually from one position.
  - After the storage system has been used, close the doors immediately.
  - Lock the doors to avoid unauthorized access.
- 
- Observe the safety instructions.
  - Remove inadmissible snow loads from the storage system.

## 8 Malfunctions

Error	Cause	Action
Liquid in the sump	Rainwater	Get the storage system sealed. Dispose the liquid from the sump without damaging the environment.
	Leaky container	Dispose the liquid from the sump without damaging the environment. Check the sump for damages.
Bent grid	Load too high	Replace the grid. Check the storage system for damages.
Doors are difficult to move	Hinges, rolling elements	Lubricate the components. If it does not become better, replace the components.

For questions or repairs contact our Denios specialists.

## 9 Maintenance and Repair



Switch the power supply off (if it exists) before starting maintenance and repair works and secure it against accidental switching on by taking appropriate measures.

- Please find hints for maintenance and repair in the **Control and Maintenance Plan** attached to these operating instructions.
- We recommend ordering a yearly maintenance service by the DENIOS AG.
- Before performing the maintenance or repair works, cut off the access to the storage system for unauthorized people! Post or place an information sign which informs about the maintenance and repair works!
- When exchanging parts use only original replacement parts from the manufacturer!

## 10 Putting out of operation

If the storage system is damaged it has to be put out of service and labelled accordingly.

## 11 Disposal

The container is comprised of various components and parts which must be disposed or or recycled in compliance to the local and legal regulations.



Before the disposal, any hazardous residue must be thoroughly cleaned off from the container!

Disassemble or dismount the single components of the container and arrange the components into the following groups

- Steel
- Light metals
- Non-ferrous heavy metal
- Plastic
- Electronic components and cable
- Building materials/insulation material

Ensure that all of these components are disposed of correctly and professionally, and are thereby a part of the recovered substance cycle.



# Zertifikat

über den Abschluss eines Überwachungsvertrages  
für Tätigkeiten als Fachbetrieb nach  
Wasserhaushaltsgesetz (WHG)

Firma **DENIOS AG**  
Dehmer Str. 68-64  
32648 Bad Oeynhausen

Tätigkeiten des Fachbetriebes gemäß WHG:

- ☒ Aufstellen      ☒ Instandhalten/Instandsetzen  
☒ von Anlagen zum Umgang mit wassergefährdenden Stoffen

Einschränkungen:

Gemäß Bescheinigung über die wiederkehrende Prüfung vom 11.10.2010.

Dieses Zertifikat ist gültig bis: 09.2011

TÜV NORD Systems GmbH & Co. KG  
Bereich Mitte  
Region Ostwestfalen-Lippe

Bielefeld, den 11.10.2010 -je



Der Sachverständige

  
Dipl.-Ing. Rodemeister

## 11.2 Certificate SLV




**GSI SLV**  
Duisburg

Schweißtechnische Lehr- und Versuchsanstalt SLV Duisburg - Niederlassung der GSI mbH  
**Bescheinigung Klasse D**  
über die Herstellerqualifikation zum Schweißen von Stahlbauten nach DIN 18800-7: 2002-09

Dem Unternehmen	DENIOS AG
wird für den Schweißbetrieb in	32549 Bad Oeynhausen, Dehmer Straße 58 - 66

bescheinigt, dass er über die erforderlichen Fachkräfte und Vorrichtungen verfügt, Schweißarbeiten zur Herstellung tragender Stahlbauteile im folgenden Anwendungsbereich durchzuführen:

Normen/Regelwerke	DIN 18800-7
Schweißprozesse (Ordnungsnummer nach DIN EN ISO 4063)	111 Lichtbogenhandschweißen 135 Metall-Aktivgasschweißen teilmechanisiert
Grundwerkstoffe	S235, S275, S355 nach der jeweils gültigen Bauregelliste und der Anpassungsrichtlinie Stahlbau
Erweiterungen/Einschränkungen	keine
Verantwortliche Schweißaufsichtsperson (Name, Vorname, Geburtsdatum, Qualifikation)	Dipl.-Ing. Heumann, Carsten, geb. am 08.07.1957, SFI (DVS)
Vertreter (Name, Vorname, Geburtsdatum, Qualifikation)	entfällt
Bemerkungen	s. Rückseite
Gültigkeitszeitraum	vom 18.06.2008 bis 18.06.2011
Bescheinigungs-Nr.	2008.0108
ausgestellt am	07. Oktober 2008 Lammers/Ms
Leiter der Prüfstelle (Name, Unterschrift, Stempel)	
Allgemeine Bestimmungen siehe Rückseite	



Niederlassung der GSI mbH  
Schweißtechnische Lehr- und Versuchsanstalt SLV Duisburg  
Dipl.-Ing. R. Lammers  
Nr. 13  
Duisburg

Schweißtechnische Lehr- und Versuchsanstalt SLV Duisburg;  
Niederlassung der GSI mbH  
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Tel. 0203 / 3781-0 · Fax 0203 / 378 12 28 Internet: www.slv-duisburg.de  
Abteilung Qualitätssicherung · Fax 0203 / 3781-350

