

**user manual modulbox HC2**

status 2020



m o d u l b o x

## **Warning**

**the modulbox system shall be operated by trained personell only!  
Personell has to be trained theoretically (by studying the manual )  
and practically ( training shall include all chapters of manual).  
The owner of modulboxes has to assure that operating personell is  
trained on the modulbox system.**

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## A. Description of the modulbox HC2

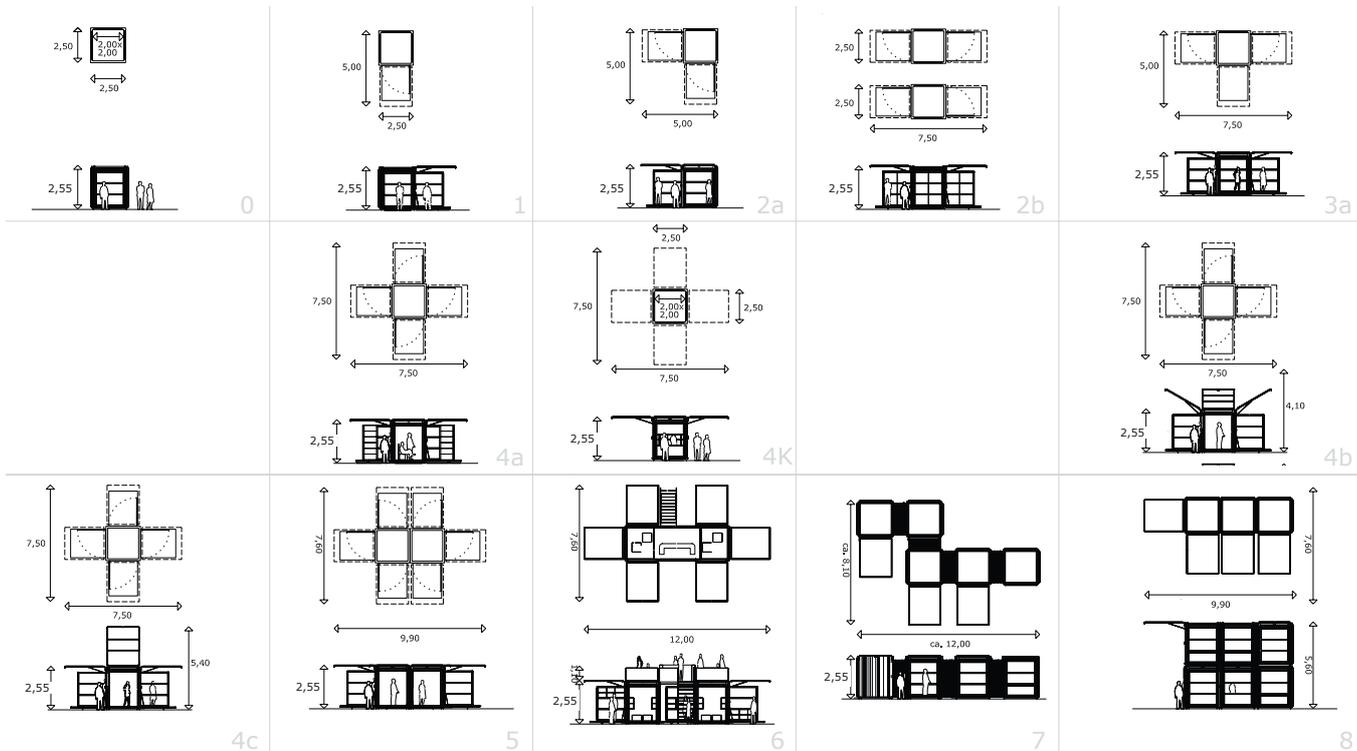
The **modulbox** is a modular mobile exhibition system with a steel frame construction. The side walls are each comprised of three folding elements: foldable roof, weight-bearing accessible platform and door flaps. The **modulbox** is rain-proof and was designed to be used both indoors and outdoors. The **modulbox** has external measurements of c. 2.45m x 2.45m x 2.65m (w x l x h) when closed; its total weight is c. 1.8t but this can vary according to the chosen fittings. An integrated special feature is the electromechanical lifting device, enabling (de-)installation without cranes or other lifting equipment. Usable interior space is c. 4m<sup>2</sup> plus another c. 5m<sup>2</sup> per platform unit with roof (exterior space).

The **modulbox** can be installed in a range of different exhibition designs simply by choosing different coupling and opening combinations.





The following illustration offers an overview of these combination possibilities.



## B. General Information

### B.1 Permissions

The **modulbox** qualifies for exemption from construction permits because:

- the space it offers is only designed for temporary occupation, and
- this space does not exceed a volume of 10.5m<sup>3</sup> (depends on combination).

According to §2 (5) BauOBln (Berlin Building Code) human occupancy spaces (Aufenthaltsräume) are spaces designed or suitable for human occupancy that is not just temporary. As a consequence, such spaces have to be suitable for permanent use.

According to § 56 (1) a building does not need a permit if it has no such rooms (designed for non-temporary human occupancy) and a gross volume < 30m<sup>3</sup>.

According to the relevant authorities, the **modulbox** is also not to be classified as a 'portable building' because the system does not have to be taken apart in order to de-install it.

Before any installation on public spaces or private land, always contact the relevant authorities (building/planning control office) to confirm this exemption from construction permits. This is the responsibility of the renter/purchaser.

The renter/purchaser shall incur any costs and obtain any statutory permits, in particular any construction permits, necessary for the operation of the contractual item. Upon request and payment of costs incurred, modulbox mo systeme can make available to the renter/purchaser the necessary documents for obtaining such permits for the contractual item.

However, modulbox mo systeme cannot guarantee or assure the success of such applications for statutory permits.

A type test certification (Typenprüfung) is available for the **modulbox** mb<sup>2</sup>. This can be shown to the local building authorities.

### B.2 operation during event

The operator is in charge to take care of all necessary safety measures and indications and to prevent harm from visitors ( for example signage `slippery grounds` etc. ).



## C. Transport and Installation

The **modulbox** has to be set up horizontally so that any rain water can be channelled away at the lowest point. Do not open the **modulbox** during a storm. Further usage instructions are to be found in the section 'Warnings' and the introduction to use.

### C.1 Transport with truck and fork-lift

The **modulbox** has a total height of 2.65m and a weight of up to 2t per **modulbox**, depending on fittings. These data should determine the choice of transport vehicle and fork-lift (load centre). The transport vehicle has to have a suitable load height (Jumbo Roller). During transport on an open vehicle the **modulbox** should be covered with a transport cover (special fittings).

When using a protective cover during transport, protect the corner of the rain tube in order to ensure that the cover is not ripped.

Fork-lift trucks whose forks are a minimum of 1,80m long can lift the **modulbox** HC2 from all 4 sides (the two sides marked with the sticker). **(C1.3)**. In this case it is important to place the **modulbox** on the transport vehicle in such a way that it can be unloaded from the same side – see Figure.

The **modulbox** must not be stored on its adjustable feet **(C1.1)** during transport and storage. These should be screwed in. Suitable timber bearers are to be placed under the **modulbox** (c. 10x10x80cm) **(C1.2)**.

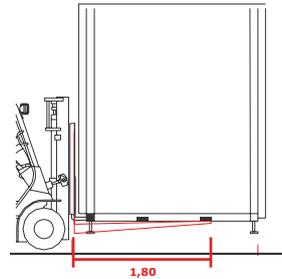
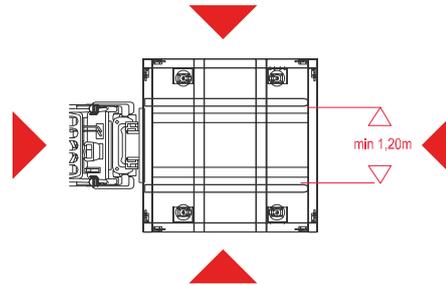
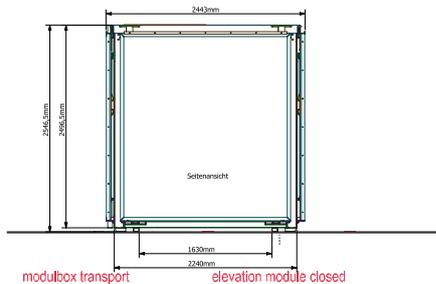
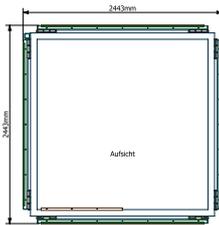
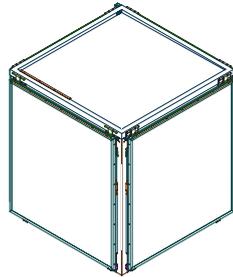
When on the transport vehicle, the **modulbox** must be tightly secured so as to prevent any movement. Securing straps should be fastened to the fastening points. Four securing straps must be used for each **modulbox** (one at each corner). Alternatively, securing straps can be attached from the floor points on the truck over the attic sheeting of the **modulbox**. If so, careful attention must be paid that the securing straps do not damage the foldable roof parts.

Check every installation site for the **modulbox** very carefully. Make certain that the ground is firm enough to bear the **modulbox**. On soft ground the **modulbox** must be placed on load-distributing stone slabs or steel plates. Bear in mind that, depending upon use, a load of up to one ton must be borne by each of the feet.

### External measurements of the modulbox

Length x width x height  
2.45m x 2.45 x 2.65  
Weight: up to 2t gross weight





### Requirements for fork-lift:

- min. 3,5 tons lifting capacity
- fork length min. 1.80m

Do not use a fork-lift with forks less than 1.80m to load the **modulbox**. Danger of tipping over!

Set down carefully, the **modulbox** is sometimes fitted with castors (special fittings). Only set down on absolutely horizontal ground!  
And ensure it can't roll away!





C1.1



C1.2



C1.3



C1.4



C1.5



C1.6



C1.7

## C.2 Transport with trailer and lift system (special fitting)

### Lift device

The **modulbox** can be fitted with four electrical lifting devices with a lift range of 700mm. These are controlled using a key switch with the switch settings 'up-0-down' (auf-0-ab).

The lift system is fitted with a constant velocity monitor that shuts down the whole system in the following situations:

wire break in neutral wire; blockage; power cut in device; thermal contact. Upon reaching the end situation the motors are switched off with a delay of c. 1 second.

### Warning:

operator has to watch out that all 4 engines are working at the same time.

STOP immediately

-when 1 or 2 or 3 engines stop moving

### engines

The duty cycle of the lifting device is 10%, this means that after a full extension or retraction it is necessary to leave the device switched off for c. 15 mins. Non-observation of this duty cycle means that a cut-out due to overheating will occur more quickly.

The thermal switch will only allow a renewed operation of the device once the system temperature has sunk. This can take anything up to 60 mins.

### Transport

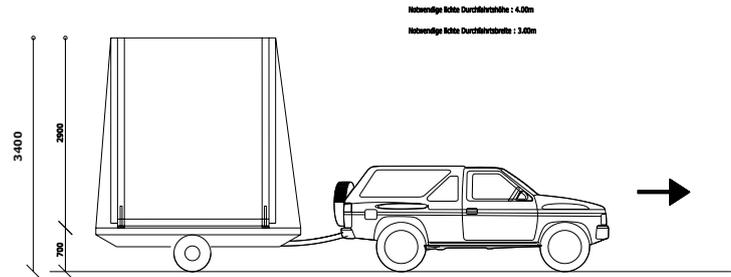
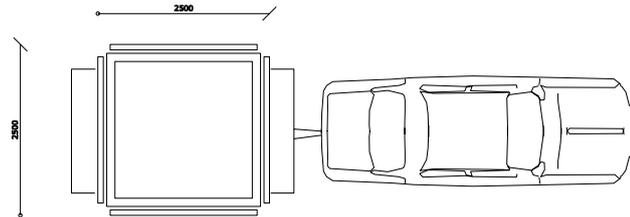
Please note that in order to transport the **modulbox** on a trailer, it is essential that the towing vehicle has a towing capacity of at least 2.5t.

### Setting down

Choose a secure location before unloading (note safety warnings).

- position the trailer / remove transport fastenings
- connect to mains electricity (230V)
- fully extend feet
- pull away the trailer by hand
- lower box to desired working height





## Loading

- check that all folding elements are secured
- check electrical connection for lifting device
- fully extend feet
- position trailer under the **modulbox** by hand
- overhang on right and left sides have to be the same
- the centre of gravity of the **modulbox** has to be forward of the centre of gravity of the trailer (check trailer load at the tow hitch)
- lower the **modulbox** onto the base of the trailer (secure the cable)
- remove electrical supply to lift device
- secure the **modulbox** to the fastening system of the trailer
- hitch the trailer to the towing vehicle
- fasten **modulbox** with securing straps.

## Protective cover (special fittings)

During transport on an open vehicle the **modulbox** should always be covered with a transport cover, which we offer as part of our special fittings.

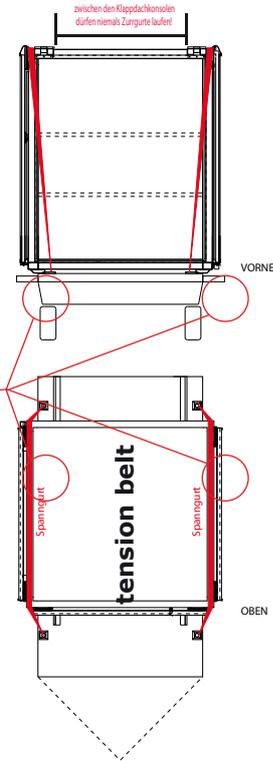
Open the protective cover on the roof of the **modulbox** so that the four side flaps hang down over the edges of the roof. Zip the side flaps together to connect them and then tighten them using the securing straps.



## position tension belt



TRANSPORT  
modulbox Spannungsgurt



**IMPORTANT:**  
tension belts  
need to be  
guided by  
canopy hinges  
in order not to  
move inside!

## Transport by Trailer



m o d u l b o x

## Lifting and Loading System

### Lifting device

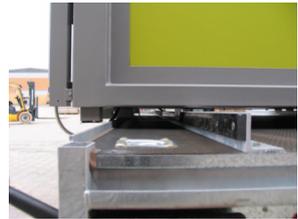
The **modulbox** has four electromechanical lifting devices.

In a floor box on the back of the modulbox, marked in green, are the 230V power connection and the connector for the switch element.

The lifting system has a maximum lifting height of 700 mm.

The engines need a capacity of 2.8 kW and additional switch-on current. The following points are of vital importance:

- **The power supply fuse must be switched on**
- **The length of the cable (cable diameter min 2,5mm<sup>2</sup>) leading up to the next mains fuse must not exceed 30 m**
- **If using cable drums, the cable must be unwound completely**



m o d u l b o x

Noncompliance with these rules may cause a loss of function in the lifting devices.

### Operation

The lifting system comes with a weatherproof switch element, which is connected with a plug-and-socket connector. It uses a low voltage of 12V. The connector must be protected from humidity in order to prevent the RCD from reacting. In addition to the push-button for movement (up and down), the switch element contains a red emergency stop switch. **Always ensure that this is unlocked.**

**When putting the modulbox down, make sure that the switch element's connector and power supply connector are not crushed.**

When controlling movement, note that a pause of > 0.5s must be observed between switching off and restarting. When changing directions, the pause must be > 1s.

The switch-on time of the lifting system is 10%; this means that after a complete extension or retraction, the device must be switched off for approx. 15 minutes. If the switch-on time is exceeded, the thermal circuit breakers will react more quickly due to overheating.

Once the operating temperature has lowered, the



thermal circuit breakers will reenable the controls. This may take up to 60 minutes.

### Lifting system check list

If the drives fail to work, check the following:

- >lead-in fuse
- >maximum cable length of 30m; unwind cable drums
- >check emergency stop on controls
- >check for possible cable breakage
- >do the drives respond to the emergency controls described above?

### Note

If the black plastic borders screwed to the four adjustable feet show noticeable indentations (>1 mm) in the direction of movement, or if movement occurs in short bursts, functionality should be checked by a technician.

### Loading and transportation

-Cables should be stored in the floor box during transport

-Fold in any elements sticking out from the trailer (lights)

### **XB 3. slide rail**

-The trailer contains slide rails to facilitate sliding the trailer under the modulbox for loading

#### **Note:**

-Always manually place the trailer under the modulbox and manually remove it; **never move the coupled trailer** under the modulbox.