**DVS**

**Allgemeine Bestimmungen**

1. Diese Bescheinigung ist vor der Ausführung von Schweißarbeiten in beglaubigter Abschrift oder Ablichtung den für die Baugenehmigung zuständigen Behörden unaufgefordert vorzulegen.
2. Zu Werbungs- und anderen Zwecken darf diese Bescheinigung nur im Ganzen vervielfältigt oder veröffentlicht werden. Der Text von Werbeschriften darf nicht im Widerspruch zu dieser Bescheinigung stehen.
3. Ein Ausscheiden der in dieser Bescheinigung für die Wahrnehmung der Aufgaben der Schweißaufsicht genannten Person(en) sowie Änderungen der Schweißverfahren oder wesentlicher Teile der für die Schweißarbeiten notwendigen betrieblichen Einrichtungen sind der anerkannten Prüfstelle rechtzeitig anzuzeigen. Die anerkannte Prüfstelle kann erforderlichenfalls eine erneute Prüfung im Schweißbetrieb veranlassen.
4. Treten Zweifel an der Eignung des Betriebes auf, sind jederzeit unangemeldete kostenpflichtige Betriebsbesichtigungen und Prüfungen im Betrieb durch die anerkannte Prüfstelle vorbehalten.
5. Diese Bescheinigung kann jederzeit mit sofortiger Wirkung entschädigungslos zurückgenommen, ergänzt oder geändert werden, wenn die Voraussetzungen, unter denen sie erteilt worden ist, sich geändert haben, oder wenn die Bestimmungen dieser Bescheinigung nicht eingehalten werden.
6. Mindestens zwei Monate vor dem Ablauf der Geltungsdauer ist bei der anerkannten Prüfstelle erneut ein Antrag zu stellen, falls die Eignung weiterhin bescheinigt werden soll.

**Bemerkungen:** Die Voraussetzungen zur Durchführung von Schweißer- und Bedienerprüfungen nach Element 1310 liegen vor für  
Carsten Heumann

Zur Unterstützung der Schweißaufsicht wird benannt:  
Kiel, Uwe, geb. am 26.02.1961, SFM (DVS)

**Verteller:**

1. Antragsteller  
(Original)
2. Oberste Bauaufsichtsbehörde des Landes  
(sofern gewünscht)
3. Zuständige EBA-Außenstelle  
(nur bei RII 804)
4. z.d.A.

## 11.3 Control- and maintenance-plan

Control- and maintenance-plan \*

DENIOS

Object	Activity	Instruction / Basis	First examination	with demand	2 x weekly	monthly	quarter annually	half annual	annual	all 2 years	all 3 years
Camp-system >1000l Al bzw. 5000l Al/Al8	Examination before putting into service	BSV, TRbF 20, TRbF 600 ff	Expert	Expert							
	First-examination of the manufacturer-production views on dryness	Design examination	Expert	Expert	Operators						
	controls, records	LA/Al/A	Manufacturers								
	cleans	WHG §19i		Operators							
	Surface-protection repairs	WHG §19i		Operators							
	Damages repair	WHG §19i		Operators							
	controls	WHG §19i	Manufacturers								
	controls	WHG §19i		Operators					Operators		
	exchanges	BSV		Operators					Operators		
	Controls, especially hook-connection	BSV		Operators					Operators		
	and screws	BSV							Operators		
	Surface-Protection repairs	BSV							Operators		
Mounting shelf	controls especially poems,	BSV							Operators		
	hinges, palaces	BSV							Operators		
	dis	BSV							Operators		
	controls, especially close-function,	BSV	Manufacturers						Expert		
	close-follow								Expert		
	controls	BSV / Permission				Operators					
	controls	BSV / BGR 104							Operators		
	controls	concordance with operating instructions							Operators		
	controls	DIN / VDE 0833 / VdS					E Specialist				
	Examination, controls	VDE / VdS	Expert					Expert	Expert		
	Maintenance	DIN 57833 Teil 1 / VDE A4s					Qualified employee				
	Cold-installation	First-examination, record	BSV / BGR 500, Kap. 2.35	Expert							
Heat-swap pers clean, refrigerant-exit		BSV / BGR 500, Kap. 2.35		Operators							
First-examination		BGV A3 / BSV / VDE	E-Specialist								
Repetition-examination		BGV A3 / BSV / VDE									E-Specialist
First-examination		VDE 0185 / BSV	E-Specialist								
Repetition-examination		VDE 0185 / BSV									E-Specialist
Lightning-protection-installation											
Lightning-protection-installation											
the stated maintenance and test intervals are respected. The necessary intervals follow official editions, business-conditions, manufacturer-statements, norms and rules that are to be tested from the operator and to keep											

\*the stated maintenance and test intervals are respects. The necessary intervals follow official editions, business-conditions, manufacturer-statements, norms and rules, that are to be tested from the operator and to keep