### **Loading and Unloading**

Choose a safe location for unloading (note safety instructions)

- Positioning/ release transit support
- Connect power supply (230V)
- Extend adjustable feet completely



- Manually remove trailer
- Lower box to working height

### **Loading**

- Check that all folding elements are secured
- Check power supply for drives
- Extend adjustable feet completely
- Manually place trailer under **modulbox**
- Overhang must be equal on left and right side
- The **modulbox** centre of mass must be in front of the trailer's centre of mass (Check trailer load on coupling)
- lower **modulbox** onto trailer underlay (secure cables)
- Remove power supply for drives
- Secure **modulbox** to the trailer's securing device
- Couple trailer to towing vehicle
- secure **modulbox** with cargo straps

### **Securing the load**

As cargo, the modulbox must be secured according to effective regulations. Cargo straps of at least 2500 daN must be used.

### **Transport tarpaulin (optional equipment)**

For transport on an open vehicle, you should always use a transport tarpaulin, which we offer as



optional equipment.

The tarpaulin is spread over the roof so that the four sides hang over the roof's edges. The sides are connected with zippers and fastened with ratchet straps.

To prevent damage to the tarpaulin, all edged objects, particularly the downpipe, should be covered.

The cargo straps for securing the modulbox on the trailer should always run under the tarpaulin, with special attention paid to the position of the straps (as described under xy).

### Transport vehicle

Trailers used to transport the **modulbox** must have a permissible maximum weight of at least 2.7 tons. The towing vehicle must have sufficient trailer load of at least 2.5 t, ideally 2.8 t.

### Journeys with a trailer rig

When driving with a loaded trailer, the following rules must be observed:

- Legal regulations for vehicles with trailers in commercial traffic must be followed.
- a valid license for vehicles with trailer is necessary (with the exception of German "Klasse 3")
- The maximum speed of 80 kph must not be

exceeded for safety reasons.

- Legal provisions for working periods and bans on driving must be followed. Use odometers or at least daily control charts.
- The trailer must be fitted with additional lights to mark the width of the cargo's overhang.
- If necessary, the towing vehicle should be fitted with additional side mirrors in order to look past the cargo.
- Reverse only with positioning assistance from a second person.

### Driving behaviour

Journeys with a *modulbox* rig should be undertaken with great care and concentration. Watch the movements of the trailer carefully.

The maximum width of the rig is 2.5 m, which far exceeds the width of a standard towing vehicle. This is especially important in city traffic.

The loaded trailer has a height of approx. 3.5 m; passage heights should be noted accordingly. Because of the height, weight and width of the trailer, the rig is susceptible to wind. This is especially important when crossing bridges and in strong winds.



For safety reasons, the permissible maximum speed of 80 kph must not be exceeded. Lane grooves should be avoided because of the danger of the trailer skidding. In such an *emergency*, tilting can be prevented only by well-directed braking.

### **Overrun brake of the trailer**

The trailer is fitted with an overrun brake. This has various effects:

The towing vehicle's ABS does not affect the trailer; in case of a full brake application, the trailer may block and possibly pull. This is especially important to remember on wet and slippery roads. If road conditions are slippery, the journey may have to be delayed.

When reversing, the towing car must push against the overrun brake. This leads to greater wear of the coupling. Edges like curbs should not be crossed in reverse.

### **Generators**

The lifting devices need a `clean` signal which is generated by new and well maintained devices. We **recommend to use 2x Honda 2.0 EUi**

### **connected via parallel cable.**

The lifting devices need start capacity of ap. 3600W.



## D. Assembly Instructions

### D.1 Removal of transport and protective covers (special fittings)

Partially open the zips on the sides.

Use the ladder to climb onto the roof.

Be careful to rest the top part of the ladder on the aluminium parts and not on the plastic parts.

#### (D1.2)

Open the zips fully. (D1.3)

From the roof, pull up the side flaps individually and lay them together on the middle of the roof.

#### (D1.4)

**Note:** Only one person at any one time should be on the roof.

### Levelling the **modulbox**

Before you begin to open the individual elements of the **modulbox** ensure that it is horizontal using a spirit level. Use the four adjustable feet at the corners of the frame. The threads on these feet ensure that the feet cannot be screwed out of the frame.



**D1.2**



**D1.3**



**D1.4**

### **Special driving instructions for towing the modulbox trailer**

- The trailer is fitted with an overrun brake, so:
  - > do not reverse uphill;
  - > as far as possible, do not slip the clutch of the towing vehicle;
  - > do not reverse into the kerb or over the kerbstones onto the pavement; and
  - > when towing over kerbstones or similar, try to improvise a ramp or reduce the height of the kerb using wedges or planks.
- Warning: Extreme manoeuvring can lead to heavy tyre loads.
- Warning: When decoupling, make sure the trailer cannot “snap back”, which could lead to

injuries or damage. This “snapping back” can occur if the trailer tyres are left under tension after manoeuvring.

- If the trailer starts to lurch about when driving, there is only ONE solution: brake.
- Avoid driving in a storm, or drive very slowly.
- Do not drive on icy roads.
- Please regularly check that tyres are not damaged and have sufficient tyre tread.
- Please always check the tyre pressure (details are on the tyres).
- Make sure that the load carried in the modulbox is loaded evenly (in particular, distribute weight evenly between left and right).



## D.2 Folding out the roof elements

Before opening the roof elements, ensure that no persons or objects are present within the opening area of the roof.

Release the transport fasteners **(D2.1)**

Pull the roof flap forwards using both hands.

**(D2.2)**

Be careful pulling the flap upwards: it opens up very quickly. Control the speed of the flap opening using both hands. **(D2.3)**

During opening hold the roof by the handle and not by the corners.

The roof flaps have a gas spring system that opens them in an automatic and controlled way.

It may be necessary to assist the final stages of opening by pushing up with the hook. **(D2.4)**

**Note:** The roof flaps open very quickly: stand clear of the opening area.

The bi-directional clamps have to be set properly at all times. They prevent a strong wind pulling up the door flap and ripping out the gas springs. They also prevent the door closing unintentionally, relieving pressure on the gas springs.

## D.3 Securing the roof elements

Push the roof elements up into their end position.

**(D2.4)**

Remove the U-form rod from the velcro fasteners.

**(D3.1)**

Bring the rod across.

Use the securing pin to fasten the rod to the body.

**(D3.4)**

**Note:** The rods serve to secure the roof elements when the **modulbox** is in use outside: they absorb wind loads. See Warning section.

For interior use it is not necessary to secure with these rods.





D2.1



D2.2



D2.3



D2.4



D3.1



D3.2



D3.3



D3.4

## D.4 Folding down the platforms

Before opening the platform elements, ensure that no persons or objects are present within the opening area of the floor platform.

Carefully pull the platform forwards. **(D4.2)**

Hold the platform elements and carefully let them down. **(D4.7)**

The adjustable feet on the right and left sides snap out automatically. Nevertheless, check that these are fully snapped out into their locked position.

**(D4.4)**

The height of these feet can be adjusted to match ground conditions by screwing them in or out.

**Note:** If necessary a firm base for the feet should be provided (metal or stone plates).

**Warning:** Check that the securing rings on the fixing bolts of the gas springs are firmly attached. These prevent the gas springs slipping away from the bolts. Never unscrew the gas springs.

## D.5 Opening the doors

Each door is fitted with an externally accessible cylinder lock.

Position the door at 90 degrees and connect it to the platform frame using the guide bolt built into the door frame. Never open the doors more than 90 degrees since this would damage the gas springs of the platform.

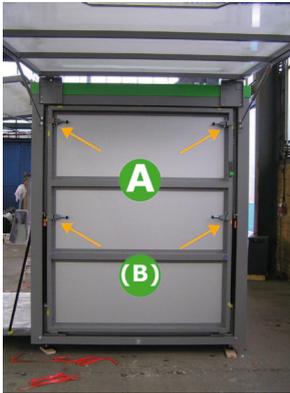
Opening the door. **(D5.1)**

Open the door slowly making sure that there is enough free space between the lower side of the door and the floor platform. **(D5.3)**

The door snaps into place when it is fully open. A quiet click can be heard. **(D5.2)**

The door should be secured to the platform frame using the clamp form provided. **(D5.4-7)**

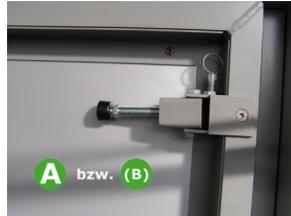
**Note:** Secure the door without delay. Otherwise it will swing around even in light winds.



D4.1



D4.2



D4.3



D4.4



D4.5



D4.6



D4.7

## **D.6 Interior space / Opening the floor platform**

The floor in the interior space comprises three individual plates. These lie freely within the structure and are easy to remove. Under the floor plates there are the electrical connections and distributor cabinet with the fuses and Residual Current protective Device (RCD). Depending upon the chosen fittings, the castors and other built-in components can also be accessed here (sound system etc.).

The suspended ceiling can be demounted in some versions. Please see the technical drawings.

## **D.7 Electrical connections**

**Special fit out for taylor INC:  
the lifting devices are operated at 230V, they consume during operations ca. 13 Amps and ca. 2800Watts.**

**Operated on 110V the need to be supplied with ca. 26 Amps**

**We will provide a 5000Watt transformer to convert 110V into 230V.**

**We will also provide a gas driven generator supplying 230V and 3000Watts to be operational in any case.**

**The modulboxes come with 1 power plug for internal electric consumers ( LED...).**

**Wires :**

**yellow / green for ground**

**blue for neutral conductor**

**brown/black for phase**

**need to be attached to canadian plug in Toronto.**

**A second power plug with german plug is for operation of engines/ lifting devices only**

## **in floor space**

The electrical unit of the **modulbox** should be connected to a three-prong earthed plug socket for its incoming power supply.

The plug is accessible from the exterior:

On the base frame there is a green sticker which indicates the position of the plug behind it.

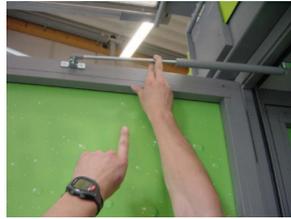
From outside reach behind the frame to grasp the plug and pull it towards you. The plug is fitted with c. 0.5m cable **(D7.1)**.

Switch on the power.





D5.1



D5.2



D5.3



D5.4



D5.5



D5.6



D5.7

The maximum rated current of the socket's fuse should not exceed 16A. Since the plug-and-socket connector is not reverse polarity protected, there is no guarantee that terminal clamps and conductors marked or labelled with "N" have the electric potential of the neutral conductor.

The electrical system of the **modulbox** should be checked for mechanical damage before every use or installation. In particular, the flex of the connections needs to be checked for physical damage and the contacts should be cleaned of any accumulated dirt. The correct functioning of the RCD has to be checked by using the check button. Check the ceiling lighting. If LED components need to be changed, the power should be disconnected beforehand.

The RCD and the fuses for the lighting and power supply circuits are to be found under the floor in the grey junction box.

Electro module *basic*

- junction box with RCD
- floor sockets
- connection for standard back-lit ceiling

## **D.8 Floor chamber (special fittings)**

Multimedia equipment can also be mounted within the roof structure.

## **D.9 Back-lit ceiling / Electricity**

The back-lit ceiling is equipped with LEDs.

### **Demounting the cover of the back-lit ceiling**

To demount the back-lit ceiling it is first necessary to demount the suspended ceiling (see D.10). Then undo the bolts at the side. The cover has a special light-dispersing coating, so it is necessary to observe the following precautions:

- protect the special coating against any form of physical damage (it is very delicate)
- only undertake (de-)mounting procedure with two persons
- wear clean gloves in order to avoid leaving handprints on the white outer skin





D7.1



D7.2



D7.3



D7.4



D8.1



D8.2



D8.3



D8.4

## D.10 Suspended ceiling

The suspended ceiling can be demounted. This may be necessary, for example, to access the controls for the back-lit ceiling, which are to be found behind it.

The control unit is to be found behind the panel with the green dot.

This element can be folded down and demounted by carefully pulling down the side marked by the dot. **(D10.1-7)**





**order for demounting  
the ceiling panels**

**order for demounting  
the ceiling panels**



## E. De-installation

### E.1 Closing the doors

Release clamps and screw onto the position provided under the platform. **(E1.1-2)**  
Close the door. As you do this the lock will fall into place.  
Lock up.

### E.2 Folding up the platforms

Grasp underneath the platforms and push them up. **(E2.1)**  
Fold in the adjustable feet so that they do not collide with the folding roof parts. **(E3.1)**  
The platform parts remain upright when they are folded in.  
Later they will be held in place by the roof flaps. **(E6.2)**

**Note:** The platforms need to be pushed upwards strongly!

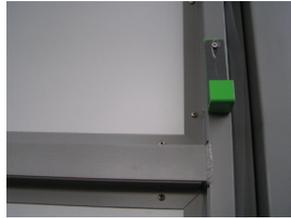
### E.3 Closing the roof elements

Release the securing pins from the roof flaps and put them back in their holder. **(E3.3-4)**  
Put the U-form rods back in the velcro holders. Grip the roof flaps, push them a little towards the frame and then push down. The clamps need to be secured with securing pins.

**Note:** The roof flaps need to be pushed down firmly.  
Attention: the flap may spring rapidly back up!



E1.1



E1.2



E1.3



E2.1



E3.1



E3.2



E3.3



E3.4

#### **E.4 Letting down the transport and protective covers**

Stand on the roof and let down the covers. **(E4.1)**  
Still on the roof, begin to pull down the zip fasteners.

Standing on the ground, the zips can be closed fully.

Fold the excess lengths of the covers under the **modulbox**.

#### **E.5 Power supply**

Disconnect the power supply **(E5.1)** and pack it away so that it is protected from the elements.

#### **E.6 Rubber spacers**

During the de-installation check that the rubber spacers are still present. These prevent movable components banging against each other and are located:

1. between the foldable roof and platform **(E6.2)**
2. between the platform and the door **(E6.1)**





E4.1



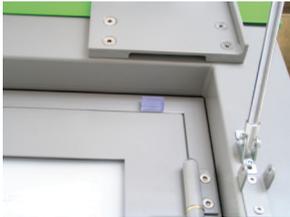
E4.2



E5.1



E5.2



E6.1



E6.2



E6.3

## F. Care and Maintenance

### F.1 Flooring

Regular cleaning

**Manual:** Good cleaning results can be obtained using a 2-step wiping (2-mop system plus bucket) or with a special 1-step procedure such as the Vileda SWEP-system using a suitable ph-neutral cleaner.

**Machine cleaning:** Automated cleaning is suitable for large areas and not for covered areas. Red pads or soft brushes and low-foam cleaner should be used according to the instructions from the manufacturer of the cleaner.

#### Intensive periodic cleaning

When dirt has accumulated to an extent that it is not removed by the regular cleaning, an intensive cleaning should be carried out using a disc-based cleaning machine with a red pad.

Choose an appropriate cleaning fluid according to the amount and type of dirt present. Where necessary seek out recommendations and instructions as to the choice of cleaners from the manufacturers.

A list of recommended cleaning agents is included in the appendix.

Please note that repeated intensive cleaning with special cleaning agents leads to saponification of the floor, in turn leading to the floor becoming more slippery under wet conditions.

### F.2 Steel frame and plexiglass panes

Normal dirt can be removed from the powdered metal components and plexiglass panes using cleaning alcohol.

**Never** use **solvent-based** cleaning agents on these surfaces.

### F.3 Lubrication of moving components

Grease the hinge elements of the platforms and roof flaps each time the elements are taken apart or put back together again.

#### Careful handling / Avoiding damage

The renter is obliged to handle the **modulbox** in a careful way and not to use it in any other way than expressly instructed by the proprietor. As far as is reasonably possible the renter is also responsible for ensuring that no damage occurs to the **modulbox**.



### **Surveillance / Damage follow-up**

The renter is obliged to ensure an uninterrupted surveillance of the **modulbox** during the rental period. Should an incident arise where the **modulbox** is damaged, the renter is obliged to undertake everything possible to minimise the damage, to document the incident and identify the perpetrator(s), as well as to report the incident and damage to the police where appropriate. In cases of vandalism the renter is obliged to **report the incident to the police.**



## G. Warnings

### Wind

The **modulbox** can be used without restriction in winds up to wind force 6 (wind velocities of up to 49 km/h).

Between wind forces 6 and 8 (wind velocities of 50-75 km/h) it is only permitted to open one side of the **modulbox**.

At wind forces 9 and 10 (wind velocity 76-100 km/h) the **modulbox** has to be closed down as for transport.

At higher wind speeds the user is obliged to take any appropriate measure to prevent loss of the **modulbox**.

The permitted states of opening are listed in the table "Wind velocities".

### Snow

Snow on the main roof has been allowed for up to 75 kg/m<sup>2</sup>.

If no-one will tread on the main roof during the snowy conditions, snow loads of up to 175 kg/m<sup>2</sup> can be tolerated. This corresponds to snow load zone I at all heights, SLZ II up to 700m, SLZ III up to 600m, SLZ IV up to 400m (all heights above mean sea level).

Snow or other loads should not be allowed to accumulate on the folding roof flaps.

Only **one** person at any one time can be on the roof.

### Fall protection

During all works on the main roof of the modulbox (2,50m above ground) the operator has to protect himself by attaching his harness to the anti fall protection system.

The operator has to be attached before entering the roof. Do not trip over anti fall protection system while working on the roof.





m o d u l b o x

## Warning

### lightning

No people are allowed inside or around the modulbox in the case of lightning. **The modulbox is no safe place!**

Protection can be improved when a grounding cable is connected to the modulbox frame, see pictures below.

This installation should only be executed by a proven and certified electric.



<b>live loads in kg/m<sup>2</sup></b>				
	weight-bearing accessible platform	platform	main roof	foldable roof
live load	500	500	75	-

permitted opening szenarios dependent upon wind velocities	wind force (BF)	door 1				foldable roof	platform
		door 1	door 2	door 3	door 4	foldable roof 1-4	platform 1-4
wind velocities ( km/h)							
Bis 49	0-6	opened	opened	opened	opened	opened	opened
50-75	7-8	opened	closed	closed	closed	opened	opened
76-100	8-10	closed	closed	closed	closed	closed	closed

## **Gas springs**

(Gas tension springs on the platform, gas compression springs on the roof flaps, door openers)

**Gas springs are filled with highly pressurised nitrogen.**

**Under no circumstances should they be opened or damaged!**

Even light damage, corrosion or paint residues on the piston rod can cause the spring to malfunction (it damages the seals). The cylinder tube must not be damaged or deformed! All changes to the product made by third parties shall invalidate the warranty.

It is not permitted ...

... to deform, weld, saw, mill, drill or paint the gas springs (or any similar process).

... to bend the gas cylinder or the piston rods or both.

... to bend or twist the piston rods against the cylinder.

... to heat the gas springs above 100°C or to burn them.

... to fix the gas springs to anything other than the predetermined fixtures. All fixtures must be secured against sideways movement and against twisting.

... to use the gas springs as a limit stop (exceptions only as listed in our "Technical Regulations" [Technischen Vorschrift] on page 06.015.00).

... to load fully extended gas springs in the tension direction and fully retracted gas springs in the compression direction.

... to expose compression gas springs to tension loads or tension gas springs to compression loads.

... to throw or drop gas springs or to use them for purposes of hitting, knocking or beating etc.

... to place or leave gas springs within reach of children or other persons not capable of understanding these instructions.



## Service life

- Gas springs have to be protected against any form of damage during transport and storage. See all the above instructions.
- Observe the following temperature limits for storage (minus 40°C to plus 90°C) and operation (minus 20°C to plus 80°C).
- Store gas springs with the piston rod down.
- Do not allow the piston rod to be damaged (e.g. by scratches or weld scatter) or to come into contact with paint, dirt, acids, glue or other damaging or corrosive materials.



## H. Warranty Conditions

Liability of proprietor

The proprietor offers no guarantee nor liability that the contractual object in its normal condition is suitable for the purpose intended by the renter.

Neither the proprietor nor his performing nor vicarious agents are liable for any damages whatsoever and especially not for any violations of accessory obligations, any lack of economic success, any loss of profit, any collateral damages nor any consequential damages unless it can be shown that these are the result of gross negligence or malicious intent.

**The proprietor is only liable in cases of ordinary negligence if there are also significant breaches of contractual obligations. In this case the liability is however limited to the scope of the predictable, contractually typical damages. The abovementioned liability limitations do not apply in the cases of damage to body, life or health. They do not affect the statutory liability under the Product Liability Act.**





H1.1



H1.2

## I. Specification

operating temp.: -10 - +40 degrees Celsius

### Total: P <= 3,68kVA (230Vac/16A)

electric power supply ( complete system / modulbox ) :230V 50Hz, fuse protection 16A

### F1.1 (10A): lifting engines: P<= 2kVA

>power input lifting engines : 2000W (circuit 1.1 à max 10 Amp)

( additional info: when starting the engines the power input is up to 3600W in peaks, due to lad smearing of fuses this power input can still be supplied)

### F1.2 (10A): power plugs and lights : P <= 2,3kVA

-power plugs (excluding extra equipment ) : P <= 1,8kW (2,1kW (HC2))

>max power drain of external users (i.e. laptop, display, fridge ... ) : max 1800W ( MAX) / 2100W(HC2) ( circuit 1.2 à Max 10 Amp)

- light ceiling: P = 540W (270W (HC2))

-LED roof cube 2.0 ( extra equipment ) : P = 120W (75W (HC2))

-LED canopies ( extra equipment ) per 1,8m strip : P = 30W

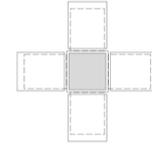
#### specification of elements

element	construction	filling	fire-resistance rating (DIN 4102, Germany)
frame	steel, powder coated		A
ceiling		span ceiling (foil)	B1
floor		Alucore	B1
		natural rubber, Kautschuk	B1
roof	aluminium, powder coated		A
platform	aluminium, powder coated	Alucore	B1
		natural rubber, Kautschuk	B1
foldable roof	aluminium, powder coated	Airboard	B1
door	steel, powder coated	Plexiglas	burns almost without smoke in line with DIN 4102
on request		Makrolon	B1



# modulbox

## specifications



### modulbox, 4 sides to be opened

technical data / dimensions / wheights / areas	length over all	width		height over all	height internal	gross weight	floor space	wall area
		[m]	[m]					
closed	2,48	2,48	2	2,85	2,30	1,6	6,2	22
opened	7,50	7,50	2	2,85	2,30	1,6	22	30

### equipment

component	quantity	specification
frame	1	steelframe, powdercoated, standard colour for rental units RAL 7037-grey, other colours upon request flooring: natural rubber- standard colour for rental units grey, other colours upon request and according to product range <i>noa plan</i> - suspended ceiling: perforated metal sheets, aluminium exterior roof: aluminium roof with integrated corner drain, exterior rain pipe
door	4	steel, hollow section profile system, powdercoated, standard colour for rental units RAL 7037-grey, other colours upon request infills: plexiglass milkwhite 4 mm
wall opaque	-	wallpanel, fixed, 16mm
wall translucent	-	aluminium frame, powdercoated, standard colour for rental units RAL 7037-grey, other colours upon request infills: plexiglass milkwhite 4 mm
platform	4	aluminium frame, powdercoated, standard colour for rental units RAL 7037-grey, other colours upon request flooring: natural rubber- standard colour for rental units grey, other colours upon request and according to product range <i>noa plan</i> - opening assisted by gas springs (tension!), colour black
foldable roof	4	aluminium frame, powdercoated, standard colour for rental units RAL 7037-grey, other colours upon request infills: acrylic glass multi-skin sheets clear, sandwich cons. of clear sheets and tubes, 16 mm opening assisted by gas springs (pressure), colour black

### special equipment

electro basic	-	230v power supply in waterresistant box (ip 64) , protect switch, back-lit-ceiling standard, white fluorescent tubes
electro comfort	-	230v power supply in waterresistant box (ip 64) , protect switch, back-lit-ceiling „zumtobel active light“, red green, blue, white fluorescent tubes
mobility package	-	lifting mechanism via electric motor trailer, permissible max. weight 2.8t, twinaxis, including fixing elements cover for modulbox as a transport protection
surface upgrade02	-	platforminfills from translucent walkable sheets - clear stage
surface upgrade03	-	infills for door acrylic glass colour according to product range
graphic package 01	-	graphics (concept, assembly), letter-cut from adhesive film, 1 colour, 4 elements
graphic package 02	-	graphics (concept, assembly), fullsize (door/foldable roof) print, 4 elements
connection element	-	each with 2 wall frames, alucore floor

## J. Misc. / Contact

### Restrictions of use / Damage

Herewith the renter promises to immediately contact the proprietor in event of any damage or negative change to the condition of the **modulbox** (including any restriction of its functionality) by calling one of the following numbers:

**030 9210 557 50 Büro mo systeme**

The renter also promises to cease using the **modulbox** until the proprietor expressly allows a resumption of use.

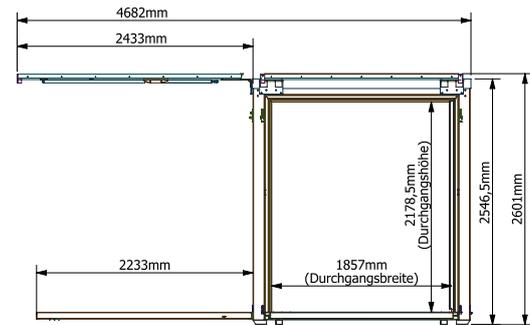
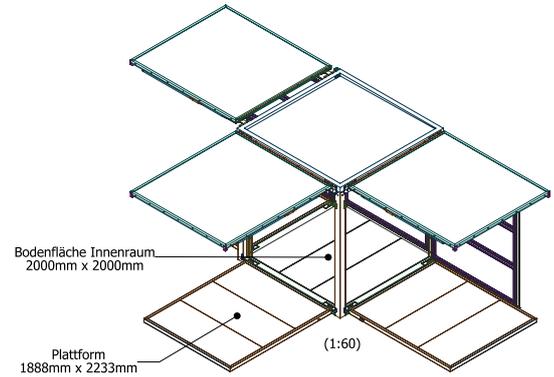
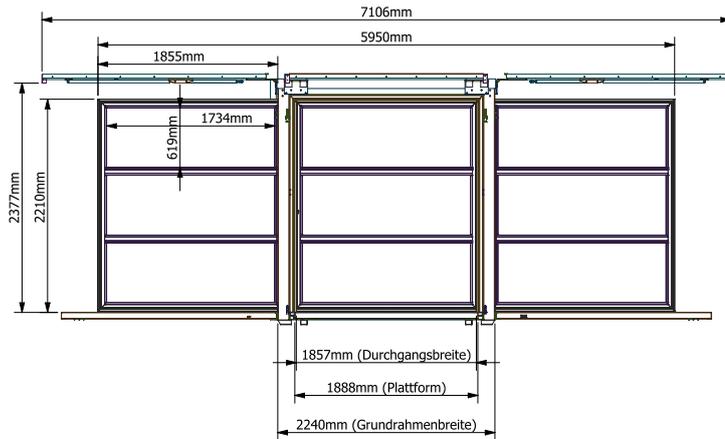
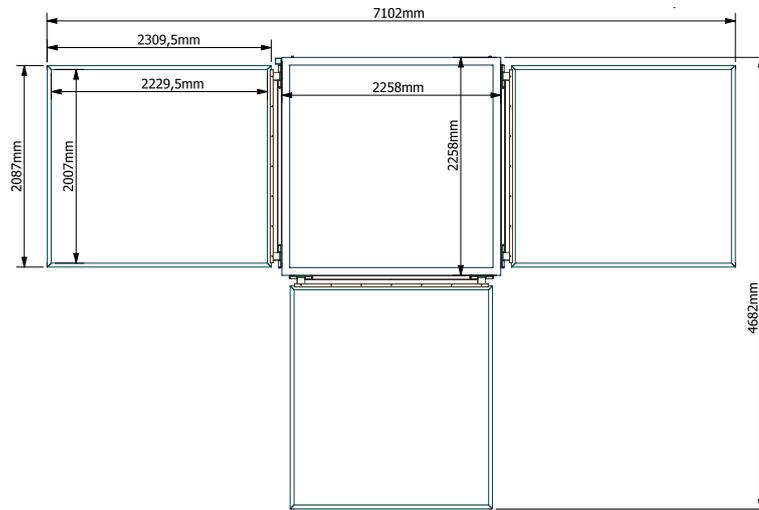
Should the renter continue to use the **modulbox** after an incident of damage or use restriction without express authorisation of the proprietor, the renter shall be liable for all damages arising from the unauthorised use insofar as damage to the **modulbox** or a restriction of its functionality can be demonstrated to be the cause or one of the causes for the further damages.

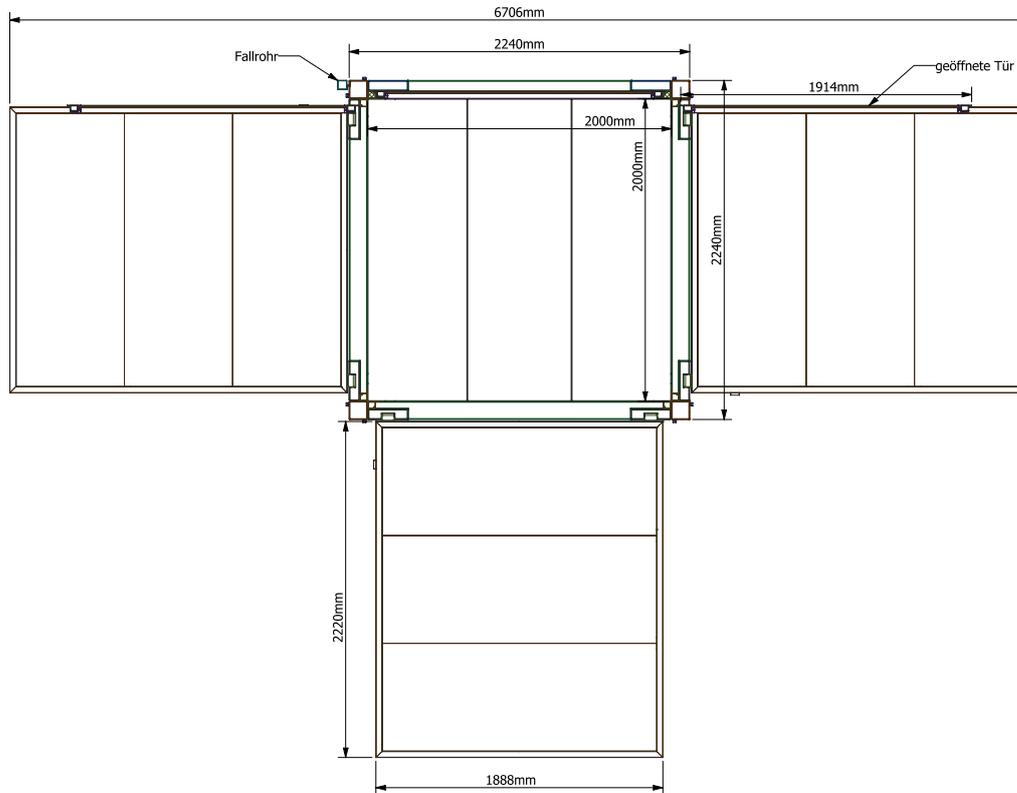
**Further agreements are to be found in the respective purchase or rental contract.**

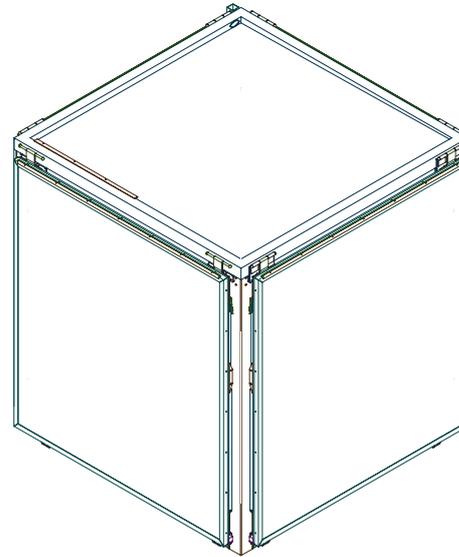
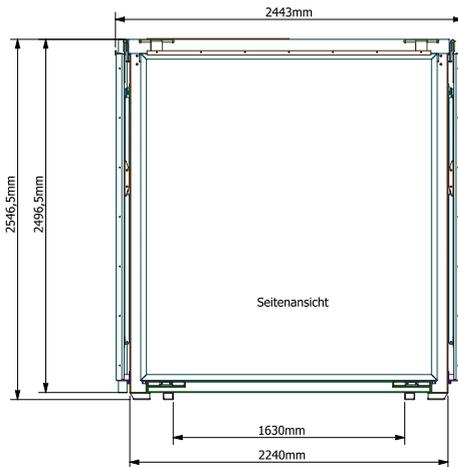
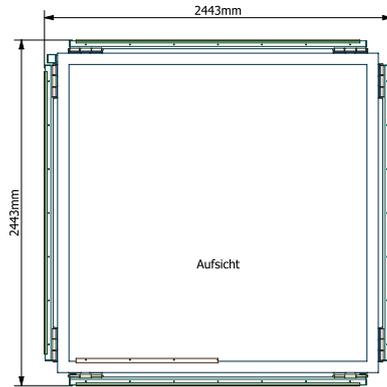


## K. plans

m o d u l b o x







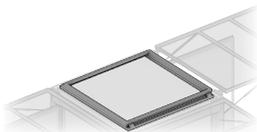


m o d u l b o x

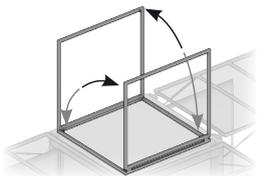


**DACHAUFSTELLER: ANWENDUNG 4-SEITIG**

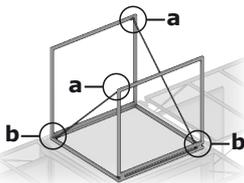
1 Rahmen auf-/zu- klappen.



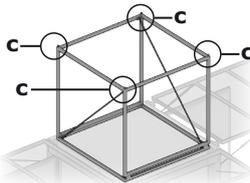
Aufbau →



2 Diagonalstrebe ab- montieren und Arretierungspin ein-/aus- stecken.



3 Horizontalstrebe ab- montieren und Arretierungspin ein-/aus- stecken.



4 Planen und Gummis an-/ab- hängen.

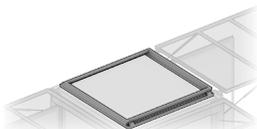


← Abbau

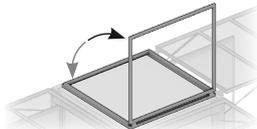
\* Hinweis: an den Seiten der Diagonalstreben im unteren Bereich zur Befestigung der Plane längere Gummis verwenden.

**DACHAUFSTELLER: ANWENDUNG 1-SEITIG**

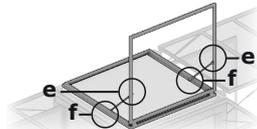
1 Rahmen auf-/zu- klappen.



Aufbau →



2 Diagonalstrebe ab- montieren und Arretierungsschrauben an-/aus- schrauben.



3 Planen und Gummis an-/ab- hängen.



← Abbau

**SICHERHEIT**

- ab Windstärke **Bft. 6** müssen die Planen abgenommen werden.
- die Gesamthöhe der modulbox im Transport vergrößert sich **20cm**.
- Planen sind zum Transport abzunehmen.

**BELEUCHTUNG**

- 1 bis 4 Seiten des Dachaufstellers sind optional beleuchtbar (LED).

**DETAILS ANSICHTE**





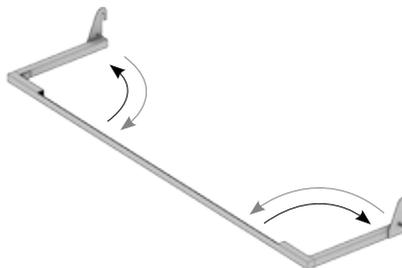
**BELEUCHTUNGS AUSLEGER: AUFBAU & ABBAU**

- 1** Beleuchtungsausleger im zugeklappten Zustand.

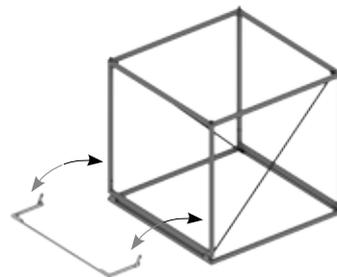


Aufbau →

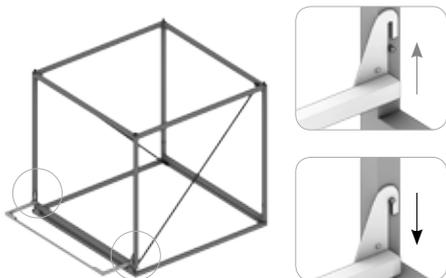
- 2** Arme des Beleuchtungsauslegers aus- / zu- klappen.



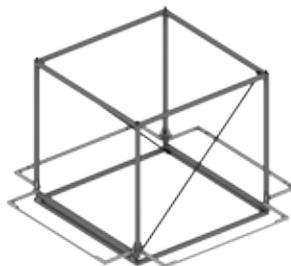
- 3** Beleuchtungsausleger an dem Dachkubusrahmen an-/ab- hängen.



- 4** Beleuchtungsauslegerarme an den Pins vom Dachkubus Rahmen an-/ab- hängen.



- 5** Der Befestigungsprozess gilt für alle Dachkubus Seiten.



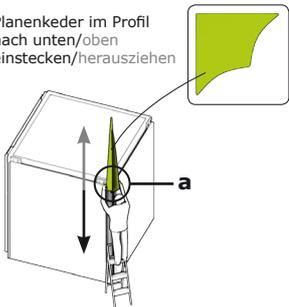
- 6** Nach / Vor der Beleuchtungsausleger Befestigung, Dachkubusplanen an-/ab- hängen.  
\* Nur die Rückseite muss anschliessend montiert werden.



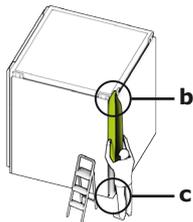


Aufbau

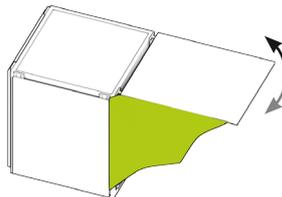
- 1** Planenkeder im Profil nach unten/oben einstecken/herausziehen



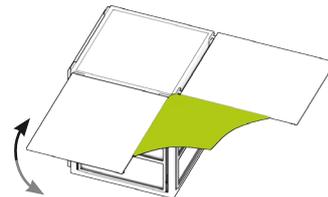
- 2** Arretierung an-/auf- knüpfen



- 3** erstes Klappdach auf- /zu- klappen



- 4** zweites Klappdach auf- /zu- klappen

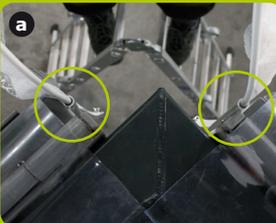


Abbau

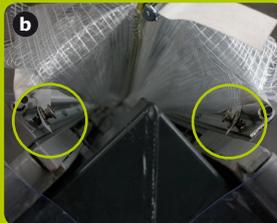
Planenkeder



Arretierung



**a** - Keder im Aluprofil eingeschoben (Aufsicht)



**b** - Arretierung in Dachbereich (Aufsicht)



**c** - Arretierung in Bodenbereich



- Bei Starkregen die Bildung von Wassersäcken kontrollieren + ggfs. den Wasser Ablauf unterstützen.
- Bei starkem Wind (>BF 6) ist die Ecküberdachung zu schliessen.



Aufbau

- 1** Druckstange Kopf mit dem Klappdach an-/ab- kuppeln



- 2** Druckstange Fuß aus-/ein- schrauben



- 3** Der Druckstange Fuß haftet am Boden durch Druck



- 4** Regenschutzplane auf- /ab- hängen

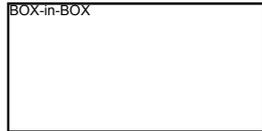


Abbau

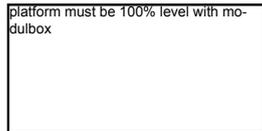




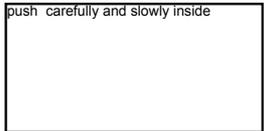
BOX-in-BOX



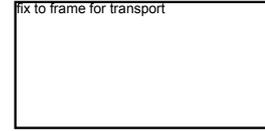
Plattform muss 100% horizontal zum modulbox Rahmen stehen.



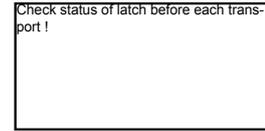
Hineinschieben



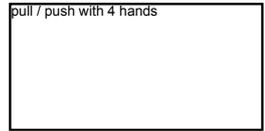
Befestigung am Rahmen zum Transport



Halterung prüfen vor jedem Transport prüfen !



zu zweit schieben / ziehen



Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system

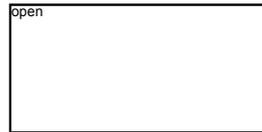


Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system

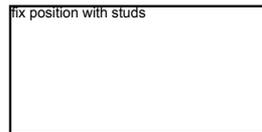




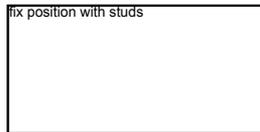
geöffnet



Steckbolzen einführen



Steckbolzen einführen



Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system

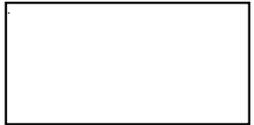


m o d u l b o x



Mittelfuss muss ausgeklappt sein und immer Bodenkontakt ( zur Unterlegplatte) haben !  
Täglich kontrollieren um Absacken zu erkennen und fehlende Unterstützung der Plattform vorzubeugen!

foot assist always to be opened - check regularly that foot has contact to floor plate to prevent ground sack !



Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system



Plattformen nicht überstrecken !

Never unfold platforms over 90 degrees !



Wenn überstreckt, sind diese Markierungen sichtbar > nicht belasten , sofort schliessen !



if you can see those marks > close immediately!



Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system



modulbox



Immer mit Transportplane fahren !

Drive with transport cover ONLY !



In Behausung auch ohne Plane.

If driven inside > no transport cover is okay !



Immer mit Transportplane fahren !

Drive with transport cover ONLY !

Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system



m o d u l b o x



Dachaufsteller 2.0  
mit Kedergrafik  
Nur mit PSA auf dem Dach arbeiten !

roofcube 2.0  
with tension graphics  
Put your harness on first and connect to  
fall protection !



ohne Kedergrafik zu besseren Darstel-  
lung des Auf/Abbaus

without tension graphics  
for better setup description



1. Spanngurte lösen

1. unmount straps holding top frame



1. Spanngurte lösen

1. unmount straps holding top frame



2. Ersten Rahmen aufklappen

2. unfold 1st frame



3. zweiten Rahmen öffnen

3. unfold 2nd frame

Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system



Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system





3. zweiten Rahmen öffnen

3. unfold 2nd frame



4. Querträger einhängen

4. mount cross beam



4. Querträger einhängen

4. mount cross beam



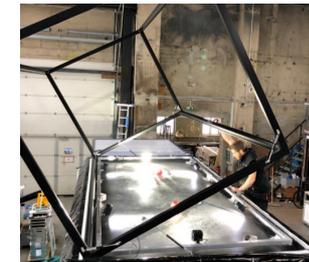
5. Stoffgrafik einkedern

5. set up tension fabric



4. Querträger einhängen

4. mount cross beam



6. Rahmen ankippen und aussteigen

6. cant frame to exit

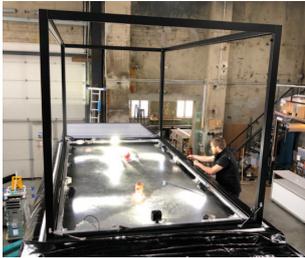
Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system



Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system

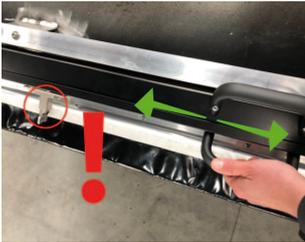
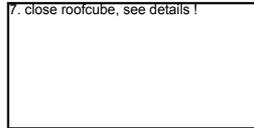


modulbox



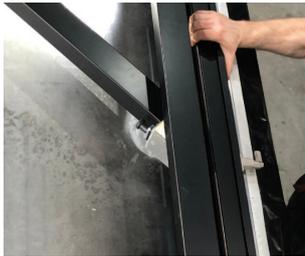
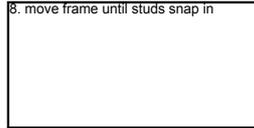
7. Rahmen schliessen, siehe Details!

7. close roofcube, see details !



8. u.U. etwas hin und her bewegen bis Bolzen einrasten

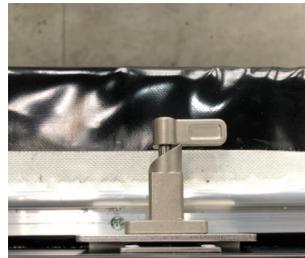
8. move frame until studs snap in



Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system



m o d u l b o x



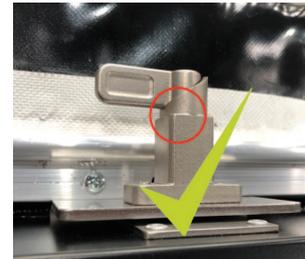
Verschluss geöffnet

latch open



NICHT eingerastet !

Not snapped in yet !



Korrekt !

correct!



Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system





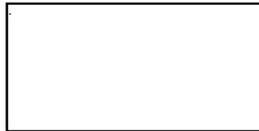
Querriegel noch nicht eingerastet !

crossbeam stud not snapped in correctly!



Korrekt

correct!



Lichtkegel kann manuell eingestellt werden .

adjust manually

Lichtsteuerung im Innenraum



on/off

ALLE Bolzen vor Fahrt kontrollieren ob eingerastet !



control ALL studs if snapped in correctly before transport!

Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system



Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system





Zum Transport Spanngurte für den oberen Rahmen nicht vergessen !

For transport strap down top frame !



Zum Transport Spanngurte für dQuerriegel nicht vergessen !

For transport strap for double safety !



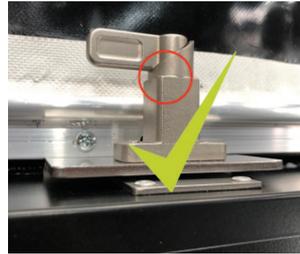
Zum Transport Spanngurte für den oberen Rahmen nicht vergessen !

For transport strap down top frame !



VOR jedem Transport prüfen u.U. etwas hin und her bewegen bis Bolzen einrasten

BEFORE each transport move frame until studs snap in



Korrekt

correct!



Dachaufsteller 2.0 mit Kedergrafik Nur mit PSA auf dem Dacharbeiten !

roofcube 2.0 with tension graphics Put your harness on first and connect to fall protection !

Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system



Ergänzung - Bedienungsanleitung modulbox system  
addition - manual modulbox system



m o d u l b o x



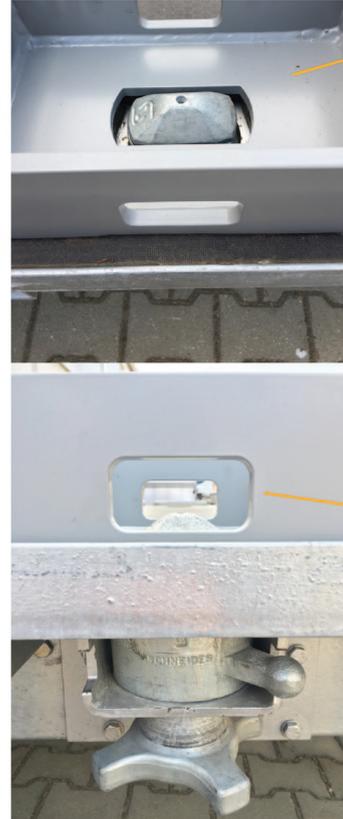
erhöhte Position  
des Dorns  
ermöglicht bessere  
Übersicht beim  
Aufsetzen der  
modulbox in die  
Verschlüsse unter  
der modulbox

high position of pin  
helps to find container lock  
under modulbox

Hebel für erhöhte Dornposition

crank position for pin  
high / low position

## 01 Beladung loading Startposition



modulbox wird über dem  
Dorn platziert und abgelassen

modulbox position above pin,  
modulbox to be driven until touch  
base of trailer

Sichtfenster von der Seite / Front  
typenabhängig

opening allows insight to see pin

## 02 Beladung loading modulbox über Trailer

m o d u l b o x



1.  
hochdrücken !  
push up !



2.  
90 Grad drehen, ablassen  
turn 90 degrees, let down



03  
Beladung  
loading  
**Dorn einführen**



Position Dorn vor dem Anziehen  
pin position before tightening



Kontrolle im Sichtfenster  
check through window



04  
Beladung  
loading  
**Dorn drehen**



Fest anziehen !  
to be tightened by hand !

durch das Anziehen kommt das  
Gegenstück noch oben und arretiert!  
by tightening the  
counter part lifts up and locks

05  
Beladung  
loading  
**Anziehen**



Position des Sperrbolzens `drehen`  
position lock bolt `turn`

Position des Sperrbolzens `gesperrt`  
position lock bolt `locked`

06  
Beladung  
loading  
**Drehrad  
sperren**



Startposition Hebel  
start position crank

lösen!  
unscrew by hand!

07  
Entladung  
unloading  
**Startposition**



Drehrad lösen, hoch drücken,  
90 Grad drehen  
unscrew, push up  
and turn 90 degrees

08  
Entladung  
unloading  
**Aufschrauben**



Dorn komplett absenken >  
Container lock ist frei vom Trailer,  
modulbox kann angehoben werden

pin drops down, releases trailer,  
modulbox can be driven up

09  
Entladung  
unloading  
**Dorn komplett  
absenken**

m o d u l b o x

m o d u l b o x



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Die **modulbox** ist patentrechtlich beim Deutschen Patent- und Markenamt eingetragen. Änderungen vorbehalten.  
Alle Angaben freibleibend und unverbindlich.

The modulbox is a patented design registered at German Patent and Trade Mark Office. Subjects to change without notice.

m o d u l b o x

mo systeme GmbH & Co.KG